

**ҚОРАҚАЛПОҒИСТОНДА
ФАН ВА ТАЪЛИМ**

**ҚАРАҚАЛПАҚСТАНДА
ИЛИМ ҲӘМ ТӘЛИМ**

**НАУКА И ОБРАЗОВАНИЕ
В КАРАКАЛПАКСТАНЕ**

**SCIENCE AND EDUCATION
IN KARAKALPAKSTAN**

2/2-сон
Нукус
2024 й.
ISSN 2181-9203



Science Magazine chief

editor:

Reymov A.M.

Deputy editor in chief:

B.Utemuratov

Executive secretary:

Sh.N.Abdinazimov

Editorial board:

Ayimbetov N.K. Dr of Economic Sciences
academician
Turdimambetov I.R. Doctor of Geography
Ataniyazova O.A. Dr of Medical sciences
Aleuov W. Doctor of Pedagogy
Ubaydullaev Kh. Dr of Economic Sciences
Umarova Q.U. Doctor of Law
Berdimuratova A.K. Doctor of Philosophy
Abdullaeva J.A. Dr of Hist. Sciences
Ayimbetov M.J. PhD in Technical Sciences
Auezov O. Doctor of Tech. Sciences
Baimanov K.I. Dr of Technical Sciences
Bokieva G. Doctor of Philology
Imomov N.F. Doctor of Law
Jarimbetov K.H. Doctor of Philology
Juginisov T.I. Dr of Biol. Sciences
Ismayilov K.A. Dr of Phys-math sciences
Kayypbergenov B.T. Dr of Tech. Sciences
Kayypbergenov A.T. Dr of Tech. Sciences
Kurbanbaev K. Doctor of Philology
Kudaybergenov K.K. Dr of Phys-math sciences
Kushiev H. Dr of Biol. Sciences
Mambetnazarov B.S. Dr of Agr. Sciences
Mambetullayeva S.M. Dr of Biol. Sciences
Murtazayeva A.D. Dr of Hist. Sciences
Muslimov N. Doctor of Pedagogy
Nizammatdinov K.K. PhD in Law sciences
Nishonova Z.T. Dr of Psychology sciences
Nurimbetov B.Ch. PhD in Chem. sciences
Oripova M.H. Dr of Tech. Sciences
Rakhmonov I.U. Dr of Tech. Sciences
Razhapov A. Dr of Tech. Sciences Sadullaev
A. Dr of Phys-math sciences, acad
Tagaev M.B. Dr of Phys-math sciences
Toreniyazov E.Sh. Dr of Agr. Sciences
Topildiev B.R. Doctor of Law
Utebayev T.T. Doctor of Pedagogy
Holbaev I. Dr of Phys-math sciences
Hursanov R.X. Doctor of Law
Duyisenbaev O.I. PhD in Philology
Kurbanbaev T.K. PhD in Phys-math sciences
Egamberdiev F. Dr of Economic Sciences
Yuldashev J.I. Doctor of PhD of Law
Kalekeev K.J. PhD in Philology
Karlibaeva G.E. Doctor of Philology
Tleumuratov G. PhD in Philology
Kubeysinova D.T. PhD in Philology
Ismaylov B.A. PhD in Economic sciences
Kurbanbaev Dj. A. PhD in Pedagogy
Seytjanov J.E. PhD in Philology

Editorial office address:

1 Ch. Abdirov Str., Nukus 230100,
Karakalpakstan, Uzbekistan
Phone: 223-60-19

Authors are responsible for the accuracy of the
information given in articles.

NATURAL SCIENCES

Zikrillayev N.F., Iliev Kh.M., Ismailov K.A., Xudonazarov Z.B. Electrophysical properties of Silicon doped with Manganese atoms by Electrodiffusion.....	4
Xoliqov M.I., Yetlibayeva L.A., Turlibekov O.A., Xalmuratova Z.T., Matchanov A.D. Syntheses of menthol acetyl formic ester.....	9
Baymatov P.J., Tokhirjonov M.S., Yunusov O.M., Saydaliyev A.A., Sobirov D.S., Khalmatov A.I. Numerical calculation of the probability of electron transition in two-barrier heterostructures.....	14
Sultansuynov A.S. Characteristics of somatic development of athletes and students who do not play sports.....	20
Nurimbetov B.T. About some methods of geometric modeling of 2D/3D objects of complex fractal structure.....	23
Sultansuynov A.S. Comparative analysis of body constitution indicators of boys who do not play sports and sports.....	30
Oteev T.P., Sharibaev M.B. Particle motion around a rotating black hole in quintessence.....	33
Omanov B.Sh., Khatamova M.S., Suyerkulova Z.A., Bahronova M.Sh. Chromatographic analysis of starting and derived products for acetone synthesis.....	39
Oteev T.P., Sharibaev M.B. Particle energetics around a rotating black hole in quintessence.....	45
Baltabaeva R.B. Nonlinear effects in salt transfer problems.....	51
Ismailov O., Temirova X.F. Research of a Mathematical model to determinedental caries.....	55
Jabbarov Z.A., Reymova F.N. Types and Levels of Chemical soil pollution.....	62
Aytmuratov B.Sh., Nurimov P.B., Yesbergenov H.S. Analysis of X-RAY images using artificial intelligence algorithms for Medical diagnostics.....	64
Otarova J.A., Shamuratov D.S. Solving fractional order differential equations using integral Transformations.....	67

TECHNICAL SCIENCES

Orazbayeva A.A., Zakirov B.S., Kucharov B.H., Kim R.N., Erkayeva U., Dzhumanova Z.K. A study of the activity and toxicity of new seed treatment products.....	75
Kaipbergenova G.R., Xolmurotov J.B., Joldasov A.A. Preparation of inhibitors of mineral salt deposition on the basis of polydentate compounds.....	80
Uteuliev N.U., Djaykov G.M., Pirimbetov A.O. Numerical method for restoring the internal structure of an object from integral data in a family of broken lines and its regularization.....	83
Madiyarova R.R. Using construction drawings in autocad program.....	89
Usanbaev N.Kh., Namazov Sh.S., Khamrokulov Zh.B. Features of oxidation of plant residue with hydrogen peroxide in the presence of sulfuric acid.....	92
Yakubov Sh.Sh., Adilova M.Sh., Obidjonov D.O., Kucharov B.Kh., Zakirov B.S. Study of the mutual influence of 2-chloroethylphosphonic acid and fertilizer components in the water system.....	98
Lazarev A.P., Khujamatov H.E., Reypnazarov E.N., Jolimbetova E.D., Keunimjaeva A.K. Analysis of broadcasting protocols in v2v interaction.....	101
Serjanova D.S., Karimova A.O., Umirzakov E.U. Calculation of radio transmitter on transistor KT909A.....	111
Babajanova T.M., Serjanov K.M., Sag'idullaeva M.A. Modeling and research of the operation of cognitive radio networks.....	116
Serjanov K.M., Serjanova D.S., Umirzakov E.U., Madreimov M.P. Disadvantages of application of data transmission via 433 Mhz amplitude modulation line in industrial conditions.....	122
Sadikova A., Kabulova L. Sorel cement and the technology of production of covering materials using the sands of the Aral Sea deserts.....	127
Tulaganova F.K. Effective architecture of anemia disease detection.....	131
Isaev R.I., Tursimuratov S.S. Statistical analysis of reliability indicators of fiber optical transport communication network.....	137

SOCIAL SCIENCES

Beginkulov Z.A. Important aspects of teaching in schools of "Usul-I Jadid".....	142
Muradova D.K. Teaching methodology of the topic catalyze.....	145
Uzoqov D.S. To appearing of Uighur musical theater in Central Asia.....	152
Bayjanov S.Kh. Cluster approach - the factor of economic growth.....	155
Jollybekova I.B. Science in the Republic of Karakalpakstan in indepenence day.....	158
Idrisov I.R., Sulaymanov S.A. Chilpyk is the sacred place of the Zoroastrianism.....	161
Saparov Z.S. Folk batyrs as a historical figure and batyrship as a social institution.....	163
Jolibekova I. International cultural relations of the Republic of Karakalpakstan.....	167
Begniyazova Q.A. The concept of hypermedia in journalism.....	170
Rajabov H.J. An artist in the attention of the people.....	177
Utegenova S.T. Auditing in Turkish and Uzbek joint stock companies.....	180
Jenisbaev B.J. Development of recreational tourism in Uzbekistan.....	185
Dauletbaeva D.D. The essence of travel journalism and its functions.....	188
Madreymov B.J. Cultural-periodic description of paleolithic workshops in northern and central Uzbekistan.....	191
Abdimuratov A. Features of the composition and style of the writer's publicism.....	194

Arzuova Sh.A., Joldasova A.K. The impact of the digital economy on enterprises in Uzbekistan: trends and challenges.....	199
Toshpo'latov D.N. Philosophical analysis of problems in the activity of deviant behavior owners.....	202
Osipanova F. B. Optimisation of transaction costs in agriculture of the Republic of Karakalpakstan through clustering of agrarian sphere.....	205
Jaksimova U.J. Directions for the development of professional competence in teaching Karakalpak literature.....	209
Sarsenbayeva A. The issue of youth policy in Uzbekistan (in the context of legal guarantees)	213
Ilauatdinov R. Development of archeology in Karakalpakstan during the years of Independence.....	217
Idrisov I.R., Sulaymanov S.A. The role of museums in the development of Karakalpak tourism.....	221
Turdimambetov I.R., Urzimbetova Yu.Kh. Creation of criminality mapping based on geographic information system.....	225
Jumabaev A.Y., Muratbaeva A.A. History of the development of the symphony orchestra.....	228
Ubaydullayev L.J. Elements of life philosophy and ethnoculture in artist Ziyodulla Farmonov.....	231
Yusupova G.Z. Theoretical and empirical bases of formation of students' creative activity	234
Arzuova Sh.A., Tursunbaeva N.Sh. The impact of digital technologies on the economy of Uzbekistan.....	237
Kutekeeva R., Aliev N. Modern development of national color in the creation of Karakalpak composer Dariko Dzhanaeva.....	240
Arzuova Sh.A., Jalgasbaeva K.Kh. Digital economy: definition, trends and impact.....	244
Zaripbaev U.O. The role of the prosecution offices in the system of state offices and its theoretical aspects.....	247
Kudaybergenova T. Legal education reforms are a guarantee of increasing the effectiveness of legal education.....	254
Bekbergenova G.D. Factors of the development of the national spirit of the youth.....	259
Arzuova Sh.A., Ismoilova M.N. Economy of Uzbekistan: current trends and prospects.....	263
Gulimova B.O. Blogging: blog, blogosphere, evolution of blogger terms, history of emergence.....	266
Rajabov H.J. Olimjon Halimov's contribution to the development of Karakalpak music culture.....	269
Axmedov A.T., Urzimbetov Yu.Kh. Improvement of organizational and legal mechanisms for the use of incentive methods in public administration (using the example of internal affairs bodies).....	272
Bekbulatova G.A. Cartographic and geodetic studies of the territory of Karakalpakstan during the colonial period.....	276
Adilova G.A. Non-derivative and derivative ethnographisms in the vocabulary of Kazakhs living in Karakalpakstan.....	281
Gulyamova N.A. Options to improving the Creative abilities of Primary school educators.....	286
HUMANITIES SCIENCES	
Yuldashev J. Problems of considering conflicts of interest in corporate governance.....	292
Toreshov D.B. Formation of graphic competence among students.....	297
Bainiyazov D. New pedagogical technologies in teaching English language.....	300
Doshanova G. The ideological and aesthetic essence of Sirojiddin Sayid's poems.....	303
Aljanova G.A. Psychological and pedagogical study of student personality.....	306
Kabulova Z. Traditions of folklore and classical literature in Karakalpak poetry.....	310
Joldasbaeva A. Using authentic materials in developing communicative competence.....	313
Pirniyazova N.V. Problems of mastering modern educational technologies by teachers in advanced professional courses.....	316
Tajibayeva L.F. Laws of renewal of the poetic image in cholpon's poetry.....	319
Toylibaev S., Akmanova D. Methodology for the development of physical qualities in children with visual impairment.....	322
Baltayeva Z. Classical traditional forms in the poetry of E. Vahidov.....	326
Kabulova Z. In Uzbek and Karakalpak poetry traditions of world literature.....	329
Jumamuratova R.A. Communicative and pragmatic potential of markers modalities in artistic translation.....	332
Pirniyazov I.K. Modern approaches in working with students of the advanced professional system.....	337
Ganiyev T.S. Methods of using bloom's taxonomy technology in developing students' cognitive abilities.....	341
Tatlmuratov A.T. Problems of professional development of future physical culture teachers.....	344
Tuzikenova J.A. The basic approaches and principles used in improving learners vocabulary	348
Fayzullaeva T.H. The concept of compulsion measures in the medical way and goals.....	352
Klicheva B.M. Escrow as a new type of contractual legal relationship in the Republic of Uzbekistan.....	355
Purkhanov Yu.E. Eloquent Jiyrenshe's opinions about educating the youth and teaching oratory.....	357
Eshboyev J.I. Pedagogical possibilities of self-studies for the development of communicative competence of non philological students.....	360
Aimbetova G.N., Djumabekova R.K., Sarsenbaeva H.Q. Theoretical and methodological basis of training and education of students on the course of informatics and information communication technologies in general secondary schools.....	363
Ganiyev T.S. Advantages of using pedagogical technologies to form archaic concepts of students in history textbooks.....	367
Kamalova M., Uzaqbaev Q. The scientific basis of bringing up young people in the spirit of national ideas and inculcating them legal culture.....	370
Ganieva G.M., Saparniyazova D.A. The role of the neighborhood in reflecting our national culture in the minds of young people.....	373
Jumaniyazov I.R. Emergence of the state folk music orchestra named after the teacher, conductor, composer Doni Zakirov.....	377
Bayniyazov A.T. History of the liberation movement in Karakalpakstan of the XIX century in English-language literature.....	381
Kamalova D.E. The skill of creating composition in a work of art (in small prose works)	383
Utayev A.Kh. Historical roots of oral creation of the people.....	387
Bekmuratova U.A., Tajibaeva G.G. Anglicisms in modern Russian.....	390
Bayniyazov A.T. Image of Makhtimkuli and historical truth in modern Uzbek and Turkmen novels.....	394
Abdiev A.T., Baymuratova A.P. The use of stylistic figures in the works of the classical poets of Karakalpak (in the example of the works of the poet Umar).....	397
Saydullayeva B.S. Scales and their peculiarities in onomastics.....	402
Bekmuratova U.A., Kaypanova E.A. Formation of linguistic and cultural competence in Russian language lessons.....	406
Oirimbetova L. Interpretation of spiritual and moral problems.....	409
Akmuratova B., Razzakova M. Peculiarities of poetic genres.....	412
Orazimbetov E.K. Features of education of youth to patriotism in the pedagogy of the Karakalpak people.....	415
Genjekarava Z. Functioning of some forms of politeness in speech communication of the English and Karakalpak languages.....	419
Topildiev B.R. Trust management agreement property and prospects for its development.....	423
Utemuratova S.Sh. Some aspects of the Interrelation between administrative and criminal liability for environmental Crimes.....	428
Temirxanova G.U. Lexical-grammatical Properties of the Word in the Context and adaptation.....	431
Xursanov R.X. Contractual and legal bases of Mining farms.....	435
Bobojonov J.I. Legal capacity of mining farms.....	441
Utemuratova S.Sh. Some foreign countries' criminal legislation on Liability for environmental Crimes.....	446

UDK 621.315.592

ELECTROPHYSICAL PROPERTIES OF SILICON DOPED WITH MANGANESE ATOMS BY ELECTRODIFFUSION.

Zikrillaev N.F¹, Iliev Kh. M¹, Ismailov K.A², Xudoynazarov Z.B¹.

¹Tashkent State Technical University

²Karakalpak State University

Summary: In this study, the electrical properties and structural morphology of a silicon sample introduced into the composition by manganese (Mn) electrodiffusion were demonstrated. The results of the study showed that at low temperatures ($T=900\text{ }^{\circ}\text{C}$) the introduction of manganese atoms into silicon occurs at a lower rate compared to similar diffusion in the gas phase. This indicates positively ionized (Mn^+ , Mn^{++}) manganese atoms, constantly shifting under the influence of an external electric field to its negative part.

Key words: silicon, electrodiffusion, nickel, clusters, positive and negative polarity.

INTRODOCTION

Electro diffusion of manganese precursor atoms into silicon allows observation of a number of new physical phenomena. An electric field with a sufficiently high current density ($J=70\text{ A/cm}^2$) significantly accelerated the process of diffusion of manganese atoms, and caused a significant decrease in the diffusion temperature of manganese atoms compared to the diffusion temperature in the gas phase. Distribution is carried out by the usual diffusion method in the temperature range $T=1000$, $T=1100\text{ }^{\circ}\text{C}$. It was determined that it is possible to increase the electroactive concentration of manganese input atoms at the temperature $T=900\text{ }^{\circ}\text{C}$ based on the enhancement of the migration of positively charged ions under the influence of an electric field. Silicon manganese don't enter atoms electrodiffusion designed to do made according to technology [1-5]. For the experiment, the specific electrical resistance $r \sim 5\text{ }\Omega \cdot \text{cm}$, the concentration of charge carriers $N_B \sim 5 \cdot 10^{15}\text{ cm}^{-3}$, the concentration of residual oxygen $(5-6) \cdot 10^{17}\text{ cm}^{-3}$, the mobility of holes is $294\text{ cm}^2/(\text{V} \cdot \text{s})$ monocrystalline silicon with geometric dimensions of $8 \times 4 \times 1\text{ mm}^3$ was used. Read the literature Diffusion based on the analysis of being the beginning theoretical calculations are carried out increased. The temperature dependence of the diffusion coefficient, solubility, and depth of penetration of manganese penetration atoms into silicon was calculated using the following expressions.

$$D = 2.6 \cdot 10^{-1} \exp\left(-\frac{1.3}{kT}\right) \quad (1)$$

$$N = 2.5 \cdot 10^{23} \exp\left(-\frac{2.1}{kT}\right) \quad (2)$$

$$L = 2\sqrt{Dt} \quad (3)$$

Based on these expressions, the values of the diffusion coefficient, solubility and depth of penetration of manganese atoms in silicon at temperature $T=900^{\circ}\text{C}$ were determined based on theoretical calculations.

Table 1

Temperature $T\text{ }^{\circ}\text{C}$	Time t , minute.	Diffusion coefficient $D\text{ cm}^2/\text{V} \cdot \text{sec}$	Solubility N , cm^{-2}	The depth of manganese atoms L , μm

900	30	$6.58 \cdot 10^{-7}$	$2.27 \cdot 10^{14}$	688

Chemical processing was used to purify the feedstock at the start of technological process and manganese atoms were evaporated onto the samples' surface using a vacuum evaporator VUP-4, resulting in a thin manganese layer on the surface. Manganese thin layer harvest done surfaces to each other straightened up created electrodiffusion to do of construction special to their holders placed. Worker from the camera high vacuum (10^{-3} - 10^{-4} mm Hg) received and of samples volume across immutable full was conducted. The diffusion process was continued for $t=30$ minutes, then the samples were immediately cooled. After diffusion, mechanical and chemical treatment was performed to clean the surface of the samples. Examples of electrophysical parameters were studied using the Hall effect method (2 and Table 3).

Source in Table 2 and 3 positive and Minus in the boxes placed of samples electrophysicist parameters.

Sample positive catch up side **Table 2**

Diffusion method	Temperature T, °C	Conductivity type	Comparison resistance r, $\Omega \cdot \text{cm}$	Movement μ , $\text{cm}^2/\text{V} \cdot \text{s}$	Pour carrier's concentration π , cm^{-3}
Electrodiffusion	900	p	$1.81 \cdot 10^2$	79.3	$4.3 \cdot 10^{14}$

Sample Minus catch up side **Table 3**

Diffusion method	Temperature T, °C	Conductivity type	Comparison resistance r, $\Omega \cdot \text{cm}$	Movement μ , $\text{cm}^2/\text{V} \cdot \text{s}$	Pour carrier's concentration π , cm^{-3}
Electrodiffusion	900	p	$6.29 \cdot 10^2$	33.1	$3 \cdot 10^{14}$

As can be seen from Tables 2 and 3, all silicon samples retained the initial type of conductivity, the resistivity of the sample placed at the positive pole of the source increased from $\rho \sim 5 \Omega \cdot \text{cm}$ to $1.81 \cdot 10^2 \Omega \cdot \text{cm}$. Received in the results k pore concentration and mobility significantly different from the pore concentration and pore mobility of the initial sample was determined. The value of the mobility of the holes is significantly different from the value of the mobility in the initial sample, which was explained by the formation of four doubly charged multi-charged manganese nanoclusters around the boron atoms in the initial sample.

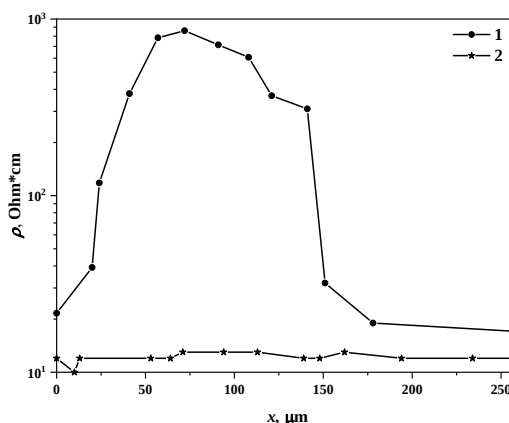
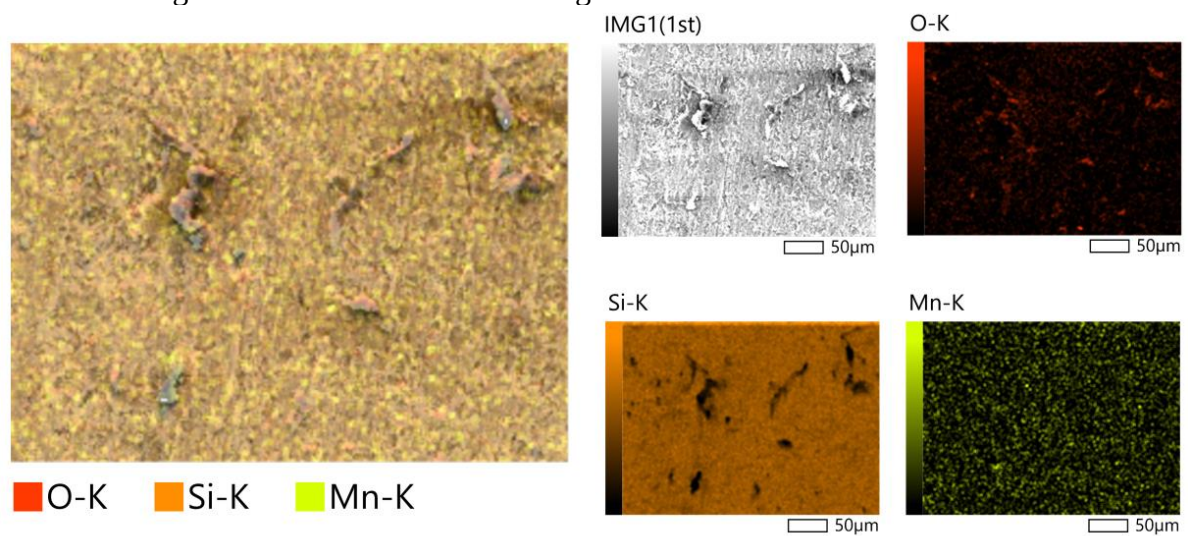


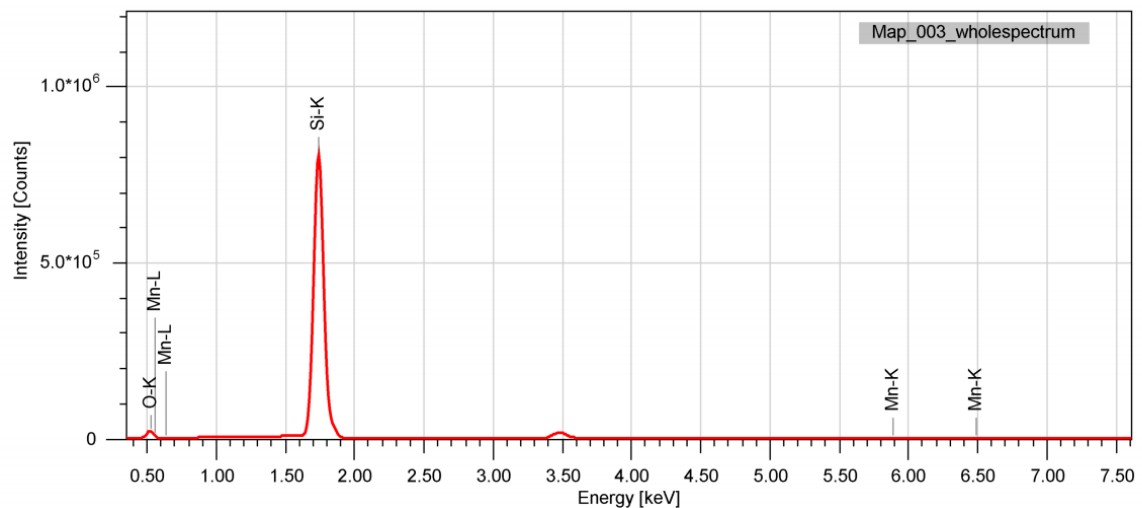
Fig.1. of samples comparison electricity of resistance to the depth dependency:

1– unchanging vine source Minus pole connected sample, 2nd constant current source positive pole connected sample

1 shows the resistivity of a sample taken with the Ecopia HMS 3000 device as a function of depth. We can see from the graph that manganese atoms diffused in a small amount in the sample located on the positive side of the source, on the contrary, it was found that there was a large amount of diffusion in the sample located in the negative box. This can be explained in the following way: from the analysis of the literature, when manganese (Mn) atoms diffuse into silicon (Si) at low temperature, the nodes can be in 3 different states, 1-neutral Mn, 2- single positive ionized Mn^+ , 3- double positive ionized Mn^{++} is in the state. It is known that positive electrons move towards negative electrons, due to the current passing through the sample, the sample heats up, under the influence of temperature, manganese (Mn) atoms are positively ionized (Mn^+ , Mn^{++}), and positive ions move towards the negative pole, for this reason. It was explained that manganese atoms with positive ions (Mn^+ , Mn^{++}) moved to the negative pole of the source and a large number of manganese atoms diffused to the negative side.

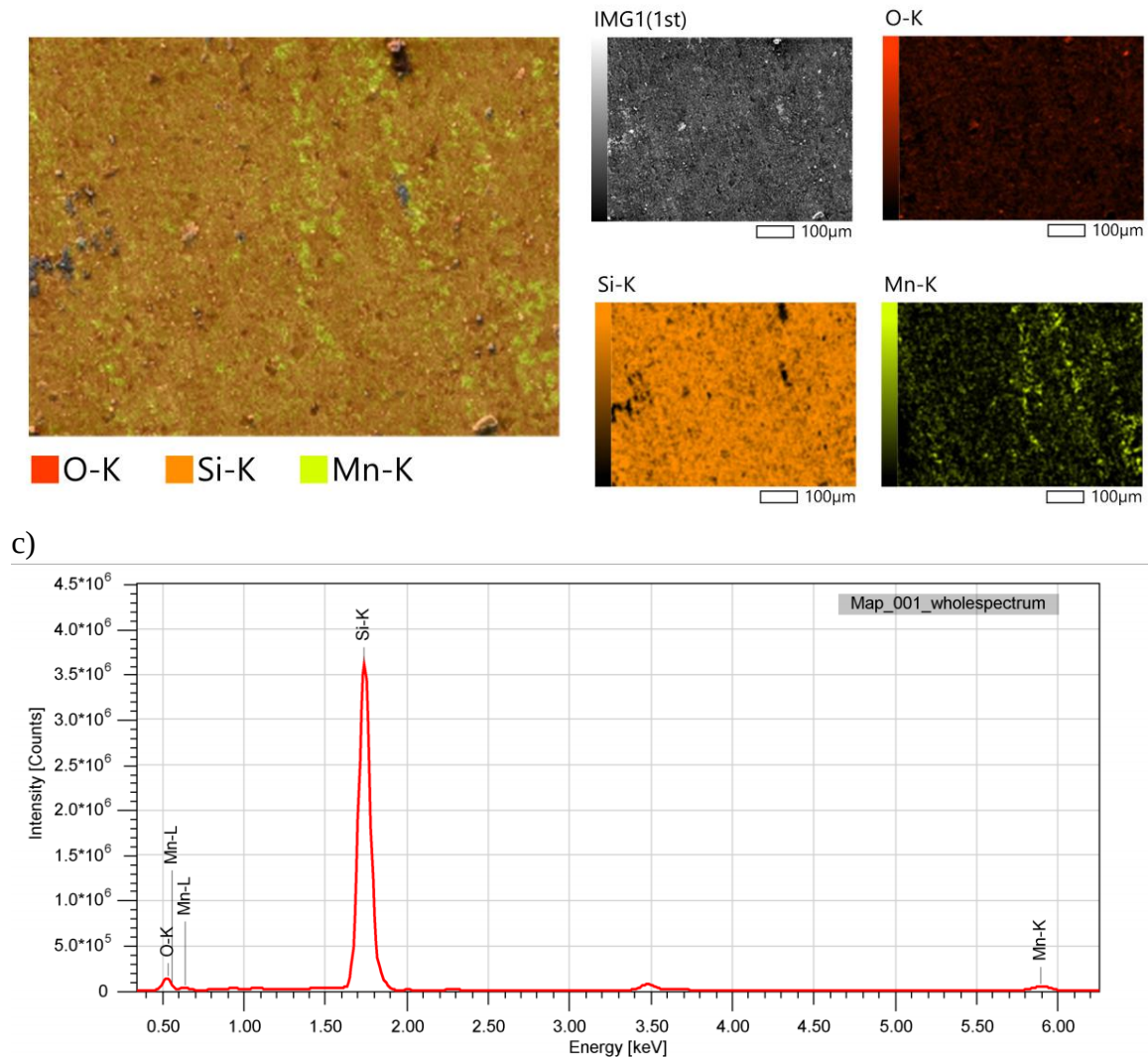


a)



b)

Fig.2. a and b – Manganese Krishma atoms included of silicon surface topology and b- X - ray energy dispersive microanalysis results (positive towards).



d)

Fig.3. c and d – Manganese Krishna atoms included of silicon surface topology and d- X-ray energy dispersive microanalysis results (negative towards).

After diffusion, the surface topology of the sample and the results of X-ray energy dispersive microanalysis were obtained using a JSM-IT 200 (SEM) scanning electron microscope. Figures 1a and b show the surface topology and X-ray energy dispersive microanalysis results of a silicon sample containing manganese atoms obtained using a JSM-IT 200 scanning electron microscope. Frames 2 c and d show the topology of the surface of the silicon sample containing manganese atoms and the results of X-ray energy dispersive microanalysis obtained using a JSM-IT 200 scanning electron microscope of the sample located on the negative side of the source. The analysis of the experiment showed that the diffused manganese impurity atoms are in the positive pole side of the sample, compared to the negative pole tone of the sample, we can see that there is a small amount of manganese impurity atoms.

Conclusion.

The results of the study showed that the magnetic field allows the atoms to enter the silicon maximally under the influence of the electric field. It also proves that electrodiffusion is a new way to control the size distribution, solubility, and concentration of charge carriers in silicon. Using the electrodiffusion method, it is possible to significantly increase the concentration of electroactive atoms in the silicon crystal lattice. Such a situation does not indicate that transition metal elements in the table of chemical elements have greater potential than other methods of diffusion into the semiconductor material.

References:

1. Zikrillaev, N. F., Kushiev, G. A., Hamrokulov, S. I., & Abduganiev, Y. A. //Optical Properties of $\text{Ge}_x\text{Si}_{1-x}$ Binary Compounds in Silicon. Journal of Nano-and Electronic Physics, 15(3). (2023) DOI: 10.21272/jnep.15(3).03024.
2. N.F. Zikrillaev, G.A. Kushiev, S.V. Koveshnikov, B.A. Abdurakhmanov, U.K. Qurbonova, A.A. Sattorov, East Eur. J. Phys. 3, 334 (2023), <https://doi.org/10.26565/2312-4334-2023-3-34>
3. Zikrillaev N. F., Tursunov O. B., Kushiev G. A. Development and Creation of a New Class of Graded-Gap Structures Based on Silicon with the Participation of Zn and Se Atoms //Surface Engineering and Applied Electrochemistry. – 2023. – T. 59. – №. 5. – C. 670-673.
4. B.I. Boltax . Diffusion and point defects in semiconductors. “Science”, Leningrad – 1972.
5. Isakov , B. , Hamrokulov , S. , Abdurakhmonov , S. and Abdurakhmonov , H. , 2023. Doped silicon with gallium and antimony impurity atoms. Science and innovation, 2(A5), pp.255-261.
6. Isakov, Z Xudonazarov, G Kushiev, A Sattorov, F Abduqahhorov, 2023. Thermodynamic conditions for the formation of GaSb binary compound in Si sample. Science and innovation, 2(A10), pp.29-34.
7. Iliyev, X.M., Isamov, S.B., Isakov, B.O., Qurbonova, U.X. and Abduraxmonov, S.A., 2023. A Surface Study of Si Doped Simultaneously with Ga and Sb. East European Journal of Physics, (3), pp.303-307.
8. Iliyev, X.M., Odzhaev, V.B., Isamov, S.B., Isakov, B.O., Ismaylov, B.K., Ayupov, K.S., Hamrokulov, S.I. and Khasanbaeva, S.O., 2023. X-Ray Diffraction and Raman Spectroscopy Analyses of GaSb-Enriched Si Surface Formed by Applying Diffusion Doping Technique. East European Journal of Physics, (3), pp.363-369.
9. Iliyev, X., Xudonazarov, Z., Isakov, B., Uralbayev, X., & Kushiev, G. (2023). IMPURITY OF ATOMS OF MANGANESE DIFFUSION BY OUTSIDE ELECTRIC FIELD INTO SILICON. Science and innovation, 2(A8), 107-111.
10. B Isakov, Z Xudonazarov, G Kushiev, A Sattorov, F Abduqahhorov, 2023. Thermodynamic conditions for the formation of GaSb binary compound in Si sample. Science and innovation, 2(A10), pp.29-34.
11. Sh.T Khozhiev, V.M Rotshtein, R.Kh Ashurov, A.A. Ganiev, G.A. Kushiev Study of photoluminescence spectra of zinc selenide samples using Raman spectroscopy. - Universum: technical sciences, 4-1 (73). 45-48, 2020.

Rezyume: Ushbu ishda marganets (Mn) kirishma atomlari elektrodifuziya usuli yordamida kiritilgan kremniy namunasini elektr-fizik xossalari va skanerlovchi elektron mikroskop (SEM) qurilmasidan foydalanib sirt morfologiyasi xamda element taxlili o'rganilgan. Tadqiqot natijalari elektrodifuziyada, ananaviy gaz fazali diffuziyaga qaraganda nisbatan past xaroratda ($T=900\text{ }^{\circ}\text{C}$) Mn kirishma atomlari kremniyga kirishi kuzatildi. Bu xolatni musbat ionlangan (Mn^+ , Mn^{++}) Mn atomlari tashqi elektr maydon ta'sirida doimiy elektr maydonining manfiy qutbi tomonga tortilishi bilan tushuntirildi

Резюме: В данном исследовании были продемонстрированы электрофизические свойства и структурная морфология кремниевого образца, введенного в состав методом электродиффузии марганца (Mn). Результаты исследования показали, что при низкой температуре ($T=900\text{ }^{\circ}\text{C}$) внедрение атомов марганца в кремний происходит с более низкой скоростью по сравнению с аналогичной диффузией в газовой фазе. Это свидетельствует о положительно ионизированных (Mn^+ , Mn^{++}) атомах марганца, постоянно смещающихся под воздействием внешнего электрического поля в его отрицательную часть

Kalit so'zlar: kremniy, elktrodifuziya, nikel, klasterlar, musbat va manfiy qutb.

Ключевые слова: кремний, электродиффузия, никель, кластеры, положительная и отрицательная полярность

SYNTHESES OF MENTHOL ACETYL FORMIC ESTER

Xoliqov M.I.¹, Yettibayeva L.A.¹, Turlibekov O.A.¹, Xalmuratova Z.T.³, Matchanov A.D.^{1,2}.

¹ Gulistan State University Department of Chemistry,

²Academy of Sciences of Uzbekistan INSTITUTE OF BIOORGANIC CHEMISTRY,

³Academy of Sciences of Uzbekistan, Karakalpak Research Institute of Natural Sciences in Nukus

Summary: The article presents a spectroscopic analysis of the structure of a new menthol derivative obtained using formic acid.

Also, the main goal of the research work is to study the chemical characteristics of menthol and the properties of the resulting compounds. This paper presents a method and spectroscopic analysis of menthol acetyl formic ester obtained from menthol and formic acid.

Key words: Menthol, monoterpene, formic acid, enantiomer, IR spectroscopy.

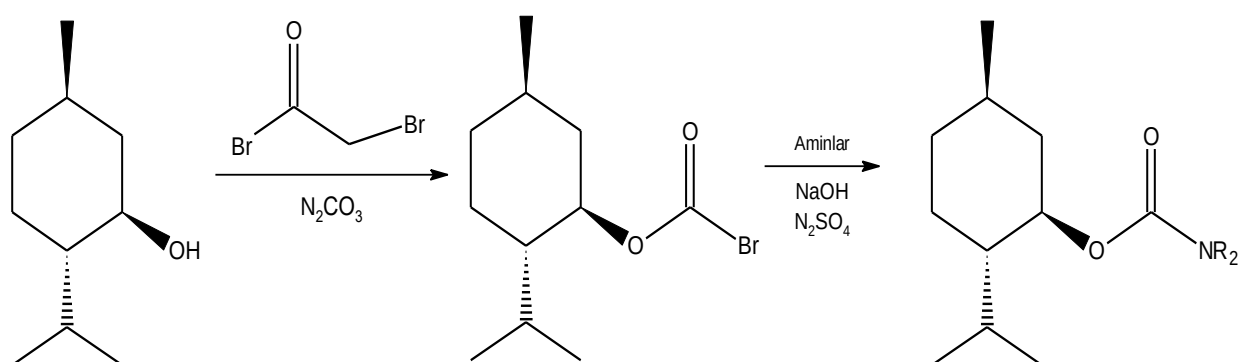
Literature Review

The extraction of substances with high biological activity from the composition of plants and the creation of new medicines based on them is developing rapidly. [1]. Natural compounds isolated from plants have high biological activity, among such compounds terpenoids and their derivatives occupy a special place. In this direction, it is difficult to imagine human health without the results obtained in medicine [2].

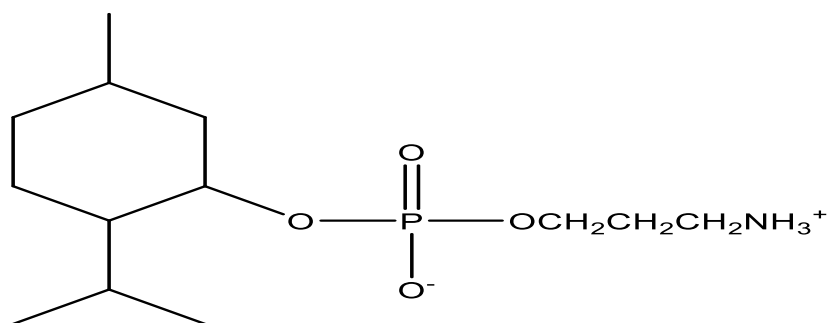
There are many medicinal plants in the territory of Uzbekistan, one of them is the mint plant. This plant is of great importance in the national economy, based on which preparations for pharmaceuticals, stabilizers for polymers, as well as pesticides for the protection of plants in agriculture are obtained [3-4].

Several works have been carried out on synthesizing the monoterpene compound menthol, found in the mint plant, based on its derivatives, obtaining their water-soluble derivatives, identifying biologically active substances among them, applying the technology for the production of effective preparations based on these compounds [5].

Several derivatives of menthol, including glycinate, were used as cooling agents and were synthesized based on bromoacetyl bromide and (-) menthol in a two-step synthesis method [6].



A method of synthesizing a new derivative of menthol with high specificity has been developed. Based on it, the adduct of dichloro (5-methyl-2 (methylethyl) cyclohexyloxy) phosphino-1-one with 3-aminopropanol was obtained and hydrolyzed to polar organic obtained based on recrystallization from the solvent [7].



Derivatives of menthol are widely used in various biochemical and pharmacological processes [8].

L-menthol is now widely used as a flavouring agent in the food industry and pharmaceuticals, but menthol obtained by the synthesis method based on thymol is a mixture of diastereomers, so it has a negative smell [9].

Menthol's 1,4-disubstituted 1,2,3-triazole derivatives were synthesised in an alkaline environment based on hydroxybenzaldehydes, phenols, and silicic acids, and their antibacterial properties showed relatively high activity against gram-positive bacteria *Enterococcus faecium* and *Staphylococcus aureus* [10].

In addition, when the composition of essential oils of *Mentha piperita* L was studied, 23 compounds were identified in it, and they were found to have higher activity against *Aspergillus niger* in vitro than synthetic menthol [11].

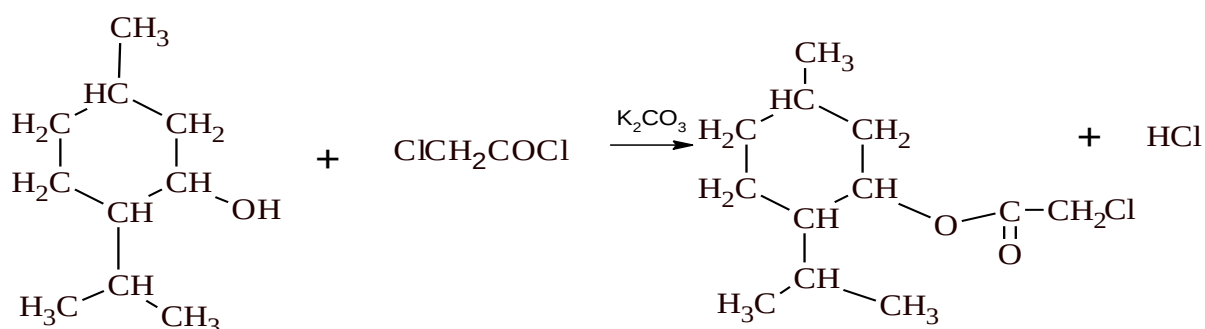
Menthol 1 and its 7 acetyl derivatives extracted from the essential oils of the *Mentha arvensis* plant are considered storage pesticides. When the ovicidal and repellent activities of *Callosobruchus maculatus* F., *Rhyzopertha dominica* F., *Sitophilus oryzae* L., and *Tribolium castaneum* Herbst. Although it has repellent properties (82–100% at a dose of 0.353 µg/cm²), menthyl acetate has been shown to have strong ovicidal properties against *T. castaneum* [12–16].

From the literature analysis, it can be shown that menthol and its synthetic derivatives have various biological activities and are widely used in the food industry and pharmaceuticals.

Therefore, finding methods of synthesizing its new derivatives and studying the chemical structure and biological activity of synthesized compounds, analyzing the laws of connection between "structure-activity" is one of the urgent topics.

Based on the above, this topic aims to use chloroacetyl chloride in synthesising some monocarboxylic acids of menthol and to determine the chemical structure of synthesized compounds using IR spectroscopy and mass spectrometry methods.

For this, the synthesis of the chloroacetylation reaction of menthol (3-methyl-6-isopropylcyclohexanol) with chloroacetyl chloride in a 1:1 ratio was carried out in the presence of a catalyst. The reaction scheme is presented in Scheme 1. During the reaction, menthyl acetate was obtained with a yield of 72–73%.



Scheme 1. Obtaining the chloroacetyl chloride derivative of menthol

Results.

The substances obtained as a result of the reaction were identified based on the YKX method (chloroform-talol-acetone-benzene system) and the hydrochloric acid released as a result of the reaction was removed from the reaction medium by washing with water. UV and IR spectra of the final product, menthol acetyl chloride, as well as some physicochemical parameters were studied and compared with those in the literature. The obtained results are presented in Table 1.

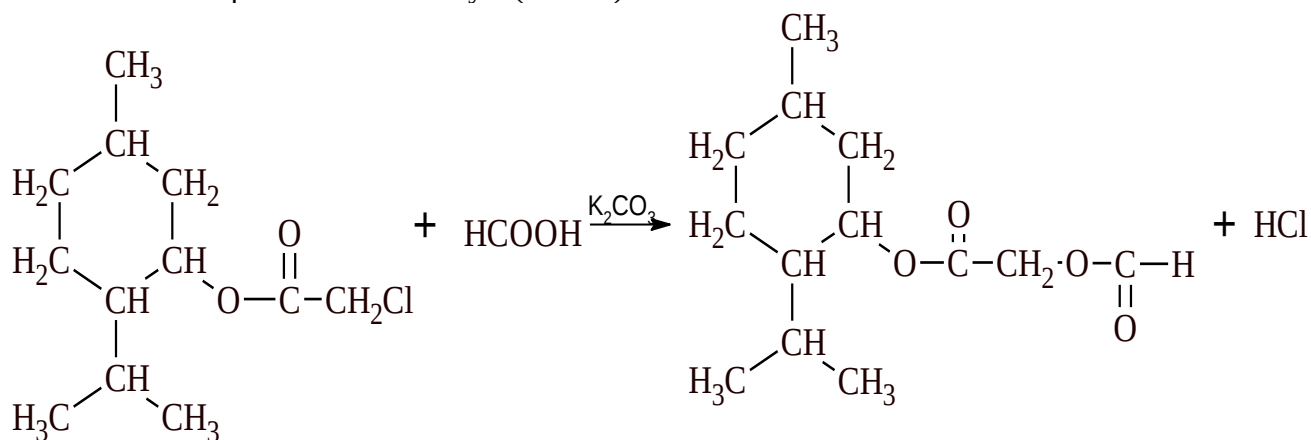
1-Table

Physics-chemistry properties of mentholacetylchlore

№	substance	T _{melt} C ⁰	R _f (sistema benzole;atsetone:talul:xloroform)	melting
1	mentholacetylchlore	38-39 ⁰	0.73	Xloroform, water

It was shown that the quantities given in Table 1 correspond to those in the literature, and at the next stage of the work, the synthesis of menthol acetyl chloride with formic acid, a representative of monocarboxylic acids, was carried out. The methods of synthesizing complex esters in the literature were used for this [17-19].

Taking into account the above, the synthesis of a new derivative of menthol acetyl chloride with formic acid was carried out. Mentholacetyl chloride was synthesized with formic acid in a 1:1 mole ratio in the presence of a catalyst (K₂CO₃).



Scheme 2. Synthesis scheme of mentholated acetyl formate ester

This reaction was carried out in a round-bottom (flat) flask equipped with a reflux condenser. For this, 0.58 g (0.01 mole) of menthol acetyl chloride was first dissolved in 20 ml of chloroform 1.38 g (0.01 mol) of K₂CO₃ was added to it, and 0.37 ml (0.01 mol) of ant acid dripped. The resulting mixture was mixed in an MM-5 TU 25-11834-80 magnetic stirrer at room temperature for 2 hours. The organic solvent contained in the resulting mixture was removed in an IR-1M2 rotary evaporator, and the remainder was washed twice with water. The water was separated from the organic layer formed during the washing process in a separatory funnel. The yield of the final product, menthol acetyl formate ether, was 77%. The chemical structure of the extracted menthol acetyl formic acid ester was analyzed by IR spectroscopy.

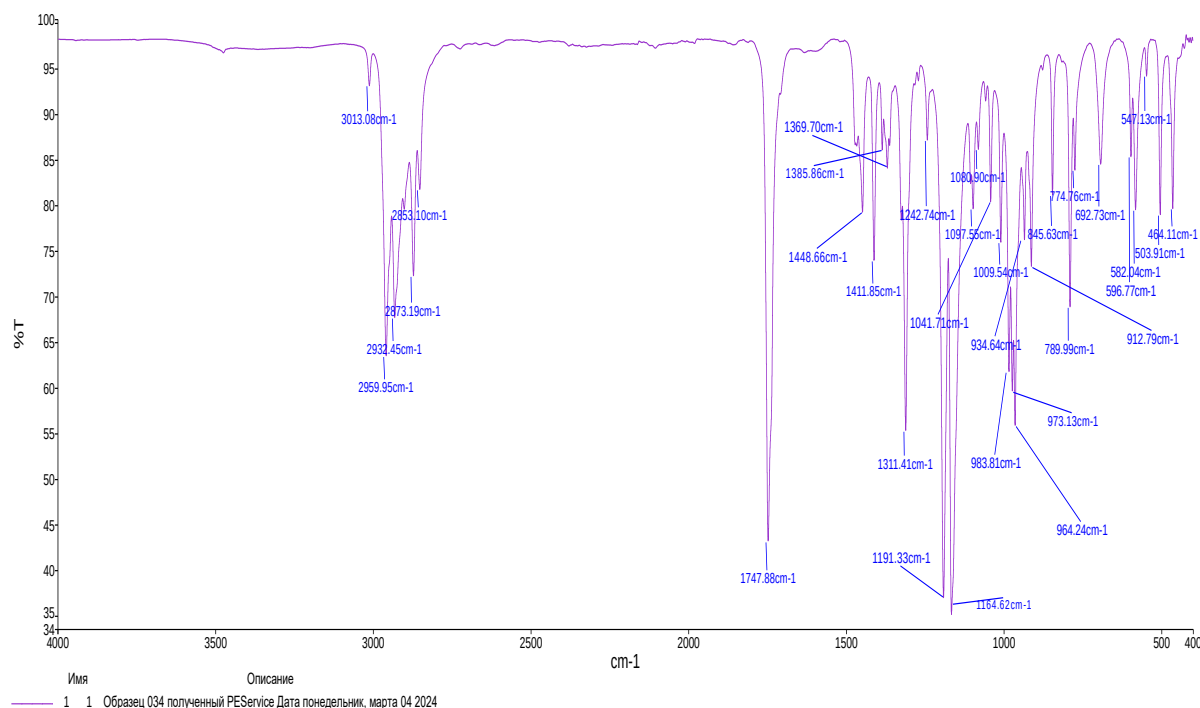


Figure 1. The IR spectrum of menthol acetyl formic ether

From the IR spectrum shown in Figure 1, we can see that the two S=O group valence vibrations in the formed ether are visible in the 1747 cm⁻¹ region, and in the 2853-2953 cm⁻¹ region, the valence vibrations related to the -CH, -CH₂ and -CH₃ groups in the molecule, and the 3200-3600 cm⁻¹ area, the activation of valence vibration signals related to the hydroxyl group indicates that menthol was formed based on acetyl and its formic acid.

2-Table

Physics-chemistry properties of menthol acetyl formic ester

№	substance	Mass of Molecular	R _f (system benzole;atsetone:taluo:lxloroform)	melting
1	menthol acetyl formic ester	242	0.56	Xloroform, water

We can see that the substance obtained from the quantities given in Table 2 dissolves in chloroform and water, and when identified by thin layer chromatography in the benzene:acetone:toluene: chloroform (1:2:1:2) system, it is 0.56.

Conclusion

Based on the work done in this way, the chloroacetyl derivative of menthol and its ester with formic acid were synthesized. The obtained compounds were purified and some physics-chemical and spectral properties were analyzed.

References:

1. Abdushukurov. A, Yusufov.M, Izomers reactions with amino phenols with chloracetylchloridom. Universum. 2020 March. #3 (72).
2. Z.T. Khalmuratova, L.A. Yettibaeva, U.K. Abdurahmanova. "Synthesis of new derivatives of menthol". Current status and prospects of the science of functional polymers. Tashkent-2020. Page 429.
3. Tolstikov, L.A., Baltina E.E. Shults A.G. Pokrovsky// Glycyrrhizinovaya acid. 1997.T 23. No. 9 P.691-709.
4. Vasilenko A. Yu., Frolov A. V., Chapaeva S. Ch.,// Chem. - pharmacist. journal. 1985. T. 19 S. 1335-13395.

5. L.A. Yettibaeva, U.K. Abdurahmonova, A.D. Matchanov, D.M. Allanazarova, and Z.T. Halmuratova. Influence of Glycyrrhizic Acid, Menthol and Their Supramolecular Compounds on the Functional Activity of Rat Mitochondria in in-vitro Experiments /Journal of the Korean Chemical Society 2021, Vol.65, No.5 Printed in the Republic of Korea <https://doi.org/10.5012/jkcs.2021.65.5.1>.
6. Douglas A. Klumpp, Robert M. Sobel, Smaro G. Kokkinidou, Brian Osei-Badu Synthesis of Menthol Glycinates and Their Potential as Cooling Agents // ACS Omega, 2020, Vol. 5, N 8, pp. 4043–4049.
7. Patent US 6566545B2, 2016 Menthol derivatives and process for preparing the same // Jae Won Yoo, Duck Hee Kim, Seong Joon Moon, Min Soo Noh.
8. Yi Li, Feng Zhou, Ying Wen, Kayin Liu (–)-Menthol-based thixotropic hydrogel and its application as a universal antibacterial carrier // Soft Matter, 2014, Vol.10, pp.3077-3085.
9. MuLi, Li-RongYang, GangXu, Jian-PingWu Highly diastereoselective acylation of L-menthol by a lipase from *Stenotrophomonas maltophilia* CGMCC 4254 // Biochemical Engineering Journal, 2016, Vol. 109, pp. 81-87.
10. Pooneh Khaligh, a Peyman Salehi, Morteza Bararjanian, Atousa Aliahmadi Synthesis and in Vitro Antibacterial Evaluation of Novel 4-Substituted 1-Menthyl-1,2,3-triazoles //Chem. Pharm. Bull., 2016, Vol. 64, N 11, pp. 1589–1596.
11. M. Moghtader In vitro antifungal effects of the essential oil of *Mentha piperita* L. and its comparison with synthetic menthol on *Aspergillus niger* // African Journal of Plant Science, 2013, Vol. 7, N 11, pp. 521-527.
12. K.K. Aggarwal, A.K. Tripathi, Ateeque Ahmad, Veena Prajapati Toxicity of L-menthol and its derivatives against four storage insects // International Journal of Tropical Insect Science, 2001, Vol. 21, pp. 229–235.
13. Tripathi A. K., Prajapati V., Aggarwal K. K., Kumar S. Effect of volatile oil constituents of *Mentha* species against the stored pests *Callosobruchus maculatus* and *Tribolium castaneum* / J. Med. Arom. Plant Sci., 2000, Vol. 22/1B, pp. 549–556.
14. Mishra R. C., Kumar J. Evaluation of *Mentha piperita* Linn, as a fumigant against the red flour beetle, *Tribolium castaneum* (Herbst) / Indian Perf., 1983, Vol. 27, pp. 73–76.
15. Mathella C. S., Shah G. C., Melkani A. B., Pant A. K. Terpenoids of *Mentha longifolia* subsp *liimalaiensis*. // Fitoterapia, 1989, Vol. 60, pp. 349–350.]
16. L.A. Ettibaeva, U.K. Abdurahmanova, A.D. Matchanov. Study of Glycyrrhizic Acid: menthol Supramolecular Complexes on Mitochondrial Functional Activity in in-vitro Experiments/ Journal of the Korean Chemical Society 2023, Vol.67, No.2 Printed in the Republic of Korea <https://doi.org/10.5012/jkcs.2023.67.2.99>
17. Lazurevskiy G.V., Terenteva I.V., Shamshurin A.A. GA and GAAS", 1961. - S. 90–92.
18. Eccles R. Menthol and related cooling compounds // Journal of Pharm. Pharmacol. - 1994. - V.46. - P. 618-630.
19. L.A. Ettibaeva, U.K. Abdurahmonova, A.D. Matchanov, S. Karshiboev. Effects of glycyrrhizic acid, menthol and GA: Mt (2: 1), GA: Mt (4: 1) and GA: Mt (9: 1) supramolecular compounds on mitochondrial functional activity IN VITRO experiments./ J. Chosun Natural Sci. Vol.15, No.4(2022)pp. 137-44<https://doi.org/10.13160/ricns.2022.15.4.137>

Rezyume: Maqolada chumoli kislota yordamida olingan yangi mentol hosilasi strukturasining spektroskopik tahlili keltirilgan.

Shuningdek, tadqiqot ishining asosiy maqsadi mentolning kimyoviy xususiyatlarini va hosil bo'lgan birikmalarning xususiyatlarini o'rganishdir. Ushbu maqolada mentol va chumoli kislota olingan mentol atsetil chumoli kislota efirini spektroskopik tahlil qilish usuli va usullari keltirilgan.

Резюме: В статье представлен спектроскопический анализ структуры нового производного ментола, полученного с использованием муравьиной кислоты.

Также основной целью научно-исследовательской работы является изучение химических характеристик ментола и свойств получаемых соединений. В данной работе представлен метод и спектроскопический анализ ментолацетилового эфира муравьиной кислоты, полученного из ментола и муравьиной кислоты.

Kalit so'zlar: Mentol, monoterpen, chumoli kislota, enantiomer, IQ spektroskopiyasi

Ключевые слова: Ментол, монотерпен, муравьиная кислота, энантиомер, ИК-спектроскопия.

**NUMERICAL CALCULATION OF THE PROBABILITY OF ELECTRON TRANSITION
IN TWO-BARRIER HETEROSTRUCTURES**

**Baymatov P.J.^{1,a}, Tokhirjonov M.S.^{1,b}, Yunusov O.M.², Saydaliyev A.A.³, Sobirov D.S.¹,
Khalmatov A.I.³.**

¹ Namangan State University, 161 Boburshokh Street, 160107 Namangan, Uzbekistan

² Physical-Technical Institute, Uzbekistan Academy of Sciences Chingiz Aytmatov 2B, Tashkent
100084, Uzbekistan

³ Namangan institute of engineering and technology, 7 Kosonosoy Street, 160115 Namangan,
Uzbekistan

^ae-mail: baymatov1958@mail.ru

^be-mail: physictokhirjonov@gmail.com

Rezyume: This paper presents the results of numerical calculation of the probability of an electron transition using a displacement matrix. In this case, calculations were performed for several values of the thickness of the InAs monolayer and the barrier (AlAs) introduced into the AlAs/In_xGa_{1-x}As/AlAs heterostructure. The values of the first and second energy levels corresponding to the maximum probability of transition are given. It has also been shown that the values of these energy levels vary depending on changes in the height of the barrier.

Keywords: Tunnel diode, double barrier heterostructure, electron transition probability, quantum well, nanolayer, InAs,

Introduction

Currently, devices based on semiconductor materials are rapidly developing. High operational efficiency, low cost, and the small size of such devices are the reasons for the further increase in demand for them.

In particular, we are talking about resonant tunnel diodes (RTDs). Recently, many theoretical and experimental studies have been conducted aimed at improving the operational characteristics of such structures [1-10]. In [1,2,3], theoretical and experimental analyses of changes in energy levels and the volt-ampere characteristic (VAC) of two-potential barrier resonant tunnel diodes after the introduction of an additional InAs nanolayer are described in detail.

In this work, numerical calculations of the change in dependence on the thickness of the InAs nanolayer introduced into the AlAs/In_xGa_{1-x}As/AlAs heterostructure, the probability of electron transition in bounded two-potential barrier heterostructures are presented. It has also been shown that when the thickness of the InAs monolayer changes, the energy levels shift.

In this case, the probability of an electron transition is calculated using the matrix method of moving the energy levels corresponding to the peak.

The first energy level is depicted using graphs.

Basic equations

Figure 1 shows the AlAs/In_xGa_{1-x}As/AlAs heterostructure profile with a thin InAs nanolayer embedded in the center. It can be seen from this figure that, taking into account the finite thickness of the barriers, our heterostructure consists of seven layers. In this case, L_L, m_L and L_R, m_R are the left and right ligated layers (In_xGa_{1-x}As), L₁ m₁ is the AlAs layer, L₂ and m₂ are the In_xGa_{1-x}As layers, and L₃ and m₃ are the thicknesses of the InAs layer and the effective masses respectively.

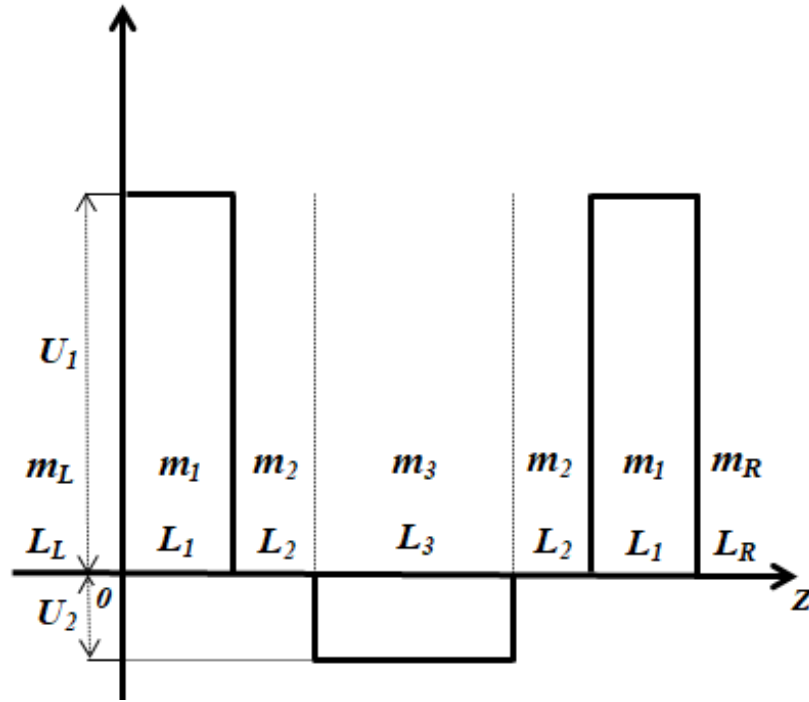


Figure 1. The profile of a two-barrier heterostructure with an InAs nanolayer embedded in the center.

To calculate the probability of an electron transition, we use the Schrodinger equation:

$$-\frac{\hbar^2}{2m} \frac{\partial^2 \psi(x)}{\partial x^2} + U(x)\psi(x) = E\psi(x) \quad (1)$$

According to Figure 1, we express the value of the potential in equation (1) as follows:

$$U = \begin{cases} U_1, & 0 \leq z \leq L_1, \quad L_1 + 2L_2 + L_3 \leq z \leq 2L_1 + 2L_2 + L_3 \\ 0, & L_1 \leq z \leq L_1 + L_2, \quad L_1 + L_2 + L_3 \leq z \leq L_1 + 2L_2 + L_3 \\ U_2, & L_1 + L_2 \leq z \leq L_1 + L_2 + L_3 \end{cases} \quad (2)$$

Let's choose appropriate wave functions for each region,

$$\begin{aligned} \psi_L &= e^{(ik_L z)} + re^{(-ik_L z)}, & z \leq 0 \\ \psi_R &= te^{(ik_R z)}, & z \geq 2L_1 + 2L_2 + L_3 \\ \psi_1 &= A_1 e^{(ik_1 z)} + B_1 e^{(-ik_1 z)}, & 0 \leq z \leq L_1 \\ \psi_2 &= A_2 e^{(ik_2 z)} + B_2 e^{(-ik_2 z)}, & L_1 \leq z \leq L_1 + L_2, \\ \psi_3 &= A_3 e^{(ik_3 z)} + B_3 e^{(-ik_3 z)}, & L_1 + L_2 \leq z \leq L_1 + L_2 + L_3 \\ \psi_4 &= A_4 e^{(ik_4 z)} + B_4 e^{(-ik_4 z)}, & L_1 + L_2 + L_3 \leq z \leq L_1 + 2L_2 + L_3 \\ \psi_5 &= A_5 e^{(ik_5 z)} + B_5 e^{(-ik_5 z)}, & L_1 + 2L_2 + L_3 \leq z \leq 2L_1 + 2L_2 + L_3 \end{aligned} \quad (3)$$

This includes the following notations:

$$k_L = \sqrt{\frac{m_L E}{E_0}}, \quad k_R = \sqrt{\frac{m_R E}{E_0}}, \quad k_1 = \sqrt{\frac{m_1(E - U_1)}{E_0}}, \quad k_2 = \sqrt{\frac{m_2 E}{E_0}}, \quad k_3 = \sqrt{\frac{m_3(E + U_2)}{E_0}} \quad (4)$$

When calculating the probability of an electron transition, we apply conditions for continuous and non-refractive transitions within wave functions [7]:

$$\begin{aligned} \Psi_L|_{z=0} &= \Psi_1|_{z=0}, \quad \frac{1}{m_L} \frac{\partial \Psi_L}{\partial z} \Big|_{z=0} = \frac{1}{m_1} \frac{\partial \Psi_1}{\partial z} \Big|_{z=0} \\ \Psi_1|_{z=L_1} &= \Psi_2|_{z=L_1}, \quad \frac{1}{m_1} \frac{\partial \Psi_1}{\partial z} \Big|_{z=L_1} = \frac{1}{m_2} \frac{\partial \Psi_2}{\partial z} \Big|_{z=L_1} \\ \Psi_2|_{z=L_1+L_2} &= \Psi_3|_{z=L_1+L_2}, \quad \frac{1}{m_2} \frac{\partial \Psi_2}{\partial z} \Big|_{z=L_1+L_2} = \frac{1}{m_3} \frac{\partial \Psi_3}{\partial z} \Big|_{z=L_1+L_2} \\ \Psi_3|_{z=L_1+L_2+L_3} &= \Psi_4|_{z=L_1+L_2+L_3}, \quad \frac{1}{m_3} \frac{\partial \Psi_3}{\partial z} \Big|_{z=L_1+L_2+L_3} = \frac{1}{m_4} \frac{\partial \Psi_4}{\partial z} \Big|_{z=L_1+L_2+L_3} \\ \Psi_4|_{z=L_1+2L_2+L_3} &= \Psi_5|_{z=L_1+2L_2+L_3}, \quad \frac{1}{m_4} \frac{\partial \Psi_4}{\partial z} \Big|_{z=L_1+2L_2+L_3} = \frac{1}{m_5} \frac{\partial \Psi_5}{\partial z} \Big|_{z=L_1+2L_2+L_3} \\ \Psi_5|_{z=2L_1+2L_2+L_3} &= \Psi_R|_{z=2L_1+2L_2+L_3}, \quad \frac{1}{m_5} \frac{\partial \Psi_5}{\partial z} \Big|_{z=2L_1+2L_2+L_3} = \frac{1}{m_R} \frac{\partial \Psi_R}{\partial z} \Big|_{z=2L_1+2L_2+L_3} \end{aligned} \quad (5)$$

In equation (3), the coefficient "t", which is part of the wave function ψ_R , is considered important. With it, we calculate the probability of an electron transition using the formula:

$$D = \frac{m_L k_R |t|^2}{m_R k_L} \quad (6)$$

However, we calculate the probability of transition numerically, since it is much more difficult to find the coefficient "t" represented in formula (6). At the same time, the non-parabolicity of the zone was not taken into account. We also present a graph of the dependence of the probability of an electron transition on energy(E) and determine the energy values corresponding to its peaks.

When performing calculations, we use the following parameters:

Table 1. Thickness of each layer ($L_i(\text{nm})$), effective mass ($m_i^{(T)}/m_0$) and potential barrier height (U)

	$\text{In}_{0.47}\text{Ga}_{0.53}\text{As}$ ($L_L = L_R$)	AlAs	$\text{In}_{0.47}\text{Ga}_{0.53}\text{As}$	InAs
$L_i(\text{nm})$	1.5	1.5	0.9	1.84
$m_i^{(T)}/m_0$	0.046	0.123	0.046	0.023
Height of potential barriers,	$U_1=1.32$	$U_2=0.24$		

eV				

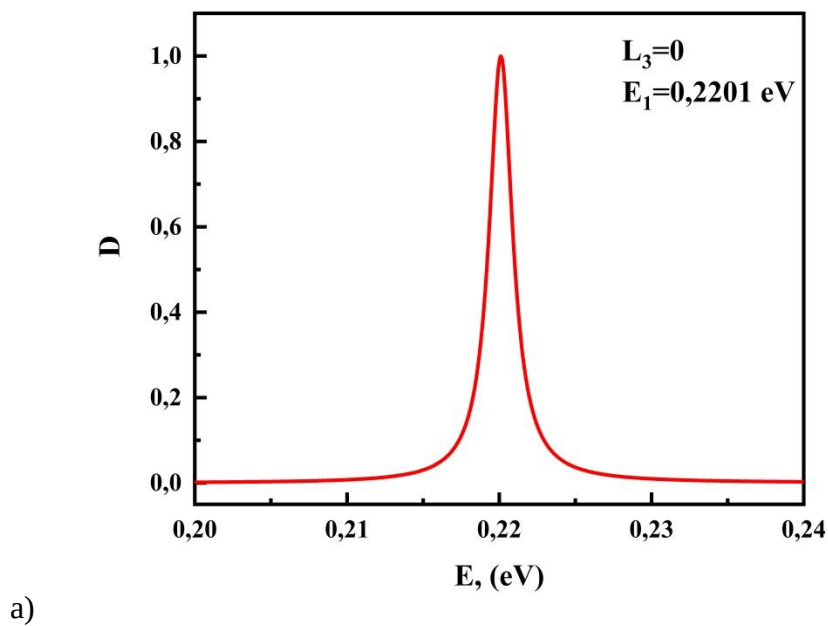
Here $m_i^{(\Gamma)} / m_0$ A_3B_5 are the the effective electron masses corresponding to the bottom of the parabola (at the point Γ) in the Brullion zone for substances.

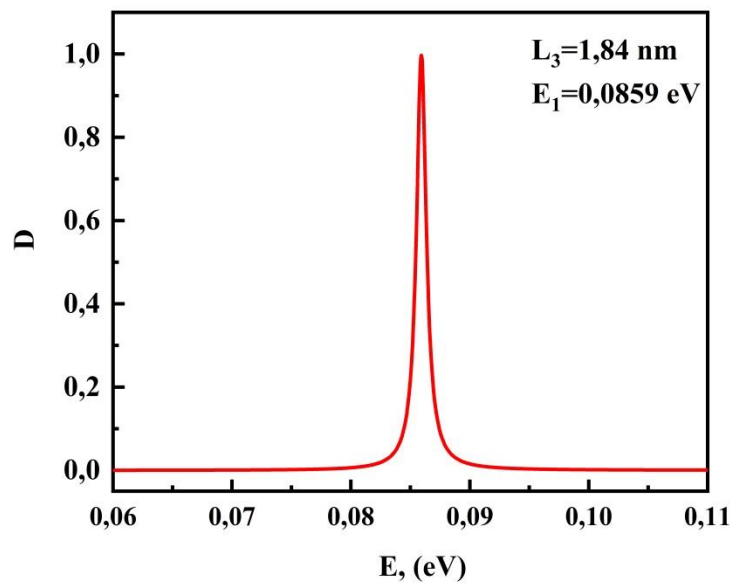
All calculations were performed for several values of the thickness of the potential barrier; for cases when no nanolayer was introduced into the quantum well ($L_3=0$) and when a thin InAs nanolayer with a thickness of $L_3=1.84$ nm was introduced, the results are presented in Table 2.

Table 2. This table presents the dependence of the 1st and 2nd electron energy levels (E_1 and E_2) on the thickness of the potential barrier (L_1) and the thickness of the embedded nanolayer (L_3).

	$L_3=0$				$L_3=1.84$ nm			
L_1 , nm	1.5	2	3	4	1.5	2	3	4
E_1	0.2201	0.2204	0.2204	0.2204	0.0859	0.0863	0.0864	0.0864
E_2	0.9532	0.9454	0.9421	0.9417	1.2759	1.2486	1.2297	1.2247

Table 2 shows that when a thin nanolayer is introduced into a quantum well, the first energy level decreases, and the second energy level increases. As the width of the potential barrier increases, the second layer partially decreases, and the first layer partially increases. This can also be seen in the following graphs (Fig. 2):





b)

Fig.2. Graph of the dependence of the probability of an electron transition on energy. The first energy level of the electron is: a) when the nanolayer is not embedded ($L_3=0$) and b) when the InAs monolayer is present ($L_3=1.84$ nm).

Figure 2 shows the probability of an electronic transition occurring along the ordinate axis and the energy value occurring along the abscissa axis. It can be seen from the figure that when a thin nanolayer is introduced into a quantum well, the value of the first energy level decreases.

The results obtained correspond to the results given in [1-3].

Conclusion

It can be seen from the results obtained that the magnitude of the energy level depends on the thickness of the InAs monolayer and the potential barrier introduced into the quantum well. When the InAs nanolayer is introduced, the first energy level shifts down, while the second energy level shifts up, and when the layer thickness increases, on the contrary, the first energy level partially increases, and the second energy level partially decreases. These values correspond to the results given in the literature.

References:

1. T.P.E. Broekaert, W. Lee, C.G. Fonstad, Pseudomorphic $\text{In}_{0.53}\text{Ga}_{0.47}\text{As}/\text{AlAs}/\text{InAs}$ resonant tunneling diodes with peak-to-valley current ratios of 30 at room temperature. *Appl. Phys. Lett.* 53(16),1545–1547 (1988). <https://doi.org/10.1063/1.99951>
2. V.D. Dymnikov, O.V. Konstantinov, *Fiz. Tekh. Poluprovodn.* (St. Petersburg) 29, 133, (1995) (*Semiconductors* 29, 70 (1995)). <https://journals.ioffe.ru/articles/viewPDF/18062>
3. Paziljon Baymatov, Bakhrom Abdulazizov and Makhmudjon Tokhirjonov. Electron eigenvalues in quantum well of $\text{AlAs}/\text{In}_x\text{Ga}_{1-x}\text{As}/\text{AlAs}$ heterostructures with InAs nanoinserts *Eur. Phys. J. B* (2023) 96:11. <https://doi.org/10.1140/epjb/s10051-023-00586-z>
4. Усанов Д. А., Скрипаль А. В. *Физические основы нанoeлектроники. Учебное пособие.* Саратов, 2013. — 128 с.
5. Абдулазизов Б.Т., Тохиржонов М.С., Байматов П.Ж. О статистике электронов в квантовой яме InAs/AlSb . *Архивариус. УКР.* 2016. ст.4
6. В.Я.Демиховский, Г.А.Вугальтер. *Физика квантовых низкоразмерных структур.* -М. Логос, 2000. -248 с: ил.
7. G. Bastard, J. A. Brum and R. Ferreira // *Electronic States in Semiconductor Heterostructures // Solid state physics, volume 44* Copyright © 1991 by Academic Press, pp 251-252
8. G. Gulyamov, P.J. Baymatov, B.T. Abdulazizov, M.S. Tokhirjonov. *Semiconductor Physics and Microelectronics* 3, No.1,40-46 (2021). <https://uzjournals.edu.uz/semiconductors>

9. B.T. Abdulazizov, G. Gulyamov, P.J. Baymatov, Sh.T. Inoyatov, M.S. Tokhirjonov. SPIN 12, No.1, 2250002 (7 pages) (2022)
DOI: 10.1142/S2010324722500023
10. P.J. Baymatov, A.G. Gulyamov, B.T. Abdulazizov, Kh.Yu. Mavlyanov, M.S. Tokhirjonov. International Journal of Modern Physics B 2150070, 1-13 (2022). DOI: 10.1142/S0217979221500703 (scopus)

Rezyume: Bu ishda, elektronning o'tish ehtimolligini ko'chish matritsasi yordamida sonli hisoblash natijalari keltirilgan. Bunda, hisoblashlar $AlAs/In_xGa_{1-x}As/AlAs$ geterotuzilmaga kiritilgan $InAs$ nanoqatlam va to'siq($AlAs$) qalinligining bir nechta qiymatlari uchun bajarilgan. O'tish ehtimolligining pikiga to'g'ri kelgan birinchi va ikkinchi energetik sathlarning qiymatlari ham berilgan. Bu energetik sathlar qiymatlari to'siq balandligining o'zgarishiga bog'liq ravishda o'zgarib borishi ham ko'rsatilgan.

Резюме: В данной работе приведены результаты численного расчета вероятности перехода электрона с помощью матрицы смещений. В этом случае расчеты выполнены для нескольких значений толщины нанослоя $InAs$ и барьера ($AlAs$), введенные в гетероструктуру $AlAs/In_xGa_{1-x}As/AlAs$. Приведены значения первого и второго энергетических уровней, соответствующие максимуму вероятности перехода. Также было показано, что значения этих энергетических уровней меняются в зависимости от изменения высоты барьера.

Kalit so'zlar: Tunnel diod, Ikki to'siqli geterotuzulma, Elektronning o'tish ehtimoligi, Energetik sath kengligi, Kvant o'ra, Nanoqatlam, $InAs$

Ключевые слова: Туннельный диод, гетероструктура с двойным барьером, вероятность перехода электрона, квантовая яма, нанослой, $InAs$,

CHARACTERISTICS OF SOMATIC DEVELOPMENT OF ATHLETES AND STUDENTS WHO DO NOT PLAY SPORTS

Sultansuynov A.S.

Karakalpak State University named after Berdakh

Summary: *This article presents the data on the analytical comparison of body weight and height indicators of sports boys aged 18 to 21 who regularly play sports and student boys who do not play sports.*

Key words: *Athlete, organism, somatic development, functional development, adaptive reaction, body weight, height.*

Introduction. One of the main problems of environmental physiology in recent times is the study of the functional reserves of the body of athletes who regularly engage in various sports, adapting to changing living conditions. Adaptive reactions of the athlete's body to certain conditions initially proceed by increasing the functional activity of organs and organ systems. Adaptive reactions of the body in optimal conditions for life activities require a certain level of minimal energy consumption, which is primarily spent on fundamental life processes. If the level of influencing factors is observed to exceed the optimal conditions, accordingly, the organism uses its adaptive mechanisms in connection with high energy consumption [1,2].

Athletes engaged in various sports provide their interaction with each other to ensure the ability to change the functional activity of the structural elements of the functional reserves of the body in the adaptation of the body to the influence of external environmental factors. It determines the activity of the organism in these specific conditions and the target efficiency to achieve the appropriate result of adaptation [3,4].

Organization of research. In this article, the body weight and height of male athletes who regularly play sports and student boys who do not play sports between the ages of 18 and 21 were analytically compared [5]. The students examined during the research were born and lived in different districts of the Republic of Karakalpakstan, in areas with different levels of environmental pollution, and during the same research studied at the Karakalpak State University and regularly live in the city of Nukus.

The result obtained. A comparative analysis of the results achieved during the conducted research shows that the growth indicators of the body of students who do not play sports at the age of 19 and 21 years are behind those of sports students (2.3 cm and 0.6 cm). From the age of 18, deviations in the growth indicators of students who do not play sports (standard deviation percentage of all ages was 0.46%) were found. According to the results of studying the somatic development of 20-year-old athletes and students who do not play sports, almost no differences in their growth were found.

Even at the age of 18, athletes who do regular sports naturally grow taller along with age. In each age group, student growth was found to be greater in athletic students than in non-athletic students. The standard deviation of the obtained results was 1.6%. It should also be noted that 19-year-old student-athletes had a 1.4% increase in height, leaving humanities students behind compared to student-athletes (2.3cm on average). However, it was found that the dynamics of the general indicator of height growth increased in both groups of students. This state of change can be attributed to the acceleration of all physiological processes in the body as a result of regular sports.

Based on the comparative analysis of the obtained results, it was possible to determine that the dynamics of height growth indicators in sports students is higher than the height growth indicators of non-sports students. Average annual height growth: 1.23 cm/year in sports students, and 0.9 cm/year in non-sports students, their height growth indicators were found to lag behind sports students (standard deviation 1.6%) .

The research on the comparative description of the body weight of all examined students showed that in all the considered age groups, it was found that the body weight of athletic students increased reliably ($p<0.01$) compared to non-athletic students. A comparative analysis of the results of athletes and non-athletic students showed that at the age of 18 there were almost no differences (0.7 kg), the body weight indicators of athletic students at the age of 19-20 and 21 were slightly higher than those of non-athletic students (1.7-2.4 and 1.9kg). The analysis showed that from all ages, the performance of student-athletes consistently increased by 0.7-0.9% of the performance of non-athletic students. Body weight of 21-year-old student-athletes was slightly higher than 18-year-old student-athletes (6.2kg) ($p<0.001$).

Comparatively, in all 18-19-year-old student-athletes, the increase in body weight was 2.2 kg, and in 20-21-year-olds it was 1.1 kg. The increase in body weight of students who do not play sports was 1.2 kg at the age of 18-19, and 1.6 kg at the age of 20-21.

Based on the obtained results, it can be concluded that the students who do not do sports are slightly behind in the increase of body weight compared to the students who regularly do sports.

According to the information of A.Q. Utepbergenov (2009) [6], the height growth indicators of athletes were on average 163.2 cm at the age of 18-19, and 164.5 cm at the age of 20-21 (Table 3.1). The height of 18-19-year-old non-sports students was 160.5 cm, and 20-21-year-old was 165.0 cm. Also, in our research, similar anthropometric studies were conducted for boys, and it was found that the average height of 18-19-year-old student-athletes was slightly higher, i.e. 163.3 cm. At the age of 20-21, the average height of student athletes was found to be relatively high, 165.9 cm. For 18-19-year-old students who do not play sports, the height growth indicators are 161.9 cm, and for 20-21-year-old students, 165.5 cm. was found to be.

Table 1

Comparative analysis of somatometric parameters in students who are athletes and non-athletes

Indicators	According to the work of A.K. Utepbergenov (2009)		Our data (2021)	
	18-19 years old	20-21 years old	18-19 years old	20-21 years old
Height of student athletes, cm.	163,2±0,71	164,5±1,2	163,3±0,9	165,9±1,3
Height of students who do not play sports, cm.	160,5±0,45	165,0±1,11	161,9±0,98	165,5±1,23
Body weight of student athletes, kg.	57,5±1,34	61,7 ±0,71	59,7±0,89	64,2± 0,83
Body weight of students who do not play sports, kg	55,0±0,87	56,5 ±0,54	58,5±0,76	62,1± 0,91

A.Q. Utepbergenov's comparative analysis of the average body weight of student-athletes in the first age group of 18-19 years showed that it was 57.5 kg, the result achieved in our research was found to be higher (59.7 kg). It was found that the body weight of student athletes in the adult group of 20-21 years (61.7 kg) is higher than the indicators in our research (64.2 kg).

Conclusion. Thus, according to the research carried out by A.Q. Utepbergenov in 2009, it was found to be slightly higher (2.5 kg) than the indicators of body weight (61.7 kg) and the indicators of our results obtained in 2021 (64.2 kg). According to A.Utepbergenov (2009), the body weight indicators for non-sports students aged 18-19 years were 55.0 kg, and 20-21 years old 56.5 kg. According to our results (2021), two It was found that the body weight indicators for the younger group are slightly higher (58.5 kg and 62.1 kg, respectively), which indicates that the living

and environmental conditions of the population of the Republic of Karakalpakstan have improved (the difference in growth is 3.5 kg and 5.6 kg) .

References:

1. Баевский Р.М., Берсенева А.П. Оценка адаптационных возможностей организма и риск развития заболеваний. - М. 1997. – 180 с.
2. Абсалямов Т.М. Роль и место науки в подготовке спортсменов высокого класса // Теория и практика физической культуры. 2003. - №10. - С.17-18.
3. Андрющенко Л.Б. Мониторинг физического развития студенческой молодежи Волгоградской области // Вестн. Волгоградского гос. мед. ун-та. 2005. - № 2/14. - С. 31-33
4. Искандарова Г.Т. Морфофункциональное состояние дыхательной системы юношей 18-27 летнего возраста, проживающих в условиях Узбекистана // Санитария и гигиена. 2006. - № 3. - С. 72-75.
5. Черноуцкий М.В. Учение о конституции в клинике внутренних болезней // Труды 7-го съезда российских терапевтов. Л. - 1938. 65 с.
6. Утепбергенов А.К. – Исследование состояния сердечно-сосудистой системы у спортсменов – коренных жителей Республики Каракалпакстан // Вестник ККО АН РУз, 2009. - № 3. - С. 69-72.

Rezyume: *Ushbu maqolada 18 yoshdan 21 yoshgacha bo'lgan muntazam sport bilan shug'ullanuvchi sportchi o'g'il bolalar va sport bilan shug'ullanmaydigan talaba o'g'il bolalar tana vazni, bo'yining uzunligi ko'rsatkichlari tahliliy solishtirilganligi haqidagi ma'lumotlar berilgan.*

Резюме: *В статье представлены данные аналитического сравнения показателей массы тела и роста спортивных юношей 18-21 года, регулярно занимающихся спортом, и юношей-студентов, не занимающихся спортом.*

Kalit so'zlar: *Sportsmen, organizm, somaticheskoe razvitie, funktsionalnoe razvitie, prisposobitelnaya reaktsiya, massa tela, rost.*

Ключевые слова: *Спорт, спортсмен, студент, конституция тела, астеник, нормостеник, гиперстеник, строение тела спортсмена.*

ABOUT SOME METHODS OF GEOMETRIC MODELING OF 2D/3D OBJECTS OF COMPLEX FRACTAL STRUCTURE

Nurimbetov B.T.

Tashkent University of Information Technologies named after Muhammad al-Khwarizmi

Summary: Within the framework of this study, geometric modeling of 2D/3D objects of complex fractal structure using analytical methods such as IFS, RFM, as well as... In particular, geometric models and an algorithm of fractal structure objects were developed using the analytical construction method R functions (RFM), methods and algorithms for visualizing images of a fractal shape have been developed based on the structures of Pascal's triangle and residues over prime numbers, a method and algorithm for geometric modeling of objects of a fractal structure using geometric computer graphics transformations of displacement, rotation, scaling and reflection have been created, and the schematic structure of the software tool has been developed accordingly, which automates the visualization of 2D/3D objects of fractal structure using analytical methods. The practical results of the research are as follows: geometric models of fractal structure objects were constructed using geometric transformations and analytical methods, as well as based on the R-function method and the theory of binomial polynomials with arithmetic properties of both classical fractals and fractal-structured objects with a false shape.

Keywords: geometric modeling, fractal structure, 2D/3D fractals, iterated function systems (IFS), Pascal's triangle, R-function method (RFM).

I. INTRODUCTION

One of the important tasks in the world is the development of geometric models and algorithms of objects with a fractal structure, as well as methods of their implementation.

Fractals are mathematical objects that show self-similarity at different scales. They are attractive and beautiful because of their intricate patterns and complexity. Fractal structures are found in nature, from the branching patterns of trees to the complex shapes of snowflakes [1]. In this article, we will look at how to build objects with fractal structures.

There are different ways to create fractal structures, and each method has its own algorithm and image. In this article, we will see the most widely used of the available methods. Information on 3D fractals and their geometric modeling [2-3] can also be seen in detail in these scientific works.

Currently, two well-known classical methods are used to construct fractals, the L-system method, the so-called turtle graphics method, and the reduction mapping system-based method, the Iterated Functional Systems (IFS). In this article we will briefly describe them.

II. MAIN PART

L-systems. L-systems are one of the methods used to describe the growth and development of plants and other natural objects. They consist of a set of rules that define how to expand or replace an object at each iteration [4].

For the implementation of L-systems, the so-called Turtle (turtle algorithm) graphic systems are used as part systems. In this case, the turtle point moves on the screen, with discrete steps, drawing its own track, as in the rule, or, if necessary, moves without drawing [5].

Iterative function systems (IFS). Another common way to create fractal structures is IFS (Iteration function system). This is a method of constructing fractals by repeatedly applying a set of transformations to the initial object [6,7]. In this method, transformations are randomly selected from the set of affine transformations. The IFS algorithm is simple and efficient, and it can generate a wide range of fractal shapes [6].

[8] In this work, the construction of the Serpin carpet is presented: a deterministic algorithm (levels 1,2,3,4,5,6), presented here as a compact set in the form of a triangle. When using the R-functions method, you can use an arbitrary set, that is, the form [8,9].

Next, we will consider the use of the R-function method in combination with the system of repeated functions in the construction of the Serpin carpet in three-dimensional form.

As a system of R-functions, we get a special case, namely [8]:

$$\begin{aligned}\bar{x} &\equiv -x \\ x_1 \wedge_0 x_2 &\equiv x_1 + x_2 - \sqrt{x_1^2 + x_2^2}; \\ x_1 \vee_0 x_2 &\equiv x_1 + x_2 + \sqrt{x_1^2 + x_2^2};\end{aligned}\quad (1)$$

First, we create a parallelepiped (cube) shape: Let $a = b = c$,

$$\begin{aligned}f_1 &\equiv (a - x)x \geq 0; \\ f_2 &\equiv (b - y)y \geq 0; \\ f_3 &\equiv (c - z)z \geq 0; \\ E_0: f &\equiv f_1 \wedge_0 f_2 \wedge_0 f_3\end{aligned}\quad (2)$$

And in order to construct a three-dimensional object [10], the following two geometric substitutions are used [11]:

$$\begin{aligned}x' = \alpha x, y' = \beta y, z' = \gamma z, (\alpha = \beta = \gamma = \frac{1}{3}); \\ \begin{cases} x' = x + a, \\ y' = y + b, \\ z' = z + c. \end{cases}\end{aligned}\quad (3)$$

First, let us be given a three-dimensional parallelepiped (cube) shape (Fig. 1):

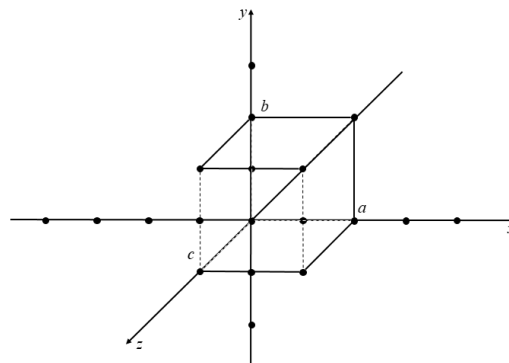


Figure 1. Three-dimensional parallelepiped (cube).

The IFS configuration of a Menger sponge requires recursively applying affine permutations to a set of points [12]. However, subtly changing the rules of creation can produce a variety of complex shapes. The recursive nature of this modified Menger's sponge gives rise to a series of structures that are not complicated.

So, at the next stage of the work, we will create a three-dimensional Menger sponge by performing affine substitutions. For general case:

$$\begin{aligned}T_1(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}, \\ T_2(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} a/3 \\ 0 \\ 0 \end{pmatrix},\end{aligned}$$

$$\begin{aligned}
 T_3(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 2a/3 \\ 0 \\ 0 \end{pmatrix}, \\
 T_4(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 0 \\ b/3 \\ 0 \end{pmatrix}, \\
 T_5(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 2a/3 \\ b/3 \\ 0 \end{pmatrix}, \\
 T_6(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 0 \\ 2b/3 \\ 0 \end{pmatrix}, \\
 T_7(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} a/3 \\ 2b/3 \\ 0 \end{pmatrix}, \\
 T_8(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 2a/3 \\ 2b/3 \\ 0 \end{pmatrix}, \\
 T_9(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 0 \\ 0 \\ c/3 \end{pmatrix}, \\
 T_{10}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 2a/3 \\ 0 \\ c/3 \end{pmatrix}, \\
 T_{11}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 0 \\ 2b/3 \\ c/3 \end{pmatrix}, \\
 T_{12}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 2a/3 \\ 2b/3 \\ c/3 \end{pmatrix}, \\
 T_{13}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 0 \\ 0 \\ 2c/3 \end{pmatrix}, \\
 T_{14}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} a/3 \\ 0 \\ 2c/3 \end{pmatrix},
 \end{aligned} \tag{4}$$

$$\begin{aligned}
 T_{15}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 2a/3 \\ 0 \\ 2c/3 \end{pmatrix}, \\
 T_{16}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 0 \\ b/3 \\ 2c/3 \end{pmatrix}, \\
 T_{17}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 2a/3 \\ b/3 \\ 2c/3 \end{pmatrix}, \\
 T_{18}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 0 \\ 2b/3 \\ 2c/3 \end{pmatrix}, \\
 T_{19}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} a/3 \\ 2b/3 \\ 2c/3 \end{pmatrix}, \\
 T_{20}(E_0) &= \begin{pmatrix} 1/3 & 0 & 0 \\ 0 & 1/3 & 0 \\ 0 & 0 & 1/3 \end{pmatrix} (E_0) + \begin{pmatrix} 2a/3 \\ 2b/3 \\ 2c/3 \end{pmatrix}.
 \end{aligned}$$

For general case:

$$T_i(X) = M * X + A_i, \quad (5)$$

here,

$$T_i = \{T_1, T_2, T_3, T_4\}, M = \begin{pmatrix} \alpha & 0 & 0 \\ 0 & \beta & 0 \\ 0 & 0 & \gamma \end{pmatrix}, X = \begin{pmatrix} x_i \\ x_i \\ x_i \end{pmatrix}, A_i = \begin{pmatrix} a_i \\ b_i \\ c_i \end{pmatrix},$$

$\begin{pmatrix} \alpha & 0 & 0 \\ 0 & \beta & 0 \\ 0 & 0 & \gamma \end{pmatrix}$ – scaling matrix, i.e. α, β, γ – are scaling vector coefficients, $i = 1, 2, \dots, 20$.

Given the following sequences in the deterministic algorithm [13,14]:

$$\begin{aligned}
 E_0 &= \text{initial form,} \\
 E_1 &= T_1(E_0) \cup T_2(E_0) \cup \dots \cup T_{20}(E_0), \\
 &\dots \\
 E_n &= T_1(E_{n-1}) \cup T_2(E_{n-1}) \cup \dots \cup T_{20}(E_{n-1}).
 \end{aligned} \quad (6)$$

These pictures (Fig. 2, Fig. 3, Fig. 4) show the location of shapes relative to the z-axis.

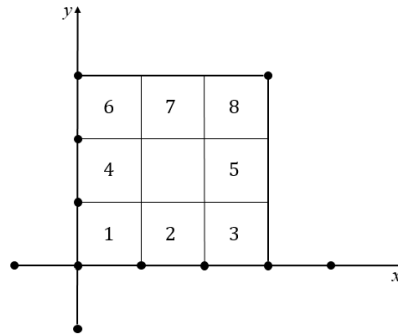


Figure 2. Location of shapes in position $Z=0$

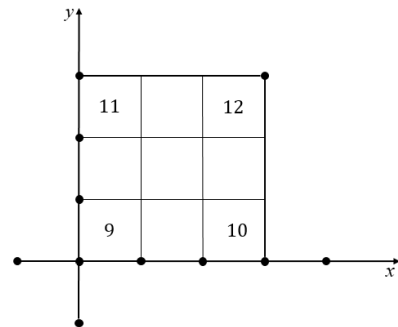


Figure 3. Arrangement of forms in the case of $Z=1/3$.

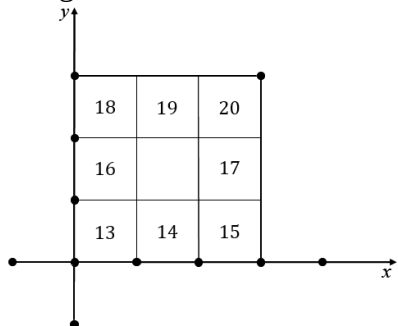


Figure 4. Arrangement of forms in case $Z=2/3$.



Figure 5. Three-dimensional Menger fractal view

III. Conclusion

In conclusion, the combination of the R-function method with the IFS method is an efficient method for generating three-dimensional fractals. The resulting fractal structures show self-similarity in three dimensions and create visually complex objects.

References:

1. Nuraliev, F., Narzulloyev, O., Tastanova, S. (2023). Optimization of Fractal Structure Pattern Colors in Carpet Design Using Genetic Algorithm. In: Zaynidinov, H., Singh, M., Tiwary, U.S., Singh, D. (eds)

Intelligent Human Computer Interaction. IHCI 2022. Lecture Notes in Computer Science, vol 13741. Springer, Cham.

2. Domenech J. F., Escalona F., Gomez-Donoso F. and Cazorla M., "A Voxelized Fractal Descriptor for 3D Object Recognition," in IEEE Access, vol. 8, pp. 161958-161968, 2020, doi: 10.1109/ACCESS.2020.3021455.

3. Wang C. and An W. "An Improved 3D Box-Counting Dimension Computing Technology for Estimating the Complexity of 3D Models," in IEEE Access, vol. 10, pp. 119314-119320, 2022, doi: 10.1109/ACCESS.2022.3221458.

4. Kenneth Falconer. Fractal Geometry mathematical foundations and applications. Third edition / 2014 John Wiley & Sons, Ltd. -357p.

5. Przemyslaw Prusinkiewicz, Aristid Lindenmayer. The Algorithmic Beauty of Plants / Springer-Verlag, New York, in 2004. – 240-p.

6. Перерва Л.М. Юдин В.В. Фрактальное моделирование: учебное пособие. / В.Н. Гряника. – Владивосток: Изд-во ВГУЭС, 2007. 186 с.

7. Кроновер Р. М. Фракталы и хаос в динамических системах. Основы теории. Москва: Постмаркет, 2000. — 352 с.

8. Метод R-функций в задачах об изгибе и колебаниях пластин сложной формы / В. Л. Рвачев, Л. В. Курпа, Н. Г. Склепус, Л. А. Учишвили. – Киев: Наук. думка, 1973. – 123 с

9. Кравченко В.И., Басараб М.А. Булева алгебра и методы аппроксимации в краевых задачах электродинамика. – М.: Издательство Физико-математической литературы, 2004. – 308 с.

10. F. Nuraliev, O. Nazrullaev, N. Egamberdiev, S. Tastanova. Optimization of colors in complex fractal images of carpet products Chemical technology control and management 2 (104), 19-29.

11. Толок А. В. Функционально-вексельный метод в компьютерном моделировании / Под ред. академика РАН С.Н. Васильева. — М.: ФИЗМАТЛИТ, 2016. - 112 с.

12. Анарова Ш.А., Тешабасев Т.З., Нуралиев Ф.М., Абдукаримов С.С. Построение уравнений квадрата спиралеобразных фракталов. “Мухаммад ал-Хоразмий авлодлари” илмий-амалий ва ахборот-таҳлилий журнал.1(17), 2019. - Б. 121-124

13. Nuraliev F. M., Narzulloyev O.M., Tastanova S.A. Genetik algoritm yordamida gilam dizaynida fraktal tuzilishli naqsh ranglarini optimallashtirish. “Muhammad al-Xorazmiy avlodlari”, № 3 (21), 2022. – B. 200-204

14. Bulusu R., Jibitesh M. Developing fractals using iterated function system. // Arpn journal of engineering and applied sciences vol. 13, no. 4, pp. 1402-1409, 2018.

Rezyume: *Ushbu tadqiqot doirasida IFS, RFM kabi analitik usullardan foydalangan holda murakkab fraktal strukturaning 2D/3D obyektlarini geometrik modellashtirish masalasi ko'rib o'tildi. Xususan, geometrik modellar va analitik konstruksiya usulidan foydalangan holda fraktal tuzilish obyektlarining algoritmi, R-funksiyalari (RFM) ishlab chiqildi. Paskal uchburchagi tuzilmalari va tub sonlardagi qoldiqlar asosida fraktal shakl tasvirlarini vizualizatsiya qilish usullari va algoritmlari, fraktal tuzilish obyektlarini geometrik modellashtirish usuli va algoritmi ishlab chiqildi. O'zgartirish, aylantirish, masshtablash va aks ettirishning geometrik, kompyuter grafik o'zgarishlari yaratildi va shunga mos ravishda analitik usullar yordamida fraktal tuzilmaning 2D/3D obyektlarini vizuallashtirishni avtomatlashtiruvchi vosita dasturiy ta'minotning sxematik strukturasi ishlab chiqildi. Tadqiqotning amaliy natijalari quyidagilardan iborat: fraktal tuzilish obyektlarining geometrik modellari geometrik o'zgartirishlar va analitik usullardan foydalangan holda, shuningdek R-funksiya usuli va klassik fraktallarning ham arifmetik xususiyatlariga ega binomial ko'phadlar nazariyasi asosida qurilgan.*

Резюме: *В рамках данного исследования рассматривалась задача геометрического моделирования 2D/3D объектов сложной фрактальной структуры с использованием аналитических методов, таких как IFS, RFM. В частности, разработан алгоритм фрактальной структуры объектов R-функций (RFM) с использованием геометрических моделей и метода аналитического построения. На основе треугольных структур Паскаля и остатков в простых числах разработаны методы и алгоритмы визуализации изображений фрактальных форм, метод и алгоритм геометрического моделирования объектов фрактальной структуры. Созданы геометрические, компьютерно-графические преобразования трансформации, вращения, масштабирования и отражения и соответственно разработана схематическая структура инструментального программного*

обеспечения для автоматизации визуализации 2D/3D объектов фрактальной структуры аналитическими методами. Практические результаты исследования таковы: с использованием геометрических преобразований и аналитических методов, а также метода R-функции и теории биномиальных полиномов с арифметическими свойствами классических фракталов построены геометрические модели объектов фрактальной структуры.

Kalit so‘zlar: geometrik modellashtirish, fraktal struktura, 2D/3D fraktallar, takrorlangan funksiya tizimlari (IFS), Paskal uchburchagi, R-funksiya usuli (RFM).

Ключевые слова: геометрическое моделирование, фрактальная структура, 2D/3D фракталы, системы итерированных функций (IFS), треугольник Паскаля, метод R-функций (RFM).

COMPARATIVE ANALYSIS OF BODY CONSTITUTION INDICATORS OF BOYS WHO DO NOT PLAY SPORTS AND SPORTS

Sultansuynov A.S.

Karakalpak State University named after Berdakh

Summary: *In this article, the data on the comparative analysis of the characteristics of the body constitution of student boys who are athletes and non-athletes living in the conditions of the Republic of Karakalpakstan are presented and determined.*

Key words: *Sport, athlete, student, body constitution, asthenic, normosthenic, hypersthenic, athlete's body structure.*

Introduction. It is well known that the organism is affected by any factors of various endogenous and exogenous types, as a response, protective adaptive reactions. These reactions are manifested by changes in the nervous and humoral regulation of blood circulation, before energy exchange. At the same time, changes in the neurohumoral regulation of blood circulation are reflected in the ratio of the rate of the sinus heart rate indicator. In this regard, body ratio indicators are not the same in different sex, age and ethnic groups, even in the same age groups these indicators differ, and body composition ratios can change under the influence of physical exercise. The size of the chest also undergoes changes. Changes are observed in the size of the body structure as a result of the effect of sports training.

Methods used in the study. In this study, the antropometry method of general physiology was used.

The result obtained. Changes in the body structure of athletes, depending on the type of sport, allows to determine the characteristic features of the body structure that help to achieve high performance results. For example, J. Tanner (1964) shows that the difference in the body structure of athletes can be a decisive factor in certain conditions to achieve high results in sports [1, 4].

Professor V. M. Chernorutsky studied body structure indicators by dividing them into three main types [2]:

1. Asthenic.
2. Normosthenic.
3. Hypersthenic.

Asthenic type of body constitution (structure) type with a relatively low diaphragm position, the chest is elongated from top to bottom (and relatively reduced in circumference), elongated neck, narrow shoulders, long and slender limbs, height that is usually much higher than the average height. will have indicators. Muscle mass is less developed, - however, even in women, the amount of adipose tissue is usually below average. Features of the internal structure - due to an elongated chest - the heart volume is usually small, and the heart is drop-shaped, elongated, the lungs are slightly elongated, and the absorption capacity of the gastrointestinal tract is low [2,3].

Normosthenic body type is characterized by a good development of muscle mass (significantly better than hypersthenic body type) and, as a result, having a well-developed bone skeleton. The amount of adipose tissue in the body is approximately average. Features of the internal structure - the chest is convex, shoulders are wide, the length of the limbs is proportional [3]. All body characteristics correspond to the average value.

Hypersthenic - body type is characterized by a high diaphragm position, relatively large heart, usually lower than average body weight for height, round chest - flattened from top to bottom, usually a short neck [2]. The features of the internal structure are structured in relation to the round chest. It is characterized by the amount of adipose tissue in the body, which is usually higher than average, and high blood cholesterol. It is also characterized by a high absorption capacity of the gastrointestinal tract.

Information on body composition helps athletes to make the right choice of sports, as well as help to choose special exercises to eliminate deficiencies in body composition proportions and individualize sports training.

Table 1

Body composition indicators of student athletes (boys) (n=75)

№	Age	Number	Body type (%)		
			Asthenic	normosthenic	Hypersthenic
1	18	17	50,0	44,2	5,8
2	19	20	55,2	44,4	0,4
3	20	18	44,0	46,2	9,8
4	21	20	45,0	45,5	9,5
	Total	75	48,55	45,07	6,38

In the process of studying the typological features of the physical development and functional condition of sports students, it was found that there are significant differences in different types of body structure, as well as in students who do not play sports in the Republic of Karakalpakstan (Tables 1-2).

The analysis of the results obtained on the body structure of student athletes showed that 48.55% of student athletes have an asthenic body, that is, a good body structure, 45.07% are normosthenic athletes, and 6.38% of athletes have a hypersthenic body structure. It should be noted that 20-21-year-old athlete students with asthenic body structure had similar indicators of body structure, which were 44.0% and 45.0%, respectively.

As a result of the conducted analysis, it was found that the maximum indicator of the normosthenic body structure is 46.2% in 20-year-old student athletes, and it is 45.5% in average in 21-year-old students. Among the hypersthenic type, the highest rate was observed to be 9.8-9.5% in 20-21-year-old student athletes. In other age groups, the ratio was from 0.4% to 9.8% ($p < 0.01$).

Table 2

Body composition indices of non-athletic students (boys) (n=82)

№	Age	Number	Body type (%)		
			Asthenic	normosthenic	Hypersthenic
1	18	20	85,0	15,0	1,3
2	19	20	74,2	24,5	6,0
3	20	20	42,0	52,0	4,3
4	21	22	35,6	60,1	11,3
	Total	82	59,1	37,9	5,72

Among students who do not regularly play sports, it is observed that there are different results in terms of body composition compared to athletes. That is, according to the data presented in Table 2, it can be seen that students aged 18-19 years had mainly asthenic body structure, 85.0% - 74.2%, respectively, and among students aged 20-21 years, students with normosthenic body structure respectively It was 52.0% and 60.1%.

Conclusion. It should be noted that the same indicators of asthenic body structure of 20-21-year-old students who do not do regular sports are 42.0% and 35.6%, respectively, the maximum indicator of normosthenic body structure is 60.1% in 21-year-old students, and in 20-year-old students - was 52.0%. Among hypersthenics, the highest rate was found among older students of the humanities faculty - 11.3% at the age of 21, while it was found to be from 1.3 to 6.0% ($p < 0.05$) in other age groups.

Based on the analysis of the results of the study, it was shown that 20-21-year-old student athletes have a strong body structure, which should be confirmed as a result of systematic regular physical activity, which has a positive effect on the somatic development of students.

References:

1. Таннер Дж. Рост и конституция человека. // Биология человека: Пер. с англ. - М.: Мир, 1979. - С. 43-51.
2. Черноруцкий М.В. Учение о конституции в клинике внутренних болезней // Труды 7-го съезда российских терапевтов. Л. - 1938. 65 с.
3. Утепбергенов А.К. – Исследование состояния сердечно-сосудистой системы у спортсменов – коренных жителей Республики Каракалпакстан // Вестник ККО АН РУз, 2009. - № 3. - С. 69-72.
4. Тлеумуратова Б.С., Мамбетуллаева С.М., Кудайбергенова У.К. Исследование связи между загрязнением атмосферы и ростом заболеваемости в Южном Приаралье // Вестник ККО АН РУ, 2014. - №3, - С. 45-49.

Rezyume: *Ushbu maqolada Qoraqalpog'iston Respublikasi sharoitida yashovchi sportchi va sport bilan shug'ullanmaydigan talaba o'g'il bolalarning tana konstitutsiyasi xususiyatlarining qiyosiy tahlil ko'rsatkichlari haqidagi ma'lumotlar keltirilgan va aniqlangan.*

Резюме: *В данной статье представлены и определены данные сравнительного анализа особенностей телосложения юношей-студентов спортсменов и неспортсменов, проживающих в условиях Республики Каракалпакстан.*

Kalit so'zlar: *Sport, sportchi, talaba, tana konstitutsiyasi, astenik, normostenik, giperstenik, sportchi tana tuzilishi.*

Ключевые слова: *Спорт, спортсмен, студент, конституция тела, астеник, нормостеник, гиперстеник, строение тела спортсмена.*

PARTICLE MOTION AROUND A ROTATING BLACK HOLE IN QUINTESSENCE

Oteev T.P¹, Sharibaev M.B²,

¹Nukus state pedagogical institute named after Ajiniyaz,

²Karakalpak state university named after Berdakh

Summary: We study motion and collision of particles in the gravitational field of rotating black hole immersed in quintessential dark energy characterized with the quintessential parameter governing the equation of state of the dark energy, and the dimensionless quintessential field parameter . We focus on the motion of particles due to quintessential field parameter .

Key words: black holes, quintessence, particle motion

Distant Ia-type supernova explosions confirm that a very small relict repulsive cosmological constant $\Lambda > 0$, in other words, a dark energy demonstrating repulsive gravitational effect is necessary to explain the accelerated expansion of the Universe at the current epoch of evolution [1]. These results are supported through observation of the cosmic microwave background thermal anisotropies by the space observatory PLANCK.

The dark energy represents more than 73% of the total energy content of the observable universe, equation of state of the dark energy is similar to that of the vacuum energy, however dark energy being related to the so called quintessence is also not excluded. The quintessence is defined as a scalar field coupled to gravity with the potential which decreases as the gravitational field increases. The cosmological and astrophysical phenomena of the cosmic repulsion provide recent value of the cosmological constant to be $\Lambda \approx 1.3 \times 10^{-56} \text{ cm}^{-2}$ [2].

The existence of the vacuum energy or the quintessence modifies essentially the asymptotic behavior of black-hole, naked singularity, or any compact object backgrounds, as such backgrounds cannot be asymptotically flat spacetimes. In these spacetimes, an existence cosmological horizon is always allowed, behind which the geometry is definitely dynamic.

The importance of the repulsive cosmological constant has been widely discussed in the recent models of mass concentrations in the expanding universe, motion of gravitationally bound galaxies and in the structure of accretion discs.

Therefore, it is also relevant to study the possible role of the quintessential field in the physical processes occurring around black holes. The solution for a static black hole surrounded by a quintessence field has been derived by Kiselev [3]. It has the state parameter in the range $\omega_q \in (-1, -1/3)$. A quintessential rotating black hole solutions have been recently introduced in Toshmatov et al.[4]

In the present paper we study acceleration of particles due to the so called Banados, Silk and West (BSW) process in the quintessential black hole backgrounds, according to which may collide with arbitrarily high center-of-mass energy in vicinity of the black hole horizon. Here we extend our previous studies of the BSW effect realized both for various black, and naked singularity spacetimes. The acceleration of the particles near the naked singularity has also been extensively studied in. The dynamics of a charged particle moving around a Schwarzschild black hole surrounded by quintessence matter immersed in an external magnetic field has been recently studied in Jamil et al. In this work we use geometric units such that the gravitational constant and the speed of light are both equal to unity $G=c=1$.

The solution for static quintessential black hole can be generalized to the rotational one using the standard methods developed by Newman and Janis. The line element of the quintessential rotating spacetime in the standard Boyer-Lindquist coordinates takes the form

$$ds^2 = g_{tt} dt^2 + g_{rr} dr^2 + 2g_{t\varphi} dt d\varphi + g_{\theta\theta} d\theta^2 + g_{\phi\phi} d\phi^2 \quad (1)$$

with

$$\begin{aligned}
 g_{tt} &= -1 + \frac{2Mr + \tilde{c}r^{1-3\omega_q}}{r^2 + a^2 \cos^2 \theta}, \\
 g_{rr} &= \frac{r^2 + a^2 \cos^2 \theta}{a^2 - 2Mr + r^2 - \tilde{c}r^{1-3\omega_q}}, \\
 g_{t\varphi} &= -a \frac{2Mr + \tilde{c}r^{1-3\omega_q}}{r^2 + a^2 \cos^2 \theta} \sin^2 \theta, \\
 g_{\theta\theta} &= r^2 + a^2 \cos^2 \theta, \\
 g_{\varphi\varphi} &= \left(a^2 + r^2 + a^2 \sin^2 \theta \frac{2Mr + \tilde{c}r^{1-3\omega_q}}{r^2 + a^2 \cos^2 \theta} \right) \sin^2 \theta
 \end{aligned} \tag{2}$$

Here M and a are the gravitational mass and the specific angular momentum of the black hole, respectively. $\omega_q \in (-1, -1/3)$ is the dimensionless quintessential equation of state parameter and it governs the quintessential field's equation of state as $p = \omega_q \rho$ where p and ρ are the pressure and energy density of the quintessential field, respectively. The presence of the quintessential field leads to the geometry to be Ricci non-flat. Note, that when the quintessential field parameter $\tilde{c} = 0$ the rotating quintessential geometry reduces

to the known Kerr geometry. Further, taking $a = 0$ and $\tilde{c} = 0$ limit one can also arrive to the Schwarzschild metric.

The whole set of equations of motion for massless and massive test particles has been studied in [5]. Here we will concentrate our study to the special case of motion of test particles at the equatorial plane around the rotating quintessential black hole. In order to compute the trajectories of the geodesic motion of a test particle in the equatorial plane ($\theta = \frac{\pi}{2}$) one needs to introduce the Lagrangian as:

$$2L = g_{\alpha\beta} \frac{\partial x^\alpha}{\partial \tau} \frac{\partial x^\beta}{\partial \tau}$$

From this equation one can get

$$2L = g_{tt} \dot{t}^2 + g_{rr} \dot{r}^2 + 2g_{t\varphi} \dot{t} \dot{\varphi} + g_{\varphi\varphi} \dot{\varphi}^2 \tag{3}$$

Here, the overdots denote the derivatives of coordinates with respect to proper time. Due to independence of Lagrangian on the t and φ coordinates associated momenta p_t and p_φ are conserved

$$p_t = \frac{\partial L}{\partial \dot{t}} = g_{tt} \dot{t} + g_{t\varphi} \dot{\varphi} = -\frac{E}{m} = \varepsilon = \text{const}, \tag{4}$$

$$p_\varphi = \frac{\partial L}{\partial \dot{\varphi}} = g_{t\varphi} \dot{t} + g_{\varphi\varphi} \dot{\varphi} = \frac{L}{m} = l = \text{const}, \tag{5}$$

$$p_r = g_r \dot{r}, \tag{6}$$

$$p_\theta = 0, \tag{7}$$

where m is mass of the test particle. ε and l are the specific energy and angular momentum of the test particle per unit mass, respectively.

Further, one may write the Hamiltonian $H = p_t \dot{t} + p_r \dot{r} + p_\phi \dot{\phi} - L$ through the components of metric tensor as

$$2H = (g_{tt} \dot{t} + g_{t\phi} \dot{\phi}) \dot{t} + g_{rr} \dot{r}^2 + (g_{t\phi} \dot{t} + g_{\phi\phi} \dot{\phi}) \dot{\phi} = -\varepsilon \dot{t} + l \dot{\phi} + g_{rr} \dot{r}^2 = \xi = \text{const} \quad (8)$$

Here parameter ξ is equal to -1, 0 or +1 for time-like, light-like and space-like geodesics, respectively. By solving Eqs. (4) and (5) simultaneously, one may get

$$\dot{t} = \frac{g_{\phi\phi} \varepsilon + g_{t\phi} l}{g_{t\phi}^2 - g_{tt} g_{\phi\phi}}, \quad (9)$$

$$\dot{\phi} = -\frac{g_{t\phi} \varepsilon + g_{tt} l}{g_{t\phi}^2 - g_{tt} g_{\phi\phi}}. \quad (10)$$

Inserting (9) and (10) into (8) and considering particle as moving along the time-like trajectory ($\xi = -1$) one may get the expression for the radial velocity of the particle around rotating black hole in quintessence as

$$\dot{r}^2 = r^{-3(1+\omega_q)} (r^{3\omega_q} (-a^2 r + (2M - r)(l^2 + r^2) - 4alM \varepsilon + (r^3 + a^2(2M + r)) \varepsilon^2) + \tilde{c} (r^2 + (l - a\varepsilon)^2)) \quad (11)$$

$$\text{The expression (11) could be written in the following form } \dot{r}^2 = (\varepsilon - V_{\text{eff}}^+)(\varepsilon - V_{\text{eff}}^-) \quad (12)$$

At the turning points $\dot{r} = 0$, Eq. (11) is quadratic for ε whose solution is

$$\varepsilon = \frac{al(\tilde{c} + 2mr^{3\omega_q}) \pm \sqrt{(-\tilde{c}r^2 + r^{3\omega_q+1}\Delta)\Pi}}{a^2\tilde{c} + r^{3\omega_q}(r^3 + a^2(2M + r))} \quad (13)$$

which gives $\varepsilon = V_{\text{eff}}$, the effective potential. Here we introduced the notations

$\Pi = a^2\tilde{c} + r^{3\omega_q}(a^2(2M + r) + (l^2 + r^2))$ and $\Delta = a^2 - 2Mr + r^2$. We consider only V_{eff}^+ because V_{eff}^- is irrelevant.

Now we investigate the dependence of the effective potential on $\tilde{c}$ that represents quintessence matter around black hole and the ω_q that represents the state of the quintessence matter field for rotating black hole in quintessence. We draw the dependencies of the effective potential of the test particle keeping either $\tilde{c}$ or ω_q constant while taking the different values of other parameters. And one can see the influence of the $\tilde{c}$ and ω_q parameters on the shape of the effective potential and the event horizon by comparing the effective potentials.

According to Fig.1 there are three possible circular orbits around the rotating black hole in quintessence at effective potential's extremum points depending on energy of the coming particle. Further as quintessential parameter increases particles coming from infinity to quintessential black hole may have circular or finite motion with lower energies E . The situation is same for quintessential state parameter ω_q according to Fig.2.

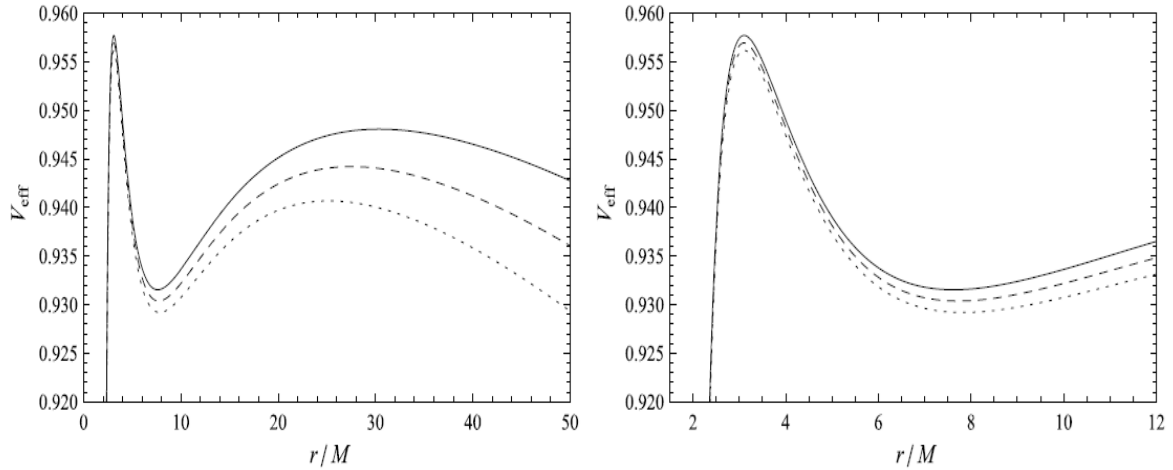


Fig. 1 The radial dependence of the effective potential for different values of quintessential parameter $\tilde{c}$ with $M=1$, $a=0.5$, $l=3.2$ and $\omega_q = -2/3$. The solid, dashed and dotted lines correspond to the values of $\tilde{c} = 0.0015$; 0.00175 ; and 0.002 , respectively

It is known that the effective potential determines the circular orbits if equations

$$\dot{r} = 0, \quad \frac{dV_{\text{eff}}}{dr} = 0 \quad (14)$$

are satisfied simultaneously. The specific energy and angular momentum of the circular orbits are then given by relations

$$l = \pm \frac{g_{t\varphi} + g_{\varphi\varphi}\Omega_\varphi}{\sqrt{-g_{tt} - g_{t\varphi}\Omega_\varphi - g_{\varphi\varphi}\Omega_\varphi^2}} \quad (15)$$

$$\varepsilon = \pm \frac{g_{tt} + g_{t\varphi}\Omega_\varphi}{\sqrt{-g_{tt} - g_{t\varphi}\Omega_\varphi - g_{\varphi\varphi}\Omega_\varphi^2}} \quad (16)$$

where angular velocity relating to distant observer is defined as

$$\Omega_\varphi = \frac{-g_{t\varphi,r} + \sqrt{g_{t\varphi,r}^2 + g_{tt,r}g_{\varphi\varphi,r}}}{g_{\varphi\varphi,r}} \quad (17)$$

Fig. 2 The radial dependence of the effective potential for different values of quintessential parameter ω_q with $M = 1$, $a = 0.5$, $l = 3.2$ and $\tilde{c} = 0.001$. The solid, dashed and dotted lines correspond to the values of $\omega_q = -0.7$; -0.71 ; and -0.72 , respectively

The radial profiles of the circular orbit parameters ε l are illustrated in Fig.3 and Fig.4 for the values $a = 0.9$, $M = 1$, $\omega_q = -2/3$. It could be seen from the figures that starting from roughly $r > 2M$ with increasing of the quintessential parameter specific energy and angular momentum of the particles spinning around extreme rotating black hole in quintessence have a tendency to decrease.

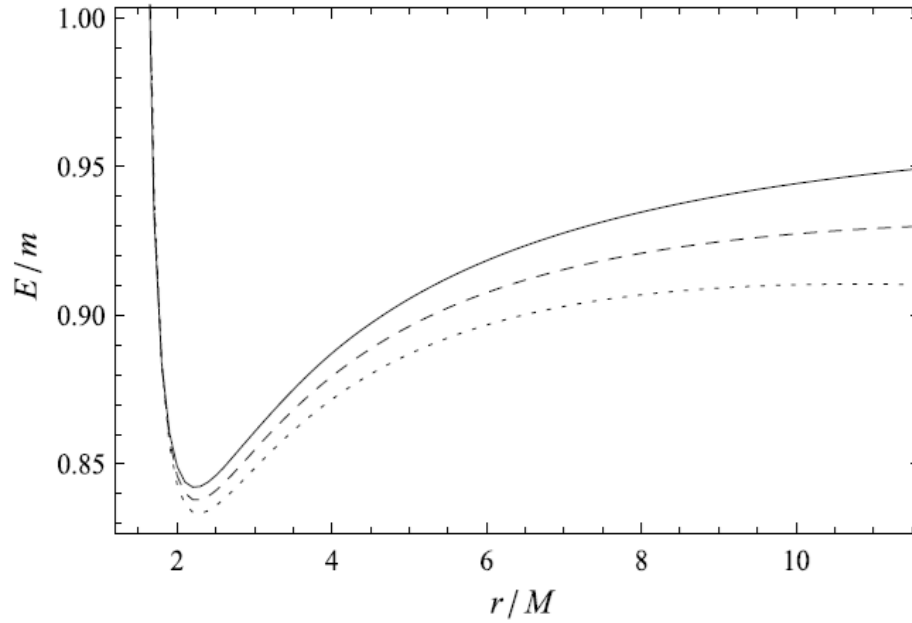


Fig. 3 The radial dependence of the specific energy of particles around rotating black hole in quintessence and different values of $\tilde{c}$. The solid, dashed and dotted lines correspond to the values of the quintessence field parameter $\tilde{c} = 0.001M, 0.005M$ and $0.01M$, respectively

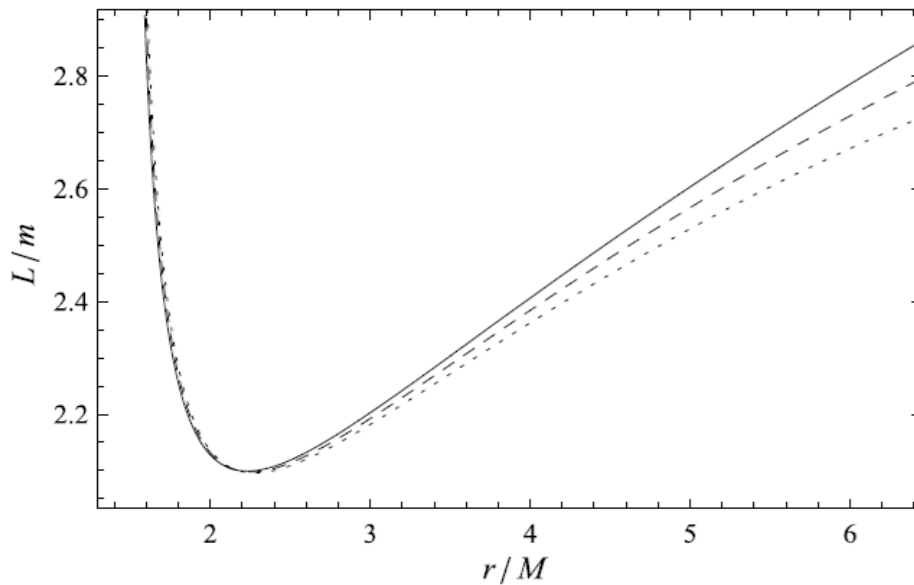


Fig. 4 The radial dependence of the specific angular momentum of particle around rotating black hole in quintessence and different values of $\tilde{c}$. The solid, dashed and dotted lines correspond to the values of the quintessence field parameter $\tilde{c} = 0.001M, 0.005M$ and $0.008M$ respectively

In this paper we have studied energetics of a rotating black hole surrounded by a quintessential field through motion and collisions of test particles in the gravitational field of rotating black holes with dimensionless spin a immersed in quintessential dark energy characterized with the quintessential parameter $\omega_q \in (-1; -1/3)$ governing the equation of state of the dark energy, and the dimensionless quintessential field parameter $\tilde{c}$

References:

1. Adam G. Riess, Louis-Gregory Strolger, John Tonry, Stefano Casertano, Henry C. Ferguson, Bahram Mobasher, Peter Challis, Alexei V. Filippenko, Saurabh Jha, Weidong Li, Ryan Chornock, Robert P. Kirshner, Bruno Leibundgut, Mark Dickinson, Mario Livio, Mauro Giavalisco, Charles C. Steidel, Narciso3.

Benitez and Zlatan Tsvetanov, Type Ia Supernova Discoveries at $z>1$ From the Hubble Space Telescope: Evidence for Past Deceleration and Constraints on Dark Energy Evolution, Astrophysical Journal, June 2004

2. Petr Slaný¹ and Zdeněk Stuchlík¹, Relativistic thick discs in the Kerr–de Sitter backgrounds, Classical and Quantum Gravity, Volume 22, Number 17

3. V.V.Kiselev, Quintessence and black holes, Class. Quantum Grav. 20 1187

4. Rotating black hole solutions with quintessential energy, Bobir Toshmatov, Zdenek Stuchlik and Bobomurat Ahmedov, The European Physical Journal Plus

5. Abdujabbarov, A., Toshmatov, B., Stuchlík, Z., Ahmedov, B., Shadow of the rotating black hole with quintessential energy in the presence of the plasma, International Journal of Modern Physics D

Rezyume: *Ushbu maqolada biz kvintessensial maydon bilan o'ralgan aylanuvchi qora tuynukning energiyasini va o'lchovsiz spinli aylanadigan qora tuynuklarning tortishish maydonidagi sinov zarrachalarining to'qnashuvi va tenglamani boshqaruvchi kvintessensial parametrlar $\omega_q \in (-1; -1/3)$ bilan tavsiflangan kvintessensial qorong'u energiyani o'rgandik. qorong'u energiya holati va o'lchovsiz kvintessensial maydon parametrlari*

Резюме: *В этой статье мы изучили энергетику вращающейся черной дыры, окруженной квинтэссенцией поля, посредством движения и столкновений пробных частиц в гравитационном поле вращающихся черных дыр с безразмерным спином a , погруженных в квинтэссенцию темной энергии, характеризуемой квинтэссенцией параметра $\omega_q \in (-1; -1/3)$, определяющего уравнение состояния темной энергии и безразмерный параметр квинтэссенции поля*

Kalit so'zlar: *qora tuynuklar, kvintessensiya, zarrachalar harakati.*

Ключевые слова: *черные дыры, квинтэссенция, движение частиц.*

CHROMATOGRAPHIC ANALYSIS OF STARTING AND DERIVED PRODUCTS FOR ACETONE SYNTHESIS

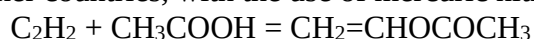
Omanov B.Sh., Khatamova M.S., Suyerkulova Z.A., Bahronova M.Sh.

Navoi State Pedagogical Institute

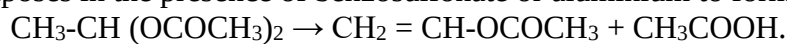
Summary: Vinyl acetate is currently the most widely produced oxygenated compound in the world, with an annual demand of 10 million tonnes. In our country, the annual demand for vinyl acetate is 40-50 thousand tonnes. The relative surface area was determined using the BET method, while the total pore volume was calculated from the amount of nitrogen adsorbed at maximum saturation. The pore size distribution was determined by the BJH (Barrett-Joyner-Halendr) method. Technical conditions of catalysts with high productivity and selectivity of a new composition for catalytic acetylation reactions of acetylene were developed.

Keywords: "Zol-gel technology, acetylene, acetic acid, expanded clay, nanocatalyst, vinyl acetate, chromatography, bentonite, kaolin.

The production of vinyl acetate by the liquid phase method commenced in Canada in 1920. Subsequently, the liquid phase synthesis of vinyl acetate was continued in Italy, France, Belgium and other countries, with the use of mercuric nitrate or mercuric phosphate as a catalyst:



The reaction between ethylene and acetic acid produces vinyl acetate. Various additives are employed in the process, including boron trifluoride, phosphoric and tungstic acids, mercuric salt hydrofluoride, arsenic acids, and others. Ethylidene diacetate is formed as a by-product, which decomposes in the presence of benzosulfonate or aluminium to form vinyl acetate and acetic acid.



Liquid phase technology for the production of vinyl acetate is not currently employed due to the lack of profitability.

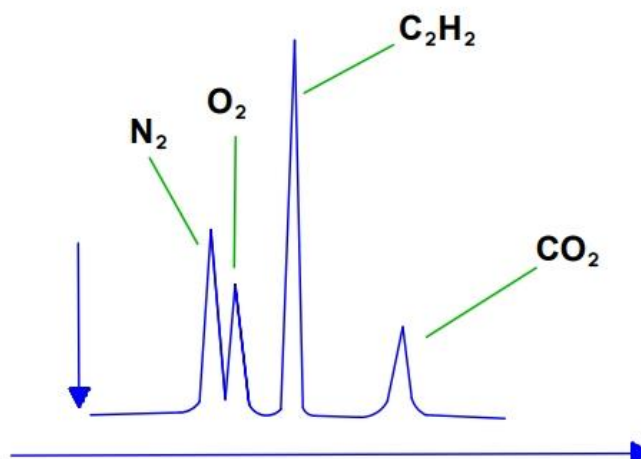
For the first time in the industry, the production of vinyl acetate from acetylene in the vapour phase was organised in Germany in 1928. Zinc acetate supported on activated carbon or other modern surface supports is employed as a catalyst in vapour phase synthesis.

Furthermore, cadmium acetate or a mixture of zinc and cadmium acetates can be employed as the active component. In addition to activated carbon, alumina, pumice and silica gel can be employed as supports. Potassium dichromate is employed as a promoter.

Cadmium acetate or a mixture of zinc and cadmium acetates can also be employed as the active component. In addition to activated carbon, alumina, pumice and silica gel can be employed as supports. Potassium dichromate is employed as a promoter.

The chromatographic analysis of the starting products (acetylene, water and acetic acid) was conducted on the Svet-100 and Svet-104 gas-liquid chromatographs.

A chromatographic analysis of acetylene was conducted on the Svet-100 gas-liquid chromatograph using a 2x0.004 m glass column, a column temperature of 130°C, and a carrier gas flow rate of 30 ml/min.

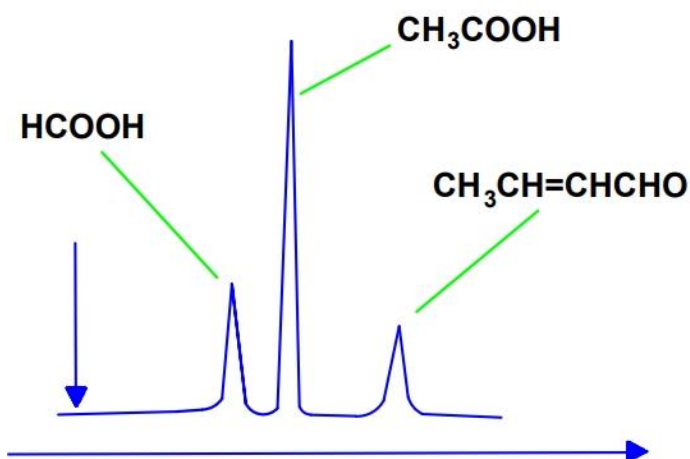


1-nitrogen; 2-oxygen; 3-acetylene; 4-carbon dioxide

Figure 1. Chromatogram of acetylene feedstock

As a result of chromatographic analysis, the amount of nitrogen was 0.57%, the amount of oxygen was 0.053%, the amount of acetylene was 99.117%, and the amount of carbon dioxide was - 0.26%.

Chromatographic analysis of acetic acid was carried out in Svet-104 using a glass column with a size of 2x0.004 m, a column temperature of 150°C, and a carrier gas-nitrogen flow rate of 30 ml/min.



1-formic acid; 2-acetic acid; 3-croton aldehyde;

Figure 2. Chromatogram of crude acetic acid

As a result of chromatographic analysis, the amount of formic acid was 0.003%, the amount of acetic acid was 99.7%, and the amount of croton aldehyde was 0.002%.

Table 1. The influence of core (nocitel) substances on the catalyst activity in the catalytic acetylation reaction of acetylene

(T=453 K, C₂H₂:CH₃COOH 4:1, C₂H₂ =280 h⁻¹, promoter: 2.5 % K₂Cr₂O₇)

№	Katalizator tarkibi	CH ₃ COOH ning konversiyasi, %		Selektivlik S %
		Umumiy	Vinilasetatga	
1	ZnO·CdO·ZrO ₂ /bentonite	52	38.9	74.8
2	ZnO·CdO·ZrO ₂ /kaolin	75.6	69.62	92.1
3	ZnO·CdO·ZrO₂/keramzite	78.863	74.52	94.49~94.5
4	ZnO·CdO·ZrO ₂ / silica gel	77.4	72.13	93.2
5	ZnO·CdO·ZrO ₂ /HSZ	73.2	66.90	91.4
6	ZnO·CdO·ZrO ₂ / Al ₂ O ₃	71.2	52.2	73.3

7	ZnO·CdO·ZrO ₂ / pumice stone	67.8	49.2	72.5

As can be seen from the data presented in the table, the activity of the ZnO·CdO·ZrO₂/ceramsite catalyst is much higher when studying the effect of core (non-steel) substances on the catalyst activity in the catalytic acetylation reaction of acetylene.

Table 2. Textural characteristics of ZnO·CdO·ZrO₂/keramzite catalyst

№	Granule shape	Density, g/cm ³	Ssol m ² /g	The total volume of the pore, cm ³ /g	ZnO:CdO:ZrO ₂ amounts, mass %
1	cylindrical	0,98	51	0,310	45:15:1.5
2	cylindrical	0,94	63	0,341	45:30:1.5
3	cylindrical	0,88	46	0,253	30:45:1.5
4	cylindrical	0,76	107	0,362	15:45:1.5
5	cylindrical	0,72	173	0,409	30:15:1.5
6	cylindrical	0,86	57	0,337	15:30:1.5
7	cylindrical	0,85	51	0,250	15:15:1.5

A metal reactor (7) with a diameter of 40 mm and a height of 380 mm is equipped with a grid-substrate in the lower part. The upper flange cover is equipped with two fittings: a steam-gas mixture (acetylene saturated with acetic acid vapors) and a thermowell (8). The lower flange-bottom part is equipped with fittings for removing reaction products.

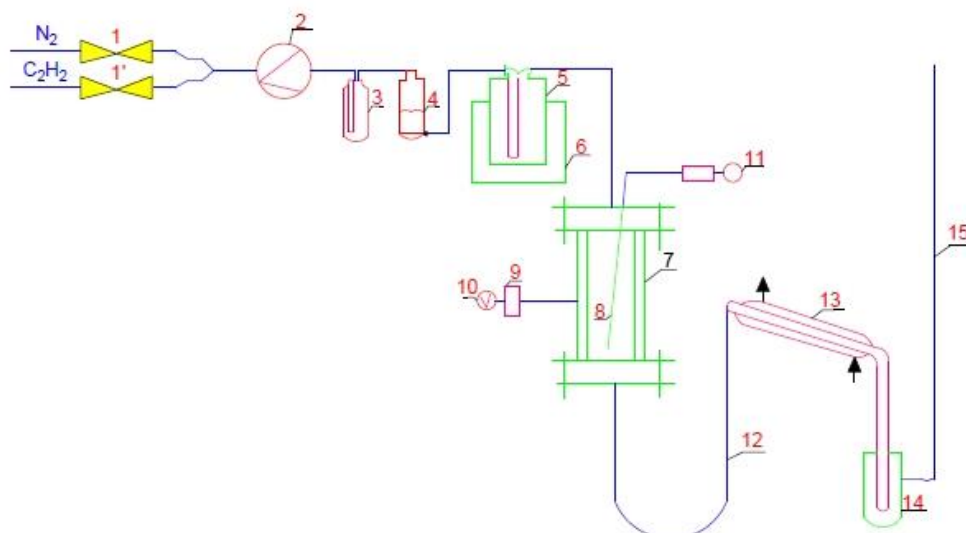


Figure 3. Production scheme of vinyl acetate.

1 - needle valve; 2 - rheometer; 3 – absorber with hydroxylamine;
4 – drying column; 5 - evaporator; 6 - bathroom; 7 - reactor; 8 - thermowell; 9 – transformer; 10 - voltmeter; 11 – reactor temperature control unit; 12 - air cooler; 13 - water-cooled refrigerator; 14 - xylene traps;
15 - exhaust gas line.

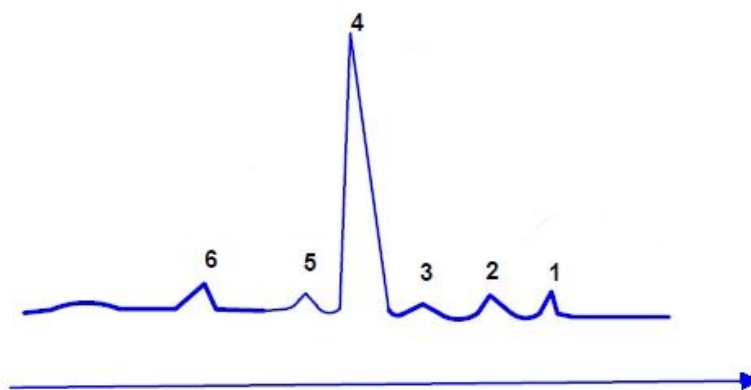
The TEN-06 heating elements, with a total power of 3.6 kW, are distributed evenly around the reactor vessel (7). These elements are connected to the 220 V network through a control transformer (9). It is imperative that a maximum voltage of 220 V be maintained to prevent overheating.

The reactor surface is insulated and wrapped to maintain heat and a stable temperature. The temperature within the reactor was monitored by a thermocouple (THC) with the data transmitted to the temperature control unit (11). The readings were recorded on a KSP potentiometer or indicating device.

The acetylene obtained from the cylinder is purified from acetone in an absorber containing 10% hydroxylamine (3), and the acetylene is then dried in a drying column containing calcium chloride (4).

In order to initiate the synthesis process, a specific quantity of catalyst is introduced into the reactor. The catalyst is heated in a stream of nitrogen. At 180 °C, the valve in the mixed gas line (1') of workshop No. 007 was opened, allowing the introduction of the acetylene concentrate from the cylinder. Concurrently, the valve in the nitrogen line (1) was closed. In order to achieve saturation with acetic acid, the gas was passed through an acetic acid evaporator, which was placed in a water bath with a temperature of approximately 95-100 °C. Subsequently, the gas saturated with acetic acid was introduced into the reactor, where the acetylation reaction occurred on the catalyst at a temperature of 180-210°C. During the course of the reaction, the parameters of the technological regime, including temperature conditions and the flow rate of the delivered components, were monitored and recorded.

The gaseous reaction products were initially cooled in an air cooler (12) and subsequently in a water-cooled refrigerator (Liebig) (13). The condensate and vinyl acetate vapours are absorbed in absorbers containing xylene, which is placed in an ice bath at a temperature of 3-8°C. The reaction products obtained with the collected xylene were subjected to chromatographic analysis in order to determine their composition. Periodic analysis of the inlet and outlet gases was conducted using gas chromatography.



1-acetaldehyde; 2-water; 3-acetone; 4-vinylacetate; 5-acetic acid; 6-ethyl acetate

Figure 4. Chromatogram of crude vinyl acetate obtained on ZnO·CdO·ZrO₂/keramzite catalyst

ZnO·CdO·ZrO₂/keramzite as a result of the chromatographic analysis of the catalyst, 94.5% vinyl acetate was formed.

The results of the study of the effect of the catalyst composition on the productivity and selectivity of the process with respect to vinyl acetate are presented in Table 3.

Table 3. Effect of catalyst composition on productivity and process selectivity to vinyl acetate

№	Amounts of ZnO:CdO:ZrO ₂ /keramzite in mass %	Performance against vinyl acetate, kg (m ³ ·h ⁻¹)			Selectivity, %	Tensile strength against spread, %
		160-170°C	180-185°C	190-200°C		
1	10,3:2,6:0,4	41	315	180	>98	97
2	9,6:2,2:0,5	35	314	183	>98	97
3	12,0:2,6:0,3	55	295	177	>98	98
4	11,3:2,1:0,6	38	313	163	>98	97
5	11,8:2,5:0,2	50	240	130	>98	97
6	9,2:2,0:0,1	37	315	160	>98	98
7	9,0:2,5:0,5	47	305	170	>98	97

8	8,5:1,5:0,2	31	300	150	>98	97
9	10,8:3,0:0,4	57	305	166	>98	98
10	8,8:2,2:0,25	55	300	141	>98	97
11	9,5:1,5:0,3	57	327	200	>98	97
12	10,2:1,86:0,4	44	300	168	>98	98
13	11,5:2,4:0,6	52	323	182	>98	98
14	16,7:2,1:0,3	30	290	174	>98	97

A multitude of process technologies are inextricably linked to the catalytic activity of catalysts. The activity and selectivity of catalysts are essential for ensuring the speed and quality of the catalytic reaction. The synthesis of vinyl acetate from acetylene and acetic acid was conducted in the presence of a fixed-bed catalyst within an ideal reactor.

In consideration of the catalyst deactivation, the mathematical model of an ideal compression reactor for the synthesis of vinyl acetate from acetylene and acetic acid can be described as follows:

$$\frac{\partial x}{\partial l} = \frac{\theta(v+1)}{v_{\text{volumetric}}} r(m, V_{\text{volumetric}}, T, x);$$

$$\frac{\partial \theta}{\partial t} = \theta k_p(T)$$

In approach conditions:

$$x(0, t) = 0; t \in [0, t_k]; \theta(\ell, 0) = \theta_0; \ell \in [0, \ell_p]$$

Here, V - is the volume ratio of acetylene and acetic acid; $v_{\text{volumetric}}$ - volumetric rate of consumption of raw materials; t - catalyst exposure time; θ - quantity representing the change in catalytic activity; T - temperature ($T \leq 180 - 185^\circ \text{C}$); ℓ_p - reactor length; t_k - catalyst operating time.

As a result of the calculation, the main parameters of the tubular reactor for the production of vinyl acetate were determined (Table 4).

Table 4. The main parameters of tubular reactor operation in the production of vinyl acetate

T, °C	P, MPa	$U_{g \cdot p \cdot mg'}$ m/s	Heat carrier	G, thousand tons/year	D, m	h, m	N, thousand pieces
170-200	0,1	0,60	Boiling water	50	2,5	6,5	4,7

Thermally stable, high-activity, selective, and efficient nanocatalysts for $\text{ZnO} \cdot \text{CdO} \cdot \text{ZrO}_2$ /keramzite reactions were created for the catalytic acetylation of acetylene from local raw materials based on "sol-gel" technology. The thermodynamic justification of the catalytic acetylation reactions of acetylene was demonstrated. Catalytic acetylation of acetylene in the presence of selected $\text{ZnO} \cdot \text{CdO} \cdot \text{ZrO}_2$ /keramzite catalysts was studied in a wide range of gas flow rates, temperatures and catalyst sizes. The kinetic laws of catalytic acetylation reactions of acetylene were studied and mechanisms of their progress were proposed, and additive kinetic equations representing the course of reactions were proposed (mean square deviation does not exceed 3%). Mathematical models were developed to describe the processes for obtaining vinyl acetate by catalytic acetylation of acetylene.

References:

1. Тёмкин О. Н., Абанто-Чавез Х. Й., Хоанг Ким Бонг. «Кинетические модели синтеза винилацетата на цинкацетатных катализаторах нового поколения» // Кинетика и катализ, 2000 г., № 5, т. 41, с. 701-718.

2. Хоанг Хыу Бинь. Особенности формирования и технологии цинкацетатных катализаторов синтеза винилацетата // Дис. ... канд. хим. наук: 05.17.04: Москва, 2004. С.-108.
3. Oreski G., Ottersböck B., Omazic A., Degradation processes and mechanisms of encapsulants, in: Durability and Reliability of Polymers and Other Materials in Photovoltaic Modules, Elsevier, 2019, pp. 135–152.
4. Lange R.F., Luo Y., Polo R., Zahnd J., The lamination of (multi) crystalline and thin film based photovoltaic modules, Prog. Photovoltaics Res. Appl. 19 (2) (2011) 127–133.
5. Pern F., Czanderna A., Characterization of acetylene vinyl acetate (AVA) encapsulant: effects of thermal processing and weathering degradation on its discoloration, Sol. Energy Mater. Sol. Cell. 25 (1–2) (1992) 3–23.
6. Файзуллаев Н.И., Туробжонов С.М. Буг фазада винилацетатнинг каталитик синтези //ТошДТУ хабарлари, 2014.-№ 2.-167-175 бетлар.
7. Бехрузжон Оманов. Условия хранения для долгосрочной стабильности сополимера ацетилена и винилацетата (ABA) // O‘zbekiston Milliy Universiteti Xabarleri, 2023. №3/2/1, 464-466 betlar. (02.00.00., №12)
8. Behruzjon Omanov, Maftuna Qilicheva. Vinil asetat polimer plyonkalarining termoaktivatsion spektroskopiyasi// O‘zbekiston Milliy Universiteti Xabarleri, 2023 №3/2, 305-307 betlar. (02.00.00., №12)
9. Bekhruzjon Omanov, Normurot Fayzullaev, Mukhabbat Khatamova, Almagul Xalibekova, Madina Avezova//Optimizing Vinyl Acetate Production Process and Selecting of Appropriate Reactor Type//AIP Conference Proceedings 2789, 020008 (2023) <https://doi.org/10.1063/5.0145637>
10. Bekhruzjon Omanov, Normurot Fayzullaev, Mukhabbat Khatamova, Nigina Ruziqulova, Sardor Rustamov//Energy and Resource Saving Technology of Vinylacetate Production from Acetylene// AIP Conference Proceedings 2789, 020009 (2023) <https://doi.org/10.1063/5.0145636>
11. Bekhruzjon Omanov. Improvement of technology of vinyl acetate production from acetylene // Universum: технические науки. 11(116). Ноябрь 2023. Часть 7. С. 46-50. (02.00.00., №1)
12. Bekhruzjon Omanov, Mukhabbat Xatamova. Improvement of the technology of obtaining acetone and acetyl vinyl acetate by catalytic hydration of acetylene//Universum: технические науки. 3(120) Март 2024. Часть 9. С. 33-37. (02.00.00., №1)

Rezyume: Dunyoda hozirgi kunda neft kimyosi va asosiy organik sintez sanoatida ishlab chiqarilayotgan kislorodli birikmalar orasida vinilasetat yetakchi o'rinni egallaydi. Jahonda bugungi kunda vinilasetatga bo'lgan yillik ehtiyoj 10 mln.tonnani, Respublikamizda esa vinilasetatga bo'lgan yillik ehtiyoj esa 40-50 ming tonnani tashkil etadi. Solishtirma sirt yuzasi BET usulida aniqlandi. G'ovaklarning umumiy hajmi maksimal to'yinganda adsorбилangan azotning miqdori bo'yicha hisoblandi. G'ovaklarning o'lchami bo'yicha taqsimlanishi BJH (Barret-Joyner-Xalendr) usuli bo'yicha aniqlandi. Asetilenni katalitik asetillash reaksiyalari uchun yangi tarkibdagi yuqori unumdorlik va selektivlikka ega bo'lgan katalizatorlarning texnikaviy shartlari ishlab chiqildi.

Резюме: среди кислородсодержащих соединений, производимых сегодня в мире в нефтехимической промышленности и в отраслях основного органического синтеза, винилацетат занимает ведущее место. Сегодня годовая потребность в винилацетате в мире составляет 10 миллионов тонн, а годовая потребность в винилацетате в нашей Республике – 40-50 тысяч тонн. Относительную площадь поверхности определяли методом БЭТ. Обиций объем пор рассчитывали по количеству адсорбированного азота при максимальном насыщении. Распределение пор по размерам определяли методом ВЖН (Барретта-Джойнера-Хайленда). Разработаны технические условия катализаторов нового состава с высокой производительностью и селективностью для реакций каталитического ацетилирования ацетилена.

Kalit so'zlar: “Zol-gel” texnologiyasi, asetilen, sirka kislota, keramzit, nanokatalizator, vinilasetat, xromatografiya, bentonit, kaolin

Ключевые слова: технология «Зол-гель», ацетилен, уксусная кислота, керамзит, нано катализатор, винилацетат, хроматография, бентонит, каолин.

**PARTICLE ENERGETICS AROUND A ROTATING BLACK HOLE IN
QUINTESSENCE**

Oteev.T.P, Sharibaev.M.B.

*Nukus state pedagogical institute named after Ajiniyaz,
Karakalpak state university named after Berdakh*

Summary: *We study a collision of particles in the gravitational field of rotating black hole immersed in quintessential dark energy characterized with the quintessential parameter $\omega_q \in (-1; -1/3)$ governing the equation of state of the dark energy, and the dimensionless quintessential field parameter $\tilde{c}$. We focus on the acceleration of particles due to collisional processes and show how the center of mass energy depends on the quintessential field parameter $\tilde{c}$. We also make comparison of the obtained results to the collisional energetics of quintessential static black holes demonstrating the crucial role of the rotation parameter a in the particle acceleration.*

Key words: black holes, quintessence, energy extraction, Penrose process

Distant Ia-type supernova explosions confirm that a very small relict repulsive cosmological constant $\Lambda > 0$, in other words, a dark energy demonstrating repulsive gravitational effect is necessary to explain the accelerated expansion of the Universe at the current epoch of evolution [1]. These results are supported through observation of the cosmic microwave background thermal anisotropies by the space observatory PLANCK.

The dark energy represents more than 73% of the total energy content of the observable universe, equation of state of the dark energy is similar to that of the vacuum energy, however dark energy being related to the so called quintessence is also not excluded. The quintessence is defined as a scalar field coupled to gravity with the potential which decreases as the gravitational field increases. The cosmological and astrophysical phenomena of the cosmic repulsion provide recent value of the cosmological constant to be $\Lambda \approx 1.3 \times 10^{-56} \text{ cm}^{-2}$ [2].

The existence of the vacuum energy or the quintessence modifies essentially the asymptotic behavior of black-hole, naked singularity, or any compact object backgrounds, as such backgrounds cannot be asymptotically flat spacetimes. In these spacetimes, an existence cosmological horizon is always allowed, behind which the geometry is definitely dynamic.

The importance of the repulsive cosmological constant has been widely discussed in the recent models of mass concentrations in the expanding universe, motion of gravitationally bound galaxies and in the structure of accretion discs.

Therefore, it is also relevant to study the possible role of the quintessential field in the physical processes occurring around black holes. The solution for a static black hole surrounded by a quintessence field has been derived by Kiselev [3]. It has the state parameter in the range $\omega_q \in (-1, -1/3)$. A quintessential rotating black hole solutions have been recently introduced in Toshmatov et al.[4]

In the present paper we study acceleration of particles due to the so called Banados, Silk and West (BSW) process in the quintessential black hole backgrounds, according to which may collide with arbitrarily high center-of-mass energy in vicinity of the black hole horizon. Here we extend our previous studies of the BSW effect realized both for various black, and naked singularity spacetimes. The acceleration of the particles near the naked singularity has also been extensively studied in. The dynamics of a charged particle moving around a Schwarzschild black hole surrounded by quintessence matter immersed in an external magnetic field has been recently studied in Jamil et al. In this work we use geometric units such that the gravitational constant and the speed of light are both equal to unity $G=c=1$.

The solution for static quintessential black hole can be generalized to the rotational one using the standard methods developed by Newman and Janis. The line element of the quintessential rotating spacetime in the standard Boyer-Lindquist coordinates takes the form

$$ds^2 = g_{tt}dt^2 + g_{rr}dr^2 + 2g_{t\varphi}dtd\varphi + g_{\theta\theta}d\theta^2 + g_{\varphi\varphi}d\varphi^2 \quad (1)$$

with

$$\begin{aligned} g_{tt} &= -1 + \frac{2Mr + \tilde{c}r^{1-3\omega_q}}{r^2 + a^2 \cos^2 \theta}, \\ g_{rr} &= \frac{r^2 + a^2 \cos^2 \theta}{a^2 - 2Mr + r^2 - \tilde{c}r^{1-3\omega_q}}, \\ g_{t\varphi} &= -a \frac{2Mr + \tilde{c}r^{1-3\omega_q}}{r^2 + a^2 \cos^2 \theta} \sin^2 \theta, \\ g_{\theta\theta} &= r^2 + a^2 \cos^2 \theta, \\ g_{\varphi\varphi} &= \left(a^2 + r^2 + a^2 \sin^2 \theta \frac{2Mr + \tilde{c}r^{1-3\omega_q}}{r^2 + a^2 \cos^2 \theta} \right) \sin^2 \theta \end{aligned} \quad (2)$$

Here M and a are the gravitational mass and the specific angular momentum of the black hole, respectively. $\omega_q \in (-1, -1/3)$ is the dimensionless quintessential equation of state parameter and it governs the quintessential field's equation of state as $p = \omega_q \rho$ where p and ρ are the pressure and energy density of the quintessential field, respectively. The presence of the quintessential field leads to the geometry to be Ricci non-flat. Note, that when the quintessential field parameter $\tilde{c} = 0$ the rotating quintessential geometry reduces to the known Kerr geometry. Further, taking $a = 0$ and $\tilde{c} = 0$ limit one can also arrive to the Schwarzschild metric. The whole set of equations of motion for massless and massive test particles has been studied in [5]. Here we will concentrate our study to the special case of motion of test particles at the equatorial plane around the rotating quintessential black hole. In order to compute the trajectories of the geodesic motion of a test particle in the equatorial plane ($\theta = \pi/2$) one needs to introduce the Lagrangian as:

$$2L = g_{\alpha\beta} \frac{\partial x^\alpha}{\partial \tau} \frac{\partial x^\beta}{\partial \tau}$$

From this equation one can get

$$2L = g_{tt}\dot{t}^2 + g_{rr}\dot{r}^2 + 2g_{t\varphi}\dot{t}\dot{\varphi} + g_{\varphi\varphi}\dot{\varphi}^2 \quad (3)$$

Here, the overdots denote the derivatives of coordinates with respect to proper time. Due to independence of Lagrangian on the t and φ coordinates associated momenta p_t and p_φ are conserved

$$p_t = \frac{\partial L}{\partial \dot{t}} = g_{tt}\dot{t} + g_{t\varphi}\dot{\varphi} = -\frac{E}{m} = \varepsilon = \text{const}, \quad (4)$$

$$p_\varphi = \frac{\partial L}{\partial \dot{\varphi}} = g_{t\varphi}\dot{t} + g_{\varphi\varphi}\dot{\varphi} = \frac{L}{m} = l = \text{const}, \quad (5)$$

$$p_r = g_r\dot{r}, \quad (6)$$

$$p_\theta = 0, \quad (7)$$

where m is mass of the test particle. ε and l are the specific energy and angular momentum of the test particle per unit mass, respectively.

Further, one may write the Hamiltonian $H = p_t\dot{t} + p_r\dot{r} + p_\varphi\dot{\varphi} - L$ through the components of metric tensor as

$$2H = (g_{tt}\dot{t} + g_{t\varphi}\dot{\varphi})\dot{t} + g_{rr}\dot{r}^2 + (g_{t\varphi}\dot{t} + g_{\varphi\varphi}\dot{\varphi})\dot{\varphi} = -\varepsilon\dot{t} + l\dot{\varphi} + g_{rr}\dot{r}^2 = \xi = \text{const} \quad (8)$$

Here parameter ξ is equal to -1, 0 or +1 for time-like, light-like and space-like geodesics, respectively. By solving Eqs. (4) and (5) simultaneously, one may get

$$\dot{t} = \frac{g_{\varphi\varphi}\varepsilon + g_{t\varphi}l}{g_{t\varphi}^2 - g_{tt}g_{\varphi\varphi}}, \quad (9)$$

$$\dot{\varphi} = -\frac{g_{t\varphi}\varepsilon + g_{tt}l}{g_{t\varphi}^2 - g_{tt}g_{\varphi\varphi}}. \quad (10)$$

Inserting (9) and (10) into (8) and considering particle as moving along the time-like trajectory ($\xi = -1$) one may get the expression for the radial velocity of the particle around rotating black hole in quintessence as

$$\dot{r}^2 = r^{-3(1+\omega_q)} (r^{3\omega_q} (-a^2r + (2M - r)(l^2 + r^2) - 4alM\varepsilon + (r^3 + a^2(2M + r))\varepsilon^2) + \tilde{c}(r^2 + (l - a\varepsilon)^2)) \quad (11)$$

Now based on the BSW mechanism [6] of the energy extraction from the rotating black hole we calculate center of mass energy E_{cm} for collision of two particles with mass $m_1 = m_2 = m_0$ in the vicinity of rotating black hole in quintessence. We assume that particles are coming from infinity with $E_1 / m_1 = E_2 / m_2 = 1$ and approaching the black hole with the different angular momenta l_1 and l_2 as well as the particles motion and their collision occur in the equatorial plane $\theta = \pi / 2$.

The center of mass energy can be found by using the following well-known formula:

$$\frac{E_{cm}^2}{2m_0^2} = 1 - g_{\mu\nu}u_1^\mu u_2^\nu \quad (12)$$

where u_1^μ and u_2^ν are four velocities of the first and second particles, respectively. The four velocity of the particle that is moving around rotating quintessential black hole in the equatorial plane is given by the expressions (9), (10) and (11).

For simplicity, assuming $\varepsilon_1 = \varepsilon_2 = 1$ and inserting the expressions (9), (10) and (11) into (12), one can obtain the center of mass energy as

$$\begin{aligned} \frac{E_{cm}^2}{2m_0^2} = & \{ \tilde{c}(a - l_1)(a - l_2) - \tilde{c}r^2 + r^{3\omega_q} [-2a(l_1 + l_2)M + l_1l_2(2M - r) + 2r^2(-M + r) + 2a^2(M + r)] - \\ & - [\tilde{c}(a - l_1)^2 + \tilde{c}r^2 + r^{3\omega_q} [2(a - l_1)^2 M - l_1^2 r + 2Mr^2]]^{1/2} \times [\tilde{c}(a - l_2)^2 + r^2] + r^{3\omega_q} [2(a - l_2)^2 M - \\ & - l_2^2 r + 2Mr^2] \}^{1/2} \times [-\tilde{c}r^2 + r^{3\omega_q+1}\Delta]^{-1}. \end{aligned} \quad (13)$$

Here $\Delta = a^2 - 2Mr + r^2$. Now we investigate the dependence of $\frac{E_{cm}^2}{2m_0^2}$ on the quintessence

matter parameter $\tilde{c}$, quintessence field parameter ω_q and specific angular momentum a .

Fig.1 represents the radial dependence of the center of mass energy (particularly,) for the different values of the rotation parameter , quintessential equation of state parameter and the quintessential field parameter , where the angular momentum of the particles are chosen as , , for the simplicity. From Fig. 1 one can easily see that the existence of the quintessential field parameter leads to decrease of the center of mass energy.

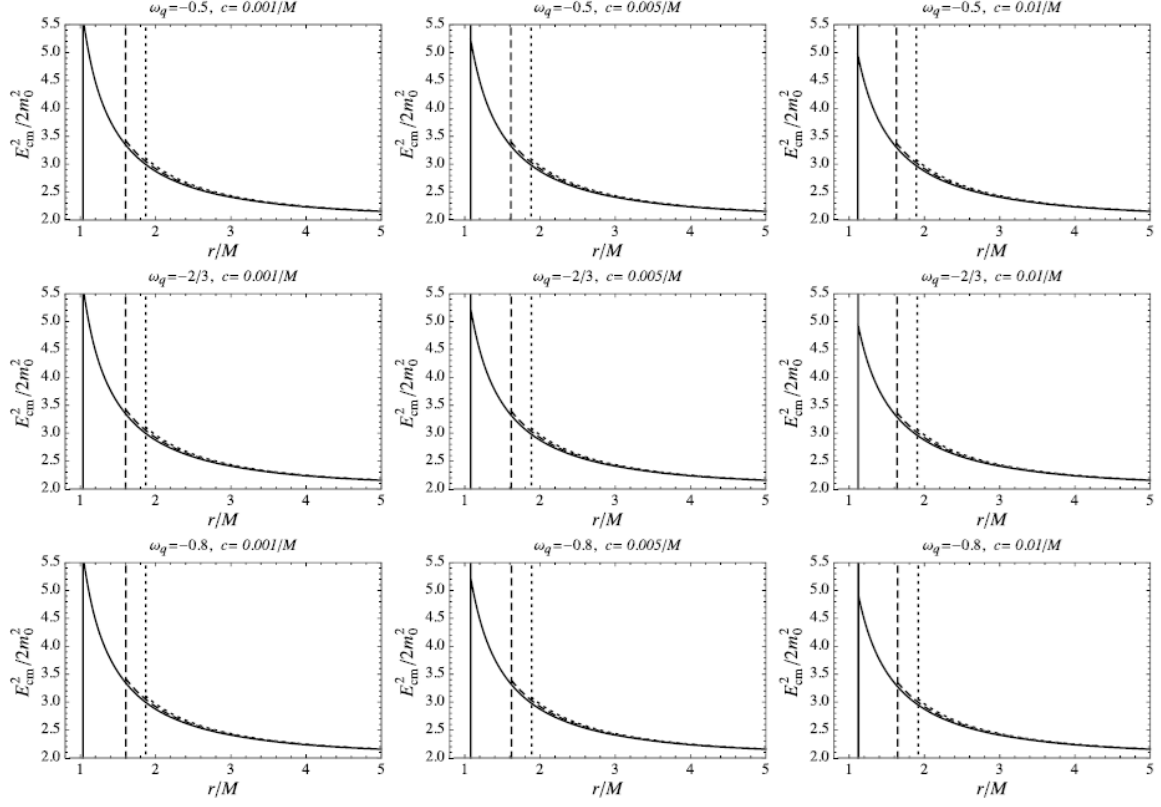


Fig. 1 The radial dependence of the center of mass energy of two colliding particles for the different values of the rotation parameter a , quintessential equation of state parameter ω_q and the quintessential field parameter $\tilde{c}$. The solid, dashed and dotted lines correspond to the values of the rotation parameter $a=1$; 0.8 ; and 0.5 , respectively.

Now we consider the particle acceleration near the extreme rotating quintessential black hole. The horizon of extreme rotating black hole is defined as root of the following algebraic equation:

$$a^2 - 2Mr + r^2 - \tilde{c}r^{1-3\omega_q} = 0,$$

which depends on $\tilde{c}$, ω_q and a . The expression (13) for this particular case will have the following form

$$E_{cm}(r \rightarrow r_+) = \frac{A}{l_1 - l_{cr}} + \frac{B}{l_2 - l_{cr}}, \quad (14)$$

where A and B are functions depending on $\tilde{c}$, l_1 and l_2 in the complex way. l_{cr} is the critical value of the angular momentum of the colliding particles. If at least one of particle's angular momentum will have the critical value then the center of mass energy of the particles will diverge at the event horizon. This effect is very similar to the effect of fine tuning of the angular momentum of particles near extreme rotating Kerr black hole. Note, that for Kerr black hole $l_{cr} = 2$. The dependence of the l_{cr} from the quintessential field parameter $\tilde{c}$ shown in Fig. 2 proves that in the presence of quintessence field the value of angular momentum which is needed to diverge the center-of-mass energy of the colliding particles at horizon increases.

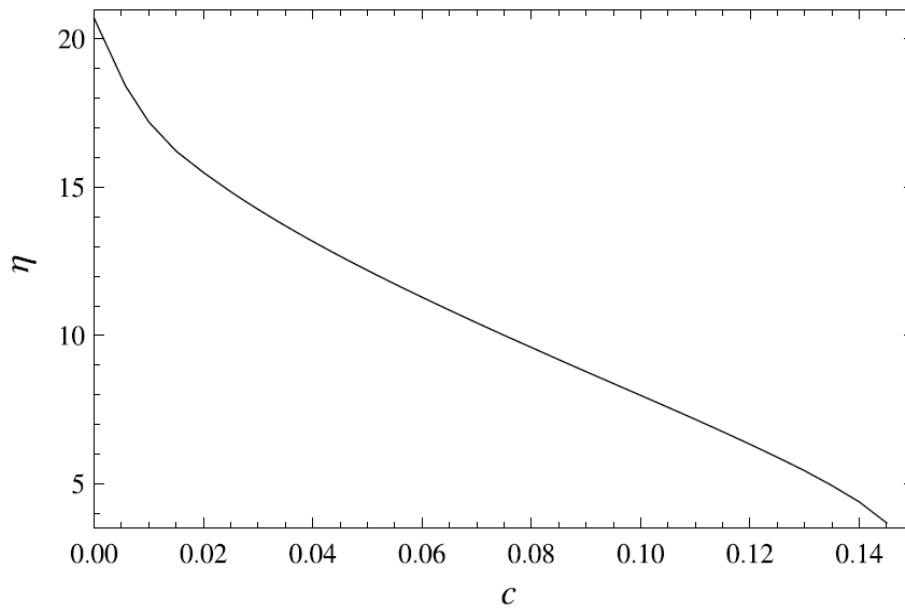


Fig. 2 The dependence of the critical value of the angular momentum l_{cr} on the quintessential field parameter $\tilde{c}$

In this paper we have studied energetics of a rotating black hole surrounded by a quintessential field through collisions of test particles in the gravitational field of rotating black holes with dimensionless spin a immersed in quintessential dark energy characterized with the quintessential parameter $\omega_q \in (-1; -1/3)$ governing the equation of state of the dark energy, and the dimensionless quintessential field parameter $\tilde{c}$. We have found the expression for the center of mass energy for the colliding neutral particles coming from the infinity, based on the BSW mechanism. We have studied the influence of the quintessence matter state parameter on E_{cm} and have examined dependence of the center-of-mass energy from the quintessence field state parameter ω_q and specific angular momentum a . It is found that the center of mass energy of the colliding particles does not depend on the quintessential field parameter $\tilde{c}$. Comparison to the collisional energetics of quintessential static black holes has demonstrated the crucial role of the black hole rotation parameter a on particle acceleration.

References:

1. Adam G. Riess, Louis-Gregory Strolger, John Tonry, Stefano Casertano, Henry C. Ferguson, Bahram Mobasher, Peter Challis, Alexei V. Filippenko, Saurabh Jha, Weidong Li, Ryan Chornock, Robert P. Kirshner, Bruno Leibundgut, Mark Dickinson, Mario Livio, Mauro Giavalisco, Charles C. Steidel, Narciso Benitez and Zlatan Tsvetanov, Type Ia Supernova Discoveries at $z > 1$ From the Hubble Space Telescope: Evidence for Past Deceleration and Constraints on Dark Energy Evolution, *Astrophysical Journal*, June 2004
2. Petr Slaný¹ and Zdeněk Stuchlík¹, Relativistic thick discs in the Kerr–de Sitter backgrounds, *Classical and Quantum Gravity*, Volume 22, Number 17
3. V.V.Kiselev, Quintessence and black holes, *Class. Quantum Grav.* 20 1187
4. Rotating black hole solutions with quintessential energy, Bobir Toshmatov, Zdenek Stuchlík and Bobomurat Ahmedov, *The European Physical Journal Plus*
5. Abdurjabbarov, A., Toshmatov, B., Stuchlík, Z., Ahmedov, B., Shadow of the rotating black hole with quintessential energy in the presence of the plasma, *International Journal of Modern Physics D*
6. Máximo Bañados, Joseph Silk, and Stephen M. West, Kerr Black Holes as Particle Accelerators to Arbitrarily High Energy, *Physical review letters*

Rezyume: Ushbu maqolada biz kvintessensial maydon bilan o'ralgan aylanuvchi qora tuynukning energetikasini o'rgandik. Bu o'rganish qora energiya holat tenglamasini boshqaruvchi kvintessensial parametr $\omega_q \in (-1; -1/3)$ va o'lchovsiz kvintessensial maydon parametri $\tilde{c}$ bilan

tavsiflanadigan kvintessensial qora energiyaga botiriladigan o'lchamsiz a spinli qora tuynuklarning tortishish maydonidagi sinov zarralarining to'qnashuvini tekshirish orqali amalga oshirildi. Biz BSW mexanizmiga asoslanib, cheksizlikdan keladigan to'qnashuvchi neytral zarralar uchun massa markazi energiyasi ifodasini topdik. Biz kvintessensiya materiya holati parametrining E_{cm} ga ta'sirini o'rganib chiqdik va massa markazi energiyasining kvintessensiya maydoni holati parametriga va nisbiy impuls momentiga bog'liqligini ko'rib chiqdik. To'qnashuvchi zarrachalarning massa markazi energiyasi kvintessensial maydon parametriga bog'liq emasligi aniqlandi. Kvintessensial statik qora tuynuklarning to'qnashuv energetikasi bilan taqqoslash qora tuynuk aylanish parametric a ning zarracha tezlashishidagi hal qiluvchi rolga egaligini ko'rsatdi.

Резюме: В этой статье мы изучили энергетику вращающейся черной дыры, окруженной квинтэссенцией поля, посредством столкновений пробных частиц в гравитационном поле вращающихся черных дыр с безразмерным спином a , погруженных в квинтэссенцию темной энергии, характеризуемой квинтэссенцией параметра $\omega_q \in (-1; -1/3)$, определяющего уравнение состояния. темной энергии и безразмерный параметр квинтэссенции поля $\tilde{c}$. На основе механизма BSW мы нашли выражение для энергии центра масс сталкивающихся нейтральных частиц, приходящих из бесконечности. Мы изучили влияние параметра состояния квинтэссенции материи на E_{cm} и рассмотрели зависимость энергии центра масс от параметра состояния поля квинтэссенции ω_q и относительного углового момента a . Установлено, что энергия центра масс сталкивающихся частиц не зависит от квинтэссенционного параметра поля $\tilde{c}$. Сравнение с столкновительной энергетикой типичных статических черных дыр продемонстрировало решающую роль параметра вращения черной дыры a в ускорении частиц.

Kalit so'zlar: qora tuynuklar, kvintessensiya, energiya olish, Penrose jarayoni.

Ключевые слова: черные дыры, квинтэссенция, извлечение энергии, процесс Пенроуза.

UDC 519.6

NONLINEAR EFFECTS IN SALT TRANSFER PROBLEMS

Baltabaeva R.B.

Karakalpak State University name after Berdakh

Summary: In this paper, numerical solutions of the nonlinear filtration equation, the equations of dust and salt propagation are considered. The phenomenon of finite propagation velocity, dust disturbances, and groundwater filtration is established on the basis of self-similar analysis and the principle of comparing solutions.

Keywords: Finite velocity property, self-similar equation, wave solutions.

Nowadays, there is a huge amount of work devoted to linear problems of thermal conductivity, filtration, and diffusion of salt-water-mass transfer. However, linear models are only a kind of approximation to solving the problems of thermal conductivity, filtration, diffusion, dust propagation, salt transport. In practice, more accurate models are described by nonlinear ones that more accurately characterize the true course of processes. At the same time, new nonlinear effects appear that have no analogue in linear theory.

In this paper, we consider the following problem in the area: $Q = (t > 0, x \in R^N)$

$$|x|^{-n} u_t = \nabla(k(u)\nabla u) \quad (1)$$

$$u(0, x) = u_0(x) \geq 0, x \in R^N, N \geq 1, n \in R. \quad (2)$$

Where $k(u) > 0$ when $u > 0$ and $k(0) = 0$.

It is easy to see the equation (1) is a degenerate parabolic equation. The equation (1) describes various processes of thermal conductivity, liquid and gas filtration, nonlinear diffusion in an inhomogeneous medium, salt transference and etc. The study of various new properties of the solution of equation (1) for the case $n = 0$, studied in a series of works by Samarsky A. A., Kurdyumov S. P. [10]-[13] by approximately self-similar methods.

Galaktionov and King [3] studied the asymptotic behavior of the discontinuous solution, the interfaces of solutions of one-dimensional nonlinear filtration

$$\rho(x)u_t = (u^m)_{xx} \text{ in } Q = R \times R_+$$

in inhomogeneous media, an asymptotic analysis of the behavior of unbounded solutions to this equation was performed.

Galaktionov and King study the asymptotic behavior of blow-up interfaces of the solutions to the one-dimensional nonlinear filtration equation in inhomogeneous medium

$$\rho(x) \frac{\partial u}{\partial t} = \Delta u^m, \rho(x) = |x|^{-q}$$

where $m > 1$, with $q > 2$ is a bounded, positive, smooth, and symmetric function. They proved that as $t \rightarrow T^-$ the interface behaves like $O((T - t)^{-b})$, where the exponent $b > 0$ which depends on m and q only) is given by a unique self-similar solution of the second kind satisfying to the equation PME. Authors establish the stability of the self-similar solution.

Self-similar and approximately self-similar solution of problem

First, we introduce the following definitions

Definition 1. A self-similar partial differential equation is an ordinary differential equation derived from a partial differential equation by means of a transformation in which an unknown function of one variable whose argument is a combination of independent variables is included.

Definition 2. The solution $u(t, x)$ in problem (1)-(2) is such that for $\forall t > 0$ there exists a function $l(t) > 0$ that $u(t, x) \equiv 0$ for $|x| \geq l(t)$, then it is said that there is a finite velocity of propagation of perturbations.

Definition 3. Solutions satisfying the conditions of

$$\lim_{t \rightarrow T_0^-} \max_{x \in \Omega} u(t, x) \rightarrow +\infty,$$

for some $T_0 > 0$, are called unbounded; here $\Omega \subseteq R^N$ with smooth boundary $\partial\Omega$. T_0 is called the lifespan of the solution.

Definition 4. The free boundary (the propagation front of the disturbance) is a function $x_f(t)$, $t > 0$ such that

$$u(t, |x|) = \begin{cases} 0, & \text{if } |x| \geq x_f(t) \\ u(t, |x|) > 0, & \text{otherwise} \end{cases} \quad (3)$$

The function $x_f(t)$ determines the depth of penetration of the leading edge of the disturbances into a nonlinear medium.

Definition 5. The solution $u(t, x)$ for each $t > 0$ is called finite by respect x if the condition $u(t, x) \equiv 0$ for $x \geq l(t)$ is satisfied, and $u(t, x) > 0$ at $|x| \leq l(t)$, $t \in (0, +\infty)$.

Definition 6. The function $\bar{u}(t, x)$ is called the upper solution of the problem (1), (2) in Q , if $\bar{u}(t, x) = 0$ in $Q \setminus D$, $D = \{t > 0, x < l(t)\}$, if $\bar{u}(x, t) \in C_{t,x}^{1,2}(D) \cap C(Q)$, $k(\bar{u})\nabla \bar{u} \in C(Q)$, and in the domain $D = \{t > 0, |x| \leq l(t)\}$ satisfies the inequality

$$\rho(x)\bar{u}_t \leq \sum_1^N \frac{\partial}{\partial x_i} (k(\bar{u}) \frac{\partial \bar{u}}{\partial x_i}) \quad (4)$$

Now, let us study the properties of solutions to problem (1). We introduce the transformation

$$k(u(t, x)) = v(t, x) \quad (5)$$

Then, with respect to $v(t, x)$, we obtain the equation

$$|x|^{-n} v_t = \nabla(v \nabla v) + \frac{K''(v)}{K'(v)} v (\nabla v)^2, \quad (6)$$

where $K(v)$ is a inverse function of $k(u)$, i.e. $K(k(u)) = u$.

Theorem 1. Let the function $k(u)$ satisfy the conditions $k''(u) \geq 0$ for $u \geq 0$ and $v(t, x)$ be a solution of equation (6). Then, for solution of the equation (6) in the domain Q , we have an estimate $v(t, x) \leq \bar{v}(t, x)$. Where $\bar{v}(t, x)$ is the solution of the equation

$$|x|^n \bar{v}_t = \nabla(\bar{v} \nabla \bar{v}) \quad (7)$$

The proof of the theorem is based on the comparison theorem of the solution [Samarskiy]. The function v , which is the solution of equation (4), is taken as the compared function.

Theorem 2. Let $k(u)$ fulfill the condition $k''(u) \geq 0$ for $u \geq 0$, and $u_0(x) \leq K(\bar{v}(0, x))$, $x \in R^N$, $n < 2$. Then the weak solution of the problem (1)-(2) has the following an estimate in Q

$$u(t, x) \leq K[\bar{v}(t, x)], \quad t > 0, x \in R^N.$$

where $\bar{v}(t, x)$ solution of the following Boussinesq equation with variable density

$$|x|^{-n} \bar{v}_t = \nabla(\bar{v} \nabla \bar{v}) \quad (8)$$

Wave solutions. Below we show that for the value $n = -2(N - 1)$, $N > 1$, equation (8) has a wave solution. To show this, we go into equation (8) to the “radially symmetric” representation by replacing

$$\bar{v}(t, x) = w(t, \varphi(|x|)), \quad \varphi(|x|) = \frac{2}{2-n} |x|^{(2-n)/2}, \quad n < 2 \quad (9)$$

Then, after substituting (9) into equation (8), it takes the following form

$$\frac{\partial w}{\partial t} = \varphi^{1-s} \frac{\partial}{\partial \varphi} (\varphi^{s-1} w \frac{\partial w}{\partial \varphi}), \quad s = 2N / (2 - n) \quad (10)$$

Hence, for $s=1$, that is, for $n = -2(N - 1)$, $N > 1$, equation (10) has a one-dimensional form

$$\frac{\partial w}{\partial t} = \frac{\partial}{\partial \varphi} (w \frac{\partial w}{\partial \varphi}), \quad s = 2N / (2 - n), \quad \varphi(|x|) = \frac{1}{N} |x|^N \quad (11)$$

which has a wave solution

$$w(t, \varphi) = f(\xi), \quad \xi = ct \pm \varphi \quad (12)$$

Substituting (12) into (11) we obtain a self-similar equation

$$c \frac{df}{d\xi} = \frac{d}{d\xi} (f \frac{df}{d\xi}) \quad (13)$$

which has a solution

$$u(t, x) = c(ct \pm \varphi) = c(ct \pm \frac{1}{N} |x|^N) \quad (14)$$

It is easy to see that the wave velocity is not constant, since from (14) at the front, i.e. at

$$ct - \frac{1}{N} |x|^N = 0$$

the velocity of the wave propagation front

$$\frac{d|x|}{dt} = (cN)^{1/N} t^{(1/N)-1}$$

it is not constant since $N > 1$. Note that the velocity of the wave propagation front decays at a sufficiently large time value. This effect is peculiar only to the nonlinear model of heat propagation, filtration, salt transfer and nonlinear diffusion in a porous inhomogeneous medium.

Using solution (14), numerical results were obtained.

Reference:

1. Peihu Shi, Self- similar solution of a p-Laplacian evolution equation with gradient absorption term // 2004, P. 15-26.
2. Y. M. Qi, M. X. Wang. The self-similar profiles of solutions of generalized KPZ equation, // Pacific J. Math., 2001, 201, P. 223-240. DOI: 10.2140/pjm.2001.201.223
3. Galaktionov V., King, J. R. (1996). On the behavior of blow-up interfaces for an inhomogeneous filtration equation. Journal of Applied Mathematics. Vol. 57, pp. 53-77)
4. Aripov M. M., Bobokandov M. M. Blow-up analysis for a doubly nonlinear parabolic non-divergence form equation with source term. Bull. Inst. Math., 2022, Vol.5, №4, pp. 7-21.

5. Aripov M. M., Matyakubov A. S., Khasanov J. O. Global solvability and explicit estimation of solutions of a cross-diffusion parabolic system in non-divergent form with a source and variable density. *Bull. Inst. Math.*, 2022, Vol.5, №4, pp. 22-31
6. Aripov, M. M., & Baltabaeva, R. B. (2021, December). Fujita type global solvability to double nonlinear parabolic equation with nonlinear gradient term for the salt transfer process. In *Journal of Physics: Conference Series* (Vol. 2131, No. 3, p. 032042). IOP Publishing.
7. Y. M. Qi, M. X. Wang. The self-similar profiles of solutions of generalized KPZ equation, // *Pacific J. Math.*, 2001, 201, P. 223-240. DOI: 10.2140/pjm.2001.201.223
8. Galaktionov V., King, J. R. (1996). On the behavior of blow-up interfaces for an inhomogeneous filtration equation. *Journal of Applied Mathematics*. Vol. 57, pp. 53-77)
9. V. A. Galaktionov, S. P. Kurdyumov, A. A. Samarsky, On approximate self-similar solutions of a class of quasi-linear equations of thermal conductivity with a source, *Math. sat.*, 1984, volume 124(166), number 2(6), 163-188
10. V. A. Galaktionov, A. A. Samarsky, Methods for constructing approximate self-similar solutions of nonlinear equations of thermal conductivity. II, *Math. sat.*, 1982, volume 118(160), number 4(8), 435-455
11. V. A. Galaktionov, A. A. Samarsky, Methods for constructing approximate self-similar solutions of nonlinear equations of thermal conductivity. III, *Math. sat.*, 1983, volume 120(162), number 1, 3-21
12. V. A. Galaktionov, A. A. Samarsky, Methods for constructing approximate self-similar solutions of nonlinear equations of thermal conductivity. IV, *Math. sat.*, 1983, volume 121(163), number 2(6), 131-155
13. Baltabaeva, R., Baymuratova, K., & Erejepova, S. (2022, May). On the Issue of Mathematical Modeling of Salt Transfer Processes in Soils Taking into Account Convective Transference. In *International Scientific Conference on Agricultural Machinery Industry "Interagromash"* (pp. 3202-3209). Cham: Springer International Publishing.
14. Baltabaeva R.B. On the property of solving a one-dimensional and multidimensional salt transfer problem taking into account convective transference. *Bulletin of the Treasury spec. Issue No.3(66) Almaty*, 2010. pp. 121-126.
15. R.B. On the property of solving a one-dimensional salt transfer problem taking into account convective transference. *Bulletin of NUUz No.3*, 2010. pp. 43-46.

Rezyume: Ushbu maqolada chiziqli bo'lmagan filtrlash tenglamasi, chang va tuzning tarqalishi tenglamalari ko'rib chiqilgan, chang tuzlarning chegarada tarqalish tezligi, er osti suvlarini filtrlash hodisasi avtomatik modellash tahlili va echimlarni taqqoslash printsipi asosida o'rnatilgan.

Резюме: В данной статье рассматривается нелинейное уравнения фильтрации, уравнения распространение пыли и соли, устанавливается явление конечной скорости распространение пылевых возмущений, фильтрации грунтовых вод на основе автомодельного анализа и принципа сравнения решений.

Kalit so'zlar: Cheklangan tezlik xususiyati, avtomodel tenglama, to'lqin echimlari.

Ключевые слова: Свойства конечной скорости, автомодельное уравнение, волновые решения.

RESEARCH OF A MATHEMATICAL MODEL TO DETERMINE DENTAL CARIES

Ismailov O., Temirova X.F.

Tashkent University of Information Technologies named after Muhammad al-Khwarizmi

Summary: *This work explores a mathematical model of the process of detecting dental diseases and detecting caries, which is present in almost 90% of people today.*

Key word: *Mathematical model, detection of dental diseases, recognition algorithms, artificial intelligence, Yolo algorithm.*

Dental caries, caused by bacteria that feed on sugars and starches in food, cause lesions and cavities in tooth enamel. If left untreated, caries can affect deeper layers and cause pain, infections, and even tooth loss [1]. Although common at any age, they are more common in children and adolescents due to increased sugar consumption [2]. Caries can be difficult to detect in the early stages, especially when they form in small, painless or hard-to-reach areas [3]. However, dentists use methods such as probes and radiographs to detect them, and image recognition systems have helped in this task [4]. Early detection of caries is very important for effective treatment and prevention of complications, because lesions can be invisible, especially in places that are difficult to access. In addition, some people may be more prone to the development of caries due to lack of hygiene. Therefore, the caries detection system has a significant impact on the oral cavity, preventing complications and improving overall oral well-being [5].

Radiographic caries detection system can be a valuable tool to prevent caries development and reduce complications while avoiding invasive treatment. In addition, this system can help dentists identify problem areas in caries-prone patients, allowing for a personalized treatment plan [6]. However, it is important to use dental radiographs sparingly when exposed to ionizing radiation, although the risks are generally low and considered safe for most people [4]. To detect objects in images, especially for computer vision, a system must understand structure, context, and be able to distinguish objects from the background, even under different lighting conditions and perspectives. However, the analysis performed in this study addresses the problem in a controlled environment without fully exploring the concept of light [7].

Related works. A convolutional neural network (CNN) system was adopted. Of the 598 intraoral images collected, 402 were used for training and 196 for testing. The model used is a sequential model that classifies the images into three classes, Normal Teeth, Caries, Oral Cancer. The accuracy of the disease detected in the tested dental photographs was 83-94%. This system helps in the early diagnosis of oral problems that are usually detected by dentists. [8]

Another study used the U-Net convolutional neural network to detect caries lesions of different radiographic levels in interproximal images. The dataset is divided into training, validation, and test sets of 3293, 252, and 141 images, respectively. The neural network achieved an accuracy of 80.00%, which exceeded the average accuracy of dentists of 71.00% and showed a significantly higher sensitivity compared to dentists [9].

This research work proposed a framework for tooth segmentation and detection from PXIs. This work implements different methods such as Otsu threshold preprocessing, VGG-UNet based tooth segmentation and YOLO-V3 based recognition. This work is carried out using 1000 images of UFBA-UESC PXI dataset and the proposed work helps to achieve better segmentation (98.44%) and detection accuracy (98%) on the selected PXI database. [10]

Methodology. Panoramic dental radiographs have been chosen as the preferred type of radiography because of their ability to show the entire set of teeth and provide a wealth of information. A Gaussian pyramid is used as a blur filter that effectively reduces noise to improve image quality. Rather, a Laplace pyramid is used to enhance overall image detail. Automatic algorithms for adjusting brightness and contrast are also used in the pre-processing stage. Opencv

and python programs library was used and yolo8 algorithm was used, images were taken from kagle.com image database and training results were obtained.

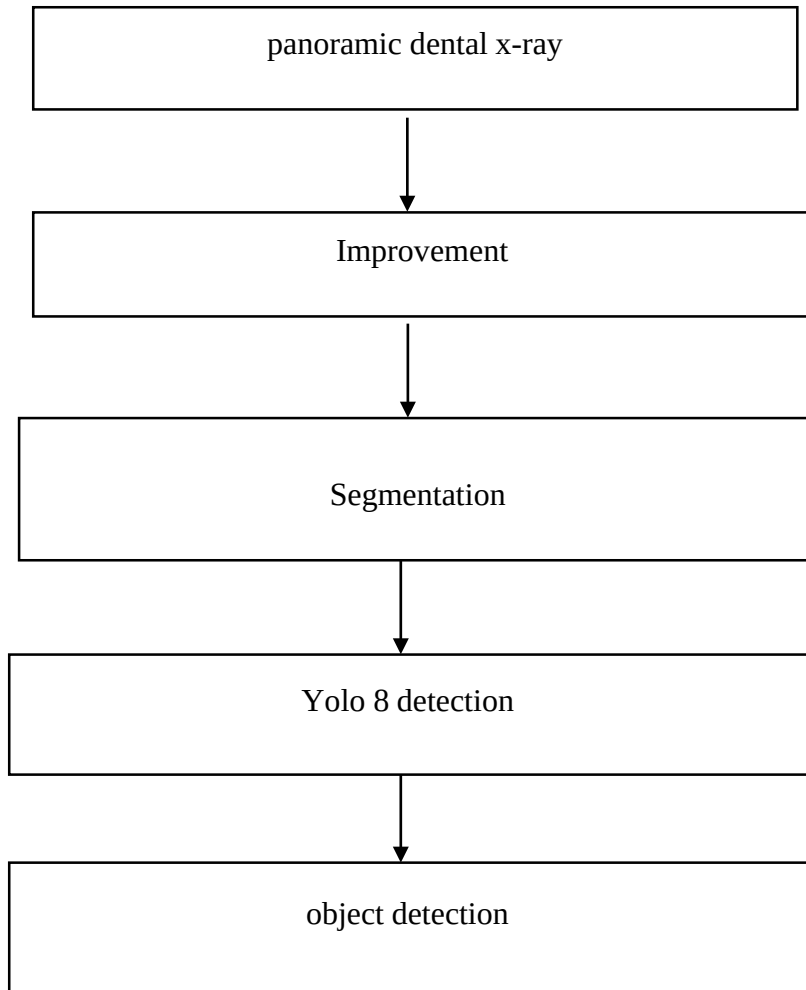


Figure 1. Block diagram of the proposed method.

A dataset containing. 600 panoramic dental x-rays was obtained from the Tufts Dental Database. 164 of them had to be deleted. 436 disease images were selected. The dataset was labeled using the Roboflow platform. There were a total of 1655 annotations, of which 359 were fillings, 646 were implants, 313 were cavities, and 237 were impacted teeth. Images were expanded using horizontal and vertical scrolling to obtain 269 images. 80% of this was used as training set, 15% as validation set and remaining 5% as test set.

Table 1. Breakdown of datasets

collection of data	decay	confirmation	testing
1058	915	180	60

A.Improvement. Simple convolutional layer (2D) (simple convolutional layer) In order to get our images into a computer vision, we mainly use (CNN), we compress them while preserving the main part of the image processing, and we use filters extensively to do this.

First, Figure - 2 below shows a real example of using convolution for feature extraction.

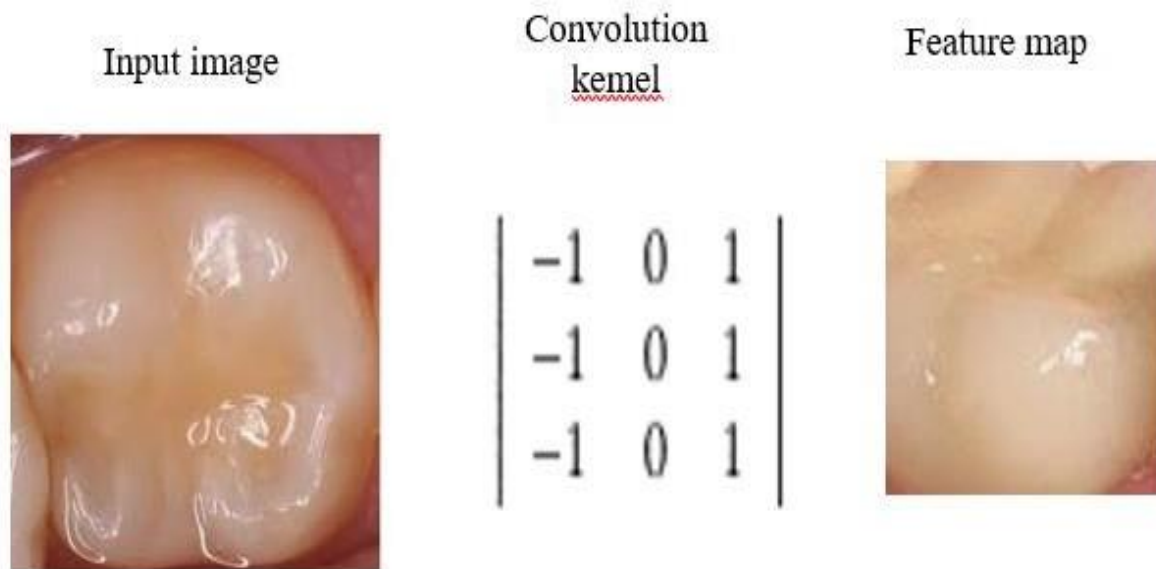
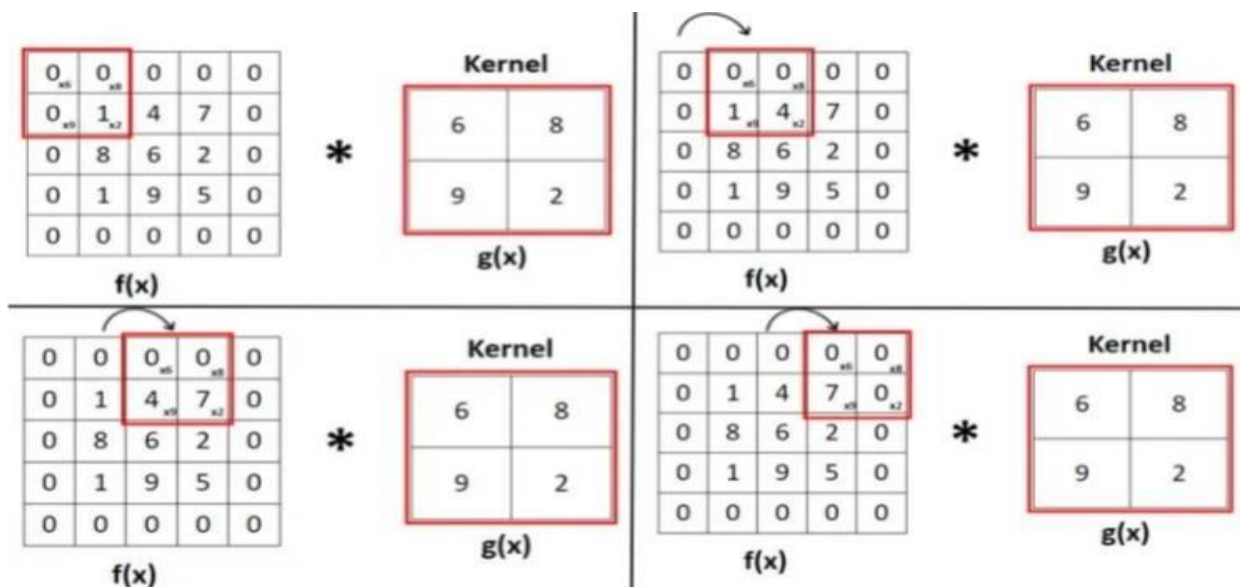


Figure 2. Enhance the image using a filter

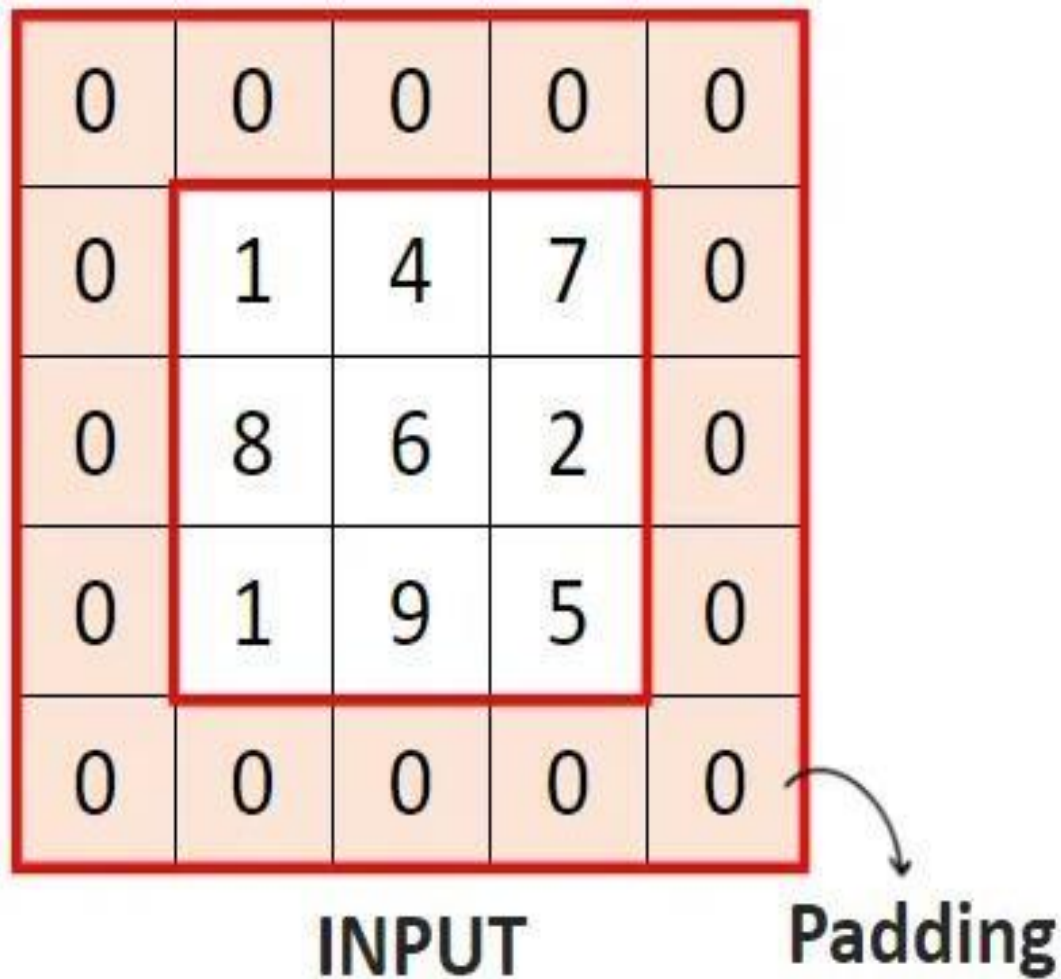
B. Segmentation. A panoramic dental x-ray includes areas outside the image, making it extremely difficult and time-consuming to distinguish teeth. To overcome this complication and shorten the process, automatic segmentation of the jaw is required. Image segmentation is still difficult due to the lack of significant difference in pixel intensity between different components and the lack of clear edges in panoramic radiographs. Segmentation is divided into two parts: removing unnecessary area of the image and performing vertical segmentation.



3 – Figure. Segmentation using a filter.

Padding. "Padding" refers to adding extra pixels (usually zero) to the edges of the input image before applying convolution operations. This is done to ensure that the information at the edges of the image is treated in the same way as the information in the center during the convolution operations.

When a filter (kernel) is applied to an image, it usually passes through the image pixels. If no padding is applied, the pixels at the edges of the image will have fewer neighbors than the pixels in the center, which can lead to loss of information in these areas. Figure 3 below shows an example of filling.



In terms of probability, the convolution operation can be understood as a weighted average or weighted sum of random events, which can be interpreted as a probability distribution with two random variables X and Y ($p_X(x)$ and $p_Y(y)$). The convolution of X and Y is given by Equation 1: Convolution of X, Y .

$$(X * Y)(z) = \int_{-\infty}^{\infty} p_X(x) \cdot p_Y(z - x) dx \quad (1)$$

Yolov 8. YOLO (You Only Look Once) is an object detection algorithm that has gained considerable popularity in the field of computer vision. Ultralytics, which produced the influential YOLOv5 model that defined the industry, has developed the Yolov8. It provides various improvements and optimizations to increase the accuracy and speed of object detection. Yolov8 includes a variety of developer- friendly features, including an intuitive CLI and a well-designed Python package. Yolov8 follows a single axis detection approach, meaning it predicts bounding boxes and class probabilities directly from the input image in a single pass. YOLO v8 uses anchor boxes to manage objects of different shapes and sizes. Anchor boxes are predefined bounding boxes of various sizes and proportions. Yolov8 is based on a deep convolutional neural network (CNN) architecture called Darknet. This network is responsible for extracting features from the input image. It captures relevant features at different spatial scales, allowing Yolov8 to detect objects of different sizes and complexities. The C3 module has also been replaced by the C2f module. The C3 module only receives the output from the last barrier, while the new C2f module combines all the outputs.

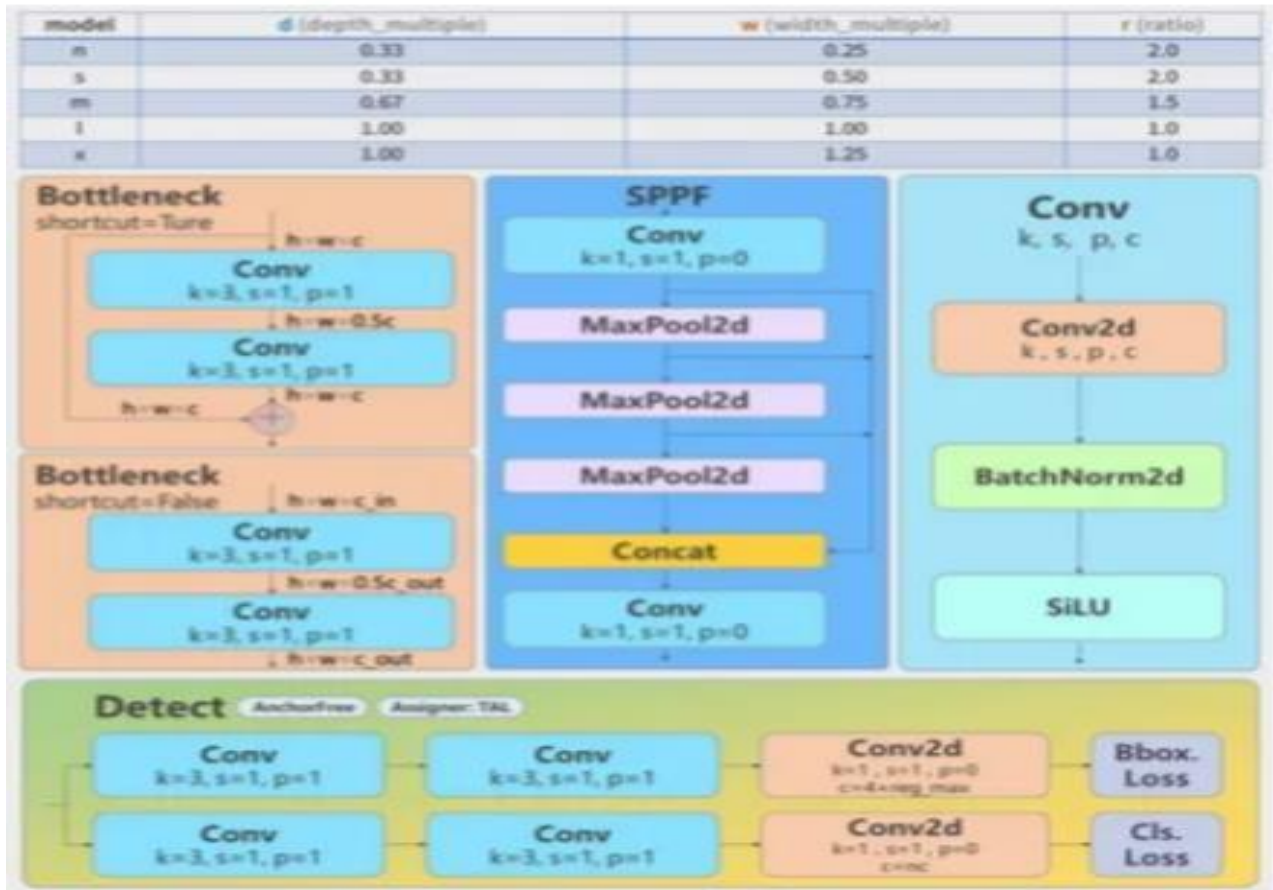


Figure 4. The main structures of the main blocks.

Front end. The Tkinter module is used to create a GUI. The GUI window is called "Dental X-ray Analysis and Diagnostics" and its size is adjusted to fit the entire screen. The user can upload an image and its detection is done using the trained YOLOv8 model. The result is displayed in the same window as the confidence score.

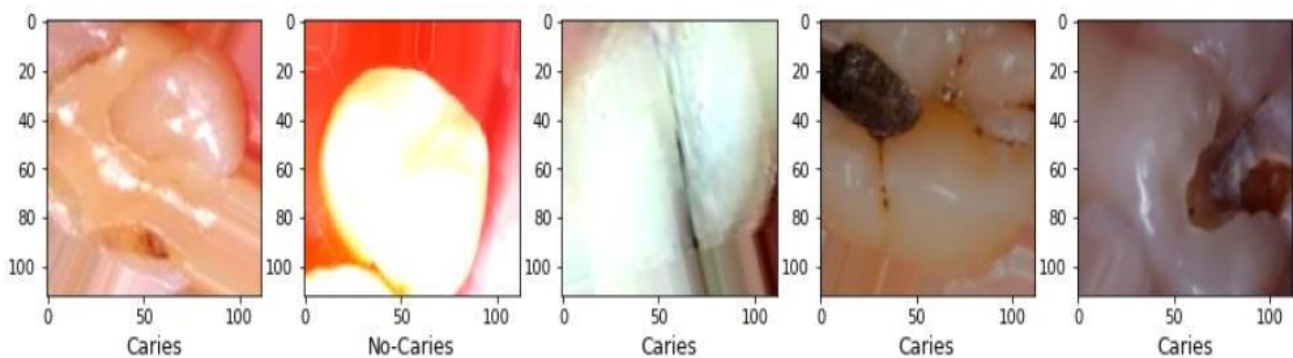


Figure - 5. GUI

Results. The precision, recall and F1 score were calculated to evaluate the performance of the trained YOLOv8 model. The precision achieved was 93.5%, the recall was 78.38% and the F1 score was 80.32%. Various graphs are drawn and the results are compared with other existing algorithms.

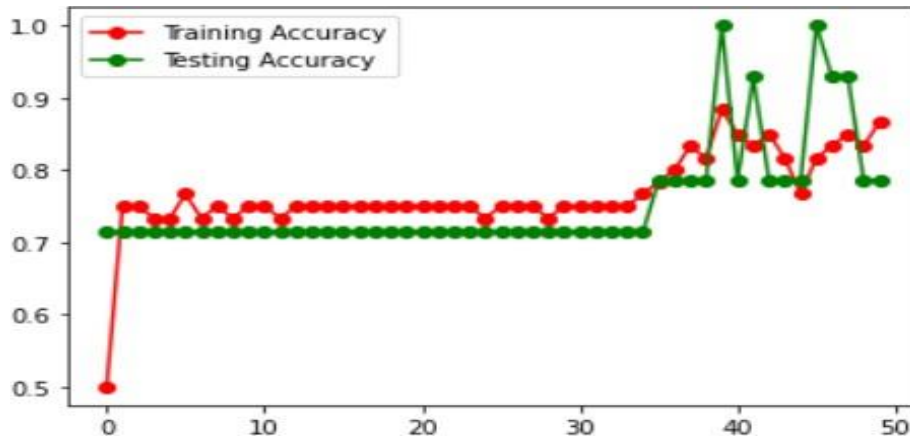


Figure - 6. assessment of model accuracy and segmentation.

The U-Net CNN model was used to train on a bitewing radiograph dataset containing 354 images to obtain accuracy.63.29% for caries detection in [9]. 85 panoramic dental radiographs from 2001 hand-cut images of individual teeth were used to train a CNN model to detect periodontal bone loss to obtain an accuracy of 84% in [4]. In [8], a dataset containing 1160 panoramic dental radiographs was used to train the DenseNet121 model for caries detection with an accuracy of 95.7%. YOLOv3 model [10] trained using a dataset of 1200 panoramic dental radiographs to detect various dental diseases to obtain an accuracy of 98.44%.

Table - 1. Comparison of existing products.

Information	Model	It works
[6]	U-Net CNN	Accuracy=63,29%
[4]	CNN model	Accuracy=84%
Invited	YOLOv8	Accuracy=93.5%
[5]	YOLOv3	Accuracy=98.44%

Conclusion. In this article, we will briefly touch on the disease called dental caries, which is found in almost 90% of people today, and we have developed a model for detecting dental caries. In the development of the model, we mainly used the Yolo algorithm, and in the training process, we used the image of a caries-affected tooth and a database of healthy tooth images. In the proposed study, the result was achieved with 93.5% accuracy. kegle.com image database was used in the process of teaching Model.

References:

1. Kumar, S., Rani, S., & Singh, R. (2021). Automated recognition of dental caries using K-Means and PCA based algorithm.
2. Sandeep Kumar, Shilpa Rani Rasveen Singh "Automated Recognition of Dental Caries using K-Means and PCA based Algorithm" Proceedings Volume of the 4th IET International Smart Cities Symposium, 4th SCS-2021, November 21-23, 2021, Bahrain
3. Thulaseedharan, A., & PS, L. P. (2022, November). Deep Learning based Object Detection Algorithm for the Detection of Dental Diseases and Differential Treatments. In 2022 IEEE 19th India Council International Conference (INDICON) (pp. 1-7). IEEE.
4. Mohan, R., Arunmozhi, R., & Rajinikanth, V. (2023, March). Deep-Learning Segmentation and Recognition of Tooth in Thresholded Panoramic X-ray. In 2023 Winter Summit on Smart Computing

and Networks (WiSSCoN) (pp.

5. . IEEE. Atencio, Y. P., Marin, J. H., Holguin, E. H., Yanqui, F. T., & Cabrera, M. (2021, October). Image Processing Techniques for Medical Applications

6. Ismailov O. Iskandarova S. Temirova X. (January 29-31, 2024) Algorithms for diagnosing dental diseases

7. George, J., Hemanth, T. S., Raju, J., Mattapallil, J. G., & Naveen, N. (2023, August). Dental Radiography Analysis and Diagnosis using YOLOv8. In 2023 9th International Conference on Smart Computing and Communications (ICSCC) (pp. 102-107). IEEE.

8. Ismailov Otabek, Iskandarova Sayora, Temirova Xosiyat Farxod qizi (international scientific journal science and innovation special issue: "modern problems and prospects of development of energy supply of digital technology.

Rezyume: Bu maqolada bugungi kunda deyarli 90% odamlarda mavjud bo'lgan tish kasalliklarini aniqlash va kariesni aniqlash jarayonining matematik modelini o'rganiladi.

Резюме: В данной статье исследуется математическая модель процесса выявления кариеса зубов, который сегодня присутствует почти у 90% людей.

Kalit so'zlar: Matematik model, tish kasalliklarini aniqlash, aniqlash algoritmlari, sun'iy intellekt, Yolo algoritmi.

Ключевые слова: Математическая модель, выявление стоматологических заболеваний, алгоритмы обнаружения, искусственный интеллект, алгоритм Ёло.

TYPES AND LEVELS OF CHEMICAL SOIL POLLUTION

Jabbarov Z.A.¹, Reymova F.N.²

¹National University of Uzbekistan named after Mirzo Ulugbek, ²Karakalpak State University named after Berdak

Summary: Soil contamination with radioactive substances is very dangerous. Actions are being taken to eliminate the consequences of the environmental situation on the island.

Key words: Aral length, chemicals, mining, metallurgy, azon layer, shortage of working water, reduction of biodiversity.

The beginning of the third millennium is marked by two important trends. First, the current civilization has faced global environmental problems (climate change, destruction of the ozone layer, shortage and pollution of drinking water, degradation of land and forests, reduction of biodiversity, generation of excess waste and the problem of their disposal). Second, the world is changing rapidly with pictures. Therefore, in Uzbekistan, the lands of the Republic of Karakalpakstan are being chemically polluted at various levels, the main reasons for this are the development of development, the rapid advancement of chemistry and technology, the increase in the number and types of motor vehicles, and the increase in the number of industrial and household waste. Downstream - lower part of Amudarya, i.e. Republic of Karakalpakstan and Khorezm region. - an old irrigation zone with a relatively good quality of return flow (mineralization of collector water is in the range of 2.2-3.7 g/l), and in Karakalpakstan, seepage waters are highly mineralized, respectively, mineralization of return water is in the range of 2.9-5 g/l .

The following are the main industrial pollutants:

- heavy metals (toxins) from mining and metallurgical industries, galvanic processing of metals, etc.;
- nitrogen, cyanide and other organic substances falling from specialized industrial networks (toxins and non-toxins);
- non-toxic organic substances, food and light industrial waste;
- various types of industrial enterprises, including toxic organic parts of chemical industry wastes, for example, oil components, compounds, etc.

Domestic polluters (non-sewerized population) throwing fecal and household waste into ditches and collector-drainage networks or uras affect the quality of wastewater.

Special attention is paid to the assessment of the natural environment in the area of influence of soil and air pollution from industrial wastes of the state unitary enterprise "Tajikistan Aluminum Company" (TAJIKO DUK) or the former Tajikistan Aluminum Plant). Air samples were taken 5-8 times a day to determine hydrogen fluoride in atmospheric air in Sariosia district of Surkhandarya region, and as a result, 1.3 times more than sanitary standards for hydrogen fluoride were observed. When examining the issue of possible contamination of the territories of Sariosia, Uzun and Denov districts of Surkhandarya region with the waste products of TajAZ, it was found that the natural excess content of gross fluorine for the soils of Surkhandarya region (the average content in the soil is 802 mg/kg, the highest content is 1780 mg /kg) is due to the fact that the south-western part of the Khysor ridge is formed by the occurrence of chalky minerals in chalky minerals.

The analysis of the gross retention of fluorine in the soil of Sariosia, Uzun and Denov districts showed a mosaic distribution of 600-1570 mg/kg (the average content of fluorine in the world's soils is 200 mg/kg) in its much higher absolute retention. The highest amount of fluorine (1270-1500 mg/kg) is found in the irrigated lands on the south bank of the Surkhandarya from the residential areas of Uzun to the city of Denov and towards the southeast. In the soil (at a depth of up to 2 m), total fluorine is relatively evenly distributed, and Sherabad mound forms halos with a high content (up to 1400 mg/kg) in front of the mountain.

It was found that the main pollution of the soil is related to the arrival of ore material in the mountain part of the oasis. 40 percent of the region's soil has low and moderate salinity. The climatic conditions, geographical location and natural resources of any country are unique and are manifested by their unique aspects. Because of this, each country develops relevant norms for environmental protection and use of natural resources in its legislation based on its own conditions.

References:

1. A.Mamatqulov “Qishloq xójaligida suógoriladigan shórxox yerlardan samarali foydalanish” Toshkent.
2. L.Tursunov “Tabiiy va texnogen buzilgan tuproqlar genezisi, geografiyasi va rekultivatsiyasi” Toshkent.
3. Ózbekiston qishloq –xojalik jurnali.

Rezyume: *Tuproq qoplamining radioaktiv moddalar bilan ifloslanishi juda xavflidir. Orol bóyida ekologik vaziyatning oqibatlarini bartaraf qilish bóyicha tadbirlar amalga oshirilmoqda.*

Резюме: *Загрязнение почвы радиоактивными веществами очень опасно. Принимаются меры по ликвидации последствий экологической ситуации на острове.*

Kalit sózlari: *Orol boyi, kimyoviy moddalar, kon, metallurgiya, azon qatlami, ishimlik suv tanqisligi, bioxilmaxillikning qisqarishi.*

Ключевые слова: *Приаралья, химическая промышленность, горное дело, металлургия, азоновый слой, дефицит рабочей воды, сокращение биоразнообразия.*

ANALYSIS OF X-RAY IMAGES USING ARTIFICIAL INTELLIGENCE ALGORITHMS FOR MEDICAL DIAGNOSTICS

Aytmuratov B.Sh.¹, Nurimov P.B.¹, Yesbergenov H.S.²

¹Nukus branch of Tashkent University of Information Technologies named after Muhammad al-Khwarizmi, ²Tashkent University of Information Technologies named after Muhammad al-Khwarizmi, Tashkent, Uzbekistan

Summary: *This article examines the application of artificial intelligence algorithms in the field of medical diagnostics, in particular, the issue of diagnosis through the classification of X-ray images. The issue of training and implementation of the classification model using the training data set based on X-ray data was studied.*

Key words. *Artificial intelligence, X-ray data, DICOM (Digital Imaging and Communications in Medicine), training dataset, clinical diagnostics.*

Introduction.

Today, in the modern development of medicine, artificial intelligence (AI) technologies are gaining importance, and AI algorithms are widely used to automate and improve medical diagnostic processes. Especially in the analysis of X-ray images, AI technologies significantly increase efficiency and accuracy. While traditional diagnostic methods are prone to error due to the human factor, AI reduces these problems and provides faster results [1].

X-ray images have been used in medical diagnostics for a long time, and this method is a reliable tool in the diagnosis of various diseases. However human analysis and interpretation processes require a lot of time and experience. Moreover, artificial intelligence provides high-precision analysis methods that are able to detect even the smallest details in X-ray images.

In this article, we consider the process of training a model and using this model for the problem of diagnosis of chest X-ray images using artificial intelligence algorithms. By putting these technologies into practice, it will be possible not only to speed up diagnostic processes, but also to save human lives [2].

Classification of X-ray image

X-ray images are important in the medical diagnostic process and are widely used to diagnose various diseases and conditions. The classification of X-ray images is divided into several categories depending on their purpose and field of application. For example, chest X-ray, abdominal X-ray, bone and joint X-ray and dental X-ray are among the main X-ray categories. Of these, a chest X-ray is one of the most common X-ray tests and is often used to examine the lungs, heart, and other organs in the chest cavity. This method is effective in detecting pneumonia, lung tumors, heart diseases and damage to the bones of the chest [3]. Below is an example of an X-ray image in Figure 1.

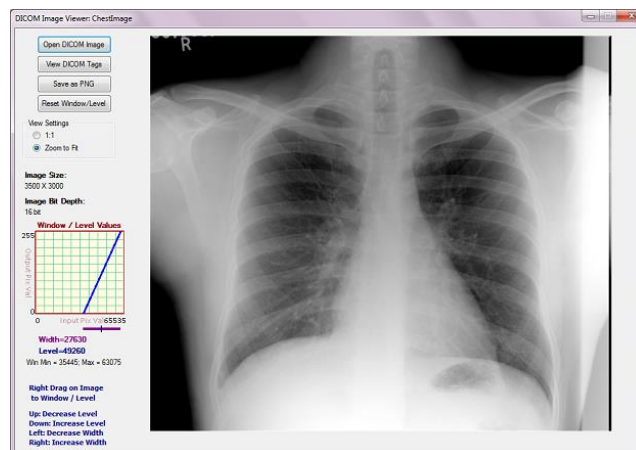


Figure 1. X-ray image of the chest.

The issue of diagnosis based on chest X-ray image data includes several issues.

1. *Data collection.* The data collection process involves collecting high-quality X-ray images and saving them in the correct format. The first high-quality and clear X-ray images are obtained from medical centers or clinics. This image number is stored in the format. DICOM (Digital Imaging and Communications in Medicine) format is often used because this format is the standard for medical images [4]. DICOM files consist of two main components: image data and meta data. Image data represents the X-ray image itself, while meta data includes the patient's age, gender, diagnosis, time of X-ray taken, and so on [5].

Sample Data From DICOM Tags in the Header of a Chest Flat Panel		
(0008,0020)	Study date	7/01/03
(0008,0030)	Study time	10:31:12
(0008,0033)	Image time	10:32:43
(0010,0020)	Patient ID	NNNNNNN
(0010,0040)	Patient's sex	F
(0010,1010)	Patient's age	085Y
(0018,0015)	Body part examined	Chest
(0018,0060)	kVp	125
(0018,1150)	Exposure time	5
(0018,1151)	X-ray tube current	250
(0018,115E)	Image area dose product	0.83557
(0018,1190)	Focal spot(s)	0.6
(0018,1405)	Relative x-ray exposure	61
(0018,7060)	Exposure control mode	AUTOMATIC
(0018,7062)	Exposure control mode description	AEC_left_and_right_cells
(0028,0010)	Rows	2022
(0028,0011)	Columns	2022
(0028,0100)	Bits allocated	16
(0028,0101)	Bits stored	14

Figure 2. Meta data in the DICOM file.

2. *Data preprocessing.* Before analyzing with AI algorithms, it is necessary to properly prepare the images. This process involves several steps. The first image needs to be processed. This includes normalization, contrast enhancement, noise reduction, and resizing [6]. The next step is labeling. In this case, important places in the image are determined, for example, disease centers are shown. This process is often performed by radiologists and is the basis for training AI models]. As a result, a ready-made training data set for the model is created.

	PatientSex	PatientSize	PatientWeight	SamplesPerPixel	PhotometricInterpretation	Rows	Columns	PixelAspectRatio	Bits
0	O	0.0	0.0	1	MONOCHROME2	3000	3000	1.0	16
1	F	NaN	NaN	1	MONOCHROME2	3072	3072	NaN	16
2	O	NaN	NaN	1	MONOCHROME1	2836	2336	NaN	16
3	M	NaN	NaN	1	MONOCHROME2	2952	2744	NaN	16
4	M	NaN	NaN	1	MONOCHROME1	2880	2304	NaN	16

5 rows × 29 columns

Figure 3. Training data collection (Dataset).

After completing these processes, the data is divided into training, validation and testing data sets. This division is necessary for training the model and evaluating its effectiveness.

3. *Training the model.* In the process of training the model, first of all, the model architecture is selected. Today, artificial intelligence models such as CNN (Convolutional Neural Networks) are widely used to analyze chest X-ray images [7]. The architecture of the model is important to ensure the accuracy of the analysis results. A model is then trained using the labeled images. In this process, the model learns to identify symbols in the image and classify diseases. After these processes, the effectiveness of the model is evaluated.

4. *Analysis of images.* Analyzing new images using a trained model involves the following steps:

- Loading and analyzing new images into the model.
- Getting results. For example, reporting of a disease.
- Evaluation of results. Evaluation of analysis results and their application in clinical practice. Radiologists should evaluate the model results and confirm them.

5. *Evaluation and use of results.* After evaluating the accuracy and reliability of the model, this model can be used in clinical practice and it will help doctors in early detection and treatment of diseases.

Conclusion.

Chest x-ray image data collection and processing using AI technologies allows to significantly improve medical diagnosis. Properly collected and processed data sets are the basis for training high-accuracy diagnostic models, which in turn improves the quality of medical care provided to patients. This, in turn, is very important for the development of diagnostic systems based on X-ray data obtained from medical institutions for early detection and treatment of lung diseases [8].

References:

1. Jeremy Howard, Thomas Wang, AI for Radiology: Automating Chest X-Ray Analysis, Radiology, Vol. 296, 25-37p (2020)
2. Pranav Rajpurkar, Jeremy Irvin, Andrew Y. Ng, CheXNet: Radiologist-Level Pneumonia Detection on Chest X-Rays with Deep Learning, arXiv preprint arXiv:1711.05225, 1-6p (2017)
3. Shuang Liu, Ge Wang, Applications of Artificial Intelligence in Medical Imaging: Recent Advances and Future Prospects, Current Medical Imaging, Vol.15, 42-51p (2019)
4. El-Sherif Z.A., Nassar A.S., DICOM Metadata: Benefits, Challenges, and Future Directions, IEEE Transactions on Medical Imaging, Vol.37, 20-34p (2018)
5. Rachel Bailey, Michael Smith, Integration of DICOM Images with Meta-data for Enhanced Medical Data Analysis, Journal of Medical Systems, Vol.43, 102-114p (2019)
6. Linh Nguyen, Wei Xie, Combining DICOM Images and Metadata for Efficient Medical Image Analysis, Medical Image Analysis, Vol.68, 54-67p (2021)
7. Iskandarova S.N, Qurbonov A.R., Xusanov K.X., Enhancing medical diagnostics: an analytical exploration of aidriven x-ray, Raqamli texnologiyalarning iqtisodiyot va ta'limdagi o'rni mavzusidagi xalqaro ilmiy-amaliy anjumani ma'ruzalar to'plami I tom, 321-324 bet (2024)
8. Nurimov P.B, Yesbergenov H.S, Tibbiyotda sun'iy intellekt texnologiyalarini qo'llash, Raqamli texnologiyalarning iqtisodiyot va ta'limdagi o'rni mavzusidagi xalqaro ilmiy-amaliy anjumani ma'ruzalar to'plami I tom, 324-316 bet (2024).

Rezyume: Ushbu maqola sun'iy intellekt algoritmlarini tibbiy diagnostika sohasida qo'llash, xususan, rentgen tasvirlarini tasniflash orqali tashxis qo'yish masalasini o'rganadi. X-ray ma'lumotlariga asoslangan o'quv ma'lumotlari to'plamidan foydalangan holda tasniflash modelini o'qitish va amalga oshirish masalasi o'rganildi.

Резюме: В данной статье рассматривается применение алгоритмов искусственного интеллекта в области медицинской диагностики, в частности, вопрос диагностики посредством классификации рентгеновских снимков. Изучен вопрос обучения и реализации модели классификации с использованием обучающего набора данных на основе рентгеновских данных.

Kalit so'zlar: Sun'iy intellekt, rentgen ma'lumotlari, DICOM (Tibbiyotda raqamli tasvirlash va aloqalar), o'quv ma'lumotlar to'plami, klinik diagnostika.

Ключевые слова: Искусственный интеллект, рентгеновские данные, DICOM (Digital Imaging and Communications in Medicine), обучающий набор данных, клиническая диагностика.

UDC 517.912

SOLVING FRACTIONAL ORDER DIFFERENTIAL EQUATIONS USING INTEGRAL TRANSFORMATIONS

Otarova J.A., Shamuratov D.S.

Karakalpak state university named after Berdakh

Summary: *The paper examines the solution of fractional order differential equations using integral transformation methods. The analytical solution of an inhomogeneous differential equation of fractional order is found using the integral transformations of Laplace, Elzaki, Mohand, Sumudu and Sawi.*

Keywords: *integral transformations, inhomogeneous fractional differential equations, solution.*

Interest in fractional equations, both ordinary and partial derivatives, has been steadily growing in recent decades. This is due to the need to model processes in which the current state significantly depends on previous states of the process, i.e., so-called systems with “residual” memory. Integral transformations are one of the analytical approaches that are used in solving fractional differential equations. Integral transformations are important for facilitating the solution of differential equations that are difficult to solve at certain limiting or initial values. Among the integral transforms, the most commonly used is the Laplace transform (LT), which transforms a time variable into a frequency variable, making it easier to solve fractional differential equations that seem difficult to solve. Most of the proposed and applied transformations are actually extensions of LT. Over the past two decades, several integral transformations have been introduced to facilitate the solution of fractional differential equations such as LT. For example, one such transformation, the Sumudu integral transform (ST), was proposed by Watugal as an alternative to the Laplace transform in the 1990 s [1]. The special properties of the Sumudu transformation include preserving the dimension of the function; the units of measurement of the function itself and its image are the same. Its disadvantages include the fact that there is no explicit formula for calculating the inverse transformation. The inversion can be accomplished through solving the corresponding Fredholm integral equation of the first kind, which reduces to solving an ill-conditioned system of linear algebraic equations. The Elzaki integral transform is derived from the classical Fourier integral by Tarig Elzaki to facilitate the process of solving ordinary and partial differential equations in the time domain. Transformations such as Laplace, Sumudu, Elzaki, Aboodh, Kamal, Poureza and Mohanda were introduced in [2-7]. Let us apply these integral transformations to solve an inhomogeneous differential equation of fractional order.

Given a function $f(x)$ defined for $0 < x < \infty$, the Laplace transform $F(s)$ is defined as:

$$F(s) = L[f(x)] = \int_0^{\infty} f(x)e^{-sx} dx, \quad (1)$$

at least for those s for which the integral converges.

Let's $f(x)$ be a continuous function on the interval $[0, \infty)$ which is of exponential order, that is, for some $c \in R$ and $x > 0$

$$\sup \frac{|f(x)|}{e^{cx}} < \infty.$$

In this case the Laplace transform (1) exists for all $s > c$ [8].

Some of the useful Laplace transforms which are applied in this paper, are as follows:

$$L[f(x) + g(x)] = F(s) + G(s),$$

$$L[x^\beta] = \frac{\Gamma(\beta+1)}{s^{\beta+1}}, \quad \beta > -1,$$

$$L[f^{(n)}(x)] = s^n F(s) - s^{n-1} f(0) - s^{n-2} f'(0) - \dots - f^{(n-1)}(0),$$

$$L^{-1}[s^{-\beta}] = \frac{x^{\beta-1}}{\Gamma(\beta)}.$$

$$L[x^n f(x)] = (-1)^n F^{(n)}(s),$$

Lemma. The Laplace transform of Riemann-Liouville fractional integral operator of order $\alpha > 0$ can be obtained in the form of:

$$L[D^\alpha f(x)] = \frac{F(s)}{s^\alpha}.$$

Consider the equation,

$$\begin{aligned} D^{\alpha+1}[x(t)] + D^\alpha[x(t)] + x'(t) + x(t) &= \\ &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} t^{n-3-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} t^{n-1-\alpha} + (n^2 - 3n + 2)t^{n-3} - t^{n-1}, \\ x(0) = x'(0) &= 0, \quad 0 < \alpha \leq 1, \quad (n \geq 4, n \in \mathbb{N}). \end{aligned} \quad (2)$$

solve equation (2) using the Laplace transform,

$$\begin{aligned} L[D^{\alpha+1}[x(t)] + D^\alpha[x(t)] + x'(t) + x(t)] &= \\ &= L\left[\frac{(n-1)!}{\Gamma(n-2-\alpha)} t^{n-3-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} t^{n-1-\alpha} + (n^2 - 3n + 2)t^{n-3} - t^{n-1}\right], \\ L[D^{\alpha+1}[x(t)]] + L[D^\alpha[x(t)]] + L[x'(t)] + L[x(t)] &= \\ &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} L[t^{n-3-\alpha}] - \frac{\Gamma(n)}{\Gamma(n-\alpha)} L[t^{n-1-\alpha}] + (n^2 - 3n + 2)L[t^{n-3}] - L[t^{n-1}], \\ s^{\alpha+1}F(s) + s^\alpha F(s) + sF(s) + F(s) &= \\ &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} \frac{\Gamma(n-2-\alpha)}{s^{n-2-\alpha}} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} \frac{\Gamma(n-\alpha)}{s^{n-\alpha}} + \frac{(n^2 - 3n + 2)\Gamma(n-2)}{s^{n-2}} - \frac{\Gamma(n)}{s^n}, \\ F(s)(s^{\alpha+1} + s^\alpha + s + 1) &= \frac{(n-1)!}{s^{n-2-\alpha}} - \frac{\Gamma(n)}{s^{n-\alpha}} + \frac{(n-1)(n-2)\Gamma(n-2)}{s^{n-2}} - \frac{\Gamma(n)}{s^n}, \\ F(s)(s^\alpha + 1)(s + 1) &= \frac{(n-1)!}{s^n} (s^{\alpha+2} - s^\alpha + s^2 - 1), \\ F(s)(s^\alpha + 1)(s + 1) &= \frac{(n-1)!}{s^n} (s^\alpha + 1)(s^2 - 1), \\ F(s) &= \frac{(n-1)!}{s^n} (s - 1), \\ F(s) &= \frac{(n-1)!}{s^{n-1}} - \frac{(n-1)!}{s^n}, \\ L^{-1}[F(s)] &= L^{-1}\left[\frac{(n-1)!}{s^{n-1}}\right] - L^{-1}\left[\frac{(n-1)!}{s^n}\right], \\ x(t) &= (n-1)t^{n-2} - t^{n-1}. \end{aligned}$$

Sumudu transformation [4]

$$f(x) \Rightarrow F(u)$$

$$F(u) = S[f(x)] = \int_0^{\infty} f(ux)e^{-x}dx. \quad (3)$$

$$S[x^{\beta}] = u^{\beta} \Gamma(\beta + 1),$$

$$S[f^{(n)}(x)] = \frac{F(u)}{u^n} - \frac{f(0)}{u^n} - \frac{f'(0)}{u^{n-1}} - \dots - \frac{f^{(n-1)}(0)}{u},$$

$$S^{-1}[u^{\beta-1}] = \frac{x^{\beta-1}}{\Gamma(\beta)}.$$

Let's solve equation (2) using (3):

$$\begin{aligned} S[D^{\alpha+1}[x(t)] + D^{\alpha}[x(t)] + x'(t) + x(t)] &= \\ &= S\left[\frac{(n-1)!}{\Gamma(n-2-\alpha)}t^{n-3-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)}t^{n-1-\alpha} + (n^2-3n+2)t^{n-3} - t^{n-1}\right], \\ S[D^{\alpha+1}[x(t)]] + S[D^{\alpha}[x(t)]] + S[x'(t)] + S[x(t)] &= \\ &= \frac{(n-1)!}{\Gamma(n-2-\alpha)}S[t^{n-3-\alpha}] - \frac{\Gamma(n)}{\Gamma(n-\alpha)}S[t^{n-1-\alpha}] + (n^2-3n+2)S[t^{n-3}] - S[t^{n-1}], \\ u^{-\alpha-1}F(u) + u^{-\alpha}F(u) + u^{-1}F(u) + F(u) &= \\ &= \frac{(n-1)!}{\Gamma(n-2-\alpha)}\Gamma(n-2-\alpha)u^{n-2-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)}\Gamma(n-\alpha)u^{n-\alpha} + (n^2-3n+2)\Gamma(n-2)u^{n-2} - \Gamma(n)u^n, \\ F(u)(u^{-\alpha-1} + u^{-\alpha} + u^{-1} + 1) &= (n-1)!u^{n-2-\alpha} - \Gamma(n)u^{n-\alpha} + (n-1)(n-2)\Gamma(n-2)u^{n-2} - \Gamma(n)u^n, \\ F(u)(u^{-\alpha} + 1)(u^{-1} + 1) &= (n-1)!u^n(u^{-\alpha-2} - u^{-\alpha} + u^{-2} - 1), \\ F(u)(u^{-\alpha} + 1)(u^{-1} + 1) &= (n-1)!u^n(u^{-\alpha} + 1)(u^{-2} - 1), \\ F(u) &= (n-1)!u^n(u^{-1} - 1), \\ F(u) &= (n-1)!u^{n-1} - (n-1)!u^n, \\ S^{-1}[F(u)] &= S^{-1}[(n-1)!u^{n-1}] - S^{-1}[(n-1)!u^n], \\ x(t) &= (n-1)t^{n-2} - t^{n-1}. \end{aligned}$$

Elzaki transformation [3]

$$f(x) \Rightarrow T(u)$$

$$T(u) = E[f(x)] = u^2 \int_0^{\infty} f(ux)e^{-x}dx. \quad (4)$$

$$E[x^{\beta}] = u^{\beta+2} \Gamma(\beta + 1),$$

$$E[f^{(n)}(x)] = \frac{T(u)}{u^n} - \sum_{k=0}^{n-1} u^{2-n+k} f^{(k)}(0),$$

$$E^{-1}[u^{\beta+2}] = \frac{x^{\beta}}{\Gamma(\beta + 1)}.$$

Let's find the solution to equation (2) using (4):

$$\begin{aligned} E[D^{\alpha+1}[x(t)] + D^{\alpha}[x(t)] + x'(t) + x(t)] &= \\ &= E\left[\frac{(n-1)!}{\Gamma(n-2-\alpha)}t^{n-3-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)}t^{n-1-\alpha} + (n^2-3n+2)t^{n-3} - t^{n-1}\right], \end{aligned}$$

$$\begin{aligned}
 E \left[D^{\alpha+1} [x(t)] \right] + E \left[D^{\alpha} [x(t)] \right] + E \left[x'(t) \right] + E [x(t)] &= \\
 &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} E \left[t^{n-3-\alpha} \right] - \frac{\Gamma(n)}{\Gamma(n-\alpha)} E \left[t^{n-1-\alpha} \right] + (n^2 - 3n + 2) E \left[t^{n-3} \right] - E \left[t^{n-1} \right], \\
 u^{-\alpha-1} T(u) + u^{-\alpha} T(u) + u^{-1} T(u) + T(u) &= \\
 &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} \Gamma(n-2-\alpha) u^{n-1-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} \Gamma(n-\alpha) u^{n+1-\alpha} + (n^2 - 3n + 2) \Gamma(n-2) u^{n-1} - \Gamma(n) u^{n+1}, \\
 T(u) (u^{-\alpha-1} + u^{-\alpha} + u^{-1} + 1) &= (n-1)! u^{n-1-\alpha} - \Gamma(n) u^{n+1-\alpha} + (n-1)(n-2) \Gamma(n-2) u^{n-1} - \Gamma(n) u^{n+1}, \\
 T(u) (u^{-\alpha} + 1) (u^{-1} + 1) &= (n-1)! u^{n+1} (u^{-\alpha-2} - u^{-\alpha} + u^{-2} - 1), \\
 T(u) (u^{-\alpha} + 1) (u^{-1} + 1) &= (n-1)! u^{n+1} (u^{-\alpha} + 1) (u^{-2} - 1), \\
 T(u) &= (n-1)! u^{n+1} (u^{-1} - 1), \\
 T(u) &= (n-1)! u^n - (n-1)! u^{n+1}, \\
 E^{-1} [T(u)] &= E^{-1} [(n-1)! u^n] - E^{-1} [(n-1)! u^{n+1}], \\
 x(t) &= (n-1) t^{n-2} - t^{n-1}.
 \end{aligned}$$

Mohand transformation

$$f(x) \Rightarrow M(s)$$

$$M(s) = M[f(x)] = s^2 \int_0^{\infty} f(x) e^{-sx} dx. \quad (5)$$

$$M[x^{\beta}] = \frac{\Gamma(\beta+1)}{s^{\beta+1}},$$

$$M[f^{(n)}(x)] = s^n M(s) - \sum_{j=0}^{n-1} \frac{f^{(j)}(0)}{s^{j-n+1}},$$

$$M^{-1}[s^{-\beta}] = \frac{x^{\beta+1}}{\Gamma(\beta+2)}.$$

Let us find the solution to equation (2) using transformation (5):

$$\begin{aligned}
 M \left[D^{\alpha+1} [x(t)] + D^{\alpha} [x(t)] + x'(t) + x(t) \right] &= \\
 &= M \left[\frac{(n-1)!}{\Gamma(n-2-\alpha)} t^{n-3-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} t^{n-1-\alpha} + (n^2 - 3n + 2) t^{n-3} - t^{n-1} \right], \\
 M \left[D^{\alpha+1} [x(t)] \right] + M \left[D^{\alpha} [x(t)] \right] + M \left[x'(t) \right] + M \left[x(t) \right] &= \\
 &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} M \left[t^{n-3-\alpha} \right] - \frac{\Gamma(n)}{\Gamma(n-\alpha)} M \left[t^{n-1-\alpha} \right] + (n^2 - 3n + 2) M \left[t^{n-3} \right] - M \left[t^{n-1} \right], \\
 s^{\alpha+1} M(s) + s^{\alpha} M(s) + s M(s) + M(s) &= \\
 &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} \frac{\Gamma(n-2-\alpha)}{s^{n-4-\alpha}} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} \frac{\Gamma(n-\alpha)}{s^{n-2-\alpha}} + \frac{(n^2 - 3n + 2) \Gamma(n-2)}{s^{n-4}} - \frac{\Gamma(n)}{s^{n-2}}, \\
 M(s) (s^{\alpha+1} + s^{\alpha} + s + 1) &= \frac{(n-1)!}{s^{n-4-\alpha}} - \frac{\Gamma(n)}{s^{n-2-\alpha}} + \frac{(n-1)(n-2) \Gamma(n-2)}{s^{n-4}} - \frac{\Gamma(n)}{s^{n-2}}, \\
 M(s) (s^{\alpha} + 1) (s + 1) &= \frac{(n-1)!}{s^{n-2}} (s^{\alpha+2} - s^{\alpha} + s^2 - 1), \\
 M(s) (s^{\alpha} + 1) (s + 1) &= \frac{(n-1)!}{s^{n-2}} (s^{\alpha} + 1) (s^2 - 1),
 \end{aligned}$$

$$M(s) = \frac{(n-1)!}{s^{n-2}}(s-1),$$

$$M(s) = \frac{(n-1)!}{s^{n-3}} - \frac{(n-1)!}{s^{n-2}},$$

$$M^{-1}[M(s)] = M^{-1}\left[\frac{(n-1)!}{s^{n-3}}\right] - M^{-1}\left[\frac{(n-1)!}{s^{n-2}}\right]$$

$$x(t) = (n-1)t^{n-2} - t^{n-1}.$$

Sawi transformation

$$f(x) \Rightarrow T(\mu)$$

$$T(\mu) = S[f(x)] = \frac{1}{\mu^2} \int_0^\infty f(x) e^{-\frac{x}{\mu}} dx. \quad (6)$$

$$S[x^\beta] = \mu^{\beta-1} \Gamma(\beta+1),$$

$$S[f^{(n)}(x)] = \frac{T(\mu)}{\mu^n} - \sum_{k=0}^{n-1} \frac{f^{(k)}(0)}{\mu^{n-k+1}},$$

$$S^{-1}[\mu^\beta] = \frac{x^{\beta+1}}{\Gamma(\beta+2)}.$$

Let us write the solution to equation (2) using (6):

$$\begin{aligned} S[D^{\alpha+1}[x(t)] + D^\alpha[x(t)] + x'(t) + x(t)] &= \\ &= S\left[\frac{(n-1)!}{\Gamma(n-2-\alpha)} t^{n-3-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} t^{n-1-\alpha} + (n^2 - 3n + 2)t^{n-3} - t^{n-1}\right], \\ S[D^{\alpha+1}[x(t)]] + S[D^\alpha[x(t)]] + S[x'(t)] + S[x(t)] &= \\ &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} S[t^{n-3-\alpha}] - \frac{\Gamma(n)}{\Gamma(n-\alpha)} S[t^{n-1-\alpha}] + (n^2 - 3n + 2)S[t^{n-3}] - S[t^{n-1}], \\ \mu^{-\alpha-1}T(\mu) + \mu^{-\alpha}T(\mu) + \mu^{-1}T(\mu) + T(\mu) &= \\ &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} \Gamma(n-2-\alpha) \mu^{n-4-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} \Gamma(n-\alpha) \mu^{n-2-\alpha} + (n^2 - 3n + 2) \Gamma(n-2) \mu^{n-4} - \Gamma(n) \mu^{n-2}, \end{aligned}$$

$$T(\mu)(\mu^{-\alpha-1} + \mu^{-\alpha} + \mu^{-1} + 1) = (n-1)! \mu^{n-4-\alpha} - \Gamma(n) \mu^{n-2-\alpha} + (n-1)(n-2) \Gamma(n-2) \mu^{n-4} - \Gamma(n) \mu^{n-2},$$

$$T(\mu)(\mu^{-\alpha} + 1) \mu(u^{-1} + 1) = (n-1)! \mu^{n-2} (\mu^{-\alpha-2} - \mu^{-\alpha} + \mu^{-2} - 1),$$

$$T(\mu)(\mu^{-\alpha} + 1)(\mu^{-1} + 1) = (n-1)! \mu^{n-2} (\mu^{-\alpha} + 1)(\mu^{-2} - 1),$$

$$T(\mu) = (n-1)! \mu^{n-2} (\mu^{-1} - 1),$$

$$T(\mu) = (n-1)! \mu^{n-3} - (n-1)! \mu^{n-2},$$

$$S^{-1}[T(\mu)] = S^{-1}[(n-1)! \mu^{n-3}] - S^{-1}[(n-1)! \mu^{n-2}],$$

$$x(t) = (n-1)t^{n-2} - t^{n-1}.$$

Abodh transformation

$$f(x) \Rightarrow K(v)$$

$$K(v) = A[f(x)] = \frac{1}{v} \int_0^\infty f(x) e^{-vx} dx.$$

$$A[x^\beta] = \frac{\Gamma(\beta+1)}{\nu^{\beta+2}},$$

$$A[f^{(n)}(x)] = \nu^n K(\nu) - \nu^{n-2} f(0) - \nu^{n-3} f'(0) - \dots - \frac{f^{(n-1)}(0)}{\nu},$$

$$A^{-1}[\nu^{-\beta}] = \frac{x^{\beta-2}}{\Gamma(\beta-1)}.$$

Solve equation (2) using the Aboodh transform,

$$A[D^{\alpha+1}[x(t)] + D^\alpha[x(t)] + x'(t) + x(t)] =$$

$$= A\left[\frac{(n-1)!}{\Gamma(n-2-\alpha)} t^{n-3-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} t^{n-1-\alpha} + (n^2 - 3n + 2)t^{n-3} - t^{n-1}\right],$$

$$A[D^{\alpha+1}[x(t)]] + A[D^\alpha[x(t)]] + A[x'(t)] + A[x(t)] =$$

$$= \frac{(n-1)!}{\Gamma(n-2-\alpha)} A[t^{n-3-\alpha}] - \frac{\Gamma(n)}{\Gamma(n-\alpha)} A[t^{n-1-\alpha}] + (n^2 - 3n + 2) A[t^{n-3}] - A[t^{n-1}],$$

$$\nu^{\alpha+1} K(\nu) + \nu^\alpha K(\nu) + \nu K(\nu) + K(\nu) =$$

$$= \frac{(n-1)!}{\Gamma(n-2-\alpha)} \frac{\Gamma(n-2-\alpha)}{\nu^{n-1-\alpha}} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} \frac{\Gamma(n-\alpha)}{\nu^{n+1-\alpha}} + \frac{(n^2 - 3n + 2)\Gamma(n-2)}{\nu^{n-1}} - \frac{\Gamma(n)}{\nu^{n+1}},$$

$$K(\nu)(\nu^{\alpha+1} + \nu^\alpha + \nu + 1) = \frac{(n-1)!}{\nu^{n-1-\alpha}} - \frac{\Gamma(n)}{\nu^{n+1-\alpha}} + \frac{(n-1)(n-2)\Gamma(n-2)}{\nu^{n-1}} - \frac{\Gamma(n)}{\nu^{n+1}},$$

$$K(\nu)(\nu^\alpha + 1)(\nu + 1) = \frac{(n-1)!}{\nu^{n+1}} (\nu^{\alpha+2} - \nu^\alpha + \nu^2 - 1),$$

$$K(\nu)(\nu^\alpha + 1)(\nu + 1) = \frac{(n-1)!}{\nu^{n+1}} (\nu^\alpha + 1)(\nu^2 - 1),$$

$$K(\nu) = \frac{(n-1)!}{\nu^{n+1}} (\nu - 1),$$

$$K(\nu) = \frac{(n-1)!}{\nu^n} - \frac{(n-1)!}{\nu^{n+1}},$$

$$A^{-1}[K(\nu)] = A^{-1}\left[\frac{(n-1)!}{\nu^n}\right] - A^{-1}\left[\frac{(n-1)!}{\nu^{n+1}}\right],$$

$$x(t) = (n-1)t^{n-2} - t^{n-1}.$$

Kamal transformation

$$f(x) \Rightarrow G(\nu)$$

$$G(\nu) = K[f(x)] = \int_0^\infty f(x) e^{-\frac{x}{\nu}} dx.$$

$$K[x^\beta] = \nu^{\beta+1} \Gamma(\beta+1),$$

$$K[f^{(n)}(x)] = \frac{G(\nu)}{\nu^n} - \sum_{k=0}^{n-1} \frac{f^{(k)}(0)}{\nu^{n-k-1}},$$

$$K^{-1}[\nu^{\beta+1}] = \frac{x^\beta}{\Gamma(\beta+1)}.$$

Solve equation (2) using the Kamal transform,

$$\begin{aligned}
 K \left[D^{\alpha+1} [x(t)] + D^{\alpha} [x(t)] + x'(t) + x(t) \right] &= \\
 &= K \left[\frac{(n-1)!}{\Gamma(n-2-\alpha)} t^{n-3-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} t^{n-1-\alpha} + (n^2-3n+2) t^{n-3} - t^{n-1} \right], \\
 K \left[D^{\alpha+1} [x(t)] \right] + K \left[D^{\alpha} [x(t)] \right] + K \left[x'(t) \right] + K \left[x(t) \right] &= \\
 &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} K \left[t^{n-3-\alpha} \right] - \frac{\Gamma(n)}{\Gamma(n-\alpha)} K \left[t^{n-1-\alpha} \right] + (n^2-3n+2) K \left[t^{n-3} \right] - K \left[t^{n-1} \right], \\
 \nu^{-\alpha-1} G(\nu) + \nu^{-\alpha} G(\nu) + \nu^{-1} G(\nu) + G(\nu) &= \\
 &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} \Gamma(n-2-\alpha) \nu^{n-2-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} \Gamma(n-\alpha) \nu^{n-\alpha} + (n^2-3n+2) \Gamma(n-2) \nu^{n-2} - \Gamma(n) \nu^n, \\
 G(\nu) (\nu^{-\alpha-1} + \nu^{-\alpha} + \nu^{-1} + 1) &= (n-1)! \nu^{n-2-\alpha} - \Gamma(n) \nu^{n-\alpha} + (n-1)(n-2) \Gamma(n-2) \nu^{n-2} - \Gamma(n) \nu^n, \\
 G(\nu) (\nu^{-\alpha} + 1) (\nu^{-1} + 1) &= (n-1)! \nu^n (\nu^{-\alpha-2} - \nu^{-\alpha} + \nu^{-2} - 1), \\
 G(\nu) (\nu^{-\alpha} + 1) (\nu^{-1} + 1) &= (n-1)! \nu^n (\nu^{-\alpha} + 1) (\nu^{-2} - 1), \\
 G(\nu) &= (n-1)! \nu^n (\nu^{-1} - 1), \\
 G(\nu) &= (n-1)! \nu^{n-1} - (n-1)! \nu^n, \\
 K^{-1} [G(\nu)] &= K^{-1} [(n-1)! \nu^{n-1}] - K^{-1} [(n-1)! \nu^n], \\
 x(t) &= (n-1) t^{n-2} - t^{n-1}.
 \end{aligned}$$

Pourezza transformation

$$\begin{aligned}
 f(x) &\Rightarrow F(p) \\
 F(p) &= P[f(x)] = p \int_0^{\infty} f(x) e^{-p^2 x} dx.
 \end{aligned}$$

$$\begin{aligned}
 P[x^{\beta}] &= \frac{\Gamma(\beta+1)}{p^{2\beta+1}}, \\
 P[f^{(n)}(x)] &= p^{2n} F(p) - \sum_{k=0}^{n-1} p^{2n-2k-1} f^{(n)}(0), \\
 P^{-1}[p^{-(2\beta+1)}] &= \frac{x^{\beta}}{\Gamma(\beta+1)}.
 \end{aligned}$$

Solve equation (2) using the Pourezza transform,

$$\begin{aligned}
 P \left[D^{\alpha+1} [x(t)] + D^{\alpha} [x(t)] + x'(t) + x(t) \right] &= \\
 &= P \left[\frac{(n-1)!}{\Gamma(n-2-\alpha)} t^{n-3-\alpha} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} t^{n-1-\alpha} + (n^2-3n+2) t^{n-3} - t^{n-1} \right], \\
 P \left[D^{\alpha+1} [x(t)] \right] + P \left[D^{\alpha} [x(t)] \right] + P \left[x'(t) \right] + P \left[x(t) \right] &= \\
 &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} P \left[t^{n-3-\alpha} \right] - \frac{\Gamma(n)}{\Gamma(n-\alpha)} P \left[t^{n-1-\alpha} \right] + (n^2-3n+2) P \left[t^{n-3} \right] - P \left[t^{n-1} \right], \\
 p^{2\alpha+2} F(p) + p^{2\alpha} F(p) + p^2 F(p) + F(p) &= \\
 &= \frac{(n-1)!}{\Gamma(n-2-\alpha)} \frac{\Gamma(n-2-\alpha)}{p^{2n-5-2\alpha}} - \frac{\Gamma(n)}{\Gamma(n-\alpha)} \frac{\Gamma(n-\alpha)}{p^{2n-1-2\alpha}} + \frac{(n^2-3n+2) \Gamma(n-2)}{p^{2n-5}} - \frac{\Gamma(n)}{p^{2n-1}}, \\
 F(p) (p^{2\alpha+2} + p^{2\alpha} + p^2 + 1) &= \frac{(n-1)!}{p^{2n-5-2\alpha}} - \frac{\Gamma(n)}{p^{2n-1-2\alpha}} + \frac{(n-1)(n-2) \Gamma(n-2)}{p^{2n-5}} - \frac{\Gamma(n)}{p^{2n-1}},
 \end{aligned}$$

$$F(p)(p^{2\alpha} + 1)(p^2 + 1) = \frac{(n-1)!}{p^{2n-1}}(p^{2\alpha+4} - p^{2\alpha} + p^4 - 1),$$

$$F(p)(p^{2\alpha} + 1)(p^2 + 1) = \frac{(n-1)!}{p^{2n-1}}(p^{2\alpha} + 1)(p^4 - 1),$$

$$F(p) = \frac{(n-1)!}{p^{2n-1}}(p^2 - 1),$$

$$F(p) = \frac{(n-1)!}{p^{2n-3}} - \frac{(n-1)!}{p^{2n-1}},$$

$$P^{-1}[F(p)] = P^{-1}\left[\frac{(n-1)!}{p^{2n-3}}\right] - P^{-1}\left[\frac{(n-1)!}{p^{2n-1}}\right],$$

$$x(t) = (n-1)t^{n-2} - t^{n-1}.$$

References:

1. A. Akgull, Z. Gokkaya, M. Abbas, F. Abdullah, New Applications of Fractional Differential Equations by General Integral Transforms. Research square, DOI: <https://doi.org/10.21203/rs.3.rs-2657260/v1>
2. F.B.M.Belgacem, Introducing and analysing deeper Sumudu properties. Nonlinear Studies, vol. 13, (2006) no.1,23-41.
3. T. M. Elzaki, The New Integral Transform Elzaki Transform Global Journal of Pure and Applied Mathematics ISSN 0973-1768 Volume 7, Number 1 (2011), pp. 57-64.
4. T. M. Elzaki, S. M. Elzaki, E. M. A. Hilal, Elzaki and Sumudu transforms for solving some differential equations. Global JPure Appl Mathe 2012;8(2):167-73.
5. H. Kim, The time shifting theorem and the convolution for Elzaki transform. International Journal of Pure and Applied Mathematics, 2013.
6. M. M. Abdelrahim Mahgoub, 2017. The New Integral Transform Mohand Transform, Adv Theoret Appl Mathe;12(2):113-20.
7. F. B. M. Belgacem, A. A. Karaballi and S. L. Kalla, Analytical investigations of the Sumudu transform and applications to integral production equations, Mathematical Problems in Engineering, (2003) no.3, 103-118.
8. R. Churchill, Operational Mathematics(3rd edition), McGraw-Hill, New York, 1972

Rezyume: Maqolada kasr tartibli differensial tenglamalarni integral almashtirishlar yordamida yechish ko'rib chiqiladi.

Резюме: В работе рассматривается решение дифференциальных уравнений дробного порядка с помощью интегральных преобразований.

Kalit sózlar: kasr tartibli differensial tenglamalar, integral almashtirishlar, umumiy yechim,

Ключевые слова: дифференциальные уравнения дробного порядка, интегральные преобразования, общее решение.

UDK:661.169.23:661.741.1

A STUDY OF THE ACTIVITY AND TOXICITY OF NEW SEED TREATMENT PRODUCTS

**Orazbayeva A.A.¹, Zakirov B.S.¹, Kucharov B.H.¹, Kim R.N.¹, Erkayeva.U.²,
Dzhumanova Z.K.³.**

¹*Institute of General and Inorganic Chemistry, Academy of Sciences of RUz, Tashkent city*

²*Tashkent Institute of Chemical Technology, Tashkent city*

³*Berdakh Karakalpak State University, Nukus. Berdakh State University, Nukus*

Summary: *The results of biological and toxicological tests of synthesised substances obtained on the basis of urotropine, formaline, phosphatethanolamine, copper sulfate and water as a plant growth stimulant and against root rot and homosis are presented.*

Keywords: *Fusarium oxisporum Schrf. Vasinfectum Bilai, seed dressing, gommosis, toxicology, lethal dose, urotrapin, formaline, phosphatethanolamine, copper sulfate, water*

Introduction. Mineral fertilisers, stimulants and pesticides play an erucial role in obtaining high yields of agricultural crops. While seed dressing agents, which are pesticides, destroy pathogenic bacteria and viruses that cause plant diseases, stimulants accelerate plant growth and development. In this regard, meeting the needs of agricultural production in low-toxic, effective seed protectants and plant growth and development stimulants is an important issue. Therefore, the main task of seed production is the synthesis of new seed dressing agents containing plant growth stimulants and having fungicidal activity.

A number of different chemical compounds are used as seed dressing agents, such as inorganic preparations of arsenic and copper, which were produced earlier and are now replaced by organic compounds that do not contain metals [1]. There are known preparations with one active substance of a number of foreign firms called "Vitavax 200", "Bronotak", "Dabron", "Kisan", "Montseren" and others, used as seed dressing agents for cotton and grain crops to prevent root rot, gommosis, dusty and hard bunt [2-5]. Also, such stimulants as "Mival", "Vitavax", "Pix", "Prep", "Finish" were mainly used for cotton growing in the republic, then their place began to be taken by domestic stimulants: "Hosil", "Sodium humate", "TZ-85", "Yer Malhami", "Darmon" and others.

In this case, meeting the needs of agricultural production in low-toxic, effective seed dressing agents and plant growth and development stimulants is an erucial task. Therefore, in this direction, providing the republic with cheap effective and low-toxic seed dressing agents and plant growth and development stimulants is very urgent.

Methods and materials. The experiments were performed in compliance with the "European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes" [6]. Acute toxicity tests were performed according to [7] and the mean lethal dose was determined according to the method of Litchfield and Wilcoxon [8].

Biotests to determine the fungicidal activity of the synthesised compounds were carried out in laboratory conditions using the Krasilnikov method [9].

Results and discussion. For determinations of fungicidal activity of the synthesised substances numbered No.1, No.2, No.3, No.4 a culture of the fungus *Fusarium oxisporum Schrf. Vasinfectum Bilai*.

The surface of potato-glucose agar in Petri dishes was inoculated with the test culture, then paper discs were wetted with solutions of the tested substances and placed on the surface of the nutrient medium. The dishes were placed in the thermostat and incubated at 25-28°C.

Measurements of the zone of phytopathogen growth retardation were made on the 2nd-5th day of cultivation. The activity of compounds was judged by the size of the zone of phytopathogen growth absence. The triazole fungicide **tebuconazole**, used in agriculture to protect field and grain crops from pathogenic fungi, was used as a standard [10].

All four substances showed fungicidal activity to different degrees. The greatest activity was shown by substance No.1, the zone of no growth was 0.7 cm.(Table 1.

Table 1.

Fungicidal activity of compounds against *Fusarium oxisporum* culture

Cipher	Concentration	No-growth zone, cm
1	0.1	0.7
2	0.1	0.4
3	0.1	0.5
4	0.1	0.5
Tebuconazole	0.05	1.0

Further we studied the parameters of acute toxicity of synthesised substances. Evaluation of acute toxicity of Benazir substance was carried out on mongrel white mice - males weighing 18-20 grams, obtained from the nursery "Linear Laboratory Animals" of Tashkent region. Animals were kept in standard vivarium conditions with natural 12-hour light and shade cycle at air temperature $25\pm 2^{\circ}\text{C}$. Feeding was carried out in accordance with the norms of feed for experimental animals. The animals had unlimited access to water, for which sanitary-chemical and bacteriological analysis was performed beforehand, using special drinkers for rodents.

The test substance was administered orally by means of an atraumatic metal probe into the stomach at doses ranging from 50.0-100.0 to 1100.0 mg/kg. Each dose was tested on 6 mice. After a single application of the substance the condition of experimental animals was monitored for 14 days and the average lethal dose was determined.

When studying the parameters of acute toxicity of the studied substances, attention was paid to the peculiarities of the resorptive action of the substance, the administered dose and time of exposure after the substance administration, signs of poisoning observed in experimental animals and their death. The results of acute toxicity determination are presented in Table 2.

Table 2: Acute toxicity study of benazir

№	Name of substance	Chemical formula	Dose, mg/kg	Mortality/ animal survival rate	LD ₅₀
1	Benazir	30%CH ₂ +4%C ₆ H ₁₂ N ₄ + 1.3%CuSO ₄ +0.5%Ca(NO ₃) ₂ - 4H ₂ O+H ₃ PO ₄ ·NH ₂ C ₂ H ₄ OH	50.0 100.0 200.0 300.0 400.0 500.0 600.0 700.0 800.0 900.0 925.0 950.0 975.0 1000.0 1025.0	0/6 0/6 0/6 0/6 0/6 0/6 0/6 0/6 0/6 1/5 2/4 3/3 4/2 5/1 6/0	948.1 (922.2±971.9)

The tables show that no significant changes in the condition, perception of external sounds and pain sensitivity of experimental animals compared to intact animals were observed during oral administration of Benazir at a dose of 50.0-100.0-200.0-300.0-400.0-500.0 mg/kg. When the substance dose was increased up to 600.0-700.0-800.0 mg/kg, rapid breathing, weak tremor, drowsiness, significant depression of general physiological state, restriction of motor activity, relaxation of motor muscles, decreased sensitivity to external influences were observed. When the substance was entered at a dose of 900.0 mg/kg, animals showed rapid breathing, somnolence and restriction of engine activity for 24 hours. 1 out of 6 mice died within 3 days, mortality of other animals was not observed within 14 days. In 5 minutes after entering of the substance at a dose of 925.0 mg/kg the movement of animals slowed down, respiration increased, perception of external sounds and pain decreased, tremor was observed in all experimental animals. In 3 days 2 out of 6 animals died. When the substance was applied at a dose of 950.0 mg/kg, in 4-5 minutes the movements slowed down, respiration accelerated, in 15 minutes external noises and pain sensations disappeared, the animals were in a motionless state with half-closed eyes. At this dose, 3 of 6 animals died within 1 day. No mortality in surviving animals was observed under vivarium conditions for 14 days. When the substance was applied at a dose of 975.0 mg/kg, in 4-5 minutes movements slowed down, respiration accelerated, in 12 minutes external noises and pain sensations disappeared, death of 4 out of 6 animals was observed within 3 days. At oral administration of the substance at a dose of 1000.0 mg/kg in 3-5 minutes in all animals movements slowed down, respiration accelerated, external sound and pain reactions disappeared, death was observed in 5 out of 6 experimental animals. When the substance was entered at a dose of 1025.0 mg/kg, signs of poisoning were observed, as in the previous doses. This dose caused 100% death of experimental animals.

The average lethal dose of the studied substance (with confidence interval LD_{50}) is 948.1 (922.2±971.9) mg/kg. According to GOST 12.1. 007-76 the substance belongs to low-toxic substances (III class) [11]. According to the classification of A.V. Stefanov the substance belongs to the category of low toxic substances (IV class) [12].

Confidence limits

95% confidence limits for VAR00001					95% confidence limits for log (VAR00001) ^a		
probability		grade	bottom line	upper limit	grade	bottom line	upper limit
PROBIT	10	850,099	745,520	887,513	2,929	2,872	2,948
	20	861,039	765,722	895,394	2,935	2,884	2,952
	30	868,053	778,773	900,488	2,939	2,891	2,954
	40	873,367	788,705	904,376	2,941	2,897	2,956
	50	877,713	796,851	907,580	2,943	2,901	2,958
	60	881,430	803,831	910,340	2,945	2,905	2,959
	70	884,702	809,982	912,787	2,947	2,908	2,960
	80	887,641	815,513	915,002	2,958	2,911	2,961
	90	890,323	820,562	917,039	2,950	2,914	2,962
	100	892,799	825,222	918,933	2,951	2,917	2,963
	150	903,124	844,614	927,022	2,956	2,927	2,967
	200	911,414	860,056	933,821	2,960	2,935	2,970
	250	918,588	873,222	940,024	2,963	2,941	2,973
	300	925,078	884,874	945,997	2,966	2,947	2,976
	350	931,133	895,415	951,984	2,969	2,952	2,979

400	936,915	905,075	958,186	2,972	2,957	2,981
450	942,543	913,988	964,787	2,974	2,961	2,984
500	948,115	922,242	971,963	2,977	2,965	2,988
550	953,720	929,911	979,886	2,979	2,968	2,991
600	959,450	937,084	988,726	2,982	2,972	2,995
650	965,408	943,875	998,666	2,985	2,975	2,999
700	971,727	950,436	1009,938	2,988	2,978	3,004
750	978,592	956,965	1022,891	2,991	2,981	3,010
800	986,294	963,725	1038,114	2,994	2,984	3,016
850	995,348	971,125	1056,733	2,998	2,987	3,024
900	1006,859	979,953	1081,257	3,003	2,991	3,034
910	1009,659	982,029	1087,341	3,004	2,992	3,036
920	1012,709	984,264	1094,016	3,005	2,993	3,039
930	1016,075	986,702	1101,431	3,007	2,994	3,042
940	1019,846	989,404	1109,805	3,009	2,995	3,045
950	1024,164	992,462	1119,470	3,010	2,997	3,049
960	1029,261	996,028	1130,976	3,013	2,998	3,053
970	1035,562	1000,381	1145,339	3,015	3,000	3,059
980	1043,998	1006,129	1164,795	3,019	3,003	3,066
990	1057,433	1015,131	1196,278	3,024	3,007	3,078

a.logarithm base=10

Conclusion. Thus, to achieve the goal of obtaining seed dressing agents, fungicidal activity and acute toxicity parameters of the synthesised substances were studied. The obtained results show that the synthesised substances have weak antimicrobial action and also belong to the category of low toxic substances.

References:

1. Golyshin N. M. Fungicides in agriculture. -M.: Kolos, 1982. -271c.
2. Kimsanboyev H.H., Yuldoshev A.Y., Zokhidov M.M. va boshka. Ÿsimliklarni kimeviy chemoya kilish. - Toshkent.: Ÿkituvchi, 1997. -280 6.
3. Results of research on cotton crop protection against diseases and pests. Proceedings of the Institute of Plant Protection. VASKHNIL, vol. 9. -Tashkent: Fan, 1971. -C. 11-264.
4. List of chemical and biological means of pest, plant disease and weed control and plant growth regulators, authorised for use in agriculture for 1982-1985. Published by the State Commission on chemical means of pest, plant disease and weed control under the Ministry of Agriculture of the USSR. -M.: 1982. - 351 c.
5. List of chemical and biological pest, plant disease and weed control agents, defoliant and plant growth regulators authorised for use in agriculture in the Republic of Uzbekistan for 2002-2006. - Tashkent. 2002. - 96 c.
6. European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes, ETS No. 123, Strasbourg (1986)
7. Mironov A.N. Management of medical research. Part one. M: Grif and K, 2012
8. Belenky M.L. "Elements of quantitative evaluation of pharmacological effect", L. 1963
9. N.A.Krasilnikov. Methods of studying soil microorganisms and their metabolites. 1966.MSU. C 216.
10. S.V. Burlakova, N.G. Vlasenko, S.S. Khalikov, *Agrokhimiya*, No. 11, 27 (2019)
11. GOST 12.1.007-76. Moscow Standard Inform, 2007.
12. A.V.Stefanov "Preclinical studies of medicines", Kiev 2002, Part I, p. 91.

Rezyume: *Fusarium oxisporum* Schrf. Vasinfectum Bilai, urotrapin, formalin, mis sulfat, fosfat etanolamin va suv asosida sintez qilingan moddalarni usimliklarni usishida samarali stimulyator sifatida shuningdek ildiz chirishi gommogza qarshi biologik va toksikologik sinovdan utkazish natijalari keltirilgan.

Резюме: В статье приведены результаты биологических и токсикологических испытаний синтезированных веществ, полученных на основе уротрапин, , формалин, фосфатэтаноламин, сульфата меди и воды в качестве воздействия стимулятора роста растений, а также против корневой гнили, гоммоза.

Kalit so‘zlar: *Fusarium oxisporum* Schrf. *Vasinflectum Bilai*, urotrapin, formalin, mis sulfat, fosfat etanolamin, suv, uruglantiruvchi moddalar, gommoz, toksikologiya, ulimga olib keladigan doza.

Ключевые слова: *Fusarium oxisporum* Schrf. *Vasinflectum Bilai*, уротрапин, формалин, сульфат меди, фосфатэтаноламин, вода, протравителей семян, гоммоз, токсикология, смертельная доза.

PREPARATION OF INHIBITORS OF MINERAL SALT DEPOSITION ON THE BASIS OF POLYDENTATE COMPOUNDS

Kaipbergenova G.R., Xolmurotov J.B., Joldasov A.A.

Karakalpak State University named after Berdakh

Summary: Convenient and highly efficient methods for the synthesis of polydentate compounds with predetermined structure, as well as composite materials based on them. It has been established that the newly obtained compounds possess complex-forming properties, are effective inhibitors of salt deposition: at condensation of urea and thiourea with formaldehyde in presence of sodium bisulfite their methylene sulfonate derivatives are formed, showing the properties of scale inhibitors with a protective effect of 90,5-92,5%. A probable mechanism of sulfomethylation of urea is proposed.

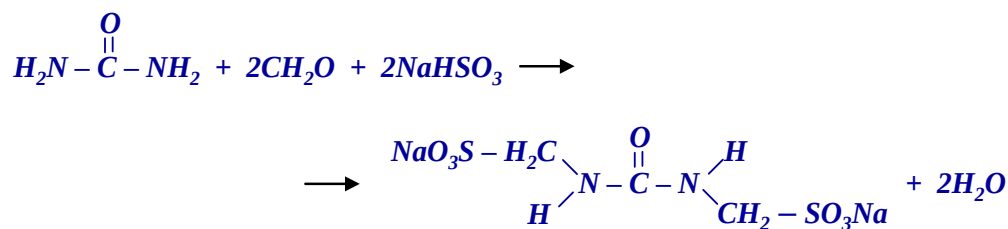
Key words: salt deposition inhibitors, condensation, aniline, formaldehyde, inhibition efficiency.

Polydentate compounds are of considerable theoretical and practical interest and are widely used in various branches of national economy. It has been established that these compounds show sufficient influence on the strength of the formed complexes to increase the dentate due to the introduction of additional iminoacetate groupings. Scientific research is underway worldwide on the development and production of sulfur-containing inhibitors of mineral salt deposition for the development of chemical, oil and gas and other industries. In this direction, special attention is paid to the synthesis of polyfunctional groups of polydentate compounds that prevent corrosion of metals, have properties to wash out scale formation and salt deposition, and the development of production technology for the composition of multicomponent inhibitors of mineral salt deposits. The purpose of our work is to create a technology for the production of mineral salt deposition inhibitors based on carbamide condensation products with formaldehyde.

Many scientific studies have been devoted to the catalytic condensation of aliphatic aldehydes with ammonia in the vapor phase [1-3], which leads to the formation of pyridines. Based on urea, thiocarbamide, formaldehyde, etc., a number of inhibitors of mineral salt deposition have been developed and tested under real conditions [3-5].

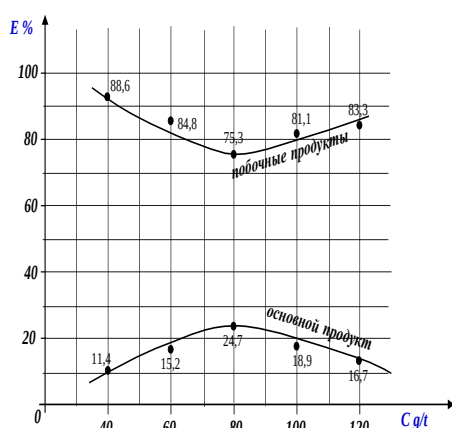
It is known that carboxyalkylated amines, such as iminodiacetic acid, ethylenediaminetetraacetic acid, etc., provide significant theoretical and practical interest and are widely used in various sectors of the national economy. There is a significant increase in the strength of the resulting complexes due to an increase in dentacy due to the introduction of additional iminoacetate groups, as well as the influence of steric factors. The condensation reaction of urea and thiourea with formaldehyde in the presence of sodium bisulfite in a slightly alkaline medium was studied.

The condensation reaction of urea with formaldehyde in the presence of sodium bisulfite in a slightly alkaline medium has been studied. Process diagram:

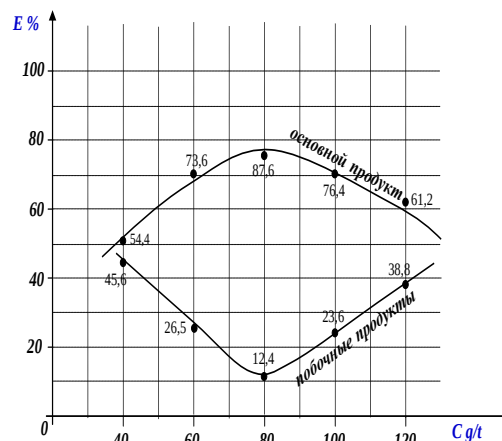


A probable mechanism of sulfomethylation of urea with the formation of dimethylene sulfonate of urea is proposed.

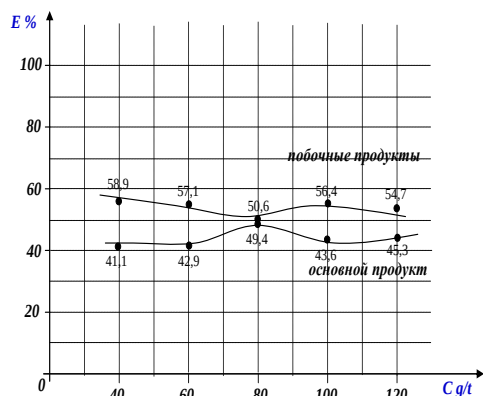
The effect of temperature and molar ratio of the starting materials on the product yield was studied (Fig. 1)



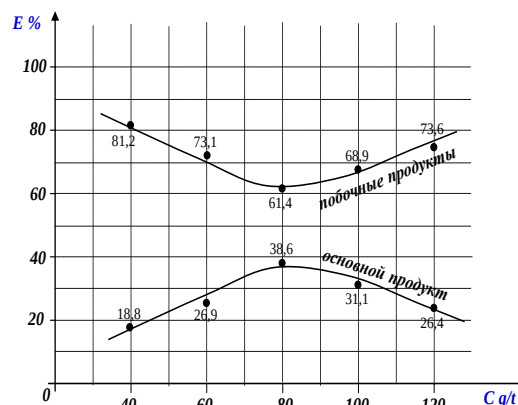
Ratio of starting substances,
mole: 1:1:1



Ratio of starting substances,
mole: 1:2:2



Ratio of starting materials,
mol: 1:2:1



Ratio of starting materials,
mol: 1:4:4

Rice. 1. Dependence of the yield of dimethylene sulfonate urea (DMSU) on temperature and the ratio of starting substances (reaction time 3 hours)

Optimal process conditions were established: temperature 80 ° C, neutral ratio- urea : formaldehyde : sodium bisulfite 1:2:2, reaction time 3 hours.

From Fig. 1. It can be seen that with an increase in temperature from 40 to 80 ° C, the yield of the reaction product increases. It becomes maximum- 87.6% with a molar ratio of the starting materials 1:2:2. Further temperature increase negatively affects the yield of the product. The amount of by-products is accompanied by the fact that with an increase in temperature, the resulting water vapor contributes to the partial release of formaldehyde. Its amount decreases, and an excess of urea and sodium hydrosulfite leads to a decrease in the yield of DMSU.

It is shown that when the ratio of formaldehyde and sodium bisulfite changes, the yield of the product decreases. Thus, with a decrease from 1:2:2 to 1:2:1 or an increase from 1:2:2 to 1:4:4 in the amount of sodium bisulfite, the product yield decreases to 49.4% and 38.6%, respectively. Probably due to the formation of trimethylenesulfonate and urea tetramethylenesulfonate.

The effect of reaction duration at different temperatures on the yield of DMSU was investigated (Table 1).

Table 1.
Dependence of DMSU yield on reaction time at different temperatures
(component ratio 1:2:2)

Duration of reaction, hour	Temperature, °C	Yield of dimethylene-sulfonate urea, %
1	60	44,5
	80	49,0
	100	47,3
3	60	73,6
	80	87,6
	100	76,4
5	60	65,7
	80	73,2
	100	68,9

The table shows that when increasing the reaction time from 1 to 3 hours, the yield of DMSU increases and reaches a maximum of 87.6%. When the reaction is carried out for five and more hours, the yield of DMSU decreases, because there is a partial hydrolysis of DMSU.

The structure of this substance is proved IR-spectroscopically, by GC method and confirmed by elemental analysis. Quantum chemical and molecular dynamic calculations of the synthesized compound have been carried out.

References:

1. Камзина Ю.Н. Водорастворимый ингибитор коррозии для защиты нефтепромыслового оборудования на основе пиридина и его производных. Дис. ... канд. техн. наук. - Казань: РГБ, 2005. – 147 с.
2. Летунов В.И., Кулакова А.А. Изучение кинетики реакции бензилиденанилина с антипирином. Журнал «Учёные записки. М.: 2012. № 1. – С. 183-188.
3. Рахимкулов Р.А. Разработка технологии производства ингибиторов коррозии на основе альдегидов и аминов. Дис. ... канд. тех. наук. - РГБ, 2005. – 174 с.
4. Реутов О.А. Органическая химия. В 4-х частях. Ч.4: Учеб. для студентов ВУЗов, обучающихся по направлению и специальности «Химия». / О.А. Реутов, А.Л. Курц, К.П. Бутин. -2-е изд. –М.: БИНОМ. 2004. – 567 с.
5. T.W. Graham Solomons. Organic chemistry. (University of South Florida) Craig B. Fryhle (Pacific Lutheran University), Scott A. Snyder (Columbia University). 2013.–1255с.

Rezyume: Bugungi kunda dunyoda neft-gaz, kimyo, energetika, gidrometallurgiya sanoatlarida mineral tuzlar to'planishiga qarshi ingibitorlardan foydalanish yildan yilga oshmoqda. Shu bilan birga, agressiv muhitlarda ishlovchi qurilmalarni muddatidan avval yaroqsiz holga kelishni oldini oluvchi, mavjud quyqalarni ko'chirish va yuvish xususiyatlariga ega, oltingugurtli organik reagentlar asosidagi kompozitsiyalardan mineral tuzlar to'planishiga qarshi ingibitorlar olish muhim ahamiyatga ega hisoblanadi.

Резюме: Сегодня в мире из года в год увеличивается использование ингибиторов накопления минеральных солей в нефтегазовой, химической, энергетической, гидрометаллургической отраслях промышленности. При этом важным считается получение ингибиторов накопления минеральных солей из композиций на основе сернистых органических реагентов, обладающих свойствами вытеснения и вымывания имеющихся сгустков, предотвращающих преждевременный выход из строя устройств, работающих в агрессивных средах.

Kalit so'zlar: tuzni cho'ktirish ingibitorlari, kondensatsiya, anilin, formaldegid, ingibitsiyalash samaradorligi.

Ключевые слова: ингибиторы солеотложения, конденсация, анилин, формальдегид, эффективность ингибирования.

NUMERICAL METHOD FOR RESTORING THE INTERNAL STRUCTURE OF AN OBJECT FROM INTEGRAL DATA IN A FAMILY OF BROKEN LINES AND ITS REGULARIZATION

Uteuliev N.U., Djaykov G.M., Pirimbetov A.O.

Nukus Branch of Tashkent University of Information Technology named after Muhammad al-Khwarizmi

Summary: *The paper considers the problem of reconstructing the cross-sectional density of an object from integral data. When integral data are given with errors, the discrete regularization method is used. The stability of the method is demonstrated through experiments.*

Key words: *problem integral geometry, Radon transform, stability, method DRM.*

1. INTRODUCTION

Reconstructing the internal structure of an object is the process of deriving information about the internal properties of an object from available data or measurements. This process may involve various methods and techniques such as tomography, signal processing, inverse problems and numerical modeling. The purpose of reconstructing the internal structure of an object is to obtain reliable and detailed information about its internal characteristics without having to destroy the object. This is widely used in various fields such as medical diagnosis, scientific research, engineering applications and others.

Recently, a special kind of generalized Radon transforms has received considerable attention in integral geometry and its imaging applications [1]. These transformations relate functions to their integrals over trajectories or surfaces that have a "vertex" inside their support. Examples include broken rays (also known as V-shaped lines) [2] and stars [3] in two-dimensional space, and various conic surfaces [4] in three-dimensional space and beyond. Such operators are found in the mathematical models of several particle scattering-based imaging techniques, including single scattering optical tomography, single scattering X-ray tomography, fluorescence tomography, Compton scattering emission tomography, and Compton chamber tomography.

Integral geometry problems on the family of broken lines were studied in [6, 7, 8]. The main theoretical results were obtained in [5]. In this work we considered problems of integral geometry on the family of broken lines with weight functions $\text{sgn}(x - \xi)$ and Heaviside. Existence, singularity and stability theorems were proved for given weight functions. By this it was shown that these problems are weakly incorrect.

In [6], the regularization problem for a bandlimited integral geometry problem based on a family of broken lines was studied. A specific regularization algorithm was proposed and evaluated in practice through a series of numerical experiments. And also a similar problem is considered in [7]. In this paper, the focus is on modeling the integral geometry problem on a family of broken lines using Tikhonov regularization. Experiments were conducted to demonstrate the effectiveness of the proposed approach in comparison with other methods.

This paper is a continuation of [5]. It considers numerical modeling of the inversion formula obtained in the previous work. It also demonstrates the stability of the algorithm using numerical simulation.

2. PROBLEM STATEMENT AND INVERSION FORMULA

Let us introduce the basic notations: $(x, y) \in R^2$, $(\xi, \eta) \in R^2$, $\lambda \in R^1$, $\mu \in R^1$;

$$L_H = \{(x, y): x \in R^1, y \in [0, H], H < \infty\}.$$

In the strip L_H we consider a family of broken lines, which are defined by the relations

$$\Gamma(x, y) = \{(\xi, \eta): y - \eta = |x - \xi|, 0 \leq y \leq H\}.$$

Problem. Reconstruct a function of two variables $u(x, y)$ if the integrals from it over the curves of the family $\Gamma(x, y)$ are known in the strip L_H , with weight

$$\text{function } g(x, y) = \begin{cases} 0, & \xi < x, \\ 1, & \xi \geq x \end{cases} :$$

$$\int_{\Gamma(x, y)} g(x, \xi) u(x, y) d\xi = f(x, y) \quad (1)$$

Let the function $f(x, y)$ be known for all $(x, y) \in L_H$, the weight function has the form

$$g(x, \xi) = \begin{cases} 0, & \xi < x \\ 1, & \xi \geq x \end{cases}.$$

Then the solution is expressed through the function $f(x, y)$ by the formula

$$u(x, y) = \left(\frac{\partial}{\partial y} - \frac{\partial}{\partial x} \right) f(x, y). \quad (2)$$

3. NUMERICAL ALGORITHM BASED ON DISCRETE REGULARIZATION METHOD

Let the right-hand side of equation (2) be given with some error. Let us rewrite equation (2) in the form

$$u(x, y) = \frac{\partial}{\partial y} f^\varepsilon(x, y) - \frac{\partial}{\partial x} f^\varepsilon(x, y). \quad (3)$$

$$u^A(x, y) = \varphi(x, y) - g(x, y). \quad (4)$$

Where $g(x, y) = \frac{\partial}{\partial x} f^\varepsilon(x, y)$, $\varphi(x, y) = \frac{\partial}{\partial y} f^\varepsilon(x, y)$

$$\int_a^x g(t, \cdot) dt = f^\varepsilon(x, \cdot) - f^\varepsilon(a, \cdot)$$

$$\int_0^y \varphi(\cdot, \tau) d\tau = f^\varepsilon(\cdot, y)$$

The right-hand side is of the form:

$$f^\varepsilon(x, y) = f(x, y) + \varepsilon \cdot \omega_k, \quad \omega_k - \text{random number, } k = \overline{1, n}$$

Let us introduce a uniform grid in the rectangular region $D = [a, b] \times [c, d]$. Find approximate solutions of the problem on this rectangle.

$$D = \{a \leq x \leq b, c \leq y \leq d\}$$

We divide the segment $[a, b]$ on the axis Ox and $[c, d]$ on the axis Oy into $n_x - 1$ and $n_y - 1$ parts respectively. $x_i = a + (i - 1)h_x$, $y_j = c + (j - 1)h_y$.

Let $j = \overline{1, n_y}$ and

$$g(x, y_j) = \frac{\partial}{\partial x} f^\varepsilon(x, y_j)$$

$$\int_a^{x_i} g(t, \cdot) dt = f^\varepsilon(x_i, \cdot) - f^\varepsilon(a, \cdot)$$

We use Simpson's quadrature formula to find $g(t_i, y_j)$, $a \leq t_i \leq x_i$, $i = 1, n_x - 2$, $j = 1, n_y$

$$\int_{x_i}^{x_{i+2}} g(t, \cdot) dt \approx \frac{h_x}{3} [g(t_i, \cdot) + 4g(t_{i+1}, \cdot) + g(t_{i+2}, \cdot)]$$

$$\int_{x_i}^{x_{i+2}} g(t, \cdot) dt = f^\varepsilon(x_{i+2}, \cdot) - f^\varepsilon(x_i, \cdot)$$

For $i = n_x - 1$, n_x we use the quadrature trapezoid formula.

$$\int_a^{x_i} g(t, \cdot) dt \approx \frac{h_x}{2} [g(t_1, \cdot) + 2(g(t_2, \cdot) + \dots + g(t_{i-1}, \cdot)) + g(t_i, \cdot)]$$

Then.

$$\frac{h_x}{2} [g(t_1, \cdot) + 2(g(t_2, \cdot) + \dots + g(t_{i-1}, \cdot)) + g(t_i, \cdot)] = f^\varepsilon(x_i, \cdot) - f^\varepsilon(a, \cdot)$$

As a result, we obtain the equation in the form

$$Ag = \tilde{f}^\varepsilon, \quad (5)$$

Where $g = (g(t_1, \cdot), g(t_2, \cdot), \dots, g(t_{n_x}, \cdot))$, $\tilde{f}^\varepsilon = (\tilde{f}^\varepsilon(x_1, \cdot), \tilde{f}^\varepsilon(x_2, \cdot), \dots, \tilde{f}^\varepsilon(x_{n_x}, \cdot))$.

$$A = \begin{pmatrix} \frac{h_x}{3} & \frac{4h_x}{3} & \frac{h_x}{3} & 0 & \dots & 0 & 0 & 0 \\ 0 & \frac{h_x}{3} & \frac{4h_x}{3} & \frac{h_x}{3} & \dots & 0 & 0 & 0 \\ 0 & 0 & \frac{h_x}{3} & \frac{4h_x}{3} & \frac{h_x}{3} & \dots & 0 & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ \frac{h_x}{2} & h_x & h_x & h_x & h_x & \dots & \frac{h_x}{2} & 0 \\ \frac{h_x}{2} & h_x & h_x & h_x & h_x & \dots & h_x & \frac{h_x}{2} \end{pmatrix}$$

$$(A^T A + \alpha E)g = A^T \tilde{f}^\varepsilon, \quad (6)$$

$$g = (A^T A + \alpha E)^{-1} A^T \tilde{f}^\varepsilon \quad (7)$$

Let us describe the procedure for selecting the regularization parameter α . At first, some set of values of α is given:

$$\alpha_i = \theta \cdot \alpha_{i-1}, \quad 0 < \theta < 1, \quad i = 1, 2, 3, \dots, m. \quad (8)$$

For a number of values of α we solve SLAU (7). We find solutions g_{α_i} , with respect to the solution error we obtain:

$$\varepsilon(\alpha_x) = \frac{\|g_{ij}^\alpha - g_{ij}^T\|_{L_2}}{\|g_{ij}^T\|_{L_2}} \rightarrow \min \quad (9)$$

At the end we find $g_{\alpha, opt}$ by formula (7).

Further $i = \overline{1, n_x}$

$$\varphi(x_i, y) = \frac{\partial}{\partial y} \tilde{f}^\delta(x_i, y) \int_0^{y_j} \varphi(\cdot, s) ds = f^\delta(\cdot, y_j)$$

We use Simpson's quadrature formula to find

$\varphi(\cdot, s_j), 0 \leq s_j \leq y_j, j = \overline{1, n_y - 2}, i = \overline{1, n_x}$

$$\int_{y_j}^{y_{j+2}} \varphi(\cdot, s) ds \approx \frac{h_y}{3} [\varphi(\cdot, s_j) + 4\varphi(\cdot, s_{j+1}) + \varphi(\cdot, s_{j+2})]$$

$$\int_{y_j}^{y_{j+2}} \varphi(\cdot, s) ds = f^\delta(\cdot, y_{j+2}) - f^\delta(\cdot, y_j)$$

For $j = n_y - 1, n_y$ we use the quadrature trapezoid formula

$$\int_0^{y_j} \varphi(\cdot, s) ds \approx \frac{h_y}{2} [\varphi(\cdot, s_1) + 2(\varphi(\cdot, s_2) + \dots + \varphi(\cdot, s_{j-1})) + \varphi(\cdot, s_j)]$$

Then

$$\frac{h_y}{2} [\varphi(\cdot, s_1) + 2(\varphi(\cdot, s_2) + \dots + \varphi(\cdot, s_{j-1})) + \varphi(\cdot, s_j)] = f^\delta(\cdot, y_j)$$

As a result, we obtain the equation in the form

$$B\varphi = f^\delta, \quad (10)$$

where $\varphi = (\varphi(\cdot, s_1), \varphi(\cdot, s_2), \dots, \varphi(\cdot, s_{n_y}))$, $f^\delta = (f^\delta(\cdot, y_1), f^\delta(\cdot, y_2), \dots, f^\delta(\cdot, y_{n_y}))$,

$$B = \begin{pmatrix} \frac{h_y}{3} & \frac{4h_y}{3} & \frac{h_y}{3} & 0 & \dots & 0 & 0 & 0 \\ 0 & \frac{h_y}{3} & \frac{4h_y}{3} & \frac{h_y}{3} & \dots & 0 & 0 & 0 \\ 0 & 0 & \frac{h_y}{3} & \frac{4h_y}{3} & \frac{h_y}{3} & \dots & 0 & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ \frac{h_y}{2} & h_y & h_y & h_y & h_y & \dots & \frac{h_y}{2} & 0 \\ \frac{h_y}{2} & h_y & h_y & h_y & h_y & \dots & h_y & \frac{h_y}{2} \end{pmatrix}$$

$$\varphi = (B^T B + \alpha E)^{-1} B^T f^\delta.$$

Then the approximate solution has:

$$u^A = (A^T A + \alpha_y E)^{-1} A^T \tilde{f}^\varepsilon - (B^T B + \alpha_x E)^{-1} B^T f^\delta.$$

4. NUMERICAL EXPERIMENT

At the node points of the grid $D = [-1,1] \times [0,1]$ we introduce the values of $f(x_i, y_j)$, $i = \overline{1, n_x}, j = \overline{1, n_y}$ and perturbation by the formulas $f^\delta(x, y) = f(x, y)(1 + \delta \cdot \theta_{ij})$, where $-1 \leq \theta_{ij} \leq 1$ are random numbers. Calculation results for the test function

$$f(x, y) = \frac{-y^2}{30} (30 + 10x^2(y - 3) - 10y + 5xy(y - 4) - 5y^2 + y^3)$$

with $\delta = 0,01$ will be presented graphically.

First, let us present numerical results of the reversal formula (2) when the right part of equation (1) is specified exactly, i.e., the integral data are specified without noise. Then the obtained reversal formula recovers the original solutions without artifacts with a relative error of 0.033202. The results are presented in Fig.1.

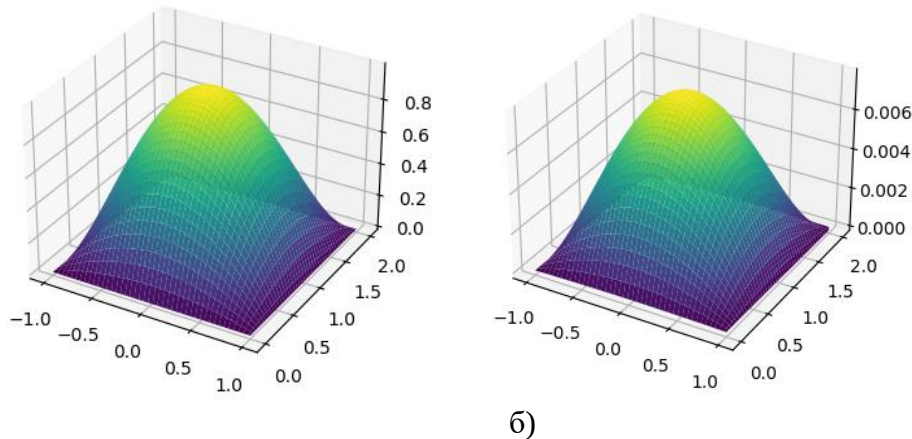
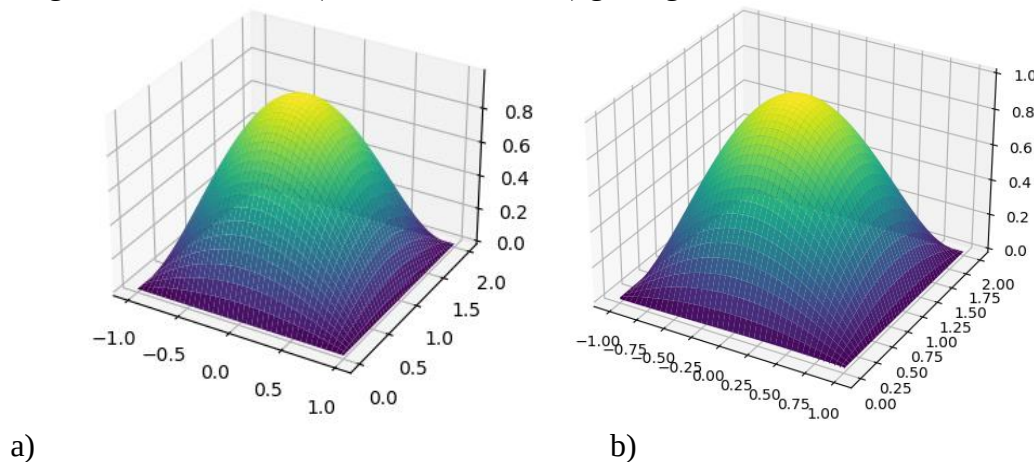
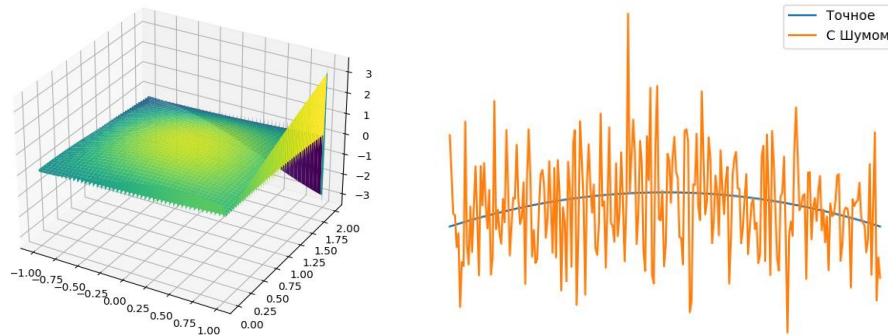


Fig 1. Recovery results a) original function b) recovery by numerical differentiation

Fig. 2 shows the results of the recovery from the approximate right-hand side of the equation with 1% noise. Fig. 2a shows the exact solution, Fig. 2b shows the recovered solution at $\alpha_x^{opt}, \alpha_y^{opt}$, Fig. 2c shows the result for comparison when the regularization parameter α_x, α_y is not found optimal. Fig. 2d - presents a cross-section of the test function for a visual comparison of the results. As we will see from the numerical experiment, when the right-hand side is set with error, the discrete regularization method (collocation method) gives good results.





c) d)

Figure 2. Results of test function recovery at $n = 256$, when the right part is set with 1% error.

a) original function b) recovery at $\alpha_x^{opt} = 10^{-8}, \alpha_y^{opt} = 10^{-8}$

c) Recovery at $\alpha_x = 10^{-4}, \alpha_y = 10^{-4}$; d) Cross section of the test function

Then the relative error is $err = 0,00025$.

5. CONCLUSION.

Thus, the proposed method and its numerical realization have shown their efficiency and stability, opening new opportunities for solving complex problems of reconstruction of internal structures of objects on the basis of integral data. The numerical experiments demonstrated the stability of the method even in the presence of errors in the initial data.

References:

1. Gaik Ambartsoumian. Generalized Radon Transforms and Imaging by Scattered Particles: Broken Rays, Cones, and Stars in Tomography. World Scientific, 2023.
2. Gaik Ambartsoumian. V-line and conical Radon transforms with applications in imaging. In Ronny Ramlau and Otmar Scherzer, editors, The Radon Transform: The First 100 Years and Beyond, pages 143-168. De Gruyter, Berlin, Boston, 2019.
3. Gaik Ambartsoumian and Mohammad J. Lati. Inversion and symmetries of the star transform. The Journal of Geometric Analysis, 31(11):11270-11291, 2021.
4. Gaik Ambartsoumian and Mohammad J. Lati. The V-line transform with some generalizations and cone differentiation. Inverse Problems, 35(3):034003, 2019.
5. Begmatov A. H., Pirimbetov A. O., Seidullaev A. K. K. Weakly uncorrected problems of integral geometry with perturbation on the family of broken lines // Izvestiya Saratov University. New series. Series Mathematics. Mechanics. Informatics. - 2015. - T. 15. - №. 1. - C. 5-12.
6. Seidullaev A. K. On one regularization problem of the integral geometry problem in a strip on the family of broken lines // Bulletin of the Institute of Mathematics. - 2020. - №. 6. - C. 49-54.
7. Uteuliev N. U., Djaykov G. M., Pirimbetov A. O. Modeling the Problem of Integral Geometry on the Family of Broken Lines Based on Tikhonov Regularization // International Conference on Intelligent Human Computer Interaction. - Cham : Springer Nature Switzerland, 2022. - C. 417-427.
8. Uteuliev N.U., Djaykov G.M., Yadgarov Sh.A. About one of the problems of integral geometry in a strip on a family of broken lines // Journal of "Science and society". Nukus. - 2019. Volume 4. - P. 27-30.

Rezyume: Maqolada ob'ektning kesma zichligini integral ma'lumotlardan foydalanib qayta tiklash masalasi ko'rib chiqiladi. Integral ma'lumotlar chum (xatolik) bilan berilganda diskret regularizatsiya usuli qo'llaniladi. Usulning turgunligi sonli eksperimentlar yordamida ko'rsatilgan.

Резюме: В работе рассмотрена задача восстановления плотности сечения объекта по интегральным данным. Когда интегральные данные заданы с погрешностями, применяется метод дискретной регуляризации. Устойчивость метода показана с помощью численных экспериментов.

Kalit so'zlar: integral geometriya masalasi, Radon akslantirishi, turgunlik, diskret regularizatsiya usuli.

Ключевые слова: задачи интегральной геометрии, преобразование Радона, устойчивость, метод дискретной регуляризации.

USING CONSTRUCTION DRAWINGS IN AUTOCAD PROGRAM

Madiyarova R.R.

Karakalpak State University named after Berdakh

Summary: AutoCAD provides a mode in which graphical input outside the limits area is not possible. This can be useful if the limit zone exactly matches the area that will be printed: it prevents drawing outside of it.

Key words: Format, command, panel, grid, node densities.

Currently, the pace of development of construction production requires a high level of training of construction technicians. Their graphic literacy plays a significant role in acquiring the necessary knowledge.

The ability to correctly execute and read a drawing is developed as a result of mastering the material in the engineering graphics course. This is the knowledge, skills and abilities necessary in the study of general engineering and special disciplines, as well as in practical activities.

If the lower left point of the limit area has zero coordinates, the new coordinates of its upper right corner are easy to calculate. As a rule, when working on construction projects, the following values of scale factors are used: 1:2000; 1:1000; 1:500; 1:200; 1:100; 1:50; 1:20. The paper sizes used are as follows: A3 format corresponds to standard limits, A1 format is twice as large as A3 in each size. The A2 format is approximately 1.4 times larger than the A3 format in each size. Using simple arithmetic calculations, you can determine how many times in each case you should multiply (apparently you won't have to divide) the values of the standard limits. The denominator of the intended drawing output scale and the quotient of dividing the length of the side of the sheet format by the length of the corresponding A3 side should be used as multipliers. For standard values the following values are obtained (fractional values are rounded):

Table 1

Multipliers for setting limits depending on print scale and sheet format

	A4	A3	A2	A1	A0
1:20	14	20	28	40	56
1:50	36	50	71	100	141
1:100	71	100	141	200	283
1:200	141	200	283	400	566
1:500	353	500	705	1000	1414
1:1000	705	1000	1414	2000	2828
1:2000	1414	2000	2828	4000	5656

If you don't feel like doing the math at all, consider limits of 100 or 1000 times the standard values. The main thing is that they accommodate the designed object with a reserve - the whole or a part of it that you have determined. Limits can also be set directly when entering the program or when creating a new drawing in the current session. To do this, in the start dialog, select the Quick Setup or Advanced Setup setting and, in the second and fifth setup steps, respectively, determine the desired work area by replacing the values in the Width and Length input fields according to the algorithm described above.

Once the limit area is defined, you need to display it entirely on the screen. To do this, use the _ZOOM commands with the _ALL or _EXTENDS options, which in this context have identical results. To invoke commands in this format, you can optionally do the following:

- Enter the _zoom command and the desired option on the command line;
- In the View menu, select show [Zoom], and then in the submenu select All or Extends;
- Use the Show Extends or Zoom All button from the Zoom toolbar. This panel is called up as a subpanel from the screen image control button area of the Standard panel.

If the drawing contains geometry, the effect of the command options varies. The _ALL option sets the view in such a way that all primitives located on unfrozen layers are visible in it with

the maximum possible magnification, while the limit area is ignored. The `_EXTENDS` option displays the entire limits area, but if necessary, enlarges the visible area so that it also includes all primitives on unfrozen layers located outside the limits area. In both cases, objects located on unfrozen switched-off layers influence the visible area formed in this way, although such objects themselves are invisible.

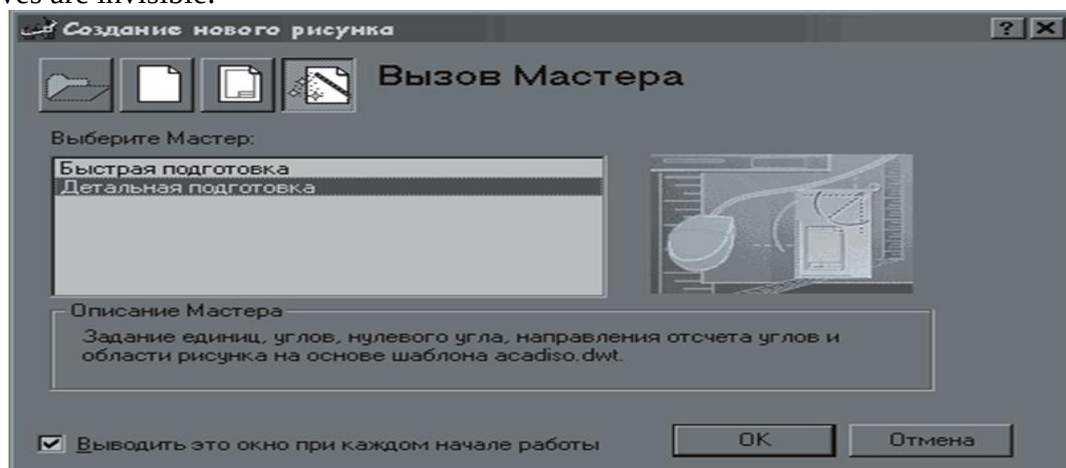


Fig.1. Creating a drawing with setting limits

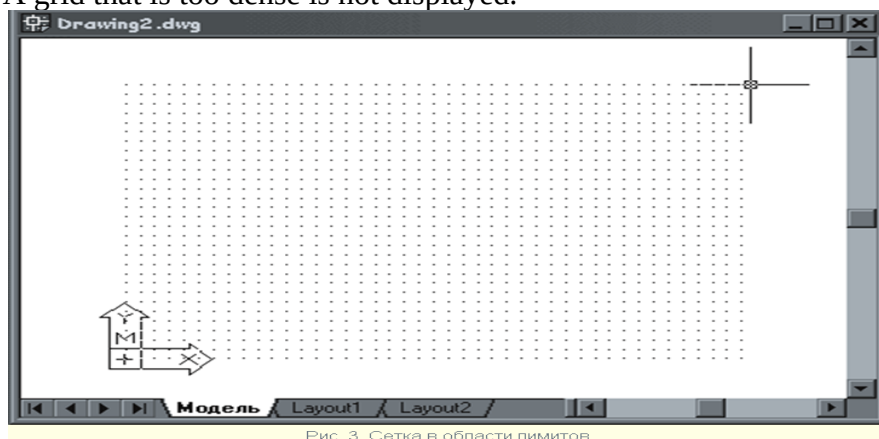
You will not be able to tell which area of the drawing is represented by the appearance of the screen (if there are no objects on it). To check, you can place the graphic cursor in the upper right corner of the graphic area of the drawing window, and then read the values of its current coordinates displayed in the coordinate field located in the status bar of the program window. If these values do not differ significantly from the ones you set, you can consider the task completed and begin work. AutoCAD provides a mode in which graphical input outside the limits area is not possible. This can be useful if the limit zone exactly matches the area that will be printed: it prevents drawing outside of it. Limit tracking mode is activated by the `_LIM-ITS` command with the `_ON` option. In this mode, input beyond the limits is accompanied by an error message on the command line and a repeated prompt for input. The `_OFF` option of the `_LIM-ITS` command disables tracking mode. The command is called:

- Entering `_limits` on the command line;
- Selecting the Drawing Limits item in the Format menu.

In both cases, the options are called on the command line.

In practice, this mode is rarely used, especially when the final drawing documents are generated in paper space on the main floating viewports.

The screen grid is displayed only in the limits area, which also allows you to visualize the available work area. It should be borne in mind that the grid is displayed on the screen only if its pitch (the distance between the nearest nodes) allows this to be done at the current screen magnification. A grid that is too dense is not displayed.



The standard step of 10 units does not allow the use of a grid when working with construction objects. With limits of 42000x29700, which corresponds to a drawing sheet in A3 format at a scale of 1:100, in full-screen mode with a resolution of 1024x768, the grid will be visible with a step of at least 200. Unlike the grid, the operation of the step snapping mode is not affected by restrictions on limits and node density. The grid is controlled by the `_GRID` command, the `_ON` and `_OFF` options of which turn its display on and off, respectively. The command is called on the command line: `_grid`. Without the option, the command allows you to adjust the grid spacing. You can also control the visibility of the grid using the `GRID` button in the status bar. The above does not exhaust all the possibilities for managing the grid, but a more complete description is beyond the scope of this topic.

Hereinafter, the AutoCAD system unit of length is adjusted to 1 mm, which meets the requirements of drawing standards and practical expediency. You can prepare a workspace in advance for quick access without setting limits. Using standard means, create a frame for the future drawing, taking into account the scale.



Fig.4. Coordinate field and buttons for controlling step snapping and grid

It is best to use a rectangle. The diagonal of the rectangle must be set following the same principles as when assigning limits. Just like limits, such a frame allows you to quickly display the entire drawing area and, in addition, directly see the input boundaries. After completion of the work, it can be used as an outer frame of the drawing or deleted. The purpose of the scale when printing drawings will be discussed in the next article in the series.

References:

1. B.V. Budasova. "Construction drawing and drawing" M. 1981
2. S.K. Bogolyubov. "Drawing" M. 1981
3. Yu.I. Korolev. "Drawing for builders" M. 1982
4. N.A. Babulin. "Construction and reading of mechanical engineering drawings" M. 1978
5. Sh. Murodov and others. "Drawing geometry course" Tashkent, 1988
6. A. Tukhtaev, Ya.P. Abramyan. "Engineering graphics reference book" Tashkent, 1994
7. R. Khorunov, A. Akbarov. "Methods for solving problems from drawing geometry" Tashkent, 1995
8. A.S. Arziev, R.R. Mambetkarimov, G.K. Esbosynova. The role of descriptive geometry and engineering graphics in the training of civil engineers. Student forum. RSCI - 2021

Rezyume: AutoCAD chegaradan tashqarida grafik kiritish mumkin bo'lmagan rejimni taqdim etadi. Agar chegara zonasi chop etiladigan maydonga to'liq mos kelsa, bu foydali bo'lishi mumkin: u undan tashqarida chizishni oldini oladi.

Резюме: AutoCAD предусматривает режим, при котором графический ввод вне области лимитов не возможен. Это может оказаться полезным, если зона лимитов точно соответствует области, которая будет выводиться на печать: предотвращается черчение за ее пределами.

Kalit so'zlar: Format, buyruq, panel, panjara, tugun zichligi.

Ключевые слова: Формат, команда, панель, сетка, плотности узлов.

UDC 631.871.

FEATURES OF OXIDATION OF PLANT RESIDUE WITH HYDROGEN PEROXIDE IN THE PRESENCE OF SULFURIC ACID

Usanbaev N.Kh., Namazov Sh.S., Khamrokulov Zh.B.

*Institute of General and Inorganic Chemistry of the Academy of Sciences
of the Republic of Uzbekistan*

Summary: *The article presents the results of studying the processes of oxidation of plant residues with hydrogen peroxide in the presence of sulfuric acid, depending on the rate of the oxidizing agent, temperature, duration and weight ratio. As a result of the research, the possibility of increasing extractive substances extracted with a 1% solution of sodium hydroxide from 4.37% to 85.08%, if oxidation is carried out with a 10% solution of H_2O_2 at a ratio of crushed plant residues (PO) to less than 1 mm $PO: H_2O_2 = 100: 10$ and in the presence of sulfuric acid at the molar ratio $H_2O_2 : H_2SO_4 = 100 : 50$ temperature 60^0C for 2 hours. The chemical composition of the initial and oxidized PO, extractive substances and insoluble organic substances of PO were determined.*

Key words: *hydrogen peroxide, phosphorite, extractives, sulfuric acid, oxidation, strength.*

Introduction. Waste disposal is a pressing problem of modern society in various industries; this problem affects household, industrial and agricultural waste. Agricultural waste has a high potential for effective disposal and can be used in various fields of production [1].

The main source of energy for plants, along with solar energy, is the humic substance of the soil. The energy potential of the soil is represented not only by the energy contained in humus, but also by the energy of PO. The process of decomposition of organic matter during agricultural use occurs mainly due to the decomposition of non-humified organic matter in it, then the task of agriculture should be to maintain its content at an optimal level - at least 3-5% of the total amount of soil organic matter [2,3].

The modern farming system involves the active use of plant residues as organic or organomineral fertilizer. In plant residues, in addition to organic matter, the nitrogen content varies from 0.5 to 0.7%, and in pea plant residues it reaches up to 1.6%. The maximum value of potassium content was observed in oat straw - 1.6%; in other crops it varies between 0.8-1.0%. The phosphorus content in plant residues of agricultural crops is 0.2 - 0.3% [4].

A comparative assessment of organic fertilizers from manure and from plant residues shows their equivalence in agronomic efficiency and the advantage of plant residues. Thus, in the crop rotation link with row crops, the level of profitability of production against the background of the use of plant residues increased by 41%, and in the crop rotation link without row crops - by 47% compared to manure. Straw and other plant residues should be used as organic fertilizers along with manure. This ensures an increase in soil fertility and the yield of cultivated crops while reducing energy, material and labor costs for production, which at this stage is an important factor in agricultural production [5].

According to data [6], on average, after harvesting agricultural crops, 4.42 t/ha of plant residues enter the soil, while compensation for the removal of crops by introducing plant residues into the soil as organic fertilizers for nitrogen is 32.6%, phosphorus - 14.0 and potassium 37.8%.

However, plant residues do not always enter the soil; in addition, plant residues entering the soil after harvesting are not completely converted into humic substances, since the conditions for converting plant residues into humic substances are not always created in the soil, especially in serezhems. Therefore, the development of technologies for processing organic resources of humus nature, including plant residues, into organic and organomineral fertilizers and their use is relevant.

Plant residues are a complex complex of chemicals. It has been established that plant remains of various species contain basically the same substances, but in different proportions. The main ones are cellulose, hemicellulose and lignin, which form the cell wall and account for up to 90-95% of the mass of absolutely dry wood. The remaining 5-10% are combined into the group of extractive substances, that is, extracted by various solvents without noticeable changes in composition. In conditions of a negative balance of humus in agriculture with its annual deficit and higher, a real means of replenishing organic matter is the introduction of plant residues of agricultural crops after processing. The use of plant residues to obtain organic or organomineral fertilizers is a promising direction [7].

Processes for the production of organic, organomineral fertilizers or other products from radioactive waste should include technological methods that would increase the yield of humic acids, extractive substances extracted with a 1% NaOH solution and extractive substances extracted with water. As is known, this can be achieved by artificial oxidation of the feedstock [8]. Regardless of the nature of the organic matter and the oxidizing agent, the oxidation process can be approximately divided into three stages [9].

Surface oxidation, the apparent activation energy of which is estimated at 5 kcal/mol. In this case, oxygen is added to form active acidic groups that precede the formation of alkali-soluble organic acids. The apparent activation energy for the formation of acidic groups is 16 kcal/mol. Small amounts of carbon monoxide and water are formed. The wettability increases and the calorific value of organic matter decreases.

O oxidation, leading to the formation of so-called regenerated organic acids, soluble in alkali, as well as additional amounts of carbon dioxide, water and a certain amount of acidic, water-soluble products. The apparent activation energy for the formation of organic acids is 11.2 kcal/mol. O oxidation leading to the formation of water-soluble products, as well as water and carbon dioxide. Under severe oxidation conditions, only water and carbon dioxide are formed. The purpose of our study is the second stage of oxidation. Alkali-soluble organic acids are a mixture of products with similar dissociation constants and containing carboxyl, carbonyl and hydroxyl groups to oxidize organic substances such as PO. In air, oxygen, ozone, hydrogen peroxide, sulfuric acid, oleum, sulfuric anhydride, Caro acid, mixture of nitric and sulfuric acids, nitric acid, nitrogen oxides, chromates, permanganates, halogens, chlorine dioxide, hypochlorites and hypobromites. For practical purposes, the greatest interest is oxidation with air oxygen in an alkaline environment and oxidation with nitric acid [10-21].

The most accessible and effective oxidizing agent for organic substances of plant origin is nitric acid. But when it is used during the oxidation process, a large amount of nitrogen oxides is released into the gas phase [22].

It is known that oxidation in organic chemistry means processes leading to its enrichment with oxygen. During the oxidation of organic compounds, as a rule, there is no complete transfer of electrons and, accordingly, no change in the valence of carbon atoms. Hydrogen peroxide, together with sulfuric acid, can be used to oxidize and decompose organic substances into low molecular weight substances. However, by changing the concentration and oxidation conditions, it is possible to soften the decomposition process and obtain higher molecular weight organic acids such as humic acids. Based on the above, the purpose of this work is to evaluate the possibilities of processing plant residues into valuable chemical products by oxidation with hydrogen peroxide in the presence of sulfuric acid.

The object of study is coarsely ground PO. The PO was dried to an air dry state, then ground to a particle size of 0.25 mm. After grinding, an average representative sample of PO was formed having the following composition (wt.%): moisture 6.86; ash 10.74; organic 82.4; the content of extractive substances extracted by 1% NaOH solution is 4.37, the content of extractive substances extracted by water is 1.22. Table 1 shows the results of mass spectrometric analysis (ICP-MS) of PO ash. It follows from the table that PO contains a number of microelements necessary for the growth and development of plants.

In order to increase the content of extractives, i.e. To convert PO into humic acids, fulvic acids and other organic acids, the process of PO oxidation with hydrogen peroxide in the presence of sulfuric acid was studied.

The oxidation process was carried out with a 10% hydrogen peroxide solution, a temperature of 60°C, a duration of 120 minutes and a weight ratio of PO : H₂O₂ from 100 : 5 to 100 : 25. By the ratio of PO: H₂O₂ we meant the ratio of the organic part of PO to the monohydrate H₂O₂. In addition, before oxidation, 92% sulfuric acid was added to a 10% oxidizer solution at the molar ratio H₂O₂: H₂SO₄ = 100 : (5 – 50). The experiments were carried out in a cylindrical reactor equipped with a thermostatic jacket and a stirrer. An oxidizing agent and acid were poured into the reactor, the set temperature was set, the stirrer was turned on, and a sample of crushed PO was loaded. At the end of the process, the reaction mass was dried to an air-dry state and its ash content, moisture content, organic matter and the yield of extractives were determined with a 1% sodium hydroxide solution. Ash content was determined according to GOST 11022-95, humidity - according to GOST 11014-91, organics - by the difference between 100 and the sum of the

Table 1

Results of mass spectrometric analysis of PO

Name and content of elements, in %							
Mg 2.77	Si 2.08	P 3.88	S 0.405	K 28.4	Ca 9.47	Mn 0.06	Fe 0.429
Zn 0.041	Br 0.0011	Rb 0.0243	Sr 0.0270	Ti 0.0411	Zr 0.145	Sn 0.0013	Re 0.0041

Table 2

Yield of oxidation products of plant substances in a 10% aqueous solution of H₂O₂ depending on temperature and sulfuric acid content at a temperature of 60°C

Oxidation products	Mol ratio Content H ₂ O ₂ : H ₂ SO ₄ 10% - aq. rast. %	Mass ratio of plant substances and H ₂ O ₂				
		100 : 5	100 : 10	100 : 15	100 : 20	100 : 25
Water soluble organic matter	100:5	54.31	60.71	65.97	70.97	75.94
	100:10	54.80	60.82	66.07	71.23	76.03
	100:15	55.27	60.89	66.25	71.35	77.16
	100:20	55.58	60.95	66.29	71.43	77.44
	100:25	56.06	61.04	66.31	71.69	77.79
Total organic matter after oxidation	100:5	102.4	101.1	100.8	99.3	98.5
	100:10	104.6	103.7	102.9	102.1	100.3
	100:15	106.8	105.1	104.1	103.4	102.6
	100:20	110.9	108.6	107.2	106.8	104.1
	100:25	112.5	111.5	110.7	109.4	108.2
Alkali-soluble substances	100:5	22.98	20.97	19.94	18.95	17.74
	100:10	22.14	20.32	19.35	18.25	16.92
	100:15	21.31	19.78	18.66	17.61	15.56
	100:20	20.63	19.23	17.73	17.04	14.89
	100:25	19.52	18.62	17.67	16.26	14.06
Humic acids	100:5	21.18	18.97	17.74	16.85	15.64
	100:10	20.04	18.14	17.05	16.05	14.80
	100:15	19.11	17.58	16.47	15.41	13.46
	100:20	18.53	17.03	15.88	14.94	12.69
	100:25	17.40	16.32	15.24	14.06	11.96
Insoluble organics	100:5	22.71	18.32	14.09	10.08	6.32
	100:10	23.06	18.86	14.58	10.52	6.78
	100:15	23.42	19.33	15.09	11.04	7.28

	100:20	23.79	19.82	15.98	11.53	7.67
	100:25	24.42	20.34	16.02	12.05	8.15

Table 3

Yield of oxidation products of plant substances in a 10% aqueous solution of H_2O_2 depending on temperature and sulfuric acid content at a temperature of 60°C

Oxidation products	Mol ratio Content $H_2O_2 : H_2SO_4$ 10% - aq. rast. %	Mass ratio of plant substances and H_2O_2				
		100 : 5	100 : 10	100 : 15	100 : 20	100 : 25
Water soluble organic matter	100:25	56.06	61.04	66.31	71.69	77.79
	100:30	58.51	63.42	68.18	73.13	78.74
	100:35	60.89	65.49	69.95	75.57	79.62
	100:40	63.27	67.66	71.75	76.15	80.56
	100:50	65.69	69.71	73.51	77.39	81.39
Total organic matter after oxidation	100:25	112.5	111.5	110.7	109.4	108.2
	100:30	110.1	109.1	108.1	106.9	105.9
	100:35	107.8	106.8	105.7	104.5	103.5
	100:40	105.4	104.5	103.3	102.1	101.2
	100:50	103.1	102.2	100.9	99.7	98.8
Alkali-soluble substances	100:25	19.52	18.62	17.67	16.26	14.06
	100:30	18.81	17.71	16.56	15.35	13.31
	100:35	18.11	16.93	15.71	13.45	12.61
	100:40	17.44	16.12	14.84	13.39	11.85
	100:50	16.73	15.37	14.01	12.65	11.19
Humic acids	100:25	17.40	16.32	15.24	14.06	11.96
	100:30	16.61	15.51	14.36	13.15	11.21
	100:35	15.91	14.73	13.51	11.25	10.51
	100:40	15.24	13.92	12.64	11.19	9.79
	100:50	14.53	13.17	11.81	10.45	9.09
Insoluble organics	100:25	24.42	20.34	16.22	12.05	8.15
	100:30	22.68	18.87	15.26	11.52	7.95
	100:35	20.99	17.57	14.34	10.98	7.77
	100:40	19.29	16.22	13.41	10.46	7.59
	100:50	17.58	14.92	12.48	9.95	7.41

percentages of ash and moisture.

The contents of extractive substances of the initial PO and the solid phase of PO oxidized with hydrogen peroxide in the presence of sulfuric acid were determined according to the method given in [23].

The results of the experiments are shown in tables 2 and 3. Table 2 shows how the composition of oxidized PO changes depending on the rate of H_2O_2 and sulfuric acid. The amount of oxidized PO increases to 112.5% relative to the organic part of the original PO. At the concentration of H_2O_2 10%, ratio PO: H_2O_2 = 100: 10 and at molar ratio $H_2O_2 : H_2SO_4$ = 100 : 25 at a temperature of 60°C and a duration of 2 hours, 20.34% of the original PO remains under-oxidized. The main goal of oxidation is to increase the content of water- soluble alkali-soluble organic acids in the PO; this is successfully achieved from 4.3 7% in the original PO to 79.66% in the oxidized one. Table 3 shows the results of PO oxidation with increasing molar ratio of sulfuric acid. At the concentration of H_2O_2 10%, ratio PO: H_2O_2 = 100: 10 and at molar ratio $H_2O_2 : H_2SO_4$ = 100 : (25-50) temperature 60°C and duration 2 hours. Thus, during the oxidation of PO with hydrogen peroxide in the presence of sulfuric acid at a concentration of H_2O_2 10%, ratio PO: H_2O_2 = 100: 10 and at molar ratio $H_2O_2 : H_2SO_4$ = 100 : 50 at a temperature of 60°C and for a duration of 2 hours, 14.92% of the initial PO remains under-oxidized, while the oxidized PO is contained in terms of

organic matter in odor-soluble organic substances 69.71%, alkali-soluble organic substances 15.37%, humic acids 13.17%. It is known that oxidation in organic chemistry refers to processes leading to its enrichment with oxygen. During the oxidation of organic compounds, as a rule, there is no complete transfer of electrons and, accordingly, no change in the valence of carbon atoms. Hydrogen peroxide, along with sulfuric acid, can be used to oxidize and decompose organic matter prior to analysis.

Thus, the study showed that the oxidation of PO with hydrogen peroxide in the presence of sulfuric acid increases the content of extractives, which is a valuable product for the production of organic and organomineral fertilizers as well as plant growth stimulants.

References:

1. Kudryashova E. Yu. Processing of agricultural plant waste // Bulletin of NGIEI. 2023. No. 10 (149). pp. 19–27. DOI: 10.24412/2227-9407-2023-10-19-27
2. Volodin V. M., Masyutenko N. P., Yurinskaya V. F. Methodological recommendations for regulating the humus status of chernozem soils in the Kursk region. - Kursk. 1990. 50 p.
3. Recommendations for studying the balance and transformation of soil organic matter during agricultural use and intensive soil cultivation. – M.: VASKHNIL. 1984. 96 s
4. D.I. Eremin, A.A. Akhtyamova Chemical composition of plant residues of agricultural crops grown on different agricultural backgrounds in the forest-steppe zone of the Trans-Urals // Bulletin of KrasGAU. 2017. No. 2. pp. 32-38.
5. D.I. Eremin, A.A. Akhtyamova Mineralization of humus in arable chernozem using mineral fertilizers // Agriculture. 2018. No. 7. pp. 16–18. DOI: 10.24411/0044-3913-2018-10704.
6. G.N. Cherkasov, N.A. Chuyan, R.F. Eremina Use of plant residues and organic fertilizers // Fertility. 2007. No. 6. P. 22-23.
7. E.I. Voloshin, V.K. Ivchenko Balance of plant residues of agricultural crops in the Minderlinskoye Uchkhoz // Bulletin of KrasGAU. 2020. No. 4. pp. 59-64. DOI: 10.36718/1819-4036-2020-4-59-65.
8. Proskuryakov V.A., Kukharensky T.A., Chistyakov A.N., Rukin E.I. Oxidation as a chemical method for processing solid fuel // Chemistry of solid fuel. - 1971. - No. 5. - P. 42 – 50.
9. Smirnov R.N. Oxidation reactions and some questions of the structure of coal matter // Proceedings of the Institute of Combustible Fossils. – 1963. – volume 21. – pp. 16-68.
10. Copyright certificate 144821 USSR, Cl. 12a, 14. Method for producing a mixture of aromatic polycarboxylic acids // A.S. Savelyev, T.E. Vvedenskaya, T.A. Kukharensky, E.A. Grigorieva (USSR).- B.I., -1962. -No. 4. - With. 17.
11. Copyright certificate 215935 USSR, Cl. 12, 11. Method for producing oxalic acid / T.A. Kukharensky, V.I. Belikova (USSR). - B.I., 1968. - No. 14. - With. 19.
12. Higuchi Kozo , Arai Takuzo , Tsuyuguchi Michio , Asakawa Kazuo . Study of the easy decomposition of lignite by dilute nitric acid. (I). The best conditions for the production of nitrogenous acids and similar compounds // J. Fuel Soc . Japan . -1956. - t. 35. - No. 351. - P. 404 – 410.
13. Baris N., Dincer S. Lignite - based nitrogenous fertilizers // Energy Sources. - 1983.-v. 7,- No. 2. -p. 87-94.
14. Coca J., Alvarez R., Fuertes AB Production of a nitrogenous humic fertilizer by the oxidation - ammonia of lignite // Ind. and Eng . Chem . Prod. Res. and Dev. -1984. -v. 23, -No. 4. - p . 620 – 624.
15. Zabramny D.T., Tadzhiev A .T., Sofiev AND . S., Black IN . IN . Application coal lei And hydrolytic lignin For production humic fertilizers and products that reduce the viscosity of clay solutions during drilling // Huminous and polymer preparations in agriculture. - Tashkent: Publishing House of the Academy of Sciences of the UzSSR, -1961. - P. 25 – 38.
16. Tadzhiev A.T., Kovalenko N.A. On the issue of oxidative-hydrolytic splitting of coals // Polymer and humic preparations in the national economy. - Tashkent: Publishing house “Science” of the UzSSR, -1964. - P. 11 – 20.
17. Usanbaev N.Kh., Seitnazarov A.R., Namazov Sh.S., Beglov B.M. Study of the processes of stepwise oxidation of brown coal from the Angren deposit with nitric acid and the production of liquid and solid organomineral fertilizers // Chemical industry (St. Petersburg). - 2014. –T. 91, No. 4. – P. 180-185.
18. Usanbaev N.Kh., Namazov Sh.S., Beglov B.M. Oxidation of brown coal from the Angren deposit with nitric acid in the presence of acetic acid // Chemistry and chemical technology, (Tashkent) 2014, No. 4, – P. 14-17.
19. Usanbaev N.Kh., Namazov Sh.S., Beglov B.M. Oxidation of brown coal from the Angren deposit with hydrogen peroxide in the presence of acetic acid // Chemical industry (St. Petersburg). - 2015. –T. 92, No. 2. – P. 55-60.

20. N.H. Usanbaev, Sh.S. Namazov, B.M. Beglov Process flowsheet and optimal regime of phosphorus humus containing fertilizers production based on central Kyzylkum phosphorite and oxidized brown coal from Angren // European Applied Sciences. – 8, 2015, 53-57.

21. N.H. Usanbaev, Sh.S. Namazov, B.M. Beglov, Preparation of liquid and solid nitrogen-humik fertilizers by step-by-step oxidation of brown coal from the Angren deposit // Advanced Studies in Science: Theoru and Practice. London -2015, 101-109.

22. Ganz S.N., Kuznetsov I.E., Podolskaya N.I. Oxidation of brown coals with nitric acid to produce nitrogen-humic fertilizers // Chemical technology. Republican interdepartmental scientific and technical collection. – 1967, issue. 9, – pp. 85-88.

23. A.A. Orakbayev., R.K. Kurbaniyazov Sh.S. Namazov N.Kh. Usanbaev A.M.Reymov. Oxidation Of Licorice Root Waste With Nitric Acid To Increase The Productivity Of Extractive Substances // Natural. Volatiles & Essent. Oils, Turkey 2021; 8(4): 9077-9088,

Rezyume: Maqolada oksidlovchi moddaning dozasi, harorat, davomiyligi va massa nisbatiga qarab sulfat kislota ishtirokida o‘simlik qoldiqlarini vodorod peroksid bilan oksidlanish jarayonlarini o‘rganish natijalari keltirilgan. Tadqiqotlar natijasida 1% li natriy gidroksid eritmasi bilan ekstraksiya qilinadigan moddalarni 4,37% dan 85,08% gacha oshirish mumkinligi aniqlandi, agar oksidlanish maydalangan o‘simlik nisbatida 10% li H₂O₂ eritmasi bilan amalga oshirilsa. qoldiqlari (PO) 1 mm dan kam PO: H₂O₂ = 100:10 va sulfat kislota ishtirokida H₂O₂: H₂SO₄ = 100:50 molyar nisbatda 600C haroratda 2 soat davomida. Dastlabki va oksidlangan PO, ekstraktiv moddalar va PO ning erimaydigan organik moddalarining kimyoviy tarkibi aniqlandi.

Резюме: В статье представлены результаты изучения процессов окисления растительных остатков пероксидом водорода в присутствии серной кислоты в зависимости от дозы окислителя, температуры, продолжительности и массового соотношения. В результате исследований установлена возможность повышения экстрагируемых 1% раствором гидроксида натрия экстрактивных веществ с 4,37% до 85,08%, если окисление проводить 10% раствором H₂O₂ при соотношении измельченных растительных остатков (ПО) до менее 1 мм ПО: H₂O₂ = 100:10 и в присутствии серной кислоты при мольном соотношении H₂O₂:H₂SO₄ = 100:50 при температуре 600C в течение 2 часов. Определен химический состав исходного и окисленного ПО, экстрактивных веществ и нерастворимых органических веществ ПО.

Kalit so'zlar: vodorod peroksid, fosforit, ekstraktiv moddalar, sulfat kislota, oksidlanish, kuch.

Ключевые слова: перекись водорода, фосфорит, экстрактивные вещества, серная кислота, окисление, прочность.

UDC 541.123.3

STUDY OF THE MUTUAL INFLUENCE OF 2-CHLOROETHYLPHOSPHONIC ACID AND FERTILIZER COMPONENTS IN THE WATER SYSTEM

Yakubov Sh.Sh., Adilova M.Sh., Obidjonov D.O., Kucharov B.Kh., Zakirov B.S.

Institute of General and Inorganic Chemistry of the Academy of Sciences of the Republic of Uzbekistan, Tashkent

Summary: The article examined the solubility of 2-chloroethylphosphonic acid and components of nitroammophos in an aqueous system from the temperature of complete freezing - 49.8 to 50.0°C. The system was studied through six internal sections. The eutectic point of the system has been established, which corresponds to 25.0% of the sum of ammonium salts and 75.0% of water at -12.4°C. The solubility diagram delineates the crystallization fields of ice, 2-chloroethylphosphonic acid, sulfate, nitrate and ammonium dihydrogen phosphate. On the phase diagram, solubility isotherms are plotted every 10°C.

From the results of the study it follows that 2-chloroethylphosphonic acid has a significant salting out effect on ammonium nitrate, sulfate and phosphate, which increases with increasing temperature.

Key words: ammonium nitrate, ammonium dihydrogen phosphate, ammonium sulfate, 2-chloroethylphosphonic acid, temperature, concentration, crystallization, solubility diagram, polytherm, system.

Introduction. In Uzbekistan, one of the most important branches of agriculture is cotton growing. The efficiency of cotton growing largely depends on mechanized harvesting of raw cotton, in which cotton defoliation plays an important role, i.e. defoliation using defoliant. The main application of defoliant is to speed up harvesting. In the fields, these substances are used when processing cotton or other plants; sometimes with the help of defoliant, leaves are removed from trees and shrubs before replanting them [1-4]. As a result of defoliation, effective leaf fall is observed, and the maturation and opening of young bolls is accelerated. In this regard, special attention is paid to the production of “mildly” acting, low-toxic, economically cheap, complexly acting defoliant with physiological activity. In the physiological regulation of abscission, the main role belongs to phytohormones and natural inhibitors, which include auxins, cytokinins, gibberellins, ethylene and abscisic acid [5]. Before abscission, ethylene activity increases and auxin activity decreases. Active stimulators of ethylene formation and producers include 2-chloroethylphosphonic acid and its derivatives [6-8]. They decompose when the pH of the environment increases above 4.0-4.5 with the release of ethylene. The pH value of the cotton cell sap medium is higher than pH>4 [9]. This makes it advisable to use ethylene producers together with nutrients, in particular fertilizer components, in order to accelerate ripening, opening of young bolls and enhancing defoliating activity.

Methods and materials. Objects of study: 2-chloroethylphosphonic acid, ammonium nitrate, ammonium dihydrogen phosphate and ammonium sulfate. Ammonium nitrate, dihydrogen phosphate and ammonium sulfate of the “pure grade” grade were used for the study, and a 50% solution of 2-chloroethylphosphonic acid was prepared according to TU 6-00-0210054-006-90 [10].

To study the solubility of components in the system, a visual-polythermal method was used, the error of which is $\pm 0.5^{\circ}\text{C}$ [11]. The amount of 2-chloroethylphosphonic acid was determined according to the method [12], elemental analysis for carbon, nitrogen and hydrogen was carried out according to [13].

Results and discussion. The study of the system of 2-chloroethylphosphonic acid and the constituent components of nitroammophos - ammonium nitrate, phosphate and sulfate is of great scientific, theoretical and practical value. The 2-chloroethylphosphonic acid system - [47%

ammonium nitrate + 38% ammonium dihydrogen phosphate + 15% ammonium sulfate] - water has been studied in a wide temperature and concentration range.

A study of the system [47% ammonium nitrate + 38% ammonium dihydrogen phosphate + 15% ammonium sulfate] – water showed the presence of four branches of crystallization, which in its solubility diagrams correspond to the release of ice, sulfate, nitrate and ammonium dihydrogen phosphate into the solid phase.

The eutectic point of the system corresponds to 25.0% of the sum of ammonium salts and 75.0% of water at -12.4°C .

System 2-chloroethylphosphonic acid - [47% ammonium nitrate + 38% ammonium dihydrogen phosphate + 15% ammonium sulfate] - water was studied by six internal sections from -49.8 to 50.0°C . On the constructed polythermal solubility diagram, the fields of crystallization of ice, 2-chloroethylphosphonic acid, ammonium sulfate, ammonium nitrate and ammonium dihydrogen phosphate are delimited.

These fields converge at three triple points of coexistence of various solid phases, for which the crystallization temperature and the corresponding compositions of the equilibrium solution have been established.

On the phase diagram, solubility isotherms are plotted every 10°C . Projections of polythermal solubility curves onto the corresponding lateral water sides of the concentration triangle were constructed.

Most of the diagram is occupied by the crystallization field of ammonium dihydrogen phosphate due to its low solubility relative to other components of the system.

We calculated the salting out coefficient of the components based on their solubility in the system 2-chloroethylphosphonic acid - [47% ammonium nitrate + 38% ammonium dihydrogen phosphate + 15% ammonium sulfate] - water in Table 1.

Table 1

Salting out coefficient of components in the system 2-chloroethylphosphonic acid – [47% ammonium nitrate + 38% ammonium dihydrogen phosphate + 15% ammonium sulfate] – water

Temperature, $^{\circ}\text{C}$	Salting out coefficient	
	2-chloroethylphosphonic acid / 47% ammonium nitrate + 38% ammonium dihydrogen phosphate + 15% ammonium sulfate	47% ammonium nitrate + 38% ammonium dihydrogen phosphate + 15% ammonium sulfate / 2-chloroethylphosphonic acid
-10	3.6745	0.3012
0	5.4011	0.3468
10	6.0524	0.3765
20	6.2703	0.4057
30	7.5688	1.0582

Conclusion. From the results of the study of this system it follows that 2-chloroethylphosphonic acid has a significant salting-out effect on ammonium nitrate, phosphate and sulfate, which increases with increasing temperature, therefore the composition of the eutonic solution of the system is significantly enriched with 2-chloroethylphosphonic acid with increasing temperature while simultaneously decreasing the content of ammonium salts.

It has been established that in the system under study there is a salting out effect of the components on each other that increases with increasing temperature.

References:

1. Ganiev M.M., Nedorezkov V.D. Chemical plant protection products. M.: Kolos, 2006.-248 p.
2. Teshayev Sh.Zh. The role of defoliation in cotton growing / Current problems of modern science. 2007. No. 3. pp. 116-117.

3. Zinchenko V.A. Chemical plant protection: means, technology and environmental safety.-M.: Kolos, 2005.-232 p.
4. Moskvichev Yu.A., Feldblyum V.Sh. Chemistry in our life (products of organic synthesis and their application): Monograph. - Yaroslavl: Publishing House of YaGTU, 2007. - 411 p.
5. Kefeli V.I. Physiological basis of defoliation and production process. Tashkent: FAN, 1990. 184 p.
6. Zubkova N.F., Markina L.G. The role of ethylene in the defoliating effect of 2-chloroethylphosphonic acid // Plant Physiology. -1977. -T.24.-No.2.-P.380-383.
7. Aliev N.A., Koblov R.K., Fomilina E.E., Maksudov I.K., Umarov A.A. Ethylene-producing cotton defoliant // Agrochemistry.-1993.-No.7.-S83-85.
8. Zubkova N.F., Gruzinskaya N.A., Badasova A.S., Kasyanenko N.A. Hydrel as a defoliant and stimulator of cotton boll opening // Agrochemistry. -1984.-No. 7.-P.104-106.
9. Zubkova N.F., Nadotchaya O.G., Stonov L.D. Defoliants as IAA antagonists and stimulators of ethylene formation // Chemistry in agriculture.-1975.-T.13.-No.8.-P.32-35.
10. 2-chloroethylphosphonic acid (50% aqueous solution). Technical specifications 6-000210054-006-90 (instead of TU 6-02-3-375-88).-33 p.
11. Trunin F.S., Petrova D.G. Visual-polythermal method. Kuibyshev, 1977. Dep. VINITI No. 584-87. 94 p.
12. Zotov S.B., Truzhikov O.I. 2-chloroethylphosphonic acid - features of choosing a production method // Izvestia Vol State Technical University. -2005. No. 1.-P.66-69.
13. Bazhenova L.N. Quantitative elemental analysis of organic compounds. Ekaterinburg 2008. 356 p.

Rezyume: Maqolada 2-xloroetilfosfon kislotasi va nitroammos fos komponentlarining suvli tizimda to'liq muzlash harorati -49.8 dan 50.0°C gacha bo'lgan eruvchanligi o'rganildi. Tizim oltila ichki bo'lim orqali o'rganildi. Tizimning evtektik nuqtasi aniqlandi, bu -12.4°C da ammoniy tuzlari yig'indisining 25.0% va suvning 75.0% ga to'g'ri keladi. Eruvchanlik diagrammasi muz, 2-xloroetilfosfonik kislota, sulfat, nitrat va ammoniy dihidrogen fosfatning kristallanish maydonlarini belgilaydi. Faza diagrammasida eruvchanlik izotermalari har 10°C da chizildi.

Tadqiqot natijalaridan ma'lum bo'lishicha, 2-xloroetilfosfon kislotasi ammoniy nitrat, sulfat va fosfatga sezilarli darajada tuzsizlantiruvchi ta'sir ko'rsatadi, bu harorat oshishi bilan ortadi.

Резюме: В статье исследовано растворимость в водной системе 2-хлорэтилфосфоновая кислота и компоненты нитроаммофоса от температуры полного замерзания -49.8 до 50.0°C . Система изучена шестью внутренними разрезами. Установлено эвтектическая точка системы, который соответствует 25.0% суммы аммонийных солей и 75.0% воды при -12.4°C . На диаграмме растворимости разграничены поля кристаллизации льда, 2-хлорэтилфосфоновой кислоты, сульфата, нитрата и дигидрофосфата аммония. На диаграмме состояния через каждые 10°C нанесены изотермы растворимости.

Из результатов исследования следует, что 2-хлорэтилфосфоновая кислота оказывает значительное высаливающее действие на нитрата, сульфата и фосфата аммония, возрастающее с ростом температуры.

Kalit so'zlar: ammoniy nitrat, ammoniy dihidrofosfat, ammoniy sulfat, 2-xloroetilfosfon kislotasi, harorat, konsentratsiya, kristallanish, eruvchanlik diagrammasi, politermiya, sistema.

Ключевые слова: нитрат аммония, дигидрофосфат аммония, сульфат аммония, 2-хлорэтилфосфоновая кислота, температура, концентрация, кристаллизация, диаграмма растворимости, политерма, система.

ANALYSIS OF BROADCASTING PROTOCOLS IN V2V INTERACTION

Lazarev A.P¹., Khujamatov H.E¹., Reybnazarov E.N¹., Jolimbetova E.D¹., Keunimjaeva A.K².

¹ *Tashkent University of Information Technologies named after Muhammad al-Khwarizmi,
Tashkent, Uzbekistan*

² *Karakalpak state university named after Berdakh*

Summary: *With the rapid development of vehicle-to-vehicle (V2V) technologies, analysis of broadcast protocols has become critical to ensure efficient data exchange and improve road safety. Broadcast protocols play a key role in the transfer of information between vehicles, enabling functions such as collision warning, traffic coordination and route optimization. This study focuses on a comparative analysis of existing broadcast protocols, assessing their performance, reliability, and scalability in high traffic density environments. Particular attention is paid to methods for minimizing delays and avoiding collisions, which are critical for the rapid and safe exchange of data in real road conditions. The findings of this study will help identify the most effective protocols and strategies to improve V2V communication, contributing to the development of smart transportation systems and reducing road accidents.*

Key words: *ITS, transport, vehicle, protocol, communication, WAVE, DSRC, V2V, V2I, road, safety.*

Introduction. The republic is implementing comprehensive measures for the active development of the digital economy, as well as the widespread introduction of modern information and communication technologies in all sectors and areas, primarily in public administration, education, healthcare and agriculture. Including the decree of the President of the Republic of Uzbekistan “On approval of the Strategy “Digital Uzbekistan-2030” and measures for its effective implementation”, instructions are given in the transport sector [1]. The growth of cities, caused by the urbanization of the population, leads not only to an increase in the area and height of buildings, but also to a concomitant expansion of the road network. Together with the increasing affordability of cars, this trend will certainly lead to an exacerbation of problems associated with an increase in the density and intensity of traffic flows. Thus, in the last decade there has been rapid growth of the automobile fleet. In turn, this leads to a decrease in the level of road safety and, as a consequence, to an increase in the number of road accidents. Given the quality of the road surface and often poor visibility conditions, such incidents are increasingly becoming widespread. Analyzing the reasons for such trends, it is not difficult to understand that emergency situations occur due to the impossibility of informing drivers in advance about the danger that has arisen. This fact has led the scientific community to the logical conclusion about the need to involve the information technology sector to help motorists. One of such information technologies that helps vehicle drivers is the self-organizing VANET network, which allows the exchange of information between vehicles via wireless communication channels. The process of exchanging information between vehicles related to road safety is carried out by the so-called VANET communication type as V2V (vehicle-to-vehicle). This uses broadcast protocols, which will be discussed in this article.

Main part

Currently, the transport sector is suffering from serious problems, the most important of which are traffic jams, high accident rate, air pollution, etc. To reduce these problems, researchers are introducing smart technologies in the traffic system. This system is called intelligent transport system ITS. ITS uses the latest developments in the field of transport system modeling and traffic control to provide more traffic and safety information [2], as well as a higher level of interaction between traffic participants compared to traditional transport systems. ITS are capable [3]:

- improve the quality of transport services;
- ensure traffic safety;
- expand the capabilities of the automatic traffic control system at the city level.

The main goal of ITS is the development of traditional transport systems using intelligent systems to organize safe and comfortable traffic for all participants through the introduction of innovative technologies and new management solutions. ITS collects big data from several sources, the most important of which are network nodes. It stores, analyzes and sends them back to the contract so that management and control procedures can be implemented in real time to improve the performance of the traffic system [4]. There is a network between vehicles, infrastructure and pedestrians that allows information to be exchanged through a peer-to-peer algorithm or a centralized system via 4G. The communication medium allows interaction and information exchange from vehicle to vehicle (V2V), vehicle to infrastructure (V2I), pedestrian to infrastructure (P2I) or vehicle to pedestrian (V2P).

There are three main components necessary for the functioning of any ITS [5]:

- Data collection: the main source of data collection is the transport system (average travel time of a certain road segment, number of passengers traveling along a public transport line; etc.); video cameras and RFID scanners used to collect traffic data. Cameras can be installed in various locations on the network to collect video. Smartphones and advanced communication technologies based on mobile phone data as well as Global Positioning System (GPS) are increasingly used. All this data is available for analyzing the conditions and behavior of people while traveling [3].

- Data Analysis: ITS intelligent traffic system evaluates traffic by inputting data collected from various sources into pre-built models such as traffic intersection models and traffic balance models (and so on), providing various information to help take various management and control measures to avoid expected crises. Recent improvements in data analysis paradigms and the introduction of new data sources have led to increased calculations and the creation of more accurate and detailed estimates [5].

- Data/Information Transmission: Techniques are being developed to transmit data collected from wires to fiber optics to wireless networks (e.g. 3G/4G, WiFi, etc.), as well as the use of cloud systems for information dissemination and control/management strategies such like controlling traffic lights and sending alerts to other cars so that they don't get stuck in traffic jams ahead of time; use of mobile applications and information in the car; use of advanced communication technologies [6].

Intelligent transport systems are divided into two parts [7, 8, 9]:

- Improved traveler information systems: strive to provide various information (waiting times, travel times, available parking). This information helps travelers make travel decisions (e.g., departure time, route, etc.). Advances in data collection and communication techniques have helped create models that give us more accurate information about travel times and route guidance, which influences traveler decision-making. The system also provides information about bus arrival times by analyzing data transmitted by bus passengers through mobile phone signals via towers. Cell phones can also be used to automatically analyze images captured by smartphone applications through drivers or vehicle-mounted cameras to determine available parking spaces on the side of the road [10].

- Advanced management systems: aim to control or manage various infrastructures and operators within a transport system in various situations to ensure the efficiency and safety of the transport system. These control/management techniques apply to highways, transit services, accidents/emergencies, and freight transportation. With multiple data sources, improved data accuracy, and improved information dissemination methods, more realistic and granular management can be achieved. For example, in Kurkcu et al. [11] provides another example of using open data sources and social media data to identify incidents, which is the first critical step in incident management procedures.

The goal of ITS is to improve road traffic and reduce accidents and deaths through the development of a safe driving system by many automobile manufacturers, government agencies, and the academic community. The Federal Communications Commission (FCC) has allocated spectrum for VANETs. Governments and some automobile manufacturers (Toyota, BMW and

Daimler-Chrysler) have also launched several important projects to implement VANET, such as Advanced Driver Assistance Systems (ADASE2), CAMP Partnership, CARTALK 2000, Fleet Net and CarNet [12, 13].

Since this article focuses on the process of data exchange, i.e. For communication in the future, it will be advisable to provide data on data transmission networks in this area.

Self-organizing vehicle networks VANET, general characteristics of VANET, VANET applications. The main technology for transmitting/receiving data in the field of ITS is VANET.

Vehicular self-organizing networks (VANETs), like mobile self-organizing networks (MANETs), arise through the spontaneous creation of a wireless network for vehicle-to-vehicle (V2V) communication [14]. VANETs were first mentioned and implemented in 2001 [15]. It has been shown that VANET will use both vehicle-to-vehicle and vehicle-to-road communication architectures to provide road safety, navigation and other roadside services. VANETs are a key part of Intelligent Transportation Systems (ITS). VANETs are sometimes called intelligent transport networks [16].

Although VANETs were seen as a counterpart to MANETs in the early 2000s, they have since evolved into a field of research in their own right. By 2015 [17], the term VANET has become largely synonymous with the more general term Inter-Vehicle Communications (IVC), although the focus is still on the ad hoc network aspect and much less on the use of infrastructure such as Roadside Units (RSUs) or cellular networks.

VANETs support a wide range of applications, from simply transmitting information to neighboring nodes, such as cooperative awareness messages (CAM), to distributing multi-hop messages over vast distances. Most of the operating features of MANETs are also found in VANETs, but the details are different. Instead of moving at random, vehicles tend to move in an orderly manner. Interactions with roadside equipment can also be characterized quite accurately. And finally, most vehicles are limited in their movement, for example, due to the fact that they are forced to follow an asphalt road.

Implementation of the DTM protocol. The DTM broadcast protocol is designed to provide security and deliver messages with high reach and better performance than pure network flooding. This protocol relies on several factors to calculate a threshold function for the protocol to determine whether a node should support packet relaying or not. The advantage of this protocol is its adaptability to the number of neighbors in a particular area. If the number of neighbors is large, it means that most nodes have probably received the packet. Another factor that is used in this protocol depends on the distance to the average variable between neighbors. Distance to average can be defined as the distance from one node to the spatial average of the nodes from which it received the packet. The DTM protocol can easily estimate the coverage area of a set of nodes based on the distance between the node and the spatial distribution of another set of nodes in the network. Calculating the distance to the mean variable for a set of points is not a difficult task. This can be done by simply following a few steps. The first step is to calculate the spatial distribution for a set of nodes, this can be easily done using equation 1.

$$(\bar{x}, \bar{y}) = \left(\frac{1}{n} \sum_{i=1}^n x_i, \frac{1}{n} \sum_{i=1}^n y_i \right) \quad (1)$$

if the distance to the average is small, it means that it probably means that the node received the message from its nearest neighbor, assuming the transmission radius for all nodes is 250~meters. Typically, the distance to the average will be greater when network nodes are clustered away from the node that received the packet. Each node must include its own location with a hello message beacon so that the receiving node can calculate the distance to the average of the nodes. The next step is to calculate the actual distance between the node and the spatial distribution to determine the value of M , which can be calculated simply using (2):

$$M = \frac{1}{r} \sqrt{(x - \bar{x})^2 + (y - \bar{y})^2} \quad (2)$$

where r is the transmission radius for the node. Note that if the value of M is small, it probably means that all neighbors in this case chose not to relay because most nodes have probably already received this message. Finally, the node compares the value of M with the value of the threshold function M_c to determine whether the node should relay the packet or not. The threshold value M_c can be calculated using equation [18] (3):

$$f(N) = 0.87 - 0.8e^{-0.12N} \quad (3)$$

where N is the number of neighbors for this node. So, in conclusion, the distance-to-average protocol takes the following steps to determine whether a packet should be rebroadcast:

- nodes exchange hello messages that include the node ID and location;
- when the message is received, the node calculates the distance value between itself and the spatial distribution of its neighbors;

• the node compares the value of M_c with M if $M > M_c$ the node relays the message. Otherwise, the node will discard the message.

Implementation of the DADCQ protocol. The DADCQ protocol is more advanced than the DTM protocol because its threshold function contains more variables than the DTM protocol. This protocol threshold function is dynamic and depends on three main parts: the number of neighbors for a node, which can be easily calculated using hello messages, the square value for the set of neighbors, and finally the link quality for the network. First of all, like most broadcast protocols, this protocol requires all nodes in the network to exchange hello messages with a period to exchange information and gain knowledge about neighbors for the node. After receiving the packet, the node must calculate the values that are equal to M and M_c , after which and after the backoff timer has expired, the node will decide whether the node should support relaying the received message. Just like in the DTM broadcast protocol, a node obtains the average distance value of its neighbors, this is done simply by calculating the spatial distribution for the neighbors using equation 1.

After getting the spatial distribution, the distance between the node and the spatial distribution will be calculated to get the distance to the mean value M , after getting the distance to the mean value this value will be compared with the value M_c this value is calculated based on the three inputs which are α , β and D_{max} . to get these numbers: the number of neighbors for a node, the quality of the link, and the value of the square. To calculate, the value of Alpha can be calculated based on (4) where N is the number of neighbors for a node.

$$\alpha = -0.200 \left(\frac{2(Q-1)}{0.125N} + 1 \right)^{-1} \quad (4)$$

The value of β can be found using (5), where Q is the value of the square and K is the quality of the link and finally N is the number of neighbors for that node.

$$\beta = 6.25e^{-0.1K} \left(\frac{2(Q-1)}{0.125N} + 1 \right)^{-1} \quad (5)$$

(6) can be used to obtain the D_{max} value.

$$D_{max} = 0.75 - 0.237e^{-0.1K} \quad (6)$$

Finally, α , β and D_{max} are used as inputs to the threshold function M_c . The threshold function can be easily calculated using equation 7.

$$M_c = D_{max} - \beta e^{\alpha N} \quad (7)$$

Once the value of M_c is received, it will be compared with the value of M to decide whether the node should support packet relaying. This protocol is designed to provide good reachability and reduce the number of relayed packets per node in the network.

Implementation of the SLAB protocol. This section provides an overview of the statistical location-aware adaptive broadcast (SLAB) protocol, in addition to the steps used in NS3 to implement it. Like remote, this broadcast protocol adapts to changes in the network; in fact, this protocol is an improvement on the DADCQ protocol, which automates the development of a threshold function using machine learning techniques. Like most VANET broadcast protocols,

SLAB is designed to provide application security and message delivery with high reachability and better performance than pure network flooding. This protocol shares many characteristics with the distance-to-average protocol, such as using the number of neighbors to determine a good threshold function and using a spatial distribution for the set of vehicles that are neighbors of the vehicle that will send the packet. On the other hand, this protocol uses the square value and channel quality in conjunction with the DADCQ protocol. In short, this protocol is an improved version of DADCQ with added complexity. This protocol relies on several dynamic factors to calculate the threshold function, such as channel quality and quadratic value. In addition, this protocol uses machine learning functions such as the MLP function to create a threshold function for packet relay. The advantage of this protocol is its adaptability to the number of neighbors in a particular area. If the number of neighbors is large, it means that most nodes have probably received the packet, so the protocol will not send the packet to avoid flooding and wasted bandwidth. Like most broadcast protocols, this protocol allows nodes on a network to periodically exchange hello messages for a specific node to collect information about its neighbors. When a node receives a packet, it first checks in this protocol whether this packet has been received before, if so, the node automatically discards this packet without relaying it to its neighbors. If this packet is new, the node will perform protocol steps to decide whether to relay this packet. The value of M is calculated in the same way as in remote to mean the protocol, it's just that each node will include its own location in the hello message next to its ID. A node will first calculate the spatial distribution for its neighbors using (1).

After calculating the spatial distribution. The node will calculate the distance between itself and the spatial distribution value to calculate the value of M , which can be easily calculated using equation 2.

Once the distance to the mean is ready, SLAB compares this value with the value of the threshold function. The key factor for a successful broadcast protocol is to have a good threshold function, if this value is set too high the network availability will be degraded, if the value is set too low most nodes will send a packet which usually results in flooding. The more the threshold function can adapt to changes in the network, the better the protocol as a whole will perform. In SLAB, the threshold function depends on three main components: the number of neighbors for node N , the quadratic static value for node Q , and finally the link quality for node K . The first input is the number of neighbors for a particular node can be easily calculated based on the hello message that the node receives from their neighbors. The squared value is intended to measure how evenly a particular vehicle's neighbors are distributed in the road topology. In statistics, the value of a square can be defined as the ratio of a set of points to its mean. In SLAB, calculating the value of the square involves some complexity and the use of a technique called static sampling. To do this, the 30-fold sampling proposed by the developer of this protocol [19] is used; in general, the following is undertaken:

- first, the node that tries to relay the message will generate thirty random points in the node's transmission zone;
- if the node itself and its neighbors are within $r/5$ of this random point, where r denotes the transmission radius, increase the frequency array by one;
- after thirty runs, the total value for the array is calculated and a square value is obtained, which can be calculated using equation 8.

$$Q = \frac{V[n]}{E[n]} \quad (8)$$

If the distribution of vehicles is uniformly random, the value of Q is expected to be close to one. However, if the Q value is less than one, it means that the nodes are more evenly spaced. If the value is greater than one, it means that the nodes are grouped. The third component that this protocol uses as input to the threshold function is the link quality K . Dynamically, this protocol uses the worst-case K and the best-case K to measure the link quality as proposed by the protocol designer. According to the developer of this protocol, dynamically determining the value of K is a difficult task [19], but according to other protocols using channel quality K , the value of channel

quality is almost never less than 5, as in [20] and [21]. its value almost never exceeds 13, so assuming that vehicles equipped with VANET capabilities, any vehicle is likely to be equipped with an advanced mapping and navigation system, it is possible to use a static value for K based on different geographic locations, as has been proposed the actual developer of the protocol. [19]. In SLAB, the protocol aims to use the best available channel for nodes to transmit packets in order to have the best possible availability. Having received the square value, channel quality and number of neighbors, the SLAB protocol will use these values as input to the Multi-layer Perceptron (MLP) function, since this machine learning function is capable of approximating any function with arbitrary precision. SLAB uses an MLP function with an input variable m and a hidden perceptron n , as in (9).

$$y(x) = f \left(\sum_{j=1}^n v_j f \left(\sum_{i=1}^m w_{j,i} x_i + w_{j,m+1} \right) + v_{n+1} \right) \quad (9)$$

Since the MLP function also needs solutions as input, the developer of this protocol suggests using the values in Table 1 as input.

Table 1.

Input values for the MLP function

Perceptron	Value
Hidden (W1)	0.164, 0.394, -0.193, 2.689
Hidden (W2)	-0.587, 2.074, -0.311, -0.416
Outputable (V)	2.784, -1.538, -2.961

After using the values of K , Q , N , we will finally get the threshold value for node M_c . Finally, the protocol will compare M_c and M , then retransmit the packet if and only if the value of M is greater than the value of the threshold function M_c . The implementation of this broadcast protocol will be carried out on Sumo and the NS-3 simulator.

Simulations are performed for different numbers of nodes to test the performance of different protocols at different network densities. The simulation begins with two waves of hello messages exchanged between all nodes, after which a random node will be selected to deliver an accident warning message to its neighbors. Each node that receives a message will implement a protocol to decide whether it should relay the received warning message to its neighbors, as explained in previous chapters of this thesis. Different mobility scenarios are generated using SUMO and used with each protocol. A total of five runs are performed for each specific number of neighbors and the average is taken to obtain the result. Each vehicle will have a random speed throughout the life of the simulator, which varies from 40 to 100 km/h. The number of neighbors for this simulation varies from 20 nodes to 400 nodes. With each number implemented for each protocol five times. The DADCQ and SLAB protocols use link quality as input to the threshold function. The quality of the channel used is the same as that proposed by the actual developer of the two protocols in [20]. Hello, messages are sent periodically every 15 seconds between network nodes before the start of each wave of hello messages, all nodes clear their memory to maintain accurate and up-to-date information about their neighbors. This simulation was performed on NS3 version 3.21 using C++. Various road topologies were created in the SUMO traffic simulator version 0.24. Table 2 shows the simulation parameters used for the three broadcast protocols for VANET.

Table 2.

Simulation parameters

Parameter	Value
Number of neighbors	20,40,80,120,250,400
Duration	1800 seconds
Package size	500 byte
Maximum speed	100km/h on the highway 60 km/h for the city
Interval between Hello messages	15 seconds

Protocol	IEEE 802.11p
Transmission range	250 meter
Layer 3 addressing	WSMP

In Figure 1 shows a graph of the number of relayed messages versus the number of received messages at each network node for the backbone scenario. It is clear that the SLAB broadcast protocol is superior to the DADCQ and DTM protocols and this is not surprising since SLAB is the most advanced protocol of the three and also the most adaptive to network changes compared to the DADCQ and DTM protocols since it uses machine learning for computation. a threshold function for a node to decide whether that node should support relaying. When the number of nodes is less than 150, both DADCQ and DTM have close performance to each other, when the number of nodes increases, DADCQ outperforms DTM, however, SLAB continues to give good performance compared to the other two at any density as shown in the graph. The performance of both SLAB and DTM becomes stable after a density of 200 nodes, compared to DADCQ, which approaches the performance of DTM as the number of nodes in the network increases.

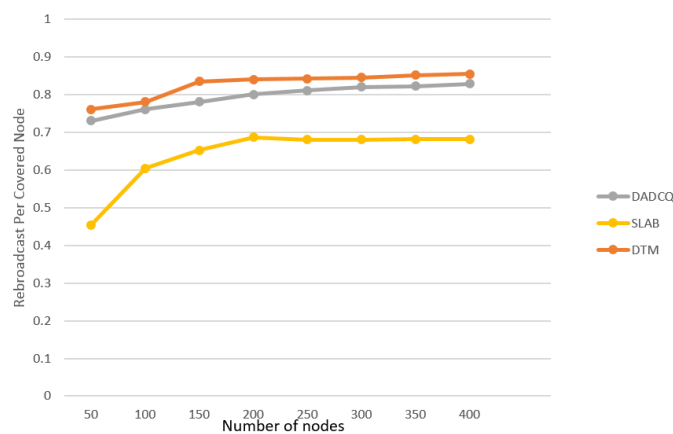


Figure 1. Relayed messages versus received messages in SLAB, DADCQ and DTM in highway scenario

In Figure 2 shows the same metric, but for the urban scenario, it is clear that the three protocols perform better on the highway than in the city, since all three protocols are designed primarily to serve the highway. Just like the highway case, in the urban scenario SLAB outperforms both DADCQ and DTM, in most cases the differences between the three protocols become obvious when the number of nodes in the network increases.

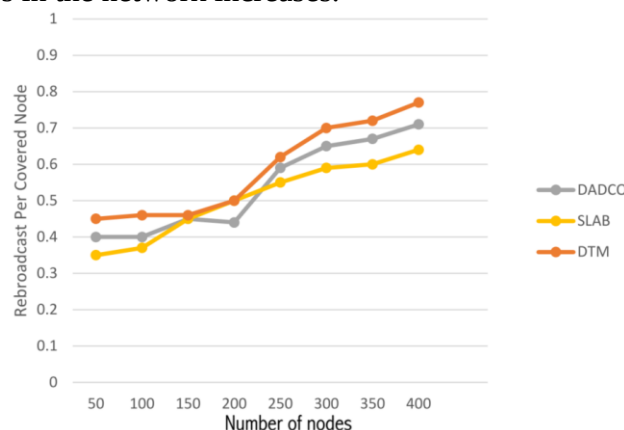


Figure 2. Relayed messages compared to received messages in SLAB, DADCQ and DTM in urban scenario

In Figure 3 shows the number of bytes transferred in the network between nodes for the backbone scenario. This includes bytes for both welcome messages and warning messages, since the NS3 simulation relies on high randomization of speed and driving behavior between vehicles, causing the number of bytes transferred to vary in each run. network DADCQ outperformed DTM and SLAB when network density was high compared to low network density. Overall, the three

protocols have similar results when it comes to network bandwidth consumption. In Figure 4 shows the same metric, but again for the urban scenario, in the highway scenario the protocols perform better than in the urban scenario. The denser the network, the more bytes are transferred between nodes. Overall, DADCQ outperforms SLAB and DTM in the urban scenario, especially when the number of nodes in the network is large. When the number of nodes is small, SLAB outperforms DADCQ and DTM protocols.

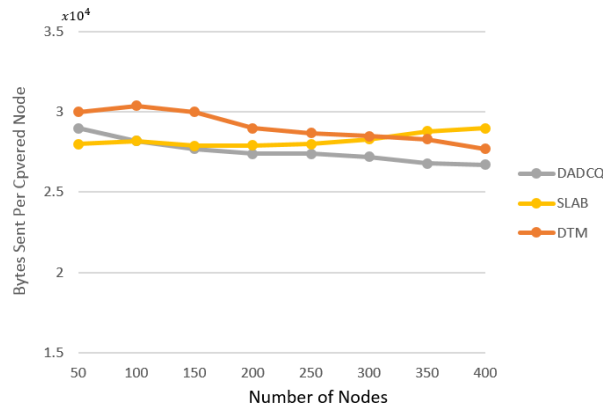


Figure 3. Number of bytes sent per covered node in highway scenario

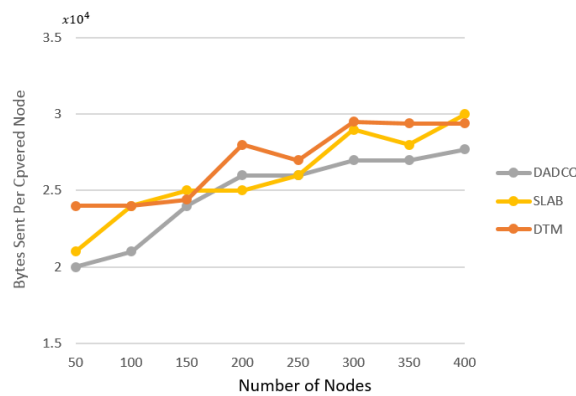


Figure 4. Number of bytes sent per covered node in the city scenario

In Figure 5 plot represents the reachability for three broadcast protocols in a backbone scenario: all three protocols have the same reachability when it comes to low network density. As the network density increases, SLAB begins to outperform the DADCQ and DTM protocols by scientifically delivering the message to a large number of nodes. However, three protocols have reachability greater than 0.95 at any network density, which is a good measure of reachability for vehicular ad hoc network.

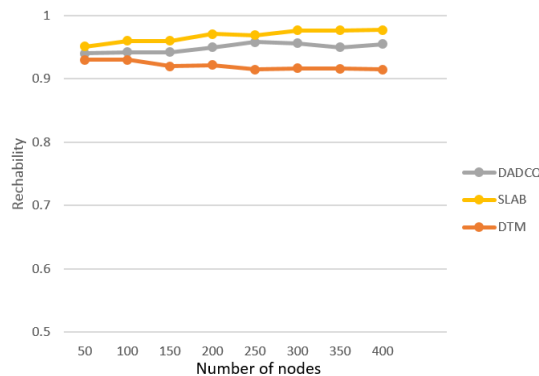


Figure 5. Reachability under highway scenario

In Figure 6 the same metric compares the three protocols, but in an urban scenario rather than a highway.

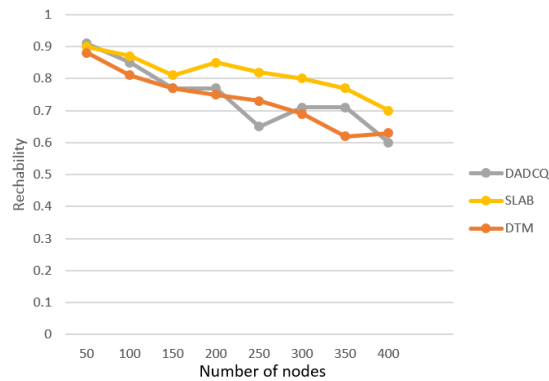


Figure 6. Reachability in the city scenario

Generally, the SLAB protocol outperforms both DADCQ and DTM in terms of reachability. At low densities, the three protocols have similar performance: the denser the network becomes, the higher the performance of SLAB on the network compared to the other two protocols. The three protocols perform better in the highway scenario compared to their performance in the urban scenario.

Conclusions

Vehicular Ad-hoc Network is a new technology that aims to improve vehicle safety while also providing more comfort and entertainment options for vehicle users. Data dissemination in VANETs is a challenging problem for several reasons, including limited network bandwidth, rapid movement of nodes in the network, and constantly changing network topology. Efficient broadcasting techniques are required to support most security and non-safety applications. Simulation is an effective method for designing and implementing VANET broadcast protocols. NS3 is one of the most advanced network modeling tools that can be used for VANET modeling. NS3 does not have any implementation of broadcast protocols for VANET.

In this article, three broadcast protocols are implemented on NS3. The first Distance to Mean (DTM) protocol uses the distance to mean method to decide whether a node should support relaying received messages or not. The second protocol, Distribution Adaptive Distance with Channel Quality (DADCQ), uses node distribution, channel quality, and distance to decide whether a node should support relaying a received message or not. The third protocol is the Statistical Location Binding (SLAB) enhancement, which automates the threshold function decision process using machine learning techniques.

References:

1. Указ Президента Республики Узбекистан «О Стратегии действий по дальнейшему развитию Республики Узбекистан» от 17 февраля 2017 года № УП-4947.
2. Тишина, Н.А. Прикладные задачи безопасности информационно-телекоммуникационных систем: учеб. пособие. / Н. А. Тишина, Е. Н. Чернопрудова. - Оренбург, - 2017. 122 с.
3. Сафиуллин, Р.Н. Системы автоматизации контроля движения на автомобильном транспорте: монография / Р. Н. Сафиуллин, В. В. Резниченко, А. Ф. Калужный / под ред. Р.Н. Сафиуллина. - СПб, - 2019. - 16 с. 1.
4. Иванов, Ф.Ф. Интеллектуальные транспортные системы / Ф. Ф. Иванов / под науч. ред. Г.Г. Маньшина. - Минск, - 2014. - 214 с.
5. Душкин, Р. В. Искусственный интеллект. / Р. В. Душкин. - Москва: ДМК Пресс, - 2019. - 280 с.
6. Пятибратов, А.П. Вычислительные машины, сети и телекоммуникационные системы: учеб. пособие / А. П. Пятибратов, Л. П. Гудыно, А. А. / под ред. А. П. Пятибратова. М., - 2005. - 286 с.
7. Погосян, В. М. Информационные технологии на транспорте: учеб. пособие. / В. М. Погосян, С. И. Костылев, С. Г. - Руднев. СПб, - 2019. - 76 с.
8. Khaleel Ahmad, Halimjon Khujamatov, Amir Lazarev, Nargiza Usmanova, Mona Alduailij, Mai Alduailij "Internet of Things-Aided Intelligent Transport Systems in Smart Cities: Challenges, Opportunities, and Future" - Wireless Communications and Mobile Computing, 2023
9. Новиков, С. В. Транспорт и логистика в Арктике. Северный морской путь: курс-Дальний Восток. Альманах 2016: Вып. 2. / С. В. Новиков. - Москва., - 2016. - 232 с.
10. Капский, Д.В. Автоматизированные системы управления дорожным движением: учебное пособие // Д. В. Капский, Ю. А. Врубель, Д. В. Навой, Д. В. - Минск, - 2015. - 368 с.
11. Halim Khujamatov, Amir Lazarev, Nurshod Akhmedov, Ernazar Reyppazarov, Aybek Bekturdiyev. Methods for Automatic Identification of Vehicles in the ITS System. International Conference on Information Science and Communications Technologies ICISCT 2021 p.5

12. Xi, S. Study of the Feasibility of VANET and its Routing Protocols / S. Xi, X.M. Li // 2008 4th International Conference on Wireless Communications, Networking and Mobile Computing. IEEE, - 2008. - P. 1–4.
13. Singh, S. VANET routing protocols: Issues and challenges / S. Singh, S. Agrawal // 2014 Recent Advances in Engineering and Computational Sciences (RAECS). IEEE, - 2014. - P. 1–5.
14. Morteza Mohammadi Zanjireh; Hadi Larijani (May 2015). A Survey on Centralised and Distributed Clustering Routing Algorithms for WSNs (PDF). IEEE 81st Vehicular Technology Conference. Glasgow, Scotland.
15. Ad Hoc Mobile Wireless Networks: Protocols and Systems, Prentice Hall, 2001.
16. Research Challenges in Intelligent Transportation Networks, IFIP Keynote, 2008.
17. Sommer, Christoph; Dressler, Falko. Vehicular Networking — Cambridge University Press, 2014. — ISBN 9781107046719.
18. A. D. Ghodrati, “Reduces broadcast storm using clustering in vantes,” International Research Journal of Applied and Basic Sciences, vol. 7, no. 13, pp. 979-987, 2013
19. Michael Slavik, Imad Mahgoub Department of Computer and Electrical Engineering and Computer Science Florida Atlantic University Applying Machine Learning to the Design of Multi-Hop Broadcast Protocols for VANET. Wireless Communications and Mobile Computing Conference (IWCMC), 2011 7th International
20. Davis, J.S. and M.G. Linnartz. Vehicle to vehicle propagation measurements. In Signals, Systems and Computers, 1994 Conference Record of the twentyeighth Asilomar Conference on, volume 1, pages 470–474 vol.1.
21. A.Domazetovic, L.J.Greenstein, N.B.Mandayam, and I.Seskar. Propagation models for short-range wireless channels with predictable path geometries. Communications, IEEE Transactions on, 53(7):1123 – 1126, jul. 2005.

Rezyume: Avtotransport vositalari (V2V) texnologiyalarining jadal rivojlanishi bilan translyatsiya protokollarini tahlil qilish samarali ma'lumotlar almashinuvini ta'minlash va yo'l harakati xavfsizligini yaxshilash uchun muhim ahamiyatga ega bo'ldi. Eshittirish protokollari transport vositalari o'rtasida ma'lumot uzatishda muhim rol o'ynaydi, to'qnashuv haqida ogohlantirish, harakatni muvofiqlashtirish va marshrutni optimallashtirish kabi funktsiyalarni amalga oshiradi. Ushbu tadqiqot mavjud translyatsiya protokollarini qiyosiy tahlil qilishga, ularning ishlashi, ishonchliligi va yuqori trafik zichligi muhitida miqyoslanishini baholashga qaratilgan. Haqiqiy yo'l sharoitida tez va xavfsiz ma'lumotlar almashinuvi uchun muhim bo'lgan kechikishlarni minimallashtirish va to'qnashuvlarning oldini olish usullariga alohida e'tibor qaratilgan. Ushbu tadqiqot natijalari V2V aloqasini yaxshilash, aqlli transport tizimlarini rivojlantirish va yo'l-transport hodisalarini kamaytirish uchun eng samarali protokollar va strategiyalarni aniqlashga yordam beradi.

Резюме: В условиях быстрого развития технологий связи между транспортными средствами (V2V) анализ протоколов вещания стал критически важным для обеспечения эффективного обмена данными и повышения безопасности дорожного движения. Протоколы вещания играют ключевую роль в передаче информации между транспортными средствами, обеспечивая такие функции, как предупреждение о столкновении, координация дорожного движения и оптимизация маршрута. Данное исследование посвящено сравнительному анализу существующих протоколов вещания, оценке их производительности, надежности и масштабируемости в средах с высокой плотностью трафика. Особое внимание уделено методам минимизации задержек и предотвращения столкновений, которые имеют решающее значение для быстрого и безопасного обмена данными в реальных дорожных условиях. Результаты этого исследования помогут определить наиболее эффективные протоколы и стратегии для улучшения связи V2V, способствуя развитию интеллектуальных транспортных систем и снижению дорожно-транспортных происшествий.

Kalit so'zlar: ITT, transport, transport vositasi, protokol, aloqa, WAVE, DSRC, V2V, V2I, yo'l, xavfsizlik.

Ключевые слова: ИТС, транспорт, транспортное средство, протокол, связь, WAVE, DSRC, V2V, V2I, дорога, безопасность.

CALCULATION OF RADIO TRANSMITTER ON TRANSISTOR KT909A

Serjanova D.S., Karimova A.O., Umirzakov E.U.
Tashkent University of Information Technologies

Summary: *A cascade amplifier is a multi-stage amplifier configuration designed to achieve higher gain and broader bandwidth than a single-stage amplifier. When using the KT909A transistor, this setup benefits from the transistor's specific features, making it highly suitable for high-frequency applications. The KT909A transistor is well-suited for high-frequency and high-power applications, offering robust performance with significant power gain, low noise figure, and high thermal stability. Its characteristics make it an excellent choice for RF amplifiers, FM broadcasting, and other applications requiring reliable high-frequency amplification.*

Key words: *modulation, amplitude modulation, frequency modulation, phase modulation, quadrature amplitude modulation, pulse modulation.*

Introduction.

Modulation is a fundamental technique used in communication systems to transmit a signal over a medium by varying a carrier wave according to the information signal. It enables efficient and effective transmission of data, whether it is audio, video, or digital information. There are several types of modulation, each with its own advantages and applications.

Types of Modulation

Amplitude Modulation (AM):

Description: In AM, the amplitude (strength) of the carrier wave is varied in proportion to the instantaneous value of the information signal.

Applications: AM is commonly used in AM radio broadcasting, aviation communication, and long-distance transmission.

Advantages: Simplicity of implementation and ability to travel long distances.

Disadvantages: Susceptible to noise and interference, lower bandwidth efficiency.

Frequency Modulation (FM):

Description: In FM, the frequency of the carrier wave is varied according to the instantaneous value of the information signal.

Applications: Widely used in FM radio broadcasting, audio transmission, and television sound.

Advantages: Better noise immunity and higher fidelity compared to AM, suitable for high-fidelity audio transmission.

Disadvantages: Requires a larger bandwidth than AM, more complex receiver design.

Phase Modulation (PM):

Description: In PM, the phase of the carrier wave is varied in proportion to the instantaneous value of the information signal.

Applications: Used in digital signal processing, such as in phase-shift keying (PSK) for digital communication.

Advantages: Robust against noise and interference, efficient use of bandwidth.

Disadvantages: Complex modulation and demodulation processes.

Quadrature Amplitude Modulation (QAM):

Description: Combines both amplitude and phase modulation, encoding data in both the amplitude and phase of the carrier wave.

Applications: Used in modern digital communication systems, including digital television and broadband internet.

Advantages: High data rates and efficient use of bandwidth.

Disadvantages: Complex implementation and higher susceptibility to noise.

Pulse Modulation:

Pulse Amplitude Modulation (PAM): Varies the amplitude of the pulse train according to the information signal.

Pulse Width Modulation (PWM): Varies the width (duration) of the pulses according to the information signal.

Pulse Position Modulation (PPM): Varies the position of each pulse within a time slot according to the information signal.

Applications: Used in digital communication, control systems, and audio signal processing.

A cascade amplifier is a multi-stage configuration used to achieve higher gain and bandwidth than a single-stage amplifier. In this configuration, multiple amplifier stages are connected in series (cascaded), where the output of one stage is the input of the next. This introduction focuses on designing a cascade amplifier using the KT909A transistor.

The input data for the calculation of the transmitter structural scheme are: the operating frequency range, the nonlinear distortion coefficient at the transmitter output measured by the two-tone method, the maximum power delivered by the transmitter measured at the input of the antenna feeder, and the permissible power of incidental emissions or their attenuation (in decibels) with respect to the first harmonic power.

First, it is necessary to establish for each transmitter stage: the operating frequency range and the necessary bandwidth (frequency plan) input and output power or output power and power gain of the stage K (level diagram), the allowable level of nonlinear distortion for all stages that are in the group signal path; select the types of electronic devices (ED). In addition, at this stage the scheme of the oscillating system of the output stage is established, the necessary power supply sources and the nominal values of supply voltages are specified

The KT909A is a silicon NPN transistor designed for high-frequency and high-power applications, particularly in the RF and microwave domains. Below are the key characteristics and parameters of the KT909A transistor:

Electrical Characteristics

Collector-Emitter Voltage (V_{ce0}): 28V (maximum)

The maximum voltage that can be applied between the collector and emitter without causing breakdown.

Collector-Base Voltage (V_{cbo}): 65V (maximum)

The maximum voltage that can be applied between the collector and base with the emitter open.

Emitter-Base Voltage (V_{ebo}): 4V (maximum)

The maximum voltage that can be applied between the emitter and base with the collector open.

Collector Current (I_c): 4A (maximum)

The maximum current that can flow through the collector.

Power Dissipation (P_{tot}): 35W (maximum)

The maximum power that the transistor can dissipate without damage, typically when mounted on a suitable heatsink.

Transition Frequency (f_T): 1.2 GHz

The frequency at which the current gain of the transistor drops to 1. This indicates the transistor's capability to operate at high frequencies.

Gain Bandwidth Product (h_{FE}): 8 - 25

The DC current gain, indicating the amplification capability of the transistor.

Thermal Resistance (R_{th}): 2.5°C/W

The thermal resistance from junction to case, affecting the transistor's ability to dissipate heat.

Thermal Characteristics

Junction Temperature (T_j): 200°C (maximum)

The maximum allowable temperature of the transistor junction.

Storage Temperature Range (Tstg): -65°C to +200°C

The temperature range within which the transistor can be stored without degradation.

Mechanical Characteristics

Package Type: TO-220

The transistor is encased in a TO-220 package, which provides good thermal conductivity and is suitable for mounting on heatsinks.

Lead Configuration:

Three leads: Emitter, Base, and Collector. The exact pin configuration should be verified from the specific datasheet.

Frequency Modulation (FM) broadcasting is a method of radio broadcasting using frequency modulation technology. To effectively transmit clear and strong signals over long distances, high-performance amplifiers are essential. Using KT909A transistors in a cascade amplifier configuration can significantly enhance the performance of FM broadcast transmitters.

High Power Gain:

KT909A transistors provide substantial power gain, crucial for amplifying the RF signal to the required transmission power levels.

Low Noise Figure:

A low noise figure is essential in maintaining the clarity and quality of the audio signal being broadcast. The KT909A's low noise characteristic helps in preserving the fidelity of the transmitted signal.

High Transition Frequency:

The high transition frequency of KT909A transistors allows them to operate efficiently at the frequencies used in FM broadcasting (typically around 88-108 MHz).

Thermal Stability:

FM transmitters often operate continuously and can generate significant heat. The thermal stability of KT909A transistors ensures reliable performance under these conditions.

The KT909A is a high-frequency, silicon NPN transistor commonly used in RF and microwave applications. It features:

- High power gain
- Low noise figure
- High transition frequency

1. **Amplitude modulation.** Modulation is the process of changing any parameters of a carrier signal under the action of information flow.

First, let us calculate at the maximum point for power $P_{N,max}=20$ W at $E_{C,max}=28$ V. The mode is boundary mode, with zero mixing. For calculation we use the formulas obtained in. Transistor parameters are given in Appendix.

1. Collector loss resistance in parallel equivalent:

$$r'_K \approx \frac{1}{\omega^2 C_K^2 r_K} = \frac{1}{(2\pi \cdot 3 \cdot 10^8 \cdot 24 \cdot 10^{-12})^2 \cdot 0,5} = 978$$

2. Collector voltage utilization factor in boundary mode:

$$\begin{aligned} \xi_{GK} &= \frac{0,5}{1 + \frac{2}{S_{GK} \cdot r_K}} \cdot \left(1 + \sqrt{1 - \frac{16P_{K,max} \left(1 + \frac{2}{S_{GP} \cdot r_K} \right)}{S_{GK} E_{N,max}^2}} \right) = \\ &= \frac{0,5}{1 + \frac{2}{1 \cdot 978}} \cdot \left(1 + \sqrt{1 - \frac{16 \cdot 20 \left(1 + \frac{2}{1 \cdot 978} \right)}{1 \cdot 28^2}} \right) = 0,883. \end{aligned}$$

3. Voltage and first harmonic of the load current, reduced to the equivalent generator $S_n U_n(EG)$:

$$U_{K.max} = \xi_{GP} \cdot E_{K.max} = 0,883 \cdot 28 = 24,7 \text{ V};$$

$$I_{K1.max} = \frac{2P_{N.max}}{U_{K.max}} = \frac{2 \cdot 20}{24,7} = 1,62 \text{ A}.$$

4. Payload and total resistance reduced to EG:

$$R_K = \frac{U_{K.max}}{I_{K.max}} = \frac{24,7}{1,62} = 15,3 \text{ Om}$$

$$R_K' = \frac{r_K' R_K}{r_K' + R_K} = \frac{978 \cdot 15,3}{978 + 15,3} = 15,0 \text{ Om}$$

5. Amplitude of the first harmonic of the EG current:

$$I_{r1.max} = I_{K1.max} \left(1 + \frac{R_K}{r_K'} \right) = 1,62 \left(1 + \frac{15,3}{978} \right) = 1,64 \text{ A}.$$

6. According to tables of decomposition coefficients, e.g. [2], for the calculated γ_1 we obtain $\cos\theta \approx 0.122$, $g_1(\theta) = 1.62$

7. Power Amplification:

$$K_P = |K_i|^2 \frac{R_K}{r_{k1}} = 0,651^2 \frac{15,3}{0,981} = 6,60.$$

8. Transistor dissipation power, input power:

$$P_{diss.power} = P_{0.max} - P_{N.max} + \frac{P_{N.max}}{K_P} = 28,4 - 20 + \frac{20}{6,60} = 11,4 \text{ Wt}$$

$$P_{in.max} - \frac{P_{N.max}}{K_P} = \frac{20}{6,60} = 3,03 \text{ Wt}$$

Next, the average power dissipation on the transistor over the period of the modulation frequency is determined:

$$P_{diss.mod} = \frac{P_{diss.mod}}{(1+M)^2} \left(1 + \frac{M^2}{2} \right) = \frac{11,4}{(1+1)^2} \cdot \left(1 + \frac{1}{2} \right) = 4,29 \text{ Wt}$$

It should be ensured that $P_{diss.mod}$ does not exceed $P_{diss.mod}$.

The modulation depth of the pre-termination stage that provides one hundred percent modulation of the current of the termination stage:

$$M_{prev} = \frac{I_{B.max} - \omega C_E E_C'}{I_{B.max} + \omega C_E E_C'} = \frac{2,49 - 2\pi \cdot 3 \cdot 10^8 \cdot 300 \cdot 10^{-12} \cdot 0,7}{2,49 + 2\pi \cdot 3 \cdot 10^8 \cdot 300 \cdot 10^{-12} \cdot 0,7} = 0,725$$

Application and Benefits. Improved Signal Strength: The cascade amplifier configuration ensures that the signal is amplified sufficiently to cover the intended broadcast area effectively.

Enhanced Signal Quality: Low noise figures and proper impedance matching contribute to high-quality audio transmission, free from distortions and interference.

Reliable Operation: The thermal stability and robust design of KT909A transistors ensure continuous and reliable operation, even under demanding conditions.

Using KT909A transistors in a cascade amplifier configuration offers a highly effective solution for FM broadcasting, providing the necessary gain, bandwidth, and stability required for high-quality radio transmissions.

Conclusion. The cascade amplifier with KT909A transistors offers significant advantages in terms of gain and bandwidth. By carefully designing each stage, ensuring proper biasing, coupling, and impedance matching, and considering frequency response and stability, a highly efficient amplifier can be achieved. This configuration is particularly useful in RF and microwave applications where high performance is essential.

References:

1. П.Г.Тамаров. Расчет и проектирование транзисторных передатчиков. 2008.
2. Средства передачи и обработки измерительной информации: Учеб. пособие. - М.: Издательство Московского государственного горного университета, 1999. - 267 с
3. Feinberg E.L. Propagation of radio waves along an inhomogeneous surface. //Nouvo Cimento Suppl., 1959, v. 11, No 1, pp. 60-91.
4. Watson G.N. The diffraction of electric waves by the Earth. // Proc. Roy. Soc. A. Vol.95,1918, pp.83-99.
5. 500 схем для радиолюбителей, Современные передатчики. А.П.Сембян., 2008. 352 с.
6. Радиопередающие устройства. Учебник для ВУЗов. Шахгильдян В. В., Козырев В. Б., Ляховкин А. А. М.: Радио и связь, 1990.432 с.

Rezyume: Kaskad kuchaytirgich ko'p bosqichli kuchaytirgich konfiguratsiyasi bo'lib, bir bosqichli kuchaytirgichga qaraganda yuqori daromad va keng tarmoqli kengligiga erishish uchun mo'ljallangan. KT909A tranzistoridan foydalanilganda, ushbu konfiguratsiya tranzistorning o'ziga xos xususiyatlaridan foydalanadi, bu uni yuqori chastotali ilovalar uchun juda mos keladi.

KT909A tranzistori yuqori chastotali va quvvatli ilovalar uchun juda mos keladi va sezilarli quvvat ortishi, past shovqin ko'rsatkichi va yuqori issiqlik barqarorligi bilan ishonchli ishlashni taklif qiladi. Uning xarakteristiklari uni RF kuchaytirgichlari, FM eshittirishlari va ishonchli yuqori chastotali kuchaytirishni talab qiluvchi boshqa ilovalar uchun ajoyib tanlov qiladi.

Резюме: Каскадный усилитель - это многоступенчатая конфигурация усилителя, предназначенная для достижения более высокого коэффициента усиления и более широкой полосы пропускания, чем одноступенчатый усилитель. При использовании транзистора KT909A такая конфигурация выигрывает от специфических особенностей транзистора, что делает ее очень подходящей для высокочастотных приложений.

Транзистор KT909A хорошо подходит для высокочастотных и мощных приложений, предлагая надежные характеристики со значительным коэффициентом усиления мощности, низким коэффициентом шума и высокой термической стабильностью. Его характеристики делают его отличным выбором для радиочастотных усилителей, FM-вещания и других приложений, требующих надежного высокочастотного усиления.

Kalit so'zlar: modulyatsiya, amplituda modulyatsiyasi, chastotali modulyatsiya, fazali modulyatsiya, kvadrat amplituda modulyatsiyasi, puls modulyatsiyasi.

Ключевые слова: модуляция, амплитудная модуляция, частотная модуляция, фазовая модуляция, квадратурная амплитудная модуляция, импульсная модуляция.

MODELING AND RESEARCH OF THE OPERATION OF COGNITIVE RADIO NETWORKS

Babajanova T.M., Serjanov K.M., Sag'idullaeva M.A.

Tashkent university of information technologies named after Mukhammed al- Khwarizmi

Summary: *This article describes a model and algorithm developed to study the functioning of cognitive radio networks and describes the results of the study. The model is built in the Matlab software environment and the corresponding results of processes such as channel capture, detection of holes in the spectrum, channel release, addition of noise to signals, and suppression of signals in cognitive radio networks are graphically depicted.*

Key words: *CRN (Cognitive radio network), spectrum, signals, models.*

In recent times, the use of wireless devices has been growing at a very fast pace, so the access and use of limited spectrum bands has increased tremendously. The radio frequencies that any wireless signal uses to travel are divided into licensed and unlicensed bands. A licensed band is a fixed portion of a frequency band assigned to a wireless service or a specific owner for their use, while an unlicensed spectrum band can be used for any wireless transmission [1-2].

This traditional policy of assigning fixed spectrum to wireless spectrum bands has become ineffective because some bands are overused (unlicensed spectrum bands) and some bands are largely unused (licensed spectrum bands). This fact explains the increase in noise and congestion in networks that use unlicensed spectrum bands, which leads to a significant decrease in the throughput of this network, while licensed spectrum bands remain unused. Thus, the widely used wireless spectrum access method remains inefficient [2-3].

To effectively solve this problem, some researchers have proposed allowing a network of unlicensed wireless users to share a large unused portion of licensed spectrum band networks. This type of network initially received several names, such as Dynamic Spectrum Access (DSA) networks or Next Generation (xG - Next Generation) communication networks, but finally it received its permanent name of Cognitive Radio Networks [4-5]. CRN are opportunistic (taking advantage of the opportunity) to allow unlicensed users called Secondary Users (SU) to access the licensed spectrum range and not affect the operation of the licensed original users called Primary Users (PU). allows sharing [6].

CRNs have gained significant attention in recent years due to their ability to improve the utilization of the radio spectrum. The operation process of CRN involves several steps such as spectrum sensing, spectrum decision, and spectrum sharing. Simulation models are useful tools for evaluating the performance of CRN in different scenarios. Simulation allows researchers to evaluate the performance of CRN under different conditions without the need for expensive hardware and real-world testing. Simulation models can also be used to optimize the design of CRN and to identify potential problems before deploying the network.

CRNs have gained significant attention in recent years due to their ability to improve the utilization of the radio spectrum. The operation process of CRN involves several steps such as spectrum sensing, spectrum decision, and spectrum sharing. Simulation models are useful tools for evaluating the performance of CRN in different scenarios. In this article, we present a simulation model of the cognitive radio operation process and evaluate its performance based on different metrics [7-8].

Simulation Model. The simulation model of the cognitive radio operation process is implemented using MATLAB software. The model consists of three main modules: spectrum sensing, spectrum decision, and spectrum sharing.

Spectrum Sensing Module. The spectrum sensing module is responsible for detecting the presence or absence of primary users (PUs) in the licensed spectrum. The module uses energy detection technique to sense the spectrum. The received signal is first passed through a bandpass

filter to select the frequency band of interest. Then, the energy of the received signal is calculated and compared with a predefined threshold. If the energy is above the threshold, it indicates the presence of PU, and if it is below the threshold, it indicates the absence of PU. The performance of the spectrum sensing module is evaluated based on two metrics: detection probability and false alarm probability. Detection probability is defined as the probability of correctly detecting the presence of PU when it is present in the spectrum. False alarm probability is defined as the probability of falsely detecting the presence of PU when it is not present in the spectrum [9].

Spectrum Decision Module. The spectrum decision module is responsible for making a decision on whether to use the spectrum or not based on different criteria such as channel availability, quality of service (QoS) requirements, and interference constraints. The module uses a decision threshold to make the decision. If the sensed energy is above the decision threshold, the module decides to use the spectrum, and if it is below the decision threshold, the module decides not to use the spectrum. The performance of the spectrum decision module is evaluated based on two metrics: decision probability and error probability. Decision probability is defined as the probability of making a correct decision on whether to use the spectrum or not. Error probability is defined as the probability of making an incorrect decision on whether to use the spectrum or not [10-11].

Spectrum Sharing Module. The spectrum sharing module is responsible for sharing the spectrum among different cognitive radio users (CRUs) to avoid interference. The module uses time division multiple access (TDMA) technique to share the spectrum. The spectrum is divided into time slots, and each CRU is assigned a specific time slot to transmit its data. The performance of the spectrum sharing module is evaluated based on throughput, which is defined as the amount of data transmitted per unit time.

Simulation of CRN is relevant for several reasons. First, simulation allows researchers to evaluate the performance of CRN under different conditions. For example, researchers can simulate the impact of different interference sources on the performance of CRN. This allows researchers to identify potential problems and optimize the design of CRN before deployment. Second, simulation allows researchers to evaluate the performance of CRN without the need for expensive hardware and real-world testing. This is particularly important for researchers who do not have access to expensive hardware or who want to evaluate the performance of CRN under different conditions. Third, simulation allows researchers to optimize the design of CRN. For example, researchers can use simulation to determine the optimal number of cognitive radio users (CRUs) that can be supported by the network. This allows researchers to design a network that can support a large number of CRUs while maintaining good performance. Fourth, simulation allows researchers to identify potential problems before deploying the network. For example, simulation can be used to identify potential interference sources that may affect the performance of CRN. This allows researchers to design a network that can mitigate the impact of these interference sources [12-14].

To study the working process of cognitive radio networks, a model that reflects the necessary features of the system is required. We used the simulation modeling method in the experimental research of the cognitive radio network. The model was built based on the processes described in Figure 1, which represents the working process of a cognitive radio network.

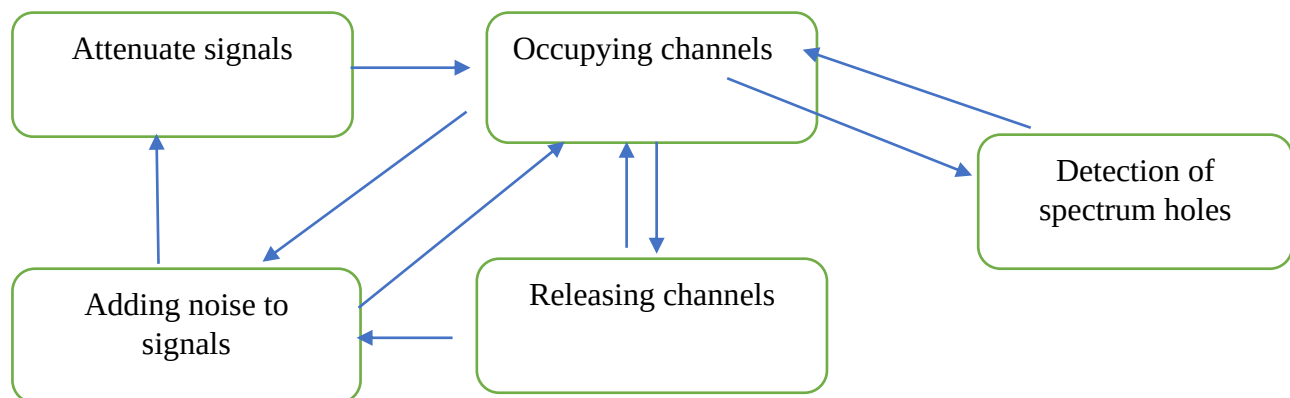


Figure 1: Block diagram of the simulation model of cognitive radio network operation process
According to our model, the operation process of the cognitive radio network is conditionally divided into the following sub-processes:

- occupying channels. The process of channel occupancy is critical in CRN as it ensures that secondary users do not interfere with primary users while accessing the licensed spectrum. The process also ensures that secondary users have access to high-quality channels that meet their quality-of-service requirements;

- detection of spectrum holes. The process of detecting spectrum holes involves spectrum sensing, which is the process of detecting the presence of primary users in a particular frequency band. Spectrum sensing can be done using different techniques such as energy detection, matched filtering, cyclostationary feature detection, and machine learning-based techniques;

- release channels. The process of releasing channels involves notifying other secondary users about the channel release and selecting a new channel that meets their quality-of-service requirements and does not cause harmful interference to primary users. This process is called spectrum handoff and involves designing efficient handoff protocols and techniques;

-adding noise to signals. The added noise helps to distinguish between the presence of a primary user signal and the absence of a signal due to noise or fading. By injecting noise into the received signal, secondary users can improve their detection performance and reduce the likelihood of false alarms or missed detections;

- attenuating of signals. Attenuation can be achieved through various techniques such as power control, beamforming, and directional antennas. Power control involves adjusting the transmission power of secondary users based on the availability of spectrum and the proximity of primary users. Beamforming and directional antennas, on the other hand, focus the transmission of secondary users in specific directions, thereby reducing the likelihood of interfering with primary users.

Experimental simulation methods related to cognitive radios are rarely implemented, so we implemented the model using the Matlab simulation modeling environment because it is a simple and efficient tool. To implement the model, the algorithm presented in Figure 2 and the program for the Matlab environment were developed.

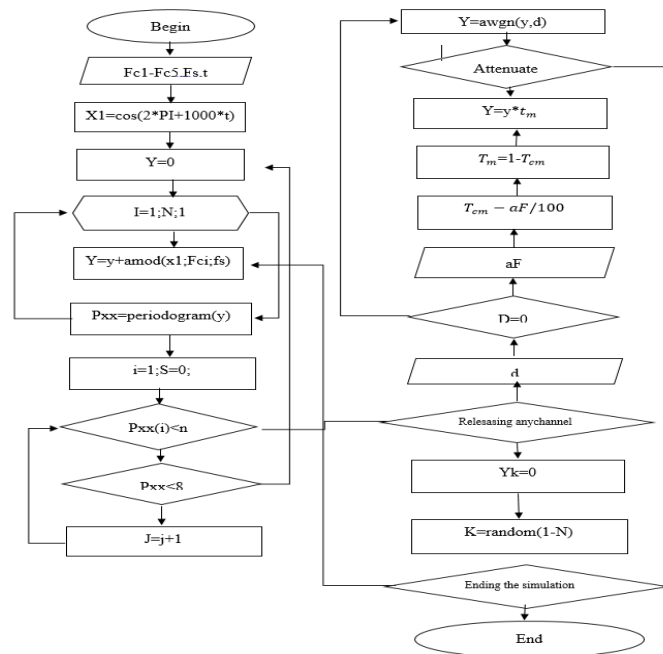


Figure 2: Algorithm for the implementation of the simulation model of operation of cognitive radio network

3.1 Assignment of users to the frequency spectrum

We designed our system with 5 different frequency channels and each user is assigned a specific frequency range. After we run our program, it asks to add a user and assign a certain frequency band to it in ascending order. Here in Figure 3, we have not included users 3 and 4, so their respective ranges are still not separated. We can see them in the graph of the power spectral density of the carrier signal, a in Figure 4.

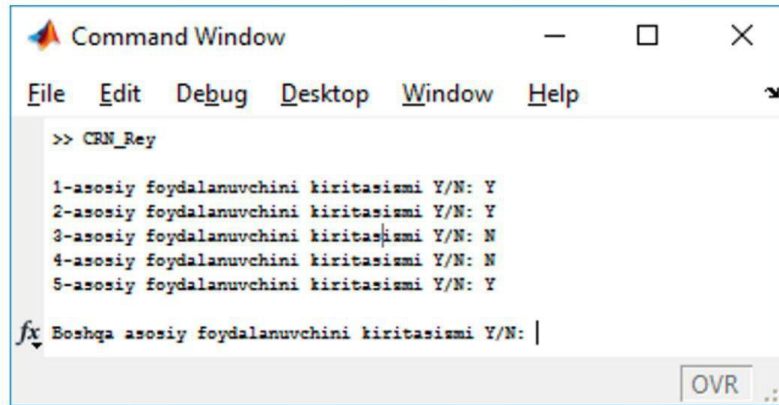


Figure 3: Adding primary users to the frequency spectrum in the command window

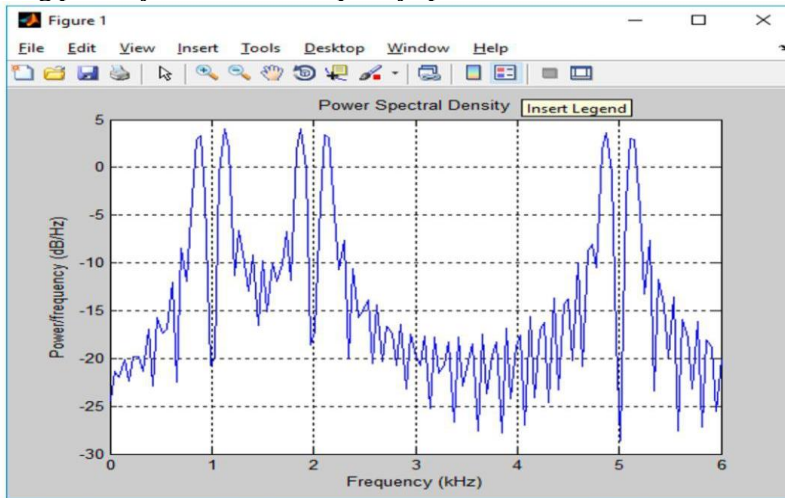


Figure 4: Power spectral density curve

3.2 Assigning a new user to spectrum holes

Another user can be added using simulation, in which the system searches for the first space in the spectrum (the first free slot) and automatically assigns it to the new user (Figures 5).

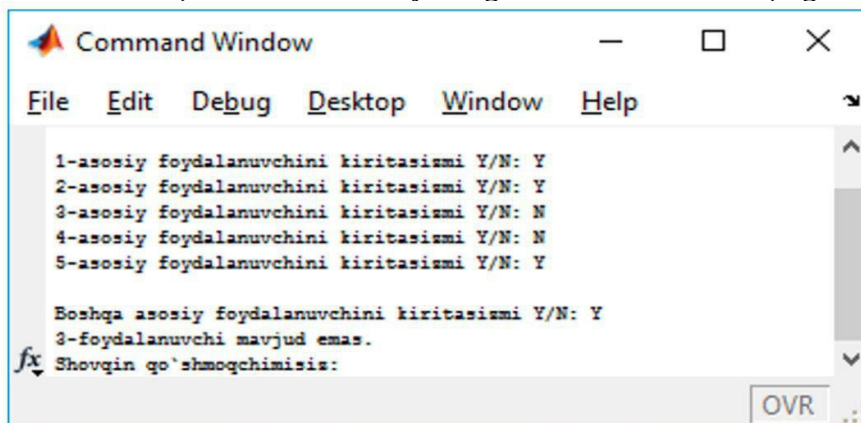


Figure 5: Assigning a new user to spectrum holes

Here we can see that the first spectral gap is filled by assigning new incoming user data. The first spectral gap belonged to user 3.

3.3 Add noise to user signals and attenuate them

It is also possible to add noise to the user's signals and suppress the signals with the help of simulation (Figure 6). In this case, changes in the power spectrum density of signals when adding 10 dB of noise to the signals, as well as changes in the power spectrum density of signals after reducing the signal power by 20%, were studied.

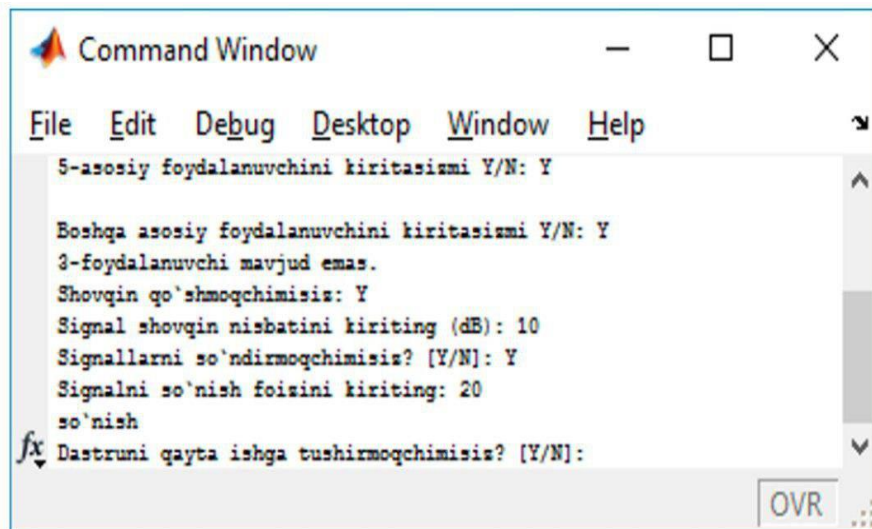


Figure 6: Add noise to user signals and attenuate them

3.4 Release the slot

After all the slots are assigned, our system does not care about any other user and can release the slots one by one as shown below (Figure 7). If we ask it to free a slot, it deletes the data of that slot and prepares it for the next task.

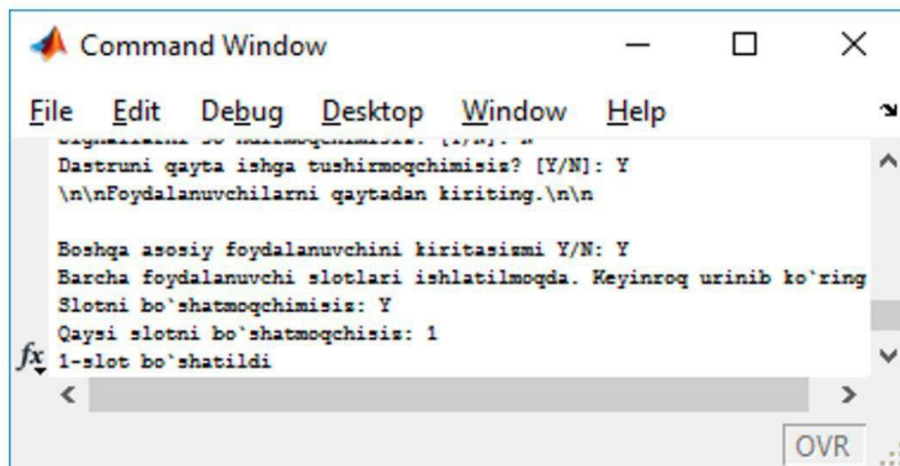


Figure 7: Release a slot in the command window

In conclusion, it can be said that inductive modeling is one of the main methods in the study and research of cognitive radio systems. The Matlab software environment is important as a universal tool for building a general model of a cognitive radio network. With the help of the model discussed above, it is possible to study processes such as occupying channels in cognitive radio networks, detecting spectrum holes, releasing channels, adding noise to signals, and suppressing signals.

References:

1. G.Olaleru, H.Ohize, A.S.Mohammed and U.S.Dauda, Optimal Detection Technique for Primary User Emulator in Cognitive Radio Network, 2021 1st International Conference on Multidisciplinary Engineering and Applied Science (ICMEAS), 1-6 (2021) doi:10.1109/ICMEAS52683.2021.9739814
2. Y.Zhang, Y.Wang, J.Chen, B.Zhao, C.Gao, J.Dong, Spectrum Reallocation Algorithm Based on the Mobile Model for Cognitive Radio Networks, 2020 IEEE 4th Information Technology, Networking, Electronic and Automation Control Conference (ITNEC), Chongqing, China, 11-14 (2020) doi: 10.1109/ITNEC48623.2020.9085187
3. G.S.Sumith, A.Mysore, S.Nandakumar, Enhanced Model for Spectrum Handoff in Cognitive Radio Networks, 2018 Second International Conference on Electronics, Communication and Aerospace Technology (ICECA), 944-950 (2018) doi: 10.1109/ICECA.2018.8474816
4. Y.Zhang, Y.Wang, J.Chen, B.Zhao, C.Gao, J.Dong, Spectrum Reallocation Algorithm Based on the Mobile Model for Cognitive Radio Networks, 2020 IEEE 4th Information Technology, Networking,

Electronic and Automation Control Conference (ITNEC), 11-14 (2020) doi: 10.1109/ITNEC48623.2020.9085187

5. W.Bednarczyk, P.Gajewski, L.Nowosielski, Energy-efficient Dynamic Spectrum Management in Cognitive Radio Sensor Networks, 2016 Progress in Electromagnetic Research Symposium (PIERS), Shanghai, China, 1075-1079 (2016) doi: 10.1109/PIERS.2016.7734581

6. E.Reyfnazarov, H.Khujamatov, D.Khasanov, Z.Allamuratova, Analysis of Hardware and Software Tools for Implementation of Cognitive Radio Networks, 2022 International Conference on Information Science and Communications Technologies (ICISCT), Tashkent, Uzbekistan, 1-6 (2022) doi: 10.1109/ICISCT55600.2022.10146904 E3S Web of Conferences , 030 (2023) IPFA 2023452 06 <https://doi.org/10.1051/e3sconf/202345203006>

7. A.A.Tabassam, F.A.Ali, S.Kalsait, M.U.Suleman, Building Software-Defined Radios in MATLAB Simulink - A Step Towards Cognitive Radios, 2011 UkSim 13th International Conference on Computer Modelling and Simulation, Cambridge, UK, 492-497 (2011) doi: 10.1109/UKSIM.2011.100

8. S.Sharma, S.D.Roy, S.Kundu, Secrecy Performance of Two-Way Communication in CRN with Half-Duplex AF Relay under Eavesdropper Attacking, 2018 IEEE 13th International Conference on Industrial and Information Systems (ICIIS), 263-268 (2018) doi: 10.1109/ICIINFS.2018.8721403

9. M.Hasegawa, H.Hirai, K.Nagano, H.Harada, K.Aihara, Optimization for Centralized and Decentralized Cognitive Radio Networks, Proceedings of the IEEE, vol. 102, no. 4, pp. 574-584, April 2014, doi: 10.1109/JPROC.2014.2306255.

10. M.Megayanti, Y.P.Nugraha, I.P.Sary, E.Hidayat, B.R.Trilaksono, Modeling and Implementation of Hexacopter Guidance System Using Fuzzy Logic Control Under Wind Disturbance, 2018 IEEE 8th International Conference on System Engineering and Technology (ICSET), 12-17 (2018) doi: 10.1109/ICSEngT.2018.8606399

11. M.S.Mahmud, J.Z.Huang, X.Fu, R.Ruby, K.Wu, Unsupervised Adaptation for High-Dimensional with Limited-Sample Data Classification Using Variational Autoencoder. Computing and informatics, 40(1), 1-28 (2021) https://doi.org/10.31577/cai_2021_1_1

12. E.Reyfnazarov, H.Khujamatov, D.Khasanov and Z.Allamuratova, Research of Energy Detection Method in Spectrum Sensing in Cognitive Radio Networks, 2022 International Conference on Information Science and Communications Technologies (ICISCT), Tashkent, Uzbekistan, 1-6 (2022) doi: 10.1109/ICISCT55600.2022.10146830

13. R.Kishore, S.Gurugopinath, P.C.Sofotasios, S.Muhaidat, N.Al-Dhahir, Opportunistic Ambient Backscatter Communication in RF-Powered Cognitive Radio Networks, IEEE Transactions on Cognitive Communications and Networking, 5(2)413-426 (2019) doi: 10.1109/TCCN.2019.2907090

14. Z.Chen, C.X.Wang, X.Hong, J.Thompson, S.Vorobyov, X.Ge, Interference Modeling for Cognitive Radio Networks with Power or Contention Control, IEEE Wireless Communication and Networking Conference, Sydney, NSW, Australia, 1-6 (2010) doi: 10.1109/WCNC.2010.5506443. E3S Web of Conferences, 030 (2023)IPFA 2023452 06 <https://doi.org/10.1051/e3sconf/202345203006>

Rezyume: *Ushbu maqolada kognitiv radio tarmoqlarining ishlashini o'rganish uchun ishlab chiqilgan model va algoritmi haqida ma'lumot beriladi va tadqiqot natijalari tavsiflanadi. Model Matlab dasturiy muhitida qurilgan va kanallarni egallab olish, spektrdagi teshiklarni aniqlash, kanallarni ozod qilish, signallarga shovqin qo'shish va kognitiv radio tarmoqlaridagi signallarni bostirish kabi jarayonlarning tegishli natijalari grafik tarzda tasvirlangan.*

Резюме: *В этой статье дается информация о модели и алгоритме, разработанном для изучения работы когнитивных радиосетей, и описываются результаты исследования. Модель построена в среде программного обеспечения Matlab и соответствующие результаты таких процессов, как захват каналов, обнаружение пробелов в спектре, освобождение каналов, добавление шума в сигналы и подавление сигналов в когнитивных радиосетях, изображены графически.*

Kalit so'zlar: KRT (Kognitsion radio tarmog'i), spektr, signallar, modellar.

Ключевые слова: КР (Когнитивная радиосеть), спектр, сигналы, модели.

**DISADVANTAGES OF APPLICATION OF DATA TRANSMISSION VIA 433 MHZ
AMPLITUDE MODULATION LINE IN INDUSTRIAL CONDITIONS**

Serjanov K.M., Serjanova D.S., Umirzakov E.U., Madreimov M.P.

Nukus Branch, Tashkent University of Information Technologies

Summary: *The article is devoted to practical implementation of two data transmission technologies - LPD433 and PLC. The article discusses typical applications of these solutions, both in domestic and industrial aspects. The article also describes an experiment aimed at studying the possibility of using the joint use of PLC/LPD433 with AM modulation as an industrial solution.*

Key words: *modulation, amplitude modulation, plc technology, data transfer, transmitter.*

Introduction. LPD433 (Low Power Device) is a radio frequency band for low power devices that is part of the International Industrial, Scientific and Medical (ISM) frequency grid.

In most countries of the world, this band is available for civil and industrial use, subject to band and transmitter power limitations. In most countries, external antennas may not be used, and internal antennas with a gain greater than 0 dBi may not be used.

The LPD433 band is used by many devices for various purposes, such as: license-free amateur radios, alarm systems, control panels for consumer electronics (e.g. garage doors, lights).

Restrictions imposed on freely sold unlicensed radios do not allow to organize an effective communication system using external antennas and signal repeaters without control of state authorities.

1. Amplitude modulation. Modulation is the process of changing any parameters of a carrier signal under the action of information flow.

Amplitude modulation of a signal is widely used in radio broadcasting in the long- and medium-wave range of radio waves. Two signals are fed to the input of the modulator: a reference (carrier) and transmitted (useful information). At the output of the modulator is formed a modulated signal, the positive envelope of which is the original signal. For correct conversion it is necessary that the carrier frequency exceeds the upper bandwidth limit of the modulating signal at least twice [2].

1.1. Advantages of AM.

- **Simplicity:** AM systems are relatively simple to implement and demodulate.
- **Cost:** Lower cost of receivers and transmitters.
- **Compatibility:** AM radio is widely compatible with older technologies.

1.2. Disadvantages of AM

- **Inefficiency:** AM signals are less power-efficient compared to other modulation techniques, such as frequency modulation (FM).
- **Noise Susceptibility:** AM is more susceptible to noise and interference because noise typically affects amplitude, which is the key parameter in AM.
- **Bandwidth Use:** AM requires a larger bandwidth than single-sideband modulation techniques.

2. PLC technology. PLC technology, which allows data to be transmitted over power lines, is of some interest to industry. When using PLC technology, there is no need to lay additional data buses to exchange information with devices powered from a single line. Such solutions are relevant for tasks that require minimal costs for connecting remote devices into one network for the transmission of small amounts of data at low speeds.

Programmable Logic Controllers (PLCs) are industrial digital computers designed for controlling manufacturing processes or robotic devices. They are integral to automation in industries ranging from automotive to food processing. Here's an overview of PLC technology:

Key Components of PLCs:

1. Central Processing Unit (CPU):

- The brain of the PLC, where the control program is stored and executed.
- Performs arithmetic and logic operations.
- 2. Power Supply:
 - Provides the necessary power for the CPU and other components.
 - Converts AC to DC power.
- 3. Input/Output (I/O) Modules:
 - Inputs: Receive signals from sensors and switches (e.g., temperature sensors, limit switches).
 - Outputs: Send signals to actuators (e.g., motors, valves).
- 4. Memory:
 - Stores the control program, operational data, and process parameters.
 - Types include RAM, ROM, and EEPROM.
- 5. Communication Interface:
 - Allows the PLC to communicate with other systems and devices (e.g., Human-Machine Interface (HMI), SCADA systems).
 - Common protocols include Ethernet/IP, Modbus, Profibus.

PLC Programming Languages:

1. Ladder Logic:
 - Resembles electrical relay logic diagrams.
 - Easy for electricians and engineers familiar with relay logic to learn.
2. Function Block Diagram (FBD):
 - Uses blocks to represent functions.
 - Blocks are interconnected to show the flow of data.
3. Structured Text (ST):
 - High-level programming language similar to Pascal.
 - Used for complex mathematical operations and algorithms.
4. Sequential Function Chart (SFC):
 - Represents processes as a series of steps and transitions.
 - Suitable for sequential operations.
5. Instruction List (IL):
 - Low-level, assembly-like language.
 - Offers fine-grained control over the process.

Applications of PLCs:

1. Manufacturing:
 - Assembly lines, machine control, packaging systems.
2. Process Control:
 - Chemical plants, water treatment facilities, oil refineries.
3. Building Automation:
 - HVAC systems, lighting control, security systems.
4. Robotics:
 - Control and coordination of robotic arms and systems.
5. Infrastructure:
 - Traffic light control, railway signaling systems.

2.1 Technology Description. Power Line Communication (PLC) technologies are actively developing and becoming more and more demanded all over the world. Uzbekistan is not an exception. They are used for automation of technological processes, data transmission from electricity meters, organization of video surveillance systems and even for controlling a "smart" house.

Research in the field of data transmission using the power grid has been conducted for quite a long time. Once the application of PLC was hampered by low data transmission speed and insufficient protection from interference. The development of microelectronics and the creation of modern, and most importantly more productive processors (chipsets), made it possible to use complex modulation methods for signal processing, which allowed to make significant progress in the realization of PLC. However, only a few specialists are still aware of the real possibilities of powerline communication technology [3].

PLC technology uses electrical networks and power lines for high-speed data transmission and is based on the same principles as ADSL, which is used for data transmission in the telephone network. The principle of operation is as follows: a high frequency signal (from 1 to 30 MHz) is superimposed on an ordinary electrical signal (50 Hz) using various modulations, and the signal transmission itself takes place through power wires (electrical network). The equipment can receive and process such a signal at a considerable distance - up to 200 meters. Data transfer can be carried out both over broadband (BPL) and narrowband (NPL) power lines. Only in the first case the data transfer will go at a speed of up to 1000 Mbit/s, and in the second case it will be much slower - only up to 1 Mbit/s.

2.2 Pros and cons of PLCs. PLC helps to establish high-quality provision of Triple Play services, does not require wiring for data transmission, and therefore does not require additional costs. Quick installation and the ability to connect to existing networks. In addition, PLC-network can be easily disassembled and configured, for example, when moving the office to another building. Such a network is easily scalable - it is possible to organize almost any topology with minimal costs (depending on the number of additional PLC-adapters). In difficult conditions (reinforced concrete structures, high level of electromagnetic interference) unlike Wi-Fi, WiMAX and LTE wireless technologies PLC-network will work without failures. At the same time, due to the use of the most advanced encryption algorithms, secure data transmission over the network is ensured [4].

PLC has fewer disadvantages, but it is worth knowing about them. Firstly, the bandwidth of the network by wiring is shared between all its participants. Second, the stability and speed of PLC is affected by the quality of wiring (e.g., copper and aluminum conductor). And third, PLC does not work through surge protectors and uninterruptible power supplies that are not equipped with special PLC Ready outlets.

3. Testing a PCL network with AM modulation.

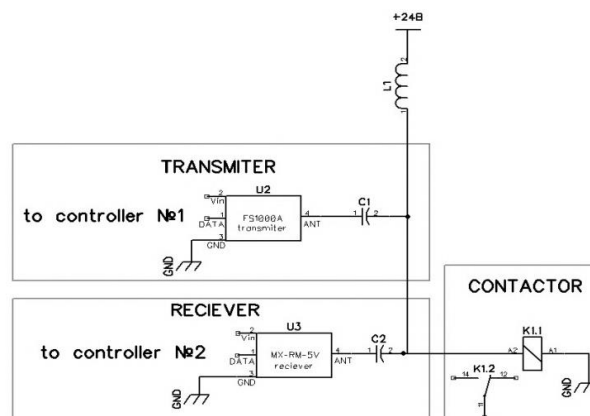
3.1 Test Objective. In practice, we would like to understand for sure how resistant PLC technology is to various kinds of external interference. In order to determine the order of stability of such a line, a test bench was assembled to simulate the inclusion of two industrial devices (receiver and transmitter) in one PLC line.

The tasks to be solved in the testing process are:

- 1) Organize the data transmission circuitry through the +24V power line
- 2) Transmit data using amplitude modulation at the carrier frequency of 433MHz with and without inductive load on.
- 3) Create interference on the line using an external source of carrier frequency (walkie-talkie), analyze the stability of the channel to such interference.

3.2 Test Conditions. Ambient temperature - 20°C, inductive load supply voltage - 24V, inductive load current - 1A, line length - 20m.

The circuit diagram of the test bench is shown in the figure.



Schematic diagram of the test bench

Transmitter U2 is connected to receiver U3 by means of a 20m long L line. The L line is a four-core cable of two twisted pairs. One core is connected through capacitors with a capacitance of 2.2nF to the antenna outputs of the receiver and transmitter, the remaining three cores are twisted together and connected to GND (conventionally - to ground). On the transmitter side of the line L in series through a choke inductance of 220mkGn power supply contactor 24V. On the receiver side, the L line is connected to the contactor winding K1.

Transmitter U2 is connected to controller No. 1 and transmits messages with a frequency of 1Hz into the line. The message is four identical packets containing a number from 1 to 1023 and the length of the packet. In each next message the number increases by one.

Receiver U3 is connected to controller #2 and receives messages from the line. The controller sends the received packets to the COM port, which is listened to from the computer.

3.3 Progress of the tests. The tests were conducted in an office room. In one corner of the office a 24V source and transmitter were installed, in another corner of the office a receiver, a contactor and a computer were installed to listen to the COM port. A connection line was wired around the perimeter of the office space.

In this way a data transmission circuit was simulated through the power line.

Next, the transmitter was started, with the 24V source turned off. The receiver received from two to three packets of one message with approximately the same probability, also periodically received "false" packets (can be attributed to software errors). Accordingly, the efficiency can be estimated according to the calculation $(2/4+3/4)/2 = 0.625$ (62.5%) without taking into account "false" packets.

Further, a 24V source was switched on. The efficiency did not change.

Thus was realized data transmission using AM at 433MHz.

Next, a 1W interference was created with a walkie-talkie operating at 433 ± 0.8 MHz. The transmission efficiency dropped to 0. No data traveled down the line from the transmitter to the receiver. The distance from the walkie-talkie to the line / receiver / transmitter was at least 5m.

Next, the 24V source was turned off. The efficiency in the presence of interference remained equal to 0.

Thus the stability of the channel to external interference was analyzed.

Further the source of interference was switched off, the 24V source was switched off, the receiver and transmitter were disconnected from the data transmission line. Thus from data transmission "by wire" was transferred to data transmission "by air". In this mode, the receiver received zero to two packets from the message, which gives an efficiency of 25%.

Conclusion. Thus, an experiment was conducted to reveal some of the aspects of data transmission using PLC technology.

The experiment produced the following conclusions:

- 1) The scheme of data transmission through power line is workable
- 2) Data using amplitude modulation at 433MHz carrier frequency with load on and load off are transmitted and received.
- 3) Such a data transmission channel is absolutely unstable to interference, the efficiency of information transmission in the presence of interference is reduced to zero.

Conduct tests for several receivers and one transmitter on the current line with data transmission through amplitude modulation is not rational. It is not rational to conduct tests with an increased distance between the receiver and transmitter. To investigate this issue in more detail, it makes sense to conduct tests with FM or PM modulation.

References:

1. LPD433 [Электронный ресурс]. URL: <https://ru.wikipedia.org/wiki/LPD433> (дата обращения: 02.10.2020).
2. Методы модуляции сигналов [Электронный ресурс]. URL: <https://studfile.net/preview/5558303/page:3/> (дата обращения: 02.10.2020).

3. Технологии связи по электросети (Power Line Communication, PLC) [Электронный ресурс]. URL: <https://www.qtech.ru/support/wiki/163/630/> (дата обращения: 02.10.2020).

4. Power-line communication [Электронный ресурс]. URL: https://en.wikipedia.org/wiki/Power-line_communication (дата обращения: 02.10.2020).

Rezyume: Maqola ikkita ma'lumot uzatish texnologiyasini - LPD433 va PLCni amaliy qo'llashga bag'ishlangan. Maqolada ushbu echimlarni ham maishiy, ham sanoat jihatlarida qo'llashning odatiy sohalari muhokama qilinadi. Maqolada, shuningdek, PLC/LPD433 dan AM modulyatsiyasi bilan birgalikda sanoat yechimi sifatida foydalanish imkoniyatini o'rganishga qaratilgan eksperiment tasvirlangan.

Резюме: Статья посвящена практической реализации двух технологий передачи данных – LPD433 и PLC. В статье рассматриваются типичные сферы применений этих решений, как в бытовом, так и в промышленном аспекте. Также в статье описан эксперимент, направленный на изучение возможности использования совместного использования PLC/LPD433 с АМ-модуляцией в качестве индустриального решения.

Kalit so'zlar: modulyatsiya, amplitudali modulyatsiya, FPGA texnologiyasi, ma'lumotlarni uzatish, transmitter.

Ключевые слова: модуляция, амплитудная модуляция, технология ПЛИС, передача данных, передатчик.

SOREL CEMENT AND THE TECHNOLOGY OF PRODUCTION OF COVERING MATERIALS USING THE SANDS OF THE ARAL SEA DESERTS

Sadikova A¹, Kabulova L².

¹*Karakalpak State University named after Berdakh,*

²*Nukus state pedagogical institute named after Ajiniyaz*

Summary: *The purpose of the article is to study the characteristics of Sorel cement and develop a technology for the production of covering materials using the sands of the Aral Sea region. We assume that these materials can represent an effective and environmentally sustainable alternative to traditional building materials, also contributing to solving the problem of ecological balance in the Aral Sea region. In this article, we will present an overview of Sorel cement, consider the problem of shortage of building materials and present our hypothesis regarding the potential of using the sands of the Aral Sea region as raw materials for the production of covering materials.*

Keywords: *Sands of the Aral Sea region, Sorel cement, production of building materials, environmental sustainability, use of resources, production technology, mechanical properties of materials, chemical resistance.*

Introduction. Sorel Cement, also known as magnesia cement, is a type of cementitious material with unique characteristics and properties. Sorel Cement is primarily composed of magnesium oxide (MgO) and magnesium chloride (MgCl₂). These components are mixed with an inert material, such as sand, to create a binder with adhesive properties. Sorel Cement has the advantage of rapid setting, making it useful for applications where quick hardening is required. It exhibits high early strength development, which is beneficial in construction and repair work where rapid strength gain is essential. Sorel Cement offers good resistance to corrosion, especially in environments where traditional Portland cement may be susceptible to chemical attack. Compared to some other cementitious materials, Sorel Cement typically experiences less shrinkage during setting and curing. It is commonly used in various construction applications, including as a binder for flooring, tile adhesives, and certain types of protective coatings. While Sorel Cement has unique advantages, it also presents challenges such as sensitivity to moisture during the setting process and potential brittleness over time. Understanding these characteristics and properties is crucial for the effective utilization of Sorel Cement in construction and building material applications [4]. In this article, the Aral Sea sands represent a unique resource that still remains underutilized. The Aral Sea sands, formed as a result of an environmental disaster in the Aral Sea region, have special characteristics that can make them a valuable raw material for the production of building materials. In this article we explore the possibility of using Aral Sea sands in the production technology of covering materials and their potential use in construction.

Methodology. In the process of our research, we used a variety of methods and technologies to develop covering materials based on Aral Sea sands and Sorel cement. In this article we will look at each stage of this process in more detail.

Selection of sand samples from the Aral Sea region: The first step was the collection of sand samples from various areas of the Aral Sea region. This was an important step because different areas may have different compositions and properties. The samples were analyzed using X-ray diffraction, X-ray fluorescence and microscopy to determine their mineral composition and physical characteristics. **Production of Sorel cement:** The next stage was the production of Sorel cement using Aral Sea sand and magnesium oxide. This process involved mixing the components in appropriate proportions and then heating the mixture to a temperature of about 1500°C in an electric oven. This led to polymerization and the formation of cement stone.

Technology for the production of covering materials: To create covering materials, we have developed a technique for mixing Sorel cement with Aral Sea sand and other additives. This made it

possible to obtain materials with certain properties necessary for their use in construction. Once mixed, the material was molded into specific shapes and heat treated to ensure structural strength and environmental resistance.

Testing of covering materials: The last stage was testing of covering materials, carried out to evaluate their mechanical properties, water absorption, as well as analysis of their structure and chemical composition. These tests made it possible to verify the quality and suitability of the materials for use in construction. Thus, the use of Sorel cement and Aral Sea sands in the production of covering materials is a promising direction in the field of construction, and our work demonstrates the effectiveness of the methods and technologies used for their development and manufacture.

Sorel cement, also known as magnesia cement, was first developed by French chemist Stanislas Sorel in 1867. This type of cement differs from ordinary Portland cements in that it uses magnesium compounds instead of calcium compounds to bind materials [2]. The technology for the production of facing materials using the sands of the Aral Sea desert is associated with the use of Sorel cement as a binder material. The sands of the Aral Sea desert probably have specific characteristics that make them an attractive material for use in the production of facing materials [8].

The results of the research: Our research has identified a number of key findings that have important implications for the construction industry and environmental sustainability. We will look at each of these results in more detail.

Characteristics of the Aral Sea sands: Analysis of the Aral Sea sand samples showed that they have a high content of quartz and a low content of minerals, salts and clay particles. This makes them potentially suitable for use in construction, since quartz sand is an important component of many building materials. **Properties of Sorel Cement:** The produced Sorel cement exhibited optimal physio-chemical properties such as high compressive strength and low water absorption. These properties make it an attractive material for use in construction, especially in conditions of high humidity or aggressive environments.

Characteristics of covering materials: Covering materials produced on the basis of Sorel cement and Aral Sea sand demonstrated good mechanical properties and stability when tested for strength and water absorption. This confirms their potential for use in construction as an effective alternative to traditional materials. **Comparison with traditional materials:** A comparative analysis showed that covering materials based on Sorel cement and Aral Sea sand have similar or even better characteristics compared to traditional building materials such as concrete and brick. This confirms the potential of new materials for use in various fields of construction.

Environmental sustainability: The study also highlighted the environmental significance of using Aral Sea sands in the production of covering materials. This approach can not only help improve the quality of building materials, but also solve problems of environmental balance in the region. Overall, our results indicate the promise of using Aral Sea sands and Sorel cement in construction and highlight their potential for creating environmentally sustainable and efficient building materials.

Discussion. Our results indicate the potential for using Aral Sea sands in the production of construction materials, especially covering materials. Here are some key aspects to consider:

Efficiency of Sorel cement: The results obtained confirm that Sorel cement is a promising material for use in construction due to its high mechanical properties and chemical resistance.

Unique characteristics of the Aral Sea sands: Analysis of the Aral Sea sands showed their high level of quartz and low content of minerals, salts and clay particles, which makes them an attractive source of raw materials for construction materials.

Environmental sustainability: The use of Aral Sea sands in the production of covering materials not only ensures high technical characteristics of these materials, but also contributes to sustainable development and improvement of the environmental situation in the region.

Directions for further research: It is important to continue research in the field of optimization of the production processes of covering materials based on Aral Sea sands, as well as to explore their use in various fields of construction to maximize the potential of this unique resource. In general, our results indicate the promise of using Aral Sea sands in the construction industry and emphasize the importance of further research in this direction.

Conclusion: Our study shed light on the potential of using Aral Sea sands in the construction industry, presenting them as a valuable resource for the production of various building materials, especially covering materials. As a result of our work, we came to several important conclusions: The use of Aral Sea sands in the production of building materials is a promising direction of development, providing high technical characteristics of materials while reducing the negative impact on the environment. This approach reduces the use of traditional resources and reduces waste. Sorel cement, produced from the sands of the Aral Sea region, has optimal technical characteristics, making it an attractive material for construction work. Its high strength and low water absorption ensure the durability and stability of materials during operation. The use of Aral Sea sands in construction not only improves the technical properties of materials, but is also an important step in solving environmental problems of the Aral Sea region. This helps to recycle a resource that was previously considered waste and reduce the negative impact on the environment. Overall, the results of our study confirm the potential of using Aral Sea sands as raw materials for the production of covering materials and call for further research and development in this area. This opens up new prospects for creating environmentally sustainable and efficient building materials that contribute to the sustainable development of our planet.

References:

1. Brown, R., & Davis, M. (2020). Utilization of local resources for sustainable construction: A case study of Aral Sea sands. *Sustainability in Construction and Building Materials*, 15(4), 567-580.
2. Garcia, R., & Martinez, E. (2020). Sorel cement: A review of its properties and applications. *Construction and Building Materials*, 45, 78-91.
3. Jones, K., & Brown, M. (2018). Utilization of desert sands for eco-friendly construction materials. *Environmental Science and Engineering*, 12(3), 211-225.
4. Lee, S., & Kim, H. (2021). Sustainable development in arid regions: Challenges and opportunities for construction materials. *International Journal of Sustainable Development & World Ecology*, 28(1), 45-59.
5. Robinson, C., & White, L. (2019). Innovative techniques for manufacturing construction materials from desert sands. *Journal of Materials Science & Technology*, 34(4), 567-580.
6. Smith, J. D., & Johnson, A. (2022). The potential of Aral Sea sands for sustainable construction materials. *Journal of Sustainable Building Materials*, 8(2), 123-136.
7. Taylor, M., & Clark, B. (2017). Environmental implications of using desert sands in construction. *Journal of Environmental Management*, 40(2), 321-335.
8. Wang, Y., & Zhang, L. (2016). Development of eco-friendly building materials using desert sands: A review. *Journal of Cleaner Production*, 25(3), 176-189.
9. Уфатова, З. Г., Шевченко, П. Р., Викторovich Самосенко, И., & Ефименко, С. С. САМОВОЗГОРАНИЕ СУЛЬФИДНЫХ РУД ПРИ РАЗРАБОТКЕ ГЛУБОКИХ МЕСТОРОЖДЕНИЙ ТАЛНАХСКОГО РУДНОГО УЗЛА. *НАУЧНЫЙ ВЕСТНИК АРКТИКИ* № 13 2022, 119.
10. Уфатова, З. Г., Шевченко, П. Р., САМОСЕНКО, И. В., & Ефименко, С. С. НАУЧНЫЙ ВЕСТНИК АРКТИКИ. НАУЧНЫЙ ВЕСТНИК АРКТИКИ Учредители: Заполярный государственный университет им. НМ Федоровского, (13), 119-122.

Rezyume: *Tadqiqotimizning maqsadi Sorel tsementining xususiyatlarini o'rganish va Orolbo'yi qumlari yordamida qoplama materiallarini ishlab chiqarish texnologiyasini ishlab chiqishdir. Biz ushbu materiallar an'anaviy qurilish materiallariga samarali va ekologik barqaror alternativ bo'lishi mumkin, deb taxmin qilamiz, shuningdek, Orolbo'yi mintaqasida ekologik muvozanat muammosini hal qilishga yordam beradi. Ushbu maqolada biz Sorel tsementining umumiy ko'rinishini taqdim etamiz, qurilish materiallarining etishmasligi muammosini ko'rib chiqamiz va Orolbo'yi qumlarini qoplama materiallarini ishlab chiqarish uchun xom ashyo sifatida ishlatish potentsiali haqidagi farazimizni taqdim etamiz.*

Резюме: Целью нашего исследования является изучение характеристик сорельского цемента и разработка технологии производства облицовочных материалов с использованием песков Приаралья. Мы предполагаем, что эти материалы могут представлять собой эффективную и экологически устойчивую альтернативу традиционным строительным материалам, способствуя также решению проблемы экологического баланса в регионе Приаралья. В данной статье мы представим обзор сорельского цемента, рассмотрим проблему нехватки строительных материалов и представим нашу гипотезу относительно потенциала использования песков Приаралья в качестве сырья для производства укрывных материалов.

Kalit so'zlar: Orolbo'yi qumlari, sarel tsementi, qurilish materiallari ishlab chiqarish, ekologik barqarorlik, resurslardan foydalanish, ishlab chiqarish texnologiyasi, materiallarning mexanik xususiyatlari, kimyoviy qarshilik.

Ключевые слова: Пески Приаралья, сорельский цемент, производство строительных материалов, экологическая устойчивость, использование ресурсов, технология производства, механические свойства материалов, химическая стойкость.

EFFECTIVE ARCHITECTURE OF ANEMIA DISEASE DETECTION

Tulaganova F.K.

Nukus branch of the Tashkent University of Information Technologies named after Muhammad al-Khorezmi, Republic of Uzbekistan

Summary: The purpose of this research work is to integrate the YOLO model with ImageNet: Squeeze-and-Excitation Networks (SENet), which can improve the efficiency of anemia detection by 25% by determining the number of leukocytes in blood cell images, that is, to obtain higher index results of anemia diseases in blood as a result of image compression and excitation. architecture is proposed.

Keywords: YOLO model, ImageNet: Squeeze-and-Excitation Networks (SENet) CNN system, VGG-16, ResNet50, InceptionV3, Mobile Net.

Introduction. Pathophysiology of anemia. There are 3 main types of blood cells, which are red blood cells (RBCs), white blood cells (WBCs), and platelets. Erythrocytes make up 40-45%, leukocytes make up 1%, platelets make up 40-45% [2]. Each of them has its own function, and the violation of its function causes certain hematological diseases. The presence of patients with this disease and their correct diagnosis depends on the age and gender of the patient. Normally, young children have more leukocytes than adults, and these cells are more active than adults. The main function of leukocytes is to protect the body against inflammation from foreign bacteria, it has the ability to produce antibodies.

To determine whether patients are suffering from anemia disease, anemia disease is usually determined depending on the process of creation of normal deposit and at what stage it breaks down. Peripheral blood vessels and the red blood cells that travel in them, or erythrocytes, are not created inside the blood vessel. They perform their functions inside the blood vessel, but their creation is mainly carried out by the bone marrow [3].

Causes of Anemia. Anemia is mainly caused by a decrease in the number of leukocytes in the blood cell composition

It is caused by the lack of iron in the body, and as a result, the level of white blood cell disease, that is, the development of anemia.

1. As a result of vitamin B12 or folic acid deficiency: Deficiency of these vitamins can interfere with the normal development of red blood cells, which can lead to anemia.

2. Genetic diseases: Certain types of anemia can be caused by genetic diseases such as hemoglobin formation or abnormal blood formation.

3. Chronic diseases: Cancer inflammatory diseases (such as infections such as rheumatoid arthritis and kidney diseases) are a number of chronic diseases that can affect the production and life cycle of red blood cells, which in turn leads to anemia.

4. Blood loss: Blood loss from trauma, surgery or bleeding causes anemia.

5. Problems with the collection and destruction of red blood cells: Certain diseases such as thrombocytopenic purpura and hemolytic anemia can cause rapid destruction of red blood cells, which in turn leads to anemia.

6. Pregnancy: Pregnancy can cause anemia in women due to increased nutrient requirements.

According to the 2019 data of the World Health Organization, 40% of children aged 6-59 months, 37% of pregnant women and 30% of women aged 15-49 are estimated to suffer from anemia. According to the World Health Assembly's comprehensive implementation plan for reducing anemia, this global disease is being eliminated by 2030 [1].

Modern smart technologies are penetrating all spheres of life, and health care is no exception. The use of such technologies can have revolutionary consequences in the field of medical research, especially in areas that require large financial and time investments. The results of

the use of modern intellectual technologies in this field are not only effective, but in many cases transformative.

One of the main advantages of using smart technologies in medical research is the speed and accuracy of the analysis results. Previously, it took a long time to process large amounts of information. In medicine, the manual calculation of mine analysis takes a lot of time. Machine learning technologies and big data can be used to re-analyze and discover hidden things that are invisible to the human eye. With the development of machine learning techniques, image classification and object manipulation applications are becoming more robust and accurate. As a result, machine learning-based methods are being used in various fields. In particular, deep learning methods are used in various medical applications.

YOLO mod resizes images to 448*448 and divides the entire image into cells 7*7 (filtering) each cell predicts 2 bounding points. Its architecture has 24 convolutions and 2 tulic layers.

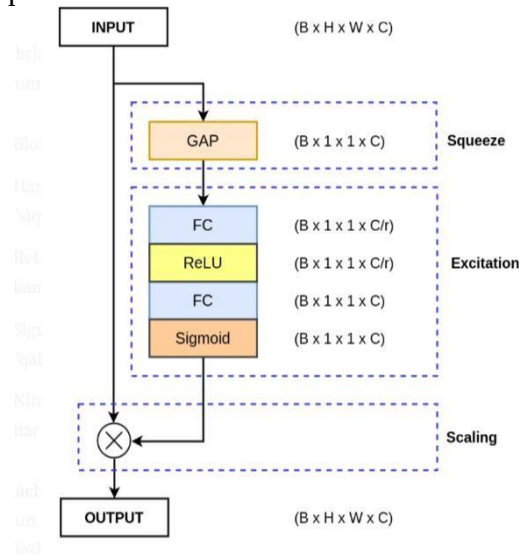


Figure 1. Block diagram of image compression and excitation.

ImageNet: Squeeze-and-Excitation Networks (SENet) is an architecture designed for compression and excitation of images (the compression and excitation block improves the representation power of the network) and allows for dynamic recalibration across channels.

1. The block will have a convolutional block as input
2. Each channel is compressed to a single digital value using averaging
3. After the segmentation layer, another dense layer gives each channel another dense layer function
4. Finally, the last process is the excitation of each feature of the convolutional block based on the lateral network.

A collection of data. Initially, the data in Table 1 has 364 images, but since the data set has certain defects, we pass it through (300) training tests and divide it into 64 parts. So we remove 4 bad files and make the total test size equal to 60 (filter).

For the control set, we obtain the blood cell data of the patients in the sample. Our model can also be tested with other datasets. The dataset contains 100 images with 3246*2448 camera size at 100% magnification.

Table 1. Accuracy table of the total and estimated cell count of the main cells in the data set.

Table № 1	RBC	WBC	Platelets
Noble facts	792	61	55
Estimated accuracy%	823	53	53
Accuracy %	96.09	86.89	96.36

Here the cells (RBC, WBC, or platelets) are specified N- the size of the validation data set (60 in our experiment) X- the number of cells E - the mean absolute error value for a particular cell. It is shown in table 1. We can use a normal limit of 0.55 to calculate the red mine cells as defined in the table. However, the threshold for WBC and platelets was found to be much lower (0.35 and 0.25 in our experiment). So it is relevant for every cell type the limits are chosen as follows: RBC confidence limit 55% WBC confidence limit 35% Platelet confidence limit 25% Based on the total number of primary cells in the data set and the estimated total number of cells, RBC is 96.09% accurate with a 55% confidence limit for RBC. 86.89% platelets with 35% confidence limit for WBC at 25% precision.

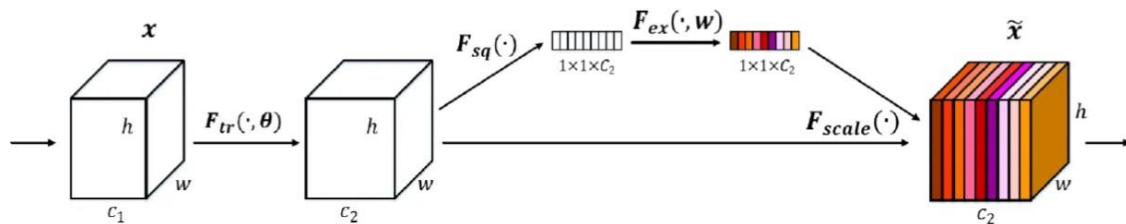


Figure 2 ImageNet: Squeeze-and-Excitation Networks (SENet), that is, the architecture of image compression and excitation.

Squeeze - features image compression maps

Excitation is a mechanism for developing channel weights Scale - Scale rescales images.

The features of the combination model with the SES block increase the display ability and thereby improve the classification or detection effect of the model. Among them, F_{tr} is a conventional convolution operation X and U are the input and output expressions of this convolution operation, respectively, C,W,H,C', W' and H are data scales, function F_{sq} and F_{ex} represents the 2 main processes of the SE block, compression and processing, and excitation processing is the final output of the SXS block represents. The SXS model first draws images into a plane and uses the idea of averaging to convert all pixel data to a certain value.

$$z_c = F_{sq}(u_c) = \frac{1}{H \times W} * \sum_{j=1}^W u_c(i, j)$$

We will develop a re-excitation process

$$s = F_{ex}(z, v) = v(g(z, W) = P(W_2 v(W_1)))$$

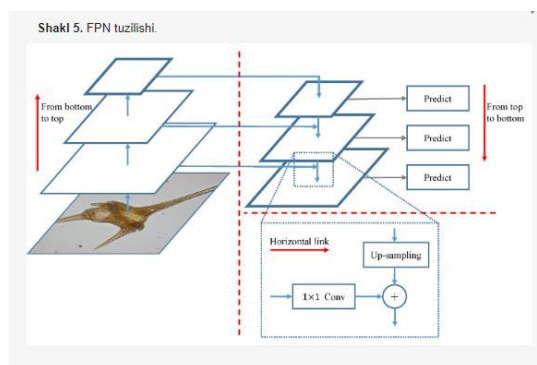


Fig. 3 Execution of non-stop convolutional operations.

Bilinear interpolation calculates from a known pixel point value the position of the pixel point value present in the image. Then it is possible to calculate with horizontal interpolation. Lateral interpolation and then vertical interpolation with 2 linear interpolation methods are included. Q11, Q21, Q12, Q22, R1, R2 participated in the formula.

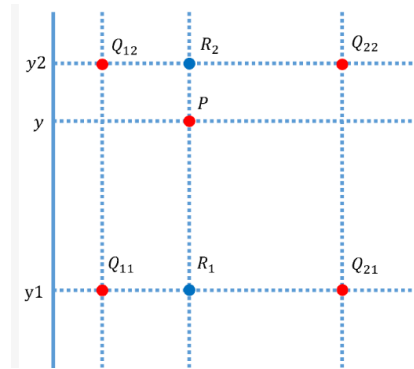


Figure 4 is a graphical view of the interpolation process.

After each horizontal interpolation line is calculated, the final formula is as follows

$$f = (p) \approx \frac{y_2 - y}{y_2 - y_1} f(R_1) + \frac{y - y_1}{y_2 - y_1} f(R_2)$$

The final equation defines the bounding box and object class.

Results. In the image below, all the white blood cells and platelets are correctly identified.

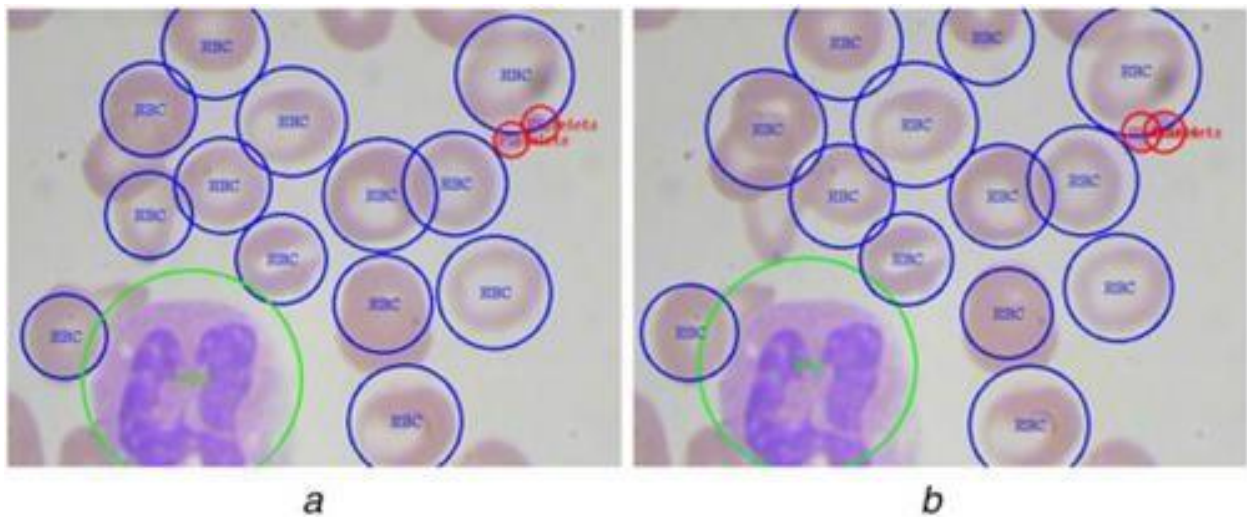


Fig. 3 Cells and platelets are identified without error

ImageNet on CNN architecture: Squeeze-and-Excitation Networks (SENet) for all networks resulting from image compression the average precision (mAP) values are shown in Figure 5 . As shown in the figure, InceptionV3 and ResNet50 achieve the least error.

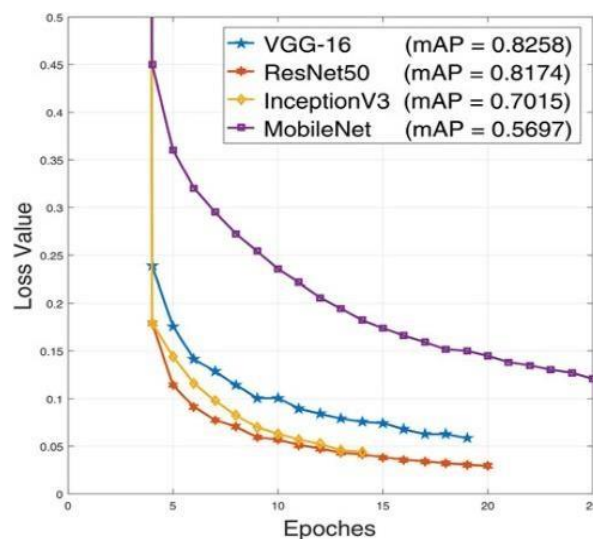


Figure 3 InceptionV3 and ResNet50 achieve the least error

A CNN loss curve is modeled mAP with ImageNet: Squeeze-and-Excitation Networks (SENet).

As a result of image compression and shifting, the proposed architecture requires high image resolution and low processing speed.

Table 2 Final indicators of general results

Table № 2	Noble facts	RBC 792	WBC 61	Platelets 55	map	Execution time m/s
YOLO	Estimated accuracy %	824 96.09	53 86.88	53 97.36	0.62360	60
VGG 16	Estimated accuracy %	10.05 72.98	61 100	60 90.92	0.7132	106
RecNet50	Estimated accuracy %	953 79.80	59 95.09	98 87.28	0.7437	118
The beginning V3	Estimated accuracy %	889 86.75	62 100	57 97.36	0.6826	130
MobileNet	Estimated accuracy %	558 97.24	58 93.45	47 97.65	0.5207	84

In the second table, the results of the proposed architecture to increase the performance index RBC 1.15% WBC 6.47% Thrombocytes 1.29% increased accuracy results were obtained. The image below shows blood cell images captured on a grid resulting in 9 sub-image processing

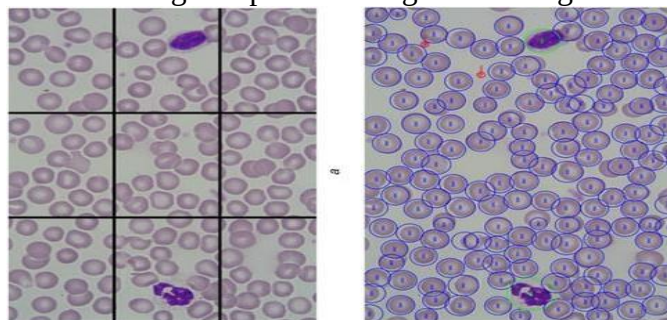


Figure 6. View of the output image

Conclusion. Red blood cells, white blood cells, and platelets are correctly identified without error, with satisfactory performance of the output image.

As a result of re-filtering the mathematical model of blood cell images in the study, the optimal architecture for detecting anemia in blood was developed and successfully tested. The use of machine learning methods and database analysis has allowed the creation of a new architecture for early diagnosis of this common disease. The proposed architecture results in an increase in RBC 1.15% WBC 6.45% platelets 1.29%. The use of this architecture improves the performance of patients suffering from anemia and similar diseases by predicting the exact symptoms of the disease and obtaining results in less than a second. This method works best in manual accounting books. The above-mentioned method achieves high efficiency in calculating desired images. An optimal architecture was developed based on multifactorial analysis of biochemical blood parameters, including leukocyte, hemoglobin, platelet blood cells and other indicators. The architecture was

trained on a large database that included data from an analysis group of healthy individuals with various forms of anemia. Architecture development: an optimal architecture was developed based on multifactorial analysis of biochemical blood parameters including leukocyte, hemoglobin, platelet blood cells and other indicators. The analysis shows that architecture is used for different manifestations of anemia. The developed architecture is a convenient and continuously improved tool for doctors and medical professionals, which allows them to quickly and easily diagnose anemia, which in turn provides more effective treatment of patients and a level of accuracy in disease prediction.

References:

1. World Health Organization <https://www.who.int/news-room/fact-sheets/detail/anaemia>
2. Eshmurodov D. Iskanderova S. Tolaganova F. (January 29-31, 2024) Cell detection algorithms in blood images
3. Malijon, M. H., Sharif, J. M., Abdullah, A. H., & Jamil, M. M. (2020, July). Advanced Segmentation Techniques for Smokers RBC Rouleaux Coin Collecting. In IOP Conference Series: Materials Science and Engineering (Vol. 884, No. 1, pp. 012054). IOP Publishing House.
4. Molinares, D., Parke, S., & Gupta, E. (2020). Cancer of lymphoid, hematopoietic and related tissues. Cancer Rehabilitation: A Concise and Portable Pocket Guide, 97-110.
5. Karra, S. S. BLOOD CELLS WITH HYPER- PARAMETERIZATION IN YOLO.
6. Yuningsih, N. and Mustikasari, M. (2020). Anemia classification based on abnormal red blood cell morphology using a convolutional neural network. Training, 1, 251.
7. Qian, Y. (2023, August). Improved white blood cell image classification using deep convolutional neural networks with an attention mechanism. 2023 4th International Symposium on Computer Engineering and Intelligent Communications (ISCEIC) (pp. 315-318). IEEE.
8. Ismailov Otabek, Iskanderova Sayora, Temirova Khosiyat Farkhod qizi (international scientific journal science and innovation special issue: "modern problems and prospects of development of energy supply of digital technology facilities", March 1, 2024) "detection and differential treatment of pathologies in x-ray dental images"
9. Kamal, L. and Raj, R. J. R. (2024). Using deep learning to ensure blood quality by determining complete blood cell counts. e-Prime- Advances in electrical engineering, electronics and energy, 100450.
10. Aggrawal, H. O., Goswami, D., & Agarwal, V. (2023, April). Bounding box to define cells with point annotations. In 2023 IEEE 20th International Symposium on Biomedical Imaging (ISBI) (pp. 1-4). IEEE.
11. Habibzadeh, M., Krzyżak, A., & Fevens, T. (2013). Differential white blood cell counts using convolutional neural networks for low-resolution images. In Artificial Intelligence and Soft Computing: 12th International Conference, ICAISC 2013, Zakopane, Poland, 9-13 June 2013, Proceedings, Part II 12 (pp. 263-274). Springer Berlin Heidelberg.

Rezyume: Ushbu tadqiqot ishining maqsadi YOLO modelini ImageNet: Squeeze-and-Excitation Networks (SENet) bilan integratsiya qilishdan iborat bo'lib, bu qon hujayralari tasvirlarida leykotsitlar sonini aniqlash orqali anemiyani aniqlash samaradorligini 25% ga oshirish imkonini beradi, ya'ni tasvirlarni siqish va qo'zg'atish natijasida qondagi kamqonlik kasalliklarining yuqori indeksli natijalarini olish. taklif qilingan arxitektura.

Резюме: Целью данной исследовательской работы является интеграция модели YOLO с ImageNet: Squeeze-and-Excitation Networks (SENet), что позволяет повысить эффективность обнаружения анемии на 25% путем определения количества лейкоцитов в изображениях клеток крови, то есть получить более высокие индексные результаты заболеваний анемией в крови в результате сжатия и возбуждения изображений. предложена архитектура.

Kalit so'zlar: YOLO modeli, CNN ImageNet tizimi: Squeeze-and-Excitation Networks (SENet), VGG-16, ResNet50, InceptionV3, Mobile Net.

Ключевые слова: модель YOLO, система CNN ImageNet: Squeeze-and-Excitation Networks (SENet), VGG-16, ResNet50, InceptionV3, Mobile Net.

**STATISTICAL ANALYSIS OF RELIABILITY INDICATORS OF FIBER OPTICAL
TRANSPORT COMMUNICATION NETWORK**

Isaev R.I., Tursimuratov S.S.

Tashkent University of Information Technologies

Summary: *The paper presents statistical data on the average failure rate and average recovery time of fiber-optic communication lines, obtained over a five-year service life in various climatic regions of the Republic of Uzbekistan.*

These data are the basis for calculating, as a first approximation, the reliability indicators of fiber-optic communication lines.

Key words: *fiber-optic communication lines, fiber-optic communication cables, reliability, failure rate.*

Introduction.

The widespread use of fiber-optic cables in the communications industry has led to increased interest in studying the operational reliability of fiber-optic communication lines, since it is the main line for transmitting optical signals on backbone communication networks, the transmission speed is 100 Gbit/s and allows the use of wavelength division multiplexing technologies channels by wavelength (DWDM), with transmission speeds of 100 Tbit/s and higher. Due to the large flow of transmitted information, high demands are placed on fiber-optic lines in terms of reliability during operation and the impact of external factors on fiber-optic lines.

The problem of assessing the operational reliability of fiber-optic lines covers a wide range of problems and is inherently complex. Its solution requires the use of appropriate methods for assessing, calculating and monitoring various parameters of fiber-optic communication lines (FOCL) and reliability indicators of fiber-optic communication lines.

Literature Review.

The purpose of scientific works, selected methods for assessing the reliability of FOCL in foreign countries, is the development and optimization of methodologies to ensure high reliability and safety of operation of FOCL.

The authors of [1] propose methods for estimating the reliability of FOCLs that are visited by both communication failures and node failures. This method has demonstrated the effectiveness of using a network with a wide range of capabilities.

In [2], a review of methods for assessing the reliability and stability of FOCL was carried out. The authors identify the main problems that have arisen during the operation of FOCL and consider the various methods that have been found to solve these problems.

In [3], a new method for assessing the reliability of FOCL based on fault tree analysis was proposed. The authors demonstrated that this method can be effectively used to assess the reliability of FOCL with a wide range of settings.

In [4], a method for assessing the reliability of FOCL based on fault tree analysis was proposed. The authors used this method to assess the reliability of a network with a wide range and measurement, which can be used to assess the reliability of FOCL.

[5] describe a method for assessing the reliability of FOCL based on the determination of the analysis of the assessment of failures of various elements of the network. The authors demonstrated that this method can be used to assess the reliability of FOCL.

[6] proposed a method for assessing the reliability of FOCL based on the analysis of the topology of connections between nodes. The authors demonstrated that this method can be effectively used to assess the reliability of FOCL with wide parameters and indicators, that it can help increase network design and improve its reliability.

Also, in [7] a method for assessing the reliability of FOCL was proposed, which affects various types of failures in the reliability of the network. The authors used this method to assess the

reliability of networks with a wide coverage and assess that it can be an effective application for the use of FOCL and offers its reliability.

The main difference of this work from the scientific works given above is the focus on the operation of fiber optic communication lines in harsh continental climatic conditions.

Problem Statement.

The requirement to calculate the operational reliability of fiber-optic lines in various climatic conditions arises for various reasons: for example, to determine the reliability of the cable main in order to identify its compliance with the requirements imposed on it, for a comparative assessment of the operational reliability of individual communication trunks, the quality of operation of various types of fiber-optic communication cables under certain conditions, to identify the expected reliability of newly designed communication lines.

Currently, the technical regulatory documents do not contain source materials for calculating the reliability of fiber optic cable lines of the Republic of Uzbekistan.

The purpose of this work is to obtain initial data for calculating the reliability parameters of fiber-optic links based on processing statistical values of the average failure rate and the average recovery time of fiber-optic links of backbone communication networks of the Republic of Uzbekistan.

To express the reliability of fiber-optic communication lines in multiple ways, it is necessary to use a variety of characteristics, the combination of which makes it possible to most correctly assess the reliability of fiber-optic communication lines as a system or fiber-optic communication lines as a product.

Solution Method and Results.

The reliability of a fiber-optic line that will be in operation depends not only on the quality of the fiber-optic line, but also on the quality of all other devices and elements included in this line [8]. To a large extent, the reliability of fiber-optic lines depends on the quality of design, construction, installation and operational maintenance.

The list of external influencing factors on devices and elements of fiber-optic communication lines to which they are exposed during operation is very extensive: temperature influences, humidity, solar radiation, radiation, salt water, dust, wind, tensile loads, jerks, rewinds, bends, twisting, shock, hydrostatic pressure, aggressive environments, etc. To determine the reliability of fiber-optic lines, it is necessary to know, first of all, how these factors affect reliability indicators. These difficulties are due to the fact that the reliability characteristics of a line depend on a significantly larger number of factors that complicate the numerical expression of reliability.

The main feature of fiber-optic lines is that distinguishes them from other technical devices of fiber-optic transmission systems (FOTS) and, in particular, from equipment with their long length and dependence of the operating mode on local operating conditions. Various terrain conditions affecting the operating modes of fiber-optic communication lines lead to the need to use different cable designs and different methods of laying them in certain sections.

As a rule, in areas outside populated areas, an armored cable is laid directly in the ground or an unarmored (lightweight) cable in a polyethylene pipe. In populated areas, it is possible to use both armored cables for laying in the ground or in cable ducts, and unarmored cables for laying in cable ducts.

For the same area, the operating conditions of a fiber-optic line depend on the time of year, which introduces a noticeable uneven distribution of damage throughout the year, which should be taken into account when assessing its reliability.

When assessing the reliability of fiber-optic communication lines and other elements of fiber-optic communication lines (optical connectors, optical couplings) depending on the installation location.

To take into account the influence of climatic conditions on the reliability of the operation of fiber optic lines of the backbone communication networks of the Republic of Uzbekistan can be conditionally divided into three regions:

- 1) mountain regions (valley);
- 2) plain regions;
- 3) coast of the Aral Sea (Republic of Karakalpakstan).

For each of the listed areas, the average statistical reliability characteristics obtained in the first approximation, the failure rate (λ) and the average recovery time (t_{CB}) of the fiber-optic line are given.

According to [8,9], the failure rate in case of damage or accidents of fiber-optic communication lines on 1 km of route in 1 hour will be determined from the expression:

$$\lambda = \frac{m}{8760 \cdot 100},$$

where λ - is the failure rate per 1 km of fiber-optic communication line, 1/year; m - is the density of damage or accidents of fiber-optic communication lines per 100 kilometers of route per year.

The average communication recovery time according to [1, 2] is determined from the expression:

$$t_{\text{CB}} = \frac{\sum_{i=1}^N t_{\text{Bi}}}{N},$$

where t_{CB} - average time to restore communication, year; t_{Bi} - time to restore communication in case of i -th damage (accident), year; N - is the number of failures on the fiber-optic line within a given time.

To take into account the design features of fiber-optic communication lines, in accordance with modern types of underground cable fiber-optic communication lines of transport telecommunication networks, when assessing the reliability, fiber-optic communication lines are divided into two groups: without metal elements (dielectric fiber-optic communication cables) and with metal elements (sheath, armor, remote power cores, power element).

As noted earlier, observations show that the amount of damage to a fiber-optic line significantly depends on the time of year and climatic conditions of the area through which it passes. As a rule, the greatest number of damages occurs in the spring and summer. This is explained by the large amount of excavation work carried out in the line laying areas, lightning currents, soil erosion, etc. [10]. In the autumn-winter period, the number of such works naturally decreases.

On the territory of the Republic of Karakalpakstan, which is located in the northeast of the Republic near the Aral Sea, with a sharply continental climate, the number of damages and emergencies is greater not only in the autumn and spring months, but also in the summer and winter months, when the influence of the sharply continental climate is great.

The calculation of the reliability of fiber-optic lines must be performed not only according to the annual average, but also according to the maximum and minimum λ indicators.

Using expression (1), calculations of the annual average (λ_{cp}), maximum ($\lambda_{\text{макс}}$) and minimum ($\lambda_{\text{мин}}$) failure rates were performed based on processing data on damage to the transport fiber-optic lines of the primary network of Republic of Uzbekistan for a five-year period from 2018 to 2023.

Using expression (2), t_{av} calculations were performed.

The values of λ_{cp} , $\lambda_{\text{макс}}$, $\lambda_{\text{мин}}$ and t_{CB} are given in this work; they should be considered as some approximate ones, which will be refined as statistical data is collected.

In table 1 shows the average values of these indicators separately for armored cables without division by type of armor, laid in the ground and unarmored cables laid in the ground using a polymer pipe and figure 1 shows a histogram of these values.

Table 1.

Average values of failure rate per 1 km of route, average time to restore communication for armored and unarmored and underground FOCL laid in the ground

Regions of the Republic of Uzbekistan	Failure rate per 1 km of route ($\lambda \cdot 10^{-7}$ 1/year) and average time to restore fiber-optic lines (t_{cb} , year)							
	FOCL in the ground				FOCL in a sewer pipe			
	λ_{av}	λ_{max}	λ_{min}	t_{av}	λ_{av}	λ_{max}	λ_{min}	t_{av}
Mountain regions	18,9	32,3	5,49	3,52	17,4	29,4	5,3	6,64
Plain regions	9,22	13,9	4,54	2,85	8,72	13,3	4,15	4,15
Coast of the Aral Sea	33,7	38,4	21,1	8,24	23,8	30,4	17,1	4,02

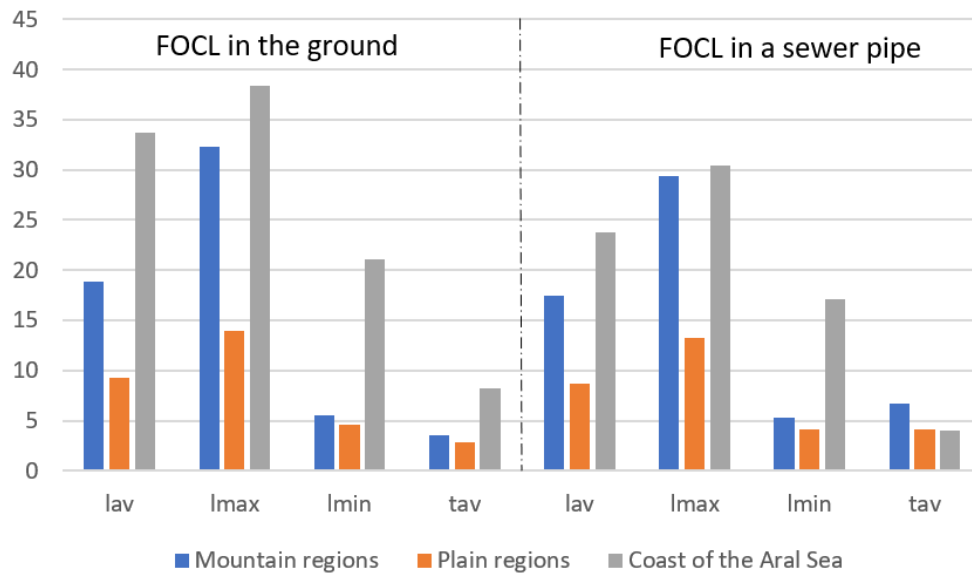


Figure 1.

Conclusion.

1. The average values of the failure rate and the average recovery time of the fiber-optic communication lines of the primary network, obtained on the basis of statistical data for 5 years of operation of armored and unarmored fiber-optic communication lines in various regions of the Republic of Uzbekistan, can be used for calculations (as a first approximation) of the reliability parameters of the designed fiber-optic communication lines, and when comparing various fiber-optic lines among themselves by region.

2. An assessment of the reliability of fiber-optic communication lines is given according to the data in table 1 and figure 1 can serve as a basis for the development of practical recommendations to minimize risk

damage and ensuring the reliability standards of fiber-optic communication lines.

3. Values and are given in table 1 and figure 1 require further clarification due to the collection of statistical data on the operation of fiber optic lines of the primary network of the Republic of Uzbekistan.

References:

- [1] Zhang, X., Li, Y., Wang, X., & Liu, Z. (2021). Reliability evaluation of fiber optic communication networks considering both link and node failures. *Journal of Lightwave Technology*, 39(4), 1004-1011. DOI: 10.1109/JLT.2020.3049972
- [2] Alsaedi, W., Al-Humoud, J., & Khan, S. (2020). Reliability and survivability of fiber optic communication networks: A review. *Journal of Optical Communications and Networking*, 12(10), D1-D14. DOI: 10.1364/JOCN.399046
- [3] Liu, X., Chen, Z., Yu, S., & Xie, Y. (2019). A novel method for reliability assessment of fiber optic communication networks based on fault tree analysis. *Optical Fiber Technology*, 51, 125-132. DOI: 10.1016/j.yofte.2019.04.008

[4] Hu, Y., Zhao, Z., Zhang, L., & Wang, Y. (2018). Reliability evaluation of fiber-optic communication network based on fault tree analysis. Journal of Physics: Conference Series, 1107(1), 012065. DOI: 10.1088/1742-6596/1107/1/012065.

[5] Popov, A. S., & Balakhontseva, A. V. (2017). The evaluation of reliability of the fiber-optical communication channels. Journal of Physics: Conference Series, 803(1), 012007. DOI: 10.1088/1742-6596/803/1/012007.

[6] Dong, B., & Xu, J. (2016). A reliability assessment method for fiber-optic communication networks based on link layer topology. Optical Fiber Technology, 29, 69-75. DOI: 10.1016/j.yofte.2016.03.007.

[7] R.Isaev; S.Tursimuratov, "Estimation of the reliability of fiber-optical communication lines taking into account the influence of external factors using the semi-Markov model" in Proceedings of 2021 International Conference on Information Science and Communications Technologies (ICISCT), 03-05 November 2021, pp. 1–4. doi: 10.1109/ICISCT52966.2021.9670413.

[8] Lutchenko Sergey & Bogachkov Igor & Kopytov Evgeny. (2017). Assessment of fiber optic communication lines reliability with account of external factors influence. 1-5. DOI:10.1109/Dynamics.2017.8239481.

[9] RA Hyle, "Fiber optics-failure modes and mechanisms," Annual Reliability and Maintainability Symposium 1992 Proceedings, Las Vegas, NV, USA, 1992, pp. 379-388, doi :10.1109/ARMS.1992.187852.

[10] E. Latronico and P. Koopman, "Design time reliability analysis of distributed fault tolerance algorithms," 2005 International Conference on Dependable Systems and Networks (DSN'05), Yokohama, Japan, 2005, pp. 486-495, doi: 10.1109/DSN.2005.38.

Rezyume: *Maqolada O'zbekiston Respublikasining turli iqlim mintaqalarida besh yillik ekspluatatsiyasi davomida olingan tolali optik aloqa liniyalarining o'rtacha ishdan chiqish vaqti va o'rtacha tiklanish vaqti bo'yicha statistik ma'lumotlar keltirilgan.*

Ushbu ma'lumotlar birinchi taxminiy sifatida tolali optik aloqa liniyalarining ishonchlilik ko'rsatkichlarini hisoblash uchun asos bo'ladi.

Резюме: *В работе представлены статистические данные о средней интенсивности отказов и среднем времени восстановления волоконно-оптических линий связи, полученные за пятилетний срок эксплуатации в различных климатических регионах Республики Узбекистан.*

Эти данные являются основой для расчета в первом приближении показателей надежности волоконно-оптических линий связи.

Kalit so'zlar: *optik tolali aloqa liniyalari, optik tolali aloqa kabellari, ishonchlilik, rad etishlar intensivligi.*

Ключевые слова: *волоконно-оптические линии связи, волоконно-оптические кабели связи, надежность, интенсивность отказов.*

SOCIAL SCIENCES

IMPORTANT ASPECTS OF TEACHING IN SCHOOLS OF “USUL-I JADID”

Beginkulov Z.A.

Samarkand branch of the Institute of Retraining and Advanced Training of Specialists in Physical Culture and Sports

Summary: *this article describes the educational process in the schools of the “usul-i jadid”, a number of specific features of new methods of teaching.*

Key words: *jadid, usul-i jadid, school, sound, learning, test, exam, term, lesson schedule, class, stage, science, visuals.*

President of the Republic of Uzbekistan Shavkat Mirziyoyev told in his speech at the expanded session of the Republican Council of spirituality and enlightenment: “It is natural that the legacy of our enlightened ancestors will serve as the foundation for the legal democratic state and civil society that we are building today. Because their ideas and programs are in harmony in every way with the strategy of building a new Uzbekistan” [1].

The Jadid doctrine was a true innovation of its time. About this, the philologist scientist, professor Begali Kasimov, in his book “National Awakening: courage, enlightenment, self-sacrifice”, which introduces the jadidism movement, States: “... The essence of jadidism was organized by an intense and exciting process, from the realization of the nation and homeland to the struggle for their benefit. Meanwhile, the movement also nurtured the nation. He took it from interpreting every disaster that fell on his head as fate to the point of being able to seek his measure. In particular, our jadids realized that in order for a nation to live, prosper, it must first be free, independent, and paid special attention to awakening society” [7;4].

The main goal of the jadid enlighteners was to save the Turkestan territory from colonial people and centuries-old victims, to free society from cultural backwardness and colonial oppression, to bring the people to the path of modern development, to reform the state, system, management, to educate young people who have acquired secular sciences and raise their spiritual awareness, to enter the world through educated [3;297-298]. National Turkestan jadids have come to the conclusion that the main cause of backwardness and poverty in the country is ignorance and servitude. Therefore, first of all, they wanted to radically reform the methods of training young people in schools and madrasas, to increase the level of thinking of the people. To this end, they planned to open schools in a new way.

Sources note that the newly formed “usuli jadid” schools differed from the schools operating in practice in a number of features, namely the system of education for children, the addition of writing with reading, the use of various visuals in the lesson row, the classroom system, the introduction of a break, and a number of other aspects. It was also set separately that the number of children in each class would not exceed 30, the children would be admitted to school twice a year, rest on Fridays and holidays, and leave in the summer.

In addition, the jadids of Turkestan have widely promoted the use of the Turkic language in the schools, making education more accessible to the local population. The jadids emphasized critical thinking in the course of the lessons to be conducted, encouraging students to question and analyze the data.

The savtian, which Ismail Gaspirinsky promoted, was a new method, the sound method, which allowed the letters to be read out of sound, and the order to produce baskets easily and quickly. For this reason, this new educational system method had received the names savtia (sound method), method jadid (new method) [6]. Of particular importance was the fact that the new method in question was taught to read and write at the same time.

Ismail Gasprali in his manual “doctrine to the Khojas” (“instruction to teachers”), he explained the essence of the new school and the difference and advantages of “usuli jadid” from “usuli qadim”. The book also reveals the elevation from simple to complex or private to general, the addition of writing with reading, the teaching of each letter on the basis of the sound method (method savtia) (that is, with its Echo, aloud), the abandonment of dry memorization, each word, an explanation of the content of each natural phenomenon and social life phenomena, a way to ask questions. In his manual, Ismail Gasprali also speaks about how many years the school should teach children (from 6-7 years old), the distribution of study hours in the school year terms and holidays between terms, the procedure for drawing up a class schedule and setting breaks between classes, the location of the school and the place of classrooms, the level of equipping classes and even lighting them. This guide was both a program and a model of the new National School [5]. Ismail Gasprali, in this guide, guided the progress of the “usuli jadid” from easy to complex, showing its peculiarities in paragraph 15.

As the author stops on a new way of reading and teaching, he focuses on the fact that dry memorization is harmful to children without explaining the essence, and emphasizes the regular and consistent teaching of each letter “with its sound” separately. This method was accordingly also called “usuli savtiya” (sound method).

Thus, from the content of the lesson taught to the method of teaching it and the assessment process, from the classroom where the student listens to the class schedule-winter and summer holidays, from the location of the school to the equipment of the classrooms-to the level of light, a new program of school education was considered on modern grounds. This program found fame with the name “usul-i jadid”. The popularization of the term Jadid is that is primarily associated with this “usul-i jadid” [7;21].

It should be noted separately that the schools of “usuli jadid” had a number of different aspects from other schools. In particular, their differences and achievements were that in these schools the class was transferred to the lesson system, and the use of visuals in the course of the lesson proved to be a much more effective method. The clean, tidy, and light of the classrooms where the class was to be held, the teaching of children sitting on the partitions, and the introduction of breaks between classes became important. The fact that the old method schools operating in practice were largely limited to religious education, the teaching of modern science these schools did not pose much danger to the colonists, with the Tsarist authorities well understanding, began to pay serious attention to the Usul-i jadid schools.

Instruction in Jadid schools was provided to Muslim children for short periods, under intensive programs. The program of teaching in these schools was carried out on the basis of a secular, religious education program. According to this program, the educational system in the schools of the new method consisted of two stages:

the first stage was called the initial part, and the duration of his studies was 4 years. The person who completed this stage would have been much more educated, having made a better reward than their peers who had spent ten years in the old school.

The second was called the final stage, in which students were taught Arabic, Persian, Turkish and Russian. A disciple who successfully completed this stage could speak fluent Arabic, Persian, Turkic and speak fluent Russian [3;299-300].

The equipment and teaching facilities of the new method schools established by the Jadid progressives in the country were in stark contrast to those of the old schools, whose classrooms contained desks, whiteboards, tables and chairs, and educational exhibitions [2]. Sources note that the newspaper “Turkestanskije Vedomosti” recounts that some of the schools' modern curricula are strongly opposed by parents, especially mothers, especially as to the presence of a globe as well as the idea that the land is circular.

Schools based on the “usuli savtia”, which received the name “Usuli jadid”, arose with the attention of the essence against the “rus-tuzem” schools. In the schools of “Usuli jadid”, the cultivation of young people with a high national morale, passionate for the prospect of a nation, a

homeland was at the forefront. The great merit of Jadid educators was that they saw education in their native language in schools as a decisive issue in teaching the basics of national literature, Muslim religion and spirituality. Because they saw the main means of preserving the identity of the nation as native language and national literature [4]. The implementation of such reforms by the jadids of Turkestan can be compared to the great revolutionary changes for that time. Because, in such harsh conditions, the manifestations of the Turkestan jadidism movement developed the theoretical and practical foundations of teaching native language and literature, treating the teaching of native language and national literature as a matter of life or motherhood of the nation. Such issues were expressed in textbooks created by Turkestan jadidists. It should be noted that the issue of nationality has gained decisive importance in the activities of thinkers such as Behbudiy, Munavvarqori, Avloni, Fitrat.

Turkestan youth enter the schools of “usuli jadid” with great hope, passion. Despite of the difficulties, the demonstrators of jadidism did their best to open “Usul-i savtia” schools. These works were carried out in many cases at the expense of very great sacrifices. It is especially noteworthy that the Turkestan enlightenment used various methods in the implementation of educational reform. They made it their main goal to build a secular state, guided on the basis of Parliamentarism, relying on universal ideas in the future by establishing new schools called “usuli jadid”, which offer more diverse curricula, including science, literature and foreign languages.

References:

1. Маънавият ҳаётимизда янги куч, янги ҳаракатга айланиши керак. Президент Шавкат Мирзиёевнинг Республика Маънавият ва маърифат кенгашининг кенгайтирилган мажлисидаги нутқи. Янги Ўзбекистон газетаси-2023 йил 23 декабрь № 267 (1056).
2. Алматов. Новометодный мактаб в г. Самарканде // Самарканд. 1906. № 37.
3. Бегимкулов З. Туркистонда ташкил этилган усули жаид мактабларида таълим-тарбия жараёнининг ўзига хос хусусиятлари. “Jadidlarning ilmiy-pedagogik merosi: tarix va zamonaviylik” mavzusidagi xalqaro ilmiy-amaliy anjumani materiallari (II-to‘plam). Farg‘ona-2024, B.296-301.
4. Dolimov U. Jadidchilikning tamal toshi. “Jahon adabiyoti”, 2010-yil, 1-son.
5. Темур Хўжа Усмонжон ўғли. Туркистонда жаид мактаблари // Хур Туркистон учун. Анкара, 1976 йил, 15 май.
6. Турсунметова Г. XX аср бошларида Туркистон таълим-тарбия тизимида жаид мактаблари // Тарихий хотира-маънавият асоси. Бухоро, 2008. Б. 124.
7. Қосимов Б. Миллий уйғониш: жасорат, маърифат, фидойилик. – Тошкент. “Маънавият”, 2002. 400 б.

Rezyume: Mazkur maqolada “usuli jadid” maktablarida ta’lim-tarbiya jarayoni, o’qish-o’qitishning yangi usullarining bir qator, o’ziga xos xususiyatlari bayon qilingan.

Резюме: В статье описан процесс воспитания и обучения в «новометодных» школах, а также ряд особенностей новых методов преподавания и обучения.

Kalit so'zlar: jadid, usuli jadid, maktab, tovush, savod chiqarish, sinov, imtihon qilish, chorak, dars jadvali, sinf, bosqich, ilm-fan, ko'razmali qurol.

Ключевые слова: джадид, метод джадид, школа, звук, грамотность, тест, экзамен, четверть, расписание уроков, класс, этап, наука, оружие.

UDC :547:371:3

TEACHING METHODOLOGY OF THE TOPIC CATALYZE

Muradova D.K.

Jizzakh State Pedagogical University

Summary: *This article presents ideas on the effective use of interactive methods, ICT, virtual laboratories, practical training in the teaching of “Catalytic reactions” in chemistry in secondary schools, as well as the development of one-hour lessons and the effectiveness of the lesson.*

Keywords: *Education, interactive methods, comparison class, experimental class, ICT, practical training, chemical kinetics, catalysis, catalyst, mastering efficiency.*

The rapid development of technology and science in the world, the changes associated with the adoption of innovative technologies are leading to new socio-economic, political and cultural changes.

Much attention is paid to preparing students for life through the formation of practical experience in students, the organization of effective preparation for social life through the formation of basic competencies and the development of teachers' competencies, the organization of educational processes based on a competency-based approach[2].

“Defining the priorities of the systemic reform of general secondary and extracurricular education, raising the spiritual, moral and intellectual development of the younger generation to a qualitatively new level, the introduction of innovative forms and methods of education in the educational process [1].

To conduct course analysis, Sh. Rashidov district was selected as an experimental class (XI-B class) and a comparative class (XI-A class) of the 12th school of the IBU.

In the comparison class, the lessons were organized in a traditional and interactive way, while in the experimental class, they were organized in a non-traditional way, using practical exercises and computer programs.

In addition to the lessons, weekly follow-up tests were conducted to determine the overall learning outcomes.

Lesson development for comparison class

One-hour lesson on "CHEMICAL KINETICS AND CATALYSIS"

Course Objectives:

Educational. To inform students about chemical kinetics, chemical reaction rate and factors influencing it. To teach the formula of chemical element compounds, the ability to express their names in writing and orally.

Educational. Through this theme to instill in the minds of students the spirit of love for the motherland

History of development of chemistry, development of our country without chemistry To be aware of the work of Uzbek chemists

Developer. To develop students' scientific potential by teaching them the catalytic reactions that occur in everyday life.

Knowledge of calculations on the basis of the studied knowledge and knowledge of scientific and technical innovations

Classes: Subject to the topic, handouts, slides, periodical table

Type of course: generalization, giving new knowledge.

Methods used in the lesson:

Mental attack, stairs-stairs, suffering, "Continue", "Fish Shilling".

Levels of the lesson	Time

Organizational part	5 min
Repeating the past	10 min
Work on a new topic	15 min
Strengthening the new topic and the evaluation of students	12 min
To give home homework	3 min

The course of a lesson:

Organizational part I:

- Greetings;
- Determining attendance;
- Announcing the day's news:

II. Consolidation of the passed subjects

1. The step-by-step method is used:

- The lightest metal. Hydrogen
- Which metal in the gaseous state is the heaviest? Chlorine
- Which non-metallic periodic table is not on the "permanent list"? Hydrogen
- Which metal name means "lifeless"? Nitrogen
- Napoleon was poisoned with which compound? Mithyax
- "Ingenuity contest".

We use chemical puzzles to get students' attention.

Chemical puzzle

X????



Chemical puzzle

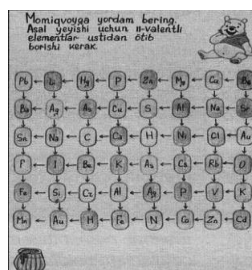
??X



??X=R

Chemical puzzle

???X??



III. New topic statement:

The new topic will be demonstrated through a presentation.

The process of changing the rate of a chemical reaction using catalysts is called catalysis.

The speed of the reaction depends not only on the collision speed of the particles, but also on their activation energy.

The minimum amount of energy required for a reaction to occur is called the activation energy. The lower the activation energy, the faster the reaction. When 40 kJ / mol of energy is used for the reaction, the reaction is very fast. 40-120 kJ / mol is moderately fast, and greater is slow.



Substances that change the rate of a reaction and do not change chemically are called catalysts.

Homogeneous catalysis is the process by which a catalyst and the reactants form a homogeneous mixture.

For example: There are two methods of producing sulfuric acid: nitrose and contact methods.

In the nitrose method, the catalyst is NO. Namely

$$2\text{SO}_2 + \text{O}_2 \xrightarrow{\text{kat. NO}} 2\text{SO}_3$$

the reactants were both catalysts and gases, so the catalysis is homogeneous. Heterogeneous catalysis is a type of catalyst in which the catalyst and the reactants form a heterogeneous mixture.

For example: There are two methods of producing sulfuric acid: nitrose and contact methods. In the contact method, the catalyst V_2O_5 is used. Namely $2SO_2 + O_2 \xrightarrow{kat.V_2O_5, Pt} 2SO_3$ the catalyst in the gaseous state is a solid, so we call this catalysis heterogeneous catalysis. Some substances reduce or eliminate the effect of the catalyst, and such substances are called catalytic poisons. For example, the presence of 0.1% sulfur in the synthesis of ammonia completely stops the action of the iron catalyst.

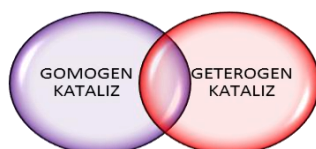
IV. Strengthen the new theme.

a) Reinforced by the concept analysis method.

Each student will be given a handout with a syllabus on the topic. And they analyze.

№	CONCEPTS	Analysis
1	Chemical kinetics is-	
2	These are the factors that affect the rate of a chemical reaction -	
3	Catalysis	
4	Catalyst is-	
5	Inhibitor is-	
6	Promoter is-	
7	Catalytic poisoning-	

b) Gaps in students' knowledge of a topic are identified using the Venn Diagram and BBB methods:



BBB methods:

I Know	I want to know	I found out
Filling bu pupils		

Announce grades and give homework

One of the most pressing issues in the teaching of chemistry is the use of laboratory experiments, practical work and the use of virtual laboratory work by students. Because labs and practical classes are effective for students to master the subject.

Therefore, in the experimental class, the lessons were combined with laboratory and practical exercises.

Lesson plan for the experimental class:

Class: XI-B

Topic: Catalytic reactions

Course Objectives:

(Learning Objective) Students will gain a broader understanding of the concepts of catalysts, catalytic reactions;

(Educational Objective) Students develop the skills of working in groups, listening to each other, and respecting each other;

(Developmental Objective) Students will be able to apply their knowledge of catalytic reactions in practice (in the laboratory), and will be able to pay attention to safety.

Course Type: Learn and reinforce a new topic

Course materials and reagents: ICT, handouts, test tube, tube, pipette, tripod, clamp, dry fuel, 3% solution of H_2O_2 , manganese (IV) oxide, (MnO_2), straw, sugar, tobacco powder.

Course Method: Brainstorming, test solving, laboratory and practical training, Concept Analysis, Venn Diagram, BBB Method.

On the board: Lesson topic, plan

Course I Organizational part

1. greeting, attendance

2. duty and cleanliness of the classroom

3. Preparation for the lesson

II Preparation for practical training

1-group

Question 1:

If the thermometer breaks, what should be done to collect the spilled mercury and sprinkle it on the spilled area?

☐ Soil

☐ Sand

☒ Sulfur

☐ water

Question 2:

Sodium metal is stored in a container containing what substance?

☐ water

☒ Kerosene

☐ Soil

☐ Alcohol

Question 3:

What rule should be followed when heating a test tube containing the substance?

☐ The test tube containing the substance cannot be heated;

☐ The container should be inflated;

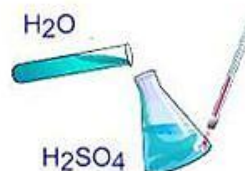
☐ The vessel should be tilted and facing;

☒ Keep the mouth of the container away from people.

Question 4:

Mark the picture with the correct dilution of the concentrated acid.

*



Question 5:

What to do first in case of fire in the chemistry room?

☐ Go out into the hallway and call for help;

☐ Avoid leaving the room;

☐ You need to call to fire safety department;

☒ The source of the fire is extinguished.

Group 2

Question 6: (Two answers are marked)

What is strictly forbidden to do in the chemistry room?

☒ Mixing substances with each other;

☐ Assist the teacher;

☐ Keep the desk tidy;

☒ Direct smell and taste of substances.

Question 7:

What should I do first if I have an alkaline solution on my skin?

☐ Nothing to do;

☐ The skin should be wiped with a cloth;

☒ Skin should be washed with water;



o Itching is necessary.

Question 8:

Which device is not shown in the picture below?



- o flat tube;
- o Conical tube;
- Test tube;
- o Measuring cylinder.

III New topic statement (explained on the basis of ICT and computer software)

The process of changing the rate of a chemical reaction using catalysts is called catalysis. The speed of the reaction depends not only on the collision speed of the particles, but also on their activation energy.

The minimum amount of energy required for a reaction to occur is called the activation energy. The lower the activation energy, the faster the reaction. When 40 kJ / mol of energy is used for the reaction, the reaction is very fast. 40-120 kJ / mol is moderately fast, and greater is slow.

Substances that change the rate of a reaction and do not change chemically are called catalysts.

IV. Strengthen the new theme

a) Practical training

1-group

Topic: Decomposition of H_2O_2

Required equipment and reagents: flat tube, spatula, stick, ceramic plate, dry alcohol, matches, H_2O_2 (3%), MnO_2

Procedure: The tube is poured into a flat flask with 3-4 ml of a 3% solution of H_2O_2 . The top is filled with MnO_2 powder at the tip of the spatula. The flask undergoes a severe decomposition reaction of H_2O_2 . The dry alcohol is ignited on a ceramic plate, in which the straw is incubated and the incinerated straw is dropped into a tube.



Control questions:

1. What was observed when the concentrated straw was dropped into the tube? Explain the reason.
2. Explain that this reaction is related to the topic.

Group 2

Topic: Burning of sugar



Required equipment and reagents: Porcelain bowl, refined sugar, tobacco powder, ceramic hob, dry alcohol, matches, tweezers.

How it works: Put dry alcohol on a ceramic tile and light it. Refined blood is caught in the flame using tweezers. Refined blood is dipped in tobacco powder and reignited.

Control questions:

1. What happens before and after a piece of refined sugar is soaked in tobacco powder?
2. Explain that this reaction is related to the topic.

a) Mosaic game

in this case, students will have to dial the catalytic reactions given by the teacher, knowing the sequence.



BBB methods:

№	I Know	I want to know	I found out
1			
2			
3			
4			

V. Announcing grades and giving homework.

To study the catalytic reactions that occur in everyday life.

After the topic of catalytic reactions, both classes were tested in the easy Quizziy-2 program. Examples of tests:

1. What is catalysis?

- A) the effect of the catalyst on the equilibrium
- B) Changes in the rate of a chemical reaction using catalysts
- C) the catalyst does not affect the equilibrium
- D) Stabilization of the rate of a chemical reaction using catalysts

2. What is a catalyst?

- A) It is chemically invariant by changing the rate of the reaction
- B) a substance that accelerates the establishment of equilibrium
- C) a substance that shifts the balance
- D) intermediate products

3. How does the catalyst increase the reaction rate? 1) reacts with any of the starting materials to form an active intermediate complex 2) reduces the activation energy of the reaction by forming an active intermediate complex 3) reduces the surface tension by acting on the surface of the substances 4) increases the activation energy of the reaction by forming an active intermediate complex A) 1, 2,3,4 B) 1,3 C) 1,2 D) 1,4

4. How many types of catalysis are there?

- A) 1 B) 2 C) 3 D) 4

5. Determine homogeneous (a) and heterogeneous (b) catalysis.

1) Nitrose method $2SO_2 + O_2 \xrightarrow{kat.NO} 2SO_3$ 2) $NH_3 + HCl \xrightarrow{H_2O(vapor)}$

3) H_2SO_4 (con) in esterification reactions

4) Communication method $2SO_2 + O_2 \xrightarrow{kat.V_2O_5, Pt} 2SO_3$

5) The use of Ni or Pt in hydrogenation reactions

6) The use of Fe in the synthesis of ammonia

A) a-1,2,6 b-3,4,5 B) a-1,2,3 b-4,5,6

C) a-1,5,6 b-2,3,4 D) a-1,3,5 b-2,4,6

6. What are negative catalysts?

- A) substances that do not affect the reaction rate
- B) unbalanced substances
- C) Substances that increase the reaction rate
- D) Substances that reduce the reaction rate.

7. Decomposition of H_2O_2 in the presence of H_2SO_4

A) accelerates B) slows down C) does not change D) increases productivity

8. Substances containing SO_3^{2-} ions are added to glycerin to prevent them from oxidizing in air to become SO_4^{2-} ions. In this case, glycerin acts as a

A) initiator B) inhibitor C) catalyst D) intermediate

9. What are enzymes?

A) initiator B) inhibitor C) catalyst D) intermediate

Table 1

Classes	Number of pupils	1	2	3	4	5	6	7	8
XI-A class Compare	26	60%	60%	62%	60.5%	61%	62%	63%	63%
XI_B class Experimental class	30	63%	65%	68%	69%	71%	75%	75.6%	77%

Chemical kinetics. Test results for grades 11a-11b on the rate of chemical reactions, chemical equilibrium and the factors that affect them.

An indicator of test results based on the results of experiments on catalytic reactions.

To find the average number of correct answers, when we add the sum of the number of correct answers given by each student to the number of students, the average value of the correct answers of the

group is obtained, which multiplying the value by 100%, the percentage of the average value of the correct answers of both groups is determined by the number of questions. As can be seen from Table 1, students 11b and 11a had an average mastery score of 70% on 20 test questions. These indicators indicate that the group was selected correctly.

Table-2

The results of the pedagogical experiment are given.

Pupils	Number of correct answers	Correct answers in %	Pupils	Number of correct answers	Correct answers in %
XI-B	25	75	17	16	80
XI-A	26	80	18	12	60

In conclusion, it can be said that the results of tests conducted after classes using traditional and information technologies have increased the rate of students' mastery of the material.

It can be said that, unlike traditional lessons, the teaching process is based on different methods and practical exercises, which remain in the minds of students and increase the effectiveness of learning.

Table-3

Increased student achievement

Take an experimental lesson		Take a traditional class	
Number of correct answers	Correct answers in %	Number of correct answers	Correct answers in %
16,2	81	15	75

As can be seen from the table and diagram, the lesson using information technology is much more effective than the traditional lesson. Course efficiency increased 1.5 times. Conducting lessons in this way increases students' knowledge and develops their skills and competencies.

The use of innovative technologies in the acquisition of chemical knowledge, modernizing teaching, is one of the most pressing issues today.

References:

1. Ishmuhamedov R., Abduqodirov A., Pardayev A. Innovative technologies in education.-T.: 2008.
2. Sayidaxmedov N. New pedagogical technologies.-T.: Finance, 2003.
3. Tolipov U., Usmonboyeva M. Applied bases of pedagogical technologies.-T.: 2006
4. K.Axmedov, A.Jalilov, R.Sayfutdinov "General and Inorganic Chemistry."T. 2003y.
5. Rudzitis G.Ye. va Fel'dman F.G. school chemistry textbooks (4 books). T.:O'qituvchi, 1998-2000Y.
6. Babanskiy Yu.K. Modern general secondary school teaching methods.-Tashkent: O'qituvchi, 1990.-230 p.
7. Kamolova, M., Berdiyeva, A., & Muradova, D. (2021). APPLY STEAM EDUCATION TO CHEMISTRY EDUCATION PROCESSES IN GENERAL SECONDARY SCHOOLS. Journal of Natural Sciences, 3(5), 347-350.
8. Sharipov, S. R., & Muradova, D. K. (2021). SCIENTIFIC METHODOLOGICAL BASIS OF TEACHING THE THEORIES OF CHEMICAL KINETICS AND CATALYSIS IN CHEMISTRY. Academic research in educational sciences, 2(11), 1291-1306.
9. Muradova, D. (2020). УДК 378. 174 INNOVATIVE PEDAGOGICAL TECHNOLOGIES IN TEACHING NATURAL SCIENCES. Archive of Scientific Publications JSPI.
10. Muradova, D. Isomiddinov J., and S.B.Karimova. (2021). THE ROLE OF INNOVATIVE TECHNOLOGIES IN THE EDUCATION SYSTEM. Journal of Natural Sciences, 1(2).
11. Xasan Juraev. THEORETICAL FUNDAMENTALS OF CHEMICAL EXPERIMENTS (INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION
12. www.chemistry.ru

Rezyume: Ushbu maqolada Umumiy o'rta ta'lim maktablarida kimyo fanidan "Katalitik reaksiyalar" mavzusini o'qitishda interfaol metodlar, AKT, virtual laboratoriyalar, amaliy mashg'ulotlardan samarali foydalanish haqidagi fikrlar va bir soatlik dars ishlanma va darsning samaradorligi keltirib o'tilgan.

Резюме: В этой статье представлены идеи об эффективном использовании интерактивных методов, ИКТ, виртуальных лабораторий, практических занятий при преподавании химии "каталитические реакции" в средних общеобразовательных школах, а также о часовой разработке урока и эффективности урока.

Kalit so'zlar: Ta'lim, interfaol metodlar, taqqoslash sinfi, tajriba sinfi, AKT, amaliy mashg'ulotlar, kimyoviy kinetika, kataliz, katalizator, o'zlashtirish samaradorligi.

Ключевые слова: образование, интерактивные методы, сравнительный класс, экспериментальный класс, ИКТ, практические занятия, химическая кинетика, катализ, катализатор, эффективность освоения

TO APPEARING OF UIGHUR MUSICAL THEATER IN CENTRAL ASIA

Uzoqov D.S.

State Institute of Arts and Culture of Uzbekistan

Summary: *In this article, given the cultural relations of the Uyghur and Uzbek people, the popularization of the Uyghur national culture in Central Asia, as well as the high achievements of education, folklore, artistic art, music, dance, and theater art, and the activities of art schools. Also, at the beginning of the 20th century, the fundamental changes in the history of the Uyghur and Uzbek peoples, the strengthening of cultural ties between these two peoples, and has been scientifically analyzed the fact that the Uyghur national culture takes a noticeable form in Central Asia.*

Key words: *theater, education, nation, art, culture, performance, musical drama, creativity.*

Introduction

The development of any industry is based on a certain influence factor with other nations. In the creation of theater and written dramaturgy in Uzbekistan, first of all, the influence of the Turkic peoples, who have the same ethnic roots, is great. In particular, Tatar and Azerbaijani theater played an important role in the formation and development of the history of Uzbek theater. As the Tatar and Uzbek people have the same ethnic core, history, and culture close to each other, there are interactions and connections in the development of art, including theater. Written dramaturgy and theater appeared in the Tatars in the second half of the 19th century, while professional theater appeared in Central Asia a little later.

The main part

By the 20s and 30s of the 20th century, a genre of musical drama based on the traditions of folk theater appeared in our country. Mannon Uyghur, which the leader of the leading theater troupe of that time, tried this genre for the first time in the history of our Uyghur theater. Due to the slow development of national dramaturgy at that time, translated works mainly occupied the theater repertoire. There is a need for plays that show the way of life of ordinary people on the stage. Ghulam Zafari's play "Halima" staged by Mannon Uyghur in 1920 was an important step in strengthening the connection between the stage and the audience. After that, the director staged the plays "Farhod and Shirin", and "Layli and Majnun" based on Khurshid's works in this genre. All three performances reached the podiums of fame in their time and at the same time became the basis for the formation of Uzbek musical drama [5; 1].

The Uzbek theater was officially founded in 1914, and the process before that is a separate stage. Tatars have lived in the territory of Central Asia for a long time. Many Tatars came to Uzbekistan to study in madrasas in Bukhara, Samarkand, and Tashkent. "When the Russian Empire began to conquer Central Asia, the flow of Tatars to the country increased. Tatar soldiers were transferred to Turkestan as part of the Russian army and as interpreters. By 1865, about 5,000 Tatars lived in the cities of Uzbekistan" [3; 1,2].

The Uzbek State Musical Theater is one of the first musical theaters in Uzbekistan. It was founded in Samarkand in 1929 based on the Uzbek state traveling concert ethnographic troupe of M. Koriyagubov (moved to Tashkent in 1931). Artists such as K. Yashin, Kh. Nosirova, B. Mirzayev, B. Fayziyev, Mullakandovlar, A. Chetvertakov, M. Turgunboyeva, I. Okilov, and G. Rahimova worked on its composition. The basis of the repertoire is a musical drama and musical comedy (such as "Halima", "Comrades", "Farhod va Shirin", and "Arshin mol olon"), as well as concert programs. In 1930, he was on tour in Moscow and successfully participated in the Olympiad of folk creativity. Based on his creative forces, the current Navoi Theater and Muqimi Theater was established [6].

In the 20s of the 20th century, research was carried out to create a national, original, oral creation of the Uzbek people and art suitable for the audience. Of course, in this period we had neither composers who wrote music, composers who knew notation, nor an orchestra. As a result, people's spiritual wealth - folk music, folk arts was again addressed. After processing them, the

melodies and musical notes that people love to hear are used in performances. When talking about this, it is impossible not to remember such great works as "Halima", "Layli and Majnun", "Farhad and Shirin", "Tahir and Zuhra", and "Alpomish". The artistic and ideological maturity of the theme in these stage works, the songs and music that excite the audience with their charm have a deep place in the hearts of our people. These stage works were created in the creative collaboration of the playwright, director, and composer. For this reason, every spoken word of the actor on the stage, every action he performs, and the arias he sings are integrated into the work [7].

At the beginning of the 20th century, fundamental changes began to take place in the history of the Uyghur and Uzbek people. The strengthening of cultural ties between these two peoples, as well as the Uyghur national culture, took a noticeable shape in Central Asia. In particular, the Uyghurs have made modern achievements in the field of science and education. This not only had a great impact on the social and cultural style of the Uyghurs, but we can also witness several changes in their ethnic characteristics. In addition, they began to take a step forward in the fields of public education, folklore, art, music, dance, and theater. Clubs of Uyghur schools and art amateur circles were organized under these institutions in different regions of the Andijan and Fergana valleys.

Naturally, one of the highest goals was that the first graduates of the new schools of knowledge mature as specialists who have a great responsibility for the development of Uyghur art in Central Asia.

According to the census, 3,000 Uyghur people live mainly in Andijan city and district, Asaka, Shahrikhan, Izbosgan, Pakhtaabad, and other districts. In this regard, the proposal to establish the first Uyghur theater in the city of Andijan is approved.

One of the theaters that played a major role in the cultural life of the Uyghurs in Uzbekistan in 1930 was the first Uyghur theater in Andijan. If we look at the history of the origin of this theater, it is no exaggeration to say that the reason for this is the increase in the population of Uyghur people in Andijan. And finally, the long-awaited dream of representatives of Uyghur art, the opening of the Andijan Uyghur Theater in 1934 caused great changes in the history of the culture of Uzbekistan.

Husan Nazarov was appointed as the first director of the Andijan Uyghur Theater, and for the first time in the history of the theater, in 1935, the musical drama "Anarkhan" was staged in collaboration with D. Azimov and A. Sadirov. Maryam Tokhtayeva and Akhmed Sofiyev from the characters Maryam Tokhtayeva and Akhmed Sofiyev won the hearts of the audience at the first premiere of the play "Anarkhan". Not only Uyghur viewers, but also representatives of Uzbek, Tatar, Azerbaijani, and other nationalities managed to find their way to the hearts of the future performances of the play. This work not only later became a favorite play of the Uyghurs, but also occupied a strong place in the theater repertoire for a long time.

Encouraged by the peak of success, the staff of the Uyghur theater ordered the writer Abdulla Kahhor and the composer Tokhtasin Jalilov to create a new work based on cooperation, and in 1936, based on this proposal, another new work, the musical drama "Oykan", appeared on the theater stage. along with will receive a standing ovation. Over the years, the skills of young theater artists have risen to a high level, and undoubtedly, the theater team has been filled with talented, young, and professional artists. In 1938, the dancer Zainabkhan Paltusheva, who managed to become a leading solo ballet master, was invited to the Andijan Uyghur Theater, and in 1941, Jalal Asimov was invited to the theater as the chief director. In 1943, the Uyghur Theater of Andijan was transformed into the Uyghur Theater of the Republic as a result of the unity, hard work, activity, and selfless efforts of the theater team. Artist U. Mominov, who has become a major artist of the theater, artists Raykhan Ibrahimova, Faya Mamatokhtayeva, and Gulom Mamajonov will continue their activities in the new Republican Uyghur Theater.

According to the status of the Republican Uyghur Theater, the musical drama "Anarkhan" will be staged again by director B. Azimov and artist U. Mominov. Maryam Tokhtayeva (Anorkhan), Jalal Azimov (Hamro), Yulduz Usmanova (Gulzora), Raikhan Ibrahimova (Laylikhan), Akhmad Sofiyev (Sofi Ohun), A. Abdulin (Said) and others received great applause.

Another performance that won the hearts of the audience of the Uyghur Theater of the Republic was U. Khojibekov's musical drama "Arshin Mol Olon" with J. Azimov in the role of Askar, Khojam Berdiyeva in the role of Gulchehra, Asad Azimov in the role of Suleiman, F. Mamato'khtayeva in the role of Asia, Baqi Islamov. They were distinguished by their skillful performance in the role of Sultanbek. The beautiful, wonderful decorations in Sabir Abdulla's performance "Tahir and Zuhra", the enthusiasm of young artists, and the highly skilled orchestra and choir performances are the reason why the Republican Uyghur Theater is recognized as one of the leading artistic groups in Uzbekistan. Will be at the same time, to widely promote their works, the theater team left a historical mark by strengthening cultural ties not only in different regions of Uzbekistan but also in the republics of Kyrgyzstan and Kazakhstan. Year by year, the repertoire of the theater became richer, and performances such as "Garib and Sanam", and "Tahir and Zuhra" caused a sharp increase in the number of viewers.

Later, in connection with the achievements of the Republican Uyghur Theater, this art space will be transformed into the Andijan Uzbek Musical Drama Theater named after me.

Ohunboboyev. "It cannot be denied that musical drama has its theme, and its language, without denying its affinity with other types of musical stage art. Musical drama searched for musical-vocal, dance-plastic methods of revealing the idea of a work of art, and developed its internal laws. He was actively searching, tried new experiences, adapted to this or that genre of stage art, and successfully fulfilled his creative task. The mechanism of synthesis brought new interpretation alternatives to the surface and had a positive effect on the birth of new ideas and developments" [4]. As the Uzbek musical drama is interpreted as a unique phenomenon, it has its nature and is not without creative research. In the direction of the perspective of the theater, it will further expand its creative scope, and enrich it with national traditions and advanced world experiences. The current state of the musical drama genre, solving some of the problems related to its future development, when and how it will be solved, depends primarily on the theater, playwright, and composer, their cooperation, and how they react to the fate of this genre that our people love.

Conclusion

In conclusion, it should be noted that, despite its short history, the Andijan Uyghur Musical Drama Theater undoubtedly made a significant contribution to the development of Uyghur theater art. In addition, we can say that real Uyghur artists who created from nothing and continued to create with their work did not lose their dignity for many years and brought a new spirit to Central Asia, no exaggeration. We wish that the representatives of Uyghur art will have great creative flights and that cultural relations will be alive.

References:

1. B. B. Haynazarov. O'zbekiston uyg'urlari diasporasi tarixi (1925-2012): Dis. ...Doctor of Translational Science; National University of Uzbekistan. - Tashkent, 2018. - P.150.
2. D. A. Kamilova. Oliy ta'lim muassasalarida talabalarida musiqiy-ijodiy qobiliyatlarni rivojlantirish: Dis.... Ph.D. Ph.D.; Tashkent State Pedagogical University named after Nizami. - Tashkent, 2022. - P.136.
3. <https://cyberleninka.ru/article/n/o-zbek-teatri-sahnasida-tatar-dramaturglari-ijodi>
4. <https://cyberleninka.ru/article/n/musiqali-teatrning-rivojlanish-tarixi-1/viewer>
5. https://uz.wikipedia.org/wiki/O%CA%BBzbek_davlat_musiqali_tetri
6. Abdumuxtorova, N. (2022). O 'zbekistonda musiqali teatr san'atining tashkil topishi va shakllanish bosqichlari. Oriental Art and Culture, 3(3), 12-18.

Rezyume: Bu maqolada uyg'ur va o'zbek xalqlarining madaniy aloqalari, uyg'ur milliy madaniyatining O'rta Osiyoda keng ommalashgani, shuningdek, ta'lim, xalq og'zaki ijodi, badiiy san'at, musiqa, raqs va teatr san'atining yuksak yutuqlari hamda san'at maktablari faoliyati. Shuningdek, 20-asr boshlarida uyg'ur va o'zbek xalqlari tarixidagi tub o'zgarishlar, bu ikki xalq o'rtasidagi madaniy aloqalarning mustahkamlanishi va uyg'ur milliy madaniyatining sezilarli shaklga ega bo'lishi ilmiy jihatdan tahlil qilindi. Markaziy Osiyo.

Резюме: В данной статье учитывая культурные связи уйгурского и узбекского народов, популяризацию уйгурской национальной культуры в Средней Азии, а также высокие достижения образования, фольклора, художественного искусства, музыки, танца и театрального искусства, а также деятельность художественных школ. Также в начале 20 века произошли коренные изменения в истории уйгурского и узбекского народов, укрепление культурных связей между этими двумя народами, а также был научно проанализирован тот факт, что уйгурская национальная культура принимает заметную форму в Центральной Азии.

Kalit so'zlar: teatr, ta'lim, xalq, san'at, madaniyat, spektakl, musiqali drama, ijodkorlik.

Ключевые слова: театр, образование, нация, искусство, культура, спектакль, музыкальная драматургия, креативность.

UDK: 330.3

CLUSTER APPROACH - THE FACTOR OF ECONOMIC GROWTH

Bayjanov S.Kh.

Karakalpak State University named after Berdakh

Summary: *This article analyzes the specifics of the cluster approach and describes how sustainable economic growth depends primarily on agro-industry.*

Keywords: *Cluster, economy, industry, agriculture, innovation, investment international logistics.*

For many developing countries, sustainable economic growth depends primarily on agro-industry. Reform of the agrarian sector in our country, rational use of modern methods in agriculture will have a positive effect. Innovation and research in every field is an important factor in achieving new achievements and establishing strong competition.

In the experience of developed countries, it is shown that the role and importance of clusters such as international logistics centers and free economic zones is very high in ensuring stable socio-economic development, increasing investment activity, and producing competitive goods. In many countries of the world, certain experience has been accumulated on the use of clusters in the formation and management of the innovative economy.

A cluster is a group of horizontally and vertically functionally connected enterprises whose geographical location is considered as one space. The specific characteristics of the cluster and its development mechanisms show that it is a source of economic growth and high competitiveness of groups as a system. The cluster requires organizing its activities on the basis of modern, i.e. innovative approaches, advanced technology and management methods. Empirical studies have shown that the development of any economic sector is more effective if it forms a cluster approach [2., 27].

Formation of cluster structures provides new opportunities such as creation of additional jobs, promotion of innovations by entrepreneurial structures, improvement of innovative activity and innovative attractiveness of small business and private business entities.

In the economic policy of the state, the cluster approach is the most important way to stimulate economic growth and increase competitiveness. The current practice of agricultural development in developing countries is the integration of production cooperation and exporters, and the agro-industrial complex is a promising direction for the development of agriculture. By themselves, vertical or horizontal integrated types do not guarantee the effective diffusion of innovations in the production and sale of products, especially in the context of the globalization of world economic processes, therefore it is important to generalize the development experience of agro-industrial clusters in developing countries. Clustering is evaluated as a structure that increases competitiveness based on the acceleration of innovative activities of enterprises, and fully meets the requirements in the process of resisting the strong influence of competition.

It can be noted that more than 3,000 clusters are operating in the EU countries today. In developed countries, Switzerland, Austria, Italy, Denmark, India, Korea, Pakistan, China and Turkey, based on their leading industries, have set their priorities for the high-tech cluster system in light industry, Germany in chemical and mechanical engineering, and food and cosmetics industries in France.

With the initiative of the head of our state, light industrial enterprises operating in a cluster style are being further supported in Uzbekistan.

The wide use of the cluster method by light industrial enterprises serves to fully process the cotton raw materials grown in the region, to direct the export of finished knitted products, and to take a worthy place in the world market. In particular, the use of experience based on cluster theory covers different directions. Analysis of cluster processes, their stages, development are shown [3., 75].

It should be noted that 30 different products are made from cotton raw materials. On average, 360 kg of fluffy cotton, 110 kg of cotton oil, 16 kg of soap, and 7200 meters of fabric are obtained from 1 ton of cotton. The cotton textile cluster covers not only light industry, but also agriculture, food industry, and pharmaceutical industry.

In the economy of Uzbekistan, the cluster method of using cotton, textile and light industry is promising. In our country, cotton produced in agriculture makes up almost half of the gross product. The average productivity of cotton growing in the world is 53.5 in Israel, 50.3 in Australia, 40 in Turkey, 42.2 in Brazil, 37.6 in Mexico, and 25 in Uzbekistan and ranks 5th in the world in terms of cotton cultivation. So, according to scientists, it is possible to expect this indicator in our country for the cluster that is being established on the basis of innovative projects. There are great opportunities for increasing productivity and profitability in cotton farming.

In more than 70 countries of the world, 200 million people are engaged in cotton cultivation, and another 60 million people are involved in cotton processing. Seeds are sown on 30 million hectares of land and 20 million tons of cotton fibers are harvested per year. For example, in China - 7 million tons, in the USA - 3.5 million tons, in Pakistan - 2 million tons, in Brazil - 1.6 million tons, in Uzbekistan - 1 million tons. cotton fiber is obtained. The cluster method comes in handy for high-quality fiber processing. Currently, about 50% of cotton fiber is processed in our country. According to forecasts, in 2019, 78% of cotton fiber will be recycled in the country, which is a 2-fold increase compared to 2017, and by 2020, the production of finished products will increase from 40% to 60%.

As far as we know, the cluster, based on the possibilities of the farmer, the business entities that are added here as assistants are planting seeds, growing the crop, then transferring the primary cotton to the processing plant, extracting fiber from it, producing fabric after fiber, except for finished products from fabric, its logistics is the mechanism that connects the process components to the level of delivery to the status of goods. For business structures, clusters are a factor of participation in large investment projects, additional income, access to new markets, reduction of costs for the introduction of innovations, infrastructural provision of innovative activities, improvement of staff skills, involvement of small enterprises in innovative activities and, ultimately, increasing competitiveness. In this case, each cluster participant enterprise not only increases the efficiency and competitiveness of its economic activity, but also helps the economic growth of various other enterprises operating in the region by supporting the formation of business infrastructure. Also, participation of the private sector in determining and financing scientific and technological development is encouraged.

In summary, the economic and social efficiency of clusters is distributed according to the directions of their participants [4]:

- new manufacturers from other industries accelerate the development process by stimulating and providing new strategies;
- mutual free exchange of information occurs, news spreads quickly through the channels of consumers and product suppliers;
- interactions within the cluster lead to the emergence of new opportunities in competition;
- creates new opportunities for the development of human capital, scientific ideas and introduction to production.

References:

1. Указ Президента Республики Узбекистан от 12.12.2023г. № 205 «О дополнительных мерах по дальнейшему развитию свободных рыночных отношений в сельском хозяйстве» Доступ из Lex Uz URL <https://lex.uz/ru/docs/6693464/> Действующая редакция (дата обращения 14.12.2023г.)
2. Магомаев Т.Р. Кластерный подход в развитии современной предпринимательской деятельности // Экономика: вчера, сегодня, завтра. 2014. № 8-9. С. 27-34.
3. Костенко О.В. Кластер как объект управления и социально-экономическая система // Аграрная наука Евро-Северо-Востока. 2015. № 6. С. 75-80.
4. Turdimuratovna, U. S. Methods Of External Quality Control Of Audits. European Journal of Molecular & Clinical Medicine, 7(07), 2020.

Rezyume: Ushbu maqolada klaster yondashuvining o'ziga xos jihatlari tahlil qilinadi va barqaror iqtisodiy o'sish birinchi navbatda agrosanoatga bog'liqligi tasvirlanadi.

Резюме: В данной статье анализируется специфика кластерного подхода и описывается, как устойчивый экономический рост зависит, прежде всего, от агропромышленного комплекса.

Kalit so'zlar: Klaster, iqtisodiyot, sanoat, qishloq xo'jaligi, innovatsiyalar, sarmoyaviy xalqaro logistika.

Ключевые слова: Ключевые слова: Кластер, экономика, промышленность, сельское хозяйство, инновации, инвестиционная международная логистика.

SCIENCE IN THE REPUBLIC OF KARAKALPAKSTAN IN INDEPENDENCE DAY

Jollybekova I.B.

Karakalpak State University named after Berdakh

Summary: *In this article examined about the issue of the day in historical science in the Republic of Karakalpakstan, devoted histories of development of the system of education. In the years of independence considerable changes assisting the economy and social growing happened in life of republic. Reforms in area of education gave the positive results. By the proclaimed priority sphere of development are all the constituents of enormous historical meaningfulness in life of people of region, a comprehension of that is the actual task of science of independent republic is analyzed.*

Key words: *Central Asia, Karakalpakstan, Nukus, city, identity, industrial cities, historical science, education, independence, development, system education, new approach, transformation, historical process.*

The Republic of Uzbekistan and the Republic of Karakalpakstan have entered a qualitatively new period of their historical development and are on the way to creating truly democratic national states on a legal basis [1. P. 34-37]. This period is characterized by fundamental changes in their socio-political and public life. They were due to the following events and circumstances: On August 31, 1991, at the extraordinary sixth session of the Supreme Council of Uzbekistan, a declaration of state independence was adopted, on the basis of which the Law “On the basis of state independence of the Republic of Uzbekistan» [2. P. 9-11]. For the first time in history, the sovereignty of the Republic of Karakalpakstan was adopted in it, proclaiming it at the end of 1990. Thanks to the renewal, the transition began to a democratic social and state system, called upon to be the basis for subsequent development in the name of man.

Independence of the Republic of Uzbekistan and the sovereignty of the Republic of Karakalpakstan [6. P. 87] are protected by the Constitution of the Republic of Uzbekistan [3. P. 98.]. In the life of the republic there have been significant changes that contributed to economic and social growth. Reforms in education have yielded positive results. The proclaimed priority area of development is all components of enormous historical significance in the life of the peoples of the region, the understanding of which is an urgent task of the science of an independent republic.

It is well known that without solving these most complicated tasks in the field of education, historical progress in society's life, regional withdrawal from the state of economic and social stagnation, creation of the foundations of an industrial society's infrastructure, including the first models of the most advanced forms of education, would not be possible. The search for an independent path of development after the collapse of the USSR led Uzbekistan to create its own model of the education system necessary for the life and development of a sovereign state. During the years of independence, large-scale measures were implemented in the Republic of Karakalpakstan aimed at fulfilling the requirements of the Law on Education and the National Training Program, Decrees and Resolutions of the President and the Government of the Republic of Uzbekistan, which support deepening of educational reforms. During the years of independence, government spending on the social sphere increased by more than 5 times, each year about 60 percent of the budget goes to the development of health care, education, public utilities, social protection of the population and other industries[4. P. 554.].

The uniqueness of the Uzbek model of training of personnel is recognized by the entire world community. The model of education of Uzbekistan includes not only physical objects, which themselves are first-class. The model of education is based on quality - the quality of teachers, students, programs and, ultimately, the quality of knowledge. The Uzbek model of education takes into account the needs associated with globalization, and is a tool to ensure a positive and productive role of Uzbekistan in Asia and beyond.

Analysis of international experience shows that in many developed countries, reforms in this area were carried out, as a rule, only in the education system, were not as large in scope and depth of coverage, scientific validity, participation of the entire society in them, as is the case in Uzbekistan. The main distinctive feature of the National Program is its integrity, a systematic approach, where the individual, the state and society, continuing education, science and production are components of a single process.

Uzbekistan is the center of culture, art, science and education in Central Asia, the birthplace of many great thinkers, scientists and teachers, such as Alisher Navoi, Zahiriddin Muhammad Bobur, Mirzo Ulugbek, Ahmad al-Fergani, Abu Rayhan Beruni, Abu Ali Ibn Sina, classics of Karakalpak literature like Berdakh, Azhinyaz and many others. Their intellectual heritage has influenced the upbringing and development of many generations of people, not only in this vast region, but also far beyond its borders - in Europe, Asia and the Middle East. Throughout its history, the Uzbek and Karakalpak people have maintained a deep commitment to the development of culture and science. So it is in modern Uzbekistan, where the national educational policy is based on this rich heritage. The history of education is full of events that have influenced development, both positively and negatively. The history is very controversial, but this is our history [5. P. 164.]. In the last quarter of the XX - early XXI century in the life of the peoples of Karakalpakstan, profound political, economic, social and cultural changes took place. The urgency of the problem is also due to the fact- the study of this problem according to the achievements of modern science is aimed at introducing into scientific circulation archival documents based on the concept of the history of the independence period of Uzbekistan and Karakalpakstan.

The practice of training qualified national personnel is of great scientific and practical importance not only for Karakalpakstan and Uzbekistan, but also for other republics that have embarked on the path of national revival. At the moment, many previously unexplored historical facts of the formation and development of the education system and the training of qualified national personnel in Karakalpakstan at the beginning of the 20th and 21st centuries are reflected in the research.

In line with this, reforms of the education system in the Republic of Karakalpakstan during the period of independence are being studied, stages of transformations in pre-school, secondary, secondary special education and higher education are considered in the context of economic and social development, environmental problems, restoration of spirituality and the study of national heritage;

- analyze the progress of implementation and additions of the new Laws “On Education” and “On the National Program for Personnel Training” (1997) in the Republic of Karakalpakstan.

The materials of the secret unlearned funds of the Central State Archive of the Republic of Uzbekistan (CSARUZ) are studied; Central State Archive of the Republic of Karakalpakstan (CSARKr); Materials of the current archives of Karakalpak State University by named of Berdah; The Ministry of Education of the Republic of Karakalpakstan; The Ministry of Culture and Sports of the Republic of Karakalpakstan; Council of Ministers of the Republic of Karakalpakstan (department of science, culture and education).

Historical processes and new transformations in the education system of 2017–2021 require a conceptual rethinking of many issues of the history of Karakalpakstan of the last quarter of the 20th - beginning of the 21st centuries. and development of new approaches in the study of the history of the education system of the Republic of Karakalpakstan.

References:

1. Urazbayeva, R. D. (2015). Law of the Republic of Uzbekistan “On Education” and the National Program for Personnel Training: implementation in the system of higher education. Scientific thought. (P.34-37). Moscow. № 1.
2. Republic of Uzbekistan: The birth of an independent state. – (1992). Tashkent: Uzbekistan (P. 9-11)
3. Constitution of the Republic of Uzbekistan. (2010) Tashkent: Uzbekistan. (P. 98).

4. Qaraqalpaqstan XIX a'sirdin' ekinshi yarimidan XXI a'sirge shekem. (2003). Nukus: Qaraqalpaqstan. (P. 554).
5. Alimova, D. A. (2008) History as history, history as science. Tashkent: Uzbekistan. #1. (P. 164).
6. Constitution of the Republic of Karakalpakstan. (1993) Nukus: Qaraqalpaqstan Uzbekistan. (P. 87).

Rezyume: Ushbu maqolada Qoraqalpog'iston Respublikasida tarix fanining dolzarb masalalari ko'rib chiqilib, ta'lim tizimining rivojlanish tarixiga bag'ishlangan. Mustaqillik yillarida respublika hayotida iqtisodiyot va ijtimoiy o'sishga yordam beruvchi jiddiy o'zgarishlar ro'y berdi. Ta'lim sohasida amalga oshirilgan islohotlar o'zining ijobiy natijalarini berdi. Taraqqiyotning e'lon qilingan ustuvor yo'nalishi bo'yicha viloyat xalqi hayotida ulkan tarixiy ahamiyatga ega bo'lgan barcha tarkibiy qismlardan iborat bo'lib, buni anglash mustaqil respublika ilm-fanining dolzarb vazifasi ekani tahlil qilinadi.

Резюме: В данной статье рассматриваются актуальные проблемы исторической науки в Республике Каракалпакстан, посвященные истории развития системы образования. За годы независимости в жизни республики произошли значительные изменения, способствующие экономическому и социальному развитию. Реформы в сфере образования дали положительные результаты. В провозглашенной приоритетной сфере развития заключены все составляющие огромной исторической значимости в жизни народов региона, осмысление которых является актуальной задачей науки независимой республики.

Kalit sózlar: O'rta Osiyo, Qoraqalpog'iston, Nukus, shahar, o'zlik, sanoat shaharlari, tarix fani, ta'lim, mustaqillik, taraqqiyot, tizimli ta'lim, yangicha yondashuv, o'zgarish, tarixiy jarayon.

Ключевые слова: Центральная Азия, Каракалпакстан, Нукус, город, идентичность, промышленные города, историческая наука, образование, независимость, развитие, системное образование, новый подход, трансформация, исторический процесс.

CHILPYK IS THE SACRED PLACE OF THE ZOROASTRIANISM

Idrisov I.R., Sulaymanov S.A.

Karakalpak State University named after Berdakh

Summary: *This article reveals the significance of the Chylpyk memory as a sacred rite belonging to the Zoroastrian religion.*

Key words: *Chilpyk, necropolis, Zoroastrianism, "Avesto", "Tokqala", Ossuary.*

It became known through historical research that people lived and married in the territory of Karakalpakstan from very early times. They mostly live in river oases by the sea. The tribes along the South Island have practiced various local religions since the earliest times until the Achaemenid invasion. With the invasion of the Achaemenids, the service of sources related to Zoroastrianism increased greatly in these areas.

There are opinions that Zoroastrianism was the state religion of the Achaemenid Empire in the 6th-5th centuries BC. It is even said that the birthplace of Avesta, the holy book of Zoroastrianism, is the South Island. Based on this, it is well known that Zoroastrian religious programs dominated the Southern Island from the 4th century BC until the Arab conquest. The term Zoroastrianism is derived from the prophet Zoroastrianism, and it is known as Zoroastrianism in European countries. Zoroastrian is the author of the Gatha. He came from a poor middle-class family in the Spitama tribe. His father was Porrurshaspa and his mother Dugdova. Zoroaster is transformed into a miraculous man, a prophet, in the Little Avesta.

Zoroastrianism is one of the sources related to the history of Karakalpakstan. The reason for this was the Zoroastrianism ceremony. That is, to clean them from their bones, they were placed in special huts. Human bones cleaned by ravens were stored here in specially made containers. This program, which was divided even before Zoroastrianism, was attached to its rules and accepted as a conditional sign.

Ossuary (Latin - bone) is a pottery, stone or container containing the bones of the deceased in Zoroastrianism. In Zoroastrianism, it is forbidden to bury an animal in the soil. In this, they believed that the Mother Earth is sacred and the composition of the soil should not be disturbed. Therefore, in every village, district, city, there is a place where people are taken to the foot of the mountain or to a high hill. After wild animals and birds had eaten the meat of the oleander, the bones were collected and kept in front of him. In some tribes, oil was burned, the ashes were collected and stored carefully. The ossuaries were made of clay and baked in special domes. They are divided into different sizes. The head of the deceased is painted on the handle of the lid of the ossuaries where the skulls are kept. Some of these ossuaries have been preserved in our country. The largest of them is Chilpyk.

In the central part of the Republic of Karakalpakstan there are mountain ranges known as "Sultan Ways", popularly called "Qarataw". To the north-west of this mountain, on the banks of the Amudarya, separate hills such as "Chilpyk", "Qaratobe" and "Bestöbe" lie.

Like "Qarataw", each of these hills has its own secret history. Among them, "Chilpyk" hill holds a special place. This hill, located in the Amudarya district of our country, is a scientific research center. "Chilpyk", considered an ancient Zoroastrian monument, is a 15-meter-high, 65-meter-diameter round tower without a top, located on a natural hill 43 km from Nukus.

The remains of the were left inside the tower for wild birds and animals to eat. Then, the bone remains were piled up in ossuaries and buried in the ground. Originally, it started with a 20-meter ladder that went down from the top of the tower. From the main part of the minaret there is a corridor on the river side. Some of them are found in the tower and its surroundings. today it is preserved in museums in Nukus and Tashkent. In the 2nd-4th centuries, the Zoroastrians rebuilt the hut, and in the 9th-11th centuries, the local people used it as a message tower.

In 1959, ethnographer H. Esbergenov recorded the following lines about Chylpyk being a place of miraculous spirits:

A group of pilgrims walking near Chilpyk can be seen from afar to Khiva Khan's attendants who are returning from the khanate on the Syrdarya side: Even though it's time for prayer, if pilgrims come near, Chylpyk will witness the absence of any living thing.

After reaching Khiva, they will report to the khan everything they learned on the way. Khan, who already knew about Chilpyk from legends, built a stone madrasa on the side of the hill in order to appease the spirits of Chilpyk. Indeed, a madrasa was built here in the end of the 18th century and the first half of the 19th century by Khojaniuzbi, the governor of the city of Kipchak, the ambassador of Khiva Khan. This madrasa was destroyed by the Soviets in 1929. According to the ethnographer H. Esbergenov, the deceased were brought to Chilpyk, first according to the rules of Zoroastrianism, then according to the rules of Islam, and after the relevant program services were carried out, they were taken to other places and buried. Chylpyk was one of the well-known religious places along the South Island. Unha was visited by young couples, childless brides, and wealthy people.

Professor S.P. Tolstov came to the conclusion that Shilpik is a Zoroastrian monument, a place where the bones of the dead are cleaned from the flesh according to the Zoroastrian religion program.

This idea was adopted by the archaeologist P. Manilov, who carried out research work in the 1960s and 1970s, and in this way introduced it into the scientific environment. Professor M. Mambetullayev also says that there is no doubt that Chylpyk split the hut. Indeed, no signs of construction necessary for human habitation can be found in the ruins.

Also, the walls of Chilpyk's military defense fortress were not built with a gallery of shooters typical of military buildings and holes for shooting from white bows. Here we should pay attention to the fact that those implementing the program of Zoroastrian religion in such constructions were the astrologers of their time. S. M. Bulatov, a well-known expert on Central Asian Architecture, doctor of architectural sciences, who visited Chilipik in 1990 and supervised it, suggests that estalik is a sign of astronomic control and provides some evidence for this.

Although many ossuaries have been found and studied in places such as Kuyukkala, Tokkala, Mizdakhkan in the territory of Karakalpakstan, as we mentioned above, it cannot be denied that Chilpyk is the holy place of Zoroastrian religion among them. The ossuaries discovered in Chilpik and studied were able to solve many historical puzzles. Chilpyk serves as a great source for us to determine how the pre-Islamic religious environment was late.

References:

1. F. Хожаниязов "Қарақалпақстандағы муқаддес орынлар" - Нөкіс - 1994 (4-12-pages)
2. F. Хожаниязов, Ж. Хақимиязов "Қаралалпақстанның әжайип жеті естелигі" Нөкіс -2004 (11-29-pages)
3. Сейдин Амирлан "Шылпық атамасы қайдан шыққан?" "Saza" журналы N-2020 5-6-p.
4. Avesto the translation of Askar Mahkam Tashkent-2001

Rezyume: *Ushbu maqola zardushtiylik diniga mansub muqaddas marosimlar va Chilpiq yodogorligining ahamiyatini ochib berilgan.*

Резюме: В статье раскрывается значение Чылпыкпамяти как священного обряда, принадлежащего зороастрийской религии.

Kalit so'zlar: *Chilpik, nekropol, zardushtiylik, "Avesto", "Toqqala", ossuariy.*

Ключевые слова: Чильпик, некрополь, зороастризм, «Авесто», «Токкала», Костница.

UDK 930.85 "17/19"

FOLK BATYRS AS A HISTORICAL FIGURE AND BATYRSHIP AS A SOCIAL INSTITUTION

Saparov Z.S.

Karakalpak state university named after Berdakh

Summary: *This article analyzes the role of folk batyrs as historical figures in the history and the social institution of batyrship in the scientific works and articles of foreign and local researchers.*

Key words: *batyr, folk batyr, social institution, hero, society, tribe, military, historical figure.*

Historical processes take place under the influence of historical laws and historical necessities. The activity of historical figures plays an important role in history. The history of the peoples of Central Asia and the Commonwealth of Independent States in the XVIII-early XX centuries is associated with the names of many military commanders - batyrs, who showed heroics in solving their political, socio-economic problems. There are many historical sources about the role of folk batyrs in history and the formation and development of the social institution of batyrship. Therefore, in this article, we considered it appropriate to analyze some scientific works and articles by foreign and local researchers about the role of folk batyrs as historical figures and the social institution of batyrship.

The word "batyr" which comes from turkic languages, means "hero", "strong", "brave". The word "bakhadur" is the basis of the word "batyr", which means "a brave man who calls the enemy before fighting against him". Period of the Altyn Orda, the word "batyr" did not mean only the representative of military elites, but also the title of the khans for their bravery and skillful leadership of military operations. For example, the Kazakh Khan Tawke (1680-1718) had the title of batyr according to his seal [2, 182]. The first information about the term "bakhadur" can be found in the works of Masud bin Usman Kukhistani (died in 1590), Kamal ad-din (Shir)-Ali-Binai (1453-1512) and other eastern sources. The first written information about the term batyr in turkic peoples dates back to the 16th century and is found in the work "Manuscripts about Muscovites" written by the Austrian diplomat and ambassador to Moscow, Sigismund von Gerberstein (1486-1566). According to the author, in the 14th century, the words "batyr", "bagatur", "bakhadur" entered the Russian language and displaced the terms "khrabr" (batyr) or "voitel" (warrior) of south slavic literature. [5, 30]. These data indicate that the term batyr has been widely used in the turkic peoples for centuries. Since the middle ages, in many societies, there were soldiers - batyrs, who worked to protect their people. However, due to the different levels of development of the peoples of different societies, the military activities of each society had its own characteristics.

Amir Edige, who lived in the 15th century, was known as Er Edige or Edige batyr in the generations after him. The karakalpaks are used in the form of alp, alip meaning hero. In the karakalpak language, the phrase "alpi alisiw" means the act of getting along with the batyrs [6, 92]. The existence of these sources about batyr means that the term batyr has been used in karakalpaks for many centuries.

The style of life of nomadic people and its features of historical cultural development required existence of people who were professionally trained to military art. Their function was to provide state's safety, sovereignty, and public order. As result it was established special social group who had specific obligations in society. These types of groups were known in other societies as "samurai", "knight", "kshatriya". In the kazakh culture they were known as "batyrlar" [1, 415]. In other nations of Central Asia, the main duty of batyrs was to protect the people from invaders and to do good deeds for the benefit of the people. From the 18th century to the beginning of the

20th century, the reason why there were many wars in the karakalpaks with neighboring regions that many batyrs emerged from the karakalpaks. Maman was a batyr and a biy. Oral history, written history and archival information have been kept about him. Maman biy was born in 1722 in the village of “Kariy molla” on the South-Eastern Aral coast, “Kuvandaryo” region and died in 1826 in the “Sartay qala” region of the Southern Aral coast, “Aralli mangit” region. In 1743, he was the first ambassador of the “Karakalpak Horde” khan and was received by Empress Elizaveta Petrovna in St.Petersburg [11, 57].

The essence of social institutions is clearly manifested in the functions that they perform. Each social institution we are considering has its own social functions: social regulation, transfer of social experience, integration, education, etc. It should be especially noted that the functions arise from the needs of society. For example, society with its multilateral connections cannot function without regulating relations between people, without the transfer of social experience [3, 101]. A social event appears when a need arises in society. Batyrship as a social institution, based on the needs of the society, its main task was to protect the people and territories from invaders. Batyrship as a social institution is closely related to the specific features of the political, socio-economic and cultural development of society.

For example, those who have physical strength, protect people from evil and win battles for the benefit and freedom of the people are called batyrs.

The origins of the institution of batyr go back centuries, batyr is associated with the idea of freeing people from evil images such as dragons and giants, with legendary heroes - Oral batyr, Khaoban batyr, Alpamys and others [9, 17]. In this case, despite the fact that batyrs in the image of a legendary hero are folklore sources, they have a certain level of historical truth. In order to accept this source as a historical truth, it is necessary to pay attention to the fact that they are representatives of the people and their duties, rather than terms such as Oral batyr and Alpamis batyr in the character of batyr.

In traditional the kazakh society batyrs were established as individual social group and had own ideology, life of style according to their public service, military tradition, rules and ethics to follow in interrelation with other social groups and their own “estate” features. One of the main features was that they were specialized only in military art profession. These facts were mentioned in the kazakh folk literature such as epic tales, historical poems, zhirau’s poetry and etc. Along with idea of protection motherland from enemies in epic poems there are described heroes world perception, self-assessment, moral-ethical concepts, ideals of heroism, consciousness, understanding of life meaning, and other ethnical features. Hence batyr institution in the kazakh society should be regarded as part of national spiritual values systems [1, 416]. These data indicate that the main duty of the batyrs was not only the military, but also solving the socio-economic problems of the people and doing good deeds for the benefit of the people.

According to customs and traditions, those who robbed a lot of horses and cattle from distant regions were called batyrs during the times when there were many invasions. Baytik soon received the title of “batyr” for this bravery and distribution of spoils to the poor. In the middle of the 19th century, Baitik batyr led the association of the salto tribes of the kyrgyz. At the time when Baitik lived, the meaning of the term batyr changed in the kyrgyz. This title of batyr is mainly given to the heads of large tribal associations. The main condition for mastering it was faithful service to one's people, wisdom and extraordinary ability [7, 30]. In the 19th century, a war broke out between the khanate of Khiva and the turkmen military that there were many invasions. According to the tradition of war, the batyrs went into battle one by one according to the number of warriors. In the war between the Khiva khanate and the turkmen military, Allambergen, who was one of the karakalpaks in the Khiva khanate, appeared against the turkmen Ala atly batyr. Despite his youth, Allambergen defeated the turkmen warrior Ala Atly. Due to his bravery in this battle, young Allambergen was named “Aliwshi batyr” [8].

In the case of Baytik batyr and Aliwshi batyr, it can be seen that the title of batyr was given by the people. In battles for the benefit of the people, he was awarded the title of batyr for his good services and protection of the people from the enemy that the term “folk batyr” was formed.

Batyr were those who led their tribes. Usually they were titled as zholbatar (guide), kolbasy (leader), rubasy (leader of ru), zhon silter (adviser). They expressed tribe and rus interests in significant meetings and defended them. Each of kazakh batyrs highly evaluated the power and meaning of words and had high intelligence. From history we know that the same condition was with japanese samurais who used to master Hanzo (education of aristocrats) along with military art. They had high intelligence, bravery and courage and had courteous nature [1, 416].

We can often find these aspects characteristic of batyr from the history of Karakalpakstan in historical sources. In the social life of karakalpaks in the 18th century, the remnants of clan-tribe division were firmly preserved. The entire nation was divided into two sections (aris) - fourteen clans and the clan of the kungirat, which, in turn, consisted of smaller tribes and clan groups. All these groups were headed by biys and military chiefs (batyrs) [4, 29]. It was recorded that on April 28 and August 22, 1722, members of the Russian embassy of D. Vershinin arrived in Ufa and Kazan. The karakalpak ambassadors led by Janibek batyr came with them. The ambassadors of Janibek batyr included Khojabai batyr, Kalmammed batyr, Temirbek batyr and Dosmammed [10, 28]. First of all, these historical sources show that in the karakalpaks, batyrs were tribal chiefs and played a leading role in solving socio-economic problems through their bravery and courage. Secondly, the fact that batyrs are sent as ambassadors in the relations between Russia and the karakalpaks means that their intelligence and morals are high.

In conclusion, the information about the role of folk batyrs as historical figures in the history of Karakalpakstan still requires research. The formation and development of batyrship as a social institution, if a lot of research is conducted with scientific works and local historical sources of the countries of Central Asia and the Commonwealth of Independent States, it will be of great importance in determining the role of folk batyrs as a historical figure in history.

References:

1. Dauytbekova M., Aldubasheva Z., Tulentayeva K., Yesserkepova Z., Ilgidaeva S. Place of kazakh batyrs in society. Wulfenia journal, Klagenfurt, Austria, Volume 21, No. 5, May 2014. – P. 424-415. ISSN: 1561-882X.
2. Бикбулатов Н.В., Юсупов Р.М., Шитова С.Н., Фатыхова Ф.Ф. Башкиры: Этническая история и традиционная культура. Уфа: Башкирская энциклопедия, 2002. – 248 с.
3. Давлетияров М.М. Методологические аспекты изучения социальных институтов // *ЭзРИА ҚҚБ Хабаршысы*. №3. Нукус, 2021. – 101-105 б.
4. Камалов С. Каракалпаки в XVIII-XIX веках (К истории взаимоотношений с Россией и среднеазиатскими ханствами). Ташкент: Фан, 1968. – 328 с.
5. Кабылтаева С.К. Роль батыров в сохранении целостности Казахского государства в первой четверти XVIII – первой половине XIX вв.: историографический обзор // *Исторические исследования: материалы IV Международная научная конференция*, Казань, 2016. – 30-36 с.
6. Қанаатов Т. Қарақалпақ тарихының кең жийеклери (этнонимнің жүзеге келиуі хәм өзгериуі) // *Әмиўдарья журналы*. № 2, Нөкис, 2007. – 91-113 б.
7. *Омурбеков Т.Н. Роль и место выдающихся личностей история Кыргызстана (середина XIX - начало XX вв.) // Автореф. дисс... канд.ист.наук. Бишкек, 2004. – 52 с.*
8. Сапаров З. Дала жазыўлары. 2023, № 3. Информатор: Қаллибек Данияров, Нөкис қаласы.
9. Султангареева Р. А. Башкирский народный курэш. Уфа: Китап, 2009. –144 с.
10. Юсупов О. Ж. Жәнибек батыр, Маман батыр, Мурад шайых, Әзиз баба, Қоразбек бий-аталық, Хожамурат бий, Төремурат бий-суфылар ямаса Майлы шеңгел өтмишинен дереклер. Нөкис: Қарақалпақстан, 1993. – 104 б.
11. Юсупов О.Ж. Арал бойының тарихый тулғалары: Маман батыр, бий ким болған? // «Қарақалпақстанның ең жаңа тарихының әхийетли машқалалары» темасындағы Республикалық илимий-теориялық конференция материаллары. Нөкис, 2021. – 57-60 б.

Rezyume: Bu maqolada xalq botirlarining tarixiy siymo sifatidagi tarixta tutgan o'рни va botirlik ijtimoiy instituti haqidagi xorijiy va mahalliy tadqitotchilarning ilmiy asarlari va maqolalari tahlil qilingan.

Kalit so'zlar: botir, xalq botiri, ijtimoiy institut, qahramon, jamiyat, qabila, harbiy, tarixiy siymo.

Резюме: В данной статье анализируется историческая роль народных батыров как исторических личностей, социальный институт батырства в научных трудах и статьях зарубежных и местных исследователей.

Ключевые слова: батыр, народный батыр, социальный институт, герой, общество, племен, военный, историческая личность.

**INTERNATIONAL CULTURAL RELATIONS OF THE REPUBLIC OF
KARAKALPAKSTAN**

Jolibekova I.

Karakalpak State University named after Berdakh

Summary: *In this article examined at development of international cultural connections of Republic of Karakalpakstan. Value to the revival of really national culture, spirituality, establishing a connection with world civilization. The republic of Karakalpakstan is rich in plenty of monuments of history, archaeology and culture.*

Keywords: *international cultural relations, spirituality, archaeology, work, music, theatre, collaboration, history, tourism.*

Independent Uzbekistan attaches paramount importance to the revival of a truly national culture, spirituality, and the establishment of a connection with world civilization. For the protection of cultural monuments in the 1990th of the twentieth century, the basic documents were adopted: the Cabinet of Ministers of the Republic of Uzbekistan adopted a resolution of August 29, 1998. "On the export and import of cultural property". The law was enacted by the resolution of the Oliy Majlis of the Republic of Uzbekistan dated August 29, 1997. Its purpose was to regulate relations connected with the preservation of the cultural heritage of the people of Uzbekistan, to protect cultural property from illegal export and import, to establish a single order for export of cultural property from the Republic of Uzbekistan and their imports to the Republic of Uzbekistan, as well as promoting the development of international cultural cooperation[1].

In the Republic of Karakalpakstan, the export and import of cultural property is also regulated by the legislation of the Republic of Karakalpakstan[2].

Due to the relatively quick implementation of the laws, cooperation of the Republic of Uzbekistan in the international arena was established. Creative musical and theatrical groups of Uzbekistan and Karakalpakstan began to visit foreign countries, widely demonstrating their skills. There was a regular exchange of exhibitions in the various areas of art. The days of culture of different countries of the world in Uzbekistan and the days of culture, literature and art of the peoples of Karakalpakstan in the international arena enjoyed success.

In the field of tourism there has been a steady increase in the popularity of the eastern direction. Many travel agencies have noted a steady increase in the number of people willing to visit Karakalpakstan. The states of Central Asia are connected in the chain of the Great Silk Road global tourist product, which includes at least 20 countries from Japan to Europe. And in this chain, Uzbekistan occupies an important place - the country of azure domes.

Karakalpakstan has a significant fund of natural objects that could be used for tourism. These are the various landscapes of the Ustyurt plateau, the Kyzylkum desert, the valleys and the Amudarya delta.

The Baday-Tugai reserve, located in the Beruni district of the Republic of Karakalpakstan, can be used as a tourist site. Despite the small area, the animal and plant world of the reserve is rich and diverse.

The Republic of Karakalpakstan is rich in a large number of historical, archeological and cultural monuments. According to the Institute of History of Archeology and Ethnography of the Karakalpak branch of the Academy of Sciences of the Republic of Uzbekistan, there are about 280 archaeological sites here. Chronologically, they are located from the Stone Age to the late Middle Ages (XIV century). Among the most famous archaeological monuments can be identified such as Kazakly Yatkan-Kala - the oldest capital of Khorezmshahs, Ayazkala, which is important in the "Golden Ring of Ancient Khorezm", Koy-krylgan-Kala - ancient mausoleum and temple-observatory, Toprakkala - Late Antique residence of Khorezmshahs, as well as numerous ancient and medieval cities and settlements - Guldursun, Nazlumhansulu and Shylpik[3].

The head of the tourist group from Japan, Yoheo Saban, having visited Karakalpakstan, enthusiastically noted: "We in Japan read a lot about the Great Silk Road, its main cities - Samarkand, Bukhara, Khiva. We were pleasantly shocked by these ancient cities. But what we saw in the museums of Karakalpakstan and its historical monuments is so extraordinary! " For many years V.N. Yagodin, the director of the Institute of History, Archeology and Ethnography of the Karakalpak branch of the Academy of Sciences of the Republic of Uzbekistan, member of the New York Academy of Sciences, Doctor of History, dedicated his life to the idea of reviving international tourism in Karakalpakstan. V.N. Yagodin said: "The historical monuments of Karakalpakstan are truly unique. The Institute of History, Archeology and Ethnography of the Karakalpak Branch of the Academy of Sciences of the Republic of Uzbekistan, together with the Institute of Restoration of the city of Tashkent, is engaged in several projects to promote them in the "Golden Ring of Ancient Khorezm" cycle. Many historical sites, ancient monuments are remarkably preserved, although they appeared many thousands of years before the advent of Islam[4].

In the II-IV centuries AD Toprakkala was the residence of the Khorezm rulers. This site was internationally recognized due to the discovery here of the excavations, the remarkable palace structures of the Hall of Kings, the Hall of Black Warriors, the Hall of Dancing Masks, the Hall of Victory, monuments of ancient art: frescoes, clay sculptures, objects applied art.

The unique archaeological architectural object of the republic is the ancient and medieval complex Mizdahkan, located 3 kilometers from the city of Khodjeyli. Mizdahkan is the third largest city of medieval Khorezm and the center of feudal castles. Among the necropolises of different ages, one of the masterpieces of Oriental architecture stands out - the semi-underground Nazlumkhan-Sulu mausoleum, the Caliph Erezhep madrasah, the Shamun Nabi mausoleum, Jumart kassab. The rich remnants of material culture are fabrics and beads depicting birds, Coral beads, cowra shells from the Indian Ocean, fragments of Chinese celadon tableware, coins, and other things speak of Mizdahkan's trade links on the Silk Road.

A kind of sensation, in our days, a well-organized caravan service network on the Great Silk Road found on the Ustyurt plateau became a phenomenon of archeology. Caravanserai, wells and other structures preserved in the vast expanses of sand and gypsum desert. Pride and admiration are caused by wonderful historical monuments - the Daukesken mausoleum, the caravanserai of Beleuli, the fortress of Korgansha, the catchment structures that were ancient methods of irrigating land using atmospheric moisture, which indicates the high abilities of the peoples who once inhabited Ustyurt.

The route passing through the territory of Karakalpakstan has already become an integral part of transcontinental tourist routes along the Great Silk Road[5]. Over the past 2-3 years, several foreign groups have traveled on cars and motorcycles along this route. The potential available in the country for the development of international tourism, which is almost unused now, should be used in connection with its obvious environmental benefits. Archaeological sites could also be effectively used for international tourism. Together with the media, scholars, historians and museum workers in Karakalpakstan, a tourism development project was developed.

In the south-west of the capital of Karakalpakstan, a modern car camp was built. Autotourists from Kazakhstan, Russia, Turkmenistan, the Baltic States visit it daily[6].

The international tourism industry in Karakalpakstan was developed during the period of independence. A significant share in its turnover belongs to the tourist company "Ayazkalatur". It started its activities in 1998, and since 2000, the summer tourist camping "Ayazkala" began to operate with it. Near the campsite is the Ayazkala site of ancient settlement, which is of great importance in the Golden Ring of ancient Khorezm, nearby there is the Ayazkul lake, which is 20 km long. Around the expanse, the steppe, a very convenient place for excursions on foot through the settlement, for camel riding, recreation, fishing, swimming and boating on the lake. On average, Ayazkalu is visited by more than 1,000 tourists a year[7].

Particular attention is paid to improving the condition of summer camping. For this purpose, a project was developed, and UNESCO provided great assistance in its implementation. In 2005, on the basis of a grant from UNESCO, the company received solar panels, a filter for water purification. A UNESCO project is being implemented to conserve and build adobe structures in Central Asia. The goal is to preserve in the territory of Karakalpakstan mud buildings in the climatic conditions of the Aral Sea region.

In October 2007, in the Nukus, Bustan and Beruni, an international symposium "Aral Sea at the Crossroads of Cultures" and the second field seminar "Archeology of the ancient Tashkyrman Oasis", dedicated to the 100th anniversary of the outstanding researcher of antiquities of highlands Amudarya S .P Tolstova. Participants included: M. Mambetullaev (Nukus), Nikolas Boroffka (Germany), S.B. Bolelov (Russia), M.M. Rozhanskaya (Russia), I.A. Arzhantseva (Russia), Yu.F. Buryakov (Tashkent), R.A. V. Head-dong (Great Britain), M.-Sh. Kdynriyazov (Nukus), E.A. Armarchuk (Russia), E.D. Zilivetskaya (Russia), A.I. Torgoev (Russia). The main report of the field seminar "The Archeology of the Ancient Tashkyrman Oasis" was the report of the leaders of the Karakalpak-Australian archaeological expedition of Dr. A.V. G. Betts and Doctor of Historical Sciences V.N Yagodina.

The Takshyrman oasis is one of the original centers of human habitation on the lands of the ancient irrigation of the southern delta of Akchadarya. It was based on the mainline channel, which arose in the epoch of the existence of the archaic culture of Ancient Khorezm (VI - V cc. BC), and developed in the Kangyu era (IV c. BC - I century AD) and Kushan (II - IV centuries AD) cultures. Today it is located on the territory of Ellikkala and Beruni districts. Research work here began in 1995. Excavations are carried out by the joint Karakalpak-Australian archaeological expedition, which was the result of cooperation with the University of Sydney[8].

Many thousands of years ago, the territory of modern Karakalpakstan was the cradle of one of the greatest civilizations of the ancient world. The people of Karakalpakstan have their own culture, traditions and customs.

References:

1. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan of August 29, 1998 "On the export and import of cultural property." The law was enacted by the resolution of the Oliy Majlis of the Republic of Uzbekistan dated August 29, 1997. -1 article.
2. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan of August 29, 1998 "On the export and import of cultural property." The law was enacted by the resolution of the Oliy Majlis of the Republic of Uzbekistan on August 29, 1997. -2 article.
3. Decree "On the storage of cultural and historical sites" dated December 22, 2001 - C.4.
4. Karakalpak-Australian archaeological expedition // News of Karakalpakstan, 2006. - July 26. - №60.
5. Archive Joqargi Kenes f.35, op.3, d.111, l.199.
6. Ryabikina N. The Golden Tourism Project // Vesti Karakalpakstan, 2002. - №71. - September 3rd.
7. Turaeva M. "Ayazkala Tour" - a visiting card of Karakalpakstan // News of Karakalpakstan, 2006. - №76. -20. cc
8. Aral Sea region at the crossroads of culture // Vesti Karakalpakstan. - 2007. - 8 October. - №80.

Rezyume. *Ushbu maqolada Qoraqalpog'iston Respublikasining xalqaro madaniy aloqalari ilmiy yoritiladi. Milliy madaniyatimiz, ma'naviyatimizning yuksalishida xalqaro munosabatlarning o'rni beqiyosdir. Qoraqalpog'iston Respublikasida tarixiy yodgorliklar, madaniyati, tarixiga chet el adabiyotlarda yoritilishi haqida ilmiy o'rganilgan.*

Резюме. *В данной статье рассмотрено развитие международных культурных связей Республики Каракалпакстан. Значение для возрождения действительно национальной культуры, духовности, установления связи с мировой цивилизацией. Республика Каракалпакстан богата множеством памятников истории, археологии и культуры.*

Kalit so'zlar: *xalqaro madaniy aloqalar, ma'naviyat, arxeologiya, san'at, musiqa, teatr, hamkorlik, tarix, turizm.*

Ключевые слова: *международные культурные связи, духовность, археология, творчество, музыка, театр, сотрудничество, история, туризм.*

UDK 070:004.55

THE CONCEPT OF HYPERMEDIA IN JOURNALISM

Begniyazova Q.A.

Karakalpak State University named after Berdakh

Summary: *In the article, the creative features of hypertext in Internet journalism and its scientific-practical concept were created based on the analysis of materials published on leading websites. In our opinion, hypermedia is a creative-technical phenomenal and historical phenomenon.*

Keywords: *Hypertext, hypermedia, journalism, concept, hypertext, material, multimedia, discursive, creative hypertext.*

From the middle of the 1990s, the peculiarities of web journalism as a discursive material began to be learned in foreign science. Specific features of blind hypertextuality, interactivity and multimedia discursive quality were defined (Machado, Palacios, 1996). And in 2004, Palacios began researching the service of hypermedia in creating news on mobile devices. Scientist has already tried the multimedia files of hypermedia as an example of the materials published in the Internet editions of the city. Since then, the work of learning it from a journalistic point of view, using examples of materials, has begun. However, this does not mean that there were no prior efforts to explore hypermedia. The reason is that T. Nelson, who introduced the term, created its unique scientific characteristics and gave its etymology. To this day, this definition is accepted as the initial scientific theory of the concept.

In recent years, the terms multimedia and hypermedia have been frequently used in Internet journalism. In particular, hypertext and hypermedia phenomena are characterized by a new structure, type of text, method of expanding material. The concept of hypermedia based on hypertext was used in 1965 by T. Nelson. In this example, the author mentions it in his section "Composite Information Processing: Variable and Ambiguous File Structure". According to him, hypermedia is "... a technology that processes, systematizes and integrates information into its elements with the help of hyperlinks" [1]. In our opinion, this hypermedia is understood as more technology. In fact, hypermedia is not a technology, but a new type of journalistic ethics. This news illustrates the multi-step process of information delivery. Each program delivers a multi-click message from various countries and media. T. Nelson should be considered as the opposite of hypertext and hypermedia. However, the subsequent development of hypertext and hypermedia has a broader and infinitely more arbitrary nature than the meaning of these terms explained by T. Nelson.

Therefore, the requirements of the society, using the opportunities of journalism as a social institution, turned hypertext and hypermedia from a technical invention into a meaningful social event. And this process applies not only to hypertext, hypermedia, but also to radio and television.

Returning to T. Nelson, the researcher makes a theoretical overview of hypermedia in relation to the characteristics of hyperlinks, hypertexts as an abstract concept. In another document, it is stated that "hypermedia is an expanded hypertext that uses graphics, audio, video, text, and links to create a sense of a non-linear information area. "According to this theoretical point of view, hypermedia can be defined as a collection of hypertexts. Also, it is a related word to the multimedia style, a technology that is used to organize non-interactive information. "Hypermedia news is a branch of computer files connected by a system of links. The journalist builds this branch, it is called metahistory" [2]. Links allow the reader to choose. They are usually displayed by theme or reviews. When the audience clicks on it, a piece of text appears on the screen. As a result, the reader can refine the reading of the article according to his choice. The audience creates its own story and becomes a journalist and co-author.

Today, the technological determinism of many scientists is often used to connect the development of mass media with technological reforms. In this direction, Marshall McLuhan's name is on the first place in the world. Many people join the scientific argument that technology determines the development of mass media. And McLuhan is a scientist who supported the idea. From his point of view, any mass media is affected by technologies. They set the direction of appearance and development of journalism.

We believe that it is necessary to give a clearer understanding of M. McLuhan's position due to the misunderstanding of the business. In fact, the scientist is the author of the phrase "the tool itself is information" [3]. This is the reason to call it a more technological deterministic approach in science. But he misunderstood McLuhan. In this regard, M. McLuhan's opinion consisted of a broad and deep understanding of the possibilities of technology. In his opinion, technology has a unified effect. For example, sound on the radio or visuals on television. However, these effects have a social character in a broad sense. M. McLuhan's main goal is not technological determinism, but more clearly showing the interdependence of media.

Thus, journalism is both a journalist and a technician at the same time. These two points show the development of mass media. Journalist's accuracy is delivered to the audience with the help of technical actions and tools. In particular, in the course of Internet journalism, the technical trends that organize and shape the media are monitored. The author is forced to write the work according to automation and technical possibilities in the channels of social branches. As a result, the journalist in most cases conveys human-sized events to the audience. The impact of such technology is often observed in the media, especially in the Internet media. The technical sphere of influence of hypermedia was also defined in journalistic materials. That's why we believe that it plays a big role in solving the problem of learning in the nature of understanding, and in the nature of technology.

E. N. Yakubenko in his article "Convergence is the key to the modern mass media market" [4] distinguishes the modern convergent mass media into the following three types:

1. Victory media is one of the structural parts of the mass media system.
2. Hypermedia - publications that deliver content from various means at the same time. For example, offline and online newspapers. They are often called convergent.
3. Transmedia is the new media. Advances in this direction continue in science. The reason is that if those who don't recognize the difference consider them to be media, some people think that they are not media. For example, social branches, their content is not informational, but communicative, and secondly, it is improved more by users than by editors. The transition of transmedia resources from the limited scope of professional journalism and the expansion of their functions by solving a number of activities not related to the media, takes into account the relationship of social branches. In the classification of E. N. Yakubenko, hypermedia is considered as online publications that deliver content using various tools at the same time and use this feature. Here, the scientist proposes to call hypermedia as a type of media that deals with material in various formats. In our opinion, this opinion is not very good. The reason is that it is more suitable for multimedia journalism.

Therefore, there are two types of theoretical definitions in the science of hypermedia:

a) It is a theory of text expansion with the help of various multimedia tools (Pavlik, John, Sanavilhas J., Baccin A, Longhi, Raquel, etc.). Here we consider that the word tools is used in the sense of audio, photo, video, graphics. This is because hypermedia uses sound, video, text, and links. However, this does not mean that hypermedia is called multimedia. It should not be considered a complete hypertext system. It is a broader concept than hypertext. If hypertext connects texts in other space and space with links, hypermedia combines elements such as audio, video, graphics in text composition, that is, hypermedia is considered a path leading to multimedia.

b) The type of online publications that deliver hypermedia material to the audience using various tools (E. N. Yakubenko, H. Kalmikov, etc.). Although this scientific hypothesis [5] is not widespread in science, its conceptual characteristics are being discussed by different scientists.

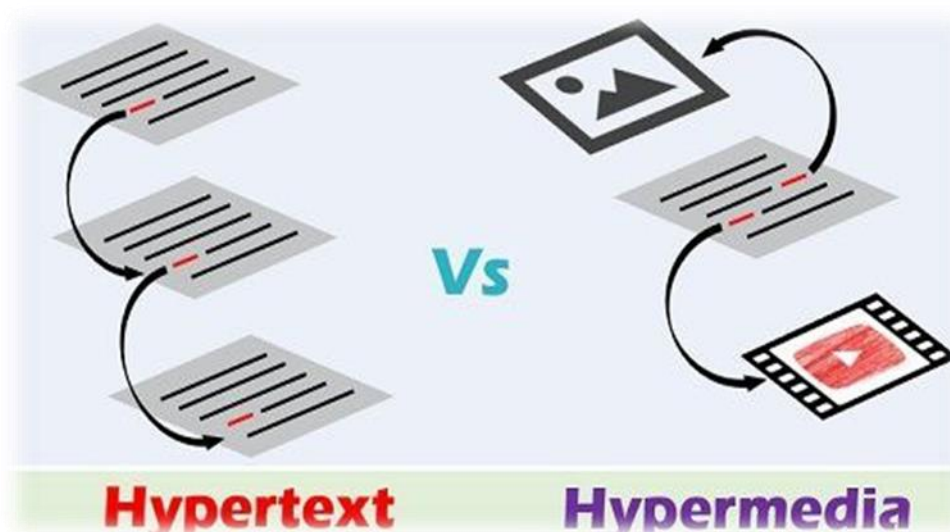
However, E. N. Yakubenko, H. Kalmikov considered it in the framework of their articles and listed it among other media classifications. In our opinion, the definition of hypermedia as a type of online publications needs to be further studied and reviewed with the help of clear examples.

The above two scientific definitions of hypermedia are very close to its characteristics, nature, and unique features. However, in science, compared to the concept of Internet publications, his service in expanding texts is widespread. In recent studies, more attention has been paid to the fact that hypermedia provides communication between texts and multimedia tools.

Here we can say that there are great ways to combine hypertext and hypermedia. For example, hypertext provides communication with the help of materials, and hypermedia files, more precisely, audio, graphics, videos provide connectivity with works. Let's look at the differences that help distinguish hypertext and hypermedia from each other with the help of a special table:

Hypertext	Hypermedia
Text in one or another document or text linked to its parts.	Texts move between media. This extension is not limited to text only, communication is not limited.
It is a group of texts connected by powerful interconnection tools called hyperlinks.	This type of text, photo, audio, video, and graphics shows the non-linear appearance of the composition.
This type of text, photo, audio, video, and graphics shows the non-linear appearance of the composition.	This type of text, photo, audio, video, and graphics shows the non-linear appearance of the composition.
Hypertext refers to the interaction between a person and a computer.	Hypermedia extends the use of multimedia elements to create links that students can access and interact with.
It compiles content from various media in electronic text format.	It combines hypertext and multimedia and offers multi-item information.

There are six categories that are not mentioned in the description of the differences between the two concepts. They are compared with each other based on the principles, functions, and appearances of the terms. We believe that it is necessary to see the following picture in order to understand the main meaning of the terms hypertext and hypermedia:



5.1.1. - Figure: Difference between hypertext and hypermedia environment

In the photo on the side of the first row, the texts are connected to each other, while in the photo on the right, multimedia elements are connected to the text. Hypertext and hypermedia are

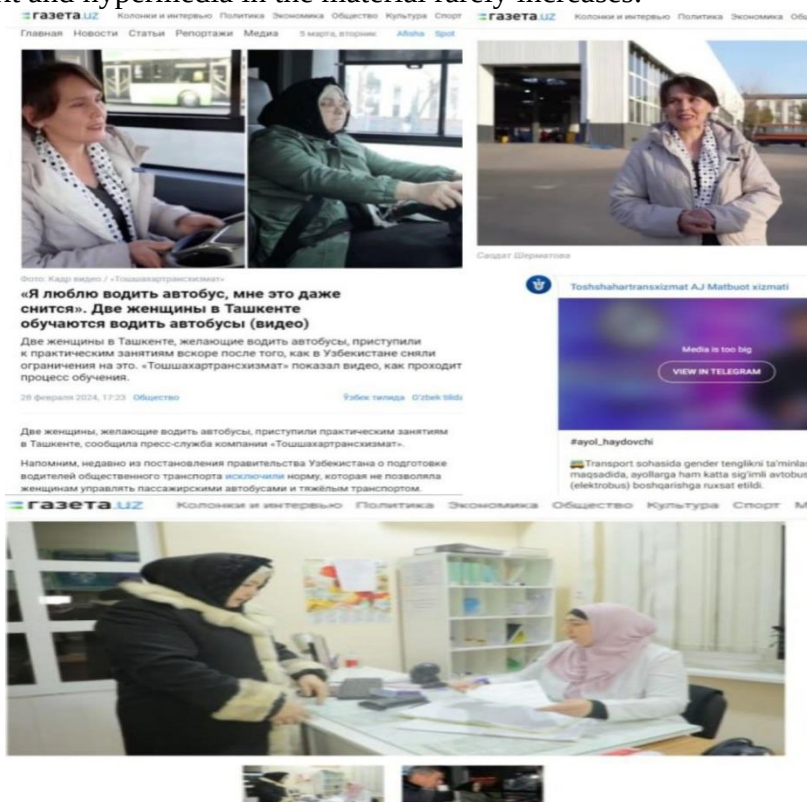
close to each other as communication services based on links. However, all the variety of views of the text is combined in space and time.

More hypertext is used on the sites www.kun.uz, www.daryo.uz, www.gazeta.uz, www.anhor.uz, www.bugun.uz. Among them, only www.qalampir.uz publication can collect hypermedia content. In it, the text connected with the video on the www.daryo.uz site by means of a hyperlink and caused the creation of hypermedia material.

28.02.2024. www.gazeta.uz: "I love driving a bus, I even dream of it." Two women in Tashkent learn to drive a bus (video)".

Formula: Text + photo + text + video + photo

Along with hypertext, hypermedia is also used in the material. However, at the same time, the use of hypertext and hypermedia in the material rarely increases.



5.1.2. - image: Hypermedia content

Currently, there are no scientific opinions related to the hypermedia method, as we said, they are different, and it is necessary to compare them with real examples on the sites. A theoretical definition of the term hypermedia is defined based on that. In the data, it is described as "hypertext-type multimedia information and the connections between them are collectively called hypermedia" [6]. Analyzing the author's point of view, hypermedia is a method of connecting hypertext and multimedia elements with mutual links. Hypertext has a narrower meaning than it, it establishes the connection between texts, and hypermedia describes the connectivity between texts, audio, photo, video elements. Hypertext is a part of hypermedia that has a quality that does not exist. He also includes hypertexts in his work. That's right, we can consider that hypermedia is an extension of hypertext, which includes multimedia such as photo, video, audio, and graphics. "Hypermedia is the next version of hypertext, where graphics, texts, audio, video and animated graphics are interconnected" [7]. More precisely, if hypertext provides inter-text communication through links, hypermedia includes links of multimedia elements leading to another destination. Some scientists evaluate hypermedia and multimedia as the same thing. The main reason for this is that hypermedia is different from itself, as multimedia elements connect photos, videos, graphics to text. However, this multimedia expansion is only a different destination, it has the potential to be united in the space of time, and there is no way to expand the text that is part of multimedia journalism in the

same destination. In our opinion, both concepts are distinguished by their main functions and peculiarities in journalism. We believe that separating them from the journalistic point of view and learning them will help to create the theoretical basis of hypermedia.

№	Compare	Multimedia	Hypermedia
1	Mains	In the text, various forms of information are used (audio, photo, video, etc.).	The extension of hypertext also connects multimedia in other places, places, and time spaces.
2	Types	There are linear and non-linear types	It just has a non-linear appearance.
3	Connection	Together with hypertext, it creates hypermedia.	It combines both hypertext and multimedia in information dissemination.
4	Service	It works in mutual influence and interactivity.	It is used for mutual connectivity between elements.
5	Requirements	For this, a multimedia delivery system is required.	It offers links to expand the possibilities further.
6	General information	It is a combination of media and structure that store information in devices.	Its nature is more contrastive and linear, so it is used in the presentation of information.

In journalism, using the unique features of online media, news writing becomes hypermedia. The reason is that "it uses different communication models" [8]. According to different scientists, "it uses contextualization based on combining information" [9]. It states that "... hypertext and multimedia systems together affect the quality of online journalistic material" [10]. According to Pavlik's theory mentioned above, the methods of communication in hypermedia are even more extensive, that is, if hypertext combines texts only with links, hypermedia communication methods connect with calculated audio, video, graphics. As a result, the trend of "immersive education" [11] appears. We used the case-study method to study hypermedia in the contextualization of online publications in national media. For example, on February 28, 2024, on the website www.kun.uz, "Peasants' "movement": what are European farmers dissatisfied with?" the material is published. The content structure consists of hyperlinks connected to photos, videos, and text. Use various tools to deliver the article, and don't go to hypermedia. This basic material is expanding even more and allows the student to access information in various formats. Also, the audience's different attitude to the story encourages a deeper understanding with the help of other methods. In particular, the materials of the online newspaper "Globo A Mais", published in Brazil, were adjusted according to the hypermedia model.

Various multimedia elements are combined into the works written in the direction of culture, creating hypermedia content. Here, works in multimedia formats should not be confused with hypermedia. In multimedia content, photos, videos, graphics, animations are placed in the text itself, while in hypermedia, they are connected to other multimedia elements on the site with the help of hyperlinks. According to Larrondo Ureta, "... a method of managing various resources" [12]. It should be noted here that resources are used as multimedia elements. However, it was found that the content of hypermedia content is less compared to hypertext in the content of the leading sites in Uzbekistan that we have studied.

Today, due to the development of Internet journalism, the word format is used as an extended version of the concept of genre. According to my grandfather, there are scientific experts among the scientists. Their differences consider that it is necessary to call the materials that have changed from the content point of view as a genre, while some of them believe that it is more appropriate to call the articles that are differentiated from the form point of view as a format. In our opinion, the conceptual format is related to the fact that the content changes from the form side to the material. This is because the majority of materials in Internet journalism differ from each other in terms of structure or form. They serve as form *zazaʻ*. Therefore, if we take into account the nature of the extended service of hypermedia, it is not appropriate to emphasize its genre difference. There is no genre term. However, in journalism, hypermedia has certain format characteristics.

The hypermedia system perfects the convergent format by combining the multimedia in a different location and space to the text, that is, the text is combined with a photo or video and turns into a convergent format with the help of connecting different genres or formats.

In short, hypermedia means that information in a multimedia format can be combined with links to text, and it enriches the user experience and makes navigation more intuitive. Although it is functionally similar to the concept of hypertext, it differs in terms of performance and extension. That's right, hypermedia has the ability to include links to all types of multimedia objects, it combines both hypertext and multimedia in the presentation of information. This term refers to the non-linear presentation of text, photos, audio, video, and graphics. In modern media, hypermedia is described as a technical tool. In particular, his service to extend the material through various scenes is valuable. And the structural and semantic effect on the context is considered to be its distinctiveness. It is possible to create converged content by combining audio, video, graphic formats for a reliable audience. Also, the student can receive the material in various formats in the way he wants. In this part of our dissertation, it is necessary to mention the possibility of its transition to a convergent format from a journalistic point of view.

It was found that hypermedia materials are less used than hypertexts in the national segment at present. We published them on www.qalampir.uz and www.gazeta.uz websites. Internet publications in Karakalpakstan have few hypermedia materials. This means that all necessary works are already performed in this shipment. Therefore, it is an extension of hypertext and performs the service of interlinking text and multimedia elements.

Hypermedia is a method of combining various formats of information. Instead of being limited to one type of text or visual CSI, hypermedia allows to include audio, video, animation and other multimedia elements in one text. Such connections facilitate the understanding of information and allow the audience to learn about different aspects of the topic.

We characterize the concept of hypermedia as follows. In the informational life of the society, the media occupy an important place. In the future, mass media information is merging with hypertext. Hypertext and media together form hypermedia. Therefore, hypermedia is about to become a new non-existent format of the ISS, which is constantly developing in the information society.

References:

1. Словарь-справочник по информатике (онтология информатики). Новосибирский государственный университет. URL: http://db4.sbras.ru/elbib/data/show_page.phtml?77+688+35
2. Бирюкова Т.А. Гипертекстовая онлайн-журналистика: история возникновения (на примере электронного журнала feed) Вестник Московского университета. Серия 10. URL: <https://cyberleninka.ru/article/n/gipertekstovaya-onlayn-zhurnalistsika-istoriya-vozniknoveniya-na-primere-elektronnogo-zhurnala-feed>
3. Маклуэн М. Понимание медиа: внешние расширения человека/ Пер.с англ. В Николаева; Закл. Ст. М.Вавилова. – М.; Жуковский: «Канон-пресс-Ц», «Кучкова поле», 2003. – С. -464.
4. Якубенко Е.Н. Конвергенция как фактор формирования современного медиа-рынка. URL: <https://cyberleninka.ru/article/n/konvergentsiya-kak-faktor-formirovaniya-sovremennogo-media-rynka>
5. Якубенко Е.Н. Конвергенция как фактор формирования современного медиа-рынка. URL: <https://cyberleninka.ru/article/n/konvergentsiya-kak-faktor-formirovaniya-sovremennogo-media-rynka>

6. Словарь-справочник по информатике (онтология информатики). Новосибирский государственный университет. URL: https://db4.sbras.ru/elbib/data/show_page.phtml?77+688+35
7. Difference between Hypermedia and Multimedia. <https://www.geeksforgeeks.org/difference-between-multimedia-and-hypermedia/>
8. Pavlik, John. El periodismo y los nuevos medios de comunicación. Paidós: Barcelona, 2005.
9. Canavilhas J., Baccin A. Contextualization in hypermedia news report: narrative and immersion. 2015. URL: <https://bjr.sbpjor.org.br/bjr/article/download/803/641/2989>
10. Longhi, Raquel. Audiovisual, conceito em expansão. In: Francisco Ubierna Gómez; Javier Sierra Sánchez. (Org.). Miscelánea sobre el entorno audiovisual en 2014. 1ed.Madrid: Editorial Fragua, v. 1,2004. - P.- 283-304.
11. Pavlik, John. El periodismo y los nuevos medios de comunicación. Paidós: Barcelona, 2005.
12. Canavilhas J., Baccin A. Contextualization in hypermedia news report: narrative and immersion. 2015. URL: <https://bjr.sbpjor.org.br/bjr/article/download/803/641/2989>

Rezyume: Maqolada etakchi veb-saytlarda chop etilgan materiallar tahlili asosida internet jurnalistikasida gipermatnning ijodiy xususiyatlari va uning ilmiy-amaliy konseptsiyasi yaratildi. Bizningcha, gipermedia ijodiy-texnik fenomenal va tarixiy hodisadir.

Резюме: В статье на основе анализа материалов, опубликованных на ведущих сайтах, созданы творческие особенности гипертекста в интернет журналистике и его научно-практическая концепция. На наш взгляд, гипермедиа – это творчески-техническое феноменальное и историческое явление.

Kalit so‘zlar: Gipermatn, gipermedia, jurnalistika, kontsept, material, multimedia, diskursiv, ijodiy gipermatn.

Ключевые слова: Гипертекст, гипермедиа, журналистика, концепт, гипертекст, материал, мультимедиа, дискурсивный, творческий гипертекст.

AN ARTIST IN THE ATTENTION OF THE PEOPLE...

Rajabov H.J.

Temporary acting professor of the Nukus branch of the State Conservatory of Uzbekistan

Summary: *This article tells about the life and work of the famous composer, Markhabai Zhiemuratov, who contributed to the development of the Karakalpak musical art with his unique works. It occupies a special place in the field of national art. The music written by him does not leave a single listener unattended, captivating them to wonderful and supernatural feelings of love.*

Key words: *composer, musical art, song, romance, string orchestra, ballet, note, measure.*

Marqabay Jiemuratov, an artist in the tribute of the people and a well-known composer, has a special place in the field of national art, contributing to the development of Karakalpak music art with his unique works. Because the music written by him brings every listener to beautiful emotion and supernatural feelings of love. Especially songs written by him which dedicated to the famous singer Dauitbay Kayipov «Umitpa», «*Seni saġnaman atqan tañlarda*», «*Altinkol*», «*Saġinish*» and other songs are still loved by our people. Also, the composer's song «*Oydinlar*» (to the words of Adenbay Tajimutarov) is played by all our people with longing. Composer Marqabay Jiemuratov was admitted to the Union of Composers of Uzbekistan in 1984. He is one of the famous composers of Karakalpakstan.

Marqabay Jiemuratov was born on March 28, 1943 in the Karauzak district of the Republic of Karakalpakstan. He was interested in music since childhood and learned to play the dutor, violin, and mandolin. His first teacher was Bakhshi Shaniyaz Mambetov, he learned to play the dutor musical instrument from him, and actively participated as a performer in various concerts. In 1960, he started study at the Nukus School of Music and Choreography, and in 1964 he graduated the violin class of Najimaddin Mukhammeddinov. In 1964, he taught violin at the children's music school of Beruni city, and in 1965-1966 at the children's music school of Khodjeyli district [4].

During these years, his musical and performance abilities were developed, and as a result, under the influence of his teachers J.Shamuratov, A.Sultanov, Kh. Turdikulov, N.Mukhammeddinov he wrote many melodies and songs. For example: “Ashiq bolarman (I will fall in love)”, “Umitpa (Don't forget)” and so on.

In 1969, Marqabay Jiemuratov has started the study at the composition faculty of the Tashkent State Conservatory named after M.Ashrafiy. He studied in the conservatory first in the class of professor B.F.Gienko, then in the class of professor G.A.Mushel, and successfully graduated in 1975.

He was commissioned to write the libretto of T.Jumamuratov's book «Krasavitsa Makarya» by the famous ballet master Markaryants Nikolay Sergeevich, and to write the music in the style of a diploma thesis to the young composer M.Jiemuratov. This work was completed with honors in 1975. The diploma work was unanimously accepted by the state commission and was evaluated with excellent marks by the composers for the specialty “Ballet Makarya the Beautiful” [2. 4].

In the works of the composer M.Jiemuratov, the genres of songs and romances are of primary importance. Over the years, M.Jiemuratov has created the following musical works: «Pyesalar», «Polka», «Valslar», «March», «Alla», «Naktyurn», «Skertso», 4-partly suite for piano, symphonic poem named «Ernazar Alakoz», five-partly symphonic suite, «Poem» for chorus for string orchestra and song «Qaraqalpaqstan» (words by I. Kasimbetov) for symphonic orchestra.

I have known Marqabay Jiemuratov since he was a student at the Tashkent State Conservatory named after M.Ashrafiy in the seventies of the last century.

He is very quiet, serious, knowledgeable, far-seeing, and you can nget enjoy from his conversation. We lived together in the student dormitory, he played his compositions. Melodies in his works were remembered for their melodies and philosophical meanings, which quickly reached the souls of people and charmed the listener.

Marqabay's dressing culture, behavior, and unique human qualities have been imprinted in my memory. The songs «Altın kól (Golden Lake)», «Sağınış (longing)», «Aydinlar» were written by him when I worked as the artistic director and chief conductor of the Doni Zakirov orchestra of folk instruments under the Uzbekistan Television and Radio Company (2002-2004).

We recorded these works with professor Rudakiy Allanbaev in the golden fund of Radio Uzbekistan.

I am of the opinion that the works written by the composer Marqabay Jiemuratov will be performed on stage and taught to the youth of the future generation, and these works will enrich the spiritual world of our people for centuries.

Composer Marqabay Jiemuratov's analysis of the piece «Jılan oyını (Dance of the Snake Player)» from the ballet «Gozzal Makarya» [2.6].

If we take a creative approach to the analysis of this work, it is a small work written in a complex two-part form.

The introductory Andante tempo of the work has unpleasant seconds, dance rhythmic methods in the orchestra have an exciting character.

For example



This method prevails throughout the work. Conditional extensions in the high register determine the melody, non-traditional tonal situations.

In the second theme of the introduction, the polyphonic direction of long sounds informs the melody on the piano with heavy, pressing movements.



Part 1 Allegro. Written in the form of a simple 2-part square (a+b). The rhythm of the method: from the beginning to the end of the work.

For example



defined.

The dynamic contrast dance method prepares the listener in the introduction. Unpleasant seconds, mid-register forslashes, mexalidia enriches it with ladi.

Theme 2 (b) contrasts itself with the character of theme 1 in the mixolide of leagues in the bass note extension with its high register. An example is the 4th bar of the 4th digit.



Downward notes lead up to and prepare for theme 2 in the introduction.



The 2nd part of the piece is Allegro con moto. G minor is known as the tonic organ point. This theme ends in the middle register with all the means of musical expression without stopping during the performance.

In my opinion, the culmination of the work is the octave downward direction of the bass sound at the end of the melody; the tonic organ point is the strongest sound, i.e.

The fortissimo and dominant are the basis for completion.

References:

1. Jabborov A. O'zbekiston kompozitorlari, bastakorlari va musiqashunoslari. (2nd edition supplemented by reference). – T.: Publisher - "Musika", 2018.
2. Jiemuratov M. "Makarya suliw" Ballet suite. – Nukus: "Qaraqalpaqstan", 2022.
3. Jiemuratov M. "Ernazar Alako'z". – Nókis: "Qaraqalpaqstan", 2013.
4. Rajabov H. Qoraqalpoq musiqa san'atining rivojlanishida xalq cholg'ulari orkestrining o'rni. – Tashkent: "Fan ziyosi", 2022.

Rezyume: Ushbu maqolada Qoraqalpoq musiqa san'atining rivojlanishiga o'zini betakror asarlari bilan, xalq nazaridagi san'atkor, taniqli kompozitor Marqaboy Jiemuratov hayoti va ijodiy ishlari haqida so'z etiladi. Milliy san'at sohasida alohida o'ringa ega. Chunki uning yozgan musiqalari har bir tinglovchini befarq qoldirmay go'zal tuyg'ularga va g'ayritabiiy muhabbat tuyg'ulariga chorlaydi.

Резюме: В данной статье рассказывается о жизни и творчестве известного композитора, Мархабая Жиемуратова, внесшего вклад в развитие каракалпакского музыкального искусства своими уникальными произведениями. Он занимает особое место в области национального искусства. Написанная им музыка не оставляет без внимания ни единого слушателя, пленяя их к прекрасным и сверхъестественным чувствам любви.

Kalit so'zlar: kompozitor, musiqa san'ati, qo'shiq, romans, torli orkestr, balet, nota, takt.

Ключевые слова: композитор, музыкальное искусство, песня, романс, струнный оркестр, балет, нота, такт.

UDK: 657.4

AUDITING IN TURKISH AND UZBEK JOINT STOCK COMPANIES

Utegenova S.T.

Karakalpak State University named after Berdakh

Summary: *This article analyzes the specifics of auditing and compare data in Turkish and Uzbek joint stock companies. in this paper we study the laws related to mandatory audit of joint stock companies and the differences between the two countries.*

Keywords: *Economy, joint stock companies, audit, innovation, investment international auditing standards.*

In the world, in the context of economic globalization, quality control of audit work and audit in joint stock companies is organized on the basis of international standards. "In the Republic of Korea, Latvia, Singapore, Brazil, audits are completely organized on the basis of international auditing standards, and in the Russian Federation, China and Japan, audit activities are based on national and international auditing standards"[1]. The definition of the American Accounting Office states "that a quality audit is an examination conducted in accordance with generally accepted auditing standards that ensures the reliability of financial statements"[2]. Consequently, conducting audits based on the requirements of international standards helps improve the quality of audit work.

As a result of the research carried out in world practice, the relevant authorized bodies and public organizations paid special attention to improving the quality control of audit work. The fact that in modern world auditing practice, inspections are not organized entirely on the basis of international standards, as well as the lack of a comprehensive study of issues of audit quality, requires in-depth scientific research in this area. Also urgent tasks are the creation of effective mechanisms for organizing external control of the quality of audit work, ensuring functional communication and consistency between the various regulatory bodies of this system, launching levers to ensure the effective functioning of the principles of priority and subordination between audit organizations and professional public associations, improving the application of internal standards, ensuring the quality of work in audit organizations.

In recent years, accelerated reforms have been carried out in Uzbekistan to increase the prestige of auditing activities and expand the membership of audit organizations in international networks. However, in our country there are still shortcomings in the development of auditing activities. In particular, the presence of such problems as "the lack of an effective system of external control over the quality of work of audit organizations, which, given the limited measures of legal influence of the licensing authority, does not allow a prompt response to facts of the provision of low-quality audit services and dishonest actions of auditors" [3] creates certain difficulties in organizing the activities of audit organizations based on international requirements. The presence of legal, methodological and practical problems in monitoring the quality of work of audit organizations and auditors in our country requires research on this topic.

This research to a certain extent serves the implementation of the tasks set in the Decrees of the President of the Republic of Uzbekistan No. UP-4720 "On measures to introduce modern methods of corporate governance in joint-stock companies" dated April 24, 2015, Resolution of the President of the Republic of Uzbekistan No. PP-3946 "On measures for the further development of auditing activities in the Republic of Uzbekistan" dated September 19, 2018, No. PP-4611 "On additional measures for the transition to international financial reporting standards » dated February 24, 2020, as well as in other legal documents related to this area.

In Turkiye, joint-stock companies, also known as "anonim şirket" in Turkish, are subject to mandatory audits to ensure compliance with legal and financial regulations. These audits are conducted by independent auditing firms registered with the Public Oversight, Accounting and

Auditing Standards Authority (KGK). The primary purpose of the audit is to provide assurance to shareholders, creditors, and other stakeholders regarding the accuracy and reliability of the company's financial statements. Auditors examine financial records, internal controls, and management practices to assess the company's financial health and adherence to legal requirements.

Audits in Turkish joint-stock companies are governed by Turkish Commercial Code (TCC) and International Financial Reporting Standards (IFRS). Auditors are required to follow auditing standards issued by the KGK, which are aligned with international auditing standards.

The audit process typically involves several stages, including planning, risk assessment, substantive testing, and reporting. Auditors gather evidence to support their findings and issue an audit opinion based on their assessment of the company's financial statements. The audit report provides an opinion on whether the financial statements present a true and fair view of the company's financial position and performance. If any material misstatements or deficiencies are identified during the audit, auditors may issue qualified or adverse opinions and recommend corrective actions to management. In Türkiye Joint Stock Companies (JSC's) are business associations with legal personality. A corporation has a fixed capital. The Articles of Association must state a legally required minimum capital: at least 50.000 TL. The amount of this state reflects the initial financial strength of the corporation and is divided into shares (stocks) each having equal value and having the nature of negotiable instruments. Persons, either natural or legal, contribute or promise to contribute a certain amount of capital at the corporation in return for shares. Those corporations, which have more than 250 shareholders or those which offer their shares or bonds to the public, are subject to the Capital Market Law (CML) no. 2499, dated 1981. A corporation is formed by at least 5 persons and must be registered in Commercial Registry to acquire its existence. Corporations may be incorporators of other corporations. Liability of members is limited with their subscribed capital shares.

Ministry of Industry and Trade keeps the permission authority of the establishment of JSCs open to public and subject to capital markets regulations. All other general purpose companies can apply directly to commercial registries throughout Türkiye, with the necessary documents and can be established with the registration in the Commercial Registry.

Subject to the provisions of the Turkish Commercial Code No 6762, the Turkish Ministry of Industry and Trade approves the establishment of the capital corporations regulated by the Code, which have an ever increasing importance in the economic life of Türkiye, their applications for the statutory modifications and the creation of branches in the country by foreign capital corporations or their participation in the existing corporate entities.

Türkiye has non-discrimination and equal treatment for foreign investors. They have the same status with the local once. There are no rules requiring a Turkish participation in the capital or management for local company with foreign capital. Almost all sectors in Türkiye are opened to foreign investors and companies can be established with 100% foreign capital.

The development of the accounting profession in Türkiye has gained momentum with the Law of Accountancy Profession No.3568 and dated 1.06.1989. The "Law of Accountancy, Certified Public Accountancy and Sworn-in Certified Public Accountancy"[4] was a major reform law that has brought the profession to legal rules and organizations. It is stated in the Law's preamble that "auditing is essential to provide the necessary resources and reliable information for economic development, thus, there is a need for an organization". This law is one of the most important milestones in the institutionalization of the accountancy and audit professions in Türkiye. The audit-related objectives are explained in the first article of the Law as follows:

□ To ensure the healthy and reliable functioning of operations and transactions in enterprises. To audit and evaluate the results of the operations within the framework of the relevant legislation. To present the facts for the use of the concerned persons and authorities

Under the provisions of this Law, persons authorized to perform the professions are identified as, Certified General Accountant (CGA) (abolished in 2008), Certified Public Accountant

(CPA), and Sworn-in Certified Public Accountant (Sworn-in CPA). In Article 2 of the Law, members of the profession and their duties are explained as follows:

Table 1: Titles in the Profession Law and Their Main Duties [1]

Titles	Duties
Certified General Accountant (CGA)	Bookkeeping
Certified Public Accountant (CPA)	Bookkeeping and auditing
Sworn-in Certified Public Accountant (Sworn-in CPA)	Certifying financial statements and auditing

Former commercial codes issued in 1850, 1926 and 1956 are known to be the integration laws with Western Europe. The new TCC, which was drafted in 2005 but issued on 13 January 2011, is seen as a door to globalization. In the preamble of this code, it is stated that:

“Turkiye, which will initiate full membership negotiations with the EU in October 2005, must be a part of the international markets, likewise Turkish companies must be competitive, effective and reliable actors of the international markets. The primary requirement for this is to present Turkish companies’ financial statements in accordance with International Financial Reporting Standards (IFRSs) and audit those statements in accordance with international standards on auditing (ISAs). As well as providing an international reputation, said standards will allow Turkiye to compare its economic scale to counterpart countries, and accordingly will also enable the determination of sustainable and strategic policies. The Turkish Commercial Code is the only instrument in achieving these objectives.” It is clear from this statement that the New TCC is an integration law with both the EU and the World. With the issuance of the new TCC, auditing has gained a new dimension. Turkiye has been in the EU harmonization process and the new TCC is prepared in accordance with the EU company law. With this code, the audit, which was formerly conducted by the compulsory bodies of the companies and can be carried out by an auditor who does not have the necessary expertise in the audit, has been replaced by an audit mechanism that should be performed by the audit firms or by auditors.

Article 88 (amended on 26 June 2012) of the new TCC includes the authority of the Public Oversight Authority, Articles 397 to 406 include the requirements about the audit, and Articles 514 to 517 include the obligations of joint-stock companies relating to financial statements. The companies that will be subject to audit are determined in accordance with Article 397 of the new TCC. The procedures and principles for the implementation of this determination are issued by the Public Oversight Authority. Pursuant to the latest decree published in the Official Gazette on 26 March 2018, public interest entities and entities providing at least two of the following criteria at the two consecutive accounting periods are subject to mandatory audit:

- ☐ Total assets: 35 million Turkish Liras or more,
- ☐ Annual net revenue: 70 million Turkish Liras or more,
- ☐ Employee headcount: 175 or more,

(As of December 2020, the above amounts are approximately €3.85 million for total assets and €7.7 million for annual net revenue.)

At the end of 2020, nearly 12,000 companies are subject to mandatory audit in Turkiye.

In addition to this, approximately 5,000 companies are having audits voluntarily due to the reasons such as the request of their foreign shareholders or taking out loans. (KGK, 2021)

Table 2. Comparative analysis of auditing in Turkey and Uzbekistan [2]

Years	The number of auditing companies in Uzbekistan	Years	The number of auditing companies in Turkiye
2019	16472	2019	518
2020	18292	2020	495
2021	19995	2021	414
2022	23443	2022	481
2023	19584	2023	420

Years	The number of certified auditors in Uzbekistan	Years	The number of certified auditors in Turkiye
2019	558	2019	96
2020	572	2020	99
2021	651	2021	96
2022	881	2022	126
2023	1003	2023	138

Comparing audit organizations and the number of auditors in Uzbekistan and Turkiye, we can come to the conclusion that in Turkey auditing activities are much developed, since the number of auditors and audit organizations is larger, and this means that our country, with a population of 36 million, has 138 audit organizations, and Turkey at one time, with a population of about 80 million, had 420 audit organizations. this may indicate that there is a lot of competition between audit organizations.

Table 3: Auditors Authorized by KGK over the Years [3]

Years	Professional Title			Scope of Audit			
	CPA	Sworn-in CPA	Total	Basic Scope	Basic Scope+ Banking+ Capital Markets	Full Scope	Total
2013	4,124	1,376	5,500	49	1,069	4,382	5,500
2014	4,430	1,070	5,500	82	546	4,872	5,500
2015	3,383	443	3,826	58	376	3,392	3,826
2016	1,505	85	1,590	13	45	1,532	1,590
2017	1,146	44	1,190	50	90	1,050	1,190
2018	479	27	506	68	73	365	506
2019	486	24	510	94	82	334	510
2020	241	16	257	70	39	148	257
Total	15,794	3,085	18,879	484	2,320	16,074	18,879

As of 31 December 2020, 341 audit firms have been authorized and registered by the KGK. 69 of those firms have been approved to conduct the full scope audits (audits of public interest entities and non-public interest entities including entities operating in capital markets, banking and insurance sectors), 79 of those firms have been approved to conduct full-scope audits excluding the insurance sector audits, and 193 of them have been approved to conduct the audits of non-public interest entities.

As of the end of 2020, a total of 3,915 auditors are employed in 341 auditing companies, 1,690 of which are lead auditors. In this context, when the number of auditors employed in the audit firms is compared to the total number of auditors, which is 18,879, it is understood that the auditors operate mostly individually.

Overall, audits play a crucial role in enhancing transparency, accountability, and trust in Turkish and Uzbek joint-stock companies, thereby promoting investor confidence and market integrity. Most of the reforms contemplated by the Commission are reflected in the Draft Code, and it is now awaiting ratification by the Council of Ministers.

Given the fact that the world is suffering an enormous financial crisis due to the current credit crunch, it is now even more vital for an emerging market like Turkiye to be attractive for foreign investors. The only way to accomplish this is to create a transparent and secure business environment.

References:

1. <https://www.ifac.org/knowledge-gateway/supporting-international-standards/discussion/international-standards>
2. <https://www.gao.gov/assets/110/101189.pdf>
3. Resolution of the President of the Republic of Uzbekistan No. PP -3946 "On measures for the further development of auditing activities in the Republic of Uzbekistan" dated September 19, 2018. www.lex.uz
4. The Law of Accountancy Profession No.3568 and dated 01.06.1989.
5. Turdimuratovna, U. S. Methods Of External Quality Control Of Audits. European Journal of Molecular & Clinical Medicine, 7(07), 2020.

Rezyume: Ushbu maqolada Turkiya va O'zbekiston aksiyadorlik jamiyatlarida auditning o'ziga xos xususiyatlari tahlil qilinadi va ma'lumotlar solishtiriladi. Ushbu maqolada biz aksiyadorlik jamiyatlarining majburiy auditi bilan bog'liq qonunlarni va ikki mamlakat o'rtasidagi farqlarni o'rganamiz.

Резюме: В данной статье анализируются особенности проведения аудита и сравниваются данные в турецких и узбекских акционерных обществах. В данной статье мы изучаем законы, связанные с обязательным аудитом акционерных обществ, и различия между двумя странами.

Kalit so'zlar: Iqtisodiyot, aksiyadorlik jamiyatlari, audit, innovatsiyalar, investitsiya, xalqaro audit standartlari.

Ключевые слова: Экономика, акционерные общества, аудит, инновации, инвестиция, международные стандарты аудита.

DEVELOPMENT OF RECREATIONAL TOURISM IN UZBEKISTAN

Jenisbaev B.J.

Karakalpak State University named after Berdakh

Summary: *The article discusses the development of recreational tourism in Uzbekistan. The ways of development of recreational tourism is also included.*

Key words: *tourism, recreational activities, ecotourism, modernization of the tourism industry, world society.*

Introduction: To date, tourism has become one of the leading sectors of the world economy. In this regard, Uzbekistan pays special attention to the modernization of the tourism industry, the development and improvement of the regulatory framework for the sustainable development of the industry, and the organization of services for foreign guests in accordance with international standards. During the years of independence, our country made a significant breakthrough in this area, coupled with the preservation and enhancement of the historical and cultural heritage of the people, the revival of national traditions and customs, the restoration and improvement of the sights of the republic.

In order to create a modern, highly efficient and competitive tourism complex, a strong regulatory and legal framework has been formed in the republic, the basis of which is the Law “On Tourism”, adopted on August 20, 1999. Later, in 2019, on April 16, a new law “Tourism” was adopted. There are programs of targeted measures to improve the tourism infrastructure, including attracting investment, diversifying tourism products, intensifying educational activities, training and advanced training of specialists in the field.[5]

In order to further improve the tourism infrastructure by attracting additional investments in the tourism sector and creating favorable conditions for the private sector, increasing employment, expanding transport routes, strengthening the promotion of the tourism potential of the republic in the domestic and foreign markets, as well as introducing new procedures in the public administration of this sphere increasing the tourist flow to the republic and providing tour operators with additional government support, starting from January 1, 2024, there will be incentive subsidies from 20 US dollars to 100 US dollars in equivalent will be allocated for each tourist brought by tour operators to the Republic of Uzbekistan from foreign countries with a low level of tourist flow, at the expense of the State Budget of the Republic of Uzbekistan and the Tourism Support Fund in equal shares. [2]

Also, part of the expenses of tour operators and air carriers spent on organizing charter flights from foreign countries to the international airports of Samarkand, Bukhara and Urgench will be compensated, 20 US dollars in equivalent, during the winter period (from November 20 to February 20) 50 US dollars in equivalent for each foreign tourist, subject to his stay on the territory of the republic for at least five nights, at the expense of the State Budget of the Republic of Uzbekistan and the Tourism Support Fund in equal shares.[1]

Currently, eco-tourism is one of the fastest growing tourism enterprises of the World Tourism Council and the World Tourism Organization. That is, the share of ecotourism in the global tourism industry is 4%, ecotourism services are \$55 billion, and annual income is 30%. In addition, by 2020, ecotourism will become one of the main strategic directions of the global tourism industry. Recreational services in many countries are a large and independent sector of the economy, in which 10-15% of the employed population participates. The organization of recreational activities is related to the natural and economic conditions of the region, especially the geographical location of the region. For example, the geographical position of the Turkish state, its location in Europe, Asia and Africa, was a major factor in the development of these activities. In addition, the historical, ethnographic and cultural role of countries is also important in this regard,

as is the development of recreational activities in areas such as holiday homes, tourist centers, sports camps, sanatoriums, industrial, transport, trade and communication institutions[3]

Currently, there are more than 500 tourism organizations and firms operating in Uzbekistan. These organizations have their representatives and partners in 24 countries. There are 11 hotel complexes with international levels of 4-5 stars. The number of 2-3 star international hotels exceeded 80 units. 150 spa and physiotherapy resorts have been created to serve tourists. Most of them are of high value in terms of the availability of medicinal mineral waters, healing mud and natural climatic conditions. According to the World Tourism Organization, 8 percent of the world's employed population is made up of tourists. In addition, tourism accounts for 7% of investment in productive and non-productive sectors and 11% of total consumer spending[4]

Recreational tourism is those objects created by man and nature, thanks to which the human need for recreation is satisfied. This may be a set of certain objects on the basis of which a certain tourism product is created, namely tours for sale. It is these resources that form the basis of tourism. If a certain place to which a person travels does not help him recover, relax and preserve pleasant memories, then there is no point in coming there.

It is important to note that resources for recreational tourism can be either natural or man-made. They must be accessible and safe for tourists, as well as satisfy their needs for recreation and entertainment.

As stated above, there are many types of recreational tourism, including:

1) Hiking - traveling to mountains, forests and other natural places where you can enjoy the beauty of nature and engage in physical activity.

2) Bicycle tourism - traveling by bicycle along various routes, which may include both city streets and mountain trails.

3) Water tourism - traveling on boats, motorboats and yachts along rivers, lakes and seas.

4) Ecotourism - travel aimed at studying and preserving natural ecosystems, including hiking in national parks and reserves.

5) Cultural tourism - travel aimed at exploring the cultural attractions and traditions of various regions.

6) Gastronomic tourism - travel aimed at studying local cuisine and food culture.

7) Sports tourism - travel related to sports, including alpine skiing, snowboarding, surfing and other outdoor activities.

8) Medical tourism - travel aimed at treatment and restoration of health, including visits to spa centers and resorts.

Tourism in Uzbekistan has great development potential, thanks to the rich cultural and historical heritage of the country, as well as unique natural attractions

The development of tourism in Uzbekistan contributes not only to increasing state revenues, but also to creating new jobs. In addition, tourism is an important factor in preserving the cultural and natural heritage of the country and increasing its prestige in the world community.

References:

1. Decree of the President of the Republic of Uzbekistan "On measures to ensure the accelerated development of the tourism sector of Uzbekistan" dated December 2, 2016

2. Resolution of the President of the Republic of Uzbekistan "On measures to further accelerate reforms and effective organization of the public administration system in the field of tourism" dated July 27, 2023 PP No. 238

3. Grigorev V.I., Simonov V.S. Strategy for the formation of the recreation industry. Spb: IndpoSPbGUEF, 2006. pp. 48-62.

4. Bogolyubov, V. S. Tourist and recreational design. Investment assessment: textbook and workshop for universities / V. S. Bogolyubov, S. A. Bystrov, S. A. Bogolyubova. – 2nd ed., rev. and additional – Moscow: Yurayt Publishing House, 2021.

5. www.uzbekistan.org.ua (Developmenttourism in Uzbekistan)

Rezyume: *Maqolada O'zbekistonda rekreatsion turizmni rivojlantirish masalalari muhokama qilinadi. Rekreatsion turizmni rivojlantirish yo'llarini ham o'z ichiga oladi.*

Резюме: *В статье рассматривается развитие рекреационного туризма в Узбекистане. Также рассмотрены пути развития рекреационного туризма.*

Kalit so'zlar: *turizm, rekreatsion faoliyat, ekoturizm, turizm industriasini modernizatsiya qilish, jahon jamiyati.*

Ключевые слова: *туризм, рекреационная деятельность, экотуризм, модернизация туристической отрасли, мировое общество.*

THE ESSENCE OF TRAVEL JOURNALISM AND ITS FUNCTIONS

Dauletbaeva D.D.

Karakalpak State University named after Berdakh

Summary: *This article examines the definitions of the concept of travel journal given by various state scientists. In addition, the tasks of travel journalism as a form of media are also analyzed.*

Keywords: *"travel journalism", concepts of travel journalism, tasks of travel journalism.*

Millions of people travel to different countries every year. All of them contribute to the development of tourism in the country. In 2022, the number of domestic travelers in the country amounted to 11.3 million people [1], and in 2023 6.6 million foreign tourists arrived in Uzbekistan [2]. From these statistics, it can be seen that the demand for the industry is high. And the impressions received during the trip are shared through the media or social networks. This contributes to the development of travel journalism.

The famous African researcher David Livingston said: "It is easier to travel than to describe" [3]. This opinion can be attributed to the entire field of media travel journalism. The image of a travel journalist, formed in the public mind as a person who, even after traveling to exotic countries, receives a fee, is in principle incorrect. At the same time, this theory of orientation is very poorly developed and requires its own understanding, starting with the main points.

At this stage, of course, the question arises: "what is travel journalism?". In some sources, the existing definitions of the concept of "travel journalism", which refer to travel journalism, although they usually do not fully disclose the essence of this area, are very vague and require clarification.

Travel journalism developed very successfully in Russia in the 19th century, and the term "Trevel" was first studied by Professor Jan Brom from the University of Versailles in Saint-Quentin-en-Yvelines, France [4]. During this period, although the original term did not appear, there were variations of "travel notes", "travel sketches" in society, which coincided with the English word "Travelog".

"Travel" is a very broad concept that covers not only journalism, but also literary creativity related to travel. In English, there are the concepts of "travel journalism" and "travel writing" (journalistic and literary-journalistic work related to travel), as well as the concepts of "travel writer" - the author of travel. Prestigious publications also practice attracting well-known publicists and writers to create travel essays. Dennis notes that travel journalism differs from journalistic work in that it excludes emotions and separates facts from thoughts [5, p. 177.]

For example, Wikipedia offers the following definition: Travel journalism (from English travel journalism) is a special direction in the mass media, focused on providing information about travel (from English travel) in the context of developing topics such as geography, history, culture, tourism, etc. [6].

Graduate student of the Faculty of Journalism at St. Petersburg State University I.V.Pokazaneva describes the concept of "travel journalism" as a special area of "soft journalism" (entertainment journalism), focusing on history, geography, culture, art, tourism, ethics, philosophy and other topics and informing the public about travel [7].

The term "travel journalism" is a concept that has already managed to firmly enter the Russian lexicon. Today, this area is also actively developing in the media. Travel journalism is synthetic in nature, it describes and analyzes information related not only to travel, but also to tourism, and considers it within the framework of various topics. As a result, the media provides the audience with information on history and geography, culture, art and other topics. It can also be said that travel journalism is to some extent a kind of regional research that allows you to explore the

world, get acquainted with various regions of the planet, geographical location, government structure, customs, traditions, language [8].

A.V.Ustsova Travel describes journalism as follows: it is a separate field of journalism, the main purpose of which is to provide information about travel, processing topics of geography, culture and tourism [9].

E.Y.Zakomoldina, in an article on the topic "The emergence and essence of the term travel journalism and its derivatives", gives the following considerations on this issue: Travel journalism today represents a separate direction in journalism, formed at the junction of journalism proper, advertising and tourism. Travel publications nowadays are one of the most promising segments of the press in the Russian information market.

Travel journalism is an area where information is quite easily sold, and there is always a demand for it from the audience. In addition to its direct role in the media economy, it is the earning of funds through the release of media related to the topic of travel, this section of journalism, as mentioned above, also plays an indirect role in the tourism industry.

It can be assumed that a relatively complete and clear definition of travel journalism will be as follows: travel journalism is a field in journalism specializing in information from the field of geography, history, culture, art, as well as sports and adventures (also staged reality shows), with reference to the popularization of travel, tourism, including including for advertising purposes [10].

Summarizing the existing definitions, travel journalism can be defined as follows: travel journalism is a special field of media that aims to provide information about history, geography, culture and art, tourism, ethics, philosophy and other topics of a particular area or people, as well as focuses on economic issues (generating income for the editorial board or the author through advertising), with an emphasis on entertainment.

The high interest of mankind in travel also poses certain tasks, allowing this type of journalism to develop. A.S.Smolyarova defines media focused on national and ethnic problems as ethno-medical media [11]. He (based on the work of M. Johnson) identified the following groups of these media functions:

- integration (support of language, culture, acceptance, dissemination of social norms, socialization, unification, etc.);
- creation of a common space (dissemination of common knowledge, transmission of social norms, dissemination of information about other cultural groups, etc.);
- support and promotion of the pluralistic nature of society (preservation of cultural heritage, identity, protection of interests, promotion and preservation of group norms, etc.).

It follows that the functions applied to travel journalism:

- this is the transfer of up-to-date information about another country,
- make recommendations that are of interest to the audience and useful to them,
- practical tips related to successful adaptation in the host society;
- from the point of view of presentation: information about the cultural group, the positive image of the country, the function of socialization, etc. [12].

Let's also look at a few more studies. L.G.Vixorevka in his work "The information potential of the Internet travel Media audience" names among the main functions of travel journalism the integration function, as well as educational, advertising and entertainment tasks.

Indeed, one of the main goals of travel journalism is to teach the audience to prevent conflicts based on cultural misunderstanding, to expand its worldview. According to L.G.Vixoreva, "the audience of magazines is distributed according to the readers' interest in something new and unknown to them" [13].

Travel journalism gives viewers the opportunity to "explore the world" (it's not for nothing that "unknown world: earth" is written on the cover of Geo magazine), to discover new "alien" cultures. Travel journalists are interesting because they strive to "reinvent" the world that was discovered before them, but was previously unknown. It's interesting to look at familiar places in a new way.

It is easy to see that the functions of travel journalism, on the one hand, coincide with the functions and roles of classical journalism. On the other hand, communicative, recreational culture (containing elements of entertainment) and especially advertising and reference functions are most clearly manifested in this direction.

References:

1. <https://kun.uz/news/2023/01/31/sayyohlar-soni-oshmoqda-bu-ozbekiston-uchun-qanchalik-foyda>
2. <https://www.spot.uz/oz/2024/02/21/tourism-2023/>
3. Давид Ливингстон Путешествия и исследования в Южной Африке с 1840 по 1855 г. [Travelling and Doing Research in South Africa from 1840 until 1855] Moscow, Geografiz Publ., 1955. 392 p.
4. Borm J. Defning Travel: On the Travel Book, Travel Writing and Terminology / J. Borm // Perspectives on Travel Writing/ed. by Glenn Hooper, Tim Youngs. Aldershot: Ashgate, 2004. P.13-26.
5. Дэннис Э. Беседы о масс-медиа. М.: Варриус, 1997. 384 с
6. Трэвел-журналистика. URL : <https://ru.wikipedia.org/wiki/Трэвел-журналистика>
7. И.В.Показаньева Проблемное поле трэвел-журналистики как явления современного медиaprостранства [Электронный ресурс] / И. В. Показаньева // Mediascope. — 2013. — № 3. — Режим доступа: <http://www.mediascope.ru/node/1385>
8. В.Д.Галечко-Лопатина Трэвел-журналистика: роль и функции «Вестник Приамурского государственного университета им. Шолом-Алейхема» № 2(35)2019 ст 35
9. Усцова А.В. Прикладная роль трэвел-журналистики. //Выпускная квалификационная работа //Научный корреспондент. 2016. URL: <http://nauchkor.ru/about>.
10. <https://www.tsutmb.ru/nauka/internet-konferencii/2017/zhurnalist-v-sovr-media/1/zakomoldina.pdf>
11. А.С.Смолярова Функциональное своеобразие этнокультурных медиа (The functional identity of ethno-cultural media) Available at: <http://www.mediascope.ru/node/1568>
12. В.Д.Галечко-Лопатина Трэвел-журналистика: роль и функции «Вестник Приамурского государственного университета им. Шолом-Алейхема» № 2(35) 2019 ст 39
13. Л. Г. Вихорева Информационный потенциал аудитории трэвел-СМИ в Интернете [Электронный ресурс]. URL: <http://jq.isea.ru/reader/article.aspx?id=20426>

Rezyume: *Maqolada maqolada sayohat jurnalistikasi tushunchasiga turli davlat olimlari tomonidan berilgan ta'riflar ko'rib chiqiladi. Undan tashqari ommaviy axborot vositalarining bir turi sifatida sayohat jurnalistikasining vazifalari ham tahlil etiladi.*

Резюме: *в данной статье рассматриваются определения, данные понятию трэвел-журналистика различными учеными из разных стран. Кроме того, анализируются задачи трэвел-журналистики как формы медиа.*

Kalit so'zlar: *"travel journalism", "trevel jurnalistika", sayohat jurnalistikasi tushunchalari, sayohat jurnalistikasi vazifalari.*

Ключевые слова: *"трэвел-журналистика", "Travel journalism", концепции трэвел-журналистики, задачи трэвел-журналистики.*

UDK: 903.2 (903.01/ 903.21)

**CULTURAL-PERIODIC DESCRIPTION OF PALEOLITHIC WORKSHOPS IN
NORTHERN AND CENTRAL UZBEKISTAN**

Madreymov B.J.

Karakalpak State University named after Berdakh

Summary: *The territory of Uzbekistan is one of the richest countries of the Stone Age in stone processing workshops. The article is devoted to the study of cultural-periodic interpretation of the workshops Esen-2 in Ustyurt and Kokayoz (1-8) in Central Kizilkum, one of the main types of monuments of the Stone Age. In it, the author notes the different levels of study of these monuments, as well as the relevance of issues such as the development of cartography of such finds, a new technical-typological analysis of materials, the development of type sheets in connection with the discovery of a number of new workshops in Uzbekistan. The problem of analogy of Esen-2 and Kokayoz (1-8) workshops is studied.*

Keywords: *Paleolithic, Stone period, Ustyurt, Central Kyzylkum, flint-working workshop, Esen-2, Kokayoz (1-8), Karakuduk, Shakhpakty, specialized workshop, E.B. Bizhanov, A.V. Vinogradov.*

Many monuments of the primitive period have been found and studied in the Kyzylkum and Ustyurt regions. However, the workshops of Kokayoz in the North-Eastern part of the Central Kyzylkum and Esen-2 in Ustyurt are still the only monuments of the primitive period. In addition, Kokayoz points are the only unique monuments that specialize in the production of leafy bifascigs, using the technique of "levallua of the type of blueberry", which is still unknown in typology. In this sense, the problem of finding analogies to the Kokayoz technocomplexes is very complicated.

In general, the first bifascially processed stone tools from the Central Asian region dating back to the Paleolithic period date back to the twentieth century there are some workshops by A.P. Okladnikov in the Kyzylkum region, which in some respects resemble the monuments of Kokayoz. These include the materials of the Esen-2 and Shaxpaxti monuments found on the shores of the Borsa-Kelmas basin in northwestern Ustyurt.

The Esen-2 monument, found on the southern borders of the Borsa-Kelmas plain of Ustyurt and providing rich archeological materials, is located on the hill of the same name. In E.B. Bijanov [1, 48] and found by A.V. Vinogradovs in 1977 [2, 522]. This find is located on a flat hill with a low height of 90x40 square meters. "There are decaying deposits of strongly silicified dolomites" [2, 521]. However, our acquaintance with the materials of Esen-2 and Shaxpaxti showed that the materials of these monuments were not dolomite, but, in our opinion, dolomite lake quartzite. Among the scattered fragments of this rock, a stone collection of 200 pieces has been collected. About 15 of this collection are natural stone fragments, while the rest are undoubtedly artifacts.

The industry of the Esen-2 workshop was studied in detail by A.V. Vinogradov and published in his monograph " Ancient hunters and fishermen of the Central Asian interfluvium" [3, 55]. In the Esen- 2 workshop, naturally broken items are predominant, and they are divided into two groups: very deep and thick dark-brown patina with eroded outer edges and sharp-edged, bumpy, gray-colored unbroken items close to brown. The findings of the first group are similar to the Middle Paleolithic materials found in the southwestern Kyzylkum. But no intentionally lightning bolt was found among them. All artifacts are made of stones belonging to the second group. In 1977, 80 items were deliberately broken from the Esen-2 workshop. The lightning technique of the monument is fully compatible with the nuclei collected here and their tannins, fragments and plates.

Most of the 15 finished stone weapons found in Esen-2's workshop - these are large and thin almond-shaped bifas with bifacial processing - are paycons. Many of them are fragments of bifas, and this characterizes the character of the monument, i.e. Esen 2 is a workshop. One can only imagine their shape and size by looking at the only surviving whole bifas among the materials collected in 1977. The remaining bifas are relatively small in size and all have rounded ends and uneven wavy edges. These bifas are rough and often covered with rough lines of a coating nature, and sometimes the edges are smoothed with fine retouches. They have a sharp edge around the entire perimeter. Some of them are directed only to the edges (sometimes only from one surface), but such objects are few in number [4]. Perhaps some of them are unfinished items. These materials allow us to determine that in Esen-2, siliconized dolomite tiles of appropriate size were used to make bifas, rather than specially oriented fuels. This is also evidenced by the fact that most of the bifas in the collection are flat in cross section [3, 55-56].

First of all, let's look at the nature of the Lightning technique of Esen-2 and Kokayoz workshops. In the poppy industry, although rough prismatic, flanged, narrow, with one or two tattoo fields, and so on. Although lightning strikes are common, the levallua lightning technique is the most common. In the Esen 2 set, nuclei are almost non-existent. The single nucleus described in it [5, 6] has been interpreted by researchers as a polyus nucleus. However, by comparing this nucleus with the nuclei found in the coccyx complexes, it can be included in the type of coccyx-type levallua nuclei. However, according to one nucleus, it is difficult to say whether Esen-2 had a "levallua-type" lightning technique. However, if we look at the plates collected from Esen 2, most of them are similar to the "average" fuels described in Kokayoz.

If we look at the raw materials used in the making of the stone objects of both monuments, it was noted that in Kokayoz points and Esen-2, as noted by the researchers, lake quartzite was used, not siliceous limestone. It is known that lake quartzites are formed as a result of the accumulation of sand on the shores of calm water bodies. In this sense, it can be said that lake quartzite rocks located on the shores of the basins were used as raw materials in both monuments.

If we pay attention to the appearance of the materials, the processed stones in the Esen 2 set are slightly patented. The Kokayoz points industry, on the other hand, was completely monotonous and outward-looking, and was not subject to external patination. There are also similarities in the location of these monuments. Both monuments are located on the banks of the basins.

As for the bifas found in the monuments, according to one bifas found in the Esen-2 collection, their shape is described as almond-shaped. However, the hollow part of the almond bifas is thickened and processed to be easy to hold by hand. The wide side of the whole bifas in Esen-2 is as sharp as the edges. That is why A.V. Vinogradov correctly described it as a bifas-tig, not a handkerchief. If we talk about the remaining bifas fractures in the Esen-2 industry, it is difficult to talk about the shape according to their fragments. This is because the middle part of the leafy bifas is wide, and it is not possible to determine its shape by looking at the fracture of any of its three parts. In any case, the function of bifas in Esen-2 and Kokayoz complexes is the same, that is, they are bifas-blades, as A.V. Vinogradov points out. In both monuments, the bifas were struck with lightning rods. However, there are also some specimens that have been highly processed using the crushing technique at the Kokayoz points. In addition, the bifas in the Esen-2 collection, according to the researchers, are made of stone tiles, while the Kokayoz complexes use the convenient "Kayakoz-type levallua" technique to work with them.

Thus, despite a number of similarities and differences, both Esen-2 and Kokayoz complexes are undoubtedly workshops specializing in the production of the same bifas-blades.

In addition to Esen-2 and similar, a bifas was also found in the small Shahpaxti basin. In terms of raw materials, this bifas resembles the findings of Esen-2. However, our research has shown that this bifas has a small and triangular shape.

References:

1. Bijanov E.B. Naxodki pamyatnikov paleolita na yugo-vostochnom Ustyurte // Vestnik KFAN UzbSSR, № 3, 1979, S. 48;
2. Vinogradov A.V., Bijanov E.B. Pervie paleoliticheskie naxodki s Yugo-Vostochnogo Ustyurta // AO, 1977. M., 1978, S. 521-522;
3. Vinogradov A.V. Drevnie oxotniki i ribolovi sredneaziatskogo mejdurechya. M., 1981. S. 55-56;
4. Bijanov E. Naxodki pamyatnikov paleolita na yugo-vostochnom Ustyurte // Vestnik KFAN Uzb.SSR, № 3. Tashkent, 1979.- ris. 2, 1, 3;
5. Vinogradov A.V. Drevnie oxotniki i ribolovi sredneaziatskogo mejdurechya. M., 1981. - 14-ris, 6;

Rezyume: O'zbekiston hududi tosh davrining toshga ishlov berish ustaxonalariga boy mamlakatlaridan biridir. Maqolada tosh davri yodgorliklarining asosiy turlaridan biri bo'lgan Ustyurtdagi Esen-2 va Markaziy Qizilqumdagi Ko'kayoz (1-8) ustaxonalari madaniy-davriy talqinini o'rganishga bag'ishlangan. Unda muallif ushbu yodgorliklarni o'rganishning turli darajalarini, shuningdek, bunday topilmalarning kartografiyasini rivojlantirish, materiallarni yangi texnik-tipologik tahlil qilish, shrift varaqlarini yaratish kabi masalalarning dolzarbligini qayd etadi. O'zbekistonda bir qator yangi ustaxonalarning ochilishi va Esen-2 va Kukayoz (1-8) ustaxonalarining analogiyasi o'rganilgan.

Резюме: Территория Узбекистана – одна из самых богатых стран каменного века камнеобрабатывающими мастерскими. Статья посвящена изучению культурно-периодической интерпретации мастерских Esen-2 на Устюрте и Кукаёз (1-8) в Центральных Кызылкумах, одного из основных типов памятников каменного века. В ней автор отмечает разный уровень изученности этих памятников, а также актуальность таких вопросов, как разработка картографии таких находок, новый технико-типологический анализ материалов, разработка типовых листов в связи с открытием ряда новых мастерских в Узбекистане. Исследуется аналогия мастерских Esen-2 и Кукаёз (1-8).

Kalit so'zlar: Paleolit, tosh davri, Ustyurt, Markaziy Qizilqum, chaqmoqtoshga ishlov berish ustaxonasi, Esen-2, Ko'kayoz (1-8), Qoraquduq, Shaxpakti, ixtisoslashtirilgan ustaxona, E.B. Bizhanov, A.V. Vinogradov.

Ключевые слова: Палеолит, каменный век, Устюрт, Центральный Кызылкум, кремневая мастерская, Esen-2, Кукаёз (1-8), Каракудук, Шахпакты, специализированная мастерская, E.B. Бижанов, A.B. Виноградов.

FEATURES OF THE COMPOSITION AND STYLE OF THE WRITER'S PUBLICISM

Abdimuratov A.

Karakalpak state university named after Berdakh

Summary: *The text explores the characteristics and impact of publicistic works, with a focus on the writings of Tulepbergen Kaipbergenov, a notable figure in Uzbekistan and Karakalpakstan. It discusses how publicistic works possess completeness, expressiveness, and integrity, influencing audiences on rational and emotional levels. Kaipbergenov's journalism is highlighted for its artistry, observation, and philosophical depth, combining journalistic practice with literary talent. The text examines the importance of composition and style in publicistic works, citing examples from Kaipbergenov's writings. It emphasizes his use of imagery, parables, and folklore to engage readers and convey societal concerns effectively. Additionally, it discusses the emotional impact of Kaipbergenov's works and their resonance with readers. Overall, the text underscores Kaipbergenov's ability to address universal themes and connect with audiences through his publicistic writings.*

Keywords: *Publicistic works, Tulepbergen Kaipbergenov, journalism, completeness, expressiveness, integrity, composition, style, artistry, observation, philosophicality, imagery, parables, folklore, societal concerns, emotional impact, resonance.*

INTRODUCTION.

Experts believe that a publicistic work has a certain level of completeness and expressiveness, integrity resulting from the unity of form and content, and therefore is able to affect the audience on a rational and emotional level.

There are different types of publicism. One of the most multifaceted and interesting among them is writers' publicism, which has distinctive features: artistry, observation, historicity, panoramic, attentiveness, philosophicality, etc. All this is also characteristic of the journalism of Tulepbergen Kaipbergenov, the People's Writer of Uzbekistan and Karakalpakstan.

Studying his work, I believe that it is unique, since it combines great journalistic practice and the talent of a writer. The author has created numerous articles and essays, letters and reports, which have a great impact on the active formation of the opinion of the broad masses, play a huge role in the daily solution of pressing problems of our time.

It must be said that the composition and style of a work have been considered one of the main indicators of the skill and maturity of a publicist since ancient times. It has long been noted that the higher the professionalism of the author, the closer the relationship between the composition and the idea of the publication. A skillful publicist dissolves the traditional parts of the composition in the fabric of his work, gives the composition an unusual form every time, in each successive work.

The composition of a publicistic work is an important way to embody the author's idea. Literary critic T. Kurbanbaeva in her monograph, which considers the problems of plot and composition on the example of the works of T. Kaipbergenov, writes: "In the work of T. Kaipbergenov, the tendency to reveal character through the transfer of the inner world of a person prevails." [1.39]. This tendency is manifested not only in a deep publicistic idea, not only in passionate emotional intensity, but also in special compositional and stylistic means.

As you know, the effectiveness of a report, of any journalistic work, to a large extent depends on the form of its presentation in the newspaper. A special role here is played by the composition of the material, that is, the ways of constructing its beginning, ending, ways of unfolding and presenting the main part.

Kaipbergenov's report "The Road", published in the newspaper "Soviet Karakalpakia" (December 8, 1974), has a peculiar compositional and stylistic architectonics. We are talking about one of the farms of the Khojeyli district of Karakalpakstan, which was the first to fulfill the plan for

the delivery of cotton that year. This is stated in the report very briefly. The author pays special attention to the living conditions of the population, to what changes have occurred in the district. At the same time, the present is compared with the historical past of the farm. This is a distinctive feature of this report – a comparison of the past with the present. In the course of comparison, the author's thoughts come to the fore, which brings the report closer to a travel essay. The author's reflections, in turn, give high publicity to the material. It is not without reason that in the special literature on the theory of the press it is stated that "sometimes the publicity of the reportage is strengthened as a result of the use of historical parallels, literary reminiscences". [2. 249].

The author of this report does not begin it with a description of a specific event, as is usually the case in traditional journalistic reports. At the beginning of his story, he tells how they once witnessed the arrival of the first train in Khojeyli. With the help of such a lyrical introduction, the author enhances the effectiveness of the reportage and thereby proves that the information genre can also be raised to the publicistic passion of sound.

Abdullah Kahhar said: "I do not recognize the division of topics into "small" and "large". Is it possible that the struggle for cotton is a "big" topic, and the upbringing of a child or a family is a small one" [3. 183]. Kaipbergenov's work confirms this position. The methods of figurative representation make the material more readable.

Naturally, every publicist is looking for the most appropriate compositional methods and techniques in order to reflect his main goal as expressively and impressively as possible. Therefore, the compositional structure of the work in Kaipbergenov's publicism also depends on the genre in which it is written.

Let us pay attention to the composition of T. Kaipbergenov's open letter "The Aral Sea is our common pain". The Aral Sea is dying. But not everyone imagines how difficult and painful this tragedy is, and first of all for those people who live in this region. This is the main idea of this letter, to which the author subordinates its entire composition. He tries to convey consistently the opinions and sentiments of the people living in the region.

The correct construction of the composition, as well as other elements of the work, requires skill from the journalist. Talent can be different. The composition reveals the writer's very approach to publicistic work. The author's image also occupies a prominent place in it. Therefore, the well-known scientist O. Togaev is right when he writes that "in a letter written with high pathos and in which an important problem is raised, the image of the author himself is inevitably visible" [4.57]. In this letter, the author is very worried, indignant, as a result, we see the image of a deeply moved person, that is, the image of the publicist himself: "Who arrogated to himself the right to decide on the death of the historical and vital cradle of my people? After all, if the Aral Sea dies, then we, the Aral Sea region, will be forced to leave our historical homeland" [5].

Thus, we see that this compositional system uses a method known in publicism, which is called the method of an open question. Such a move has a great impact on the audience.

The title is also part of the composition. In the headlines chosen by the publicist, there are skillful contrasts, large generalizations, relevant thought, direct appeals to readers, as well as the character of his heroes and the entire Karakalpak people. But the main distinguishing feature of Kaipbergenov's titles is a deep thought, raised to the level of philosophical generalization, which convincingly speaks of the author's writer's approach to publicism. For example, the title "Measurement of Time" ("Literary Review" No11.1984) is a philosophical and publicistic writer's title. It reflects the scale of thinking typical of a writer. The fact that Kaipbergenov's journalistic works are influenced by his writer's way of thinking is also evidenced by such titles of his publicistic works as: "All living things are unique", "Artistic memory is the soul of the people", "Deficit of spirituality", "In the moral dimension", "Do not lose face", "I dreamed of a garden...", "The face of kindness", "This burning feeling of shame", "The river must flow into the sea..." etc.

Let's move on to the issues of the style of the writer's publicistic works. For example, he quite often uses parables, excerpts from legends, an impressive episode from the life of heroes or people in short newspaper or magazine publications. In his publicism, we often encounter a parable

as an element of the style of his works. Being different in content, the parables given by him in his articles and essays carry different meanings.

In the article "2.5 hectares of land for each person", published in the newspaper "Vesti Karakalpakstana", Kaipbergenov cites a parable associated with the name of Omar, the second viceroy of the Prophet Muhammad: "When they asked Omar, ... what he remembers of his life before the Islamic period, he replied: "Every time I remember this period, I want to cry and laugh. Tears appear when I remember that we Arabs buried our living and healthy daughters in the ground. When I was digging the ground, my daughter was standing nearby. When I finished, I took her in my arms. She said, "Father, you have dust on your beard." And shook it off with her little hands. I, according to custom, threw her, alive, into a pit and buried her... And I laugh when I remember that in those days we ourselves sculpted gods – ideals with our own hands from improvised means and worshipped them. After prayers, he sat down and ate halva, washing it down with tea" [6].

In this parable, the emotional style of the publicist is clearly visible. Kaipbergenov was able to find a very precise and subtle emotional note, tears and laughter. As a result, his image turned out to be truthful, effective, and vivid. In this trinity lies the strength of the writer's publicistic style. Using this parable appropriately in the article, the publicist compares it with reality: "Today in the Aral Sea region, we also remember yesterday," he writes. "Tears come to my eyes when I remember that the then state used the fruits of the Aral Sea region: cotton, rice, and fish. And after the breakup, we were left alone with trouble. A sad smile appears on the lips at the memory of his credulity. We sincerely believed that we had nothing to regret. Let's build communism in the 80-90s and we will all be rich.... And here is the result..." The deep originality of Kaipbergenov's style, its effectiveness lies in the fact that he educates his readers' historical memory with the help of emotional memory, which, as is known, is the strongest.

Kaipbergenov's publicism has many features that make it popular. But one feature of the style of his publicism makes it especially noticeable. We are talking about such a quality of the publicistic style as folklore. For example, in the interview "To be responsible is to answer" there is a very strong influence of folklore. In it, the author tells his interlocutor the parable about Omirbek several times: "Once the people of the village asked Omirbek to sell donkeys at the market. He agreed, mounted one of them, and drove the herd. On the way, I decided to check if everyone was safe. I counted - one was missing. He dismounted, climbed the hill, counted again - everything was in place. He went down the hill, sat on horseback, and thought that he was missing one again." [7] By analogy, the reader can conclude for himself that the authorities do not see and do not admit their mistakes. The folk image here was successfully used by the folk writer for the people.

Images that are close and understandable to the audience, which the author uses, easily penetrate into the consciousness of readers and listeners, are fixed there. The publicist's merit lies not only in the very fact of the active use of various images, but also in the fact that these images have expressiveness and the power of artistic persuasiveness. In his review "Artistic Memory is the Soul of the People" he writes: "Only forty or fifty years ago, there were difficult everyday life in this world, brightened up, however, not only by my own youth, but also by my continuous treatment of the living, still uncrippled nature. With a mighty, all-powerful, it seems, river, with a free-breathing steppe, with forests – yes, with forests, and what forests! Pink-blooming massifs of jingil – tamarisk, - with thickets of turangil and with the gentle world of domestic animals, with the secret universe of wild animals..." [8. 129].

The image of nature – the mother, from whose womb the rational man was separated in due time – an immortal and powerful image. It is used by writers from all countries. The difference between Kaipbergenov and them is that he describes the specific nature of his native country - Karakalpakstan. We can talk about the coincidence of the motifs of the work of two famous writers - Aitmatov and Kaipbergenov. Here the subtext of Kaipbergenov's publicism is even stronger, he actually accuses people of ruining their mother nature.

An analysis of the style of Kaipbergenov's publicis showed that he does not try to use all the possible richness of artistic and expressive means. In his works, such stylistic figures as silence,

inversion, refrain and some others are rarely found. But he uses images as the most understandable and popular technique widely and everywhere.

A comprehensive analysis of the works of T. Kaipbergenov showed that their composition, on the one hand, corresponds to the specifics of the printed journalistic genre, and on the other hand, is completely subordinated to the task of maximum efficiency of the work. One of the most common stylistic devices in Kaipbergenov's publicism is the use of a wide variety of images, both classical, from folk literature and folklore, and personally created by him. It is these qualities that make his publicism artistic, writerial.

As a writer who deeply understands the psychology and mood of his people, Kaipbergenov affects the most delicate strings of his soul and thereby makes his publicism more effective. An example of this is the emotional content of his publicism. Emotions work in his works in the forward and reverse directions, from the writer (through the work) to the people and vice versa, from the people to the writer in an enriched form.

Let's ask the question, why does Kaipbergenov manage to capture the attention of his readers? Because he raises questions that are understandable to everyone and at the same time relevant, and his feelings are in tune with the feelings of a wide audience. A topical topic, superimposed on literary skill, acquires the necessary publicistic condition. The writer's worldview of the author under study left a direct imprint on his publicistic works. And this gives a special readability to the works of the writer-publicist.

References:

1. Курбанбаева Т.Ю. Сюжет и композиция в современной каракалпакской прозе. Ташкент, - «Фан», 1991. -С.39.
2. Теория и практика советской периодической печати: Учеб.пособие для вузов. (Бекаев Д.Г., Горохов В. М. и др.; Под.ред. В.Д. Пельта) – Москва, «Высшая. школа», 1980, - С.249.
3. Қаххор А. Асарлар: 5 жилдлик. Ҳақ сўзнинг кучи: Мақолалар, суҳбатлар, қайдлар. -Ташкент, «Адабиёт ва санъат», -1989. -С.183
4. Тоғаев О. Публицистика жанрлари (хат, очерк, фельетон). –Ташкент, «Ўқитувчи», 1976. -С.57.
5. Каипбергенов Т. Арал - наша общая боль. // Известия, 1989г, 25 марта.
6. Каипбергенов Т. На каждого человека 2,5 гектар суши. // Вести Каракалпакстана. 1995г.2-мая.
7. Каипбергенов Т. Быть ответственными – значит отвечать. Из юрты - в мир: Очерки, статьи, выступления, интервью. – Нукус, «Каракалпакстан», 1987, -С.129.
8. Каипбергенов Т. Художественная память – душа народа. //Дружба народов. №12, 1991г.-С.241.

Rezyume: *Maqolada O'zbekiston va Qoraqalpog'istonning taniqli adibi Tulepbergen Qayipbergenov qalamiga mansub asarlarga e'tibor qaratilib, publitsistik asarlarning xususiyatlari va ta'siri o'rganiladi. Unda publitsistik asarlar qanday qilib to'liqlik, ifodalilik va yaxlitlikka ega bo'lib, tomoshabinlarga oqilona va hissiy darajada ta'sir ko'rsatishi muhokama qilinadi. Qayipbergenov publitsistikasi o'zining badiiyligi, mushohadakorligi va falsafiy teranligi, publitsistik amaliyotni adabiy iste'dod bilan uyg'unlashtirganligi bilan ajralib turadi. Maqola publitsistik asarlarda kompozitsiya va uslubning ahamiyatini o'rganib, Qayipbergenov asarlaridan misollar keltirgan. Unda o'quvchilarni o'ziga jalb etish va jamiyat muammolarini samarali yetkazish uchun tasviriy, masal va xalq og'zaki ijodidan foydalanishiga urg'u berilgan. Bundan tashqari, Qayipbergenov asarlarining hissiy ta'siri va kitobxonlar bilan rezonansi haqida gapiradi.*

Резюме: *В статье исследуются специфика и композиционно-стилевые особенности публицистики Тулепбергена Каипбергенова, известного писателя Узбекистана и Каракалпакстана. В ней говорится о том, что публицистические произведения обладают выразительностью и целостностью, воздействуя на аудиторию на рациональном и эмоциональном уровнях. Публицистика Каипбергенова отличается художественностью, панорамностью, наблюдательностью и философской глубиной, сочетая журналистскую практику с литературным талантом. В статье рассматривается значение композиции и стиля в публицистическом произведении писателя. В нем подчеркивается использование им образов, притч и фольклора для привлечения читателей и эффективного выражения*

социальных проблем. Кроме того, обсуждается эмоциональное воздействие произведений Каипбергенова и их резонанс у читателей.

Kalit soʻzlar: Publisistik asarlar, Tulepbergen Qayipbergenov, publitsistika, toʻliqlik, ifodalilik, yaxlitlik, kompozitsiya, uslub, badiiylik, mushohada, falsafiylik, obrazlilik, masal, xalq ogʻzaki ijodi, jamiyat tashvishlari, hissiy taʼsir, rezonans.

Ключевые слова: Публицистические произведения, Тулепберген Каипбергенов, публицистика, целостность, выразительность, композиция, стиль, художественность, наблюдательность, философичность, образность, притчи, фольклор, общественная проблематика, эмоциональное воздействие, резонанс.

**THE IMPACT OF THE DIGITAL ECONOMY ON ENTERPRISES IN UZBEKISTAN:
TRENDS AND CHALLENGES**

Arzuova Sh.A^{1,2}, Joldasova A.K¹.

¹Nukus branch of the Tashkent University of Information Technologies named after Muhammad al-Khorezmi, Republic of Uzbekistan

²Karakalpak Institute of Agriculture and Agricultural Technologies

Summary: *This article provides an overview of the impact of the digital economy on enterprises in Uzbekistan. It reflects the main ways in which digital technologies impact the business processes and strategies of enterprises in the country.*

Key words: *digital economy, information and communication technologies, digitalization, digital technologies, Internet of things, e-commerce.*

In the modern world, digital technologies play a key role in the development of economic processes, influencing all areas of activity, including small and medium-sized businesses (SMB). This article is devoted to studying the impact of digital technologies on the development of SMB in the context of the digital economy. The work examines the main directions and methods of introducing digital innovations into the activities of SMEs, and also analyzes the opportunities and risks associated with digitalization for enterprises in this sector. Based on the analysis, recommendations are formulated for the effective implementation of digital technologies in SMB, as well as ways to solve existing problems and overcome barriers to accelerate the digitalization process in the small and medium-sized business sector are proposed. The study is based on an analysis of scientific literature, statistical data, as well as the results of surveys and interviews with representatives of SMB, which allows us to draw informed conclusions about the current state and prospects for the development of SMEs in the digital economy.

The rapid development of digital technologies is leading to fundamental changes not only in the economy, but also in society itself. Thus, by reducing information costs, digital technologies significantly reduce the cost of economic and social transactions for the state, companies and individuals, promote innovation, in which transaction costs become almost zero, and also dramatically increase efficiency: existing activities and services become cheaper, faster or convenient. And finally, digital technologies promote integration: people get the opportunity to use services previously unavailable to them [1].

At the same time, an information market is being formed, which is characterized as a pool of social, legal and economic relations emerging in the sphere of purchase and sale and exchange of information products between consumers, producers and intermediaries. This approach strengthens the dominance of the information industry in the economy of a number of countries; the sphere of production and services is becoming more and more knowledge-intensive and innovative [2].

In this context, Uzbekistan pays great attention at the highest level to the development of information and communication technologies and increasing their role in the socio-economic development of the country. A striking example of this is the speech of Shavkat Mirziyoyev at the inauguration ceremony of the President of the Republic of Uzbekistan, in which the following is especially noted: “Modernization of industries and regions, increasing their competitiveness, developing export potential will always be in the center of our attention. To do this, it is necessary to even more actively attract foreign investment and advanced technologies, including information and communication technologies, in all areas. It is on this basis that we will be able to achieve an increase in the volume of gross domestic product by more than 2 times by 2030” [3].

Today we can say with complete confidence that in the near future the competitiveness of not only businesses, but also entire countries will be determined by the level of their digitalization. At the same time, there is no place on the digital pedestal for those who take a wait-and-see approach. To win, you need passion - a willingness to invest in bold projects, a focus on a specific

result, flexibility at the mental level, and a desire to work and experiment with full dedication. Countries and companies that manage to become leaders in the digital economy will have almost unlimited prospects. Realizing this, leading players are actively developing the ICT infrastructure, modernizing the education sector, developing and implementing digital tools, including those using elements of artificial intelligence, in a variety of sectors of the economy. Thus, only over the past two years, a number of countries with already developed digital economies, including the USA, Great Britain, South Korea and China, have adopted national strategic plans for the further development of digital technologies, including artificial intelligence. Moreover, in some cases, documents contain specific amounts and sources of financing for projects worth billions of US dollars. To successfully adapt to ongoing changes and reduce the technological gap with leading players, Uzbekistan, like many other countries, needs to promptly develop effective responses to the challenges of the digital era.

Currently, the term “digitalization” is used in a narrow and broad sense. Digitalization in the narrow sense refers to the transformation of information into digital form, which in most cases leads to lower costs, the emergence of new opportunities, etc. A large number of specific transformations of information into digital form lead to such significant positive consequences that determine the use of the term digitalization in a broad sense.

As a transition to digital information of all aspects of economic and social life, digitalization from a simple method of improving various private aspects of life is turning into a driver of global social development, ensuring increased economic efficiency and an improved quality of life. Therefore, digitalization in a broad sense refers to the modern global trend in the development of the economy and society, which is based on the transformation of information into digital form and leads to increased economic efficiency and an improved quality of life.

One of the key trends occurring in the global economy over the past decades is its rapid digitalization. Digital transformations are changing the face and structure of the economy, breaking traditional business models, leading to the expansion of markets and opportunities, and becoming the most important engine of global economic growth.

The digital economy is playing an increasingly important role in the development of enterprises in Uzbekistan, bringing changes to their business models, operational processes and customer interactions. Here's how digital technologies are impacting businesses in Uzbekistan:

1. Automation and Optimization of Business Processes:

- The implementation of digital enterprise management systems (ERS) and customer relationship management (CRM) systems allows you to automate routine operations and optimize resource management and customer interaction processes.

2. Development of E-Commerce:

- Enterprises in Uzbekistan are actively developing their online presence through the creation of electronic stores and e-commerce platforms. This allows them to expand their market and reach new customers both domestically and internationally.

3. Digital Marketing Strategy:

- Businesses use digital marketing channels such as social media, content marketing and search engine optimization to attract attention to their products and services and increase their brand awareness.

4. Analytics and Data-Based Decision Making:

- Collecting and analyzing data about customers, sales and business processes allows businesses to make informed decisions, optimize sales strategies and improve the quality of services provided.

5. Security and Cyber Defense:

- With the increasing use of digital technologies, businesses face the risks of cyber attacks and data breaches. Therefore, they need to actively invest in cyber defense and information security.

6. New Business Models:

- The digital economy is driving the emergence of new business models such as subscription services, online platforms for sharing resources and services, and the use of blockchain technology to improve supply chain management processes.

Despite all the benefits, businesses in Uzbekistan also face some challenges in adapting to the digital economy, including limited access to high-speed Internet, a lack of qualified information technology personnel, and the need to embed a culture of digital innovation within organizational structures.

Overall, the digital economy provides businesses in Uzbekistan with enormous opportunities for growth, innovation and development, and paying close attention to this aspect can help them remain competitive in the market.

This article provides an overview of the impact of the digital economy on enterprises in Uzbekistan. It reflects the main ways in which digital technologies impact the business processes and strategies of enterprises in the country.

References:

1. Word Bank. World Development Report 2016: Digital Dividends / Word Bank Group, 2016.
2. Цветков В.А. Реализация стратегий новой индустриализации экономики // Вестник Финансового университета, 2016. – Т. 20. – №6 (96). – С. 19–30.
3. Выступление Шавката Мирзиёева на торжественной церемонии вступления в должность Президента Республики Узбекистан на совместном заседании палат Олий Мажлиса [Электронный ресурс]. – Режим доступа: <http://www.press-service.uz/ru/lists/view/111> (дата обращения: 13.08.2017).
4. Арзуова Ш. А. Роль малого бизнеса в условиях инновационного развития национальной экономики // Цифровизация экономики и ее информационное обеспечение. – 2020. – С. 377-384.
5. Арзуова Ш. А., Досекеев Ж. И. ПЕРСПЕКТИВЫ РАЗВИТИЯ ПРОИЗВОДСТВА ПРОДУКЦИИ ОРГАНИЧЕСКОГО СЕЛЬСКОГО ХОЗЯЙСТВА В УЗБЕКИСТАНЕ // НАУЧНЫЕ И ТЕХНОЛОГИЧЕСКИЕ ПОДХОДЫ В РАЗВИТИИ АГРАРНОЙ НАУКИ. – 2014. – С. 14-17.
6. Инятов А. Р., Арзуова Ш. А. Проблемы доступности и качества высшего образования // Актуальные проблемы современной науки. – 2006. – № 5. – С. 66-67.

Rezyume: *Ushbu maqolada raqamli iqtisodiyotning O'zbekistondagi korxonalarga ta'siri haqida umumiy ma'lumot berilgan. U raqamli texnologiyalarning mamlakatdagi korxonalarning biznes-jarayonlari va strategiyalariga ta'sir etishining asosiy usullarini aks ettiradi.*

Резюме: *Эта статья представляет обзор влияния цифровой экономики на предприятия в Узбекистане. В ней отражены основные способы, которыми цифровые технологии воздействуют на бизнес-процессы и стратегии предприятий в стране.*

Kalit so'zlar: *raqamli iqtisodiyot, axborot-kommunikatsiya texnologiyalari, raqamlashtirish, raqamli texnologiyalar, narsalar interneti, elektron tijorat.*

Ключевые слова: *цифровая экономика, информационно-коммуникационные технологии, цифровизация, цифровые технологии, Интернет вещей, электронная коммерция.*

**PHILOSOPHICAL ANALYSIS OF PROBLEMS IN THE ACTIVITY OF DEVIANT
BEHAVIOR OWNERS**

Toshpo'latov D.N.

*Samarkand state named after Sharof Rashidov University of Sociology and Social
teacher of the work department*

Summary: *In this article, the author writes about addictive morality, which is considered one of the forms of immorality in society, that is, addiction, mental dependence, a person's dependence on an object and the domination of this object over a person. This article covers more about the types, causes and consequences of addiction. Such vices, which have a negative impact on personal morals, are considered one of the most urgent issues of today.*

Key words: *Ethics, personality, addiction, moral culture, pharmacological-substance dependence.*

You have heard a lot about morality, manners, manners in kindergarten, at school, in the family, at rallies, radio, television, and the press always talk about morality. Hadiths and narrations, sermons of famous imams, poems, novels, and proverbs all point to one thing: a human child should have high morals.

In today's society, striving for good, refraining from evil, taking a critical approach to one's activities, renouncing violence and respecting life, establishing an order based on solidarity and social justice, patience and tolerance, duty and responsibility the full realization of the human factor has risen to the level of value, and the importance of creating such a spiritual environment is growing day by day. Because the need for moral consciousness and attitude, social activity, social political dialogue and self-awareness, self-evaluation and self-improvement through self-criticism is the moral- determines the moral environment, its image and directions of social development.[1]

Morality is a set of principles or values that guide people and societies in distinguishing between right and wrong behavior. It can encompass various aspects of human behavior, including actions, intentions, thoughts, and emotions. But there is another form of morality, which is addictive morality, which leads a person down a path of destruction and destroys his own future.

Addictive morality (English addiction) means addiction, dependence, mental dependence. Addictive behavior is the tendency of deviant behavior to escape from reality by altering their state of mind by taking certain substances or focusing their attention on a certain type of activity aimed at developing and maintaining their intense emotions. is one of the forms of formation.[2] This process covers a person so much that it even starts to control his life. A person becomes helpless in front of his passion. Willpower weakens and makes it impossible to resist addiction.

According to the given information, there are the following forms of addictive behavior:

Chemical dependence (smoking, drug addiction, drug addiction, alcohol addiction);

Violation of eating habits (overeating, hunger. Avoiding food);

Gambling - addiction to sports and various games (computer addiction, gambling);

Sexual addiction (zoophilia, fetishism, voyeurism, necrophilia, sadomasochism);

Work or work addiction, etc.

Attached (addictive) morality as a type of deviant morality of a person, in turn, has many types that are especially differentiated according to the object of addiction. Theoretically (under certain conditions), what objects or forms of activity could these be? - chemicals, money, work, games, exercise or sex.

It is known that universal human experience, social norms, values, knowledge and methods of activity are acquired by a person in the process of communication with other people, and the addict stops himself from these processes. He stops enriching his life experience, thereby disrupting the most important tasks of communication. In the course of the addict's joint activities with other people, mutual difficulties arise. Along with dysfunctional processes of communication, important

mechanisms of interpersonal perception, such as identification, empathy, reflection, are broken, changed and lose their value. Therefore, the ability to put oneself in the place of a partner, share grief, and imagine how others perceive oneself is lost.[3]

The development of addictive behavior goes unnoticed. In the beginning, addictive behavior is seen in satisfying the needs of the individual. Then, gradually, a person begins to develop a behavior that he cannot control. The duration of addictive behavior is determined depending on the substance a person is taking, his age, gender, and individual characteristics.

An addicted person tries to escape from a difficult life situation rather than finding a solution to it. Adaptive capabilities also begin to break down at the psychophysical level.

At the first stage, a person experiences psychological discomfort. Each person reacts to a sudden drop in mood differently. In some people, there is a natural resistance to a difficult life situation, that is, a failure to take responsibility for what is happening, for the decision made. Some people try their best to get out of a difficult life situation because they realize that in the end it will be impossible to solve the problem.

Addicts do not feel the difficulties of experiencing a difficult life situation. Such people try to artificially change their mind and get positive emotions in order to avoid the problem. After that, the person will have a fantastic illusory solution to the problem. This method is able to outperform other methods of solving problems. This is easily fixed in a person's behavior and interferes with solving the problem in a natural way. Also, this method attracts the addict because of its ease of solving the problem. As a result, a person becomes isolated from his problems, simply forgets about problems and things that bother him.

The owner of addictive behavior also has problems in communication with close people, a light attitude towards close people is felt. An addict wants solitude and withdrawal (by himself).

Addictive morality means that a person escapes from the real life he lives by changing his state of consciousness.

The following psychological characteristics of persons with an addictive form of morality are distinguished:

1. Low resistance to adversity, along with good resilience to crisis situations. This is caused by the presence of hedonistic directions in a person - to have immediate satisfaction, to seek to satisfy one's desires. If the urges are not satisfied, then addicts react by either exploding negative emotions or avoiding the problems that arise.

2. A hidden complex of imperfection combined with outward superiority. Frequent mood swings, insecurity, and avoidance of situations where their abilities can be objectively tested are reflected in.

3. Trying to lie. Addicts often do not keep their promises, are distinguished by their lack of evidence and non-observance of rules.

4. External social relations combined with fear of intense emotional interactions.

5. They seek to accuse others, even though they know they are innocent.

6. Seeking to avoid responsibility when making decisions. Shifting responsibility to others, looking for exculpatory evidence when necessary.

7. Stereotyping and repetition of morality. The resulting stereotype of morality is predictable, but it is difficult to change it.

8. Dependency. Addictive orientation manifests itself in the form of submission to the influence of other people. Sometimes there is passivity, lack of independence, seeking help.

9. Anxiety. Imperfection is closely related to the dependency complex. The peculiarity of this is that in crisis situations, anxiety can fall into the background, at this time it occurs without obvious reasons in ordinary life or in events that do not give a real reason for anxiety.[4]

The most acute form of self-destructive morality is manifested in the violation of the instinct of self-preservation or preservation of life. This instinct plays an important role in the life of the animal world and humanity, because its effect is based on the main stimuli of the activity of a living

organism - "punishment, pleasure" stimuli. Therefore, its violation is related to the violation of homeostasis - the complex of maintaining and balancing vital functions.

Homeostasis is a balanced state of any system that is maintained by acting against internal and external factors that disrupt this balance.

In fact, although they are less common in the animal world than in humans, suicides can also be observed in animals, such as whales. Animals often try to kill themselves in difficult emotional situations caused by the loss of a partner, loss of freedom, and even the loss of an owner. Sometimes in such a situation, they refuse to eat, try to injure themselves. Man is the only creature on earth who clearly imagines the limits of his life path. His attitude towards death is very complex and ambiguous: He seems to be always prepared for it and at the same time he is never fully prepared. This ambivalent relationship is reflected in a number of artistic works. Therefore, the problem of suicide also depends on the ratio of rational - conscious and irrational - intuition knowledge. In this respect, suicide is not a temporary measure for a person. After all, nothing can be exchanged for anything.

References:

1. Abdulla Sher "Axloqshunoslik". Darslik. O'zbekiston faylasuflari milliy jamiyati nashriyoti. Tashkent - 2010
2. [https:// wikipedia.uz](https://wikipedia.uz)
3. B.M.Ochilova "Axloq falsafasi" Tashkent "IJOD-PRINT" 2019.
4. I.M.Xakimova "Deviant xulq atvor psixologiyasi" study guide. Tashkent 2014.

Summary: Muallif ushbu maqolada jamiyatdagi axloqsizlik shakllaridan biri hisoblangan qaramlik, ruhiy qaramlik, shaxsning biror narsaga qaramligi va bu obyektning shaxs ustidan hukmronligi haqida yozadi. Ushbu maqolada giyohvandlikning turlari, sabablari va oqibatlarini haqida batafsil ma'lumot berilgan. Shaxs ma'naviyatiga salbiy ta'sir ko'rsatuvchi bunday illatlar zamonamizning eng dolzarb muammolaridan biri sanaladi.

Резюме: В данной статье автор пишет о аддиктивной морали, которая считается одной из форм безнравственности в обществе, то есть аддикции, психической зависимости, зависимости человека от объекта и доминирования этого объекта над человеком. В этой статье рассказывается больше о типах, причинах и последствиях зависимости. Подобные пороки, оказывающие негативное влияние на нравственность личности, считаются одной из самых актуальных проблем современности.

Kalit so'zlar: Etika, shaxsiyat, giyohvandlik, axloqiy madaniyat, farmakologik qaramlik.

Ключевые слова: Этика, личность, зависимость, моральная культура, фармакологическая зависимость.

OPTIMISATION OF TRANSACTION COSTS IN AGRICULTURE OF THE REPUBLIC OF KARAKALPAKSTAN THROUGH CLUSTERING OF AGRARIAN SPHERE

Ospanova F. B.

Karakalpak State University named after Berdakh.

Summary: *Striving to reduce transaction costs in the agrarian sphere is an important aspect of increasing the efficiency of agriculture. This article examines the role of clustering in achieving this goal. Agrarian clustering allows different agricultural enterprises, farmers, suppliers and processors to be grouped together in order to work together and reduce transaction costs.*

Keywords: *Clustering, optimization, transactions, transaction costs, organization, expenses, agricultural sector.*

Agricultural clustering is a strategy for organising agricultural activities in which different agricultural enterprises, farmers, suppliers, processors and other agricultural stakeholders join together in groups or clusters to work together and achieve common goals. Clustering in the agricultural sector helps to improve production efficiency, reduce costs, increase competition, and improve the efficiency of agricultural production.

Transaction costs should be understood as an economic assessment of losses arising in the process of coordinating the activities of economic agents. The specificity of transactional relations in agriculture is determined by the characteristic features of the agricultural sector. Transaction costs account for more than a quarter of total costs. Therefore, their reduction, optimisation and management is a relevant and very significant direction in reducing the cost of production, growth of profitability and profit of the enterprise.

The purpose of this study is to assess the impact of clustering on reducing transaction costs in the agricultural sector. The specific objectives of the study include:

1. Analysing transaction costs in the agricultural sector: The study is conducted to identify the main factors affecting transaction costs in agriculture such as information search, contracting, enforcement and conflict resolution.

2. Exploring the mechanisms of clustering: Identify the main mechanisms through which clustering can help to reduce transaction costs in the agricultural sector, such as vertical supply chain integration, resource sharing and knowledge and experience sharing.

3. Evaluate the effectiveness of clustering: Analyse the effectiveness of clustering in agriculture in terms of reducing transaction costs, increasing productivity and improving the competitiveness of the agricultural sector.

4. Development of recommendations: On the basis of the conducted research, development of recommendations for the introduction of clustering in the agricultural sphere in order to optimise processes, reduce costs and increase the efficiency of agricultural market participants.

In the agrarian sphere of the Republic of Karakalpakstan there are a number of transaction costs that cover various aspects of agricultural enterprises. These costs may include the following items:

Types of transaction costs in the agricultural sector of the Republic of Karakalpakstan

	Types of expenditure	Descriptions
1.	Costs of seeds, fertilisers and plant protection products	These costs are necessary to ensure high yields and improve product quality

2.	Costs of renting and maintaining agricultural machinery	Costs of renting or purchasing machinery, as well as their maintenance and repair can constitute a significant part of the budget of agricultural enterprises.
3.	Costs of labour remuneration of agricultural workers.	Employee salaries and bonuses are one of the major expenses of agricultural enterprises.
4.	Expenses for electricity, water supply and heat.	In order to ensure smooth operation of agricultural production, it is necessary to ensure regular power supply.
5	Costs of transporting agricultural products.	The use of transport means is necessary to deliver crops to markets or storage facilities.
6	Costs of paying taxes and fees.	Agricultural enterprises are required to pay various taxes and levies, which is also one of the significant costs.
7	Other costs	They include expenses related to maintenance of land plots, crop insurance, repair and maintenance of buildings and structures.

Clustering in the agricultural sector is an effective solution to reduce transaction costs, as it contributes to a more efficient use of resources and increases the competitiveness of the sector. Here are some ways how clustering can help in reducing transaction costs:

1. Joint procurement and supply: Farmers in clusters can jointly purchase seeds, fertilisers, equipment and other inputs they need. This allows them to access wholesale prices and save on transport and administrative costs.

2. Infrastructure sharing: Clusters can share infrastructure such as irrigation, storage, processing and transport systems. This reduces individual costs of infrastructure maintenance and upkeep.

3. Joint marketing effort: Farmers in a cluster can join hands in marketing and promotion. This may include joint advertising campaigns, participation in markets and fairs, and building common brands. This reduces individual marketing and advertising costs.

4. Knowledge and experience sharing: In clusters, farmers can share experiences, knowledge and best practices. This helps to improve production efficiency and reduce the risks of mistakes by learning from the mistakes of other participants.

5. Joint risk management: Farmer clusters can jointly manage risks associated with market variability, weather conditions and other factors. This may include joint insurance programmes or setting aside funds for contingencies.

Clustering in the agricultural sector also helps to create a favourable environment for innovation, promotes rural development and strengthens social ties between farmers and other actors in the industry.

Methods for optimising transaction costs

Here are some successful methods of optimising transaction costs in the agricultural sector with examples of their application:

Vertical integration:

Example: Agro holdings that integrate different stages of production, from sowing to the sale of finished products. For example, “Agromir International Agro-Industrial Holding”, which includes a variety of agricultural production and processing enterprises, as well as trading and

logistics companies. owning land, production facilities and an agricultural distribution network, can optimise transaction costs by reducing the need for external contracts and simplifying the management of the production process.

Utilising supplier and distributor networks:

Example: Large supermarket chains in our country, such as Makro or Korzinka.uz, can enter into long-term contracts with suppliers of agricultural products, providing them with stable demand and long-term prospects for co-operation. This reduces uncertainty and transaction costs for both suppliers and the chains themselves.

Creating long-term partnerships:

Example: Large manufacturers of agricultural machinery, such as Uzdavselmash, or Uzgidromash, can establish long-term partnerships with agrarian enterprises by providing maintenance services and ensuring that machinery is constantly updated and modernised. This reduces transaction costs associated with finding new suppliers and contracting.

These methods help to reduce transaction costs by improving coordination and control in the agricultural sector, which helps to increase the efficiency and competitiveness of enterprises.

Introducing digital platforms for trading agricultural products. Creating an online platform where farmers can display their goods for sale and buyers can buy directly. This reduces the need for intermediate intermediaries, reducing the transaction costs of finding buyers and sellers, and shortening the time it takes to get products to the end consumer.

These examples demonstrate specific cases of application of methods of optimisation of transaction costs in the agricultural sector, which allows to reduce overhead costs and increase the efficiency of business in this industry.

The main mechanisms for cost reduction include vertical supply chain integration, resource sharing, knowledge and expertise sharing, joint marketing efforts and co-operation with government and other stakeholders. Effective use of clustering in the agricultural sector can lead to lower costs, increase the competitiveness of the agricultural sector and improve the living conditions of rural residents.

In conclusion, we can summarise the main conclusions and recommendations on the use of clustering to reduce transaction costs in the agrarian sector of the Republic of Karakalpakstan. Clustering is an important tool for jointly solving agricultural problems and reducing transaction costs by bringing together enterprises, farms, suppliers and processors.

The study confirms that clustering is an important tool in the agricultural sector of the Republic of Karakalpakstan.

The analysis shows that clustering can be particularly useful for solving specific problems of agriculture in Karakalpakstan, such as access to resources, optimisation of infrastructure and improvement of product quality. On the basis of the study, a number of recommendations can be proposed for the development of clustering in the agricultural sector in Karakalpakstan, including stimulating cooperation between agricultural enterprises, supporting innovation and infrastructure development.

References:

1. Williamson. O.E. (1979). "Transaction-Cost Economics: The Governance of Contractual Relations". *Journal of Law and Economics*, 22(2), 233-261.
2. Coase, R. H. (1937). "The Nature of the Firm". *Economica*, 4(16), 386-405.
3. Ollinger, M., & Fernandez-Cornejo, J. (1998). "Market Power, Scale Economies, and Productivity in the U.S. Food Manufacturing Sector." *American Journal of Agricultural Economics*, 80(3), 545-556.
4. Casson, M. (2008). "The entrepreneur in economic theory". Routledge.
5. Demsetz, H. (1968). "The cost of transacting". *The Quarterly Journal of Economics*, 82(1), 33-53.
6. Сауханов Ж. К. Аграр тармоқда ташқи самараларни оптимал тартиблаштириш ва трансакция харажатларини пасайтириш: муаммолар, усуллар ва моделлар. Монография –Т.: Lesson press 2022 й
7. Naurizbaev A. R. KAPITAL BOZORI ORQALI AKTSIYADORLIK JAMIYATLARINI MOLIYALASHTIRISHNING XORJIY DAVLATLAR TAJRIBASI //“Қарақалпақстан регионинда жоқары билим хэм илим-пән раўажланьўында Қарақалпақ мәмлекетлик университетиниң орны:

кеше, бүгін, ертең (Қарақалпақ мемлекетлік университетінің 45 жыллығына бағышланады)”
атамасындағы халық. – 2022. – С. 419.

8. Larysa, B., Boris, B., Rustam, E., Janabay, K., Aliakbar, N., Bakhtiyar, I., ... & Kural, K. (2021). Higher Education During the Pandemic: The Experience of Ukraine and Uzbekistan.

Rezyume: Qishloq xo'jaligida tranzaksion xarajatlarini kamaytirish istagi qishloq xo'jaligi samaradorligini oshirishning muhim jihati hisoblanadi. Ushbu maqola ushbu maqsadga erishishda klasterning rolini ko'rib chiqadi. Qishloq xo'jaligini klasterlash turli qishloq xo'jaligi korxonalari, fermerlar, yetkazib beruvchilar va qayta ishlovchilarni birgalikda ishlash va tranzaksiya xarajatlarini kamaytirish uchun birlashtirish imkonini beradi.

Резюме: Стремление к снижению транзакционных издержек в аграрной сфере является важным аспектом повышения эффективности сельского хозяйства. В данной статье рассматривается роль кластеризации в достижении этой цели. Аграрная кластеризация позволяет объединить различные сельскохозяйственные предприятия, фермеров, поставщиков и переработчиков для совместной работы и снижения транзакционных издержек.

Kalit so'zlar: Klasterlash, optimallashtirish, tranzaksiyalar, transaksion xarajatlar, tashkilot, chiqimlar, qishloq xo'jaligi sektori.

Ключевые слова: Кластеризация, оптимизация, транзакции, транзакционные издержки, организация, затраты, сельскохозяйственный сектор.

**DIRECTIONS FOR THE DEVELOPMENT OF PROFESSIONAL COMPETENCE IN
TEACHING KARAKALPAK LITERATURE**

Jaksimova U.J.

Nukus branch of TUIT named after Mukhammad Al-Khwarizmi

Summary: *This article discusses the directions of development of professional competence of a teacher of Karakalpak literature, issues of improving the quality of the lesson based on the formation of professional competence among future teachers, the formation of skills for using integrative knowledge in the lesson process.*

Key words: *education, upbringing, professional competence, knowledge, skills, scientific experience, integrative knowledge, history, geography, ethnography, linguistics, strategy, innovative approach, spiritual maturity, factor, personality*

Introduction

At the moment, a number of works are being carried out in our republic to improve the quality of education and increase the scientific potential of personnel. In particular, the decree dated on October 8, 2019 PD No. -5847 "On approval of the concept of development of the higher education system of the Republic of Uzbekistan for 2030", the development strategy of the president of the Republic of Uzbekistan for 2022-2026, PD No. -2909 dated on April 20, 2017 "On measures to further improvement the higher education system", PD No. -3775 dated on June 5, 2018 "On additional measures to improve the quality of education in higher educational institutions and ensure their active participation in large-scale reforms carried out in the country", as well as the tasks set out in other legal and normative acts related to this section, are a clear example of the special emphasis on education in our country.

The radical reform of the educational system has a direct impact on the subjects of the curriculum and on the development of professional competencies of teachers, on their self-development, on the acquisition of skills of step-by-step application of pedagogical activity.

Literature review

The conditional part of each person's skills in their profession is professional competence, and if that competence is shown by the elegant ability of a future specialist who is focused on the implementation of future professional activities, this difference indicates the degree of mastery of professional competence of a person. Therefore, an important role in the acquisition of professional competence is played by the personal interest of the future specialist, the level of professional training, intelligence, knowledge and ability.

Various studies on competence are reflected in the works of I. V. Grishina[1], N. A. Muslimov [5], O. A. Kozyreva [2], I. S. Claysina [3], M. A. Innazarov [8], where opinions are given about the need to pay special attention to the development of a competency approach, knowledge, skill and scientific experience in the acquisition of knowledge, the skill of practical application of acquired knowledge.

Research Methodology

On the basis of the professional competence of each teacher, at the same time the teacher of Karakalpak literature, it is seen that he effectively uses theoretical knowledge, carries out a high level of professional scientific experience, intelligence and abilities.

In education, the application of the concept of competence is the result of scientific research by psychologists, and from a psychological point of view the term *competence* refers to how the teacher feels in unforeseen situations, how he gets into relationships, how he behaves in interactions with opponents, uses complete information in overcoming contradictions, determines directions of action in complex processes.

Analysis and results

The professional competence of a teacher of Karakalpak literature is manifested in the acquisition of knowledge, skills and scientific experience necessary for the implementation of professional activities and their high level of application in practice. This implies the acquisition of integrative knowledge and actions in each direction. For example, when we read about the life and work of Ajiniyaz Kosibai uli in the educational process, this topic contains a lot of information, and readers are not only informed about the poet's poetry, but also give accurate and complete information to students based on historical-geographical sources about the poet's period and land, information about the jewelry, decorating items of karakalpak women based on ethnographic sources, the study of linguistic differences of song lines based on language education. Therefore, competence requires the teacher to enrich his knowledge, learn new information, understand the necessary social requirements, look for new information, process them and use the teacher's own experience.

The professional competence of a teacher of Karakalpak literature can be seen in the study of complex processes, complex tasks, the use of information opposite each other, the acquisition of an action strategy in unforeseen situations. For example, the student asks the teacher the reasons why the Ajiniyaz poet traveled to the Kazakh fields. The teacher dealing with this question must have complete knowledge of the poet's life path and the history of the creation of his songs. This question may have arisen from the personal interest of the student, but will lead to the need to work on himself, arising from professional obligation in the teacher. Teachers with professional competence increasingly enrich their knowledge, learn new information, gain a deeper understanding of the requirements of the period, seek new knowledge, re-learn them and effectively apply them in their professional experience.

In the higher education system, increasing the professional competencies of educators is an important factor in improving the educational process. Therefore, it is important to create the theoretical and practical foundations of the process of increasing the professional competencies of an educator based on the effective use of the capabilities of modern educational technologies. E.F. Zeyer who studied professional competence in the scientific field, in his work shows that various views of competence, such as the study of the functional development of professional competence, the obtaining of achievements on the professional side, that integrates and their connection with professionally necessary qualities strengthens.

The main levels of professional competence of a teacher of Karakalpak literature include professional training and experience, self-awareness, self-confidence, correct perception of shortcomings manifested by others, and similar features that determine other professional achievements.

So, the competence of a teacher of Karakalpak literature is characterized by:

- be able to correctly apply knowledge in the learning process in various cases, taking into account all its features;
- readiness to make decisions depending on the situation in the learning process, as well as choosing the solution that is most appropriate for this situation;
- develop communication skills that allow building interaction with students with specific goals and in an appropriate way within the framework of activities;
- show the presence of spiritual values, worldview, educational cultural and moral qualities, a sense of striving for activity;
- in the learning process, there should be qualities of willing to master new stages of pedagogical activity by developing own creative abilities.

The category of researches that study the professional competence of teachers and its individual aspects can include studies conducted by A.K.Markova [4].

A teacher of Karakalpak literature should work on himself and develop his professional competence. Modern requirements and the labor market place high demand on professional knowledge, skills and scientific experience. At the same time, each teacher should develop personal

qualities that allow learning and improving knowledge quickly and effectively, working in a team, having high flexibility and stress resistance, and creative potential.

It is necessary to create an opportunity to model learning outcomes based on the requirements of special fields of professional activity, to master learning outcomes reflecting competencies that meet modern requirements. The rapidly changing world demands from the new generation of youth not only professional knowledge in their chosen specialty, but also a high level of socio-psychological education of the individual.

Based on the given information, scientific improvement of the learning processes of future teachers who are studying at educational institutions is of great importance. In turn, in this process it is necessary to rely on innovative approaches, possess professional and personal qualities, and be able to manage oneself in various situations. The implementation of activities, taking into account educational relations at educational institutions, based on the existing legal and normative criteria for solving various issues and problems, reveals the professional competence of future teachers.

Conclusion

Generally speaking, while training teachers of Karakalpak literature, it is necessary to take into account only the personal capabilities of the individual, comprehensively aimed at developing professional competencies defined by the requirements of the state. The development of students' professional skills in the process of studying at a higher educational institution provides primary training aimed at carrying out the professional activities of future specialists.

A teacher of Karakalpak literature will become a specialist with the following professional competence only if he has his own strategy of action:

- working on himself to enrich knowledge
- mastering new information related to subject
- deeply understanding the demands of time in teaching a subject
- finds new knowledge related to subject
- processes new knowledge related to subject and uses it effectively in his practice

As we have stated above, the implementation of discipline integration is an effective method of improving the professional competence of future teachers, which requires the interconnection of subjects and links between disciplines. Thus, the teacher of Karakalpak literature, during the passage of each subject, fully gets acquainted with the information related to the subject and transmits it to the younger generation, which provides opportunities for future teachers to apply knowledge, skills and scientific experience in studying the subject.

References:

1. Гришина И.В. Профессиональная компетентность директора школы. Автореф.: дис. докт. пед. наук. – М. 2004. – 40 с.
2. Козырева О.А. Компетентность современного учителя: современная проблема определения понятия. // Стандарты и мониторинг в образовании. – 2004. – № 2. – с. 48-51.
3. Клёсина И.С. Компетентностный подход и гендерное образование в высшей школе // Актуальные вопросы современного университетского образования: материалы X Российско-Американской науч.-практ. конф., 14-16 мая 2007 г. – СПб: Издво РГПУ им. А.И. Герцена, 2007. – С. 105–109.
4. Маркова А.К. Психология профессионализма. – М.: -Знание, 1996. (Инновацион таълим технологиялари. / Муслимов Н.А., Усмонбоева М.Х., Сайфуров Д.М., Тўраев А.Б. – Т.: -Сано стандарт, 2015.)
5. Муслимов Н.А. Касб таълими ўқитувчиларини касбий шакллантиришнинг назарий – методик асослари.: Дис. ... пед. фан. докт. – Т.: 2007. – 275 б,
6. Муслимов Н.А. Бўлажак касб таълими ўқитувчиларини касбий шакллантириш. Монография. – Т.: Фан, 2004. – 126 б
7. Муслимов Н.А., Усмонбоева М.Х., Сайфуров Д.М., Тўраев А.Б. Педагогик компетентлик ва креативлик асослари. Ўқув методик қўлланма. / Т. 2015 -Саностандарт 4-5-б.
8. Инназаров М.А. Малака ошириш тизимида педагог кадрлар касбий компетентлигини таъхислаш технологияларини такомиллаштириш (Олий таълим муассасалари мисолида). Автореферат. пед. фан. фал. докт. – Т. 2020. 11-б.

9. Зеер Э.Ф., Шахматова Н. Личностно ориентированные технологии профессионального развития специалиста. – Екатеринбург, 1999. (Ишмухамедов Р., Мирсолиева М. Ўқув жараёнида инновацион таълим технологиялари.-Т.: -Фан ва технология, 2014. -60-б.)

10. Жасимова У. Давлат тилини ўқитишда инновацион усуллардан фойдаланиш. Актуальные научные исследования в научном мире, Сборник научных трудов, Выпуск 9, часть 5, Переяслав-Хмельницкий 2016. Б.98-102

Rezyume: Ushbu maqolada qoraqalpoq adabiyoti fani o'qituvchisining kasbiy kompetentsiyasini rivojlantirish yo'nalishlari, bo'lajak o'qituvchilarda kasbiy kompetentsiyani shakllantirish asosida dars sifatini oshirish, dars jarayonida integrativ bilimlardan foydalanish ko'nikmalarini hosil qilish masalalari ko'rib chiqiladi.

Резюме: В данной статье рассматриваются направления развития профессиональной компетентности учителя Каракалпакской литературы, вопросы повышения качества урока на основе формирования профессиональной компетентности у будущих учителей, формирования навыков использования интегративных знаний в процессе урока.

Kalit so'zlar: ta'lim, tarbiya, kasbiy kompetentsiya, bilim, ko'nikma, ilimiy tajriba, integrativ bilim, tarix, jo'g'rafiya, etnografiya, tilshunoslik, strategiya, innovatsion yondashuv, ma'naviy yetuklik, omil, shaxs

Ключевые слова: образование, воспитание, профессиональная компетентность, знания, навыки, научный опыт, интегративные знания, история, география, этнография, лингвистика, стратегия, инновационный подход, духовная зрелость, фактор, личность

THE ISSUE OF YOUTH POLICY IN UZBEKISTAN (IN THE CONTEXT OF LEGAL GUARANTEES)"

Sarsenbayeva A.

Karakalpak State University named after Berdakh

Summary: *Each society views youth as a "future deposit" aimed at advancing the state. The increasing number of young people in global demographics, rapidly adapting to the modern era, has led to their balanced presence on the world stage, preserving ideological concerns, and progressive movements recognized through international forums. However, the acceptance of evidence also implies the division of spiritual voids among youth in recent years, under the influence of psychological pressures, creating challenges to personal development. Naturally, demographic changes contribute to fluctuations in youth numbers across continents, whether increasing significantly or declining, due to various reasons.*

In the published scientific article, the distinctive features of the country's historical policy aimed at fostering a Third Renaissance with the youth, connecting them to the values of global civilization, were comprehensively studied and analyzed. This was done to elucidate the true essence and significance of the state's policy that contributes to the extensive international engagement in Uzbekistan.

Key words: *Youth policy, Renaissance, legal guarantees, prevention*

In recent decades, global civilization has been advancing rapidly in all corners of the world, with each nation striving for success, whether in politics, economics, or social development. In this progressive movement towards the future, youth play a crucial role, as their scientific and intellectual potential is being increasingly recognized. Statistical data indicates that over 2 billion young people make up the world's population. This demographic reality underscores the critical importance and relevance of youth policy in societal development at a global scale.

In recent years, the issue of youth has been addressed extensively by the United Nations through various initiatives and resolutions. This includes the United Nations General Assembly's World Program of Action for Youth (WPAY), the Declaration on Youth Policies and programs in the "Lisbon +21" document, and the UN's "Youth 2020" strategy. Additionally, resolutions have been adopted by the UN Security Council on youth, peace, and security, as well as decisions made by the UN Commission on Population and Development on youth, reproductive health, and rights. These efforts demonstrate the international community's recognition of the importance of youth issues and the need for coordinated strategies and policies to address them effectively. [4, 12]

The clear perspective that emerges from our historical development shows that the potential of educated youth, who form the solid foundation of society's advancement, becomes a driving force when properly nurtured and empowered within a conducive environment.

When discussing the Second Renaissance in history, the great ruler and statesman of our ancestors, Amir Timur, emphasized the importance of policy aimed at elevating the nation. The recognition of the world's scientific and intellectual community towards the nurturing and support of talented youth within our society played a significant role. For example, in the "Tamerlane Institutes," there are timeless pieces of advice that reflect the respect accorded to youth, emphasizing the enduring role of etiquette and hospitality norms in shaping society. For instance, the wisdom conveyed by the saying, "In my experience, a person who is knowledgeable, brave, skilled, wise, and courageous is superior to an ignorant, reckless individual," remains relevant even today. [6, 33]

Our President, Shavkat Mirziyoyev, has emphasized the importance of understanding and learning from our rich history as a way to guide our future development. Under his leadership, a new Third Renaissance has been initiated in Uzbekistan, focusing on empowering youth with legal and moral foundations and integrating them into national policies. This approach aims to instill

positive intentions and aspirations in our youth, fostering their active participation in our society's social, economic, and spiritual development. Ultimately, enhancing ideological immunity against various influences and distortions that pose challenges to our youth remains critically important in our present-day context. [3, 6]

The utilization and support of various initiatives in fields such as science, technology, information technology, culture, art, sports, entrepreneurship, and education are crucial for harnessing the potential of our youth. By promoting and empowering these efforts, Uzbekistan aims to foster the active participation and development of young people. Ultimately, the effective implementation of youth policies is essential for enhancing national and societal structures in Uzbekistan, promoting partnership and development across all levels.

The international documents mentioned above highlight the objective of meeting the needs and aspirations of young people, including support for their abilities and development in various areas. These documents emphasize the importance of "investing in youth as a strategic and significant asset" and underscore the perspective that "all investments made in youth yield long-term benefits." [2, 5-10]

In line with these principles, a series of measures and reforms are being implemented to ensure the rights and freedoms of youth, promote modernization, support intellectual endeavors, and facilitate progress alongside the times. In recent years, specific laws, presidential decrees, and government resolutions have been adopted to advance these goals.

"Today, in a rapidly developing world community, new and vast opportunities are opening up before our youth. Alongside this, they are also exposed to various unprecedented risks and threats.... It is essential for us to nurture our children ourselves, without handing them over to others. To achieve this, we need to engage more with our youth, listen to their hearts, understand their pain, and provide practical support to solve their problems," said President Shavkat Mirziyoyev of the Republic of Uzbekistan. [3, 18]

During the years of independence, a strong legal foundation was established to ensure comprehensive and mature development opportunities for youth. Specifically, over 40 laws related to youth have been adopted by the parliament so far, and more than 30 international legal instruments have been ratified. This demonstrates a concerted effort to create a robust legal framework that supports the rights and development of young people in Uzbekistan. During the early years of independence, specifically on November 20, 1991, with the adoption of the law "On the Foundations of State Youth Policy in the Republic of Uzbekistan," attention to youth issues in our country was elevated to the level of state policy. This law, being the cornerstone, created opportunities for the implementation of activities in the main strategic directions related to youth in a phased and systematic manner. It not only outlined the objectives and principles of state policy regarding youth but also addressed critical issues that are relevant in today's context. [5, 2]

For the first time, the law emphasized the need to develop policies and programs directly related to youth life and highlighted the active participation of youth as a key task in formulating and implementing these policies and programs.

Over time, a comprehensive system was created to support youth in all spheres, protect their rights and legal interests, nurture intellectually capable individuals who are aligned with the times and have a clear direction. The Republic of Uzbekistan established special agencies such as the Youth Affairs Agency, Youth Parliaments under the chambers of the Supreme Assembly (Oliy Majlis), and the Youth Academy under the Ministry of Innovative Development of the Republic of Uzbekistan.

During the period of development, special attention has been given to addressing youth issues, finding effective solutions, and organizing youth forums, including the highly significant Youth Forum held in December 2020. Furthermore, in his Address to the Oliy Majlis and the people of Uzbekistan on December 29, 2020, President of the Republic of Uzbekistan outlined specific measures aimed at advancing the state policy on youth to a new level. As a result, on January 18, 2021, the Cabinet of Ministers of the Republic of Uzbekistan approved a Resolution

"On Approving the Concept of Developing the State Youth Policy in Uzbekistan Until 2025," which outlines clear objectives and tasks for the development of youth policy in the country. [2, 19]

President Shavkat Mirziyoyev emphasized during the Uzbekistan Youth Forum that "we do not pay enough attention to what reforms are being implemented in our country, first and foremost, we rely on young people like you, on your strength and enthusiasm. You all know well that today we are achieving great successes. We are embarking on the creation of the Third Renaissance in our Motherland. We consider family, primary education, secondary and higher education, and the development of scientific and cultural centers as the most important components of the Renaissance. Therefore, we are implementing comprehensive reforms in these areas. We believe that our young people, loyal and patriotic like you, actively participate and contribute to creating a new milestone in the development of our country." [3, 2-4]

The main tasks outlined in the aforementioned concept include:

- Enhancing the legal framework aimed at protecting the legal rights and interests of youth;
- Ensuring quality education for youth at all levels and creating conditions for inclusive education development in regions;
- Establishing appropriate labor conditions for youth and expanding their economic rights and opportunities through the protection of their labor-related legal rights.

In addition, ensuring youth have access to education, social and medical protection, housing, and employment under suitable conditions has been identified as a constitutional obligation of the state. The state recognizes these responsibilities as critically important and assumes them as its own duties.

The "Law on State Youth Policy" adopted in 2016 encompasses various important provisions that are systematically implemented. This law consists of 4 chapters and 33 articles. [1]

In this law, the state youth policy covers aspects related to youth (adolescents), youth organizations, youth engagement, and youth entrepreneurship, among other indicators.

For example, when referring to state youth policy, the law focuses on creating conditions for the active participation of youth in the country's development and shaping their social status. It also emphasizes the development of their intellectual abilities, creativity, and other skills necessary for scientific achievements, considering the social, economic, educational, and legal solutions system.

In addition to the provisions mentioned earlier, the law includes the definition of youth categories. According to the law, individuals aged between 14 and under 30 years old are considered youth.

One of the key aspects of the law is that it specifies the representation of agencies and institutions involved in the implementation of state youth policy and their roles and responsibilities. However, it does not explicitly specify the representation of these agencies and institutions in the system of state governance.

Furthermore, according to Article 9 of the law, the following organizations are included in the structure of agencies and institutions involved in the implementation of state youth policy: educational and upbringing institutions under state bodies, bodies responsible for ensuring the rule of law, cultural and sports institutions, healthcare institutions, prosecutor's offices, labor agencies, justice agencies, and security agencies. Additionally, other organizations and institutions involved in the implementation of state youth policy can be designated according to the provisions of the law.

Among the provisions outlined in Article 14 of the law, the inclusion of representation of Prosecutor's Office bodies in the implementation of state youth policy is a significant change. Specifically, Prosecutor's Office bodies:

- Ensure compliance with specific and comprehensive provisions related to state youth policy.
- Participate in the development of state youth policy.
- Engage in the prevention of offenses among youth, identifying and clarifying the causes and conditions conducive to offenses.
- Contribute to the legal awareness and legal culture among youth.

- Collaborate with other relevant bodies and institutions in the implementation of state youth policy, with the possibility of assuming other responsibilities according to the provisions of the law.

In other words, the adoption of the "On State Policy towards Youth" by the Republic of Uzbekistan in a new editorial reflects the need to cultivate youth who are deeply rooted in the rich cultural heritage, democratic state-building, and civil society development processes, possessing advanced moral values, broad worldview, and equipped with modern knowledge, instilling in them various ideological immunity, ensuring social protection for youth, establishing conditions for continuous personal and professional development, supporting talented and intellectual youth, creating opportunities for them to contribute to physical education and sports, providing healthy lifestyle recommendations among youth, and addressing issues related to crime prevention and punishment among youth. The systematic implementation of such measures aims to raise a generation that is immune to negative influences, capable of contributing to the prosperity of the country, and restoring those who have strayed from the path as true patriots of the Republic of Uzbekistan, reflecting the clear commitment to the well-being of the younger generation. [3, 3-4]

References:

1. 2016, September 14: "On State Policy towards Youth" Law -/<https://lex.uz/docs/3026246>
2. 2021, January 18: Resolution on "Approval of the Concept for the Development of the State Youth Policy in Uzbekistan until 2025" - <http://lex.uz/docs/-5234746>
3. Speech by President Shavkat Mirziyoyev at the Uzbekistan Youth Forum - <https://uza.uz/uz/posts/ozbekiston-respublikasi-prezidenti-shavkat-mirziyoevning-ozbekiston-yoshlari-forumida-sozlagan-nutqi-197662>
4. Saidov A. «Ózbekiston yoshlar mamlakati», Yangi Ózbekistonning istedadli yoshlari- Ilmiy ishlar to'plami., T-2021
5. Mirzaxmedov X., «Jamiyatning transformaciyasida yoshlar axloqi», Yangi Ózbekistonning istedadli yoshlari- Ilmiy ishlar to'plami., T-2021
6. Muqimov Z. « Amir Temur tuziklari», S-2008

Rezyume: Maqolada istiqlol yillarida yoshlarning har tafarlama yetuk, barkamol shaxs bólib yetishishlari uchun yaratilgan baza- huquqiy hujjatlar haqida keltirib ótiladi. Xususan, bugungacha parlament tomonidan yoshlarga oid 40 dan ziyod qonun hujjatlari qabul qilingan bólib, 30 dan ortiq xalqaro huquqiy hujjatlar ratifikatsiya qilingan.

Резюме: В статье упоминаются основные правовые документы, созданные в годы независимости для того, чтобы молодежи стали полноценно зрелыми и всесторонне развитыми личностями. В частности, парламентом принято более 40 правовых документов, касающихся молодежи, и ратифицировано более 30 международных правовых документов.

Kalit so'zlar: Yoshlar siyosati, renessans, huqiqiy baza, profilaktika.

Ключевые слова: Молодёжная политика, ренессанс, правовая база, профилактика.

**DEVELOPMENT OF ARCHEOLOGY IN KARAKALPAKSTAN DURING THE YEARS
OF INDEPENDENCE**

Ilauatdinov R.

Karakalpak State University named after Berdakh

Summary: *The article is devoted to the archaeological research and updates carried out in Karakalpakstan during the years of independence, attention to the science of archeology, and joint archaeological cooperations with foreign scientists.*

Key words: *Tashkhirman oasis, G. Khojaniyazov, Akchakhan-Kala, Amu Darya, expedition, Kerder cities.*

Deep knowledge of real history helps each citizen of society, especially young generation, to choose their own path in their lives, to appreciate the value of today's independent life, and to understand the future. Due to the fact that quality education is the basis of the great future of our society, more attention is paid to education in our country at the level of state policy. In his address to the Oliy Majlis and the people of Uzbekistan on December 20, 2022, President of the Republic of Uzbekistan Sh. Mirziyoyev noted that attention should be focused on supporting the largest investment for New Uzbekistan at first: "Power is in education, power is in upbringing, power is in knowledge." The reason is that the best goals are achieved thanks to knowledge and education"[1, 1-3].

The achievement of independence of the Republic of Uzbekistan in 1991 opened wider opportunities for development in the science of history, like all other spheres in society. The outlook for historical and cultural heritage has changed completely, and a great attention has been paid to researching the still undiscovered aspects of our history. All opportunities were created for our scientists to work effectively. Historical monuments were taken under state protection, and research as well as restoration of their history have been started.

In the years of independence, special attention was paid to the development of archeology, which is one of the main areas of history in our country. As a proof of this statement, we can cite the acceptance of the "Concept of Development of Archeology in Uzbekistan", which aims to bring archaeological research up to the level of modern requirements[2, 7-11]. Since 1993, Uzbekistan has been a member of the UN Convention on the Protection of the Common World Cultural and Natural Heritage. With the acceptance of special laws, including "On Protection and Use of Cultural Heritage Objects" on August 30, 2001, "On Protection and Usage of Archaeological Objects" on June 16, 2009, all types of cultural heritage objects in the territory of our country were re-entered into the state protection list by the special decision of the Council of Ministers of the Republic of Karakalpakstan on October 13, 2006.

It is known that archeological materials are more important than written sources in providing scientific clarifications to the still unknown periods of the history of Karakalpakstan. The reason is that there are very few written sources that provide information on the history of the country. Therefore, with the help of archeological materials, we can illuminate the pages of our history of thousands of years, the pictures of our ancestors in the time of their lives, on the shores of cultural finds. Among them, developments in the science of archeology in recent years, the emergency of new scientific research methods, the use of international experience in the study of archaeological objects, created a stimulation to wider application of modern technology[3, 35].

These developments in science are certainly causing new historical discoveries. Archeologists from Karakalpakstan were aware of the world news in the field of archaeology. Using the wide opportunities given during independence, they had the opportunity to establish scientific cooperation with foreign colleagues. It created a wide possibility to work with scientists from other countries in search of rich archaeological memories of our country. The international archaeological expedition "Karakalpakstan-Australia" has been working in our country for nearly

twenty years. Among Australian scientists, representatives of France and the University of California, USA are participating in the field research of this expedition, including laboratory works. As a result of these joint researches, the ancient Tashkhirman oasis was opened. Dozens of ancient and medieval cities-villages, known and unknown in ancient science, along with some unique houses, irrigation systems, and agricultural fields were localized on the archaeological map. That breaking news caused to the curiosity of the archaeological communities on earth, and by a special decision of the Cabinet of Ministers of the Republic of Uzbekistan, an international symposium was held in October 2007. Therefore, awarding the honorary title of Hero of Uzbekistan to the archaeologist-scientist Gayratdin Khojaniyazov is concerned to be the highest appreciation given to the rich history, unique culture, and knowledge of Karakalpak nation.

According to G.Khojaniyazov, an archaeologist for the research of Akchakhan fortress, research conducted in Akchakhan fortress showed that it is the third largest city on the South Aral coast after ancient Guzeliqir and Kalaliqir, and the largest city on the right bank of Amu Darya. The magnificent fortifications, public and religious buildings of the castle, its material wealth, especially the galleries with the portraits of the ancient rulers, which amazed the world archeology science, seem to be the source of its being the capital of the ancient state of Khorezm [4, 4-5].

Akchakhan fortress was the largest capital city in Khorezm. The fact that the capital Khorezm was moved to the right coast of the central Amu Darya is confirmed in written sources and in the archaeological excavations conducted in Akchakhan fortress. (According to Beruniy, the castle of Kat - Fil - Fir was built in 305). At that time, there was one social and cultural center – Tashkhirman oasis. In the period after the Achaemenid Empire, the appearance of special centers related to the worship of the capital is of great interest from the views of the history of social life in Khorezm[5, 128].

During the years of independence, ethno-archaeological research was started from the memories of our country. City-forts, places of worship and mosques-madrasas, mausoleums, sanctuaries belonging to the last Middle Ages were studied. In accordance with this, during the researches in the territories of certain graves (#1-2 Ketmonchi Baba, Qirantau, Porlitau, Azizler Baba), Zoroastrianism and Kerder sites, ancient fortresses and medieval informing towers were discovered. These researches clarified the informing towers located along the trade route that passed over our country, and their Ayazkala, Burlıkala, Sultanbaba, Kuyanshik, Khojakol, Nazarkhan, Kuskhana (Nukus), Azizlerbaba, Qirantau, Porlitau and the towers controlled the international water and land route along the coast of Amu Darya.

Byzantine materials from Kuyik Kala and two hundred Sasanian (Iranian) mints from Takhtakopir indicate the existence of an eastward trade route from the early Middle Ages.

During the years of independence, broad avenues were opened for the science of the republic and it was given a chance to approach the science of the world. Since the 1990s, our historians have been conducting research in a number of directions in international relations. It helps, firstly, to get acquainted with foreign scientific centers and through this to pass advanced training courses abroad, secondly, to go abroad to conduct specified research programs, thirdly, to develop joint scientific projects at the expense of foreign grants, fourthly, publication of collaborative scientific activities. As a result of conducting such works, our scientists managed to find their place in an international scientific community[6, 187].

In 2000, as a result of the scientific activities carried out, our scientists held an international symposium entitled "The place of the ancient Khorezm civilization in the history of world culture", and in October 2007, by a special decision of the Cabinet of Ministers of the Republic of Uzbekistan, the end of archaeological research in the Tashkhirman oasis and an international symposium on the 100th anniversary of S. P. Tolstov's birth were held. At this international scientific conference called "The Aral Sea is a place where cultures collide", scientists, archaeologists, historians from Russia, Kazakhstan, Germany, France, America, England, Australia, together with famous scientists from Uzbekistan, spoke about ancient Khorezm statehood presented scientific statements about the great contribution of our nation's history and culture to the world

civilization. On the third day of the conference, a mobile seminar on the topic "Archeology of the ancient Tashkhirman oasis" was held in Beruniy district. In general, during the archaeological research in Akchakhan fortress, many fragments of pottery vessels, statues, coins and other materials from the VI-V centuries BC to the IV century AD were found. Among the ceramic materials belonging to the V-IV BC, there are previously unknown pieces of gray pottery, including statues of the gods Anakhita, Siyawish, and animals such as horses and camels. In contrast to them, the material means the discovery of a statue belonging to Buddhism. This, in turn, indicates that a number of trade representatives, probably from India, who worshiped this religion lived in the Akchakhan fortress, located on the international trade route, even temporarily. Thus, it is known from legends, folk epics, and written sources that Akchakhan was the capital city of Farasman, and this city, built in the V-IV centuries BC, suffered a great disaster over time.

Archaeologists such as V. N. Yagodin, M. M. Mambetullaev, E. Bijanov contributed greatly to the formation of the Karakalpak archeology school during those periods.

In fact, the emergence of the Karakalpak archeology school, from which academician S. K. Kamalov, who was the head of the Karakalpak branch of the Academy of Sciences in the Republic of Uzbekistan during those times, played an important role. Later, representatives of the second group of archeologists, Dr. M-Sh. Kdirniyazov, candidate of historical sciences M. Turebekov, G. Khojaniyazov were attracted and contributed to the development of archeology. Today, our third group of archaeologists O. Dospanov, J. Hakimniyazov, A. Iskandrova are doing archaeological researches.

Since the independence of our country, the way has been opened for Karakalpak archaeologists to work together with foreigners. The results of the international archaeological expedition, which has been continuing since the middle of the 80s of the last century, gave the opportunity to reveal a number of news about our ancient history. In this way, international expeditions, international scientific conferences, symposia were organized, scientific articles and monographs of our archaeologists are being published abroad. Today, Karakalpak archeology has its own place in world archeology. We believe that all of them are an achievement of the fair policy conducted in our country.

Karakalpak archaeologists managed to publish their work as a scientific monograph in cities other than Uzbekistan, such as Sydney, London, and Madrid[7, 43]. As a result of working together, we should highlight the case of Karakalpak scientist G. Khodzhanliyazov's monograph "Military architecture of ancient Khorezm between VI-IV centuries BC" was translated into English and published in Paris in 2006[8, 264].

In 2000, for the first time in the history of Karakalpakstan, a Symposium and field seminar on archeology were held at the international level. Leading archaeologists of many countries participated in such events. At the symposium, the work of the international expedition and the scientific achievements of general Karakalpak archaeologists were assessed. Thus, from the lines quoted above, we can see that Karakalpak archeology has risen to the international level today thanks to independence. In 2008, S.P. Tolstov, one of the founders of the school of archeology in Karakalpakstan, a scientist who contributed to the Republic of Karakalpakstan, respected academician of the Academy of Sciences of Uzbekistan, professor, doctor of history, turned 100 years old. At the beginning of October dedicated to this jubilee, an international Symposium and a field seminar of the second Karakalpakstan-Australia international expedition were held in the capital of our country, Nukus, as well as Ellikkala and Beruniy districts. European, Asian and Australian scientists took part in this Symposium along with well-known archeological scientists of the Republic of Uzbekistan. This scientific forum was the recognition of the current results of the work of archaeologists in Karakalpakstan.

References:

1. Ўзбекистон Республикасы Президенти Ш. Мирзиёевнинг Олий Мажлиси хам Ўзбекистон халқина Мурожаати. Халқ сўзи. 2022 йил 21 декабр 272 (8334).

2. Ўзбекистонда Археология фанини ривожлантириш концепцияси. Ўзбекистон моддий маданияти тарихи. 32-сон. Т., 2001.
3. Ҳакимиязов Ж., Мамедов А. Қарақалпақстанда археология илимининг қалиплесиўи ҳам раўажланыўи тарийхи. Нөкис «Илимпаз» 2022.
4. Xojaniyazov G. G'árezsizlik jillarındaǵı arxeologiya ilimindegi ashılıwlar//Qaraqalpaqstannıń eń jańa tariyxınıń áhmiyetli mashqalaları. N. 2014
5. Xodjaniyazov G. Qadimgi Xorazm Mudofaa inshootlari. T. 2007
6. Ягодин В.Н. Развитие международных связей института истории, археологии этнографии каракалпакского отделения Академии наук Республики Узбекистан//Тезиси Республиканской НТП «Наука Каракалпакстана: вчера, сегодня, завтра», посвященной 50-летию Каракалпакского отделения Академии наук Республики Узбекистан. Н. 2009
7. Helms S.W. and Yagodin V.N. Excavations at Kazakli-yatkan in the Tash-kirman oasis of ancient Chorasmia: a preliminary report. Iran 35: Helms London, 2001
8. Khozhaniyazov G. The military architecture of ancient Chorasmia (6th century B.C.-4th century A.D.)» в серии «Persica. Paris, 2006

Rezyume: Maqolada mustaqillik yillarida Qoraqalpog'istonda olib borilgan arxeologik tadqiqotlar va kashfiyotlar, arxeologiya sohasiga bo'lgan e'tibor, xorijiy davlatlarning olimlari bilan birgalikdagi arxeologik izlanishlar haqida so'z yuritiladi.

Резюме: В статье освещается об археологических исследованиях и открытиях, осуществленных в Каракалпакстане в годы независимости, внимании к области археологии, археологических исследованиях совместно с учеными зарубежных стран.

Kalit so'zlar: Tashqirmon oazisi, G.Xujaniyazov, Aqshaxan qa'la, Amudaryo, ekspediciya, Kerder shaharlari

Ключевые слова: Оазис Тащкирмана, Г.Ходжаниязов, крепость Акишахан, Амударья,экспедитция, города Кердера.

THE ROLE OF MUSEUMS IN THE DEVELOPMENT OF KARAKALPAK TOURISM

Idrisov I.R., Sulaymanov S.A.

Karakalpak State University named after Berdakh

Summary: *This article describes the history and current conditions of tourism and museums in Karakalpakstan. Museums play an important role in reviving thousands of years of history of our people and increasing our interest in them. In addition, the museums in our country, their organization and history, and the exhibits stored in them are explained in detail.*

Key words: *museums, tourists, artists, rare things of the past, our national treasure, house museum, flow of tourists, Louvre in the desert, museum of culture, museum of literature.*

The article describes the history and current conditions of tourism and museums in Karakalpakstan. If we want to know about a country or if we want to learn more about the life and history of that people, we are interested in their cultural programs. If we want the history of the nation from the past to the present day to be embodied before our eyes, it is appropriate to turn to the museums located there. The museum is a bridge between the past and the present. The richness of the history, culture and art of the people is first of all reflected in the museums. That is, the country's museums attract tourists and show their culture to the world through museums. Including today, in the Republic of Karakalpakstan, different attention is paid to tourism as well as to the activities of museums. According to the statistics of 2022, around 50,000 foreign tourists came to Karakalpakstan. It is no secret that they are driven to our homeland by the goal of visiting our museums with their unique collection. In the "Bradt Guides" publication of Great Britain, Karakalpakstan was mentioned in the 16th place among the rarest tourist regions of the world, which are suggested to travel in 2023, along with countries such as Chile, Costa Rica, and Estonia. At present, in Karakalpakstan there are: Karakalpakstan State Art Museum named after IV Savitsky, State Museum of History and Culture of the Republic of Karakalpakstan and its branch "Ecology" Museum in Moynaq District, Shamuratov House Museum and other museums, such as Berdak State Museum of the History of Karakalpak Literature, serve our people and tourists who come to our country. All of the listed museums have different exhibits. The State Museum of History and Culture of the Republic of Karakalpakstan. In the 20s of the 20th century In 1927-1929, archaeological, ethnographic, and art materials were collected to open a museum in our country. Holi Oyimbetov, a famous Karakalpak scientist, took part in this work together with the head of the expedition, AL Melkov. On May 16, 1929, the first museum exhibition in the history of our country was organized on the basis of the collected materials. Over the past century, it has become a major cultural center. Considered one of the pioneers among the centers of culture and knowledge in Central Asia, this museum of population history covers the world of plants and nature. The breath of history can be felt from every item here. ("Let there be applause for the masters who created a unique world and dedicated their creativity to eternity," wrote one of the foreign guests who came to the museum.) and excavated archaeological sites. The museum, which initially started with a few exhibits, had 1,022 exhibits by the end of the 1930s. In 1935, after it became a museum of local history, a number of scientists were recruited to work there. In particular Ya. The results of the great work of the group of archeological and ethnographic expeditions conducted on the island under the leadership of famous scientists such as Gulomov, S. Tolstov, T. Zhdanoko enriched the museum collection. Today, more than 65,000 exhibits are stored in the nature, archeology and ethnography, modern history departments of the museum.

They talk about the past, present and future of Karakalpak residents. The souvenirs found in the Tuproqkala, Jampiqkala, Ayozkala, Kirqqiz fortresses are among the most unique items of the museum. In the fall of 2004, the 75th anniversary of the museum was celebrated. In this regard, exhibits, various forms of advertising of collections, posters, catalogs, badges with the museum logo were prepared. Karakalpakstan State Art Museum named after Savitsky. Every tourist who

visited the Republic of Karakalpakstan entered the Karakalpak State Art Museum named after IV Savitsky, known as the Louvre in the Desert, and of course went to see the priceless exhibits there. In the museum, the practical art of the population, ancient and medieval art of Khorezm, Uzbek and Russian visual arts of the 1920s and 1930s, Karakalpak modern painting and sculpture, jewelry created in the 1920s and 1930s, oil more than 90,000 exhibits such as carving crafts, textiles and national clothes are now in the center of attention of tourists. The modern collection of the museum has more than 90,000 different exhibits. Among them are essays of the Russian avant-garde, paintings of Uzbek artists, as well as practical art of the people of Karakalpakstan and objects of ancient Khorezm art. There are several copies of Louvre exhibits in the collection. The collection spans more than four thousand years chronologically. The archaeological collection of the museum covers more than 9 thousand (9134) bases in the main collection and 32 thousand 579 bases in scientific and auxiliary collections. It includes household items made of ceramics, glass, stone, bone, wood, metal, glass, leather and gauze. Among them are ossuaries, sculptures, fragments of wall paintings, architectural decorations (capital and figured columns, various pottery, all kinds of jewelry, fragments of firearms, as well as a large collection of silver and copper). Mints belonging to the 3rd-18th centuries. Experts recognized the collection of the State Museum of the Republic of Karakalpakstan named after IV Savitsky as the most important and largest collection of Russian avant-garde essays in the world after the collection of the Russian Museum (St. Petersburg), and at the same time, it is one of the best collections in the Asian region. The museum collection contains paintings by the following artists: Ivan Kudryashov, Nikolai Karakhan, Pavel Benkov, Oleksandr Shevchenko, Ural Tansikboev, Lev Bure, Oleksandr Volkov, Mikhail Kurzin, Oleksandr Nikolaev (Usto Mómin), Amshey Nuremberg, Oleksandr Kuprin. In the 2010s, as many museum organizations in Uzbekistan were embroiled in corruption scandals, the IV Savitsky Museum Collection Olerte Héritage Observatory ("Heritage at Risk") came under the spotlight. In 2016, Bakhtli Fazilov, Head of the Sponsorship Council of the World Society for the Study, Preservation and Popularization of Cultural Heritage from Uzbekistan, Edward Rtveladze, the Head of the Scientific Council, as well as Study, Preservation and Popularization of Cultural Heritage in Uzbekistan "Cultural Heritage of Uzbekistan in World Collections" group, Firdavs Abdukholikov, head of the World Society of Management and the "Cultural Heritage of Uzbekistan" movement, started work on a book-album about the collection of the Savitsky Art Museum. Firdavs Abdukholikov, Komila Oqilova, Marinika Bobonazarova, as well as Maqsad Karliboyev, the director of the museum at that time, took part in writing the articles. The book-album was offered at the International scientific and cultural congress "Cultural heritage in Uzbekistan - the path to communication between peoples and countries" held in Tashkent and Samarkand in 2017. At the same time, a film was shot about the museum collection.

In February 2017, the museum was headed by Gulbahor Izentayeva, the daughter of artist Jolibay Izentayev, the former head of the Karakalpak department of the Academy of Arts from Uzbekistan. In July 2018, the museum's fire alarm went off automatically. A sprinkler broke, leaving avant-garde artist Oleksandr Shevchenko's 1914 painting Woman with a Bucket under water for six hours. The restoration of the painting was carried out by specialists from Moscow. Depending on the museum's large collection, the names "Louvre in the Desert" and "The Second Louvre" are added to the museum. In 2001, The Guardian newspaper called it "one of the most beautiful museums in the world." Karakalpak Literature History State Museum named after Berdak. On May 20, 1998, on the occasion of the 170th anniversary of the son of Berdak Kargaboy, the great thinker and poet of the people of Karakalpak, according to paragraph 6 of the decision of the Cabinet of Ministers of the Republic of Uzbekistan No. 220, Karakalpak State University named after Berdak in our capital Berdaq National Museum was established next to it. The project of the museum was drawn by the well-known architect of our republic, the laureate of the award named after Berdak O. Toraniyazov. The design of the museum is very skillful and is built according to oriental architecture. On the second floor of the museum there are clothes, decorations and household items recognized by our national programs. In addition, the portrait of our grandfather

Berdak, drawn by the artist B. Aytmuratov, adds more charm to the museum. On the third floor of the museum, "Berdak Room" dedicated to the poet is organized. The museum, which is distinguished by its large collection, rich in historical manuscripts and exhibitions, currently has more than 5300 exhibits. The main source of the museum fund is the old manuscripts written in Arabic, Persian, Turkish and old Karakalpak languages, which have been carefully preserved by our people for many centuries, information about the representatives of Karakalpak classical literature and examples of the works of art they created. Decorations, consumer goods, clothing samples from the past, the path of Karakalpak literature of the 19th - 20th and 21st centuries, relations with the brotherly peoples, scientific works, paintings and portraits depicting historical figures. The importance of the museum exhibits is reflected in the manuscripts that our ancestors preserved for many centuries and were afraid to show. These manuscripts were studied by specialists and put on museum display. Textbooks taught in madrasahs, some documents, proverbs, stories, samples of the works of Sulayman Baqirghani, Kunkhoja, Ajiniyaz, Berdak, as well as lithographic books and manuscripts, which increase the interest and respect of the museum visitors to the history of our nation. without words. Among the exhibits, the most valuable is the cloak worn by our grandfather Berdaq. The length of this valuable coat is 1 meter 22 cm, the diameter is 1 meter 20 cm, the length of the sleeve is 65 cm, and the mouth of the sleeve is 28 cm. This shepherd was inherited from our grandfather Berdaq by his daughter Hurliman. Then his son Karajan put on the cloak. After Karajan, his son Hollikhan will inherit. After Hollikhan, this cloak was given to his son Turganboy. Later, after the death of Turganboy, his life partner Omongul donated the coat to the museum. More than 300 manuscripts in Arabic and Persian are preserved in the museum, among them Berdak's "Shajara" and "Khorazm" manuscripts, Ajiniyoz's "Kiz Mengach bilan" (Kiz Mengach bilan) which is preserved in the house of Chinor Erzhanova from Nukus, consists of 2 pages. lib, has a valuable place in the museum exposition. In addition, the manuscript of the poems of the poet Ajiniyoz preserved in the house of Karaboeva Soliya from Nukus, the manuscript of the works of Khudoybergen Jebegen's son "Mardikor" are preserved in the museum collection.

In addition, the "Shamuratov House-Museum" is located in our capital, which collects wonderful national clothes and household items. The private house-museum of Amet and Oyimkhan Shamuratov was established in 1999 with the investment of their children. Amet Shamuratov (1912-1953) is a writer, poet and dramatist, and his wife Oyimkhan Shamuratova (1917-1993) is a folk actress, one of the first women who appeared on the theater stage in the history of Karakalpakstan. They play a role in the development of Karakalpak culture of the 20th century. The museum collection consists of personal belongings of the couple: costumes, paintings, manuscripts, books, letters, old things. Among them, the photo documents of the famous writers, artists and statesmen of Karakalpakstan, as well as the paintings of F. Madgazin, R. Matevosyan, K. Berdimuratov and other artists are stored here. In the museum, you can listen to songs performed by Oyimkhan Shamuratova. In general, every museum in our country has its own contribution and place in the development of our cultural life and the field of tourism. Every exhibit in the museums, which are the mirror of our nation, gives a hint of the past. Consequently, various efforts are being made to further enrich the collections of museums. Due to the actions carried out in recent years, the museums of Karakalpak have risen to the top places in the world in terms of the number of exhibits, and the tourism potential of Karakalpak has increased significantly.

References:

1. Бекмуродов М.Б, Рашидова М.Х "Музейшунослик" Тошкент, 2007,
2. G.K. Karamanova "Muzeýtaniw" Nókis "Qaraqalpaqstan" 2014,
3. Muzey mın jıllıqlar tariyxın tolǵaydı Nókis - 2016
4. G.Karamanova, S.Sulaymanov, X.Utemuratova Mustaqillik davrida Ózbekstonda muzeylar ishi Nókis - 2021

Rezyume: Ushbu maqolada Qoraqalpog‘istondagi turizm va muzeylarning tarixi va hozirgi sharoiti yoritilgan. Xalqimizning ming yillik tarixini qayta tiklash, ularga qiziqishimizni oshirishda

muzeylar muhim o'rin tutadi. Bundan tashqari, yurtimizdagi muzeylar, ularning tashkil etilishi va tarixi, ularda saqlanayotgan eksponatlar haqida atroflicha tushuntirish berilgan.

Резюме: В данной статье описывается история и современное состояние туризма и музеев Каракалпакстана. Музеи играют важную роль в возрождении тысячелетней истории нашего народа и повышении нашего интереса к ним. Кроме того, подробно объяснены музеи нашей страны, их организация и история, а также хранящиеся в них экспонаты.

Kalit so'zlar: muzeylar, sayyohlar, rassomlar, o'tmishning nodir ashyolari, milliy boyligimiz, uy-muzeyi, sayyohlar oqimi, cho'ldagi Luvr, madaniyat muzeyi, adabiyot muzeyi.

Ключевые слова: музеи, туристы, художники, редкие вещи прошлого, наше национальное достояние, дом-музей, туристический поток, Лувр в пустыне, музей культуры, литературный музей.

CREATION OF CRIMINALITY MAPPING BASED ON GEOGRAPHIC INFORMATION SYSTEM

Turdimambetov I.R., Urazimbetova Yu.Kh.
Karakalpak State University named after Berdakh

Summary: *The article reveals the features of mapping crime in the Republic of Karakalpakstan based on geographic information systems.*

Key words: *crime, in a social environment, geocriminogenic, territorial, legal, GIS.*

Introduction. The main concept of crime geography is region, geocriminogenic situation, and its main principles are territoriality and complexity. Because the types of crimes that occur in the social environment of a certain area are based not only on one cause or factor, but on a number of conditions and factors. At the same time, certain socio-economic conditions have their own type and composition of crime. [5].

The database and map of the studied region within the administrative units are used to assess the crime situation in terms of territory. The information on the map is arranged in layers that are displayed in a certain order. Each map has a layout consisting of graphic elements such as legend, north indicator, scale bar, symbols, text and other graphics arranged in a certain order. It will be placed on the map in the order it will be printed. Layers determine how a set of geographic features are displayed when added to a map. A different coordinate system can be set for each layer. This way, the layer will always display the latest, up-to-date information in the database [3].

Cartography: - currently the main sources included in the GIS are cards and the basic information to be described is also on the cards; and computer graphics offers its own methods for digital distribution of cartographic resources; - cartography will have a powerful tool and a large number of devices for creating optional cartographic products during the use of GIS [4].

In other areas of geography, it includes, first of all, arguments in its direction (for what purpose, what kind of product, by social production areas, etc.) and such aspects as inter-area genetic connection. In order to solve such problems, it is necessary to create analytical, factual, synthetic cards, and create a hierarchical database. A GIS is defined as a system being designed to collect, store, complex, retrieve and visualize geographically accurate data in these fields. [2].

In recent decades, the acceleration of research in the field of GIS technologies is explained by the rapid growth of computerization of all areas of economic activity, which provides people with the opportunity to save time and costs, as well as to quickly obtain reliable information. In recent years, GIS has been used in the legal system not only in scientific research, but also in practice [1].

Results. "ArcGis 10.3" program in use, based on the analysis of the collected data bank, provides the following information about the general crime situation, crimes related to crimes against the person, crimes in the economic sphere, crimes in the ecological sphere, crimes in the power, management and public sphere, as well as crimes against public safety and public order gives:

- to determine the monthly, six-monthly, annual dynamics of the amount of crimes;
- prediction by extrapolation method;
- automated mapping;
- to determine the highest, highest, average, lowest, lowest areas (district, city) of crime distribution based on grouping.

The essence of the mapping method is that certain crime indicators are drawn on the map, and each individual map is created by recording one or another quantitative or qualitative indicators of crime or certain social, economic or demographic parameters of the region.

After compiling a set of maps with regional differences in certain processes recorded on them, we can get a comprehensive picture of the territorial distribution of crime and its determinants. Our analysis allowed us to come to a number of conclusions.

✚ The methodology of the study of regional crime is the most important tool for studying certain characteristics and the characteristics of crimes committed in different regions of the Republic of Karakalpakstan, and there are different methods used in this technique to collect, process and analyze information in criminology, there is a time interval of crimes in certain regions;

✚ The main elements of the subject of criminological analysis are the level, circumstances, dynamics, structure of crimes committed in the regions, as well as the distribution of regional crimes, that is, geography, in its regional differences;

✚ Summarizing indicators, which are considered tools in the analysis of territorial crimes, among which we can distinguish average indicators, coefficients, components, etc.;

✚ Analysis of regional differences in crimes within the boundaries of regional criminological studies, takes place within an economic region or a single region;

✚ Determining the general indicators of crime, the dynamics of crime, which are among the most important tasks of regional crime analysis;

✚ Its structure, territorial distribution, in addition, the characteristics of certain types of crime, for example, economic, violent, crimes in the field of human trafficking, drug addiction, to determine the trends, as well as to study the general law of crime in the regions and the distinguishing features of its types;

✚ As a result of the analysis of regional crimes, the information obtained serves as a basis for creating schemes, diagrams, maps of regional crime;

✚ Graphic methods are the use of various geometric shapes, lines, drawings for visual representation and summarization of digital data from this set of methods;

The best visualization method in crime analysis is area mapping.

Mapping is a method of drawing maps, certain crime indicators are compiled by the map, by applying a quantitative or qualitative component to it, crime or a specific social, economic or demographic parameter of the region, i.e. after creating a collection, maps with certain territorial differences, the territorial division of crime and the factors contributing to it, the causal processes we can get a holistic view.

In the following years, it is proposed to use the geographic information systems "ArcGIS 10.3" of the American company "Esri" to study the criminal situation.

ArcGIS geographic information platform is the world's most widely used information system for cartography and spatial analysis. The ArcGis platform is a comprehensive program that includes systems such as ArcMap, ArcCatalog, ArcScene, and ArcGisEarth. ArcMap and ArcCatalog systems were used in this study.

The Republic of Karakalpakstan was selected as a territorial unit in the study. In order to assess the criminogenic situation in our republic, first of all, using the "polygon" tool, a map outline was developed showing the administrative division of the Republic of Karakalpakstan.

Based on the above, it is possible to draw a conclusion about the criminogenic situation, taking into account the statistical data that allow to understand the situation of crimes, including crimes caused by geographical factors.

Conclusion. After studying the criminogenic map of the Republic of Karakalpakstan, that is, the number of crimes per 100,000 people, the following conclusions were reached:

– In the republic, the indicator of urbanization of the territory has a strong influence on the crime situation, the high level of crime in Nukus Shahri and Tortkul, Kungiro, Beruniy districts is connected with the high population density;

– The high level of crime in Nukus City is influenced by the density of transport networks in the area. "Nukus-Beyneu" international highway and railway pass through Khojayli, Shumanay, Kanlikol districts connecting the capital of the republic with Kungiro district and the Republic of Kazakhstan, and "Tashkent-Kungiro" highway and railway junction, which partially includes all

districts of the Republic. Therefore, crimes committed by "guests" or related to cars prevail here, in particular, traffic accidents, theft, carjacking, etc.

References:

1. Bultanov. D. Application of GIS in the field of legal statistics in Kazakhstan. // Arc Review, No. 1 (72). 2015 Zimin M., E. Use of Earth remote sensing data in forensic examinations. // Journal "Earth from Space". No. 1(17). pp. 63-69. 2013.
2. De Mers M. N. *The basic Geographical information systems.*//Per. English - M.:, 1999. - 490 p.
3. Ismailov O.Yu. Monograph. Methods of detection of latent crimes in the direction of corruption. / Ismailov O.Yu. - T.: 2022.
4. Raklov V.P. *Geographical information systems and thematic cartography.* - M.: GUZ, 2003.
5. Urazimbetova Y.Kh., Urazbaeva S. *Current issues of the geography of crime. Current issues of geography and its teaching. Proceedings of the Republican scientific-theoretical conference.* - Nukus, 2022. - P. 106-108.

Rezyume: Ushbu maqolada, *Qoraqalpog'iston Respublikasida geografik axborot tizimlari asosida jinoyatchilikni xaritalash xususiyatlari* ochib berilgan.

Резюме: В статье раскрываются особенности картирования преступности в Республике Каракалпакстан на основе геоинформационных систем.

Kalit so'zlar: jinoyat, ijtimoiy muhitda, geokriminogen, hududiy, huquqiy, GAT.

Ключевые слова: преступность, социальная среда, геокриминогенная, территориальная, правовая, ГИС.

HISTORY OF THE DEVELOPMENT OF THE SYMPHONY ORCHESTRA

Jumabaev A.Y., Muratbaeva A.A.

Nukus branch of the State Conservatory of Uzbekistan

Summary: *The article discusses the main stages in the development of a symphony orchestra. The formation of a symphony orchestra dates back to the 16th-17th centuries, when new genres of music appeared, and is also closely connected with the emergence of a new homophonic-harmonic warehouse in music.*

Key words: *symphony orchestra, classical, orchestra, opera, instruments, composer, conductor.*

Introduction

In ancient Greece, the word "orchestra" meant a theatrical stage where there was a performance. Several centuries later, an orchestra was the name given to the theater premises where the performers were located. But later they began to refer to musical ensembles. A group of musicians existed at all times. The historian Josephus in "Jewish Antiquities" describes an event where 20,000 singers were present, as well as the same number of trumpet and harp performers.

The word "orchestra" originated in Ancient Greece. The "orchestra" is the place where the chorus was located in ancient Greek tragedy. Later, this name extended to a group of musicians, with a specific composition, performing specially written music.

The formation of the symphony orchestra dates back to the 16th-17th centuries, when new genres of music appeared, for example: opera, ballet, oratorio, and is also closely related to the emergence of a new homophonic-harmonic structure in music.

Many researchers have noted that the end of the 16th century was a turning point when the violin was invented. The violin was immediately included in composition of the orchestra, displacing its predecessor - the viola. The sound and virtuoso capabilities of the violin will subsequently determine the entire orchestral style.

The second stage in the development of a symphony orchestra is considered to be end of XIX. All this time the orchestra gradually developed, following new genres in music, only by the end of the 18th century a small composition of the orchestra was established. It was for such a small orchestra that the masterpieces of the Viennese classics J. Haydn and W. Mozart were written.

During the work of the great composer L. Beethoven, completely a "classical" composition is established, and in the era of romanticism, the orchestra takes on even more improved forms, the string group expands and wind instruments are added, thereby completing the formation of the main groups.

A symphony orchestra is a large group that includes groups of strings, woodwinds and brass instruments, large a group of percussion instruments and additional instruments - a harp, a piano, and less often - an organ. All of them are united by the author's intention, expressed in the score - a complete and detailed recording of the parts of all instruments.

The composition of the orchestra since its inception, since the 16th century constantly changed. This is due to the emergence and improvement of musical instruments.

Since the appearance of opera in Italy, there has been a step in increasing and changing the composition the orchestra is done. It was already a theater audience, which implied a large theater hall, new acoustic capabilities and a larger orchestra.

It is known from history that everyone participated in the first opera orchestras tools that were at hand at that moment. It's clear what this is about an important creative act such as instrumentation was out of the question. The art of instrumentation came to the classical era, when the composition the orchestra was defined by the scores of Haydn, Mozart and Beethoven.

This type orchestra, which can already be called symphonic, as a standard one, has survived to this day.

The orchestra developed during the classical era and, especially, during the romantic era. The orchestra developed not only in the direction of the quantitative addition of instruments and the numerical increase in groups; the quality of the instruments and the skill of the musicians, and the level of the main character of the orchestra, the conductor, turned out to be no less important.

With the advent of orchestral playing there arose a need for more precise rhythmic organization of the orchestra. Conducting with hand gestures arose.

Conductors most often used a violin bow or sheet music, rolled up, some used an ordinary branch from a tree. Conductors faced the audience; showing their backs was considered indecent. The composer and conductor Ludwig Spohr (1784 – 1859) first used a small wooden baton for conducting. The word conductor (diriger) from French means to manage, direct, lead. It was very uncomfortable for the musicians to see the gestures of the conductor, who stood with his back to them. The first person to turn the conductor towards the orchestra was the German composer and conductor Richard Wagner. (1813-1883) The classical composition of the orchestra was presented in the first quarter of the 19th century

composer Ludwig van Beethoven. In 1824 for the performance of the 9th symphony required two flutes, a piccolo, two oboes, two clarinets, two bassoons, a contrabassoon, four horns, two trumpets, three trombones, a bass drum, timpani, triangle, cymbals and about 26 strings - first and second violins, violas, cellos and double basses. Four singers and a choir also joined in the finale.

In 1830, the French composer, conductor, music writer During the Romantic period, Hector Berlioz increased the string group for his Symphony Fantastique to 60 musicians. At the end of the 19th and beginning of the 20th centuries, the German composer, conductor Richard Wagner and the Austrian composer Gustav Mahler wrote their works for a huge orchestra, up to 110 or more people.

A modern symphony orchestra consists on average of 80–100 musicians. The foundation of the orchestra is violins, violas, cellos, and double basses. The number of musicians playing strings is approximately 2/3 of the entire ensemble. The group of woodwind instruments includes flutes, oboes, clarinets, and bassoons. Each of them usually has an independent party. The third group of orchestra instruments is brass (horn, trumpet, trombone, tuba). They bring new bright colors to the orchestra, enriching its dynamic capabilities, adding power and brilliance to the sound, and also serving as bass and rhythmic support.

Conclusion

Percussion instruments are becoming increasingly important in a symphony orchestra. Their main function is rhythmic; they create a special sound and noise background, complement and decorate the orchestral palette with color effects.

Thus, the formation of the symphony orchestra dates back to the 16th-17th centuries, when new genres of music appeared. In the era of romanticism, the “classical” composition of the symphony orchestra was established.

References:

1. ЖУМАБАЕВ А. ИСПОЛНИТЕЛЬСКИЕ СРЕДСТВА ПРИ ИГРЕ НА ДУХОВЫХ ИНСТРУМЕНТАХ (МЕТОДИКА ОБУЧЕНИЯ ИГРЕ НА ТРОМБОНЕ) //Journal of Culture and Art. – 2023. – Т. 1. – №. 8. – С. 58-65.
2. Jumabayev A., Muratbayeva A. TURKESTAN NATIONAL CONSERVATORY //Modern Science and Research. – 2024. – Т. 3. – №. 1. – С. 979-988.
3. Jumabaev A. ATQARÍWSHÍLÍQ TEXNIKASÍN RAWAJLANDÍRÍW ÚSTINDE ISLEW //Вестник музыки и искусства. – 2023. – Т. 1. – №. 2. – С. 87-91.
4. Yerejebayevich J. A. Issues of Popularization and Popularization of the Performance of the Orchestra of Wind and Percussion Instruments among Listeners //Spanish Journal of Innovation and Integrity. – 2023. – Т. 22. – С. 31-34.

Rezyume: Maqolada simfonik orkestr rivojlanishining asosiy bosqichlari muhokama qilinadi. Simfonik orkestrning shakllanishi musiqaning yangi janrlari paydo bo'lgan XVI – XVII asrlarga to'g'ri keladi va musiqada yangi gomofonik-garmonik tuzilmaning paydo bo'lishi bilan ham chambarchas bog'liqdir.

Резюме: В статье рассматриваются основные этапы развития симфонического оркестра. Становление симфонического оркестра относится к XVI - XVII векам, когда появились новые жанры музыки, а также тесно связа но с появлением нового гомофонно-гармонического склада в музыке.

Kalit so'zlar: simfonik orkestr, orkestr, orkestr, opera, asboblar, bastakor, dirijyor.

Ключевые слова: симфонический оркестр, оркестр, оркестр, опера, инструменты, композитор, дирижёр.

ELEMENTS OF LIFE PHILOSOPHY AND ETHNOCULTURE IN ARTIST ZIYODULLA FARMONOV

Ubaydullayev L.J.

Department of Painting and Applied Art, Faculty of Art Studies, Karshi State University

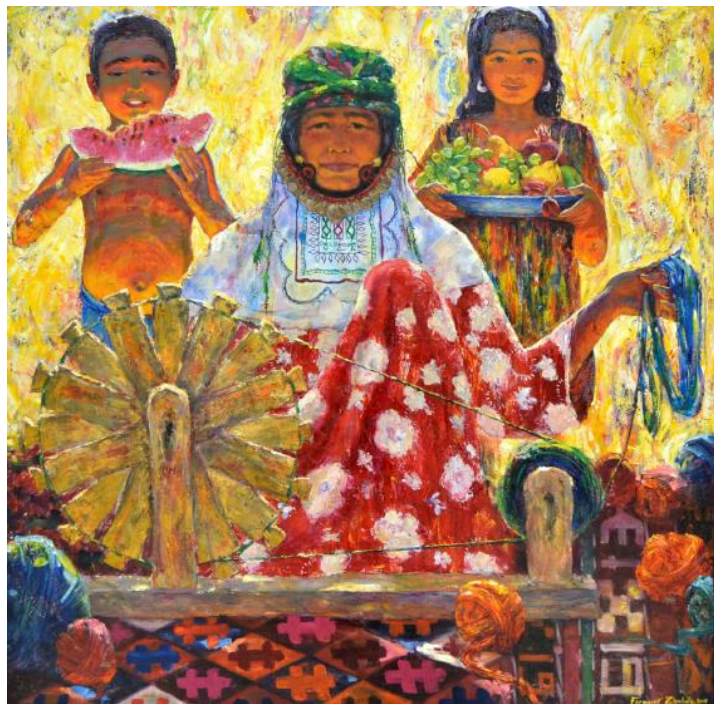
Summary: The article talks about the singing of unique national traditions and customs in the works of the young talented artist Ziyodulla Farmonov, the integrity of his compositions and their impact on the audience. The works of the artist in the portrait and domestic genres and the philosophy of life in them are artistically analyzed.

Key words: artist, portrait, composition, image, "Dry Momo", picture clock, Jeynov, "Momo and Grandchildren", position.

Today, the modern art of Uzbekistan is developing in its own way. Creating strong ideological works, expressing the philosophy of life and nature through colors, depicting national customs and traditions with visual expressions with new stylistic researches requires strong knowledge and skill from creators. Fine art encourages deep thinking about the world and human aspirations for beauty. In art, it is necessary to search with enthusiasm, to work constantly, to carefully study the works of great artists. Young artists with their own place and visual language in Uzbek painting, besides the unique interpretation of mother nature, images of contemporaries and disappearing national costumes, the compositions created by the artist Ziyodulla Farmanov, who can sing the customs and traditions in unrepeatable tones. has a unique large school. It is natural that, along with the originality of the compositions in his wide-ranging and colorful works, the vitality of the chosen subject, the inner psychological upliftment of a person combines with colors to give the viewer aesthetic pleasure. The color in the image is the result of the artist's understanding of the true treasure of colors in nature. In most of Ziyodulla Farmonov's works, we see representatives of the Arab nation living in Jeynov town, Mirishkor district, Kashkadarya region as main characters. For example, "Momo's thoughts" (2014), "Badal wrestler portrait" (2014), "Neighbor Momo" (2016), "World of colors" (2017), "Momo and grandchildren" (2017), made in the portrait genre. , "The Magic of Thirsty" (2018), "Portrait of Momo" (2019), "Dry Momo" (2019), "Kelinkhak" (2019), "Singing birla butunman or two and a half and a whole" (2020) from the Jeynov series. The original appearance, image, national customs and costumes of the people of Jeynov attract the attention of the viewer with the warmth of the colors, the artist's love and attitude towards his nation, in every element of the composition Proportion, play of light and shadow are known in the movement of plastic lines. Everyday chores, joys and worries of the ordinary working people are thrown onto the surface of the canvas. The creation of a thematic picture in the domestic genre reveals the meaning and the idea depends and requires describing the most characteristic, interesting point of the event. There are also compositional requirements in the household genre. Revealing the content and idea in certain means of composition: the point of view is the horizon, spatial distance, as well as the center of the composition, the light of the main and secondary objects, hue, color, coloring relationships. [1.]

If we pay attention to Ziyodulla Farmanov's works in the series "Genov's breath in colors", the only work in it "Momo and Grandchildren" is attractive. It is noteworthy that this work was created in full compliance with the rules of the composition law. The integrity of the composition depends on the subordination of the second order to the basis, the harmony of the entire image into a single body of the work. Every detail should add something to the development of the idea. Secondary and important things in the composition should not be highlighted, the main source should be distinguished. When creating each work of art, the main solution of the content and idea should be reflected in the sketch. Then the best sketch is selected. In the process of research, it is necessary to identify the details and subjects necessary for the composition, and to find the central part of the event taking place in the subject. In the process of making a sketch, it is appropriate to

pay special attention to integrity, distance, later, the laws of aerial perspective, the main and secondary group characteristics, and the choice of color. Every Uzbek artist shows the Uzbek household in a beautiful form in his work, depicts his thoughts and experiences in connection with nature, and tries to increase the vitality of the work. If we look at the artist's work "Momo and grandchildren", the artist paid special attention to each image and details.



"Momo and grandchildren" 2017
Ziyodulla Farmonov from the series
"Zeynov's Breath in Colors".

The colors used in the work are mainly warm colors, which are important in revealing the lively and unique character of domestic life. As all structural elements of the composition, color (general color) is inextricably linked with the artist's thought and helps the viewer to understand the content of the work faster. When it comes to the emotional effect of the color of the work,

it is necessary to take into account the possibility of the light having an emotional effect on itself. It is not good to exaggerate the relationship of abstract colors with different qualities. An emotionally strong and meaningful color cannot be created with a variety of bright colors. The viewer is affected only by the reality of life, therefore, a modest color gamut (a set of colors) representing the color state of nature can sometimes give more aesthetic pleasure and enrich the senses and thoughts more than the unique shimmer of light colors [2.]. Each character in the work has its own character. As an example, if we take the image of a child holding a watermelon, we can see the state of the child preparing to eat the watermelon, i.e. the child's enthusiasm, the girl holding the fruit in the bowl is free and her gaze is fixed on one point. In the image of Momo, the artist embodied the fact that she is tired of working and that the national craft is being left as a legacy to the younger generation. That is why in this work the children are standing behind the mother, that is, through this situation, the artist has very beautifully highlighted the fact that the children are the followers of the mother, that is, the future generation.

Among the works created in the domestic genre by Ziyodulla Farmonov, we can show such works as "Women's labor" (2016), "Labor" (2016), "Women who build ovens" (2017), "Women who weave carpets" (2017) [3]. Ziyodulla Farmonov's works mainly depict rural life, and the artist focused more on the image of working women. Ziyodulla Farmonov mainly focuses on naturalness in his works, his works are bright colors and have a positive effect on human mood. The artist's love for his nation is reflected in his works. Art has a wide influence on people, it has different functions and purposes. The artist's work "Kuroqchi Momo" also depicts the state of dry sewing, which is the national craft of the Genoese people. Dry sewing is a craft that is mostly spread among the older generation. This type of handicraft, which is made by hand, is very complex and diverse, and requires a certain taste and skill. The artist depicts two people in this work. In the play, a dry mother sincerely teaches her grandson the art of dry sewing, which is her favorite hobby.

In the paintings of the artist in the domestic genre, the everyday chores, joys and sorrows of ordinary working people are thrown onto the surface of plain cloth. In particular, her works such as

"Women's Work" (2016), "Work" (2016), "Oven Builders Women" (2017), "Carpet Weaving Women" (2017) can be shown. At first glance, we can see that serious social issues are raised in these works of ordinary household genre. The hard work and hardships of women in the conditions of rural life are vividly reflected in the artist's brushwork

The artist does not look indifferently at the problems of his time, he expresses his attitude and position. After observing the works of Ziyodulla Farmanov, we can say that the artist is a true child of Jeynov. Because in almost all of the artist's works, along with the vibrancy of the village of Jeynov, the sincerity and hard work of the people of Jeynov were seen in his vivid images. The artist is creating many works. We are waiting for more beautiful works from the artist.

References:

1. E.X. Xaitov "Kompozitsiya" o'quv qo'llanma T.: Cho'lpon nomidagi NMIU, 2019
2. Abdiraslov S, Tolipov N "Dastgodli rangtasvir" " iqtisod - moliya ". T.: 2008
3. Katalog "Yurtim jamoli" Ziyodulla Farmonov T.: 2022

Rezyume: Maqolada yosh istedodli rassom Ziyodulla Farmonov asarlarida o'ziga xos milliy an'ana va urfotatlar tarannumi, kompozitsiyalarining yaxlitligi va tomoshabinga ta'siri haqida so'z borgan. Rassomning portret hamda maishiy janrdagi asarlari va ulardagi xayot falsafasi badiiy tahlil qilingan.

Резюме: В статье говорится о восприятии уникальных национальных традиций и обычаев в творчестве молодого талантливого артиста Зиёдуллы Фармонова, целостности его композиций и их влиянии на публику. Художественно анализируются произведения художника в портретном и бытовом жанрах, философия жизни в них.

Kalit so'zlar: rassom, portret, kompozitsiya, obraz, "Quroqchi momo", tasviriy sa'at, Jeynov, "Momo va nabiralar", pozitsiya.

Ключевые слова: художник, портрет, композиция, изображение, "Сухой Момо", картина часы, Джейнов, "Момо и внуки", позиция.

**THEORETICAL AND EMPIRICAL BASES OF FORMATION OF STUDENTS'
CREATIVE ACTIVITY**

Yusupova G.Z.

Associate Professor of the Department «Methods of Pre-school, Primary and Special Education» of the National Center for the Training of Teachers of the New Method of the Republic of Karakalpakstan, Doctor of Philosophy in Pedagogical Sciences (PhD)

Summary: *This article emphasizes that the formation of creative activity of future generations in our country is based on the socio-pedagogical necessity, analyzes the pedagogical and psychological directions of formation of creative activity of primary school students.*

Key words: *Creativity, creative activity, intellect, pedagogical-psychological, favorable environment, physiological, psychic, physical, objects, situations and events.*

In our country, since 2023/2024, primary classes of general education introduce textbooks based on «advanced foreign experience» in the direction of «the most necessary skills for the beginning of the XXI century» - critical and creative thinking, teamwork and communication skills.

In the draft presidential decree on the State Programme for 2023 «From the 2023/2024 school year, pupils of general education institutions will be gradually educated in the spirit of human and national values, patriotism, as well as sociability». skills, critical and creative thinking, cooperation and research skills, the task of implementing new educational programs aimed at formation. I would like to mention one of the theoretical empirical foundations of creativity and creative activity, which is one of the skills of the XXI century.

The concept of creativity (creativity) (lat. Creation - creativity, creativity) - the ability to create something new, unique, create an artistic form, a thought process that leads to thinking, ideas and decisions; creative ability, describing man's willingness to create and accept new ideas.

The creative activity of man can be explained as follows: creative activity is the expression of purposeful creative behavior of a person, which manifests itself in the form of a combination of such personal qualities as creation of original ideas, enthusiasm, industry. aesthetic attitude towards the surroundings, self-consciousness, reflection of pedagogical concept reflecting consistent behavior.

The formation of creative activity is speeding up in pupils 7-10 years old. Creative activity in this period will have a certain level of limitation. Strong memory and creativity of students are the basis for the formation of creative activity.

Creativity has a higher level of expression than intelligence, and its formation is based on certain factors. Like intelligence, creative activity is not innate; it is formed by nurturing. In this case, the student realizes his potential depending on how unique for each student talents and abilities are supported by others.

A number of circumstances prevent the formation of creative activity among students. Including tension in relations with parents, obstacles to communication, inability to build relationships, conflicts in the development of intellect, not fully feel the creativity in the child. In such situations, educators and parents should not forget the uniqueness of the child's heritage.

These characteristics manifest themselves in the physiological, mental and physical state of the students and develop in the following sequence (fig. 1):

The role of the teacher in shaping the creative activity of primary school students is invaluable. According to the requirements of personalized education, the primary school teacher is an equal partner and intermediary with students in the learning process. For the most part, the teacher's cooperation with a group of pupils, a class group or each pupil serves to form their creative activity. As a result of the teacher's humane attitude towards pupils, mutual trust, respect and cooperation is formed between them. It is desirable to create a pedagogical and psychologically

comfortable environment based on mutual trust and respect for the creative activity of primary school students.

The family environment has its place as an important factor in the formation of creative activity of students in social situations. In particular, paying sufficient attention to the education of children's creative abilities; the formation of creative motives as a leading factor in creative activity; the creation of favorable conditions for the manifestation of various forms of creativity, help them to abandon stereotypical ways of thinking; emotional and psychological support for the creative activity of students; that parents show their creative qualities and in this process create favorable situations for children to be like them; parents' demand that their children be creative, achieve their achievements, ensure their success

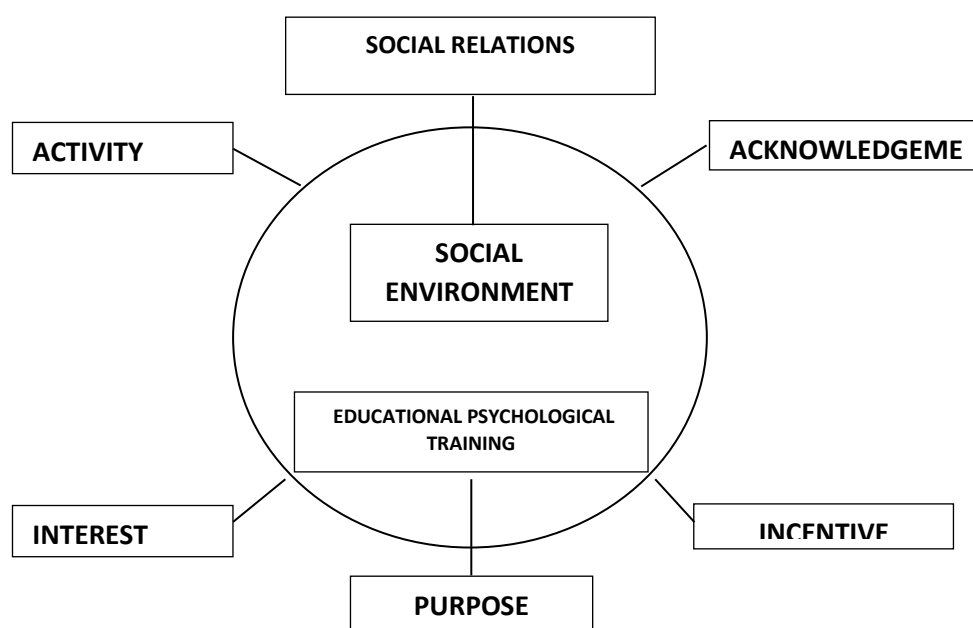


Figure 1. Finding creative activity in students

In order to develop students' creative thinking and creative imagination it is necessary to develop the following skills: classification of subjects, situations and events on different bases; determination of cause-effectInvestigative relationships; ability to see interactions and identify links between new systems; ability to see sequences in development; make predictions; identify conflicting features of the subject; identify and formulate conflicts; Distribution of the contradictions inherent in objects in the harmony of time and space; representation of objects specific to a particular space; perception of different images characteristic of the imaginary space; visualization of individual characters; elimination of psychological stagnation in thinking; assessment of naturalness of decisions; choice of range of thinking leading to decisions; figurative rearrangement of objects, situations, events; mental reorganisation of subjects in relation to the subject matter. The skills described above form the basis of systemic thinking.

Educational situations aimed at developing the creativity of primary school students should include:

1. The expression of knowledge in a particular context; It should be emphasized that situations that develop a learner's personality are created by providing educational materials that encourage personal thinking.

2. Engage in mutual dialogue; this allows students to identify values that are important to them. In the process, they compare their values with those of others. They also engage in interpersonal relationships based on their national mentality.

3. Students participate in play activities based on simulation of tasks relevant to them. This is a form of expression of the creative activity of students, they are using the game to search for and

get closer to the things that are important to them. In this process, students acquire the skills of performing analytical activities, making independent decisions, manifestations of creative initiative.

In conclusion, it should be noted that educational methods that shape the creative skills of primary school students, pedagogical factors that create a creative environment in situations of student development, conditions that create mental freedom of students, and tools to enable students to express themselves. their identity appears.

References:

1. The decision of the extended video selection meeting on August 23, 2023 under the leadership of the President of the Republic of Uzbekistan Sh.Mirziyoyev.
2. Explanatory dictionary of the Uzbek language. Order - Shukr / Volume Four. Edited by A. Madvaliev. - T.: State scientific publishing house «National encyclopedia of Uzbekistan», 2008. - 606 p.

Rezyume: *Ushbu maqolada mamlakatimizda kelajak avlodlarning ijodiy faolligini shakllantirish ijtimoiy-pedagogik zaruratdan kelib chiqqanligi ta'kidlangan, boshlang'ich sinf o'quvchilari ijodiy faoliyatini shakllantirishning pedagogik-psixologik yo'nalishlari tahlil qilingan.*

Резюме: *В данной статье подчеркивается, что формирование творческой активности будущих поколений в нашей стране базируется на социально-педагогической необходимости, анализируются педагогические и психологические направления формирования творческой активности младших школьников.*

Kalit so'zlar: *Ijod, ijodiy faoliyat, intellekt, pedagogik-psixologik, qulay muhit, fiziologik, psixik, jismoniy, predmetlar, holatlar va hodisalar.*

Ключевые слова: *Творчество, творческая деятельность, интеллект, педагогико-психологический, благоприятная среда, физиологические, психические, физические, объекты, ситуации и события.*

THE IMPACT OF DIGITAL TECHNOLOGIES ON THE ECONOMY OF UZBEKISTAN

Arzuova Sh.A^{1,2}, Tursunbaeva N.Sh².

¹*Nukus branch of the Tashkent University of Information Technologies named after Muhammad al-Khorezmi, Republic of Uzbekistan*

²*Karakalpak Institute of Agriculture and Agricultural Technologies*

Summary: Overall, digital technologies play a key role in the development of the economy of Uzbekistan, helping to increase the country's productivity, innovation and competitiveness in the global market.

Key words: digitalization, development, industry, industry, digital economy, production.

The development of the digital economy means the country's entry into a new era of development, the era of post-industrial society, which opens up unlimited opportunities for the democratic development of society and improvement of governance of the country and the economy. In the context of the functioning of the digital economy, physical labor is being replaced by intellectual labor.

Currently, many developed countries are introducing digitalization into all industries, developing and approving targeted legislation and programs that will become a springboard for the development of the digital economy. With the help of the digital economy, opportunities will open up for creating new innovative models of production, trade, healthcare, education, the economy and the entire society [1]. Currently, small businesses in various industries are faced with the need for digital transformation, considered as the creation of new methods of work based on digital technologies (digital platforms, artificial intelligence, cloud technologies, Internet of things, etc.)

In recent years, small businesses in Uzbekistan have received many new opportunities for implementing effective marketing policies due to the rapid development of digital marketing. This type of marketing provides a wide range of tools for conveying commercial information to the target audience using modern information technologies.

A number of scientists are currently working on issues of digitalization; this area represents a special perspective. This is due to the possibility of penetration of the results of the digital economy into various spheres of life, industries, and individual small businesses.

The term "digital economy" is widely used both in theory and in practice, but there is no consensus on its interpretation.

Uzbekistan, like many other countries, is experiencing the impact of digital technologies on its economy.

In recent years, the government of Uzbekistan has been actively promoting the development of information technologies (IT) and digitalization of various sectors of the economy. Here are the changes that can be noticed in the context of the influence of digital technologies on the economy of Uzbekistan:

1. Stimulating Innovation and Economic Growth: The Government of Uzbekistan is introducing a number of initiatives to support innovation in the field of information technology. The creation of incubators and accelerators for startups, as well as the provision of tax incentives and financial support, promote the growth of new digital businesses. This contributes to economic diversification and the creation of new jobs.

2. Digitalization of Public Services: In recent years, the government of Uzbekistan has been actively introducing electronic government services. Online platforms for obtaining various permits, filing documents and paying taxes make interaction with government agencies more convenient and efficient for entrepreneurs and citizens.

3. Development of Digital Infrastructure: The development of communication networks and Internet infrastructure plays a key role in expanding access to digital technologies. The government

of Uzbekistan is implementing programs to expand broadband Internet and improve mobile communications throughout the country.

4. Growth of E-Commerce: The introduction of e-commerce stimulates the growth of trade within the country and the export of Uzbek goods abroad. Online platforms allow small and medium-sized enterprises to expand their markets and diversify their sources of income.

5. Development of Digital Skills: Increasing the level of digital literacy and developing digital skills are becoming a priority for the educational system of Uzbekistan. This contributes to the training of personnel capable of working effectively in the digital economy.

However, it should be noted that there are some challenges and obstacles that Uzbekistan faces in the process of digital transformation. Among them are the need to introduce modern technologies, improve cybersecurity and develop the legal framework in the field of digitalization.

Modern Uzbekistan is part of the world economic community, therefore globalization and integration processes in the international market require business entities to actively participate in the global information community.

The republic is implementing comprehensive measures for the active development of the digital economy, as well as the widespread introduction of modern information and communication technologies in all sectors and areas, primarily in public administration, education, healthcare and agriculture.

To improve the indicator of human capital and its competencies in the field of information technology, the "One Million Programmers" program was launched in 2020, providing free training in programming skills, under which more than 130 thousand students are trained. All the measures considered contribute to increasing the development index of the digital economy of Uzbekistan to the level of leading EU countries.

The development of the digital economy in the country can increase the competitiveness of the Uzbekistan economy in the world market, and will also help bring the country to a new high-tech level of development.

The digital economy is rapidly changing the face of modern business. It opens up access to a significant amount of data to numerous participants in the global economy. The strategy of digitalization of the economy contributes to the expansion of the scale of production and exchange, the growth of the market value of enterprises, and the more efficient use of means of production and labor, both in the sphere of material production and in the sphere of production. services, and most importantly, increased competition and changes in the prevailing style of economic management.

Digital technologies have a significant impact on the economy of Uzbekistan, as well as on the economies of many other countries. Here are a few ways they make an impact:

- Increasing labor productivity: The introduction of digital technologies, such as automation of production processes, the use of data analytics and robotization, can significantly increase labor productivity in various sectors of the economy of Uzbekistan.

- Development of the digital economy: Digital technologies contribute to the development of new sectors of the economy, such as information technology, online commerce, digital services and others. This creates new opportunities for entrepreneurship and innovation.

- Improving market access: Using the Internet and digital platforms allows Uzbek companies to expand their access to international markets and attract new customers outside the country.

- Creation of new jobs: The development of digital technologies requires specialists in the field of information technology, programming, data analytics and other related fields, which can lead to the creation of new jobs and the demand for highly qualified specialists.

- Improving the efficiency of public administration: The introduction of e-government and digital management systems helps optimize bureaucratic processes, reduce costs and improve the quality of public services for the population and business.

- Stimulating innovation and start-ups: The development of the digital economy contributes to the emergence of new innovative companies and start-ups, which can stimulate economic growth and improve the competitiveness of Uzbekistan on the world stage.

Overall, digital technologies play a key role in the development of the economy of Uzbekistan, helping to increase the country's productivity, innovation and competitiveness in the global market. The government of Uzbekistan continues to actively promote the development of the digital economy, recognizing the importance of its role in the future economic development of the country.

References:

1. Указ Президента Республики Узбекистан «Об утверждении стратегии «Цифровой Узбекистан-2030» и мерах по ее эффективной реализации». Указ Президента Республики Узбекистан, от 05.10.2020 г. № УП-6079.
2. Alpaydin, E. (2009). Introduction to machine learning. Cambridge, Massachusetts: MIT press.
3. Balsmeier, B., and M. Woerter (2019). Is this time different? How digitalization influences job creation and destruction. *Research Policy*, vol. 48, No. 8.
4. С отчетом и материалами рабочей группы можно ознакомиться на веб сайте ЭСКАТО: www.unescap.org/events/specs-working-group-innovation-and-technology-sustainable-development
5. Ф.Е.Касимова. Влияние цифровизации экономики на развитие малого бизнеса. International Scientific and Practical Conference: "Actual tasks of the effective use of modern marketing concepts in the development of the national economy".
6. Арзуова Ш. А. Роль малого бизнеса в условиях инновационного развития национальной экономики //Цифровизация экономики и ее информационное обеспечение. – 2020. – С. 377-384.

Rezyume: *Umuman olganda, raqamli texnologiyalar O'zbekiston iqtisodiyoti rivojida muhim o'rin tutib, mamlakat unumdorligi, innovatsiyalar va jahon bozorida raqobatbardoshligini oshirishga yordam beradi.*

Резюме: *В целом, цифровые технологии играют ключевую роль в развитии экономики Узбекистана, способствуя увеличению производительности, инноваций и конкурентоспособности страны на мировом рынке.*

Kalit so'zlar: *raqamlashtirish, rivojlanish, sanoat, sanoat, raqamli iqtisodiyot, ishlab chiqarish.*

Ключевые слова: *цифровизация, развития, промышленность, отрасль, цифровая экономика, производства.*

**MODERN DEVELOPMENT OF NATIONAL COLOR IN THE CREATION OF
KARAKALPAK COMPOSER DARIKO DZHANABAEVA.**

Kutekeeva R., Aliev N.

Nukus branch of the State Conservatory of Uzbekistan

Summary: *In the article, the creative works of Doriko Dzhanaeva, a professional composer who has a significant place in the art of the Karakalpak people, and an artist who served the Republic of Karakalpakstan, are about pop creative works based on folk songs, and the conversation of the first performers of her performers.*

Key words: *Composer, variety, ensemble, vocal, repertoire, piano, trio, philosophy, music, tape recorder, academy, conference, patriot, sheet music, philharmonic, concert, ballet master.*

Introduction

The work of the professional composer, Honored Artist of the Republic of Karakalpakstan Doriko Janabayeva, who occupies a significant place in the art of the Karakalpak people, is very widespread among the people. In this article, we found it necessary to talk about his work.

The main part

"My Black Willows"

When the black shadow falls,
When talking to the sunlight,
When the spring winds blow,
My black willows sways fast.

Copies of our ancestors,
Rejoicing, he gives us a new moon,
Our nation's name will be a legacy,
My black willows fit my land.

"Seven-year-olds to seventy-year-olds love to listen to this song in our people, and even sing a song it". Putting a phrase describing the beauty of nature and expressing the fullness of the native land into a lyric song shows great skill and ingenuity. The person who brings all these together is the composer, and because of his curiosity, wonderful songs and works of art are created and they find their listeners. I would like to mention one such author, Doriko Dzhanaeva, one of the first female professional composers.

The creativity of composer D. Dzhanaeva occupies a great place in the development of Karakalpak national singing and pop song genres in our culture. His song "From your love" enthalls the listener with their inner feelings. The author did not make a mistake in choosing the performer without choosing the lyrics of the song with a deep content and writing a magical taron for it. This song, performed by D. Dadajanov, People's Artist of Karakalpakstan, has been performed for more than forty years. At the same time, the future took place in the repertoire of young people.

All of the composer's musical songs are lyrical in nature and consist of songs that depict or perform love, love for the country, and mercy. She wrote not only music for songs, but also for piano, violin, cello musical instruments, works for children. She adapted several Karakalpak national songs for voice and piano. Á.Tajimuratov, who was playing on the shore, seeing the calm waves of the Aral Sea. She composed music for Tajimuratov's poem "Geese fly" and taught it to me. The music was performed as a "trio" with piano, rubab, and flute instruments, giving it a special decoration and creating a special feeling. D. Dzhanaeva connected the meaning of "Geese fly" music with her life path and explained through music that it is necessary to appreciate the land where she was born and where the blood of the navel dripped. The verse is beautiful. Philosophical singing of the beauty of nature, connecting it to a song, requires the preparation of the composer

and the singer. The reason is that if the music does not match the words written by the poet, or if the singer does not learn good music properly, there will be no song that reaches the heart. Therefore, artistic works created due to professional collaboration of poet, composer and singer are listened to for a long time among our people. One of such artistic works is the music of "Geese fly". In 1984, great preparations were made for recording the music on the radio, the composer himself played the piano, A. Najimov played the rubab, and B. Otasharavaev played the flute. The music was well recorded. There are many people who love and listen to this music with a pleasant melody. Today, the young generation is taught by their teachers in the pop genre during classes, including all the ceremonial holidays held in our Republic. of music:

Geese fly from the moon,
To a warm destination,
To return suddenly,
To the pool of my island.
Geese fly from the moon,
The voices are heard from all sides,
Coming is a joy, leaving is a dream

Geese fly from the moon, - the listener imagines the nature of the village where he was born and grows up and involuntarily remembers his childhood. Being one of these, I go back to my childhood...

I learned many secrets of knowledge from my teacher, composer D. Dzhanabaeva while studying at the Art Institute. In each lesson, she characterized interesting events with music, connecting notes in new ways. We would not notice that time has passed since the lesson was interesting. She teaches the secrets of creating songs from sheet music and asks the personal opinion of each student. She chats with girls not only during class, but also in his spare time. She controlled their behavior, order and discipline, advised them not to do things that were contrary to their mentality.

When D. Dzhanabaeva taught me each piece of music she wrote (at that time we used tape recorders), they would give me the task of recording your voice on a tape and listening to your voice and telling me your thoughts. She is a demanding, strict, mostly kind teacher. In a short time, he taught me three pieces of music he had written. That's why he said that he wrote the music of "Geese are flying" according to my voice. People's Artist of Karakalpakstan the first time I heard the music of O.Temirkhanov "My black willows" I liked it very much, and immediately I learned that music myself. The teacher liked that I played the song and called me to the audience during the free time from the lesson to teach me new music. The reason why I love the music of "Kora Tolarim" is that I miss the trees of my village, which can be seen from afar. Teachers and students participated in the beauty contest held in Ferghana while studying in the country of art. I was looking for those black willows while walking in Ferghana.

One day, the class was over and the bell rang for recess. After playing her notes, the teacher said goodbye to everyone and looked at me: - Roza, wait a little. Placing the notes on the piano, she began to explain this new thing so that we both could learn it. The song is in Russian and is about the Motherland called "Karakalpakiya rodnaya mat moya". After every day's lesson, we prepared together and memorized the song. It wasn't difficult to learn such a beautiful song, but the tonalities of the voice seemed inferior to me. After learning the song, we went to a meeting at the children's orphanage in Khojeyli district next Sunday. There, children and coaches gathered in a large auditorium with a piano. Conversation, questions and answers began. The composer spoke about the innovations of the Karakalpakstan art, the development of culture by artists, and his personally created works of art. began to play excitedly. At the end of the meeting, we performed the songs taught by the teacher and the audience received it with great encouragement. I remember that time often. Then the song "Karakalpakiya rodnaya mat moya" was performed by Matlab Khojaniyazov, People's Artist of Uzbekistan and Karakalpakstan, and was applauded by his fans.

The song "My black willows" is performed by the People's Artist of Karakalpakstan Ó. Temirkhanov performed with the ensemble of folk songs, and pop star Z. Khojanazarova performed with the ensemble of vocal and musical instruments. Until now, these songs have been kept in the golden treasury of radio and television, and are often broadcasted, serving as spiritual food for fans. I toured all rural towns of our Republic and performed the song "My black willows" live. In 1993, K. Matmuratov was invited to record the "Lafz" television show. Seven or eight songs were recorded for this show, so the song "Black Tolarim" was shot among the tall trees on the north side of the study hall of the Academic Musical Theater named after Berdak.

I got acquainted with the history of the creation of music by talking with Marjon Tilewmuratova, the artist who served the Republic of Karakalpakstan, who performed the song "Black Tolarim" for the first time. According to sister Marjon, the members of the Karakalpak State Philharmonic named after Berdak "Forty Girls" (Sorok krasavic) ensemble went from Nukus to Moscow by train, gave a concert there, and then went on a six-month concert tour in Russia, Siberia, Pribaltika. was. After this visit, they shared with the audience Karakalpak folk songs, pop songs and dances among the people of Azerbaijan, Zangarstan, Bashkiria, Chechnya, Ingushetia, Karachay, Nogai. He even selected a number of players from Zangarstan to the ensemble, prepared new concert programs together with them, called it "Dutar poet o lyubvi", and with this program Kaliningrad, Latvia, Lithuania, Moldova, Ukraine, Belarus, the Far East (Dalnyi Vostok) until then sailing to Magadan on a 9-story ferry to "Kholmok" island and performing concert programs at the same time, then concert programs will continue in Nalchik, Minvoda, Sochi, Onapa, and the renewed culture held in Kislovodsk The director of the Philharmonic, Abdujabbar Mambetov, and the head of the Moscow concert institution, Vakhtang Isaakovich Zachesvilil, will come here to watch the concert programs at the opening ceremony of the palace.

D. Dzhanabaeva, artistic director of the ensemble, ballet masters Dawletbay Yusupov "yellow", Dawletbay Yusupov "black" (he nicknamed them because they have the same first and last name) and musical director Daniel Markovich of the concert programs they contribute a lot to the preparation and quality of the concerts, and even take a conference from Moscow to conduct the concerts. As for the ballet masters, they took turns working on preparations. So the concerts continue, and after one concert, the ensemble group, accompanied by Vakhtang Isaakovich Zachesvili, is taken on a tour of museums. He will even be able to go to the places where the famous movie "Semnadcat' mgnovenii vesny" was filmed. With the support of D. Dzhanabaeva, V. I. Zachesvili, who was interested in and influenced by the art of the Karakalpak people, recorded Karakalpak folk songs and proverbs.

Concerts were organized for 20 days in Sochi, 20 days in present-day St. Petersburg (former Leningrad), and on two banks of the Nimava River. While walking in these places, D. Dzhanabaeva misses her native land and creates the song "Kora tolarim" and M. Tilewmuratova becomes the first performer of it in Russian cities, including several Karakalpak folk songs, which are performed by the singers of the group. The song "We have our places" is repeated for pop music, and its first performer is I. Khojametov. The song "My black willows" was passed by the Composers' Union after arriving in Nukus, and became one of the most famous songs in our nation in a short time.

In 1965, at the age of 13, M. Tilewmuratova's father's half-brother, who was captured in the war, returned to the village safely and heard the news of two common brothers of his missing father. The whole village gathers, the father told that one of his brothers was killed by a bullet on the banks of the Niva River and buried there. On this day, we told D. Dzhanabaeva about our dream, and both of them went to the banks of the Nimava River to pray for the souls of our compatriots who died in the war. Even in these lands, the blood of the Karakalpaks was spilled, and I still remember Dorico not being able to hide his tears. I used to sing the song "Kora Tolarim", which appeared under the influence of feelings on the bank of the river in Moscow, during several concert visits. After me, People's Artist of Karakalpakstan Ó. Temirkhanov performed... - recalls Marjon Tilewmuratova, an artist who served the Republic of Karakalpakstan.

Conclusion

D. Džhanabaeva condensed the songs of the Karakalpak folk song "Alla" or "Beshik taronasi" for the piano. I was lucky to play that version. He also gave one copy of a handwritten note written in black ink as a gift (at that time, notes were copied by hand). "If you teach your students in the future..." I use it in practice and teach it to my students.

All the artistic works of D. Džhanabaeva, a teacher, composer, patriot daughter of our people, who have a significant place in the development of the art of our nation, are spread among the general public among our youth, and are preserved without losing their reputation in the world arena.

References:

1. Pekker Ya. *Uzbekskaya opera*. – Moskva. 1984.
2. *Essays on the history of musical culture of Uzbekistan*. – Tashkent. Uzbekistan. 1968.
3. Bayandiev T. *Istoriya karakalpakskogo teatra*. – Tashkent. UzGSİ. 2011.
4. Bayandiev T., Sayfullaev, B. (2014). *Poet karakalpakskoy stseni – Berdax*. – Tashkent. 2014.
5. Bayandiev T. *Karakalpakskiy teatr*. – Tashkent. Fan. 1971.
6. Allanazarov T. *Nekotorie voprosy istorii karakalpakskoy sovetskoy dramaturgii*. – Nukus. Karakalpakstan. 1987.
7. Kamalova D. E. *Theoretical and practical study of the genre of novella in karakalpak literature* // International Scientific Journal Theoretical and Applied Science. – Philadelphia. 2020. №03(83). <http://t-science.org/oxivDOI/2020/03-83/PDF/03-83-51.pdf>
8. Marziyaev J. K. *Rol i mesto publitsisticheskix janrov v sovremennoy karakalpakskoy pechati*. // Vestnik Chelyabinskogo gosudarstvennogo universiteta. – Chelyabinsk. № 6 (260) 2012. – Str. 88-92. <https://cyberleninka.ru/article/n/rol-i-mesto-publitsisticheskix-zhanrov-v-sovremennoy-karakalpakskoy-pechati/viewer>
9. Marziyaev J. K. *Qoraqalpoq publitsistikasiga bir nazar (Vzglyad na karakalpakskuyu publitsistiku) [Take a look at Karakalpak publications]*. // Uzbek tili va adabiyoti. – Tashkent. 2009. №5.
10. Allanbaev R. O. *Ispolnitelskoe iskusstvo karakalpakskogo eposa: istoriya, razvitie*. // Problemy sovremennoy nauki i obrazovaniya. – Moskva. Presto. ISSN 2413-4635. 2022. – S. 50-53.
11. Kamalova D. E. *Chronotope and its role in the composition of the work (On the example of Karakalpak literature)* // ISJ Theoretical & Applied Science, 09 (113), 105-109. 2022. SoI: <http://s-o-i.org/1.1/TAS-09-113-19> Doi: <https://dx.doi.org/10.15863/TAS.2022.09.113.19>

Rezyume: Maqolada Qoraqalpoq xalqi san'atida salmoqli o'rin egallagan professional bastakor, Qoraqalpog'iston Respublikasida xizmat ko'rsatgan artist Doriko Džhanabaevaning ijodiy ishlari xalq qo'shiqlari asosidagi estrada ijodiy ishlari, uning ijrochilarining ilk ijrochilari suhbatida haqida so'z boradi.

Резюме: В статье рассказывается о творчестве Дорико Джанабаевой, профессионального композитора, занимающего значительное место в искусстве каракалпакского народа, и артистки, служившей Республике Каракалпакстан, рассказывается о эстрадных творческих произведениях, основанных на народных песнях, и о разговоре первых исполнителей ее песен.

Kalit so'zlar: bastakor, estrada, ansambl, vokal, repertuar, fortepiano, trio, falsafa, musiqa, magnitafon, akademiya, konferentsiya, patriot, nota musiqasi, filarmoniya, konsert, balet ustasi.

Ключевые слова: Композитор, эстрада, ансамбль, вокал, репертуар, фортепиано, трио, философия, музыка, магнитофон, академия, конференция, патриот, ноты, филармония, концерт, балетмейстер.

DIGITAL ECONOMY: DEFINITION, TRENDS AND IMPACT

Arzuova Sh.A^{1,2}, Jalgasbaeva K.Kh¹.

¹*Nukus branch of the Tashkent University of Information Technologies named after Muhammad al-Khorezmi, Republic of Uzbekistan*

²*Karakalpak Institute of Agriculture and Agricultural Technologies*

Summary: *This article examines the relevance of articles related to the development and popularization of information and communication technologies, as well as the digital world in all areas of our lives, from the moment we spend our time to our ability to manage money. The digital economy is transforming the way we do business, communicate and live.*

Keywords: *digital economy, technology, trend, information technology, communication, trade, business.*

Today, articles related to the development and popularization of information and communication technologies throughout the world are becoming increasingly relevant. The revolutionary influence of ICT is reflected in government structures and civil society institutions, in the economic and social spheres, in science and education, culture and people's way of life. This is due to the fact that, in general, communication services make it possible to fully exploit the existing potential and significantly contribute to achieving the goals of sustainable economic growth, prosperity, democracy, peace and stability.

The Address of the President of the Republic of Uzbekistan to the Oliy Majlis dated January 24, 2020 identified important areas of economic development. This Message also describes in detail the need and important benefits of the transition to a digital economy for the country.

The “Digital Uzbekistan 2030” strategy was approved by decree of President Shavkat Mirziyoyev in October 2020. It is aimed at accelerating the development of the digital industry in the country and increasing the competitiveness of the national economy and includes programs for the digital transformation of regions and industries.

The digital economy is an economy based on the use of digital technologies to create, distribute and use tangible and intangible products and services. It involves the use of the Internet, digital devices, data and information technology to improve production, communications, trade and other aspects of business and life.

Trends in the digital economy:

1. Growth of Internet Users: The number of people using the Internet continues to grow every year. This creates enormous potential for the development of the digital economy as more people gain access to digital products and services.

2. Proliferation of mobile technologies: With the development of smartphones and tablets, more and more people are able to access the Internet and digital applications anytime and anywhere.

3. Growth of online commerce: Online commerce is becoming increasingly popular among both consumers and businesses. This is leading to changes in the way we trade and advertise, and is also affecting consumer habits.

4. More data: There is a huge amount of data collection happening in the digital economy, creating opportunities for data analytics, machine learning and business process improvement.

5. Development of digital platforms: Digital platforms such as social networks, online markets and cloud services are playing an increasingly important role in the digital economy by providing the infrastructure for interaction and trade.

The digital economy is a new economic environment that creates huge new business opportunities. In the digital economy, under the influence of new technologies of the digital economy and e-commerce, both the structure and nature of competition and business models are completely changing. For example, passenger market aggregators (Get Taxi, Yandex Taxi, etc.) have made many changes to the activities of transport companies and managed to bring them closer

to consumers. Food delivery companies have also seen great success in the competitive market by bringing suppliers closer to consumers. As a result, traditional offline companies are forced to transform their business or switch to online mode. This kind of situation encourages entrepreneurs to start their business online.

Currently, there are fully online companies such as Amazon or Ozone, social networks, instant messengers, eBay, Avito or retail chains, online stores and logistics companies that have placed their e-commerce channels in traditional offline businesses. The digital economy has given businesses the opportunity to search for new ideas based on rapid analysis of business intelligence and provide feedback to customers. This made it possible to have a reactive influence on the innovative expectations of potential clients.

As a result of such work, such free services as Google Analytics and Yandex, Metrica were created. In addition, the digital economy is characterized by a significant reduction in the life cycle of innovations. This will lead to the rapid emergence of new versions of many new models of smartphones, computers, mobile applications, and computer games.

According to scientists and experts, new innovative transport systems are expected to emerge. For example, magnetic levitation vehicles, vacuum vehicles, Hyperloop systems and others can be prime examples of this kind of innovative transportation systems. In addition, there will be the generation of innovative ideas using collective knowledge (mass collaboration, sharing economy), production of products and services, and financing of new innovative projects.

Impact on business and society:

1. Innovation and competition: The digital economy stimulates innovation and creates new business opportunities. At the same time, this increases competition as companies strive to develop more efficient and innovative products and services.

2. Globalization: The digital economy reduces distances between countries and allows companies to operate in the global market. This creates opportunities for international business, but also presents regulatory and data security challenges.

3. Workforce development: The digital economy requires new skills and competencies among workers. The growing importance of digital technologies means that information technology and data analysts are increasingly in demand.

Based on the above, it is obvious that the digital economy is very important in the social environment. But what remains unclear is what role their digital economy should play in the Republican agenda. First of all, due to limited resources, a decision will likely need to be made in which direction to focus efforts. Accordingly, society has two paths ahead: one is to engage in social adaptation of technology, and the other is to increase local technological bases.

In conclusion, as the ICT sector and its tools are developing at an ever-faster pace, not using them is tantamount to moving one step forward and then two steps back. This is due to the fact that preparedness for global challenges in the field of ICT requires the creation of a transparent system through the digitization of government services and almost all sectors of the economy. In this regard, people are encouraged to start the digitization process themselves.

To further develop the digitalization process in Uzbekistan, attention should be paid to the following necessary aspects:

- Communications infrastructure and Internet access: Develop high-speed Internet infrastructure throughout the country, including improving the availability of broadband Internet in rural areas.

- Digital skills and education: Introduction of digital technologies into the educational system to prepare the population for the digital economy. Educate the general public in digital skills, including computer fundamentals, digital literacy, and programming skills.

- Electronic government (e-Government): Development of an electronic government system to improve citizens' access to government services and reduce bureaucratic procedures. This includes the development of electronic portals, mobile applications and other digital tools for interaction with government agencies.

- Digital Economy and Innovation: Supporting the development of digital start-ups, innovative technology companies and digital entrepreneurial initiatives. This could include the creation of incubators, accelerators, financial support and tax incentives for digital companies.

- Cybersecurity: Ensuring information protection and cybersecurity in the context of growing digitalization. This includes developing appropriate legislation, training cybersecurity specialists and creating information security tools.

- Innovation infrastructure and research: Development of innovation infrastructure, including technology parks, innovation centers and research institutions, to stimulate research and development in the field of information technology.

- Digital inclusion: Ensuring access to digital technologies for all segments of the population, including low-income and less educated groups. This could include subsidy programs for computers and Internet access for low-income families.

- Collaboration with the private sector and international partners: Develop partnerships with private companies and international organizations to exchange experiences, technologies and financial support in order to accelerate the digitalization process. The successful implementation of these aspects will help Uzbekistan move further towards digital transformation and improve the quality of life of its citizens.

The digital economy is transforming the way we do business, communicate and live. Its influence will continue to expand as technology continues to evolve and permeate every aspect of our lives.

References:

1. Anthony Larsson, Robin Teigland. Digital transformation and public services.
2. М.К.Абдуллаев. Тенденции развития цифровой экономики в республике Узбекистан. "Iqtisodiyot va innovatsion texnologiyalar" ilmiy elektron jurnali. № 1, yanvar-fevral, 2021 yil.
3. <https://www.wallstreetmojo.com/author/wallstreetmojo-editorial-team/>;
4. С.С. Гулямов, Р.Х.Аюпов, О.М. Абдуллаев, Г.Р. Балтабаева. Рақамли иқтисодиётда блокчейн технологиялари.
5. Арзуова Ш. А. Роль малого бизнеса в условиях инновационного развития национальной экономики //Цифровизация экономики и ее информационное обеспечение. – 2020. – С. 377-384.
6. Арзуова Ш. А., Досекеев Ж. И. Перспективы развития производства продукции органического сельского хозяйства в узбекистане //научные и технологические подходы в развитии аграрной науки. – 2014. – С. 14-17.

Rezyume: *Ushbu maqolada axborot-kommunikatsiya texnologiyalarini, shuningdek, raqamli dunyoni hayotimizning barcha sohalarida, vaqtimizni sarflaganimizdan boshlab, pulni boshqarish qobiliyatimizgacha rivojlantirish va ommalashtirish bilan bog'liq muammolarning dolzarbligi ko'rib chiqiladi. Raqamli iqtisodiyot biznes qilish, muloqot qilish va yashash tarzimizni o'zgartirmoqda.*

Резюме: *В данной статье рассматривается актуальность статей, связанных с развитием и популяризацией информационных и коммуникационных технологий, а также цифрового мира во всех сферах нашей жизни от момента, как мы проводим свое время до наших умений управлять деньгами. Цифровая экономика преобразует способы, которыми мы ведем бизнес, общаемся и живем.*

Kalit so'zlar: *raqamli iqtisodiyot, texnologiya, tendentsiya, axborot texnologiyalari, aloqa, savdo, biznes.*

Ключевые слова: *цифровая экономика, технология, тенденция, информационная технология, коммуникация, торговля, бизнес.*

**THE ROLE OF THE PROSECUTION OFFICES IN THE SYSTEM OF STATE OFFICES
AND ITS THEORETICAL ASPECTS**

Zaripbaev U.O.

Karakalpak State University named after Berdakh

Summary: *The article is devoted to the discussion about the status and role of the prosecutor's office in the system of government. It presents the opinions of various Russian and Uzbek scientists regarding the subordination of the prosecutor's office to the legislative branch and its independence. Some scholars argue that the prosecutor's office should be subordinate to the legislative branch to ensure the unity of the rule of law, while others believe that it should be independent and not belong to any branch of government. It is emphasized that the prosecutor's office performs a unique function of monitoring the implementation of laws and is an important element of the system of checks and balances. The authors of the article conclude that the prosecutor's office must maintain independence from the executive branch in order to effectively carry out its tasks, but should not be considered as a separate "fourth estate."*

Key words: *Prosecutor's office, legislative power, prosecutorial control, powers, implementation of laws, independence of the prosecutor's office, separation of powers system, state control, Constitution of Uzbekistan, functional independence, state legal institution, balance of powers, historical formation of the prosecutor's office, executive power, unity of the rule of law.*

As we know, one of the most controversial topics related to the place of the prosecutor's office in the state mechanism is the issue of its place in the system of distribution of powers.

In this regard, various approaches have been proposed in the scientific literature. Although the opinions on this matter are not always clear and uniform, however, they have common features.

In particular, a group of scientists show that the prosecutor's office belongs to the executive power. For example, the Russian jurist N. Fedorov suggests that the prosecutor's office be included in the organizational structure of the executive power. In this, he cites as evidence that in most foreign countries, the prosecutor's office is included in the executive bodies of the authorities [1;].

Similarly, another group of scholars and practitioners emphasize that the powers of the prosecutor are of an administrative and imperative nature as an executive power [2;].

The second group of scientists still consider that the prosecutor's office is a special "addition" of the legislative branch of government because it checks the implementation of laws in the territory of the country, as well as the compliance of subordinate legal documents with the law.

Proponents of this idea rely on the following logic: the legislature makes laws, and the prosecutor's office controls their implementation throughout the country.

According to them, the prosecutor's office is one of the mechanisms of the legislative power [3;], and the prosecutor's supervision is a special type of power, which must receive powers directly from the legislator, form them and be accountable only to him[4;].

For example, one of the Russian scientists, V. Lomovsky, believes that the prosecutor's office should be under the legislative power, because, on the one hand, after the adoption of laws, the supreme legislative power cannot be indifferent to their implementation. Therefore, it retains the function of ensuring the unity of legality, which it performs directly, as well as through the prosecutor's office.

On the other hand, the prosecutor's office, as written by this author, cannot be "alone" in the state in performing the tasks assigned to it, it must be supported, because it often has to oppose "the most powerful people", therefore, the prosecutor's office must be under the legislative authority [5;]

In our opinion, the scientists of both the above groups expressed their scientific views based on the Russian legal system and practice, and these views are not very compatible with our national legal system.

Because the scientists of the first group did not pay much attention to the activities of the prosecutor's office related to the control over the implementation of laws, while the second group of scientists, on the contrary, approached this activity more and did not dwell on the tasks of the prosecutor's office, such as carrying out criminal prosecution and assisting in justice.

At this point, V.N. Eryomina, a supporter of the third point of view, says that "the modern prosecutor's office does not belong to any branch of power, it represents a necessary mechanism in the emerging system of separation of powers and is an important element of the system of checks and balances."

The independence of the prosecutor's office is a necessary condition for its successful operation in the field of control over the execution of laws [6;].

A.D. Boykov also believes that the prosecutor's office is the state's legality control body, and it carries out its activities equally in relation to the legislative, executive and judicial authorities [7;].

Similarly, the Uzbek jurists Z. Islamov, M. Radjabova, G. Alimov, I. Jasimov, who conducted research on this matter, noted that the prosecutor's office does not belong to any branch of state power.

For example, Professor Z. Islamov stated that the prosecutor's office cannot belong to the legislative or executive power according to the content of its functions [8;].

Similarly, according to M. Radjabova, the prosecutor's office, unlike the above two authorities, is a state authority that controls the clear and uniform application of laws [9;].

Analyzing the norms of the Constitution of Uzbekistan, G. Alimov said that "the prosecutor's office does not belong to any of the branches of state power established in the Constitution" [10;] came to the conclusion that

Similarly, practicing jurist I. Jasimov put forward the opinion that the Prosecutor's Office of Uzbekistan is a functionally independent state-legal institution that does not belong to any of the legislative, executive and judicial authorities [11;]

In our opinion, the opinions of these scholars that the prosecutor's office is a unique, independent institution that does not belong to any authority and provides a reasonable balance between authorities can be considered correct from the legal point of view and according to the essence of the historical formation of the prosecutor's office.

At this point, taking into account that the functions of the prosecutor's office related to the "sector" are gradually expanding, and the process of subordinating it to the executive power is taking place, we would like to note that the definition that the prosecutor's office is completely independent from the executive power does not correspond to the real situation today.

Nevertheless, the prosecutor's office is an important element of state power by its set of tasks and essence, it enables each branch of power to exercise its powers within the framework of the law, and at the same time, it supports their interaction on the basis of ensuring the unity of legality.

In our opinion, it will not be correct to include it in any branch of the state power, both "de jure" and according to the nature of the prosecutor's office. At the same time, it is wrong to interpret it as a separate "fourth power".

Because it does not have a general management function.

The Prosecutor's Office has only the powers and opportunities provided by law for the proper performance of its functions. In this regard, legal scholar Z. Ibragimov proposed to determine which branch of power the prosecutor's office belongs to or is a separate authority through a legal norm.

As a basis for this proposal, he emphasizes that, from the point of view of the doctrine (principle) of the separation of powers, the place and role of the prosecutor's office in the state power system of our country is not clearly defined, the level of political and legal development in Uzbekistan, its history, culture and traditions, protection of human rights and freedoms, the interests of society and the state. Of doing

Creation of a coherent concept of the development of the prosecutor's office, taking into account the relevant —system of mutual restraint and balancing aimed at creating an effective system, as well as does not allow to fully determine the relationship of the prosecutor's office with other branches of power [12;]

Professor M. Rustambaev and Associate Professor E. Nikifirova approached this issue from another angle, saying that the legal system of our country (as in all other countries) is connected to each other through many internal connections, and its normal functioning has gradually emerged over decades and even more. Consists of a complex mechanism.

They put forward the opinion that changing some part of this mechanism without thinking and hastily can derail the entire law enforcement system of the country [13;]. In this matter, “a legal state is characterized by a system of guaranteeing the normal functioning of the government, which includes two sub-systems,” writes V.V. Klochkov. – The first sub-system guarantees such an order in which the legislative, executive and judicial authorities each act within their powers, only with their own means and methods, do not perform the tasks of other authorities, do not try to usurp their powers, usurp the entire state power.

Usually, this subsystem of guarantees is called a set (system) of mutual balances and restrictions. The second sub-system includes the interaction of the divided authorities and measures to ensure that they work together as a single state authority [14;].

However, the improvement of the theory and practice of the rule of law, the experience of the presidential republics in the USA, the European Union and other advanced countries have shown that the effectiveness of the independence and interconnectedness of the branches of government can be manifested only when the mechanisms guaranteeing them exist and operate.

Based on this, we believe that the position of the prosecutor's office in effectively ensuring the balance between the branches of government cannot be preserved only by creating new legal norms, but it is correct to approach this issue based on the nature of the current political and legal infrastructure that has emerged in our country.

It will be beneficial for the state and society if the prosecutor's office exercises control over the observance of laws by all branches of government and effectively plays the role of mutual balance and restraint between them. Currently, in the reforms of the legal system, the role of the prosecutor's office is reduced, prosecutors' trends are being observed to reduce participation and influence in court hearings [15;], development of judicial control over investigation [16;], expansion of activities of bodies such as the Chamber of Accounts, Ministry of Justice [17;] in the field of control over law enforcement.

In this regard, it is proposed to hand over the functions of the prosecutor's office to the court to control investigative bodies and protect and protect the rights of citizens [18;].

In our opinion, there is a constant need for reforms in the prosecutor's office, as in other areas, but we believe that it is appropriate to think carefully in advance, to set tasks and to rely on scientific research and reasonable forecasts in order to achieve the desired positive results.

In this process, it will be necessary to find an inevitable answer to the questions of how much other institutions can fulfill the current tasks of the prosecutor's office, how much extra costs will be caused by creating new structures or redistributing functions instead of improving the existing system, and most importantly, whether it will justify itself and whether resources will not be wasted

Determining the position and status of the prosecutor's office in the system of state power, clarifying and condensing its tasks, establishing guarantees of real implementation of the principles of independence, transparency, honesty and impartiality, strengthening the position and inviolability of prosecutors, establishing a system of recruitment of personnel based on open and honest elections, collegial bodies in management The main content of the new law should be the actual issues such as increasing its importance and increasing its accountability to the public.

First of all, we must create a system that does not directly exceed the scope of each law enforcement agency's authority and does not duplicate each other's functions.

For example, internal affairs should deal with ensuring public order and security, and national security should deal with protecting the state from internal and external threats. The prosecutor's office must supervise the implementation of laws. The main task of the courts is to find justice, [19;] – he said.

Based on this, freeing the prosecutor's office from tasks that are not characteristic of its main function will allow its activity to be more effective in the interests of the state and society. This creates real conditions for prosecutors to be —independent and —impartial to fully ensure the rule of law in society.

Secondly, the currently chosen development path of Uzbekistan, the general development strategy of the state, determines and determines the prospects for the development of the prosecutor's office.

Naturally, the prosecutor's strategy is developed within the framework of the general law development strategy. For example, “strategies of legal development are determined by socio-economic factors that shape or destroy stability at the same time, as well as moral principles strengthened in society and personal life [20;].

Thirdly, another important factor in determining the strategic prospects for the development of the activities of the prosecutor's office is the criminogenic situation, including the tendency and growth dynamics of crime.

Crimes against a person's life, freedom, fundamentals of economy, cyber security, as well as crimes committed through information and communication technologies should be taken into account in the improvement of the prosecutor's office.

In this direction, the fight against corruption crimes will remain one of the main priorities of the prosecutor's office.

In the future, it is necessary to increase the role and importance of the prosecutor's office in protecting human rights from criminal violations. In this regard, labor, education, personal and property privacy, speech, freedom of belief, political rights – these are the main pillars of civil society, and the prosecutor has always felt the need for protection and protection.

One of the important areas of the strategy of the prosecutor's office is to qualitatively strengthen activities related to crime prevention, investigation, and ensuring prosecutor's powers in courts.

Also, in order to ensure the independence of the judiciary in our country, the prosecutor's powers and scope of participation in the courts are gradually being reduced.

Currently, there is a need to solve the issue of organizational expansion of the personnel corps that ensures the prosecutor's participation in the court, and to improve the quality of their activities in a short period of time.

Fourthly, the next factor in the formation of the strategy of the prosecutor's office is to guide activities based on international indicators, ratings and other best practices on key life issues such as rule of law, fight against corruption, safe life.

In this regard, it is necessary to form a clear system of determining the priority of law index in the prosecutor's office based on statistical indicators and the results of public surveys.

In this, the main criteria of the rule of law are the observance of laws, the provision of rights and freedoms of citizens, the execution of justice and court decisions, the establishment of law and order and the provision of security, the effectiveness of the fight against corruption, and the transparency of government institutions.

Fifth, daily, current, permanent and 6-month types of work planning are used in prosecutor's offices, and the use of strategic planning practice is not sufficiently developed.

In this regard, in the experience of the Prosecutor's Office of the Republic of Kazakhstan, the practice and procedure of strategic planning is defined by the Regulation, and a separate structure – the Department of Strategic Development – has been established to develop the strategic perspectives of the Prosecutor's Office.

It should be noted that the practice of establishing such structures has entered into the activities of state administration bodies in our country.

In particular, by the decision of the President of the Republic of Uzbekistan dated April 1, 2021 No. PQ-5047 [21;], the Integrated Information and Analysis Department of Innovative Development Strategy was established in the Ministry of Innovative Development in connection with the coordination of prospective plans. The implementation of strategic planning practice in the prosecutor's office of our country will create the necessary conditions for the development trends in our activities to be permanent and effective, including the implementation of proposals in research work.

Sixth, another important task in the future is to expand the elements of collegiality in order to improve the personnel policy and develop democratic traditions in management.

In this regard, improving labor relations and increasing work productivity in the prosecutor's office has a special place. In this case, special attention should be paid to the selection of personnel, recruitment on the basis of competition, appointment to the prosecutor's office, strengthening of socio-economic guarantees of the prosecutor's work, increase of wages based on the importance of the work they perform, and ensuring the implementation of the guarantees of dismissal. One of the necessary conditions for increasing work efficiency is the issue of accelerating the introduction of information technologies in the activities of prosecutor's offices, implementing innovative achievements.

It is known that the activity of each state body is measured by its efficiency. From this point of view, the issue of evaluation of the activities of the prosecutor's office, including prosecutors, is of urgent importance.

Currently, Article 45 of the Law on the Prosecutor's Office, Clause 14 of the Regulation on Service in the Bodies and Institutions of the Prosecutor's Office of the Republic of Uzbekistan, and the Decision of the President of the Republic of Uzbekistan No. PQ-3182 dated August 8, 2017, establish different procedures for evaluating the performance of different categories of employees.

Therefore, it is appropriate to include in the strategy of the prosecutor's office a proposal to re-critically review the current criteria for evaluating the performance of prosecutors based on modern trends: international, foreign and national experience and achievements.

In particular, the development of specific criteria for measuring the volume of work of employees, the introduction of specific indicators of work efficiency are important issues that we should pay attention to in the future.

It is necessary to continue work on the development of the Academy in order to establish an effective system of continuous training of personnel.

In conclusion, without the rule of law, it will not be possible to ensure the stability of society and the state. In this regard, the prosecutor's office is the only and effective state body that can effectively direct its organizational activities to fully ensure legality. Because effective and consistent control over the legality of the activities of management, supervision and law enforcement bodies is carried out by the prosecutor's office is a historically formed experience.

References:

1. Fedorov N.V. On judicial reform in Russia // State and Law. 1992. No. 6.
2. Bessarabov V.G. The place of the prosecutor's office in the state mechanism of modern Russia. // Legality. - 1999. - No. 10. - P. 40-45.
3. Korenevsky Yu.V. The formation of the rule of law in the Russian Federation and the functions of the prosecutor's office. Round table / Yu.V. Korenevsky // State and law. - 1994. - No. 5. - P. 3-34.
4. Vinogradov O.A. Prosecutor's office in the system of public authorities // Legality. - 1997. - No. 4. - P. 47-49.
5. Lomovsky V.D. What power does the prosecutor's office have? // Russian justice. - 2001. - No. 9. - pp. 21-22.
6. Yakupov, Z. R. The role of the prosecutor's office in the mechanism of state power in modern Russia. // Law: modern trends: materials of the IV International. scientific conf. (Krasnodar, February 2017). -

Krasnodar: Novation, 2017. - pp. 95-98. — // [Electron source].URL: <https://moluch.ru/conf/law/archive/225/11641/>.

7. Boykov A.D. The Third Power in Russia. Essays on justice, legality and judicial reform 1990–1996. M., 1997.

8. Islamov Z.M. What authority is the prosecutor's office under? - People's Word, July 3, 2003.

9. Radjabova M.A. Towards legal statehood. - T.: —Uzbekistan, 2000. - pp. 22-24.

10. Karang: Alimov G. Legal status and activities of public authorities in the Republic of Uzbekistan. - T., 2004 – P.40.

11. Jasimov I.K. Judicial reforms and the role of the prosecutor's office in the protection of human rights today. - T., 2004.-S. 74.

12. Ibragimov, Z.S. Independence and the Prosecutor's Office of the Republic of Uzbekistan (a comparative analysis of the development of its legal status during the years of independence). - T.: —Publisher! 2011. - p. 34.

13. Rustambaev M., Nikifirova E. Prosecutor's office in a rule-of-law state // Pravda Vostoka, 2002, November 19.

14. Klochkov V.V. Methodological issues of the organization and activities of the prosecutor's office // Problems of the theory of legality, methodology and techniques of prosecutorial supervision. – M., 1994. – 11-12-b.

15. Decree of the President of the Republic of Uzbekistan dated July 24, 2020 on "Additional measures to further improve the activity of courts and increase the efficiency of justice" No. PF-6034 // National database of legislative information, 04/30/2021, 06/21/6218/ No. 0398.

16. Decree No. PF-4947 of the President of the Republic of Uzbekistan dated February 7, 2017 "On the Strategy of Actions for Further Development of the Republic of Uzbekistan" // National database of legal documents, 17.03.2021, No. 06/21/6188/0216, 01.05. 2021, No. 06/21/6217/0409

17. Decree of the President of the Republic of Uzbekistan dated May 19, 2020 "On measures to further improve the activities of judicial bodies and institutions in the implementation of state legal policy" PF-5997 // National database of legislative information, 04/30/2021, 06/21/6218 No. /0398.

18. Nazarov O.Sh. Prosecutor's control over the implementation of the rights and freedoms of citizens // Dissertation work.; Tashkent 2007.

19. Address of the President of the Republic of Uzbekistan to the Oliy Majlis of the Republic of Uzbekistan. December 22, 2017. [Electronic resource]. <https://president.uz/uz/lists/view/1370> (application time: 23.03.2021)

20. Strategies for legal development in Russia: monograph / collection of authors, ed. ed. Rybakova O.Yu. 3rd ed., revised. – M.: JUSTICE, 2016. – 9 p.

21. Decision PQ-5047 of the President of the Republic of Uzbekistan dated April 1, 2021 "On measures to further improve state policy in the field of science and innovation development" // National database of legal documents, 04/01/2021., 07/21/5047/0270-number.

Rezyume: *Maqola prokuraturaning davlat tizimidagi maqomi va o'rni haqida so'z yuritishga bag'ishlangan. Unda turli rus va o'zbekistonlik olimlarning prokuraturaning qonun chiqaruvchi hokimiyatga bo'ysunishi va uning mustaqilligi haqidagi fikrlari keltirilgan. Ayrim olimlar qonun ustuvorligi birligini ta'minlash uchun prokuratura qonun chiqaruvchi hokimiyatga bo'ysunishi kerak, deb hisoblasha, boshqalari esa u mustaqil bo'lishi va hokimiyatning birorta tarmog'iga kirmasligi kerak, deb hisoblaydi. Prokuratura qonunlar ijrosini nazorat qilish bo'yicha o'ziga xos funktsiyani amalga oshirishi hamda nazorat va muvozanat tizimining muhim elementi ekanligi ta'kidlandi. Maqola mualliflari prokuratura o'z oldiga qo'yilgan vazifalarni samarali amalga oshirishi uchun ijro hokimiyatidan mustaqilligini saqlab qolishi, lekin alohida "to'rtinchi hokimiyat" sifatida qaralmasligi kerak, degan xulosaga keladi.*

Резюме: *Статья посвящена дискуссии о статусе и роли прокуратуры в системе государственной власти. В ней представлены мнения различных российских и узбекских ученых относительно подчиненности прокуратуры законодательной власти и ее независимости. Некоторые ученые утверждают, что прокуратура должна подчиняться законодательной власти для обеспечения единства законности, другие же считают, что она должна быть независимой и не принадлежать ни одной ветви власти. Подчеркивается, что прокуратура выполняет уникальную функцию контроля за исполнением законов и является важным элементом системы сдержек и противовесов. Авторы статьи приходят к выводу, что прокуратура должна сохранять независимость от исполнительной власти,*

чтобы эффективно выполнять свои задачи, но не должна рассматриваться как отдельная "четвертая власть".

Kalit soʻzlar: Prokuratura, qonun chiqaruvchi hokimiyat, prokuror nazorati, vakolatlar, qonunlarning ijrosi, prokuraturaning mustaqilligi, hokimiyatlarning boʻlinishi tizimi, davlat nazorati, Oʻzbekiston Konstitutsiyasi, funksional mustaqillik, davlat huquqiy instituti, vakolatlar muvozanati, prokuraturaning tarixiy shakllanishi, ijro hokimiyati, qonun ustuvorligining birligi.

Ключевые слова: Прокуратура, законодательная власть, прокурорский контроль, полномочия, выполнение законов, независимость прокуратуры, система разделения властей, государственный контроль, Конституция Узбекистана, функциональная независимость, государственно-правовое учреждение, баланс властей, историческое становление прокуратуры, исполнительная власть, единство законности.

**LEGAL EDUCATION REFORMS ARE A GUARANTEE OF INCREASING THE
EFFECTIVENESS OF LEGAL EDUCATION**

Kudaybergenova T.

Nukus State Pedagogical Institute named after Ajiniyaz

Summary: *The article discusses the legal aspects of the development of legal education, reforms of legal education in recent years, and the current state of legal education.*

Keywords: *Rule of law, legal culture, national program for improving legal culture in society, Law “On Education”, principles of education, legal education, legal education.*

Introduction. The future prospect of independent Uzbekistan is the construction of a fair democratic state governed by the rule of law and civil society. For the sake of this great goal, great historical reforms are being carried out in the economic, social, political, spiritual and cultural-legal spheres. All legal foundations for the implementation of reforms have been created, and the initiator and main reformer of these changes is the state. The rule of law is one of the main principles of development of the country we are building. A legal country guarantees that legal literacy and legal culture of citizens are formed at an excellent level and become a worldview. Therefore, the formation of legal literacy and legal culture is an urgent problem today. For this reason, improving legal education and upbringing, increasing legal culture were recognized as the main directions of our country's policy. Legal documents adopted in the first years of independence were aimed at the education system. During the pre-independence period, very few hours (116 hours) were allocated to legal studies in the education system. Today, 240 hours are allocated for legal sciences in all types of continuing education. From the first days of our independence, the issue of education was considered as the most important task that decides our present and future, and regulatory documents related to the field of education were adopted. In addition, attention was paid to expressing public interest in the state standards being created in our republic, and specific work was carried out to improve legal education. Resolution of the Council of Ministers of the Republic of Uzbekistan dated June 13, 1994 No. 296 “On the Comprehensive Program for Improving the Legal Education of Youth”, Resolution of the Oliy Majilis No. 466-1 “National Program for Improving the Legal Education of Youth”. Culture in Society”, approved on August 29, 1997, and on the basis of this decision, Resolution of the Cabinet of Ministers of May 29, 1998 No. 235 “On measures to implement the National Program for Improving Legal Culture in Society”, Resolution of the Cabinet of Ministers of the Republic of Uzbekistan “On Improving Activities commissions on juvenile affairs» dated September 21, 2000, Law of the Republic of Uzbekistan “On Education”, adopted on August 29, 1997, “National Training Program”, Decree of the 1st President of the Republic of Uzbekistan “On improving legal education, increasing the level of legal culture of the people.”, improving the system of training legal personnel, improving work on public opinion research» Resolution of June 25, 1997, Resolution of October 6, 1997 «On a radical reform of the education and training system, bringing the mature generation to perfection», Order of January 4, 2001 “On the organization of studying the Constitution of the Republic of Uzbekistan”, Resolutions of July 1, 2004 “On the State National Program for the Development of School Education for 2004-2009”, “On Additional Measures to Improve the Public Education Management System” (September 5, 2018) PD No. 5538, “General Secondary Education”, Decree No. PD-5313 “On measures to radically improve the system of secondary specialized and vocational education” (January 25, 2018), Decree No. PD-5618 dated January 9, 2019 “On radical improvement of the system for increasing legal literacy” and legal culture in society”, “The concept of increasing legal culture in society”, in this sense the concept of “Development of the public education system of the Republic of Uzbekistan until 2030” (April 29, 2019), the Law “On Education” dated September 23, 2020 and regulatory documents, related to this activity.

Main part.

The adopted regulatory documents on education define the need to introduce and master advanced pedagogical technologies in the education system. In particular, Decree No. PD 5618 of January 9, 2019 "On radical improvement of the system for increasing legal education and legal culture in society" states that "Increasing legal consciousness and legal culture in society is the most important condition for ensuring law and order." rights and strengthening legitimacy...

- when increasing legal awareness and legal culture in society, first of all, attention should be paid to systematic and continuous education, deep inculcation of legal consciousness and legal culture in all segments of the population, starting with the preschool education system, deep implementation of the ideas of equality of personal and public interests;

- to instill in the minds of the younger generation the concepts of rights and responsibilities, honesty and purity, to teach certain aspects of the Constitution from childhood.

Creation of educational technologies that correspond to the social and pedagogical conditions of Uzbekistan, and their application in the practice of legal education:

- firstly, the use of the most advanced pedagogical technologies in order to speed up legal education and increase efficiency;

- secondly, use the positive aspects of written and oral methods in the program training system;

- thirdly, due to a sharp increase in legal information, its creation and explanation on a systematic basis;

- fourthly, it is aimed at developing the potential of each student.

In recent years, work carried out in the field of education has created opportunities for the spiritual, social and legal development of young people. The new society that we are building, the processes of renewal that are increasingly entering our lives, the fate and future of reforms, are primarily associated with our people's support for these changes, the development of their social self-sacrifice, worldview, consciousness, worldview.

Much attention is paid to the development of the education system of the Republic of Uzbekistan, increasing its efficiency, management, studying foreign experience developed in this process. We all know that thanks to the enormous work being carried out and modern conditions created for the comprehensive development of our children, our youth are improving physically and spiritually. However, there are currently problems in this area that await solutions. During the transition years, the spiritual environment in schools, the reputation of the teaching profession, the reduction of its role, and insufficient attention to the training of teachers of the new century, the development of pedagogy, and the introduction of innovative educational technologies have changed. caused a number of serious problems in this area. Over the past five years, a lot of work has been done in our country to radically improve the personnel training system. President Sh. Mirziyoyev adopted decrees and resolutions relating to the education system, a number of resolutions of the Cabinet of Ministers, and strengthened the legal framework for reforms in this area. The 11-year school education system has been restored in our country, taking into account the opinions and suggestions of parents and the public. In recent years, about 200 secondary schools have been built in our country.

Our great scientists are schools for gifted children named after Mirzo Ulugbek and Muhammad Khorezmi, creative schools named after Hamid Olimzhan and Zulfiya, Erkin Vakhidov, Abdulla Aripov, Ibraim Yusupov, Ishakhan Ibrat, Muhammad Yusuf, Halima Khudoiberdieva, "School of Temurbeks", Presidential School private Creation new and modern educational institutions, such as schools, open up new educational opportunities for the children of our country. Tens of thousands of male teachers are returning to the public education system thanks to specific measures taken that take into account the different roles and influence of male teachers in the effective conduct of educational work. Today, 35 percent of the state budget is allocated for the development of the social sphere. Much work is being done to stimulate the work of teaching staff. Over the past 3 years, teachers' salaries have increased by an average of 2.5 times. Specific criteria have been established to encourage the work of teachers working in remote areas. They are

paid additional monthly benefits of 50-100 percent. This made it possible to recruit more than a thousand teachers, who are in short supply in remote areas. Teachers who continue to work beyond retirement age are paid a full pension. President Sh. Mirziyoyev said: "We believe that our respected teachers, passionate school principals, the most respected people in this field are the backbone of our country."

Great efforts are being made to encourage the work of teaching staff. The radical improvement of the public education system, issues of solving problems were deeply analyzed, and tasks for the future were identified. According to the Decree of the President of the Republic of Uzbekistan dated April 29, 2021, the Concept for the development of the public education system until 2030 was approved. It defines specific mechanisms for achieving 48 targets. For example, by 2030, it is determined that Uzbekistan will take a place among the 30 best countries in the world in the international PISA ranking of student knowledge. The head of our country paid special attention to the issues of improving the careers and status of teachers, expanding their rights and benefits.

on the adoption of the Constitution of the Republic of Uzbekistan

President Sh. Mirziyoyev expressed his opinion on ensuring human rights and freedoms in society: "We need to constantly continue to work to increase legal awareness and legal culture in society. "It is necessary to begin legal education with the preschool education system, and in this regard, initial skills must take a place in the hearts of our children for life" [3].

Unfortunately, today the legal culture in the legal consciousness of the majority of young people in our country remains low, which is reflected in the lack of legal knowledge of many boys and girls, the low level of formation of a civic position in relation to the performance of their duties, as well as the occurrence of offenses among teenagers.

Since 2016, profound changes have occurred in our country, along with the political, legal, economic and spiritual spheres, as well as in the social sphere. Therefore, it was necessary to adopt a new version of the Law "On Education", and thus the adoption of a new version of the Law "On Education" on September 23, 2020 became the legal basis for solving a number of accumulated problems in the field of education. practical way. The main purpose of the "Law on Education" of the Republic of Uzbekistan is clearly defined in its first article. It is stated that "the purpose of this Law is to regulate relations in the field of education" (Article 1) [1]. This Law replaced the outdated Laws "On Education" and "On the National Personnel Training Program", which had been in force since 1997. Law "On Education" in general Consisting of 75 articles, the basic principles of education are clearly defined in the fourth article [1]. According to him, the main principles of state policy in the field of education are: recognition of the priority of education; freedom to choose the form of education; non-discrimination in education; ensuring equal opportunities for education; introduction of national and universal values into education and training; humanitarian, democratic features of education and upbringing; continuity and consistency of education; compulsory eleven years of education and one year of general secondary education for children aged six to seven; transparency of education for all within the framework of state educational standards and state educational requirements; uniformity and differentiation of the approach to the selection of educational programs; lifelong education; guaranteed social protection of teachers in society; that the education system is secular in nature; promoting knowledge, talent and creativity; harmony of state and public administration in the education system; was defined as transparency and clarity in the field of educational activities.

These principles of state policy serve to form the legal consciousness of the individual through all types of education. In order to study the conditions of legal education, we analyzed the conditions for providing legal education to students of secondary schools, the content of academic subjects, state educational standard (SES) and educational programs.

Young scientist-teacher A. According to Kadrekova, as of the 2019/2020 academic year, there are 9,942 secondary schools in the public education system, with 6.2 million students. students are trained, they are taught by 457 thousand teachers, students are provided with legal education from grades 1 to 11 in a total of 21 subjects taught in secondary schools of our republic.

In the 2019-20/2021 academic year, according to the main curriculum, the subjects “State and Law of Uzbekistan” are taught in the 8th grade, “Fundamentals of Constitutional Law” in the 9th grade, and “Fundamentals of State and Law” in the 9th grade. Law» in grades 10-11 at school for 1 hour per week [5].

№	Name of subject	Number of classes	hours
1.	“Fundamentals of state and law of Uzbekistan”	8th grade	from 1 hour (34)
2.	“Fundamentals of constitutional law”	8th grade	from 1 hour (34)
3.	“Fundamentals of the country and law”	10th grade	from 1 hour (34)
4.	“Fundamentals of the country and law”	11th grade	from 1 hour (34)

The state of education of legal subjects in secondary schools of the Ministry of Public Education of the Republic of Uzbekistan.

In addition, legal knowledge is taught as part of other subjects, in particular: the course “Constitutional Alphabet” in grades 1-4, the subjects “Reading”, “The World Around Us”, “Natural Science”, “Education”, including “Study Hours” « is taught for 10 hours in each class. It turned out that there are problems associated with the organization of teaching legal subjects by specialists in state secondary schools.

In particular, out of 12,049 able-bodied teachers of the specialty “Fundamentals of State and Law,” 3,078 are non-specialists, of which 758 have completed a retraining course. During 2020 and 2021, more than 1,050 government and legal science teachers were involved in refresher courses and the remaining teachers were fully covered in refresher courses on a periodic basis during 2021-2022. The number of teachers in this specialty in the Republic of Karakalpakstan is 1937 people.

	Total number	Specialists	Jurisprudence	Historians	Specialists of other disciplines
Republic of Karakalpakstan	1937				
Nukus city	332	193	42	290	
Amudarya	194	113	24	170	
Turtkul	164	101	21	143	
Beruni	160	90	39	121	
Ellikkala	138	74	38	100	
Khojeli	124	72	33	91	
Shomanay	71	45	19	26	
Tahyatas	62	25	11	51	
Kanlykul	58	36	20	38	
Kungrad	117	68	24	93	
Muynak	35	24	6	29	
Nukus	78	46	14	64	
Kegeyli	89	46	24	65	
Chimbay	151	89	33	118	
Karauzyak	73	33	14	59	
Bozatou	29	21	6	23	

Level of provision of law teachers in secondary schools of the Republic of Karakalpakstan.

In addition, scientific research on the methodology of legal education in teaching legal subjects is insufficient. Until now, no scientific research has been carried out on the methods of teaching legal subjects or on the problems of teaching children their rights.

References:

1. O'zbekiston Respublikasining "Tálim to'g'risida"gi Qonuni. – T.: Sharq nashriyot-matbaa konserni, 2020.
2. 2022–2026 yillarga mo'ljallangan yangi O'zbekistonning taraqqiyot strategiyasi. - O'zbekiston Respublikasi Prezidentining 2022 yil 28 yanvardagi PF–60-son Farmoni.
3. Prezident Shavkat Mirziyoevning O'zbekiston Respublikasi Konstitutsiyasi qabul qilinganining 27 yilligiga bag'ishlangan tantanali marosimdagi máruzasi. – Toshkent, Xalq so'zi. 2019 yil 7 dekabr.
4. O'zbekiston Respublikasi Vazirlar Mahkamasining 2017 yil 6 apreldagi «Umumiy o'rta va o'rta maxsus, kasb-hunar tálimining davlat tálim standartlarini tasdiqlash to'g'risida» gi 187-sonli qarori.
5. Kadrekova A. K. «Umumiy o'rta tálim maktablarida bola huquqlarini himoya qilishning pedagogik mexanizmlarini takomillashtirish (Qoraqalpog'iston misolida)»: Ped.fanl.nomz....dis. – N.: 2020.

Rezyume: *Maqolada huquqiy ta'lim-tarbiyani takomillashtirishning huquqiy asoslari, so'nggi yillardagi huquqiy ta'limdagi islohotlar, hozirgi davrdagi huquqiy ta'limning ahvoli haqida so'z etiladi.*

Резюме: *В статье рассматриваются правовые аспекты развития юридического образования, реформы юридического образования за последние годы, современное состояние юридического образования.*

Kalit so'zlar: *Huquqiy davlat, huquqiy madaniyat, jamiyatda huquqiy madaniyatni yuksaltirish milliy dasturi, "Ta'lim to'g'risida"gi Qonun, ta'lim printsiplari, huquqiy ta'lim, huquqiy tarbiya.*

Ключевые слова: *Правовая государство, правовая культура, национальная программа повышения правовой культуры в обществе, Закон «Об образовании», принципы воспитания, юридическое воспитание, юридическое воспитание.*

FACTORS OF THE DEVELOPMENT OF THE NATIONAL SPIRIT OF THE YOUTH

Bekbergenova G.D.

Karakalpak State University named after Berdakh

Summary: *This article discusses the current issues of further improving the system of moral and ethical education in the context of globalization, increasing the effectiveness of education, strengthening the moral immunity of our youth, and strengthening their correct use of the Internet.*

Key words: *Globalization, spiritual immunity, mental and physical perfection, "European knowledge"*

In the context of globalization, strengthening the system of moral and spiritual upbringing and the effectiveness of adult education and training, strengthening the mental immunity of adolescents, strengthening the use of information on the Internet in them is one of the most urgent issues. And in such an event, not only his own opinion, but also the consciousness, the person, the people, who tried to convince them in the integrity of national and international human rights, could save themselves. We would like to focus on the importance of using aphorisms in the development of human civility among our youth: I remember the words of my teacher, ?? What's the point of a bicycle ride if you don't like it? What's the point of a bicycle ride if you don't like it? The issue can be dealt with in any way, but here the focus is on leadership. [1]

¹ Толипов М. Тафаккур тарбияси. Т.: Янги аср авлоди. 2014.-Б.63

The target-oriented personality of the person is the minet. In the process of making a minet, a person's worldview and thinking are distorted. Because of him, a person can realize his dreams, tribes and talents. In a moment, a person's worldview changes, and the degree of knowledge increases day by day. The psychic is dissolved in the physical. If we take into account the perception of objects, situations, images of reality, as well as the so-called imagination, fantasy, and imagination processes of the human mind, why should we not create a center of free imagination for students in the educational process? A variety of specially selected physical exercises to rebuild the damaged body and systems of the body, the necessary training for the care of the patient, the system of hygienic tools to ensure the effectiveness of treatment, the ability of the imagination to increase in the field of education of the individual (students), the ability of the imagination to give a healthy opinion to those who are in need of nationalism, the weakness of contemporary idealism, and, of course, the results of modern philosophies. The words of a wise [man] are as the dew of a morning, and as the perfume upon the bread of the morning. When we look at our own emotional experiences, we see that the human psyche is not capable of fully expressing all the emotional experiences that we experience in the retina, in our geodesy and in our minds. Aphorisms should be pronounced in a short and clear manner in a language that is easy to understand and easy to understand.

We would like to take a look at the benefits of using aphorisms for the spiritual development of young people by studying them in educational classes. Educational process, which is one of the main conditions of personal transformation, is not a secret, but a mystery. The education of the arts serves to darken the qualities of the human being that require the love of the world, self-control, self-discipline, honesty, honesty, honesty, honesty, honesty. Means of satisfying the requirements of the person in charge.

The number of children in the nursery is the same as the number of children in the nursery. The place of studying is a great place to teach students to be in love with each other, to be in love with each other, to be in love with each other. Technology, innovations, inventions, electronics, mechanical devices, and other things that are rapidly transforming our lives have greatly increased the demand for visual media. The famous western writer Stendhal did not say to the dancer: "Any action performed with conscience is useful, therefore, it is worthy of respect". In the solution felt by the heart of the SHA, each preaching and problem should be given special attention. According to

the idea of Mohammad Ghazali, a person should be a spiritual, psychic world perfectionist, a Keviling, a Mind-wazir, and a ruler of the state of the mind. Eastern philosophers believed that the mind is the king of the psychic world of the individual. A man's wisdom is a crown of life to him that is wise. In the spiritual sense, it is based on the humanity - the wisdom of the noble nations of the world.

This is a humanistic, pictorial, ethical statement: the protection of the individual, his memories, his passions and his mental freedom is of paramount importance. If only I'd been able to keep my mouth shut, I'd have been able to keep my mouth shut. It is a powerful tool in creating the beauty of the countryside (Of course, this is my personal opinion) In addition to the pupil's general education (poor intelligence, good memory, correct imagination and so on), we also pay attention to his personal education (interest in mathematics rather than in technology, art rather than in humanities).

If we don't think of ourselves and our tribe as superior, if we don't think of ourselves as superior to others, what is the bad quality that comes with pride? And, of course, there's a saying that goes, "A diva who stands upright is worth a thousand times more than a diva who sits upright". This is Franklin. ?? Everyone is entitled to the Nobel Prize Hemingway came up with the idea of placement. And every creature that moves on the earth has a way of life. From truth, and every man in his place, In particular, the number of students studying in universities is very large. And if we look at some of the ideas that are associated with this, ?? Infantilism is a term used to describe a condition in which the morphological, physiological, and psychological conditions that are characteristic of children are preserved and synthesized in adults.

Human beings do not come into the world with a feeling of affection Gradually, it becomes more and more complicated in the process of education. The famous artist Leonardo da Vinci said: "Fame and glory are in the hands of the artist." To be honest, to be honest, to be honest, to be honest, to be honest, to be honest, to be honest. We, as teachers and educators, will make sure that this information reaches the young people in a timely manner. Man's soul is weary of his work, and he is weary of his desires. In the process of meditation, a person's worldview expands, his level of knowledge increases, and he becomes more and more physical and spiritual. The art, the science and the experience of the youth are the foundation of the human being's peaceful life at the end of his life.

Today in our country there are more and more cases where young people are deceived and deceived to accept the Western corruption that is increasingly expanding and changing its appearance in the European cultural and humanistic retinue. Unfortunately, as a result of the processes of globalization in the world, and reinforced by innovations in the world of information, such cases are becoming more and more common in the public sphere. The end of them that are perverse and rebellious is in their gossip, and in their pride, and in the son of pride, whose heart is deep, and whose shame is in the sons of men. Manaviyat is a bridge that connects ancestors to kings, the past to the present, and the present to the future. It reflects all the good habits of our ancestors, all the privileges, all the authority, all the complex of traditions, all the historical and social experience of our ancestors.

Our President Islam Karimov once said in his book "Joqary Manaviyat - Unconquerable Strength" that "Spirituality is the spiritual cleansing of the human being, the purification of the soul, the strengthening of the world of love, the strengthening of the will, the awakening of the conscience of the believer, which is the measure of all views". Religion is a structural part of human society that has long been defined as a complete system of ideas and attitudes that embody the highest ideals of humanity, truth and justice, compassion and justice, and the values of humanity, embodied in the forest of their real intentions. President of the Republic of Kazakhstan M to As Mirziyoev has pointed out, In many places, we are going out with anti-ignorance education publications. The uneducated people who have taken to the streets and established the religion of Islam do not understand anything or do not want to understand. I believe that Islam is a religion of light and science.

And he called for mercy, and for goodness. And he said to me, I have heard that it is said, Thou shalt not covet thy neighbor's wife. A religious community is a group of people with equal rights and self-determination, who have a common goal of fulfilling their religious obligations and serving in religious ceremonies. It is clear that in the course of many years, our people have been deeply rooted in the heart of our people and have become a powerful actor in the preservation of Turkish culture, our national culture and our Turkish traditions, values, customs and traditions. When we talk about human decline, we should also think about the social center. Because in ancient times, our ancestors paid a lot of attention to the education of their children. For example, in the field of education and education, there are educators who are very intelligent in the field of religious and secular sciences, or teachers who are highly respected in the field of science. In our wise people, the proverb 'In the bird's nest, he makes what he sees' is not said to the dancer. So, as each person grows up and reaches maturity, the center, the masters, and the social events that he creates become more important. Unfortunately, under the old regime, education, knowledge and culture were considered secondary. In the same way, the ideology of the individual, the ideology of the people, the spiritual heritage of the nation, such venerable thinkers are valued from the class and party point of view. And to be more precise, in the recent past, thousands of the best treasures of our spiritual heritage have been spoken about, written about, preached about. Hundreds of religious leaders were persecuted and accused of ethnic, national and religious discrimination. In fact, visiting the funeral of a close cousin became a common practice in the last years of the old ruling prince. In other words, this is a management principle.

The history of his people, his feelings and his customs, his ancestors, his roots and his origins, were unknown to him. In the years of independence, a number of successful initiatives were implemented in the state to improve the health of the religious and spiritual center. The local authorities have been actively contributing to the development of moral and spiritual capacities in our society, especially the humanistic, tolerant, mutual communication and emotional capacities, to the education of the youth in the spirit of the ideas of non-violence, to the deepening of the cultural values and values of the democratic reforms that have been introduced into the life of our country. It should be noted that the social system, which has existed for a long time and has become a social institution in other countries, has served as a strong support for the reforms in our society and has been fully integrated into the social model of 'social conscience'. Currently, the self-government structures of the Pukaras are not able to effectively implement a number of initiatives within the framework of public supervision in their territories. The issue of ensuring the rights of the masses to freedom of religious belief is one of the priorities.

In this connection, the authorities responsible for public supervision will be established in partnership with the local pastors, and they will pay great attention to preventing various harmful trends from poisoning the minds of young people and drawing them away, while maintaining peace and order. Public supervision of the education of children by parents in the community, analyzing the educational and moral values of educators and teachers in educational institutions, in the process of reducing the freedom of religion and conscience of the masses in the schools, training of anti-constraint mines, conducting wide-ranging discussions with persons who do not have access to knowledge in the field of religion.

As stated by our President Sh.M. Mirziyoyev the following statements made at the conference on the promotion of public order and the preservation of the sacred religion are of particular importance: Therefore, in view of your great knowledge and esteem, I invite you, all religious communities, and our congregations, to help us maintain peace and harmony in our nation. If you have ever had a child who fell into a harmful religious trend, you can take steps to turn him back. And they shall speak unto me, saying, This is not the way of the fathers, but turn ye from it; for this is the way of truth, and of peace, and of goodness, and there is none wanting in it. In knowledge, in understanding, in wisdom, in discretion, We have to rebel with the examples of the Turks, the Turks, the Turks, the Turks. [14] In a time of rapid change and uncertainty - the captivity of information does not mean that we should be indifferent or indifferent, in fact, we should pay

tribute to those who have been in our lives for more than a hundred years, beware of the catastrophes that have reappeared in different parts of the world, including the rise of fascism, nationalism, chauvinism, religious extremism and terrorism. And not only from our nation, but from the other side of the world to the other side of the world. Almost every street corner, every school, every bar, every street corner has a modern computer connected to the Internet. It is possible to receive any message quickly and effectively. In the future, thanks to modern information and communication technologies, a person will be able to not only hear what is happening in different parts of the world, but also to feel, see and express his personality in the moment.

In short, we need to strengthen the propaganda against all kinds of alien ideas among young people, who are already engaged in conducting research in the social-humanitarian sphere, such as educators, community representatives, community lawyers, religious scholars and others who are connected to the sphere, and we need to have a deeper understanding of the need for public awareness and the need to find ways to implement the ideas and we need to actively engage the public.

References:

1. Толипов М. Тафаккур тарбияси. Т.: Янги аср авлоди. 2014.-Б.63
2. Аминов М. Н. Тарбия. “Ўзбекистон миллий энциклопедияси”, Т.: 2010.-В. 401
3. Тафаккур гулшани. Фафур Фулом номидаги Адабиёт ва санъат нашриёти. Т.: 1999, 64-бет
4. Ғаззолий З. М. Химияи саодат.-Т.: Оқ уй, 1994, 13-бет.
5. Жакбаров М. Комил инсон ғоясининг тарихий-фалсафий асослари. “Тафаккур”, Т.: 2011, 87-бет
6. Тафаккур гулшани. Фафур Фулом номидаги Адабиёт ва санъат нашриёти. Т.: 1999, 65-бет
7. Аминов М. Н. Тарбия. “Ўзбекистон миллий энциклопедияси”, Т.: 2010, 163 -бет.
8. Элибаева Л. С. Народная педагогика-основа формирования личности //Молодой ученый. – 2014. – №. 1. – С. 596.

Rezyume: *Ushbu maqolada Globallashuv sharoyitida ma'naviy-axloqiy tarbiya tizimini yanada takomillashtirish, ta'lim-tarbiya samaradorligini oshirish, yoshlarimizning ma'naviy immunitetini mustahkamlash , ularning Internetdan to'g'ri foydalanishini kuchaytirishning dolzarb masalalari muhokama qilinadi.*

Резюме: *В данной статье рассматриваются актуальные вопросы дальнейшего совершенствования системы этико-нравственного воспитания в условиях глобализации, повышения эффективности образования, укрепления морального иммунитета нашей молодежи, укрепления ею правильного использования Интернета.*

Kalit so'zlar: *Globallashuv, ma'naviy immunitet, ruhiy va jismoniy mukammallik, “evropacha ta'lumot”*

Ключевые слова: *Глобализация, духовный иммунитет, умственная и физическая подготовленность, «Европейская культура»*

ECONOMY OF UZBEKISTAN: CURRENT TRENDS AND PROSPECTS

Arzuova Sh.A^{1,2}, Ismoilova M.N¹.

¹*Nukus branch of the Tashkent University of Information Technologies named after Muhammad al-Khorezmi, Republic of Uzbekistan*

²*Karakalpak Institute of Agriculture and Agricultural Technologies*

Summary: *The article considers how the economy of Uzbekistan is currently at the stage of active transformation aimed at sustainable economic growth and modernization. In recent years, the country has been implementing a number of economic reforms and strategic programs aimed at developing key industries and stimulating investment.*

Keywords: *development, industry, modernization, economy, reform, strategy, investment, perspective.*

The development of the world economic system in the modern period is based on multiple innovative technologies, strategies and programs for modernization of various sectors and spheres of the economy. These changes are also reflected in the development of Uzbekistan's national economy. It should be noted that the reforms under way in Uzbekistan are aimed at modernizing the country's economy, liberalizing all spheres of social life and democratizing the State and society. Economic reforms in Uzbekistan have accelerated since 2017, when the government adopted a five-year development program - the Action Strategy for 2017-2021. The country has made notable progress in structural transformation, improving the investment climate and ensuring a freer, more transparent and equal environment for entrepreneurs. Due to the strong political will and determined efforts to liberalize the economy, Uzbekistan is strengthening its position in the international rankings of the investment environment and doing business, despite the negative consequences of the COVID-19 pandemic, for the next 5 years. In 2022, the government adopted a new national development strategy - the strategy for the development of New Uzbekistan in 2022-2026. The strategy calls for \$120 billion in investment over the next five years, including \$70 billion in foreign investment, focusing on energy, transportation, health, education, green economy, utilities, and water management. Other investment and business initiatives within the strategy include:

- Reforms in the agricultural sector and land use;
- Reforms in education and health care;
- Digitalization of the economy;
- Liberalization of the trade regime and possible accession to regional customs unions and the WTO;
- Implementation of large-scale privatization programs and transformation of state-owned enterprises.

In September 2023, the strategy for the development of Uzbekistan until 2030 ("Uzbekistan-2030") was approved. This document defines the main goals of the development of our country and the main reforms in various sectors that should be implemented by the end of the current decade.

This is the third such document adopted by the government since 2017. The previous two strategies covered the period from 2017 to 2021. and from 2022 to 2026. (the second is in progress). The World Bank actively supported the country's government in their implementation.

The "Uzbekistan 2030" strategy outlines the country's aspirations, including halving the level of poverty among the population (to 7 percent), joining the ranks of middle-high-income countries through sustainable economic development, education, health and reflects plans to create a social protection system, meeting international standards, as well as improving the ecological environment.

The new strategy sets out around 100 priority actions the government will take to make progress in five key areas. These include creating suitable conditions for citizens to realize their potential, ensuring the well-being of the population through sustainable economic growth, saving water resources, protecting the environment, and creating a public administration system aimed at serving the people.

The implementation of the strategy has been declared a priority task for all government bodies. The World Bank is committed to working with the government to help Uzbekistan achieve the country's key development goals by 2030.

On January 16, the head of state noted that, first of all, the employees of the economic complex, who are at the beginning of reforms, should work harder. Thus, 2024 will be the year of efficiency and cost reduction for the heads of the economic complex and all state enterprises. This includes optimization of procurement and logistics, energy savings and digitization.

In addition, it is expected that the added value in the economic complex will increase by 45%, and the cost will decrease by 15%, ensuring the growth of the industry by 7%. Also, it is suggested that the data of the managers of the economic block be linked to the monthly, quarterly and yearly indicators of effectiveness (KPI) and the number of replacements.

The economy of Uzbekistan in the current era is at the stage of active transformation, aimed at sustainable economic development and modernization. In recent years, the country has been implementing a number of economic reforms and strategic programs aimed at developing key industries and stimulating investment. Here is an overview of the current state of the Uzbekistan economy and prospects for the future:

1. Macroeconomic indicators:

- GDP and Growth: Uzbekistan's GDP continues to show strong growth based on a variety of economic sectors such as textiles, oil refining, agriculture and tourism.

- Inflation: In recent years, Uzbekistan has managed to control inflation through fiscal and monetary policy measures.

- External debt: The country is actively working to reduce external debt and attract foreign investment to develop the economy.

2. Economic reforms and investment activities:

- Market liberalization: The Uzbek government is implementing a number of measures to liberalize the economy, including reducing bureaucratic barriers and simplifying business registration procedures.

- Attracting investments: The country is actively attracting foreign investments in various sectors, in particular, in energy, transport infrastructure and production.

- Development of small and medium-sized businesses: measures are being taken to support small and medium-sized businesses in Uzbekistan through incentives and financial support.

3. Economic sectors:

- Industry: The industrial sector, especially the textile and oil refining industry, plays an important role in the economy of Uzbekistan.

- Agriculture: Agriculture remains an important sector of the economy and the government is committed to modernizing the sector and increasing agricultural production.

- Tourism: In recent years, due to its rich cultural heritage and natural attractions, Uzbekistan has been actively developing a tourism industry that attracts tourists from different countries.

4. Challenges and prospects:

- Diversification of the economy: One of the main problems for Uzbekistan is the need to diversify the economy in order to reduce dependence on oil revenues and increase resistance to external influences.

- Development of human capital: improvement of the education and health system remains a priority for ensuring sustainable socio-economic development.

• Investments in infrastructure: further development of transport and energy infrastructure plays a key role in stimulating economic growth and attracting investment.

In general, the economy of Uzbekistan continues to show positive dynamics, and the country is focused on sustainable economic growth and modernization in the coming years.

References:

1. Указ Президента Республики Узбекистан «Об утверждении стратегии «Цифровой Узбекистан-2030» и мерах по ее эффективной реализации». Указ Президента Республики Узбекистан, от 05.10.2020 г. № УП-6079.
2. Alpaydin, E. (2009). Introduction to machine learning. Cambridge, Massachusetts: MIT press. Balsmeier, B., and M. Woerter (2019). Is this time different? How digitalization influences job creation and destruction. *Research Policy*, vol. 48, No. 8.
3. С отчетом и материалами рабочей группы можно ознакомиться на веб сайте ЭСКАТО: www.unescap.org/events/specs-working-group-innovation-and-technology-sustainable-development
4. Арзуова Ш. А. Роль малого бизнеса в условиях инновационного развития национальной экономики //Цифровизация экономики и ее информационное обеспечение. – 2020. – С. 377-384.
5. Арзуова Ш. А., Досекеев Ж. И. ПЕРСПЕКТИВЫ РАЗВИТИЯ ПРОИЗВОДСТВА ПРОДУКЦИИ ОРГАНИЧЕСКОГО СЕЛЬСКОГО ХОЗЯЙСТВА В УЗБЕКИСТАНЕ //НАУЧНЫЕ И ТЕХНОЛОГИЧЕСКИЕ ПОДХОДЫ В РАЗВИТИИ АГРАРНОЙ НАУКИ. – 2014. – С. 14-17.
6. Инятов А. Р., Арзуова Ш. А. Проблемы доступности и качества высшего образования //Актуальные проблемы современной науки. – 2006. – № 5. – С. 66-67.
7. <https://upl.uz>

Rezyume: Maqolada hozirda O'zbekiston iqtisodiyoti barqaror iqtisodiy o'sish va modernizatsiyaga yo'naltirilgan faol transformatsiya bosqichida ekani ko'rib chiqiladi. So'nggi yillarda mamlakatimizda sanoatning asosiy tarmoqlarini rivojlantirish, investisiyalarni rag'batlantirishga qaratilgan qator iqtisodiy islohotlar va strategik dasturlar amalga oshirilmoqda.

Резюме: В статье рассматривается, как экономика Узбекистана в настоящее время находится на этапе активной трансформации, направленной на устойчивый экономический рост и модернизацию. В последние годы страна реализует ряд экономических реформ и стратегических программ, направленных на развитие ключевых отраслей и стимулирование инвестиций.

Kalit so'zlar: taraqqiyot, sanoat, modernizatsiya, iqtisodiyot, islohot, strategiya, investisiya, istiqbol.

Ключевые слова: развития, отрасль, модернизация, экономика, реформа, стратегия, инвестиция, перспектива.

UDK 070.11+316.77

BLOGGING: BLOG, BLOGOSPHERE, EVOLUTION OF BLOGGER TERMS, HISTORY OF EMERGENCE

Gulimova B.O.

Karakalpak State University name after Berdakh

Summary: *In the article bloggers, blogging, blogsphere, blogger are reached and presented. It provides access to the blog's name and it's meaning as well as internet materials that are clearly visible to the description of this theme. The article provides an overview of the current status of terminology's arrival and current date.*

Keywords: *blog, blogging, blogsphere, blogger, internet.*

Today, the world's population has reached eight billion, which means that about 60% of them use social networks on the Internet. In our life, we spend an average of 2 hours on network service every day: exchanging various texts, photos, reading short messages and informing them of our relationship and etc. That is why, in recent years, social networks have changed their appearance as an institution of civil society and entered the mass media arena with new technical and creative forms. At first, the main task of social networks was to connect people with their loved ones, to start mutual online conversations. However, their functions are expanding from year to year depending on the audience's demand for it. In that line, it has become a powerful informational and political tool for influencing the minds and spirits of young people. From this point of view, there is still a need to determine its etymology, scientific theories that it is a unique historical phenomenon, and approximate examples.

Today, social networks have become the most important part of the mobile information society. We believe that the search for this field, which allows the audience to become a blogger, and the reader's democratic way to express his opinion and convey the message, will help to determine its historical characteristics.

According to the statistics of 2023, there are 4.8 billion Internet users worldwide, which is 59.9% of the world's population and 92.7% of all Internet users. On average, a person spends 2 hours and 24 minutes a day on social networks. Well, the most used social media platforms include Facebook, YouTube, WhatsApp and Instagram. The age group that uses social networks the most is 18-29 years old» [1].

New types of professions and directions are emerging in journalism due to the recent social mediaization of journalism. In particular, the introduction of the blogging service as a new phenomenon into the media platform completely changed the conceptual problems and trends related to the Internet media. At the same time, they have become a means of conveying information and ideas to the audience in the Internet segment. Solay, the scientific assessment of the terms blog, blogging, blogger has risen to the level of an actual issue.

Blogging is a new phenomenon nowadays. It is taken inlisheden, "logging the web", that is, "I keep a diary on the network» [2] means that. It is a shortened version of the word Weblog, and blogging was originally used as a method of online storytelling and the act of online solo journaling. Today, this dream website has become a resource with a wide meaning of the single diary. The root of the word blogging is the name blog. Both terms are interrelated and serve to complement each other. So, we can consider the blog as a new format of story telling. Blog (visual blog, web journal, event journal, online diary) - a website and its main content, including text, images, and multimedia, used on a daily basis. (channel, site or profile' is intended) it is said [3]. In our opinion, a blog is a place where posts are freely created and displayed by internet subscribers. The reason is that in this case, any person connected to the Internet can open a blog and express his unique opinion on the events happening in the society. If the community is on the network, it will

create a channel and gain democracy in its technical management. Solay, we believe that his algorithm of historical etymology will help to determine the problem that is put to the researcher as a researcher.

The emergence of the concept of blogging and blogging goes back to the years before computers and the Internet. Even if they don't stay with this dad, find out that there are old software versions that are compatible with the service he performs today. Strictly speaking, the ancient people enlightened the public with their way of making, painting on stones, but after the emergence of writing, this form of writing and keeping a diary was done. However, because they were individual, the opportunity to see and read was not perfect. From this point of view, it is very difficult to give an exact date for the appearance of blogs, but the beginning of the use of this term in Internet networks corresponds to the first half of the 90s. We can't find blogs from that time to this day.

This is because they have no online rating and are not archived. According to "Wikipedia", the first blog was maintained in 1994 by the American in the "Bread Society" series. [4] He started his own blog on the Internet, and The New York Times called him "the pioneer of geek blogging."

Recently, with the development of the artificial intelligence movement, the number of blogs on the Internet has also increased significantly. According to statistics, there are 1.7 billion websites and more than 500 million blogs on the Internet. Their authors publish more than 2 million "posts" on their blogs every day. [5]. This socialization has become an issue on the agenda of the media, and it shows the high demand for information that is transmitted to the audience.

Historically, the blog began to spread to the public in 1996. As for my father, it was put into circulation on December 17, 1997 by Jorn Barger. Blogger by Pyra Labs, a computer company based in San Francisco, in August 1999. com was founded and was the first free blog service [6]. The organization of the site led to the popularization of blogging. Based on it, a blogging service and a subject appeared.

There are different views on the word blogger in the sources. Article 3 of the Law of the Republic of Uzbekistan dated December 11, 2003 No. 560-II "On Information Creation" states that "The owner of information resources and information systems - within the framework of the rights established by the law and the owners of information resources and information systems legal entity or natural person who owns information resources or information systems, uses them and manages them» [7].

However, blogging is also a journalistic movement, due to the influence of external technical factors, the theoretical definitions about it have changed from year to year. In 2014, the law "On changes and additions to certain legal documents of the Republic of Uzbekistan" included the name of blogger.

According to the law, "Blogger-Internet wants to post information on its own website in the global information network and on the website page with any kind of social, political, socio-economic and other symbols, on the basis of which users of the information will reject this message. physical person who wants to place for dodalaw» [8] It is described as That is, Article 3 of the law refers to the concept of blogging.

According to the law, a blogger is a natural person who has a website or a website page in the Internet segment. So, based on the official documents, it was left unchanged in the March 30, 2021 version of the Law on Disclosure.

If we take into account that the law was amended 3 years ago, the above-mentioned attribute cannot fully reflect today's blogging movement. This remains a purely scientific approach. In our opinion, bloggers in the internet segment have their own website or channel in social networks, and are related to social, political, and public problems, and have the right to express their views based on their unique position. It is said to an individual or to a group of individuals.

The reason is that the number of bloggers who run their own channel in their national segment is increasing day by day. Analyzing the thematics, genres, and content of their materials is

an issue that needs to be studied on their own. So, blogging is seen as a physical person who has his own audience, who is alone and enters public opinion.

References:

1. <https://uz.martech.zone/how-social-networks-influence-our-lives/>
2. <https://www.uzanalytics.com/jamiyat/7300/>
3. <https://ru.wikipedia.org/wiki>
4. <https://ru.wikipedia.org/wiki/%D0%91%D0%BB%D0%BE%D0%B3>
5. <https://www.uzanalytics.com/jamiyat/7300/>
6. <https://ru.wikipedia.org/wiki/%D0%91%D0%BB%D0%BE%D0%B3>
7. <https://lex.uz/docs/83472?ONDATE=11.02.2004%2000#2458926>
8. <https://lex.uz/docs/83472?ONDATE=05.09.2014%2000#edi2458927>

Rezyume: Ushbu maqola zamonaviy media sohasida blog, blogosfera va blogger atamalaridan foydalanishga bag'ishlangan. Bu atamalar Axborotlashtirish bo'yicha Internet materiallari asosida o'rganiladi. Maqolada blog, blogosfera va blogger atamalarining paydo bo'lish tarixi va ularning bugungi kundagi dolzarbligi haqida so'z boradi.

Резюме: Данная статья посвящена использованию терминов блог, блогосфера и блоггер в современном медиа сфере. Эти термины исследованы на основе интернет-материалов по Информатизации. В статье основное внимание уделяется истории возникновения терминов блог, блогосфера и блоггер и их актуальности в наши дни.

Kalit so'zlar: Blog, blogging, blogsfera, bloger, blogerlik, internet.

Ключевые слова: Блог, блоггинг, блогсфера, блогер, блогерство, интернет.

**OLIMJON HALIMOV'S CONTRIBUTION TO THE DEVELOPMENT OF
KARAKALPAK MUSIC CULTURE**

Rajabov H.J.

Temporary acting professor of the Nukus branch of the State Conservatory of Uzbekistan

Summary: *This article tells about the creative activity of Olimjon Halimov, his work during this period for the development of karakalpak music culture.*

Key words: *Karakalpak music, composer, conductor, orchestra of national instruments, suite.*

Olimjon Halimov, honored artist of Uzbekistan and Karakalpakstan, laureate of the Berdakh State Prize, is one of the composers who left a deep mark in the history of modern professional music of the Uzbek and Karakalpak peoples of the 20th century.

The famous composer went to Nukus in 1944 for help the development of Karakalpak folk music culture. He created colorful and attractive musical works in various genres and worked actively to enrich the repertoires of musicians, singers and creative teams, especially musical theater. His musical dramas and comedies have been performed on the stages of all theaters of our republic for many years.

He was sought in the way of expanding the bright and intonation circles of the Uzbek and Karakalpak musical languages, in the productive use of polyphonic music, and achieved positive results in this regard.

Olimjon Halimov was born in the city of Bukhara in 1912 in the family of Halim Ibodov, a famous hafiz with a unique voice scholar of Shashmaqom, honored artist of Uzbekistan. With a natural talent, Olimjon grew up in the world of music. In 1919, he began studying at a school in Bukhara. From 1924, he continued his studies at the new school. In 1926, he studied at the Bukhara Music School in the class of the famous Shashmaqom specialist Najmiddin Nasriddinov. In 1929, he started studying the Samarkand Scientific Research Institute of Music and Choreography. In this education place, he learned the secrets of music from great artists: Atajalal Nasirov, his father Domla Halim Ibodov, Abdurahman Umarov, Ahmadjon Umrzakov, Abduqadir Ismailov, Matyusuf Kharratov, N. Mironov. During his studies, future famous artists: M. Burkhanov, T. Sodikov, M. Leviev. He was acquaintance D.Zokirov, M.Nasimov, F.Shamsiddinov and others.

In 1933, he was invited to work in a musical theater in Tashkent. In 1935, he was sent to the "Uzbek Opera Studio" under the Moscow State Conservatory named after P.I. Chaikovsky. He studied at the choir conducting department at this educational institution. At the same time, he studied composition in the class of professor G. I. Litinsky. The young musician himself began to write tunes for instruments in various genres and gained experience. After the beginning of the Second World War, he returned to Tashkent and continued his work in the "Ashula va Raqs" ensemble in the Fergana garrison of the Turkestan military district in 1942. During those years, he wrote many melodies and songs. In cooperation with the famous composer Y. Rajabiy, he composed the music for the musical drama "Nodira". This performance was staged at the Fergana regional musical drama theater.

At the end of 1944, O. Halimov was sent to Karakalpakstan to help develop modern music. In Karakalpakstan, he got acquainted with local artists and created productive works. During this period, he was active in state and public affairs.

Playwright Sapar wrote the musical comedy "Suymegenge suykenbe" in cooperation with the composer Japak Shamuratov. This performance was staged in 1945 at the Stanislavsky Theater of Music and Drama. This work was enthusiastically received by the audience. Inspired by this performance, the composer composed songs and dances on various themes in 1945-1952 in collaboration with the composer-singer Japak Shamuratov and dramatist J. Oymurzaev, "Oygul-Abat", "Aral qızı", "Amudarya", "Berdaq". , "Bekjap tragediyası", the musical drama "Jaylawda

toy" in collaboration with A. Khayriddinov and "Kuygelek kozli yar" in collaboration with Abdireyim Sultanov.

The famous musician, singer and composer, honored artist of Uzbekistan and Karakalpakstan Japak Shamuratov give the opinion about the composer Olimjon Halimov:

"I am very happy that we collaborated with Olimjon Halimov in writing musical dramas. I learned a lot from this person. I am happy to have cooperated with such a tolerant person in my life." [1. 381]

Olimjon Halimov was admitted for get second qualification to the Tashkent State Conservatory in 1952 to improve his composition skills. He studies in the class of G. A. Mushel. During his student years, he wrote piano pieces, five preludes, sonatinas, scherzos, waltzes, piano and several pieces for flute, cello, and clarinet. He created a rhapsody based on a Karakalpak folk tune and a "Karakalpak suite" for the orchestra of Uzbek folk instruments. He wrote a vocal symphonic poem "Qirg girls" for the final exam. In 1958, he successfully graduated the conservatory.

O. Halimov created more than 200 colorful musical works based on the words of Karakalpak and Uzbek classical and modern poets. At below, his works from the repertoire of the Philharmonic Orchestra of the Republic of Karakalpakstan:

1. "Ona haqida qo'shiq (Song about mother)". Words by I. Yusupov.
2. "Suyuklim sagan (My love, for you)". lyrics by T. Qabulov.
3. "Jerimde korsem (If I see you in my place)".
4. "Nokisten salem (Greetings from Nukus)".
5. "Korgen emespen(I never seen)" J. Aytmurzayev.

At the same time, he also composed major works such as "Aral lirikasi" vocal symphonic suite to the words of I. Yusupov, 4-part symphonic suite and "Karakalpakstan kantatasi".

Musical drama and comedy genres takes a leading position in the creative activity of the composer. He created more than 20 works in these genres. Including "Tenin tapqan qiz" (A. Otepov's play), "Birinshi gudok" (Pirlepsov's play), "G'arip ashik" (A. Begimov and T. Allanazarov's play), "Tinimsiz to'liqlar", "Aqmaq patsha".

For the musical comedy "Suymegenge suykenbe" he was awarded the State Award of Karakalpakstan named after Berdakh in 1972.

Over the years, O. Halimov collected 140 Karakalpak folk music and notated and published them in 1959 in the 8th volume of the collection " O'zbek xalq musiqasi (Uzbek folk music)" under the editorship of musicologist Ilyas Akbarov.

In 1958, he was accepted into the ranks of the Union of Composers of Uzbekistan as a composer and conductor [1.441].

In 1967, the Karakalpakstan branch of the Union of Composers was opened. Olimjon Halimov was selected as the head of the department. He worked actively until 1977.

O. Halimov was awarded the honorary titles "Honored Artist of Karakalpakstan", "Honored Artist of Uzbekistan", "People's Honored Artist of Uzbekistan and Karakalpakstan", orders, medals and honorary labels.

I met Olimjon Halimov in 1982 at the Mukhtar Ashrafiy Art Academy in Bukhara, and I still remember the lessons I received from him. For almost two years, I have had many conversations with the teacher about his experiences, creative processes, work on works, compositional secrets, the school he created, and his interpretations.

References:

1. Jabborov A. "O'zbekiston bastakorlari va musiqashunoslari" – Tashkent: Publisher "Yangi asr avlodi", 2004-year.
2. To'rayev F. "Buxoro mug'annilari" – Tashkent: Publisher "Fan" under Academy of Sciences of the Republic of Uzbekistan, 2008-year.

Rezyume: Mazkur maqolada Olimjon Halimovning ijodiy faoliyati, bu davr mobaynida uning qoraqalpoq musiqa madaniyati rivoji yo'lida amalga oshirgan ishlari haqida so'z boradi.

Резюме: В данной статье рассказывается о творческой деятельности Олимжона Халимова, его работе по развитию каракалпакской музыкальной культуры в этот период.

Kalit so'zlar: qoraqalpoq musiqasi, kompozitor, dirijor, xalq cholg'ulari orkestri, syuita.

Ключевые слова: Каракалпакская музыка, композитор, дирижер, оркестр народных инструментов, сюита.

IMPROVEMENT OF ORGANIZATIONAL AND LEGAL MECHANISMS FOR THE USE OF INCENTIVE METHODS IN PUBLIC ADMINISTRATION (USING THE EXAMPLE OF INTERNAL AFFAIRS BODIES)

Axmedov A.T¹, Urazimbetov Yu.Kh².

¹Independent researcher of Academy of the Ministry of Internal Affairs of the Republic of Uzbekistan, ²Researcher of Karakalpak State University named after Berdakh

Summary: *It is said that one of the priority directions of the government's policy is to encourage employees of state bodies based on their work performance.*

Key words: *administration, policy, geocriminogenic, territorial, legal, incentive.*

Introduction. In public administration, one of the priorities of public policy is to stimulate civil servants depending on their work. The prosperity of the country, its future, and its place in the world community depend on the effective work of the staff. Stimulation helps to improve discipline, the quality of work, and the employee's spirit of initiative and responsibility.

The analysis of territorial aspects of crime is reflected synthetically in a category such as the geocriminogenic situation, and it provides effective results by motivating employees.

The geocriminogenic situation, in turn, becomes a catalyst for crime, in particular, enhancing the geocriminogenic potential of the territory. Crimes, as manifestations of unlawful behavior, are the object of study in such an area of social geography as the geography of crime. [5]

The legal foundations of the procedure for stimulating civil servants, as well as the experience of leading foreign countries in this area, indicate that timely stimulation of civil servants plays a special role in the country's economy.

According to article 42 of the new Constitution of the Republic of Uzbekistan, “everyone has the right to decent work, free choice of profession and type of activity, to work in favorable working conditions that meet safety and hygiene requirements, to fair remuneration for their work without any discrimination and not less than the established minimum wage, as well as protection from unemployment in accordance with the procedure established by law.” [2, 4]

The minimum wage is set taking into account the need to ensure a decent standard of living for a person.

It is forbidden to refuse to hire women, dismiss them and reduce their wages because of pregnancy or the birth of a child.”

According to article 299 (incentive to work) The new version of the Labor Code of the Republic of Uzbekistan “... Incentives for achievements in work may be applied to an employee. The types of incentives and the procedure for their application are determined by collective agreements, collective agreements, internal labor regulations and other labor legal acts and an employment contract.” [1, 3]

The types of incentives for employees who are subject to the charters and regulations on discipline in relation to themselves, the procedure for their application is established by the relevant charters and regulations on discipline.

Employees can be presented with state awards for special services to society and the state in the field of labor.

Salaries, bonuses, surcharges, allowances and other payments provided for by the wage system are not included in the offer of types of incentives. The issue of payment of bonuses provided for by the remuneration system to employees brought to disciplinary responsibility during the term of the disciplinary penalty is resolved by the relevant provisions on bonuses.”

Incentive payments include bonuses, salary supplements, allowances and other payments to employees for high achievements in work, professionalism, saving energy resources, materials, and achieving other predetermined indicators.

The bonus provided for in the wage system is a monetary reward included in the salary and paid to an employee in excess of the base salary (tariff rate) in order to stimulate the employee to achieve predetermined indicators and conditions.

Incentive remuneration, which is not provided for by the wage system, is of a one-time nature and is awarded not for the achievement by the employee of predetermined indicators and conditions by the decision of the employer, but for the fact that certain events occurred (anniversaries, holiday dates, etc.) or certain actions were performed by the employee (performing a particularly important task of the employer, making an innovation proposal). etc.) monetary remuneration paid on occasion.

An allowance can be made by an employee for performing work provided for in an employment contract and be incentive (an allowance for professional skills, length of service, length of service in a particular organization or industry, etc.) or compensatory in nature (portable or planetary nature of work, work in adverse climatic conditions or work in harmful or difficult working conditions, labor intensity allowances, etc.).

Remuneration, additional payments and allowances for the main part of wages, and other incentive payment systems are established by the employer in agreement with the trade union committee.

The procedure and conditions for the application of incentive payments in budgetary organizations are established by law.

It is worth noting that the activities of the civil service are not regulated by a single regulatory legal act. Each state body carries out its official activities with a separate regulatory act adopted.

Consequently, the stimulation of civil servants is carried out on the basis of the norms set out in a special normative legal act regulating the official activities of the relevant state body.

In practice, we see that in cases where one of the disciplinary measures is applied to civil servants, they may not receive bonuses, additional payments and other payments provided for by the wage system.

However, based on the above-mentioned norm, wages, bonuses, surcharges, allowances and other payments provided for by the wage system do not apply to types of incentives.

Accordingly, if bonuses are paid according to the remuneration system established by a State body, this payment may be paid to employees who have been subjected to disciplinary penalties.

Therefore, regardless of whether remuneration belongs to the type of encouragement, in each specific case it follows from the remuneration system established in state organizations in coordination with the representative body of employees.

At the same time, in the normative acts of the state special service bodies concerning official activities, it is indicated that the payments provided for by such a wage system do not belong to the type of encouragement.

As an example, in accordance with the Code of Professional Culture and Service Discipline of employees of Internal Affairs bodies, approved by the Decree of the President of the Republic of Uzbekistan

Dated January 20, 2023, No. PP-10 "On additional measures to transform the internal affairs bodies into a national professional structure and focus on closer cooperation with the population", rules of professional culture in the internal affairs bodies and compliance with the requirements of official discipline, the formation of high conscious thinking among employees, consistent conduct of spiritual and educational work, and Also, incentive and disciplinary penalties are provided for them.

Results. The following incentive measures may be applied to employees of the internal affairs bodies:

- a) declaration of gratitude;
- b) awarding with a valuable or memorable gift or a cash prize;

- c) awarding with a certificate of honor;
- g) awarding with a departmental badge of distinction;
- d) early assignment of the next special rank;
- e) the assignment of a special rank one step higher than that provided for by the position.

As an incentive, some previously applied disciplinary penalties may be canceled ahead of time.

It should be noted separately that paragraph 33 of the Code establishes that monthly wages, periodic bonuses, surcharges, allowances and other payments provided for by the monetary allowance of employees do not apply to incentive measures.

However, in accordance with Article 372 of the Tax Code of the Republic of Uzbekistan (incentive payments), incentive payments include:

- 1) remuneration based on the results of work for the year;
- 2) incentive payments provided for by the regulations of a legal entity on bonuses;
- 3) allowances to tariff rates and salaries for professional skills, mentoring;
- 4) vacation supplements and financial assistance not specified in paragraph 10 of Article 377 of this Code;
- 5) remuneration and payments for years of service;
- 6) payment for the innovation proposal;
- 7) one-time bonuses that are not related to the results of work.

As a result of different interpretations of these norms in certain state bodies, in particular in the internal affairs bodies, bonuses are refunded to employees, additional payments to the budget at the expense of a civil servant or non-payment to a civil servant.

Summarizing the specifics of these payments, it is worth noting that the incentive payments specified in the tax legislation will not depend on the result of the work done by a civil servant. That is, this includes surcharges that are provided even if the maintenance staff does not do any work.

The stimulation of a civil servant will be related to the result of the work performed by a civil servant in his official activity (the work performed must have a visible positive result).

Nevertheless, in public service bodies, under public contracts, there are cases when bonus money is not included in the remuneration system of a state organization, bonuses, surcharges, and allowances are not paid if a disciplinary penalty is imposed on the employee or its validity period has not expired.

When awarding incentives to employees of internal affairs bodies, the result of an employee's work is not always unambiguously evaluated. In this case, one of the modern methods of evaluating civil servants used today is the expediency of incentives based on the results of the KPI system.

Conclusion. In conclusion, it should be noted that the reflection of funds in monetary form, which are not taken into account as a type of incentive provided to employees of internal affairs bodies, as a remuneration system in public contracts of state civil service bodies and regulatory documents regulating the activities of state special service bodies, would comply with the requirements of general labor legislation. If this had been done, the aforementioned problems would have been prevented.

References:

1. Resolution of the President of the Republic of Uzbekistan dated 01/20/2023 No. 10 "On additional measures to transform internal affairs bodies into national professional structures and direct them to closer cooperation with the population" <https://lex.uz/docs/6364837>
2. The Constitution of the Republic of Uzbekistan <https://lex.uz/docs/6445145>
3. The Tax Code of the Republic of Uzbekistan <https://lex.uz/docs/4674902>
4. The Labor Code of the Republic of Uzbekistan <https://lex.uz/pdfs/6257288>
5. Urazimbetova Yulduzkhon KHaydarovna, Turdymambetov Izimbet. Geographical aspects of crime research. EPRA International Journal of Economic Growth and Environmental Issues- Peer Reviewed Journal ISSN: 2321-6247 Volume: 9 | Issue: 11 December 2021 | Journal DOI: 10.36713/epra0713 | SJIF Impact Factor (2021): 8.047

Rezyume: Ushbu maqolada, davlat organlari xodimlarini mehnat faoliyati natijalaridan kelib chiqib rag'batlantirish davlat siyosatining ustuvor yo'nalishlaridan biri ekanligi haqida aytilgan.

Резюме: В данной статье говорится, что поощрение сотрудников государственных органов по результатам их труда является одним из приоритетных направлений государственной политики.

Kalit so'zlar: boshqaruv, siyosat, geokriminogen, hududiy, huquqiy, rag'batlantirish.

Ключевые слова: управление, политика, геокриминогенное, территориальное, правовое, стимулирование.

**CARTOGRAPHIC AND GEODETIC STUDIES OF THE TERRITORY OF
KARAKALPAKSTAN DURING THE COLONIAL PERIOD**

Bekbulatova G.A.

Karakalpak State University named after Berdakh

Summary: *These studies are due to the fact that the period under consideration is characterized by the beginning and subsequent systematic study of the nature of Karakalpakstan, the results of which acquired important scientific and practical significance. Despite some outstanding achievements in the geographical knowledge of Karakalpakstan, the pre-revolutionary period gave only the basic outlines of geographical ideas in the country. This was the initial stage that followed the first path in the study of Karakalpakstan, which, however, laid the foundation for the subsequent purposeful and systematic study of the nature and natural resources of the territory.*

Keywords: *plateau, delta, productive forces, natural sciences, anthropology, ethnography, geology, geographical society, expedition, dendrology, zoogeography, botany, cartography, landscape, habitat.*

Introduction. Geographical exploration of the territory of modern Karakalpakstan entered a new phase in the second half of the 19th century, from the time of its annexation to Russia.

The Republic of Karakalpakstan is located in the northern part of Central Asia at the junction of two vast deserts - Kyzylkum and Karakum, in the lower reaches of the Amudarya. It occupies the north-western part of the Kyzylkum desert, the Ustyurt plateau's south-eastern corner, the Aral Sea's southern part and the Amudarya delta [3].

In the increasing development of the productive forces of Turkestan after its annexation to Russia, Russian scientists played a large role, many of whom were carriers of the ideas of advanced science and social thought.

Research by Russian scientists has established that Central Asia, including the territory of Karakalpakstan, has enormous natural productive forces - fertile soils, mighty rivers (Amudarya and Syrdarya), one of the largest lakes, the Aral Sea, unique flora and fauna.

Since the 60s of the XIX century systematic exploration of the Trans-Caspian territories began. A great contribution to the study of the nature of Karakalpakstan, its geographical conditions and natural resources was made by such outstanding researchers as A.I. Butakov, N.A. Severtsev, I.G. Stoletov, A.A. Tillo, F.B. Dorandt, S. M. Smirnov, N. P. Barbeau de Marni, V. I. Massalsky, A. D. Arkhangelsky, A. I. Glukhovskoy, N. N. Zubov, A. V. Kaulbars, F. F. Berg, H.V.Gelman, L.E.Gedroyts, I.V.Mushketov, L.S.Berg, as well as large teams of other scientists as part of expeditions of the Resettlement Directorate of the Ministry of Agriculture, in soil-botanical and hydrological studies of various government departments. The Russian Geographical Society and its local departments played a major role in this. Moscow Society of Lovers of Natural History, Anthropology and Ethnography, which created favourable conditions for organizing systematic, including stationary, research into the territory of Central Asia, including Karakalpakstan.

Until the second half of the 19th century, there was no new information about the Aral Sea in comparison with what was already available. Only in 1825, the topographic expedition of Colonel F.F.Berg visited the western coast of the sea. In 1840-1847 topographic surveys and astronomical determinations of individual sections of the Aral Sea coast were carried out.

Main part. The Aral Sea before A.I.Butakov was depicted on maps based on reconnaissance materials, and only in some places based on instrumental topographic surveys. However, the results of individual surveys were not brought together; they were carried out separately. This led to the fact that mapping the outlines of the Aral Sea turned out to be imperfect due to systematic level fluctuations. For example, according to surveys in 1825, the water level of the Aral Sea was minimal, in 1860 it was maximum, in 1880 it was minimal, and at the beginning of the 20th century rose 3 m. Therefore, its numerous islands were not included on the map.

Cartographic surveys of the territory of Karakalpakstan took place in three directions; a) the floodplain and river delta of Amudarya, b) the Kyzylkum desert, and c) the Ustyurt plateau. Cartographic material is also distributed following this. All the first work in this direction concerns mainly the floodplain and river delta. The Amudarya, as a region of high agricultural culture, only incidentally affects the territory of Kyzylkum and Ustyurt [3].

The beginning of topographic survey work on the territory of present-day Karakalpakstan dates back to the existence of the Khiva Khanate.

The first works that have come down to us can be considered the route surveys of Muravin (1740-1743). Then, under the leadership of A.I. Butakov in 1848-1840 surveys were taken of the Aral Sea and the Amudarya delta ("Flat map of the southern shore of the Aral Sea and the Amudarya branch") on a ten-verst scale [2].

Based on Butakov's materials, a complete map of the Aral Sea was compiled on a scale of 1:606 665. It was carried out on the instructions of the Hydrogeological Department of the Main Admiralty in 1850, but these maps are outdated, especially for the southern coast of the Aral Sea, where a lot has changed.

A visual survey of the Amudarya current on a five-verst scale was carried out in 1858 by Ignatiev. This map gave fairly accurate ideas for that time about the lower reaches of the Amudarya up to approximately the 42nd parallel.

Since the 70s of the XIX century, the cartographic study of present-day Karakalpakstan has advanced significantly. Many expeditions under the general name "Amudarya" conducted numerous surveys, reconnaissance and astronomical determinations, which made it possible to compile a more accurate overview map, which included all materials from 1842 to 1872 inclusively. This is a map of part of the Turkmenistan Military District on a scale of 10 versts per inch. In 1873, a summary map compiled by A.V.Kaulbars appeared [1].

In 1876-1877 The Urundarya expedition led by N. G. Petrusevich provided a new plan for the lower reaches of the Amudarya. At the same time, the Department of Military Topographers is conducting instrumental surveys of the southeastern coast of the Aral Sea and the eastern part of Kyzylkum [3].

Leveling work was carried out by A.N.Glukhovsky in the same zone over a total length of 5620 km. And filming work on an area of 3.7 million hectares. But these materials have been completely lost.

Since 1887, continuous surveys of the corps of military topographers on a two-verst scale began in the lower reaches of the Amudarya. This was the first expedition, most fully equipped with everything necessary for work. However, the ten-verst map of the lower reaches of the Amudarya, compiled by military topographers, retained the same shortcomings as its predecessors.

In 1889-1890 military topographers compiled a 40-verst map of the southern border strip of Asian Russia and a 20-verst special map of Turkestan. The latter was somewhat corrected in part of Karakalpakstan in 1893. The outlines of the western shore of the Aral Sea, the longitudinal position of the Barsa-Kelmes mud, and the southern cliff of Ustyurt, where the discrepancies with existing maps reached 10-15 km, were especially corrected. The indicators of the floodplain of the Amudarya delta had even more dramatic discrepancies.

In 1912, workers of the Resettlement Department of the Ministry of Agriculture, together with the Amudarya Department, carried out a horizontal survey of the entire territory of Karakalpakstan with the exception of the Kungrad region. Based on survey materials, in 1914 an eight-verst "Map of Land Use of the Native Population of the Amudarya Department" was published. The map was published as a supplement to the works of the Resettlement Administration.

The work of the Land Improvement Department of the Ministry of Agriculture deserves special attention. In 1913-1917 survey parties of the Regional Land Administration under the leadership of the lower. N.V.Mastitsky and V.V.Tsinzerling examined the entire irrigated and irrigable zone of Karakalpakstan and part of the desert-pasture zone (Tamdy region). From 1913 to

1915 under the leadership of Mastitsky, a triangulation network of 140 points was built on an area of approximately 6.2 thousand hectares along the left bank of the Amudarya, including the entire Khodjeli and part of the Kipchak district. A total of 3345 km were covered by leveling. A vertical-horizontal scale survey was carried out on a one-verst scale on an area of 424 thousand hectares, and a detailed scale survey on a scale of 1:4200 was carried out near Jumurtau, Kipchak and Takhiatash on a total area of 10600 hectares.

During the same period (1913-1915), under the leadership of engineer V.V.Tsinzerling carried out work on the right bank of the Amudarya. In the Shorakhan area, covering the current Beruni and Turtkul regions (their full part, the lands of ancient irrigation and part of the Kyzylkum sands), leveling was carried out along the Tashsaka-Turtkul-Shabbas line to the Sultan-Uiztag ridge. 36 stone benchmarks were installed, and a plan of irrigated land on a two-verst scale was drawn up. 1113 km were leveled in this section [3].

In the Chimbay area (entirely covering the current Kegeyli, Chimbay, most of the Muynak and mainly Takhtakupir districts) work was carried out on an area of 800 thousand hectares; a polygonometric network with a total length of 2056 km was built, 4260 km were leveled, lines were drawn up along all the most important channels and ditches. Reconnaissance surveys of the Amudarya spill and its channels Taldyk, Akdarya, Kantuzyak, and Kazakhdarya were carried out, reconnaissance surveys were also carried out with route surveys and barometric leveling in the following directions; a) Chimbaykol-Baymurat-Kazalinsk, b) Chimbaykol-Baymurat-Kzyl-Orda, c) Daukara-Sultan-Uizdang, d) Turtkul-Tukantau-Aktau, Tamdy-Bukhara.

Despite the fact that the materials of the extensive works of the Land Administration are of undoubted value, they have not been completely summarized.

To complete the review of pre-revolutionary cartographic research, we should also dwell on astronomical and leveling work.

Astronomical observations on the territory of Karakalpakstan were carried out by many expeditions. The largest number of astronomical points was organized by the Corps of Military Topographers and the Russian Geographical Society. A total of 69 points were identified. The longitudes of all points, except for the New Nicholas Cathedral in Petro-Alexandrovsk, were determined chronometrically. Repeated determinations at the same points by different persons often result in some discrepancies, for example, two determinations within the city of Chimbay. Similar discrepancies are given by items taken from the Blaramberg catalogue and other sources. These facts indicate that the readings of the astronomical points of Karakalpakstan require a very careful attitude, since the old points are unknown, and later determinations are made in other places [4].

Of the subsequent leveling works, the instrumental leveling done by the Ryazan-Ural Railway Company along the lines deserves attention;

- A) Uralsk-Uil-Ustyurt-Kungrad,
- B) Topolinskaya-Kungrad.

In 1913, surveys were carried out on the planned line of the Aleksandrov-Gai-Kungrad Khiva-Chardzhou railway. In 1914, N.V.Mastitsky carried out leveling twice along the bank of the Amudarya from the precision leveling mark and the military topographic department at the station Chardzhou Central Asian Railway.

The last leveling is important. All subsequent leveling by Mastitsky are based on it, from which two benchmarks and one stamp remain (in Tashsak, Kimchak and Turtkul).

Thus, in the pre-revolutionary period, it was possible to take large-scale surveys of the floodplain and delta of the Amudarya on an area of approximately 19700 km²; first approximation surveys (5 versts per inch) covered the territory of the Tamdy region on an area of 37400 km², Ustyurt - 13600 km². A total of 70700 km² or 34.3% of the entire territory was covered by surveying.

As already noted, A.I.Butakov made a great contribution to the expansion of cartographic ideas about the Aral Sea.

The first expedition of A.I. Butakov pursued the goal of giving a general reconnaissance of the entire Aral Sea, checking the depth in different directions, determining the latitudes of many places, taking photographs of the Barsa-Kelmes island, and filming groups of islands. Finally, the expedition discovered completely new islands, calling them the "Royal Islands."

A.I. Butakov made the first observations on determining longitude and magnetic compass deviations on the Aral Sea. The expedition led by A. M. Butakov reached Tokmakata where K.E. Pospelov made a marine survey, A.A. Akishev did reconnaissance sounding, which allowed us to come to the correct conclusion that Tokmakata (Muynak) is connected by a sandbank to the mainland and is a peninsula, A.A. Akishev found a lot of mouths using a compass and made a survey, carried out astronomical observations, determined geographical coordinates and established that the southern coast of the Aral Sea starts from Tokmakata. Small low-lying islands were discovered approximately in the middle of the Aral Sea. This is the first geographical discovery of the expedition. The islands on the map were named after General V.A. Obruchev.

Adverse weather conditions did not make it possible to explore the eastern shore of the Aral Sea, so A.I. Butakov changed the route, heading diagonally to the northwest of the sea.

On the island of Barsa-Kelmes, he organized work to determine geographical coordinates. The instrumental survey was carried out on the northern and eastern shores of the islands: Kugural, Barsa-Kelmes, Nikolai, Bellingshausen, Lazarev, etc. Only the western part of the coast was measured by eye.

In 1849, A.I. Butakov carried out repeated surveys and measurements of the sea, based on which an accurate map was compiled.

In 1873-1874 The Amudarya Delta was again explored in detail and accurately mapped by the joint efforts of A.V. Kaulbars, F.B. Dorandt and N.N. Zubov. This was especially necessary since before that there were only approximate and schematic plans for the distribution of the delta's channels according to the stories of travellers (A.I. Butakov, G.I. Danilevsky, Y.V. Khanykov, etc.) [2].

In 1874, A.A. Tillo was involved in leveling water levels in the Amudarya. He tried to find out the possibility of passing the water of this river through the dry bed of the Uzboy into the Caspian Sea. For these purposes, in difficult conditions of summer heat and impassability, from July to September 1874, he leveled the Ustyurt plateau and found that the level of the Aral Sea was 74 m higher than the Caspian Sea level. However, with repeated, more accurate leveling, the difference between the result obtained later L.S. Berg and him turned out to be 0.5 m away.

The research of A.A. Tillo completed the cartographic work begun by A.I. Butakov and created the main contours of cartographic ideas about the Aral Sea.

In 1890-1891 A topographic survey of the Amudarya delta was again carried out, and maps were published in Tashkent in 1905. Several fragmentary information about changes in the delta's channels was reported by K.G. Girshfeld in 1900 ("Izvestia Turk. Department of the Russian Geographical Society, vol. II).

Much cartographic work in the lower reaches of the Amudarya was carried out by the Main Directorate of Land Management and Agriculture under the general leadership of N.A. Dima (1912). His reports give a general idea of the areas surveyed with detailed characteristics of the soil cover.

Conclusion. In the pre-revolutionary period, cartographic and geodetic research was mainly of a route nature, with a certain practical orientation. During the Soviet years, cartographic work was carried out much more widely and was more purposeful, mainly for agricultural purposes. As a result, a relatively reliable basis was created for the compilation of a systematic and updated hypometric map for Kyzylkum and Ustyurt. A network of weather stations and hydro-meteorological posts was created, experimental sites were organized to study soils and vegetation, etc.

In addition, mapping of previously inaccessible areas was carried out, and many theoretical and practical issues related to the cartographic study of the entire complex of the natural environment of Karakalpakstan were clarified.

Thus, as a result of the work carried out, the general level of cartographic ideas about the regions of the Aral Sea and the lower reaches of the Amudarya created a reliable basis for comprehensive geographical studies of these territories and a scientific assessment of the natural capabilities and resources of the region.

References:

1. Bekbulatova G.A. Exploration of The Territory of Karakalpakstan During the Colonial Period, (1850-1917) "Economy and Society" ISSN 2225-1545. No. 12(115) 2023. P. 973-980 [Бекбулатова Г. А. Исследование территории каракалпакии в колониальный период (1850-1917). "Экономика и социум" ISSN 2225-1545. № 12(115) 2023. –с. 973-980]
2. Severtsov N.A. Travelling around the Turkestan region. 2nd ed. Geographgiz, M., 1947.
3. Yugay R., History of the development of geographical and cartographic ideas about the Kyzylkum desert. Tashkent, 1964. Moscow 1968.
4. Daily records of A.I. Butakov's voyage on the schooner "Konstantin" to explore the Aral Sea in 1848-1849. Tashkent ed. UzSSR, 1953.

Rezyume: *Ushbu maqolada, Bu tadqiqotlar ko'rib chiqilayotgan davr Qoraqalpog'iston tabiatining boshlanishi va keyinchalik tizimli o'rganilishi bilan tavsiflanganligi, natijalari muhim ilmiy-amaliy ahamiyatga ega bo'lganligi bilan bog'liq. Qoraqalpog'istonning geografik bilimlaridagi ba'zi ajoyib yutuqlarga qaramay, inqilobdan oldingi davrda mamlakatdagi geografik g'oyalarning faqat asosiy konturlari berilgan. Bu Qoraqalpog'istonni o'rganishda birinchi yo'lni bosib o'tgan boshlang'ich bosqich bo'lib, shu bilan birga hudud tabiati va tabiiy resurslarini keyinchalik maqsadli va tizimli o'rganishga asos soldi.*

Резюме: *В данной статье говорится, Эти исследования обусловлены тем, что рассматриваемый период характеризуется началом и последующим систематическим изучением природы Каракалпакстана, результаты которого приобрели важное научное и практическое значение. Несмотря на некоторые выдающиеся достижения в географическом познании Каракалпакстана, дореволюционный период дал лишь основные очертания географических представлений в стране. Это был начальный этап, по которому следовал первый путь в изучении Каракалпакстана, который, однако, заложил основу для последующего целенаправленного и систематического изучения природы и природных ресурсов территории..*

Kalit so'zlar: *plato, delta, ishlab chiqaruvchi kuchlar, tabiiy fanlar, antropologiya, etnografiya, geologiya, geografik jamiyat, ekspeditsiya, dendrologiya, zoogeografiya, botanika, kartografiya, landshaft, yashash muhiti.*

Ключевые слова: *плато, дельта, производительные силы, естественные науки, антропология, этнография, геология, географическое общество, экспедиция, дендрология, зоогеография, ботаника, картография, ландшафт, среда обитания.*

**NON-DERIVATIVE AND DERIVATIVE ETHNOGRAPHISMS IN
THE VOCABULARY OF KAZAKHS LIVING IN KARAKALPAKSTAN**

Adilova G.A.

Karakalpak State University named after Berdakh

Summary: *This article examines the ethnolinguistic character of the non-derivative and derivative ethnographisms of the Kazakh language residing in Karakalpakstan.*

Key words: *ethnographic lexis, ethnographisms, non-derivative ethnographisms, derivative ethnographisms.*

INTRODUCTION.

In modern world linguistics, lexical units that reflect the national identity of the language of each nation are mainly studied in ethnosemantic, anthropolinguistic and ethnolinguistic directions. As a result, it turned out that the ethnographisms of a certain territory are semiotic, that is, the symbolic language of the material and spiritual culture formed in this territory. Thanks to the study of the material and spiritual culture of an ethnic group in a social context, it became possible to study ethnographic lacunae, classifying them into national (ethnic), territorial and dialectal types. The conclusions and scientific and theoretical concepts of such modern studies, which proved the integrity of the language, ethnos and culture, served as the basis for a large-scale study of the ethnographic vocabulary of the Turkic languages, including the ethnographisms of the Kazakhs of Karakalpakstan in historical, retrospective and comparative typological methods.

The language of the Kazakhs living in Karakalpakstan has a special structure. It's natural. Representatives of the diaspora who find themselves in a different linguistic environment interact with the culture of the people among whom they live. This circumstance enriches their ethno-cultural vocabulary. The ethnographic vocabulary of the Kazakhs of Karakalpakstan, while preserving the basis of the nationwide Kazakh language, is influenced by Uzbek, Karakalpak and Turkmen languages and at the same time has a regional identity close to the Western dialect of the Kazakh language.

Ethnographic vocabulary is formed and developed due to the fact that a native speaker, as a result of generalizing everyday observations, studying the environment and its various manifestations and features, gives names to life phenomena and facts. All this is closely related to the self-awareness, worldview, psychology and language of the people.

The peculiarities of the word formation of the Kazakh language are determined by the features of word formation common to all Turkic languages. According to the method of word formation, the ceremonial vocabulary of Kazakhs living in Karakalpakstan can be divided into non-derivative, derivative and composite. In this article, we will consider non-derivative and derivative ethnographisms.

Non-derivative ethnographisms, which are the object of our research, are the basis of ethnographic vocabulary, but there are few of them in number. The fact that there are few non-derivative ethnographisms in the ethnographic vocabulary is explained by the fact that they are secondary nominations. A person gives names to traditions and rituals according to the level of development of his self-consciousness, puts concepts and words available in his language as their basis.

The words *ac* (food, meal) have several meanings according to the explanatory dictionary of the Kazakh language: 1) human food, meal; 2) ethnographical *ac*- commemoration of the dead on the anniversary of death with abundant treats. In the phrase *Ac та төк ұлы жиын* (there was a big memorial treat, there was a large crowd of people), the word *ac* is used in the meaning as a memorial treat, which is based on *ac* as food. 3) The word *ac* also has a homonymous verbal meaning "to cook, cook food", and in this meaning it forms many complex phrases, for example: *казан асу* (cook a cauldron), that is, "start preparing food", *ac қайнату* "cook food", *ac қорыту*

"digest food", *ас беру* "to arrange a wake", *қонақ асы* "a treat for guests", etc. In all these phrases, motivation is associated with the meaning of "food, meal". In M. Kashgari's book, *ас* is found in the form of *ау* – *ауқат* "food, meal": «аяқ ашы» "dishes for food", *аяққа ас сал* "put food in a dish" [1:108].

E.V. Sevortyan, comparing the sources of the ancient Turkic and modern Turkic languages, points out that the origins of the word *ау* go back to the word *as* borrowed from the Iranian languages [2: 211].

One of the words with rich ethnosemantics is the word – *мой* "feast, celebration, feast, wedding." In the explanatory dictionary of the Kazakh language, two of its meanings are given: the first as a noun denoting "a celebration associated with joyful events in a person's life, with the invitation of many guests"; the second as a verb "denoting to eat your fill". From each of the meanings, many derivative words with a figurative meaning are formed [3:161-162.].

By origin, A. Isakov divides modern non-derivative words into: dead non-derivative (*момын, момакан*, etc.) and live non-derivative (*бас, айт*, as, etc.). The criterion for such division is the presence of the word base in several non-derivative words [4:87-88]. If so, then *мой* "celebration" and *моқ* "well-fed" can be considered related, since the root is *мой//моқ*. It is known that the ancient Turkic sounds *z, ʒ* and at the beginning and at the end of a word can be replaced by the sounds *q, k, y*. As a result of this alternation, the *моғ* was replaced > *моқ//мой*. From the original verbal meaning "to have, to eat food", the name of the action was formed- *мой*, and the word- *моқ* has an evaluative meaning.

Тоғ –is the common name of the celebration in Kazakh life. Kazakhs have many festivals associated with different stages of human life: *шiлдехана* "celebration in honor of a newborn", *бесiк мой* "lullaby feast", *сундет мой* "celebration related to circumcision", *тұсау кесер* "feast when a child begins to walk", *тiл ауар* "celebration when a child begins to speak", *қыз ұзату* "wedding, seeing off the bride from her father's house", etc. In the Kazakh language of Karakalpakstan, each of them has ethnocultural semantics and performs an ethnocultural function.

The word *сен* in the national language means: 1) sowing arable land with seeds, planting grains of cereals; 2) strength, help, support. In the language of the Kazakhs living in Karakalpakstan, it means "dowry" and has a regional character. The saying is often used: *Келiндi келгенде көр, сентi жайғанда көр* "Evaluate the bride upon arrival, evaluate the bride's dowry when it is shown", where the word *сен* means "bridge'sdowry". In the meaning of "dowry" it is found in Uzbek, Turkmen, Kyrgyz, Oirot languages, but in Altai, Kyrgyz languages it is also used in the meaning of "extra additional assistance". *Сен* in the meaning of "dowry" has ancient Turkic roots. In Mahmud Kashgari, it is given in this meaning [1:375]. S. E. Malov also points to its ancient Turkic origin in the meaning of "set, add" (DTS, 421). S. Janpeisov, in his work devoted to the analysis of the works of M. Auezov, gives examples where the *сен* is used in connection with funeral rituals. In this sense, *сен* is found only in the Kazakh language and refers to archaisms [5:69-72].

V.V.Radlov, using the material of the Teleut language, identifies such a derivative of the word *сен* *сен* *қыс* "a girl with a dowry", which goes back to the non-derivative *сан* *сен* – *сен* *сен* "having a dowry", homonymous *жасау* "dowry" (Radl., IY.497]. The dictionary of M. Kashgari indicates that in the ancient Turkic language in the forms of *septur* "to order to prepare a dowry", *ol anin gizin septurdi* "he ordered to prepare a dowry for his daughter" this word had the meaning of action [1:212].

The main reason for the widespread use of the word *сен* in many Turkic languages must be searched, firstly, in the ancient Turkic archaisms, secondly, in its division into homonymic bases and, thirdly, in its syncretic character. And in the meaning of *жасау* "dowry", as well as in the meaning used in connection with funeral rites, there are traces of some *көмек, жәрдем, септесу* "help, support, preparation of dowry", which are available in the archiseme. Kazakhs gave special importance to the preparation of a dowry, saying: *жеті жасынан жинасаң жетеді* "you need to collect a dowry from the age of seven." The word *сен* (dowry), which exists in the language of local

Kazakhs, forms the basis of various customs, rituals, traditions related to marriage, a certain system of spiritual culture has been formed around it.

The words *дән, тәр* which are used in parallel as names of customs, also have a local character. As M. S. Atabaeva points out, ethnographisms are used in this series: *жосын-кәдет-насты-тәри-тәрейли-үрдіс* [6:175]. *Дән* "custom, rituals, tradition" (*Оставь ты старый дән и придерживайся дән этого края* (Leave the old custom and stick to the custom of this region)) (RSKYa. 169), *тәр* "tradition, custom, rite" [RSK.657]. By origin, both of these words belong to the western region of the Kazakh language. In the Turkmen language, it is used in the form of *дән*. A. Nurmaganbetov: the origins of the word *дән* brought out from the Arabic *дан*, meaning "feature, trait", and its meaning "custom, rite" is considered to be a figurative meaning [7:27]. The word *дән* in the meaning of "customs, rite", which has become widespread in the western region of the Kazakh language (Aral, Mangistau) and in the language of the Kazakhs of Karakalpakstan, is borrowed from the Turkmen language, it has the same form in the language of the Kazakhs living in Turkmenistan. In dialects, non-derivative *тәр, дән* are sources of word formation, this indicates their long-term existence in this composition.

Derived words in the Kazakh language of Karakalpakstan were formed according to a natural need for names. Word formation is a process arising from the need to name things, phenomena and their peculiar features that have formed in our minds. S. Isaev writes: "Word formation is not the formation and birth of classes of words, but it is the birth of a new meaningful (significant) word that enriches the lexical composition of the language, only after that, thanks to the grammatical properties of newly formed words they belong to certain classes [8:244]. The names *құғыншы* "pursuer of the girl's kidnappers", associated with the marriage ceremony, and *сүйекші* "participant in the funeral of the dead", associated with the funeral rite, for example, are included in the group of agentive nouns with the suffix *-шы/-ші*, and the compound names *басын тікейтү* "to build a monument on the grave", *қарын шашын алу* "to shave uterine hair, көз жару" "to give birth", *бесікке салу* "to put in the cradle" are included in the group of verbs.

The ritual vocabulary is formed, like other lexical layers of the Kazakh language, in a suffixal way, mainly with the help of suffixes *-шы/-ші, -лық/лік, -ма/ме, -ба/бе, -на/не*. The word-forming suffix can be attached to various words, therefore the part of the word closest to the word-forming suffix is called the word-forming base, and this is the model of synthetic word formation: the word-forming base and the word-generating suffix. From their integration, a new lexical meaning is formed: the name *сен+те, сүйек+ші, күзет+ші, дән+те, көр+ік*.

With the help of the suffixes *-шы/-ші*, the words *сүйекші, күзетші, құғыншы, саушы* are formed. In the Kazakh language of Karakalpakstan, the words *құғыншы, күзетші* have a regional character. Although in the *құғыншы* "pursuer of the girl's kidnappers" archiseme *қуу* "to pursue" has a slightly different semantics, other connotations are also embedded in the word *құғыншы*: "there is someone to look for a girl, to worry about her."

Күзетші "guarding the dead before burial as a sign of respect and reverence", here the sema has a local character: *күзет* "to guard, protect", etymologically connected with *құрмет* "honor".

In the literary language and dialects in the system of suffix word formation, G. Kaliev identifies four models: 1) a dialect word is formed from the root + suffix of literary origin; 2) a dialect root + a suffix of literary origin forms a derivative dialect word; 3) a root of literary origin + a dialect suffix forms a derivative dialect word; 4) a root of dialect origin + a dialect suffix forms a derivative dialect word [9:48-49]. The words *күзетші, құғыншы* are formed according to the first model. Both the base and the morpheme are significant here. *Сүйекші* in the meaning of "a person involved in the burial of the deceased" is a nationwide word.

One of the ethnographisms formed with the help of the suffix *-шы* and considered an ancient word in the national language is *саушы/жаушы*. In the regional dictionary of the Kazakh language, its meaning is given as "messenger, mediator between matchmakers". In the language of the Kazakhs living in Karakalpakstan, it is used in the form of *саушы* "matchmaker", *саушы жіберу* "to send matchmakers". The form of *саушы* R. Sizdikova considers it to be the same root

as the words *cəz/cay* in the meaning of "word" [10:77]. By the definition of M. Kashgari *сав* along with the meaning of "сəз", means: a) proverbs– sayings, b) narration, c) story, d) written message, book, e) message and in the form of a *савчы* it is presented as "a person engaged in mediation between the bride and groom, between matchmakers" [1:214-215].

The lexeme *жаушы*, the archetype of which goes back to the concept of *сав – сəз*, performs the function of a messenger facilitating negotiations, agreement, and the establishment of good relations between the parties. The antiquity of the word is evidenced by the fact that it has been preserved in modern Turkic languages. In the national language, *жаушы* is used as "a person who came to get agreement from the girl's parents before matchmaking" and as "an ambassador promoting an agreement between countries".

Uzbek *савчы* – "ambassador, carrier of letters between relatives, matchmakers", Kyrgyz *жуучу* "matchmaker", *жуучы жиберу* "to send a matchmaker", *жуучу түүчү* "to come to woo", Kazakh *жаушы*, *жаушы жиберу* R. Syzdykova considers the variants of the form *саучы* [10:77]. In the Kazakh language, the archetype of the basics (roots) of *сав/сав*, preserved in the phrases *сəз саптай* "manner of speaking", *сауын айту* "to announce upcoming holidays" is *сəз*, it is associated with the regulatory function of the language. The mission of *саушы/жаушы* is to bring together, reconcile, and establish agreement.

In the language of Kazakhs living in Karakalpakstan, there are derivatives of the word *кəримдік* "a gift for showing the bride or newborn, as well as new clothes", *ентікне* "a gift received from the groom for entering the bride's house". These words refer to national ethnographisms. One of the words with a special structure inherent in the dialect of the Kazakhs of Karakalpakstan is *айтымал*. *Айтымал* is a gift for the song that is sung when the veil is removed from the bride's face. On the territory of Mangistau, the words *айтымшы*, *айтыну* from the basis of *айт* are common. A. Isakov notes that the suffixes *-мал/-мел*, joining only the verbal bases, form names denoting real concepts [11:156].

Based on the peculiarity of suffixes in the system of word formation of dialects, G.Kaliev divides them into four groups: 1) suffixes inherent only in dialects; 2) productive suffixes; 3) unproductive suffixes; 4) dialect suffixes homonymous to literary ones [9:55-56]. The suffix *-мал* is not specified in any of them, and according to the structure of word formation (*айт+ы+мал*), it belongs to unproductive suffixes of word formation.

There are few ethnographisms with derived bases formed in a synthetic way. Names like *айтымал*, which have a local character, are rare. This is due to the fact that the culture of the Kazakhs of Karakalpakstan is fed from the common Turkic, including the national culture of the Kazakhs and is a synthetic reflection of the Kazakh culture, decorated with local colors and patterns.

CONCLUSION.

Most ethnographisms have no equivalent in the literary language, so they can be used in the literary language. This means that the ethnographic vocabulary performs the function of an endless main source in the development of the literary language. Regional ethnographisms are historical words that are part of the vocabulary of the Kazakh language. The root ethnographisms taken as the object of the research form the basis of ethnographisms although there are not many of them. If many words in the ethnographic vocabulary were derivatives, then today many of them have turned into an inseparable, whole word. In conclusion, it can be stated that ethnographisms from the ethnographic vocabulary of Kazakhs living in Karakalpakstan, have a nationwide and local character according to their morphological structure and usage.

References:

1. Mahmud Qashqari Turik sozdigi. 2-t. Almaty, 2007j., 108-b.
2. Sevortyan E. V. Etimologicheskij slovar turkskij yazikov: Obsheturkskie i mejturkskie osnovy na glasnye. M.: Nauka, 1974, 211-s.
3. Qazaq tilinin tusindirme sozdigi. 9-t. Almaty: Gylım, 1986, 161-162-bb.
4. Ysqaqov A. Qazirgi qazaq tili. Morfologiya. –Almaty: Ana tili, 1991, 87-88bb.

5. Janpeisov E.N. Etnokulturnaya leksika kazakhskogo yazyka. Alma-Ata, 1989, S. 69-72.
6. Atabaeva M.S. Qazaq tili dialektlik leksikasynyn etnolingvistikalyq negizi. -Almaty: Bilim, 2005, 175-b.
7. Nurmagambetov A. Jergilikti til erekshelekterinin torkini. Almaty. Mektep, 1985, 27-b.
8. Isaev S. Qazirgi qazaq tilindegi sozderdin gramatikalyq sıpaty. –Almaty: Raýan, 1998, 244-b.

Rezyume: Ushbu maqolada Qoraqalpogistanda istiqomad qiluvchi qozoqlar tilidagi tub va yasalma etnografizmlarning etnolingvistik xususiyatlari tadqiq etiladi.

Резюме: В данной статье рассматриваются этнолингвистические характеры производных и производных этнографизмов казахского языка Каракалпакстана.

Kalit soʻzlar: etnografik leksika, etnografizmlar, tub etnografizmlar, yasama etnografizmlar.

Ключевые слова: этнографическая лексика, этнографизмы, производные этнографизмы, производные этнографизмы.

OPTIONS TO IMPROVING THE CREATIVE ABILITIES OF PRIMARY SCHOOL EDUCATORS

Gulyamova N.A.

Uzbekistan-Finland Pedagogical Institute

Summary: *The article delves into the importance of nurturing and enhancing the creative abilities of the author, particularly in the context of primary school education. It explores the theoretical underpinnings of creativity development and delves into the practical strategies and methods that can be employed to foster creative potential in primary school teachers.*

The article highlights the professional and pedagogical aspects that are crucial for promoting creativity among educators working with young children. By emphasizing the significance of creativity in the teaching profession, the article underscores the need for continuous growth and development in this area. The article serves as a valuable resource for educators and professionals seeking to enhance their creative abilities and effectively cultivate creativity in primary school settings.

Key words: *creative ability; collaborative lesson; new perspectives; innovative classroom; practical strategies.*

Introduction. The rapid development of global education requires an innovative and creative approach to the educational process. Because it is characterized by an increasing need for creativity in all spheres of human activity, which occurs under the influence of innovative and creative creativity, which determines the development and direction of any society in the world. In foreign developed countries, including the USA, Canada, Germany, Russia, Japan, Korea, the educational process is carried out on the basis of an innovative and creative approach.

The President of the Republic of Uzbekistan Sh. On August 23, 2019, M. Mirziyoyev, in a dialogue with employees of public education and higher education, discussing the current tasks that should be solved in the system of continuous education, noted: "...activities in educational institutions today are aimed at increasing the level of reputation of teachers who conduct it, like teachers themselves today, must have a new creative approach to the educational process," [1] he expressed a number of opinions.

Also, our president Sh.Mirziyoev education. This requires great responsibility from today's teacher" [2], they said.

So, today's teachers are actively involved in educational work; they are required to organize their activities in step with the times. Also, primary school teachers working in general education institutions must have general and special competencies and be able to show a creative approach in their work.

Main part. Professional growth and development of a person as a specialist inherently manifests itself as a process. Professional maturity is an important period of human ontogenesis, beginning with professional growth and development of ideas (14-17 years) and ending with professional activity (55-60 years). The formation and development of a creative personality depends on the mutual compatibility of changes in his internal and external world, socio-economic conditions and ontogenesis of a person - from birth to the end of his life, the content of activity, requiring continuity and continuity.

It is known that professional experience is reflected as the integration of knowledge, skills and abilities. However, the acquisition by a primary school teacher of professional competencies and skills of creative activity requires not only the integration of practical skills and competencies, the development of methods and means for effectively organizing the activities of a specialist, but also mastery of the methodology. professional creativity requires the development of creative thinking and sufficient assimilation of personal qualities of a creative nature.

Literature analysis. In order to fully understand the general essence of the process of developing the creative potential of primary school teachers, it is necessary first of all to understand the meaning of the concepts of “creativity” and “creative approach”. According to Ken Robinson, “creativity is a collection of original ideas that have their own value” [6, p.74]. And Gardner, in his research, explains this concept as follows: “creativity is a practical action performed by a person, which should reflect a certain novelty and have a certain practical value” [7, 110 p.].

Creativity characterizes a person as a whole or his specific characteristics, mental acuity. Creativity is also reflected as an important factor of talent. According to the American psychologist P. Torrance, “creativity is a problem of putting forward scientific hypotheses; testing and modification of hypotheses; identifying the problem based on the formation of solution results; it expresses sensitivity to the mutual opposition of knowledge and practical actions to find a solution to the problem” [3, p.86].

In Embale's terms, creativity means “the possession of highly unusual skills along with deep knowledge of a particular field” [5]. Creativity (Latin, Ing. “to create” - creativity, “creative” creator) - characterizes a person's readiness to develop new ideas and expresses the importance of creative ability, which is part of talent, as an independent factor. A person's creative abilities are manifested in his thinking, communication, feelings and certain types of activities.

DISCUSSION AND RESULTS. Possessing creative qualities, teachers direct their personal abilities, natural and social energy to the high-quality and effective organization of professional activities. It also helps to create new ideas that are different from the traditional approach to organizing the educational process, not to think in a single template, originality, initiative, and intolerance of uncertainty. Therefore, a creative approach to organizing the professional activities of a teacher with creative qualities, activity in creating new, advanced ideas that serve the development of educational activities and personal qualities of students, independent assimilation of advanced pedagogical achievements and experience” training is also aimed at gaining the experience of a constant and consistent exchange of ideas with colleagues about pedagogical achievements.

It is worth noting here that every person by nature has the ability to be creative. So how can a person demonstrate that they have creative abilities? At this point, Patti Drapeau advises: “If you think you are not creative, I suggest you start organizing activities right now to develop creative thinking. In fact, the point is not whether you are creative or not, but to organize activities in the spirit of creativity and strive to try out new ideas in practice” [3, 4 p.].

According to Patty Drapeau, creative thinking is, first of all, complex thinking about a specific problem. Integrated thinking requires teachers to draw on multiple ideas when implementing learning objectives, problems, and goals. On the other hand, one-way thinking is based on only one correct idea. In observation, one-sidedness and versatility of thinking about the problem cannot be denied. Therefore, unified and comprehensive thinking is equally important in the formation of creativity.

That is, when performing a task or solving a problem, a person looks for several solution options (multidimensional thinking), and then settles on the only correct solution that guarantees the most optimal result.

A person's creative abilities are manifested in his thinking, communication, feelings and certain types of activities. Creativity characterizes a person as a whole or his individual characteristics. Creativity is also reflected as an important factor in talent. In addition, creativity determines mental acuity and “ensures students' active participation in the learning process.”

In addition, the existence of different opinions in the scientific understanding of the problem of creativity, the lack of a comprehensive conclusion is another manifestation of the relevance of the research topic. However, in many Western countries this problem has been analyzed and studied differently. For example, N.N. Nechaev, Yu.A. Ponomarev, D.V. Scientists such as Ushakov generally studied the issue of creativity as an individual psychological characteristic of a person,

and Aghababayan A.R., Arutyunyan N.D., Aleinikov A.G., Andreev V.I., Vishnyakova N.F., Drapeau Pattila analyzed the spiritual and psychological aspects of creativity [3,4, 5,6,7].

By the 21st century, this term began to be used in the field of education of the Republic of Uzbekistan. Especially in “Innovative Pedagogy,” which has begun to emerge as a separate and young branch of pedagogy, we often come across this term. R.A. Mavlonova in her textbook “Pedagogy, Innovation, Integration in Primary Education” specifically focused on the issues of creativity and its formation. The manual deeply analyzes the content and essence of the concept of creativity. However, the scientific-theoretical, scientific-pedagogical aspects of the problem of creativity, as well as in the process of mastering professional and personal competencies, have not been studied as a special object of scientific research. The modern system of continuing education requires a creative approach.

Creativity is a process directly related to innovation. After all, in order for a teacher to be creative, he must be aware of the latest news in his field, as well as events and developments throughout society, and be able to correctly use innovative news in his work. Therefore, a teacher can, in any situation, any process and at any time, look for the most effective way and effectively organize the educational process, putting it into practice, quickly, understandably, conveniently, easily and effectively for the minds of students. they say it is a form of creativity.

Getting acquainted with the research conducted by the above-mentioned scientists and educators, especially the scientist R.A. Mavlonova, summarizing them all, we can recognize the following points:

1. Creativity is a pedagogical category that encourages a person to innovate (create something new).

2. Creative potential is the integration of the professional and personal qualities of a teacher. Because if a teacher is not naturally curious and ambitious, he will never be able to be creative.

3. Creativity is not a quality that appears in teachers on its own; it is a teacher's desire to innovate, to overcome difficulties that arise in the process of mastering innovations and applying them in their teaching activities; innovative innovations are associated with the ability to actively and creatively use in their work and have your own original ideas, find optimal solutions.

Based on the author's approach, the content of the concept of creative potential can be explained as follows: Creative potential is an integral part of human spirituality as a category that develops the personality, a factor in the self-development of the individual, the basis of the vitality of the individual, the knowledge acquired by the individual, is manifested not in versatility, but in the desire for new things. ideas and in reforming and changing established stereotypes in the process of creating something new, in making unexpected and unusual decisions in the process of solving life problems.

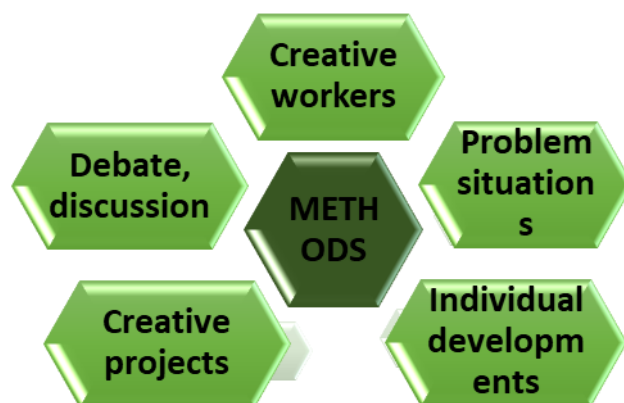
The potential for creativity is closely related to cognitively oriented creativity. In the process of teachers mastering professional competencies, creative potential is manifested in the following, in contrast to traditional thinking:

- Quick thinking;
- Ability to create new ideas;
- Initiative;
- Tolerance of uncertainty;
- To be smart;
- An unusual approach to solving problems.

The essence of the article. The analysis showed that self-development and professional success are inextricably linked with the degree of development of a person's creative abilities.

The factor of an active approach to the development of the creative potential of primary school teachers showed that the following working methods are effective in this process. (picture 1)

The factors of the creative potential of primary school teachers



At the same time, the process of developing the creative potential of teachers creates conditions for them to demonstrate the following important professional and pedagogical qualities (Figure 2).

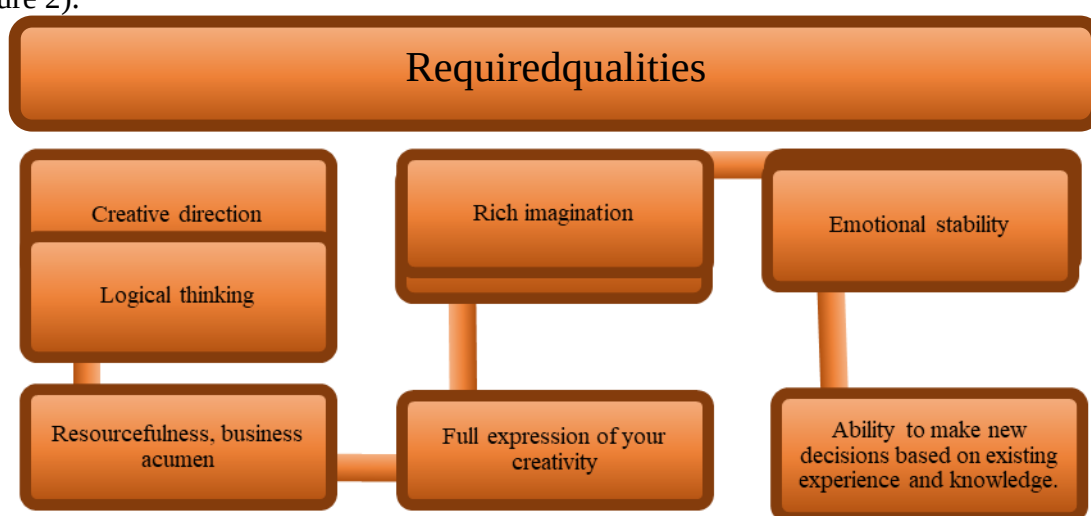


Figure 2. Professional and pedagogical features associated with the development of creative potential.

The process of developing the creative potential of primary school teachers includes the following structural components (Figure 3).

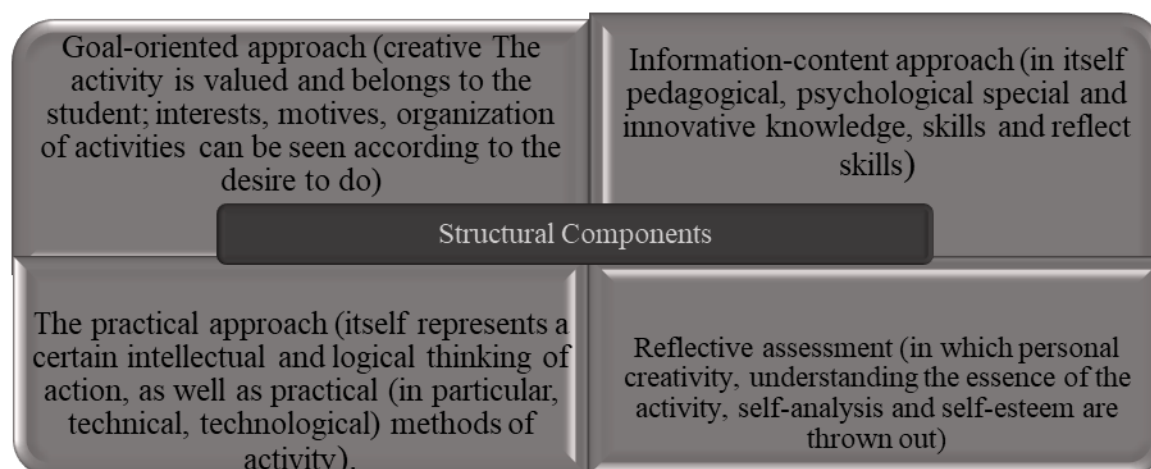


Figure 3. Structural basis for the development of creative potential of primary school teachers.

The development of the creative potential of primary school teachers requires attention to the following factors necessary in professional teaching activities:

- active in creating new ideas;
- independent study of advanced pedagogical achievements and experience;
- exchange of ideas about pedagogical achievements with teachers and colleagues.

The self-development and self-expression of each specialist as a teacher is directly related to his creative potential.

The creative potential of a teacher is reflected as his general characteristic. This is the first condition and result of creative activity. This quality represents a person's ability and willingness to express himself. In addition, on the basis of creative potential, the overall personal abilities, natural and social strength of each specialist are manifested. Creative potential is closely related to cognitively oriented creativity.

Conclusions and practical suggestions. When organizing educational activities, a modern teacher abandons pre-planned activities, forms and develops independent, critical, logical, creative thinking in students, encourages them to think creatively, i.e., to assimilate new ideas. Changing their attitude towards learning, motivating them to achieve should be the main factor.

The missing factor in learning is creativity. Today, it is advisable for primary school teachers not to engage in creativity or not, but to organize their professional activities in the spirit of creativity, to try new ideas in the educational process.

Developing the creative potential of primary school students requires action in the following four areas:

- 1) Creation of the necessary conditions for teachers to demonstrate their abilities of creative thinking and free work;
- 2) Implementation of a strategy that encourages students to study subjects with interest;
- 3) Innovative approach and pedagogical problem (problems ensure the priority of a creative approach in finding a solution);
- 4) Achieving the expected result by fully completing the assigned educational tasks.

So, the self-development and ability of each teacher to express himself by mastering professional competencies is directly related to his creative potential.

The formation of teacher creativity comes from “needs, orientations and concepts of the Self.” The requirement of time is that the teacher’s creative activity must be manifested in all types of teaching activities. A general conclusion is formed that the creative activity of a teacher is connected, first of all, with pedagogical skills.

References:

1. Public education and higher education system of the President of the Republic of Uzbekistan his speech at the meeting with his teachers. 2019.08.23.
2. President of the Republic of Uzbekistan Shavkat Mirziyoyev, 24, 2020 the text of the January Address to the Oliy Majlis. <http://uza.uz>
3. Drapeau Patty. Sparking student creativity (practical ways to promote innovative thinking and problem solving). – Alexandria – Virginia, USA: ASCD, 2014. - p. 260
4. Agababyan A. R., Harutyunyan N. D. On the issue of the relationship between creativity and personal characteristics // Ananyev Readings, 2007: Materials scientific and practical conference. St. Petersburg, 2007, pp. 598–599.
5. Aleynikov A.G. About creative pedagogy / A.G. Aleinikov // Vestnik higher school. - 2009. - No. 12. - pp. 29-34.
6. Andreev V.I. Pedagogy of creative self-development. Innovativewell. – Kazan: KSU Publishing House, 1996. – 566 p.
7. Vishnyakova, N.F. Creative acmeology. Psychology of higher education / N.F. Vishnyakova. - Mn.: Narodnaya Asveta, 2007. - 300 p.

Rezyume: Maqolada muallifning ijodiy qobiliyatlarini, ayniqsa, boshlang‘ich maktab ta’limi sharoitida tarbiyalash va faollashtirishning ahamiyati haqida so‘z boradi. U ijodkorlikni rivojlantirishning nazariy asoslarini o‘rganadi va boshlang‘ich sinf o‘qituvchilarining ijodkorligini rivojlantirishda qo‘llanilishi mumkin bo‘lgan amaliy strategiya va usullarni o‘rganadi.

Maqolada yosh bolalar bilan ishlaydigan o'qituvchilarning ijodiy qobiliyatlarini rivojlantirish uchun hal qiluvchi ahamiyatga ega bo'lgan kasbiy va pedagogik jihatlar yoritilgan. Maqolada o'qituvchilik kasbida ijodkorlikning ahamiyati ta'kidlangan holda, bu sohada uzluksiz o'sish va rivojlanish zarurligi ta'kidlangan. Maqola boshlang'ich maktablarda ijodkorlikni oshirish va ijodkorlikni samarali rivojlantirishga intilayotgan o'qituvchilar va mutaxassislar uchun qimmatli manba bo'lib xizmat qiladi.

Резюме: В статье рассматривается важность воспитания и активизации творческих способностей автора, особенно в условиях начального школьного образования. В нем исследуются теоретические основы развития творческих способностей и углубляются в практические стратегии и методы, которые можно использовать для развития творческого потенциала учителей начальной школы.

В статье освещены профессионально-педагогические аспекты, имеющие решающее значение для развития творческих способностей педагогов, работающих с детьми раннего возраста. Подчеркивая значение творчества в педагогической профессии, статья подчеркивает необходимость постоянного роста и развития в этой области. Статья служит ценным ресурсом для педагогов и специалистов, стремящихся повысить свои творческие способности и эффективно развивать творческие способности в начальной школе.

Kalit so'zlar: ijodkorlik, qo'shma dars, yangi istiqbollar, innovatsion sinf, amaliy strategiyalar.

Ключевые слова и понятия: творческие способности, совместный урок; новые перспективы, инновационный класс, практические стратегии.

PROBLEMS OF CONSIDERING CONFLICTS OF INTEREST IN CORPORATE GOVERNANCE.

Yuldashev J.

professor of Tashkent State University of law

Summary: *This article describes theoretical and practical problems associated with conflicts of interest in joint stock companies. The circumstances underlying the conflict of interest, its subjects, as well as the negative consequences of the conflict of interest are analyzed. In addition, a number of doctrines related to conflict of interest were examined and the author expressed his opinion on them. In the process of writing the article, documents related to the conflict of interests of some companies operating in Uzbekistan were analyzed, and the author put forward a proposal to introduce changes and additions to the legislation. This article describes theoretical and practical problems associated with conflicts of interest in joint stock companies. The circumstances underlying the conflict of interest, its subjects, as well as the negative consequences of the conflict of interest are analyzed. In addition, a number of doctrines related to conflict of interest were examined and the author expressed his opinion on them. In the process of writing the article, documents related to the conflict of interests of some companies operating in Uzbekistan were analyzed, and the author put forward a proposal to introduce changes and additions to the legislation.*

Key words: *conflict of interest, Joint stock companies, corporate governance, Transparency, supervisory board, governing body, board of directors, conflict of interest policy, corporate ethics commission.*

The issue of conflict of interests in joint-stock companies is not reflected in the current Law of the Republic of Uzbekistan (06.05.2014. № LRU-370) “On joint stock companies and protection of shareholders’ rights”, that is, the issue of legal regulation of this issue is not defined by law. In essence, a conflict of interests arises for a number of persons associated with the activities of the company - shareholders, founders, governing body, employees, creditors. From a linguistic point of view, the concept of “conflict” is of Latin origin and means “a clash of opposing interests”[1]. However, when looking at this issue from a legal perspective, there is a legal neglect that the issue should be viewed from the perspective of rationality, transparency, mutual trust and equality.

Today in our country a number of actions are being taken to develop legislation on conflicts of interest as a corruption vice[2]. So it is desirable that this be reflected in the legal framework in the corporate governance process.

In fact, conflict of interest is a vice that causes great harm not only to the company, but also to society, where there is not only economic development, but also a healthy environment. Some authors emphasize that, as a rule, a conflict of corporate interests is perceived only as a negative event[3].

Conflicts of corporate interests are situations in which the personal interests of one entity are contrary to the interests of another person or the policies of the company as a whole. In general, such conflicts are considered broader than corporate disputes, since they affect a larger number of entities related to the company. Different interests may arise between two participants in an LLC, between a participant and an employee of a company, between shareholders, and also between a shareholder and a founder[4].

The problem of conflict of interests of participants in corporate relations arises at the moment of making a decision to create a corporation and “accompanies” all its further activities. Despite the fact that corporate conflicts have an objective basis, their high level is detrimental to the

corporation. Companies torn apart by internal contradictions are not attractive to investors and are easy prey for raiders[5].

A corporate conflict is not a separate or derivative corporate legal relationship, as Nikologorskaya E.I. writes [6], since the interests of the parties to the conflict exist within the framework of existing corporate relations, and do not develop at the time of the emergence of a conflict situation, as indicated by V.A. Laptev[7] and S.Yu. Filippov[8], who consider a corporate conflict rather as a special characteristic of a corporate legal relationship, indicating the existence of disagreement between the participants in this legal relationship.

In matters of managing conflicts of interest, the following basic principles must be observed:

priority of rights, freedoms and legitimate interests of citizens;

put state interests above personal interests; making decisions based on transparency, integrity, impartiality;

requiring disclosure of potential or actual conflicts of interest;

priority of preventive measures to avoid conflicts of interest; consider cases of conflict of interest and act collectively when resolving conflicts of interest;

an unbiased approach to considering, assessing and resolving situations characterized by signs of a conflict of interest;

ensure the confidentiality of information about the presence of a conflict of interest in the prescribed manner;

if an employee is properly informed about a conflict of interest before making any decision or performing the functions assigned to him, and is ready to renounce his personal interests in favor of the interests of the Company, he cannot be dismissed due to the presence of real or potential conflicts of interest;

transparency and accountability; personal responsibility and the inevitability of punishment.

According to the goals of participants in corporate conflicts, the latter can be divided into three large groups: corporate contradictions; hostile takeovers (corporate takeovers); corporate blackmail (greenmail) [8].

It is not possible to identify all cases of corporate conflicts. Focusing on the typical interests of corporate participants, we can distinguish four main types of corporate conflicts: between the corporation and its members; between the participants of the corporation; between the management bodies of the corporation and its participants; between corporate management bodies [5].

In general, since the participants in corporate relations are different, their rights and interests are also different. These rights and interests may conflict with each other. Consequently, the supervisory board and the executive body (director, board of directors) must take measures to prevent such conflicts of interest on the part of corporate governance bodies.

However, the current legislation does not include provisions related to the prevention of conflicts of interest, even among the requirements for members of the supervisory board by the company's charter or a decision approved by the general meeting of shareholders.

Therefore, in our opinion, the article "Requirements for members of the supervisory board" should be included in the law "On joint stock companies and protection of shareholders' rights" Such requirements should be determined by law on a general basis, but it is advisable to define them in the company's charter through a separate provision.

Typically, fiduciary responsibilities and requirements for persons elected to the company's supervisory board can be specified in the company's charter or in a decision approved by the general meeting of shareholders. For example, as a member of the supervisory board, to act conscientiously and diligently, to exercise caution when making decisions regarding the company and to make decisions from each member of the supervisory board independently, without taking into account personal and other interests, as well as with the requirements to protect the interests of the company, it is first necessary to make demands to avoid collisions.

The same requirements should be presented to the executive body. The executive body of the company is obliged to disclose information about any situation that may lead to a conflict of

interest when acting in the interests of the company. However, neither the duties of the supervisory board nor the duties of the executive body include such requirements.

In addition, the general meeting of shareholders, the supervisory board, is a collegial body where decisions are made based on voting results. This is reflected in Section VII (Management bodies of the company) of the Law “On joint stock companies and protection of shareholders’ rights”

According to Article 71 of the Law “On joint stock companies and protection of shareholders’ rights”, preparation for the general meeting of shareholders falls within the competence of the Supervisory Board. The legislation does not address the issue of preparation for holding meetings of the supervisory board. Typically, preparation for the holding of the supervisory board and the general meeting of shareholders, its holding, preparation of information and documents on the agenda items of the meeting are assigned to units subordinate to the executive body of the company.

According to Article 82 of the Law “On joint stock companies and protection of shareholders’ rights” if the company's charter provides for the introduction of such a position, the issue of appointing a corporate consultant is considered, but his rights and obligations are not addressed in the legislation.

Therefore, preparation for the meetings specified in the charter of some companies may be carried out by a corporate consultant paid by the executive body.

In any case, the executive body is responsible for shaping the agenda of the highest management bodies. However, in a number of cases, one can observe cases where the executive body does not fully cover the issues on the agenda, does not show and does not disclose the shortcomings committed by the executive body to higher management bodies. It is at this point that a conflict of interest arises between internal and corporate governance bodies. However, the issue of preventing such conflicts is not reflected in the legislation.

Accordingly, the effective organization of the work of the supervisory board of the company and the general meeting of shareholders is ensured, the prevention of conflicts of interest, control over the timely and high-quality execution of decisions of management bodies by the executive body, as a result, the organization of modern corporate governance in a society based on the principles of accountability, transparency and openness, It is advisable, on the basis of the company’s charter, to create a corporate working body that operates independently of the executive body.

In this regard, although not provided for by law, some national companies have developed internal regulations that legally regulate the issue of preventing conflicts of special interests. For example, a Regulation on the management of conflicts of interest in the joint-stock company “Dori-Darmon” and its member enterprises has been developed, which defines the procedure for identifying, preventing and regulating conflicts of interest[9].

Regulatory documents developed in companies to prevent conflicts of interest can be called differently - Policy, Regulations, Rules and other names. For example, the Policy of the joint-stock commercial mortgage bank “Ipoteka-Bank” on the prevention and elimination of conflicts of interest[10], the Regulations of Uztransgaz JSC on the procedure for action in the event of a conflict of interest[11]. Regulations on managing conflicts of interest in Uzkimyosanoat JSC and its subsidiaries [12], Regulations on managing conflicts of interests in the system of Uzsuvtaminot JSC [13] and others.

In accordance with the Regulations on managing conflicts of interest in the Company, Uzbekneftegaz JSC does not allow abuse of official powers in favor of one of the parties in the event of illegal conclusion of contractual obligations in procurement or other activities that provide employment assistance to close relatives or resolution of conflicts of interest. In accordance with the established procedure, the employee fills out a declaration of conflict of interest, after which the information provided is reviewed by the Ethics Commission[14].

In our opinion, most companies have such procedures and operate on the basis of them. But its legal basis does not exist in legislation.

Based on the above, it is advisable to include an article “Approval of internal documents of the Company” in the Law “On joint stock companies and protection of shareholders’ rights”. This article, based on the decision of the relevant management bodies of the company, the general meeting of shareholders, the supervisory board, the executive body, the audit commission, the internal audit service, the information policy, the dividend policy, should reflect the provision on the procedure for action in the event of a conflict of interest. In addition, it would be advisable that the scope of application of such corporate documents should not be a closed list, and that any other corporate documents that do not contradict current legal requirements could be adopted by decision of the relevant management bodies of the company.

Therefore, taking into account the above, in our opinion, it is proposed to supplement the law “On joint stock companies and protection of shareholders’ rights” with the following norm:

“-Article. Establishing rules on the procedure to be followed in the event of a conflict of interest.

The regulation on the procedure for action in the event of a conflict of interest is approved by a decision of the supervisory board of the company.

This provision defines the procedure for identifying, preventing and regulating conflicts of interest in society and must indicate the following:

- this type of regulation is an internal document for the prevention and management of conflicts of interest that have arisen and may arise in the company, and all employees must unconditionally follow it;

- as principles for managing conflicts of interest, the priority of the company’s interests over personal interests, transparency, the requirement to disclose information about any (potential or real) conflict of interest, the need to take preventive measures in this regard, etc.;

- the scope of responsibility, obligations and powers of the entire management of the company;

- measures that can be taken in cases where a conflict of interest has occurred or may arise;

- information about conflicts of interest

disclosure, verification procedures and confidentiality of information;

- measures to resolve conflicts of interest.”

This proposal is proposed in order to identify, prevent and regulate conflicts of interest in society.

In general, the correct implementation of measures related to the prevention of conflicts of interest in companies requires, first of all, focusing on the sphere of interests of the company, and then on the interests of persons interested in its activities. The management of the company must be able to anticipate personal interests that conflict with the interests of society or may conflict, and if questions related to this arise, they must inform their managers about this. Because favoritism, localism, patronage and nepotism in corporate relations is a very important factor in the economic development of a company.

Therefore, any company must promptly and fully disclose information about conflicts of interest, create a complete list of information about close relatives and related persons of the company’s management personnel, as well as disclose this information honestly, completely and in good faith.

References:

1. Lubenets VV Corporate conflict as a type of legal conflicts: definition and causes/<https://cyberleninka.ru/article/n/korporativnyy-konflikt-kak-vid-yuridicheskogo-konflikta-ponyatie-i-prichiny-vozniknoveniya>
2. // <https://www.gazeta.uz/uz/2024/01/26/conflict-of-interest/>
3. Erakhtina O.S. Corporate conflicts and legal methods for minimizing them // Bulletin of Perm University: Legal Sciences No. 3(9) 2010 P. 103.

4. Valentina Hlavich. Conflicts of corporate interests. How is it different from corporate disputes? How to resolve without harm to business. // <https://valen-legal.com/ru/news/konflikty-korporativnyh-interesov>
5. Corporate conflicts and legal ways to minimize them // <http://www.jurvestnik.psu.ru/index.php/ru/-3-9-2010-16/4-2010-12-01-13-31-58/-3-9-2010/29-korporativnye-konflikty-i-pravovye-sposoby-ix-minimizaczi>
6. Nikolgor s kaya E.I. Resolution of corporate conflicts in joint-stock legal relations // Laws of Russia: experience, analysis, practice. 2007. N 7. P. 19.
7. Andreev V.K., Laptev V.A. Corporate law of modern Russia: monograph / V.K. Andreev, V.A. Laptev. -2nd ed., revised. and additional -Moscow, 2017. P.181.
8. Filippova S.Yu. On the issue of the concept of corporate conflict // Russian justice. 2009. N 12. pp. 31-35.
8. Essence, causes and types of corporate conflicts in joint stock companies // <https://cyberleninka.ru/article/n/suschnost-prichiny-i-vidy-korporativnyh-konfliktov-v-aktsionernyh-obschestvah>
9. <https://www.doridarmon.uz/uz/menu/regulations-on-management-of-conflicts-of-interest>
10. <https://www.ipotekabank.uz/upload/Manfaatlar>
11. <https://utg.uz/upload>
12. <https://uzkimyosanoat.uz/uploads/page/1284/175-interest-conflict-regulation.pdf>
13. <https://uzsuv.uz/media/page/2023/05/3>
14. https://www.ung.uz/esg/esg_database/page11

Rezyume: *Ushbu maqolada aksiyadorlik jamiyatlarida manfaatlar to'qnashuvi bilan bog'liq nazariy va amaliy muammolar yoritilgan. Unda manfaatlar to'qnashuviga asos bo'luvchi holatlar, uning sub'ektlari, manfaatlar to'qnashuvining salbiy oqibatlarini tahlil etilgan. Bundan tashqari manfaatlar to'qnashuvi bilan bog'liq bir qator doktrinalar tadqiq etilib, ular bo'yicha muallif o'z munosabatini bildirgan. Maqola yozish jarayonida O'zbekistonda faoliyat yuritayotgan ayrim kompaniyalarning manfaatlar to'qnashuvi bilan bog'liq hujjatlari tahlil qilinib, muallif qonunchilikka o'zgartirish va qo'shimchalar kiritish haqidagi taklifini ilgari surgan.*

Резюме: *В данной статье описаны теоретические и практические проблемы, связанные с конфликтом интересов в акционерных обществах. Анализируются обстоятельства, лежащие в основе конфликта интересов, его субъекты, а также негативные последствия конфликта интересов. Кроме того, был исследован ряд доктрин, связанных с конфликтом интересов, и автор высказал свое мнение по ним. В процессе написания статьи были проанализированы документы, связанные с конфликтом интересов некоторых компаний, работающих в Узбекистане, и автором выдвинуто предложение о внесении изменений и дополнений в законодательство.*

Kalit so'zlar: *manfaatlar to'qnashuvi, aksiyadorlik jamiyatlari, korporativ boshqaruv, shaffoflik, kuzatuv kengashi, boshqaruv organi, direktorlar kengashi, manfaatlar to'qnashuvi siyosati, kompaniya etika komissiyasi.*

Ключевые слова: *конфликт интересов, Акционерные общества, корпоративное управление, Прозрачность, наблюдательный совет, орган управления, совет директоров, политика в отношении конфликта интересов, комиссия по корпоративной этике.*

FORMATION OF GRAPHIC COMPETENCE AMONG STUDENTS

Toreshov D.B.

Karakalpak State University named after Berdakh

Summary: *In-depth coverage of the subject theory, finding interesting and convincing examples, as close as possible to future professional activity, teacher's speech and ability to briefly and logically present his/her thoughts and teaching material, mastering special concepts and professional terms.*

Key words: *Graphical competence, geometric education, spatial thinking, regular and productive work, solve modern engineering problems.*

Aims and objectives of the course "Descriptive Geometry, Engineering and Computer Graphics" is to teach students to read and execute drawings correctly and technically competent. When studying the course, students come into contact with real material objects, starting from individual parts and ending with units, machines, develop techniques and skills to depict on the plane of volumetric technical forms, have the opportunity to judge the shape of the part, machine node on the basis of images in drawings made in rectangular and axonometric projections.

In a modern technical university the study of "Descriptive geometry, engineering and computer graphics" is the only course that gives geometric education to the future engineer and develops his professional competencies in the process of learning. To date, many school graduates have a low level of spatial thinking development. The reduction and change of the course "Drawing" has led to the fact that the first-year students cannot solve such problems, which previously did not cause difficulties. To the main "problems" can be attributed the tasks on construction of views with observance of projection connection lines, construction of a point by coordinates, division of a circle into five or six parts, even types of lines cause difficulties for some students.

As it was said above, graphic disciplines should contribute to the formation of students' graphic and professional competence, the basics of knowledge and skills necessary for the successful mastering of successive disciplines of technical profile studied in subsequent semesters (theory of machines and mechanisms, machine parts, special disciplines in the implementation of course and diploma projects) Graphic competence includes the totality and readiness to apply knowledge, skills and personal qualities for the successful geometric modeling of geometric models. Our task is to prepare students at any level of their training in graphic disciplines. As noted in [1-4], in addition to academic knowledge, it is necessary to draw the attention of students, especially future agroengineers, to those analogs that we can observe in the environment and to those artifacts that are obtained by man when borrowing from nature. Such additional tasks and laboratory works, which were conducted [2-5], not only increase interest in studying the discipline, but also develop independent thinking in future specialists, which, in the end, is the most important in training a specialist who will solve modern engineering problems. The study of graphic disciplines shapes the intellectual sphere of an engineer and his/her readiness for professional activity. Based on the above, we can define the main tasks of forming graphic competence of future specialists [6-8]:

- flexibility of thinking,
- ability to generate new ideas,
- rapid restructuring of consciousness,
- acquisition of new types of technologies and methods of professional activity.

These qualities in future specialists of agro-industrial complex can be ensured due to the development of spatial imagination, which is determined not only by the ability to produce original images, but also by the quality and speed of intellectual processes, the ability to quickly and correctly find solutions to the tasks. A person sensitive to changes in nature is able to see the target

from afar, as he/she has more developed imaginative and spatial thinking, as well as, which is very important, aesthetic taste.

It should be noted that for the formation of graphic competence in students, if they have certain abilities, positive motivation to learn graphics, the controlled independent work of students plays an important role. The student's mind and desire, his/her abilities are manifested in relatively independent acquisition of knowledge, solving tasks that are new for him/her, in transferring this knowledge to a new situation.

The main tasks to be solved in solving this problem [7-9]:

- organization of student's independent work;
- selection of different level tasks;
- increasing motivation for acquiring new knowledge in the discipline; stimulating the conscious need for independent work; conducting a systematic assessment of student achievements;
- realization of correction of further actions with the help of teachers.

Such ways of work with students are used by teachers in the process of lectures, practical and laboratory classes. It should be noted that the department carries out regular and effective work to attract students to research work, to participate in competitions and conferences. The role of the teacher in the study of graphic disciplines is also very important. The effectiveness of classes is largely determined by the teacher's skill, his influence on students, the quality of his preparation for classes. He needs a deep knowledge of the scientific foundations of drawing, a wide acquaintance with special literature on the subject, knowledge of standards.

The teacher should know the history of the development of graphics and be aware of the latest achievements. All this will make it possible to feel confident in the classroom, to cover the theory of the subject in depth, to find interesting and convincing examples, as close as possible to future professional activities. Even the speech of the teacher and the ability to briefly and logically state their thoughts not only contributes to a better perception of the educational material, the assimilation of special concepts and professional terms, but also serves as a model for students, which is extremely relevant these days.

Thus, it should be noted that the whole complex of professional, organizational and personal components is a guarantee of effective activity in the formation of graphic competence in students, and, in particular, students of agro-industrial universities.

References:

1. Sadikova G. "Descriptive geometry and engineering graphics" T.2003.
2. Rozov S.V. Collection of tasks in drafting M. 1960.
3. Khoronov R. Course "Descriptive Geometry" T. 1974 г.
5. Galenyuk G. A. Laboratory work "Geometric analysis of the environment" as a means of formation of creative personality of an agroengineer / G. A. Galenyuk // Formation of creative personality of an engineer in the process of graphic training : proceedings of Respubl. scientific-practical conference. - Vitebsk, 2008. - C. 40-41.
6. Fedorova, M. Model of the organization of an extracurricular independent work / M. Fedorova // Higher education in Russia. - 2007. - № 10. -C. 88-90.
7. Arziev A.S., Madiyarova R.R., Sarsenbaev T.T. Talabalarning mustakil ta'limini chizma geometry fanidan tashkil etish texnologisi. -Journal of Universal Science Research, 1(5), 1418-1422.

Rezyume: *Mavzuning nazariyasini chuqur yoritib bering, kelajakdagi kasbiy faoliyatiga, o'qituvchining nutqiga va o'z fikrini va o'quv materialini qisqa va mantiqiy ifodalash qobiliyatiga, maxsus tushunchalar va kasbiy atamalarini o'zlashtirishga imkon qadar yaqin bo'lgan qiziqarli va ishonchli misollarni toping.*

Резюме: *Глубоко освещать теорию предмета, находить интересные и убедительные примеры, максимально приближенные к будущей профессиональной деятельности, речь преподавателя и умение кратко и логично излагать свои мысли и учебного материала, усвоению специальных понятий и профессиональных терминов.*

Kalit so'zlar: Grafik kompetentsiya, geometrik ta'lim, fazoviy fikrlash, muntazam va samarali ishlash, zamonaviy muhandislik muammolarini hal qilish.

Ключевые слово: Графическая компетентность, геометрическое образование, пространственное мышление, регулярная и результативная работа, решать современные инженерные задачи.

NEW PEDAGOGICAL TECHNOLOGIES IN TEACHING ENGLISH LANGUAGE

Bainiyazov D.

Nukus State Pedagogical institute named after Ajiniyaz

Summary: *This article discusses the problem of finding new techniques and ways to increase motivation to learn foreign languages. One of these forms is new pedagogical technologies, the introduction of which contributes to the effective study of the language. The article defines the concepts of "Pedagogical Technology" and "Smart Education," which are able to provide a high level of training that meets the tasks and capabilities of today's world, will allow young people to adapt to a rapidly changing, unstable environment, will ensure the transition from book content to active with a single common repository of educational materials with an analytical search system.*

Key words: *new information technologies, pedagogical technology, independent work, language social networks.*

In recent years, great changes have been taking place in pedagogical education, which cover almost all aspects of the educational process. The question of the use of modern pedagogical technologies in teaching English language is increasingly being raised. New methods and forms of teaching are emerging, which, in turn, represent not only various technologies of the means of exchanging and transmitting information, with the help of which the educational process is carried out, but also one large system of teaching methods aimed at developing students' communication knowledge and improving speech skills. The main task of a foreign language is to teach practical mastery of a foreign language, to form basic knowledge, that is, the ability to carry out foreign-language and international communication with native speakers. The search for new pedagogical technologies is associated with a lack of motivation among students to learn a English language. Very often, there is no positive motivation, since when learning English language, students face some difficulties and do not assimilate the material due to their psychological characteristics. Work experience shows that the use of various, modern, fresh sources and means provokes interest in students, increases their motivation to study.

Pedagogical technology is a set of techniques, an area of pedagogical knowledge that reflects the characteristics of the deep processes of pedagogical activity, the features of their interaction, the management of which 37 38 ensures the necessary effectiveness of the educational process [1]. The use of modern pedagogical technologies in the process of teaching foreign languages makes it possible to reproduce educational situations, helps to complement traditional teaching methods, contributes to the formation of fundamental skills of foreign language communication from awareness of the ability to express thoughts in another language to independently solving communication problems, increases the desire and interest of students to study, makes them take a fresh look at the subjects studied, thus revealing their creative and intellectual capabilities, talents [4]. Currently, the concept of "SMART" is the main purpose of the development of educational systems. The main source of knowledge is electronic, educational Internet content, technological operations are the provision of feedback between teachers and students, the exchange of knowledge between them.

Smart education is a concept that involves the comprehensive modernization of all educational processes, as well as the methods and technologies used in these processes [2]. SMART education is capable of providing a high level of training that meets the tasks and capabilities of today's world, will allow young people to adapt to a rapidly changing, unstable environment, and will ensure the transition from book content to active content using a single common repository of educational materials with an analytical search system. The quality of training materials in the repository should be constantly monitored through the introduction of various materials and work in a single connection with the educational process management systems.

Considering current, innovative technologies, you should well on the topic of using Internet resources in teaching a foreign language. The possibilities for using online resources are enormous.

Using web resources, the following tasks can be carried out. Include network materials in the lesson content; to independently search for information by students in the framework of work on the project;

- organize and develop reading skills using materials from the network of any degree of complexity;
- improve listening skills based on sound texts of the network of online resources;
- replenish the vocabulary with vocabulary, abbreviations of a modern foreign language;
- study the culture of a particular language [3].

At the moment, there are a large number of sites dedicated to the independent study of foreign languages. On such sites you can find ready-made lessons of teachers of foreign languages, exercises, audio recordings, grammar explanations incomprehensible to the student.

So, for example, the teachers of the English language at the englishonline.britishcouncil.org in their work with students actively uses the site "englishonline.britishcouncil.org" As a rule, this site is very useful in independent work. It is a free English course that is suitable for both beginners and advanced users. The site offers a large selection of audio texts, videos with different difficulty levels. School teachers of the English language can also use this material in their lessons. The advantage of the site is that it is simple and easy to use, so it is one of the best platforms for learning a language. To interest the listener, there are famous talk shows, music videos, funny videos with a hidden meaning, news, exciting dialogues, etc. With the help of exercises that are also available on this site, you can test your knowledge of grammar and vocabulary of the English language, identify your weaknesses.

I would like to give an example of working with audio texts from the site "englishonline.britishcouncil.org," which we enter quite often to perform various tasks in English. The recording of many texts lasts only 2 minutes and this contributes to the fact that the listener does not get tired during this time, his attention does not dissipate and interest does not disappear. One of the themes is called "IELTS online couch." This is interactive learning English language. The work is carried out in an individual form. Everyone listens on their own. Since experience shows, various difficulties arise with collective listening. After that, the author begins the story. When listening, students make notes. The recording is allowed to listen 2-3 times. When listening for the first time, you need to pay attention to the speaker's speech speed, his intonation, try to understand the general meaning of the text. At the second audition, they record: "Who? Where? When? What did you do? " If the text turned out to be difficult or the speaker's speech is very fast, then it is recommended to listen three times. After that, the teacher asks questions like "true or false" to find out how well the students understood the text. Next, work is performed in pairs. Students must retell the text to their interlocutor, ask and answer questions on the content. Thus, the ability to work in pairs is formed, which contributes to the development of dialogical speech.

But this site also has long audio recordings from 11 to 19 minutes, which are best listened to outside the audit time, for example, at home. Working outside the audit time forms the skill of independent work. 39 40 For example, on the topic "Learning at the University" the text lasts 9 minutes and the speaker's speech in this audio text is very fast. But the topic is very useful and has practical value for schoolchildren and students, because the announcer gives advice on studies: "How to prepare for exams?," "How to use the electronic library?," "Where to look for material?" Etc. Since students usually do this work at home, they can listen to texts many times until they understand and extract the necessary information. Typically, everyone receives an individual task to test understanding after listening. Tasks can be of this kind, prepare private questions, correct and incorrect statements, print text with errors or text with omissions, so the student must listen to the audio text carefully and write down every word so as not to miss the important one. The advantage of working with "English reading" is that the teacher can alternate audio texts from light to complex. For example, during the week they listen to easy and short enough texts lasting 1-2

minutes, and before the weekend they give an average recording so that the student has enough time to listen to long material and record the most important moments in order to discuss them with the teacher after the weekend. 30 years ago, it was impossible to imagine that you can listen to a native speaker in real time, but today, thanks to new innovative technologies, we are provided with this opportunity, which makes learning English language many times easier and much more interesting. Thus, it is currently impossible to imagine the educational process without the use of innovative pedagogical technologies. This kind of technology is firmly established in the modern education system. Today, a foreign language teacher has a lot of opportunities that helps to conduct his classes more interesting, more informative. These opportunities encourage students to become more active. Compared to the traditional teaching method, new implementations in training inevitably change the role of the teacher. Its task is to increase the independent work of students, support in the development of personality. Such training allows you to increase motivation to learn, significantly increases interest in learning, and also gives good results in the formation of communication skills in comparison with the traditional methodology.

References:

1. Nazarova N. B., Mokhova O. L. New information technologies in teaching foreign languages //Modern problems of science and education. 2016. № 3.
2. The use of SMART technologies in the educational process "Education without borders." MBOU "SECONDARY SCHOOL NO. 1." 2015. 20 p. [Electronic resource]. Режим доступа : <https://infourok.ru/primenenie-smarttehnologii-v-obrazovatelnom-processe-mobu-soshobrazovanie-bez-granic-540134.html>
3. Sargsyan A. V. Use of Internet resources in a foreign language lesson [Electronic resource]. Режим доступа : <https://nsportal.ru/shkola/inostrannyeyazyki/library/2016/02/23/ispolzovanie-internet-resursov-na-uroke-inostrannogo>
4. Kizlyakova E. S. Introduction of the latest information technologies in teaching foreign languages. S.-P., 2010. 11 p.

Websites:

1. <http://www.ziyonet.uz>
2. <http://www.pedagog.uz>
3. <https://www.britishcouncil.uz>

Rezyume: Ushbu maqolada ingliz tilini o'rganish uchun motivatsiyani oshirishning yangi usullari va metodlarini izlash muammosi ko'rib chiqiladi. Ushbu shakllardan biri yangi pedagogik texnologiyalar bo'lib, ularni amalga oshirish tilni samarali o'rganishga yordam beradi. Maqolada "Pedagogical Technology" and "Smart Education", tushunchalariga ta'riflar berilgan bo'lib, ular hozirgi zamonaviy davr talablariga va imkoniyatlariga javob beradigan yuqori darajadagi tayyorgarlikni ta'minlab beradi, yoshlarga tez o'zgaruvchan, beqaror muhitga moslashishga imkon beradi, kitobdan o'rganib faol tarkibga o'tishni ta'minlaydi va analitik qidiruv tizimiga ega bo'lib zamonaviy o'quv materiyallaridan foydalanishga imkon beradi.

Резюме: В данной статье рассматривается проблема поиска новых методик и способов повышения мотивации к изучению английского языка. Одной из таких форм являются новые педагогические технологии, внедрение которых способствует эффективному изучению языка. В статье даны определения понятиям "Pedagogical Technology" и "Smart Education", которые способны обеспечить высокий уровень подготовки, отвечающий задачам и возможностям современного мира, позволят молодым людям адаптироваться к быстро меняющейся, нестабильной среде, обеспечат переход от книжного контента к активному с единым общим хранилищем учебных материалов с аналитической поисковой системой.

Kalit so'zlar: yangi axborot texnologiyalari, pedagogik texnologiya, mustaqil ish, til ijtimoiy tarmoqlar.

Ключевые слова: новые информационные технологии, педагогическая технология, самостоятельная работа, языковые социальные сети.

THE IDEOLOGICAL AND AESTHETIC ESSENCE OF SIROJIDDIN SAYYID'S POEMS

Doshanova G.

Karakalpak State University named after Berdak

Summary: *The article discusses small poetic forms and their ideological-aesthetic nature in the works of modern poet S. Sayyid. Individual stylistic aspects and artistic skills of the poet are also highlighted. The artistic features of the poems of the two and four genres of the poet's pen are explained with examples.*

Keywords: *binary, four, poetic form, genre, artistic skill, palindrome, metaphor, poetic method, didactic content.*

Uzbek literature has a centuries-old history. Both the scale of epic works and the treasury of poetry are very important components of this millennial literature. It is true that the main task of fiction is to glorify people's thoughts and feelings in their hearts. Therefore, "The poem expresses the pain of the poet as an aesthetic event. In the expression of pain, inspiration and mood are important. Also, the mood of the poet is symbolically reflected in his poems, his attitude to beauty, his hatred of absurdities, his views on the universe and man, nature and the world of creatures.

One of the well-known representatives of modern Uzbek literature, S. Sayyid's literary and aesthetic content is diverse. The artist's artistic research is of great importance in creating this diversity. Color means both the content and the mental state of the poet, and at the same time, sometimes a small poem acquires a social essence. In S. Sayyid's poems, it is noticeable that both the content and the harmony of the poet's mental state are expressed in the form of the poem. That is why, in modern Uzbek poetry, the frequent meeting of the poetic form consisting of two verses, which expresses the mood of the poets of the period corresponding to the individual in the classical literature in a unique concise way, is considered a natural phenomenon for the literary process.

In the following years, many Uzbek artists, including national poets such as Mahmud Toir and Sirojiddin Sayyid, appeared in the works of folk pathos. The basis of the existence of these compact genres in the works of modern Uzbek poets is, of course, related to the fact that they have thoroughly studied the works of classical poets. From this point of view, the couplets of Sirojiddin Sayyid, who write down some examples of creativity to the weight of classical aruz, are distinguished by their closeness to the classical fard genre.

"Yurt uchun ko'z uzra bir kiprikchalik ham bo'lmading,
Bir ariq ustidagi ko'prikchalik ham bo'lmading"[1,49].

In this two-part poem of the poet, the contrast is widely used, the word "lash" in the first verse and the words "bridge" in the second verse are compared, and the metaphors express the thoughts of the lyrical hero about being loyal to the country, being a kind patriot for the people. The artistic skill of the poet is that he achieves a variety of meanings of the word through a single sound in his binary poem. That is, it is noticeable that the vowel sound "i" in the word kiprik in the first verse, and the sound "o" in the second verse fulfill the artistic task of expressing the words in two different meanings. "eyelash, bridge".

After all, the system of sounds sometimes plays an important role in poems written in small form. "Actually, each of the thoughts, images, feelings, and sounds in the poetic text is a unique independent structure that exists separately. But the ideological content of the poem serves to ensure their artistic integrity"[2,183].

Sirojiddin Sayyid's collection "A cup from Hayyam, a cup from Rumi" contains quatrains and fards, in which the poet develops the themes of classical literature. Poems with otherworldly content, which are the main themes of modern Uzbek poetry, include poems formed on the basis of the world and its transitoriness, Sufism philosophy and Islamic ideas", that the poet was inspired by the rubai of Umar Khayyam and the masnavis written by Rumi in creating the fours and individuals

in classical literature. stands out. At the same time, it is possible to observe the mutual synthesis of classical literature and modern poetry in the work of the poet. In particular, the poet:

Qaro zulfing qaro qildi kunimni tunlarimdan ham,
Kuyuk ko'ngil isi kelgay tunum ham kunlarimdan ham,
Falak toshi agar yillar un etsa ustixonimni,
Sening isming sadr bergay unim ham, unlarimdan ham[3,27].

the influence of classical poetics is felt in the description of the beauty of the four. In other words, the lyrical hero's thoughts directed to the second person are reflected, in the image of black hair, gloomy heart, the epithet poetic art is appropriately used, the repetition of the words "day", "night"

"Mukarrir" art is the result of the poet's literary research. At the same time, the words "day" and "night" are used interchangeably in the first and second verses of the poem. Philosophical thoughts related to the continuation of human life are embodied.

In the poet's collection « Xayyomdan bir kosa, Rumiyan bir jom»:

Xudoyim, shukrkim, qoshu ko'z berding,
Yana tillaringa ravon so'z berding.
Pushtu panoh berding menga o'zingdan,
Yana o'z dilimday sodiq do'st berding.[3,359]

The quatrain expresses the experiences of the lyrical hero, who is grateful to God for coming to this world, for giving him eyes to see, a tongue to speak, for having met his beloved, and for giving him a child. In four verses, the author's unique worldview and views on wisdom are expressed.

It can be observed that the result of the poet S.Sayyid's artistic research is the use of a number of artistic arts in this couplet from the "Umr Fardlari" series, and he fulfilled the artistic task of expressing the inner feelings of the lyrical hero. For example:

“Aytmangizkim, odamiydan hotamiylik istadim-

Odamiydan odamiyga odamiylik istadim”. In this poem, the repetition of the word "human" is built on the basis of the art of "mukarrar", and the word "human" comes in the figurative sense of "human being" and a double qualification is observed by adding the suffix "-lik" to it. The repetition of the "o" sound in the second verse of the couplet is of great importance in the melody of the poem.

Also, the poem expresses the fact that the purpose of living in this world is to live a good life, do good to those around you, benefit others, and leave a good name after yourself by emphasizing the word "hotamiyal". Because, in the literature of the Eastern peoples, the image of Khotamtoy, the symbol of Hotami, is familiar to readers. The poet described his views on humanity in the form of this image.

S. Sayyid's:

“Kuchukfe'l kimsalarga ta'rifu tavsif nechuk bo'lgay?
“Kuchuk”ni teskari o'qisang ham – kuchuk bo'lgay”.

In this couplet, the author used the poetic method of "tajhul ul-arif", that is, "to get to know not to know". In other words, the poet questions what kind of lowly and bad people are like. In the second stanza, he skillfully uses the poetic method of "palindrome". That is, by means of the word "puppy", he puts forward his opinion that no matter how you look at people of low, base nature, their verbs do not change[4,158]. In conclusion, it is observed that in the two-line poems of the poet S.Sayyid, a very important social-philosophical or moral-educational idea has been expressed in accordance with the time and at the same time has its own content. This incident indicates the poet's search for content and form in his work, feeding on the masterpieces of classical literature and world literature.

References:

1. Сирожиддин Саййид. Умр фардлари // “Тафаккур” журнали. 2012 йил, 2-сон, 49-бет.
2. Қ.Йўлчиев. Типологик ўхшашликлар: бирлик ва учлик. Тошкент. “Турон замин зиё” нашриёти, 2016 йил, 183-бет.
3. Сирожиддин Саййид. Асарлар. II жилд. -Тошкент, 2018. –Б.27.
4. Гайлиева О. ғарезсизлик дэўири туркий халықлар лирикасында формалық изленислер ҳам олардың типологиясы. Нөкис, 2018. –Б.158.

Rezyume: *Maqolada zamonaviy shoir S.Sayyid ijodida kichik she'riy shakllar hamda ularning g'oyaviy-estetik mohiyati masalalari haqida fikr yuritilgan. Shuningdek, shoirning individual uslubiy jihatlari, badiiy mahorati yoritilgan. Shoir qalamiga mansub ikkilik va to'rtlik janriga xos she'rlarning badiiy xususiyatlari misollar bilan sharhlangan.*

Резюме: *В статье исследуются проблемы и индивидуальности двоестрочных и четверостишных поэтических форм современного узбекского поэта Сирожиддина Саййида. А также вопросы выражения в нем идейно-эстетической сущности. На примерах поясняются художественные особенности стихов малого лирического жанра.*

Kalit so'zlar: *ikkilik. to'rtlik, she'riy shakli, janr, badiiy mahorat, palindrom, metafora, poetik usul, didaktik mazmun.*

Ключевые слова: *двоестрочие, четверостишие. жанр, художественный навык, палиндром, метафора, поэтический стиль, дидактическое содержание.*

PSYCHOLOGICAL AND PEDAGOGICAL STUDY OF STUDENT PERSONALITY

Aljanova G.A.

Karakalpak State University named after Berdakh

Summary: *The article discusses the problems and features of the psychological and pedagogical study of a student's personality. The article is of a theoretical and methodological nature and allows us to generalize the conceptual approaches existing in science to the problem of studying the personality of a student in a higher educational institution.*

Key words: *student, personality, psychological aspects, student activity, success, learning, motivation, development, temperament, character.*

The relevance of this work is due to the fact that at the present stage the issue of personal development and professional development of students is very important.

The study of a student's personality in the practice of higher education is carried out according to the following indicators: motives for entering a university, level of general education preparation, nature of activities before entering a university, degree of formation of skills and abilities of independent work, nature of interests, hobbies, level of development of abilities, character traits, health status, compliance with their content and requirements for the future profession. To identify all this, surveys, observations, peer review of students' independent work, results of tests, tests, exams, and testing are widely used. Based on such study, a differentiated approach to students is carried out. Difficulties in studying and practical work, preferences for academic disciplines and types of classes, self-assessment of the level of one's activities and oneself as an individual, and the degree of satisfaction are identified. [3, c. 222].

The student's activity is unique in its goals and objectives, content, external and internal conditions, means, difficulties, peculiarities of mental processes, manifestations of motivation, consisting of individuals and teams in the implementation of management and leadership. The student's activity is of great social importance, since its main purpose is to ensure the training of specialists for various sectors of the national economy, to realize social needs for people with higher education and appropriate upbringing. Student activity as a whole does not belong to the sphere of material production. The main activity of a student is to study, participate in scientific and social life, in various events that are held for educational and educational purposes. The features of a student's activity include: the uniqueness of goals and results (preparation for independent work, mastery of knowledge, skills, development of personal qualities), the special nature of the object of study (scientific knowledge, information about future work); the student's activities take place under planned conditions (programs, study periods); special means of activity - books, laboratory equipment, etc.; The student's activities are characterized by low intensity of mental functioning and unusually high intellectual tension; During their activities, students experience overload and tasks arise that cause tension (taking exams, tests, completing tests, etc.).

The success of training is determined by such a mental property of a person as learning ability. This concept refers to personal characteristics (adaptability, personality plasticity, intensity of motivation, etc.) and the entire intellectual potential of a person. [3, p. 229].

The success of any activity, including educational activities, primarily depends on the level of intellectual development. The relationship between intellectual abilities and activity is dialectical: effective inclusion in any activity requires a certain level of ability for this activity, which in turn has a decisive influence on the process of development and formation of abilities.

Student performance depends not only on general intellectual development and special abilities, which is quite understandable even from the point of view of common sense, but also on interests and motives, character traits, temperament, personality orientation, self-awareness, etc.

In the process of working with students, the teacher must take into account not only the level and structure of motivation, but also energy, mental potential and a number of life circumstances.

So, if a student has a long break in his studies or has difficulty adapting to a new form of education, the teacher's task will be to teach the student the optimal organization of work. With good potential capabilities and high intellectual lability of the student, which serves as a criterion for good learning ability, the teacher has reason to make higher demands on him and appeal to his volitional qualities.

One of the important needs is the need for communication. In communication, students get to know not only others, but also themselves, and gain experience of social life. The need for communication contributes to the establishment of diverse connections, the development of camaraderie, friendship, and stimulates the exchange of knowledge and experience, opinions, moods and experiences. [5].

Also, one of the most important needs of an individual is the need for achievement. The life of students is specific in terms of their ability to satisfy a number of needs. There are known limitations in satisfying their spiritual and material needs. Research data show that increasing the effectiveness of a student's activities is associated primarily with the development of their spiritual needs in accordance with the requirements of studying at a university and future profession.

Worldview - a system of ideas, ideas, beliefs, and views on the surrounding reality - plays an important role in the activities and development of students. It manifests itself in the understanding and assessment of reality, various events and facts, in a person's social behavior, his actions, activities, and leaves an imprint on feelings, will, and motives. [1, p.73].

Significant differences in the behavior and activities of students are caused by differences in temperaments. Temperament affects not only the expression of feelings or the speed of switching attention, but also other mental processes, as well as the manifestation of character traits, the behavior of students in class, their reactions in difficult situations, to questions, assignments, and assessments. Temperament influences the course and results of various activities.

Students' activities also reveal their character—a relatively stable mental makeup of a person. This is a set of traits that influence all his behavior. The character of a student is a holistic formation, consisting of a number of traits that can be classified into groups. This is, firstly, a group of intellectual traits - observation, prudence, flexibility of mind; secondly, a group of emotional traits - confidence, cheerfulness, cheerfulness; thirdly, a group of strong-willed traits - determination, initiative, endurance, determination, courage, etc.; the fourth group - moral traits - a sense of duty, honesty, truthfulness, etc. Characters are divided into weak and strong, closed and selfish, integral and contradictory. The main thing that reveals a student's character is his actions and actions, especially behavior in a team, academic performance and social work. Character is formed in the process of activity, depending on its motives and the student's general attitude to the surrounding reality. [2].

Students' activities clearly demonstrate their abilities, i.e. such psychological characteristics that allow them to successfully master the university program and effectively improve as future specialists. The structure of abilities includes attentiveness, observation, certain qualities of thinking, memory, etc. Students' abilities develop along with the improvement of their attention, memory, creative imagination, thinking and other mental processes and personality traits, as well as by compensating for missing qualities. Abilities are formed on the basis of consolidating the manifestations of mental processes, behavioral motivations and human properties in connection with the characteristics of his activity.

The relationship between intellectual development and academic performance of students from different universities, specialties and courses has been experimentally established. Young people who show low productivity according to intellectual tests often have poor academic performance; moreover, a significant part of these students are distinguished already from their first years. To diagnose and then apply an actively formative method that allows a student to overcome difficulties in learning, to reveal specific psychological actions to improve the individualization of the learning process - this is the main goal. [3].

In the process of educational activities, the effectiveness of educational work significantly increases the effectiveness of preliminary preparation for the upcoming lecture, updating the

knowledge necessary for its perception. It is especially valuable in mathematics and other exact sciences.

A significant part of students strive to rationalize their educational activities and find the most effective methods of studying the material. The success of their efforts in this area depends on the level of development of: 1) intelligence, 2) introspection, 3) will.

An insufficient level of development of any of these properties leads to significant miscalculations in the organization of independent work, which results in a low level of regularity of classes and incomplete preparation for exams.

While easily mastering educational material, intellectually more developed students in ordinary learning conditions designed for the average student do not strive to develop rational methods of mastering knowledge. This style of study - assault, risk, underlearning of the material - develops in school. The potential capabilities of such students remain undiscovered, especially with insufficient development of will, responsibility, and determination of the individual.

Psychology and pedagogy can approach optimization of the educational process from different positions: improving teaching methods, developing new principles for constructing curricula and textbooks, improving the work of dean's offices, creating a psychological service in universities, individualizing the learning and upbringing process, subject to more complete consideration of the individual characteristics of the student and etc. In all these approaches, the central link is the personality of the student. Knowledge of the psychological characteristics of a student's personality - abilities, general intellectual development, interests, motives, character traits, temperament, performance, self-awareness, etc. - allows us to find real possibilities for taking them into account in the conditions of modern mass education in higher education.

Integration of data about each individual person is carried out using psychography. Psychography is a method of knowing a specific person by generalizing multi-level characteristics, as well as structural and genetic connections between them.

When using the psychographic method, the level and structure of intelligence is taken as a starting point as a condition necessary for the strategic organization of behavior.

It is advisable to conduct an individual conversation in a separate room, without unauthorized persons, having previously informed the student that the information received about him will be kept secret.

The method of self-assessment significantly expands the capabilities of the curator in studying the student. The self-assessment procedure is as simple as possible. The student, depending on the self-assessment of his personal qualities, must put a mark (vertical line) between the two poles of the scale proposed to him. The size of the last one is 10 cm, but it is not indicated for the student, the scale is not graduated.

When processing the information received, the experimenter measures on a scale the distance from the left pole to the mark made by the subject. The result in centimeters is converted into points. This will be the student's self-assessment of one or another quality.

References:

1. Aljanova G. A. On the problem of the phenomenon of leadership in psychology. "Soglom she va bola yili" ga bagishlangan Fan va talim-tarbiya - zhamiyatning intellectual kuzgusi" Republic of ilmiy - nazariy va amaliy anzhuman materiallari.III-bolim. Nokis – 2016. P.73-75
2. Batyuta, M. B., Knyazeva T.N. Developmental psychology: textbook. allowance. M., 2014.
3. M. V. Bulanova-Toporkova Pedagogy and psychology of higher education: Textbook - Rostov n/D: Phoenix, 2002. -544s
4. Volynskaya, L.B. Sociocultural and personal adaptation of a person at various stages of the life cycle: textbook. allowance. M., 2012.
5. Igebaeva F.A., Shakirov I.R. Speech as a means of forming professionally oriented communication. In the collection: Socio-economic aspects of the development of a modern state. Materials of the international scientific and practical conference. 2014. pp. 96 – 98.

Rezyume: Maqolada talaba shaxsini psixologik-pedagogik o'rganish muammolari va xususiyatlari muhokama qilinadi. Maqola nazariy va uslubiy xususiyatga ega bo'lib, universitet talabasi shaxsini o'rganish muammosiga fanda mavjud bo'lgan kontseptual yondashuvlarni umumlashtirishga imkon beradi.

Резюме: В статье рассматриваются проблемы и особенности психолого-педагогического изучения личности студента. Статья носит теоретико-методологический характер и позволяет обобщить существующие в науке концептуальные подходы к проблеме изучения личности студента вуза.

Kalit so'zlar: talaba, shaxs, psixologik jihatlar, o'quvchi faoliyati, muvaffaqiyat, o'qish, motivatsiya, rivojlanish, temperament, xarakter.

Ключевые слова: студент, личность, психологические аспекты, студенческая деятельность, успешность, учеба, мотивация, развитие, темперамент, характер.

TRADITIONS OF FOLKLORE AND CLASSICAL LITERATURE IN KARAKALPAK POETRY

Kabulova Z.

Karakalpak State University named after Berdak

Summary: *This article talks about the synthesis of folklore, classical and world literature traditions in Karakalpak poetry. The importance of folklorisms is highlighted in Muratbay Nizanov's work.*

Key words: *Folklore, classics, world literature, tradition, innovation, folk poetry, legend, ritual, curse.*

As in the poetry of all nations, the synthesis of traditions of folklore, classical and world literature is especially evident in Karakalpak poetry. It is safe to say that the place and role of folklore in the formation and artistic development of Karakalpak poetry is incomparable. To witness that traditional forms, plots, motifs, images of genres such as legends, narratives, fairy tales, songs, epics, anecdotes, ritual statements, applause, cursing, proverbs are widely stylized by Karakalpak poets or are analytically linked and synthesized to the content of their poems.

As a result of this, unique folklorisms were created, proving that folk oral creativity was one of the factors that brought poetic perfection to the poetry of the period.

For example, in Kenesbay Reimov's poem "Tilak" dedicated to women, the people's applause related to Navruz was assimilated as analytical folklorism, and the poet's good wishes for women were expressed through them:

Nawriz qutlı bolsın elleriñizde.
Waqıt tulparınıñ júyrik shabısı
Aldında qalmasın perzent parızı.
Jámi ul-qızlardılın tilek algısı,
Ana,
Muñ túspsin júzleriñizge.[1,4]

In particular, the poems created in the spirit of loss form a unique series. Among them are Gulnara Nurlepesova's poems such as "At the graveside" and "Remembering my mother", dedicated to the memory of her late mother Mayramgul Opa and her father Khazakhboy poet Khojaniyoz.

They were taken from the poet's collection "Aq sag'ymlar"[2,4]. In the "At the Head of the Grave" guide, the names of patrons such as Khizr, Ilyas, and Bibi Fatima are mentioned as talmeh. G. Nurlepesova's poem "Ernazar alakoz about tolg'au" was created based on the stylization of the narratives about the national hero Ernazarbi, while in the poem "Uzatylyp baratyr gyzym" the songs of the mother tongue of the woman marrying off her daughter are described.

And in the ode of the poet called "Spring Feelings" written in aruz weight, the author addressed to his people "Blessed be the moon of my heart, my people who have turned to my heart!" applauded. To such applause, the poetess replied: "Hello, New Year!", "Happy New Day, my people!" can also be found in his poems[3,29].

In particular, the following two lines taken from M. Nizanov's lyrical collection called "Koshig'im ko'shiq" ("Kosyg'ym kosyq") are very similar to popular applause:

O'g'ling bo'lsa yongan o'tday sho'x bo'lsin,
Qizing bo'lsa tushgan yeri to'q bo'lsin.[4,27]

Folklorisms have an incomparable place in Muratbay Nizanov's work. At the beginning of the above-mentioned collection of the poet, he memorized the following lines, which his mother used to sing him to sleep every day when he was little:

Qosig'im qosiq,
Tamağim tesik,
Bir shaynam nan berseñ,
Aytaman qosiq.

In fact, it is known that these verses are recited by grandmothers and mothers to Uzbek children before telling a fairy tale:

Qo'shig'im qo'shiq,
Tomog'im teshik,
Bir chaynam non bersang,
Aytaman qo'shiq

At this point, the poet also remembers the following folk song, which he used to sing in his youth:

Ак терек басында айнам қалыпты,
Ákemnen-sheshemnen kewlim qalıptı,
Ákeme, shesheme dúnya-mal kerek,
Al, maǵan kishkentay sáwer yar kerek.

The poet's poem "I saw a girl on Kegeili's neck" was created to the tune of folk songs, and this verse is repeated in every fourth stanza of this poem, each stanza consists of four stanzas. In its second paragraph, this girl resembles "white angels in fairy tales"[5,13].

Guliston Dao'letova's poem "Aqlygym Tumarisaga" ("To my grandson Tomaris") reminds of caresses in children's folklore:

Tumarisa tompaq qız,
Kózi kúlgen, appaq qız,
Kiygen qızıl kóylegi,
Boylarına shap-shaq qız...
Qatarınıń sarası,
Atasınıń darası,
Júregimde turadı,
Kózimniń aq-qarası.[6,78]

Alla is called "heyvio" in the Karakalpak language. It can be observed that Minaykhan Jumanazarova created a folk song with a modern meaning[7,178]:

Háyyiw balam, hey balam,
Jılay kórme sen balam.
Anah otır bazarda,
Aylanǵan alıp satarǵa...
Balam meniń baldaydı,
Beline sadaq baylaydı.
El shetine jaw kelse,
Dúrkiretip aydaydı.

Stylization of Alla is visible in M. Nizanov's work. In the work of the poet, one can witness the stylized children's songs "Ramazan" ("Yaramazan"), "Yog'ma yomgir, yogma" ("Jao'ma day, jao'ma!"). Poet "My day, my day, my day!" In his poem "I am my mother's first-born, I am the first-born of Kazan, I am the first-born of Kazan, it is raining, it is raining." [8,155]

It can be said that Eastern classical literature, especially the traditions of this nation's own classical poets, had an effective influence on the formation and artistic development of modern Karakalpak poetry. In particular, this can be proved by the example of the poetic works of Karakalpak poets created directly in aruz weight, in the form of masnavi, or in classic verse genres such as ghazal and rubai. For example, N. Toreshova writes in one of her ghazals:

O, na'zigim menin', jani rayxan gu'lindey, sezimleri quyash shug'lası,
Kewilin'dey kewil tappay, qaltiraysan' tu'tigip, ashiw-iza qa'ha'r menen.
Ha'mme o'zin'dey me senin', ko'p g'oy bendeliktin' kelispegen qilwasi,
Qashan muzli qis doslasqan, sa'wbetlesip, gu'ljamilg'an ba'har menen.
Birazlar qopalliliq eter, qızıqpaydı, itibarsız gózzallıqqa,
Olarǵa ersi tuyılar, seniń sırlasıwıń, zer shapaqlı sáhár menen.
Olar tamashagóy, gáp satıwshı, sırttan qarap qızıqlaydı

Sen shıdamay jay tartasań, esaplaspay, bul alasat máhál menen.
Ózinen ne qaların oylaw degen yadında joq, qayǵırmas kóp
Olarǵa úlken mártebe, sholan baylıq, qatnasıqlar náhán.menen.
Moyınlamas ólmes baylıǵı, jaqsılıǵı, perzentleri ekenin tek,
Úsh metr aq buyırarın, xoshlasarda, bul kóz toymas jáhán menen.
Nábiyra der, sen kúyme yar, báribir jarat gózzallıqtı, olar ushın
Keshirimli bol hámmegе, mol jemir óndir, sonday bolar báhár degen[9,128].

If we look at this poetic text from the perspective of the tradition of creating a ghazal, it will be observed that the following have been preserved within the tradition: a) the form of the ghazal genre has been chosen for the text; b) the ramali of the aruz is written in mahzuf weight; c) the word "menen" ("my") has become radif; g) the author's name is given instead of a pseudonym in the praise. In Ajiniyaz Tajiboev's poem "Nur izlar" one can perceive a reference to a person who strives for the light of truth through the image of a propeller:

Men hayron qolaman muna narsaga:
Tungi kapalklar nurga o'ch nega?
Nega tosh tuynukka bir pas tushmaydi,
Qaydin yorug' chiqsa, shuni ko'zlaydi?
Bilmayman, qaytsa-da boyqushlar barho,
O'zin nurga urin, kuyib o'ladi!
O'ladi... Biroq ta Odamday tanho –
Tek yoqti dunyoni suyib o'ladi![10,224]

In conclusion, Uzbek and Karakalpak poetry has developed and continues to develop in harmony with folklore, classical literature, as well as other sister nations and world literature. The synthesis of traditions of folklore, classical and world literature is particularly evident in them. This is due to the fact that traditional forms, plots, motifs, images of genres such as legends, narratives, tales, songs, epics, anecdotes, ritual statements, applause, curses, proverbs are widely stylized by Karakalpak poets, analytically connected to the content of their poems, and synthesized, as a result it is possible to be sure in the example of the creation of unique folklorisms.

References:

- 1.Реймов К. Гумис нурлар (Қосықлар, баллада ҳем коркем аўдармалар). – Нөкис: “Билим”, 2018. – Б.3-4.
2. Нурлеспесова Г. Ақ сағымлар. – Нөкис: Қарақалпақстан басмасы, 2011. – Б.3-4.
- 3.Нурлеспесова Г. Ақ сағымлар. – Нөкис: Қарақалпақстан басмасы, 2011. – Б.29-49.
4. Нызанов М. Қосығым қосық. – Нөкис: “Билим” баспасы, 2019. – Б.27.
5. Нызанов М. Қосығым қосық. – Нөкис: “Билим” баспасы, 2019. – Б.13. (168 б.).
6. Даўлетова Г. Гүзги толғаныслар (Қосықлар). -Нөкис: «Қарақалпақстан» баспасы, 2012. -Б.78-79.
7. Жуманазарова М. Кетпек ушын келгенмен...Танламалы шығармалары. – Нөкис: «Қарақалпақстан» баспасы, 2012. – Б.162-163.
- 8.Нызанов М. Қосығым қосық. Қосықлар жыйнағы. – Нөкис: «Билим» баспасы, 2019. -Б.149-155.
- 9.Торешова Н. Өзийим (Қосықлар топламы). – Нокус: Қарақалпақстан, 2009. – Б.28.
10. XX асир қарақалпақ поэзиясы антологиясы. I том. – Нокус : Билим, 2018. – Б.224 (320).

Rezyume: *Ushbu maqolada qoraqalpoq she'riyatida folklor, mumtoz va jahon dabiyoti an'analari sintezi haqida so'z boradi. Muratbay Nizanov ijodida folklorizmlarning ahamiyati yoritilgan.*

Резюме: *В данной статье говорится о синтезе фольклорных, классических и мировых литературных традиций в каракалпакской поэзии. Значение фольклоризмов подчеркивается в творчестве Муратбая Низанова.*

Kalit so'zlar: *Folklor, mumtoz, jahon dabiyoti, a'nana, novatorlik, qorqalpoq she'riyati, afsona, marosim, qarg'ish.*

Ключевые слова: *Фольклор, классика, мировая литература, традиция, новаторство, народная поэзия, легенда, ритуал, проклятие.*

UDC: 37.0:378

USING AUTHENTIC MATERIALS IN DEVELOPING COMMUNICATIVE COMPETENCE

Joldasbaeva A.

Nukus State Pedagogical Institute named after Ajiniyaz

Summary: *The article explores using authentic materials in developing communicative competence. It considers the significance of authentic materials in language learning and provides practical strategies for selecting, analyzing, and implementing these materials in speaking instruction. The methodology includes speaking activities, text analysis, and communicative tasks aimed at fostering language proficiency and cultural understanding. The article includes for a dynamic approach to speaking instruction that integrates authentic materials to create meaningful learning experiences.*

Keywords: *Competence, speaking skill development, authentic materials, language learning, communication, intercultural communication*

Authentic materials play a crucial role in language learning by providing learners with real-world language input and cultural context. They offer learners exposure to authentic language use, including natural vocabulary, idiomatic expressions, and cultural nuances, which helps improve comprehension and fluency. Authentic materials also offer diverse linguistic features and styles, allowing learners to encounter language in various contexts and registers. By engaging with authentic materials, learners develop their language skills in meaningful ways, gaining insights into cultural practices, societal norms, and communication strategies. Additionally, authentic materials promote learner autonomy and motivation, as learners are more likely to be engaged and interested in materials that reflect real-life communication situations [1.103].

Benefits of authentic materials in developing intercultural communicative competences are immense. They remind learners that there is a real world community that functions exclusively through the use of the target language. Authentic materials help learners to use language in “real life like” situations. Learners are exposed to the real use of language and they are immersed into the real world of the target culture while they are in the classroom. Authentic materials, especially texts, videos, songs need to be actual, as they are culturally sensitive and can become quickly out of date. They can be used for all language levels, from basic to advanced, but need to be carefully chosen. Finally, they have a positive effect on learner motivation as they provide real cultural information and exposure to real language. [2.226] For example, it is more beneficial to use a current newspaper to search for relevant and up to date weather forecast, than to use an out dated text for searching nouns or verbs (which is a typical school-based approach).

Authentic materials are exciting to use, but it is inevitable that we might face some problems. Certainly, there are disadvantages with authentic materials. First of all they are very difficult and time consuming to choose culturally appropriate, up to date and comprehensible materials. Real-life language is often difficult to understand, as it uses dialect words, idioms, complex language structures. Language can be culturally based for certain groups of people and learners might have problems decoding the language. Unsympathetically used can cause frustration with the language learners. Listening to authentic language can also cause problems, as there are many different dialects and accents.

Although, there are some disadvantages with using authentic materials, but there are still many more advantages, especially with developing intercultural communicative competences of learners. In fact, it is hardly possible to develop ICC without using authentic materials, particularly the sociolinguistic, pragmatic and nonverbal competences.

Various theories inform the development of speaking skills, including process-oriented theories, sociocultural theories, and cognitive theories. Process-oriented theories emphasize the recursive nature of speaking, viewing it as a dynamic process involving multiple stages such as monologue, dialogue, describing and simulating. These theories highlight the importance of engaging in meaningful speaking tasks and providing opportunities for feedback and revision to enhance communicative proficiency. Sociolinguistic competence is the knowledge of the sociocultural rules of language and of discourse. This type of competence "requires an understanding of the social context in which language is used: the roles of the participants, the information they share, and the function of the interaction. Only in a full context of this kind can judgments be made on the appropriateness of a particular utterance". Sociocultural theories emphasize the social and cultural aspects of speaking, recognizing the influence of social interactions, cultural norms, and communicative purposes on language development [3.37]

According to sociocultural perspectives, speaking is a social practice that involves negotiation of meaning and participation in discourse communities. Cognitive theories focus on the cognitive processes involved in speaking, such as planning, organizing, and monitoring. These theories highlight the role of metacognition and strategic knowledge in speaking development, emphasizing the importance of explicit instruction and guided practice in fostering communicative proficiency. Overall, an integrated approach that draws on these theoretical perspectives can inform the design and implementation of effective speaking instruction using authentic materials.

Implementing the methodology of developing communicative competence through authentic materials involves several steps:

1. **Selecting Authentic Materials:** Choose a variety of authentic materials relevant to learners' interests, proficiency levels, and learning goals. Consider newspapers, magazines, websites, social media posts, and other real-world texts.

2. **Preparing speech:** Engage learners in brainstorming, pre-reading, vocabulary building, and model writing to prepare them for the speaking task ahead. Many teachers nowadays have realised that authentic texts have a motivating effect on students. For example, a newspaper article or an interview can be perceived as more vivid or "real" than the texts you might find in textbooks. It's through these kinds of authentic texts that students and teachers are able to approach the target country's culture and the people living there; we are able to compare our own culture and lifestyle with that of a particular country. [4.12]

3. **Text Analysis:** Analyze authentic texts together with learners, focusing on genre, language features, text structure, cultural elements, and critical analysis. This helps learners understand how authentic texts are constructed and how to emulate them in their own speech.

4. **Speaking Tasks and Exercises:** Provide speaking tasks and exercises that mirror the features of authentic texts analyzed. Encourage learners to produce their own authentic speaking, incorporating language and cultural elements learned from the analysis.

5. **Feedback and Revision:** Offer targeted feedback and revision strategies to help learners improve their communication skills. Encourage revision tasks, peer feedback, and model revision to support continuous improvement.

6. **Reflection and Extension:** Reflect on the speaking process and outcomes with learners, discussing strengths, areas for improvement, and strategies for future speaking tasks. Extend learning by exploring additional authentic materials and speaking opportunities. A good share of classroom, school-oriented language is context reduced, while face-to-face communication with people is context embedded. By referring to the context of our use of language, then, the distinction becomes more feasible to operationalize [5.196]

By following these steps, teachers can effectively implement the methodology of developing speaking skills through authentic materials, providing learners with meaningful language learning experiences and fostering their language proficiency and cultural understanding.

In conclusion, the technology of developing communicative competence through authentic materials offers a dynamic and effective approach to language learning. By incorporating authentic

materials such as newspapers, magazines, videos, audios and online resources, learners are exposed to real-world language use and cultural contexts, enhancing their language proficiency and cultural understanding. The technology involves selecting authentic materials based on criteria such as relevance, authenticity, and engagement, as well as implementing preparing speech, text analysis techniques, and speaking tasks and exercises. Additionally, formative assessment methods, feedback, and revision strategies play a crucial role in supporting learners' communicative development and promoting continuous improvement. Overall, integrating authentic materials into communicative instruction provides learners with meaningful language learning experiences, empowering them to communicate effectively and engage with diverse texts and contexts in the target language.

References:

1. Nunan, D. Task-based language teaching. Cambridge University Press. 2004
2. Richards, J. C., & Renandya, W. A. (Eds.). Methodology in language teaching: An anthology of current practice. Cambridge University Press. 2002
3. Savignon, 1983. p. 37
4. Daskalos, k., Jellum ling, J. Authentic texts or adapted texts - That is the question! Available on the internet: 2005
5. Brown, H. D. Principles of language learning and teaching (5th ed.). Pearson Education. 2007

Rezyume: *Maqolada kommunikativ kompetentsiyani rivojlantirishda haqiqiy materiallardan foydalanish ko'rib chiqiladi. U til o'rganishda haqiqiy materiallarning ahamiyatini ko'rib chiqadi va bu materiallarni tanlash, tahlil qilish va nutq o'qitishda qo'llash bo'yicha amaliy strategiyalarni taqdim etadi. Metodologiya tilni bilish va madaniy tushunishni rivojlantirishga qaratilgan nutqiy faoliyat, matn tahlili va kommunikativ vazifalarni o'z ichiga oladi. Maqola mazmunli o'rganish tajribasini yaratish uchun haqiqiy materiallarni birlashtirgan nutq yo'riqnomasiga dinamik yondashuvni qo'llab-quvvatlaydi.*

Резюме: *В статье исследуется использование аутентичного материала в развитии коммуникативной компетентности. Он учитывает значение аутентичных материалов в изучении языка и предлагает практические стратегии для выбора, анализа и применения этих материалов в обучении разговорной речи. Методика включает в себя разговорную деятельность, анализ текста и коммуникативные задания, направленные на развитие владения языком и культурного взаимопонимания. В статье предлагается динамический подход к обучению разговорной речи, который объединяет аутентичные материалы для создания значимого опыта обучения.*

Kalit so'zlar: *Kompetentsiya, nutq qobiliyatini rivojlantirish, haqiqiy materiallar, til o'rganish, muloqot, madaniyatlararo muloqot*

Ключевые слова: *Компетентность, развитие разговорных навыков, аутентичные материалы, изучение языка, общение, межкультурное общение.*

**PROBLEMS OF MASTERING MODERN EDUCATIONAL TECHNOLOGIES BY
TEACHERS IN ADVANCED PROFESSIONAL COURSES**

Pirniyazova N.V.

Karakalpak State University named after Berdakh

Summary: *The author identifies the leading problems of mastering modern educational technologies by teachers who attend advanced training courses. The article examines the teacher's activity in the educational process as an integral pedagogical activity. An analysis of research on this issue has been made.*

Key words: *educational technologies, pedagogical activity, personality, system, design, innovation, scientific and methodological work, advanced training.*

In modern society in all its spheres, including education, there is, on the one hand, the rapid development of scientific and technological progress, on the other hand, an ever-increasing need to build relationships in the context of culture from the position of humanism. The Law of the Republic of Uzbekistan "On Education" guarantees the rights of subjects of education: to creative self-determination, self-organization and self-realization. [1]. Finding ways to establish a compromise between the technical sphere created by man and the humanitarian essence of man himself, his culture, is a global problem of our time. In this regard, the question of what education should be like in the coming millennium is becoming increasingly acute. During the period of formation of the humanistic paradigm of education, the tendency of schools to move from traditional "knowledge-based" education to personality-oriented education was clearly identified. [1]. (E.V. Bondarevskaya). [1].

For the first time, it is within the competence and responsibility of each educational institution. development of not only the content of educational and work programs in accordance with independently set goals, but also technologies for their implementation. Currently, there is an increasing need for specialists who, along with competence in their field of activity, have creative potential and the ability to quickly adapt to changing conditions. It is no coincidence that in recent years, activity, the ability to restructure it, and the personal qualities of a person, which determine the image of his entire life, his culture and individual development, have increasingly become the goals of education. Therefore, the search for ways to develop the technological culture of a modern teacher in the system of continuous professional development of education workers seems to us to be a very relevant area of research. [3].

The problem of updating the content and methods of activity of teachers of modern schools in Uzbekistan is exacerbated by the presence of the following factors that we have identified in practical reality:

- educational technologies that the teacher implements in practice are becoming outdated in modern conditions and this leads to the need to update the technology;
- throughout his entire teaching activity, a teacher acquires, along with experience, a whole complex of professional "stamps", which become more and more difficult to overcome with age;
- in the context of a change in the educational paradigm, the teacher, restructuring his activities, tries to apply modern technologies, perceiving them externally, as an algorithm of activity, without mastering the conceptual foundations of these technologies and without adapting them to the specific conditions of his work, which in practice does not lead to a positive result;
- the negative attitude towards educational technologies that currently exists in the pedagogical world, based on the opinion about the supposedly possible manipulation of a person (child) with the help of technology, slows down the process of development and implementation of flexible educational technologies in education that do not contradict ideas of humanism;
- do not contribute to the successful operation of the system of continuous professional development of teachers in solving the problem of developing the technological culture of teachers:

- discrete interaction with teachers taking courses (mandatory advanced training once every three years);
- lack of continuity in work with students, systematicity in organizing the process of mastering educational technologies by them (the content of their course training is practically not connected either with the previous stage of advanced training or with the specific problems of their professional activities);
- the predominant informational and instructional, personal - alienated nature of interaction with listeners;
- the use by teachers and methodologists of centers for advanced training of educational workers of technologies that are not adequate to the content.

This problem is also determined by the fact that over the past decades a number of fundamental works have appeared on the study of the essence and content of the concept of “educational technology” and the classification of technologies. Research by V.P. Bespalko, V.V. Guzeev, V.M. Monakhov, V.T. Fomenko and other scientists made a significant contribution to the development of this problem. There is a need to introduce into scientific and practical circulation the concept of “educational technology”, which in a number of ways differs in essence from the concept of “pedagogical technology”. [5].

There is currently insufficient research regarding this particular problem. The works of scientists reveal the interrelationships of such concepts as pedagogical creativity, technology, skill, culture, creative individuality. However, insufficient attention is paid to the relationship between all of the above concepts and the concept of “educational technology”; the essence of the teacher’s technological culture as a pedagogical category is not revealed.

An analysis of the practice of using educational technologies and the understanding of the essence of technological culture by teachers in schools in the region shows that the low level of readiness to use technology in the practice of the majority of the surveyed teachers, as well as the fact that only some teachers associate the concept of “technological culture” with creativity, skill, and pedagogical culture determine the relevance of the problem of updating professional knowledge and methods of activity of modern teachers. [6].

In the traditional model of advanced training, aimed at ensuring the functioning of the education system in general and subject teachers, in particular, as noted by researchers of the theory of advanced training for teachers (T.G. Brazhe, S.G. Vershlovsky, N.M. Chegodaev), fails to create conditions for the development of creative potential and fully satisfy the individual professional needs and interests of teachers. [5].

The crisis of the advanced training system is currently manifested in its inadequacy to the modern sociocultural, economic and educational situation. This crisis is aggravating in connection with a clearly defined historical trend in the development of the world towards the development of a humanitarian culture, which establishes as a priority spiritual values and ideas about man as the main value.

The theoretical justification for the transition of the traditional system of advanced training to humanistic, personality-oriented foundations, according to modern scientists, is one of the ways to overcome the crisis in the system of advanced training. At the same time, problems related to the selection and structuring of the content of adult education remain beyond the attention of researchers of the advanced training system.

Thus, modern educational technologies were not considered as a component of the content of educational programs, permeating the entire content of the program, and the technological culture of a modern teacher was not considered as a system-forming category of the process of development of pedagogical creativity based on the development of educational technologies.

Thus, it can be noted that the essence and content of the concepts “educational technology” and “technological culture” in the context of the development of advanced training as insufficiently studied open up new opportunities for solving the problem of developing a system of additional pedagogical education.

Considering the activity of a teacher in the educational process as an integral pedagogical activity associated with creativity, it is advisable to apply a systematic approach to organizing the activities of students of teacher courses on mastering educational technologies as the main component of the content educational programs for advanced training of teachers aimed at developing technological culture and creativity of teachers. [5].

Having analyzed existing approaches to organizing advanced training and the content of additional teacher education programs, as well as having studied the phenomenon of educational technologies in the system of advanced training, we can definitely say that it is necessary to expand ideas about technologies and the possibilities of their use for the purpose of developing pedagogical creativity, technological culture of teachers attending advanced training courses. The most significant are two interrelated approaches to the concept of technology.

Firstly, modern educational technologies as a way of self-realization of the creative individuality of the teacher and students in their joint activities in the educational process is a means of adaptation of the teacher in a rapidly changing educational situation.

Secondly, the identified dual essence of technology in the system of advanced training for teachers (as a component of the content of educational programs and as a way of organizing the development of this content) allows for the systematic organization of the activities of teachers who attend courses on mastering technologies.

References:

1. Law of the Republic of Uzbekistan "On Education". No. 464-1, 2007.09.04
2. Concepts for the development of the public education system of the Republic of Uzbekistan until 2030. Decree of the President of the Republic of Uzbekistan dated April 29, 2019 No. UP-5712
3. Akimova A.P. On the nature of professional skills in the activities of master teachers // Modern psychological and pedagogical problems of higher education. Vol. 1. L., 1973.
4. Bondarevskaya E.V., Bermus A.G., Khoronko L.Ya. and others. Methodological sphere of education / Monograph. – Rostov n/a: Bulat, 2007.
5. Zevina L. V. Systematic organization of activities of teachers-students of advanced training courses on the development of modern educational technologies // abstract of doctoral dissertation. Rostov-on-Don 2000
6. Nizamkhodjaev Z. An important factor in increasing the efficiency of the personnel training system. Access mode: <http://senat.uz/ru/news/2015/23-06-1.html>.

Rezyume: Muallif malaka oshirish kurslarida qatnashayotgan o'qituvchilarning zamonaviy ta'lim texnologiyalarini o'zlashtirishning yetakchi muammolarini yoritib beradi. Maqolada o'qituvchining o'quv jarayonidagi faoliyati ajralmas pedagogik faoliyat sifatida ko'rib chiqiladi. Ushbu masala bo'yicha tadqiqotlar tahlil qilindi.

Резюме: Автор выделяет ведущие проблемы освоения современных образовательных технологий педагогами, посещающими курсы повышения квалификации. В статье рассматривается деятельность учителя в образовательном процессе как целостная педагогическая деятельность. Проведен анализ исследований по данному вопросу.

Kalit so'zlar: ta'lim texnologiyalari, pedagogik faoliyat, shaxs, tizim, dizayn, innovatsiya, ilmiy-uslubiy ish, malaka oshirish.

Ключевые слова: образовательные технологии, педагогическая деятельность, личность, система, проектирование, инновация, научно-методическая работа, повышение квалификации.

LAWS OF RENEWAL OF THE POETIC IMAGE IN CHOLPON'S POETRY

Tajibayeva L.F.

Karakalpak State University named after Berdakh

Summary: *In this article, the principles of renewal of poetic images in new Uzbek poetry are highlighted through the works of representatives of enlightenment and modern literature. It is analyzed that traditional images such as flower, nightingale, snow, and cloud in classical literature acquired social meaning in the work of representatives of enlightenment and modern literature.*

Key words: *classic literature, enlightenment, modern literature, image, tradition, sociality, form, content, flower, nightingale, cloud, snow, new Uzbek literature.*

It is known that the renewal of the poetic image in the new Uzbek poetry is a process that has gone through a complicated path. At the first stage, enlightened writers tried to bring the language of poetry closer to the living language by using the poetic images of classical Eastern poetry with a new meaning. In the second stage, representatives of modern literature introduced new images into poetry in harmony with the changes taking place in social life, and completely new content was assigned to classical images. First of all, let us pay attention to the changes that occurred in the literature of the Enlightenment period. K. Khorazmiy, who stands at the head of enlightenment literature, is a creator who was able to give an enlightening tone to the traditional images of classical literature in his socially spirited works. His following poem:

Borurda dahri fonidin barobardur gadovu shoh,

Qani Iskandaru Doro, qani Bahromu Jam, ahbob.

Many of the poet's poems depict historical figures, great poets, and historical events. He looked for solutions to the problems of his time from the spiritual heritage, used the qualities and life experiences of great people as examples. Kamil Khorezmi strives for simplicity in his poems written during this period, does not look for complex and abstract expressions, does not decorate the poems with various ornaments. But he writes lines with such enthusiasm and warmth that the enthusiasm in them evokes a high poetic mood in the reader. Such poems play an important role in reflecting the problems of human inner feelings and social and political life with their brevity and brevity, the uniqueness of pressure and excitement. Under their influence, they expanded the creative scope of Muqimi, Furqat, and Zavqi's poetry. In addition to the national heritage, they turned to the universal cultural heritage. In their works, they used the values of world civilization, mythological and historical images, and through them they sought solutions and lessons for the most important socio-political problems of the time. "The purification of social consciousness affected the national spirit and feelings, and led to the renewal of the nation's artistic thinking"[1,174].

If the classical Uzbek literature aims to awaken the hearts of the people, the new Uzbek literature aims to awaken the minds of the entire people, to awaken the hearts of people who are drowned in the mire of laziness and heedlessness. The only way to raise awareness was to spread enlightenment. Since its creation, the new Uzbek literature has been aimed at enlightening the entire public. Even romantic ghazals promote enlightenment. "That's why in Muqimi's lyrics, we often find expressions such as "unhappiness", "tole zabunlik", "oppression", "jabru sitam", many of the poet's poems complain about "Charkhi Kajraftor" and "nightingales take the place of nightingales". "received, "our people" are despised, and speaks about the "ignorant" being in honor"[2,21].

Mukimi has satires about Viktor, Toyi Ikan bachcha, Kor Ashurboy Khoji, whose actions and characters give priority to showing a certain group or a certain social event in live pictures. Through them, the corruption of the society and the real personalities of the officials are exposed. "These individuals were also created by Muqimi as a complete type and reveal the essence of a certain social phenomenon with their actions and characters" [2,25]. In the period of Uzbek

literature before Muqimi, there were no works that reflected the life of society through the image of a person. There are many examples of this in the works of artists after Muqimi.

One of the pioneers of new Uzbek literature is the naturalness, expressiveness and imagery typical of folk poetry in the poetry of Fitrat. The poet assigns a social meaning to the image of a flower in his work, unlike classical literature. We know that in classical literature, the image of a flower is used as a symbol of the future, and in the work of Fitrat, it discovers a poetic meaning as a sign of hope for the future, bright and beautiful days. Artists who were forced to hide their thoughts in the layers of images and symbols brought a new spirit to the new Uzbek poetry without realizing it. It is true that the literature of the classical period is also a literature built on the language of images, silent similes, and hidden meanings, but the images of Fitrat and Cholpon are sharply different from the literature of the classical period. They try to express their thoughts through phenomena in nature. In the works of Fitrat and Cholpon, a simple "piece of straw" also has its place, and the symbol of "cloud" in black and white colors has completely opposite meanings.

Expressing the white dreams of the people through the image of "Snow", the poet tries to describe the wishes blown in the wind in a unique way. Cholpon assigns a special meaning to the image of snow in his poem "Tortishuv Tongi":

Qayg'uringiz:
Kishanlarni yasavchi "ustalar",
Boshqalarni "tubanlar" deb atovchi xo'jalar:
Sizning uchun yoz boshining qoridek
Eruv kunlar keladur,
Sizning uchun olbostining zoridek
yig'lar kunlar keladir
Chiqadigan quyoshni siz behuda
Etak bilan to'smoq uchun tirishmang,
Ahmoq bo'lib, Azroilning oldida
Jon talashing to o'lguncha berishmang!

Both creators were able to make appropriate use of natural phenomena. The skill of both creators in putting the events of real life through the prism of the heart and placing them in new images is worthy of praise.

The image of blood is of particular importance in Cholpon's work. In his poems, "You were the one who cried more blood than anyone", "His blood that you drank a lot", "Does a dark cloud group cry bloody tears?", "The winner G "like the blood-filled eye of the west", "On the wave of the great sea, in its bosom, there is a bloody, terrible trace of a hundred years;" The sad state of the country, the unprecedented oppression of the people, the cry of fathers, the cries of mothers, the wails of children, and the painful tears of widows are reflected through such verses. In Cholpon's work, the image of "cloud" also carries a unique poetic meaning. "From the eyes of the cloud, tears fall to the ground." "Is my mind black?" Or a cloud in the sky of the country?", "My black cloud group, the veil that covered the blue, the East, has closed the new one" "A gathering of clouds like a black giant, Covered the face of the sun again", "On the blue face black, rows of clouds like Coal; through verses like.

"No matter how urgent the need for change is, it should be noted that the creative research of modern poets was first of all based on the traditions of classical poetry. This is natural, because all modern poets grew up in the national cultural soil. Just as the research in the field of weight began with the selection and use of measures most suitable for the living language of aruz, expanding the possibilities of aruz, research in the field of expression also began with adding new content to poetic images in classical poetry" [3,78]. Just as the ideas and themes of Cholpon's poetry have undergone changes and updates in accordance with the times, changes and updates have also occurred in the world of symbols, metaphors, and symbols. In his poems, he used the traditional poetic images of our classic poetry to interpret the social, spiritual and moral issues of the time and life, while preserving their previous ideological and artistic content. If we pay attention to the

following poem of his, we can witness that he assigned a social meaning to the traditional images of nightingale and flower. Cholpon is a symbolist poet who was able to use the symbols of wind, blood, cloud, shadow, road, star, morning, night, sun, for new life truths and goals. "But Cholpon's symbolism stands on real ground, because its symbols and images are taken from life and nature. That's why the poet was able to express his worries and sorrows that "by describing the bird's dream, apathy is increasing in society, that human dignity is being trampled through "Purple", and that the status of individuality in society is being nullified by "Straw". That is, as a true artist, he thought figuratively with the help of analogies, and because of this, he turned poetry towards art with his work"[4,232].

It should be noted that innovation in image is a somewhat more complex phenomenon than in form. is counted, but the true rise and renewal of poetry depends more on this poetic phenomenon. "The purification of social consciousness affected the national spirit and feelings, and led to the renewal of the nation's artistic thinking"[1,174].

In conclusion, it can be said that if the classical Uzbek literature aims to arouse the hearts of the people, the new Uzbek literature aims to arouse the opinion of the masses. The only way to raise awareness was to spread enlightenment. Since its creation, the new Uzbek literature has been aimed at enlightening the entire public. Even romantic ghazals promote enlightenment.

References:

- 1.Yo'ldoshev Q. Yoniq so'z. T.:2006. Yangi asr avlodi.
- 2.Muqimiy.Tanlangan asarlar.1-jild.Lirika.
3. Афакова Н. Ўзбек жадид адабиётида шеърини шакллари таракқиёт тамойиллари: Филол. фанлари доктори ... дис. – Т.: 2006
4. Hamdamov U.Yangi o'zbek shariyati.-T.: Adib,2012

Rezyume: *Ushbu maqolada yangi o'zbek she'riyatidagi poetik obrazlarning yangilanish tamoyillari ma'rifatparvarlik va jadid adabiyotlari namoyondalari ijodi orqali yoritib berilgan. Mumtoz adabiyotdagi an'anaviy gul, bulbul,qor, bulut kabi obrazlar ma'rifatparvarlik va jadid adabiyoti namoyondalari ijodida ijtimoiy mazmun kasb etganligi tahlilga tortilgan.*

Резюме: *В данной статье через творчество представителей просветительства и современной литературы освещаются принципы обновления поэтических образов в новой узбекской поэзии. Анализируется, что такие традиционные для классической литературы образы, как цветок, соловей, снег, облако, приобрели социальное значение в творчестве представителей просветительства и современной литературы.*

Kalit so'zlar: *mumtoz adabiyot, ma'rifatparvarlik, jadid adabiyoti, obraz, an'ana, ijtimoiylik, shakl, mazmun, gul, bulbul, bulut, qor, yangi o'zbek adabiyoti .*

Ключевые слова: *Классическая литература, просвещение, современная литература, образ, традиция, социальность, форма, содержание, цветок, соловей, облако, снег, новая узбекская литература.*

METHODOLOGY FOR THE DEVELOPMENT OF PHYSICAL QUALITIES IN CHILDREN WITH VISUAL IMPAIRMENT

Toylibaev S., Akmanova D.

*Nukus branch of the Uzbek State University of Physical Culture and Sports, Head of the Department of Martial Arts and Natural Disciplines (PhD), docent
2nd year student of the Nukus branch of the Uzbek State University of Physical Culture and Sports*

Summary: *This article examines the cases of lagging behind the development of agility physical qualities in visually impaired children and the major problems of their development. The level of physical quality of agility reveals the order of its restoration and training, the stages and the peculiarities of the methodology. Different indicators of training from traditional training were studied on the basis of studies.*

Keywords: *features of visual impairment, degree of mastering, recovery, mutual adaptation of movements, physical exertion, loss of complications, physical and mental abilities, development, stages of mental retardation, stylistics*

INTRODUCTION. More important than ever is the issue of theoretical analysis of the traditional directions of educational development in modern times, full understanding of the processes taking place in the world, the formation of educational policies and ways of restructuring the educational system, and adaptation to the state of the child. The norm of development in relation to the age of children occurs due to various diseases, in particular, a decrease in movement activity due to a violation of the activity of vision analyzers, which, in turn, creates great difficulties when performing various actions. Visual analyzers are of great importance when performing a qualitative action for the development of children's action activities.

Cases of lagging behind the development of qualities such as agility in children with visual impairment are considered one of the main problems. In such cases, the regulation of the abilities of mutual adaptation of movements is the main task of the teacher and coach. The possibilities of movement of a visually impaired child depend on the fact that they have developed exactly the same and specific qualities necessary to control the actions that provide a rational and present solution in time. If the ability to correlate actions is manifested in the performance of actions through the desired properties mentioned, then agility is manifested only by the complex solution of the problems of resourcefulness and movement [1,2].

It is known that visual impairments cause lack of daily movements cause a predisposition to additional diseases, such as Gaddi-qomat disorder, the appearance of excess weight. Insufficient activity reduces the functionality of the body's cardiovascular and respiratory system. According to the analysis of the results of the preliminary study, it was found that children with visual impairments of different ages, when compared with the physical qualities of their other peers, the greatest difference corresponded to the indicators of agility qualities

I.Yu. Zakharova, E.V. Mual fibers such as Morgina have carried out a number of global and grandiose studies on correcting, developing, mutating movements, improving abilities for children's visual impairments. In their opinion, there are not enough programs aimed at the direct development of quality, such as agility [4]

Research objective: to explore the possibility of developing methods and means to improve efficiency

This is done through the following tasks: – to study the dependence on age characteristics in the development of agility of children with limited vision; - to substantiate the effectiveness of methods and Means for the development of agility in children with visual activity disorders in additional training of adaptive physical education. In the implementation of its activities aimed at developing the quality of agility, it is necessary to use an individual differentiated approach, taking into account the description of certain types of limitations of the visual system entomological

indicators, secondary deviations, physical loads and physical exercises [3,5]. With the use of an individual differentiated approach in training, the intensity of normalization of means and methods, taking into account the Ophthalmological indicators of the visual system in improving movement activity and the development of agility, will be more effective.

Stages of research. In the first phase of the study, 58 children were selected for the tests. In the second stage of the study, a pedagogical scientific experiment was carried out to check the methodology for the development of agility in children with visual impairments. We have distinguished as experimental and control groups children whose preparation for conducting the study is close to each other, who have a negative impact on their health when performing certain types of physical loads and physical exercises, and who do not have a negative impact. The data in the experimental group was carried out on the basis of scientific and experimental equipment. Training in the control group was conducted under the normal training program. The study was conducted in 18 classes of methodicity in a specially directed description in children who do not have a negative effect on physical exercise, in 22 classes in children with contraindications. Exercises designed to develop agility were also included in the preparatory part of training during a pedagogical scientific experiment. Training was conducted twice a week using an individual differentiated approach. In order to determine the degree of development of agility during the extra hours provided for by the basic plans of training, improving activity of movement in extracurricular time, tests were carried out using the following exercises: a basketball Ball is rolled on the basketball court with the right (left) hand along the "trapezia" line, then thrown into the ring, In the event, the second meter is walked on the "March" command and stopped when the ball crosses the ring. Throws are performed until the ball falls into the ring

Special methodology of research. One of the areas of activity for the development of agility and the development of movement coordination is the speed, accuracy, efficiency of mastering new movements, as well as the restoration of movement activity. The rate of skill formation in relation to various mental physiological mechanisms of agility may depend on movement memory, in which it will depend on the retardation of nerve processes. The speed of mastery of the skill is determined by the mobility of nerve processes in contrast. If Agar is the physiological basis of the development of agarism, due to the slow accumulation and complication of conditional-reflector connections, central nervous system plasticity, as well as the fact that it serves to improve the functions of analyzers, we used exercises that develop the abilities of mutual maocalization of movements as tools for the development of agarism. The same exercises are often part of action games and sports games. Different action games are used to match the content children are learning. In children, Games were used that required great independence, speed, agility, spatial aiming. The conditions of the game were chosen by the implementation of certain action tasks, which are determined by the rules. Each child acted on an educator's assignment, and the completion of these assignments was carried out in a playful way, depending on his personal capabilities. In the exercises used, direct educational tasks were clearly inadequate, and relay teams were used, which were complex in terms of the level of simple mastering, which were elements of sports games. One or more tasks were included in the relay teams, and the exercises were applied in strict order or free selection order. The main eye disease-related opposite barriers were removed, using mostly linear and circular relapses. Exercises are performed from exercises that are simplified and approached to the main tool to develop agility in children who have difficulty performing and often perform erratically, and using elements of sports based on the rules of the game. Simplifying the rules will facilitate the opportunity for children to gradually acquire special skills, in which the elements of competitive games and sports games are used when mastering certain types of physical exercises for children with difficulty. To regulate and develop the differentiation of muscle forces, more jumping exercises, exercises to push the ball far and towards the target were used. Exercises to regulate the width of movement of the limbs with closed eyes were widely used to develop the ability to differentiate space. For the differentiation of movements over time, exercises performed strictly and at a certain time were used, as well as specific and fast, multi-repeated exercises.

Depending on the appropriation of movements by children, new elements were introduced, gradually complicating the movements according to the degree of mutual adaptation. The results of the study showed that the dynamics of the indicators of the quality of agility of the participants of the experimental group under the influence of methods and Means, normalization of physical loads are positive. This shows the effectiveness of pedagogical scientific experiment. Increased levels of agility development in visually impaired children accelerate their socialization.

Dynamics of changes in the indicators of the development of agility in children with visual impairment.

Group	Experimental group						Control group					
Age	12-13		14-15		16-17		12-13		14-15		14-15	
Stage	I	II	I	II	I	II	I	II	I	II	I	II
	$x \pm m$	$x \pm m$	$x \pm m$	$x \pm m$	$x \pm m$	$x \pm m$	$x \pm m$	$x \pm m$	$x \pm m$	$x \pm m$	$x \pm m$	$x \pm m$
Son children (1)	35.3 ±5.9	19.9* ±2.4	35.2± 11.9	19.2* 11.4	31.6 ±8.1	18.9* ±7.4	34.7 ±6.1	31.1 ±5.0	34.0 ±3.4	32.0 ±3.6	32.0 ±7.3	28.2 ±6.4
Girl children (1)	35.6 ±9.2	22.4* ±8.4	38.4± 13.8	21.0± 5.6	33.3 ±5.0	21.6* ±7.3	36.4 ±6.2	31.2 ±4.8	38.2 ±8.3	33.3 ±6.6	33.7 ±3.2	29.6 ±1.8
Son children (2)	34.4 ±1.4	19.2* ±1.3	34.7± 0.7	22.3* ±0.4	35.4 ±3.4	21.4* ±2.1	33.5 ±3.4	30.6 ±0.4	35.2 ±1.5	33.3 ±4.1	34.6 ±5.6	29.9 ±5.4
Girl children (2)	37.2 ±2.5	23.8* ±1.8	37.6± 6.3	22.7* ±2.9	29.2 ±1.1	19.8* ±0.5	39.5 ±3.5	38.5 ±4.9	37.6 ±6.9	35.3 ±3.2	30.0 ±4.3	27.6 ±6.4

Note: (1) - children who do exercises without resistance;

(2) – children who perform exercises with resistance;

*** - differences reliability ($R < 0.05$).**

Further exercises on the possibility of using adaptive physical education classes were given to correct and develop the qualities of the movement according to the degree of adaptation with students with difficulty in the complication of movements. The results of the test to determine the degree of dynamics of the development of agility revealed statistical reliable changes ($R < 0.05$) in all age groups under study. That is, the results of increased agility in children 12-13 years old who perform exercises in the study group without resistance were 32% in boys and 27% in girls. In the control group, the growth rates of indicators were 6% in much fewer boys and 8% in girls. Changes in the development of paediatric agility, which performs exercises with resistance in the study group, had a similar specific orientation, with growth rates of 44% in boys and 36% in girls. The growth dynamics of the indicators in the control group was 9% in boys and 3% in girls.

Agility indicator change dynamics analysis in the 14-15 age group accounted for 25% in boys and 30% in girls in children who performed exercises without resistance in the experimental group. In the control group, these rates were 3% in boys and 6% in girls. In the experimental group of children who performed exercises with resistance, the growth rates were 36% in boys and 40% in girls. Growth rates in the control group were found to be 5% in boys and 6% in girls respectively

In 16-17-year-olds who perform exercises with resistance, the data obtained in the process of proving method city in the experimental group showed that the results in boys were 28%, and in

Girls-25%. In the control group, slightly higher boys and girls than in other age groups accounted for the same 7%. In children who performed the exercises in the experimental group with resistance, they accounted for 40% in boys and 37% in girls, 12% in boys and 8% in girls, respectively, in the control group

In children who perform exercises with resistance in different age groups under study, a much higher increase in the quality studied was found. Low mobility was observed when the indicators were studied before the start of this study. The low results depend on the methods and tools chosen for this contingent in the consequences of eye disease, as well as during the pedagogical experiment. The greatest increase in the quality of the movement studied was observed in boys aged 12-13 years, girls aged 14-15 years. When performing preliminary tests on the execution of movements, rough movements, unreliable movements in the direction given, lowering to the ring were observed after several shots. When the scientific experiment was over, it was observed that rolling the ball was evenly spaced. Excessive efforts were not conspicuous. A clear fall of the ball into the ring occurred after one two shots.

Conclusion. Concluding the study, it is necessary to note that children with various disorders in visual activity were found to have much lower rates compared to their peers. It has been found that the age dynamics of the level of development of agility in children with visual impairment have a similar description in development

As a result of the influence of methodology in the experimental group, it was found that the growth rates of the studied quality indicators are high. It was found that the test rates performed in visually impaired children correspond to the level of normative requirements in Physical Education “middle”, “above middle”. This assessment indicates that the physical quality of the demonstrator agility is effective in comparison with the traditional style of development.

References:

1. Dybina O.V., Sidyakina E.A. Special preschool pedagogy. Electronic educational and methodical manual. Tolyatti State University 2019. From 67-73
2. Mirjamalov M.X., Юнусов С.А., Светличная Н.К. Paralympic history and rules of the game. Educational-methodological manual. Tashkent 2019. 62-63 б.
3. Саломов Р.С., Миржамолов М.Х. Жисмоний имконияти чекланган ўқувчиларнинг спорт машгулотларига мослашиши. Ўқув-услубий қўлланма 2014 йил. 108-114 б.
4. Захарова И.Ю., Моржина Е.В. Игровая педагогика таблица развития бодбор и описания игр. Москва Терфинв 2018. С 74-85
5. Светличная Н.К. Основы адаптивного физического воспитания детей. Методическое пособие // Ташкент-2014. С 42-48

Rezyume: Xulosa: maqolada ko'rish qobiliyati buzilgan bolalarda chaqqon jismoniy fazilatlarini rivojlantirishda kechikish holatlari va ularning rivojlanishining asosiy muammolari muhokama qilinadi. Chaqqonlikning jismoniy sifati darajasi uni tiklash va o'qitish tartibini, texnikaning bosqichlari va xususiyatlarini ochib beradi. Tadqiqotlar asosida an'anaviy ta'limdan tayyorgarlikning turli ko'rsatkichlari o'rganildi.

Резюме: Резюме: В данной статье рассматриваются случаи отставания в развитии физических качеств ловкости у детей с нарушениями зрения и основные проблемы их развития. Уровень физического качества ловкости раскрывает порядок его восстановления и тренировки, этапы и особенности методики. На основе проведенных исследований были изучены показатели профессиональной подготовки, отличные от традиционной.

Kalit so'zlar: Kalit so'zlar: ko'rish buzilishining xususiyatlari, assimilyatsiya darajasi, tiklanish, harakatlarning o'zaro moslashuvi, jismoniy faollik, asoratlarning yo'qligi, jismoniy va aqliy qobiliyatlar, rivojlanish, aqliy zaiflik bosqichlari, stilistika

Ключевые слова: особенности нарушения зрения, степень усвоения, восстановление, взаимная адаптация движений, физическая нагрузка, отсутствие осложнений, физические и умственные способности, развитие, стадии умственной отсталости, стилистика

CLASSICAL TRADITIONAL FORMS IN THE POETRY OF E. VAHIDOV

Baltayeva Z.

Karakalpak State University named after Berdak

Summary: *The article analyzes the image of the national spirit in the poetry of Erkin Vahidov. In the poet's lyrics, the image of the national soul is explored in the example of artistic images and symbols such as depth, ocean, light, eye, the interpretation of national values specific to Uzbeks, as well as the artistic expression of thought.*

Keywords: *Poetry, tradition, artistic image, poetic interpretation, artistic expression, integrity of imagination.*

Literature always appears in a national form. It shows the spirit and identity of the nation. These features are especially evident in poetry. It would not be wrong to say that these aspects are fully summed up in the poetry of Erkin Vahidov.

"I think that traditionalism includes many concepts. For example, idealism, imagery, logical consistency, and internal logic are also included in the tradition. In general, it is a traditional phenomenon that poetry is close to the human heart, an expression of human pain, sorrow, and joy. So, you can't escape from tradition. Searches for form and tone have always existed. Searching for new forms of expression is a tradition," [1,18]the poet writes.

Erkin Vahidov's creative outlook combines classical tradition and advanced experience. The poet's tendency to create a new poetic meaning and a unique philosophical-artistic generalization from the level of emotional vitality determines the uniqueness of the poet's literary interpretation. The skill of being able to describe the subtle feelings related to the psyche of a person in a unique depth of expression shows the logic of the creative nature. Rather, the intensification of the contrastive relationship in the word creates a stylistic difference of free perception. It is the process of increasing the power of the poetic thought that prepares the ground for the integration of the stages of progress, perception and understanding, and for the integration of the imagination in the analysis:

Teranlikni qidirmadim ummonlardan,
Insonlardan topdim uni, insonlardan.
Teranlik bu – nur yog'ilgan yuzlardadir,
Teranlik bu – o'ychan boqqan ko'zlardadir[2,143].

While describing the essence of the concept, the poet asked, "Is there a word for the definition of depth?" forms a rhetorical attitude at the base of the appeal. According to the poem, "the depth is in the unsaid words", its signs are manifested in "the purest wishes flowing from a sensitive heart", its arrow roots are nourished by "the pain of terrible years", its power "has an ocean in the hearts of people" " is attached to emotion, its chant shows that "hopes are as deep as life". While the author is looking for a comparison to the definition, "the calmness of the oceans, the storm" expresses confidence in the leadership of majesty and strength "to the end of my heart". In the series of texts, the first stanza is repeated in a poetic tone: "I did not look for the deep in the oceans, I found it in people, in people!" The creator, who strives to logically complete the description of the idea in each line, emphasizes that the mind is connected to the perception of fairy secrets in very impressive lines. Erkin Vahidov's lyrics experienced a period of serious research in the late 60s and early 70s. The nature of the creator, who has consistently supplemented the traditional interpretation, has become much richer at the current stage due to advanced experience. The density of artistic expression resulting from the conflict between existence and human relations forms a unique image mentality. The depth of the discussion and the density of the romantic mood, the depth of the mood and the analysis of the situation, the nature of the conditional discussion and the tension of the discussion, the analysis of the lyrical experience and the precision of the positional approach determine the core of the poet's lyrics. Usually, every talented artist effectively

uses "methods and forms that enliven the poem, such as dialogue, fictional-conditional question-and-answer, conversation" while enriching the content of the form and enriching the creative philosophy. In fact, the possibility of exploring the social and spiritual nature of life's complexities is greatly expanded in poetry. The stylistic guide is a leading sign that ensures the integrity of the imagination, in which the rhythm of the concept compromises with the harsh reality, in which the variability of musical intensity determines the scales of the level of life coverage, in which the practical development of the image and the skill of using metaphors move to artistic observation. :

Aql deydi:

She'ringdan ne naf,

Mashqlarnigdan lazzat olar kim?

Yo'q, der menga, o'ltirma o'ylab,

She'r yoz, deydi nodon yuragim[2,90].

The poem "Heart and Mind" is built on the nature of discussion. Usually, two complementary poles form an essentially coincidental relationship. The difference that the reality of life reveals is exactly what the debate is all about. In the busy first stanzas, the mind heals the cold movement, and the "ignorant heart" (there is a contradiction at the heart of the sharp irony!) encourages to write a poem. The deepening of the conflict in literary interpretation prepares the ground for the issue to rise to the level of life and death. A sharp choice and inevitable judgment excites the reader. The heart and the mind characterize the human body, and the compaction of internal contradictions is an impossible phenomenon:

Aql menga qilar nasihat:

"Yosh joningni o'rtama bekor".

Yurak bo'lsa, yon deydi faqat

Hayot bizga berilar bir bor[2,91].

It seems that the seriousness of communication actually analyzes the essence of life. The concept of activity directs the interpretation from the philosophy of life to the system of understanding human spiritual existence. Aiming to reveal the content of the poetic character through artistic generalizations, the author equates the soul with spirituality. On the board, the expression of passion and excitement is shown with the help of discussion. After all, the essence "opens up its secrets to the reader only and only in this case when he is addressed with private questions." In it, a heavy and heavy appeal acts as a focal point for observation. The desire to "live on fire" is evident in the lines of "Life is given once". The poet, who logically emphasizes the look, fills each repetition with a new energy, a special spirit.

Logically, at the end of the entire creative direction, a certain social weight, spiritual strength and aesthetic power develop:

Aybli emas, bunda irodam,

Ma'zur tuting, do'stlar, siz meni.

Aql qancha haqli bo'lsa ham,

Tutar bo'ldim yurak izmini[2,91].

A firm solution is expressed in the form of "confirmation-negation" during the entire discussion process. Dealing with the "command of the heart" is a guarantee of creative independence, the poet puts forward the philosophical concept of personality based on the reality of life he has experienced. The conclusion, at first glance, does not seem new and original, but it seems to serve to clarify the essence of the age-old and eternal problem... The alternative of the natural comparison (mind and heart) opens the way to the perception of human existence. The tightly connected clusters of experience prepare the ground for assembling the chain. At the end of the day, the conclusion will definitely make the reader think! After all, human interests and needs, aspirations and goals are always fed by a sharp conflict between two concepts.

In the lyrics of Erkin Vahidov, a unique approach to literary experience and a desire to enrich the creative tradition are combined. In it, the feeling of confidence in the human will makes the breath of the times shine, and the renewal of emotional perception creates a unique image.

Therefore, the desire to polish the integrity of the romantic mood in highly optimistic veils enriches the poet's poetic interpretation with vitality, attractive warmth and spiritual depth, the wholeness of the tariff-description-analysis-imagination is the freshness of the national feeling, color, thought and tolerance, intelligence and subtlety, exaggeration 'a and the word play, interprets the aspect that shows the tone of Uzbek.

References:

1. Vohidov E. Shoiru she'ru shuur. – Toshkent: Yosh gvardiya, 1987. –B. 18.
2. Vohidov E. Yoshlik devoni. – Toshkent: G'afur G'ulom nomidagi adabiyot nashri, 1969.-B.143

Rezyume: *Maqolada Erkin Vohidov she'riyatida milliy ruh tasviri masalasi tahlilga tortilgan. Shoir lirikasida milliy ruh tasviri teranlik, ummon, nur, ko'z singari badiiy obraz va timsollar, , o'zbeklarga xos milliy qadriyatlar talqini, shuningdek, fikrning badiiy ifodasi misolida tadqiq qilingan.*

Резюме: *В статье анализируется образ национального духа в поэзии Эркина Вахидова. В лирике поэта образ национальной души исследуется на примере таких художественных образов и символов, как глубина, океан, свет, глаз, интерпретация свойственных узбекам национальных ценностей, а также художественное выражение мысли.*

Kalit so'zlar. *She'riyat, an'ana, badiiy obraz, poetik talqin, badiiy ifoda, tasavvur yaxlitligi.*

Ключевые слова. *Поэзия, традиция, художественный образ, поэтическая интерпретация, художественное выражение, целостность воображения.*

IN UZBEK AND KARAKALPOQ POETRY TRADITIONS OF WORLD LITERATURE

Kabulova Z.

Karakalpak State University named after Berdakh

Summary: *In this article, the problem of world literary traditions in Uzbek and Karakalpak poetry is studied. It is said that J. Izbaskanov created triplets by harmoniously rounding up the tercina genre in Europe and the hokku genre in the Middle East.*

Key words: *Socio-political, philosophical-symbolic, reverse genre, hokku, tripartite, modernity, interpretation.*

At the end of the 20th century, socio-political, philosophical and symbolic interpretations began to appear in Karakalpak literature. So, time-tested factors have created a wide opportunity for serious interpretations in this literature as well. In the book "White Birds" by the famous poet Jiyyenbai Izbaskanov, we can see the specific aspects of this phenomenon:

Qo'y jigaram! Malham bo'l menga!
Qora uyning tuynugini ochgandek,
Bir seskanib, chekinsin-da g'am.[1,139]

In this trilogy created as a philosophical-symbolic expression of Japanese hokku, the poet's emotional connection between the world and pain, and his longing for ways to get rid of it are observed. It seems that the hero is reacting to the fate of the patient who is looking for a way to himself by confronting nature. The hole of the black house can comfort only those who are tired of the pains of the world.

He decided to forget the sadness even for a breath, to know his heart with tenderness. In the continuum of reality, the unity of image and impression has arisen. This poem poetically perceives two aspects. All calamities that befall a person's destiny are ultimately measured by the ability to purify him and train him to be spiritually strong-willed.

In this interpretation, we are witnessing J. Izbaskanov's harmonious integration of the tercina genre in Europe and the hokku genre in the Middle East. It is a new phenomenon that the "Black House", which is built for the life of the Karakalpak people, is especially related to the fate of people. It opened the way for a little expansion of the interpretation. This testifies to the uniqueness of the poet's way of understanding and interpreting the world.

Kuzning so'ngi oylarining tumani,
Falakning gardishi, taqdir haqida,
Og'ir o'ylarimning qat-qat gumoni...[2,264]

In this triptych, the poet is referring to the season, that is, in his spiritual-philosophical observation that takes place in the last months of autumn, he is describing the immense sufferings that fate has left for him, disappearing like fog or disappearing with it. When is thinking heavy? How about a lot of doubt? The poet is eager to know the essence of life, which gave his hero endless suffering. It is natural, believable, and logical that the wind of the sky will turn and throw him into the pit of complete loneliness. So, the philosophical-aesthetic aspects reflected in the essence of the research mean that he has deeply mastered the skills of imagery in the poem.

It is seen that the poet effectively absorbed Western and Eastern poetic updates and was able to create poetry in accordance with the unique Karakalpak literature and priesthood.

As Shermurod Subhon wrote: "Mallarme, one of the representatives of the 19th century French symbolism movement, which supports ambiguity in poetry, puts forward the idea that "there is always a hidden side to be found in poetry[3,9]" . In fact, it became clear when we analyzed the specific expression of the "hidden side".

Walt Whitman founded the verlibr method in Europe and formed modern interpretation skills. Federico García Lorca also created effectively in this artistic form and reached Uzbek literature through Shavkat Rahman's translation. B. Genjemurod, U. Hamdam also made the unique

form of this genre into a tradition. The law of this genre, in the logical consistency of poetic thought, calls for intimate experiences in the heart of a person, expansion of imagination, deep thinking about the world and man.

The socio-psychological, cultural and educational mood that occurred at the dawn of the 20th century led to a radical renewal of artistic forms - poetic genres. The creations of a number of poets, recognized as a phenomenon of modernism, turned from traditionalism to non-traditionalism. As a result, the principles of creation related to the artistic reflection of the world in the poetic thinking of humanity began to be fundamentally renewed. In the composition of genres such as sarbast, triplet, tertsinas, color-picture forms, musical-rhythmic tones formed a combination. The world's literary community began to learn from each other to an amazing extent, followed each other and made unique formal and stylistic innovations. In this respect, it is observed that poetic form is filled in the poetry of the Karakalpak poet B. Genjemurod, while in the poetry of the Uzbek poet U. Hamdam, the skill of deep understanding of the essence has risen to the leading position. While B. Genjemurod's main goal was to rework the mythology of the Turkic peoples, U. Hamdam put forward the explanation of the myth created by the modern man. However, in both poets, the poetic text moved from objectivity to subjectivity. The phenomenon of a charming person who was alone with human pain in any situation and was able to find good in its essence was glorified. Although the form of sentences, structure of poems, and conceptual development have partially changed in their lyrics, there is no excess or inappropriate detailing. Most importantly, the main task and essence of literature, whose main subject is human, and poetry based on the interpretation of human experiences, has not changed. Again, the lyrical hero, author-creator and reader became even more closely related. In the poetic development of Karakalpak poetry, it is observed that the artistic and aesthetic traditions of world poetry had a great influence on the stylistic and formal researches of national poets. In particular, this can be justified by the example of the poetic works of Karakalpak poets in a new direction. The social-psychological, cultural-educational mood that occurred at the dawn of the 20th century created the ground for a radical renewal of artistic forms - poetic genres. G. Dao'letova called her poem "elegy" as in world literature, about the death of her younger brothers Sarsenbay and Turganbay. In her elegy called "Inim Sarsenbayga", the poet composed lines based on such parallelism:

Gumshalay gúlin solıptı,
Kózlerge merwert qonıptı...
Júzleri megzer júzińe,
Kózleri megzer kózińe,
Tulǵası quyıp qoyǵanday,
Aynımay uqsar ózińe.
Oyımdı terbe qoymadıń,
Ómirdi tereń boyladıń,
Kútip júrmen solardıń,
Shańaraq qurǵan toyların.

The poetess's elegy "Inim Turganbayǵa" also attracts attention due to its wealth of verses based on syntactic parallelism, and rhetorical interrogative sentences in most of the verses:

Altı jas náwshe palapan...
Baxıtın shıǵıp taǵına...
Olardı kómir baǵına...
Qarlıǵash eken qız bala,
«Ushtımda kettim uyadan,
Awıl-el qıymay qızǵana,
Ushırdı náylaj uyadan»...
At shabıs qızıq toy berdi,
Bayraqqa jılqı-qoy berdi,
Biybiraba qurda aytqanda

Júrekten sánli jay berdi.
Ómiridin ózi toy eken,
Jaypawıt, bálent, oy eken,
Birewler sezim iyesi,
Birewler mázi boy eken...
Buwalmay kettin buwatın.
Turǵanbay atlı bawırım...
Kórmedin ul-qız toyların,
Tiklegen qáddi-boyların,
Iyesi joytıp turǵanday,
Miynetli salǵan jayların.
Qaylarga ketti Turǵanbay?[4,151]

It seems that as a result of following the traditions of world literature, genre appearances have increased. Examples of sonnet, poem, ballad genres can be found in the work of some poets. For example, Jienbai Izbaskanov's "Ballad of Vulture" can be used as an example. Literature emerged as an expression of changes in human tastes and views. It became the main requirement not to rely too heavily on "acquired artistic experiences" and not to repeat them. In poetry, the artistic form has become stable, and the philosophical observation has increased. Versatility has been achieved in giving a complete summary of life. Poets want the reader to enter the mysterious world of poetry. In order to understand the hidden thought on the basis of symbols and metaphors, the reader is encouraged to observe, to be interested in knowing the world in the way of thinking he needs. The formation and artistic development of Karakalpak poetry was effectively influenced by Eastern classical literature, especially by the traditions of its own classical poets. This can be proven by the poetic works of Karakalpak poets, created directly in aruz weight, in the form of masnavi, or in classic verse genres such as ghazal, rubai, muashshar.

In conclusion, it should be said that in the poems of Uzbek and Karakalpak poets, sincere feelings are presented to the attention of readers in harmony of content and form. A collection of ideas emerged as an artistic idea. In particular, one aspect is clearly visible in the works of both national poets - the mysterious interpretation of human destiny. Modernism, a new expression of socialized literature, has come to terms with the human "I" today. Literary communication imposes an equal sense of responsibility on both sides. As a result, he managed to prepare a "field" for himself between modernity - tradition and innovation.

References:

- 1.Избасканов Ж. Оқ қушлар. – Нукус: “Qaraqalpaqstan”, 2004. – Б. 319.
- 2.Избасканов Ж. Оқ қушлар. – Н.: “Qaraqalpaqstan”, 2004. – Б. 264.
- 3.Субхонов Шермурод. Шеърят иқлими. – Тошкент: “Зарқалам”, 2005. – Б. 9.
- 4.Даўлетова Г. Гўзги толғаныслар (Қосықлар). – Нөкис: «Қарақалпақстан» баспасы, 2012. – Б.150-151.

Rezyume: *Ushbu maqolada o'zbek va qorqalpoq she'riyatida jahon adabiyoti an'analari muammosi tadqiq qilingan. J.Izbaskanov Yevropada tersina janri va yaqin Sharqda hokku janrini uyg'un bir tarzda yaxlitlashtirib uchliklar ijod qilgani haqida so'z boradi.*

Резюме: *В данной статье исследуется проблема мировых литературных традиций в узбекской и каракалпакской поэзии. Говорят, что Ж. Избасканов создал триоли, гармонично соединив жанр терчина в Европе и жанр хокку на Ближнем Востоке.*

Kalit so'zlar: *Ijtimoiy-siyosiy, falsafiy-ramziy, tersina janri, hokku, uchlik, zamonaviylik,talqin.*

Ключевые слова: *Социально-политический, философско-символический, обратный жанр, хокку, трёхчастность, современность, интерпретация.*

COMMUNICATIVE AND PRAGMATIC POTENTIAL OF MARKERS MODALITIES IN ARTISTIC TRANSLATION

Jumamuratova R.A.

Karakalpak State University named after Berdakh

Summary: *The paper highlights the multifaceted and complex phenomenon of modality in terms of communicative and pragmatic features of its expression in the process of translation. The purpose of the study is to investigate and analyze the communicative and pragmatic features of the expression of modality in the context of artistic discourse. In the modern scientific paradigm, the linguistic category of modality is considered as a functional-semantic, semantic-pragmatic, semantic-syntactic, syntactic, grammatical or logical category. In the broadest sense, modality can be defined as the attitude of the speaker to the content of the statement, and the attitude of the content of the statement to reality. Within the communicative-pragmatic approach, modality is considered in inseparable connection with utterance, speech act and communicative situation in general, for the successful implementation of which communication participants, guided by the established rules of a communicative behavior, operate certain language units that reveal their pragmatic properties.*

Key words: *category of modality, modal markers, pragmatics of translation, communicative equivalence, illocutionary and perlocutionary speech acts.*

Problem statement in general and justification of its relevance. Thanks to the reorientation of the scientific focus research at the end of the XX century from the linguistic-centric approach to the anthropocentric one, characterized by the study of a person as a subject of language, is becoming more relevant than ever to the study of modality from the perspective of a communicative-pragmatic linguistic macroparadigma. Modality is a multi-faceted category that has different ways of expressing and functioning in a language. Despite the fact that it is the object of long-term study by domestic and foreign linguists and translation experts, CE- many aspects of it remain unresolved, in particular, issues related to the communicative and pragmatic approach to research, as well as anthropocentrism of language as one of the pragmatic factors that affect- they choose modal markers in speech. Within the framework of the communicative-pragmatic approach, modality is considered in an inseparable connection with the utterance, Speech Act and the communicative situation as a whole, for the successful implementation of which the participants of the meeting, guided by the established rules they operate with certain language units that reveal their pragmatic properties. Accordingly, the choice of the topic of this study is due to the presence of poorly studied issues related to the communicative and pragmatic nature of modality.

Analysis of recent research and publications. Despite numerous scientific works on translation studies by such authors as I. S. Alekseeva, N. D. Arutyunova, L. S. Barkhudarov, A. I. Klishina, V. N. Komissarov, N. D. Latyshev, which address the issues of communicative, cognitive and pragmatic aspects of translation, as well as such scientists as L. Voynalovich, N. VUS, V. Ovsyannikov, F. Palmer, I. Smushkov, V. Prosolova, M. Shemuda, who highlight the problems of reproducing modality in translation, however studying the pragmatic aspect of transmission expression content with modality markers from the original language to the translation language requires further study and understanding.

Purpose and objectives of the article. The purpose of invited intelligence is to study communicative and pragmatic features expression of modality in artistic translation. To achieve this goal, you must- it is necessary to solve the following tasks: 1) analyze the communicative and pragmatic features functioning of lexical and lexical-grammatical means that explicate modality in the within the structural components of a communicative situation; 2) identify pragmatic factors, determining the adequacy of the transmission of a communicative situation with modality markers; 3) features of translation of modality markers as a communicative and pragmatic category.

Presentation of the main research material. Due to the anthropocentricity of speech, one of the main components of a communicative situation is directly the participants in communication, whose social characteristics and mental state influence the choice of modal markers. Social characteristics include gender and age characteristics of communicants, as well as their social status, which can be symmetrical or asymmetric, and social distance. The manifestation of mental states correlates with three levels: emotional, cognitive, and social.

In the modern scientific paradigm, the linguistic category of modality is considered as a functional-semantic, semantic-pragmatic, semantic– syntactic, syntactic, grammatical or logical category. In the broadest sense, modality can be defined as the speaker's attitude to the content of the utterance, as well as the attitude of the content of the utterance to reality. Moreover, it is advisable to distinguish an integrated broad concept in which modality appears as a communicative-pragmatic category that acts in close interaction with the category of subjectivity and reflects the speaker's attitude to reality and to the content of the utterance.

In Russian linguistics, there is a tradition to distinguish modality into subjective and objective. Despite the large number of proponents of this division, a number of linguists, whose points of view we adhere to, point out that its convention, since the choice of means of implementing an utterance always depends on the speaker, during which he selects some meanings and rejects others, which allows us to talk about the limitations of his freedom [4, 50-51]. So, it can be argued that the personality of communicants, as well as their interpersonal relationships, affect to choose the means of expressing modality.

The successful implementation of communication is undoubtedly influenced by such pragmatic factors as the social status of the interlocutors and the social status of the interlocutors. the distance between them, which can be included in the framework of so-called "communication registers". By the latter, L. S. Barkhudarov understands certain conditions or situations of communication that determine the choice of certain language tools [1, 110]. The main components of the communication register are the participants in the communication process (their official and social status, degree of intimacy), as well as the conditions in which the process of speech communication takes place (place, time, environment communication). In this regard, L. S. Barkhudarov notes the presence of 5 registers: familiar, relaxed, neutral, formal and sublime [1, 111].

One of the oldest, but quite relevant today in the field of Translation Studies, is the question of equivalence [14].

Whether there is an equivalence problem in the pragmatics of translation [10, 200]. Obviously, the pragmatic essence of any utterance or text focuses on communicative translation, and semantic translation concerns mainly semantic meaning of sentences and texts, i.e. their propositional meaning. This approach in semantic translation unambiguously ignores what is encoded in the texts, respectively, communicative translation considers the features of the message modality and discursive markers that do not carry the propositional.

Pragmatic knowledge and increased awareness of its importance sharpens the translator's insight [15].

From the point of view of V. N. Komissarov, pragmatics affects the process and result of translation, requiring reproduction of the pragmapotential of the original and attempts to ensure the expected and desired impact on the recipient of information information Tay [5, 136]. Note that, in accordance with the the definition that was put forward by V. N. Komissarov is the ability to define a chain of processes that are in a sequential order and assume a certain result.

Consider this chain: reproduction of the pragmapotential of the source text → the expected effect on the recipient of the translated text in the process of communication act → understanding and evaluation, in other words, perception, by the recipient of the translation test. Based on this definition, it should be noted that the recipient of the text. Dominant function it should be taken into account by the creator of the text during its development.

In addition, after performing these actions, it is necessary to take into account the communicative orientation of the entire source text. The translator has the necessary set of methods and techniques to achieve the desired effect on the recipient. This list contributes to explanation of those factors of the source text that may be incomprehensible to the recipient. Together, these methods form a pragmatic adaptation of translation. According to V. N. Komissarov, the pragmatic potential of the text depends on three main factors: A) on the content of the utterance; B) on the nature of the signs that make up the utterance; C) on the receptors that they perceive this statement [5, 130]

Presentation of the main research material. Due to the anthropocentricity of speech, one of the main components of a communicative situation is directly the participants in communication, whose social characteristics and mental state influence the choice of modal markers. Social characteristics include gender and age characteristics of communicants, as well as their social status, which can be symmetrical or asymmetrical, and their social distance. The manifestation of mental states correlates with three levels: emotional, cognitive, and social.

In the modern scientific paradigm, the linguistic category of modality is considered as functional-semantic, semantic-pragmatic, semantic-syntactic, syntactic, grammatical or logical category. In the broadest sense, modality can be defined as the attitude of the speaker to the content of the utterance, and the attitude of the content of the utterance to reality. Moreover, it is advisable to distinguish an integrated broad concept in which modality appears as a communicative-pragmatic category that acts in close interaction with the category of subjectivity and reflects the attitude to the reality and content of the utterance. In Russian linguistics, there is a tradition to distinguish modality into subjective and objective. Despite the large number of proponents of this division, a number of linguists, whose points of view we adhere to, point out that its convention, since the choice of means of implementing a statement always depends on the speaker, and therefore is subjective in its essence. Accordingly, the personality of communicants to one degree or another leaves its mark on objectivity statements.

Communicative interaction within the framework of a communicative situation with is characterized by the presence of a common goal in the interlocutors, which it involves using reliable information to reach mutual understanding and agreement. However, communication is not limited to one goal, since each of the communicants sets personal subjective goals for themselves, which correspond to their common communicative intent. Any communicative intent determines the speaker's choice of appropriate modal verbs or modal words with the semantics of necessity or possibility and is aimed at achieving a certain perlocative effect. In the course of communication, the speaker and listener choose those communication strategies and tactics that contribute to achieving their personal attitudes. The choice of modal markers that express an epistemic necessity or possibility directly depends on the chosen communicative one strategies and tactics that implement it. In case of implementation of their communicative intention, the speaker it achieves the desired perlocative effect – this allows us to talk about the success of communication. An unplanned and unwanted perlocular effect indicates a communication failure. Under the influence of subjective and objective reasons, a communicative situation may arise in which participants in speech interaction distort the reliability of the information provided, resorting to various techniques within the communicative situation, namely, the use of appropriate modal markers with semantics opportunities or needs. The speaker and listener are active participants in speech interaction, in which, as a result of the exchange of replicas, roles are constantly changed. M. Y. Oleskov describes this process as follows: to maintain communication- in the course of communication, the interlocutors, changing roles, interact with each other with a friend, they control the parameters of the communicative situation and, in accordance with the changes that occur during communication, show their own reaction [7, 16].

Moreover, the components of a communicative situation include the communicants themselves, their communicative intentions and the purpose of communication, a temporal-spatial parameter that determines the choice of language means of expressing modality. The speaker's

illocative intent affects the choice of epistemic modal markers. As A. J. Greymas notes, communication is an action in the process of which it selects some values and rejects others, which allows us to talk about limited freedom [4, 50-51]. Therefore, it can be argued that the personality of communicants, as well as their interpersonal relationships, influence the choice of means of expressing modality.

The successful implementation of communication is undoubtedly influenced by such pragmatic factors as the social status of the interlocutors and the social status of the interlocutors. the distance between them, which can be included in the framework of so-called "communication registers". By the latter, L. S. Barkhudarov understands certain conditions or situations of communication that determine the choice of certain language tools [1, 110]. The main components of the communication register are the author names the participants in the communication process (their official and social status, degree of proximity- bones), as well as the conditions in which the process of speech communication takes place (place, time, communication environment). In this regard, L. S. Barkhudarov notes the presence of 5 registers: familiar, casual, neutral, formal and the sublime [1, 111].

One of the oldest, but quite relevant today in the field of Translation Studies, is the question of equivalence [14]. Whether there is an equivalence problem in the pragmatics of translation [10, 200]. Obviously, the pragmatic essence of any utterance or text focuses on communicative translation, and the semantic essence of any utterance or text focuses on communicative translation. translation concerns mainly the semantic meaning of sentences and texts, i.e. their propositions- this value. This approach in semantic translation clearly ignores what is encoded in the texts, respectively communicative- the translation considers the features of the message modality and discursive markers that they don't carry a sentence. Pragmatic knowledge and increased awareness of its importance sharpens the translator's insight [15]

In conclusion I want to mention that in every sphere in every aspect has it's difficulties and problems to solve this problems are not easy and not problem.

References:

1. Barkhudarov, L.S. (1975). Yazyk i perevod (Voprosy obshchey y chastnoy teoryy perevoda) [Language and translation (Questions of general and special theory of translation)]. M.: «Mezhdunar. otnosheniya», 240 s.
2. Voynalovych L.P. (2013). Modalnist' yak bahatoaspektna linhvistychna katehoriya [Modality as a multifaceted linguistic category]. Naukovi zapysky Nizhyn's'koho derzhavnoho universytetu im. Mykoly Hoholya. Seriya: Filolohichni nauky. Kn.3. S. 28–32.
3. Vus N. Y. (2006). Modalnist' ta yiyi traktuvannya u pratsyakh doslidnykiv [Modality and its interpretation in the works of researchers]. Slov'yans'kyy zbirnyk. Odesa. Vyp. 12. 128 s.
4. Hreymas, A.-ZH. (2004). Strukturnaya semantika: Poysk metoda [Structural semantics: Search of a Method]. Perevod s frantsuzskoho L. Zymynoy. M. : Akademicheskyy Proekt. 368 s.
5. Komysarov V. (2000). Obshchaya teoryya perevoda [General theory of translation]. Moskva : CheRo. 136 s.
6. Ovsyannikov V. V. (2010). Anhlyyskye modal'nye hlaholy kak perevodcheskaya problema [English modal verbs as a translation problem]. Naukovi zapysky. Seriya: Filolohichni nauky (movoznavstvo): u 5 ch. Kirovohrad: RVV KDPU im. V. Vynnychenka. Vyp. 89 (1). S. 83-86.
7. Oleshkov M.YU. (2006). Modelyrovanye kommunykativnoho protsessa [Modeling of the communicative process] : monohrafiya. Nyzhnyy Tahyl: Nyzhnetahyl'skaya hosudarstvennaya sotsyal'no-pedahohicheskaya akademya. 336 s.
8. Panfylov, V. Z. (1977). Katehoriya modal'nosty y ee rol' v konstytuyrovanny strukturny predlozhenyya y suzhdenyya [The category of modality and its role in the constitution of the structure of sentence and judgment]. Voprosy yazykoznavstviya. № 4. S. 37–48.

11. Hatim, B. (2007). "Intervention at text and discourse levels in the translation of 'orate' languages". In Munday (ed.), 84-96.
12. Hatim, B. and J. Munday (2004). Translation. An Advanced Resource Book. New York and London: Routledge.
13. Munday, J. (2001). Introducing Translation Studies. Theories and Applications. London and New York: Routledge
14. Nuyts, J. (2001). Epistemic Modality, Language and Conceptualization: A Cognitivepragmatic Perspective. Amsterdam: John Benjamins.
15. Palmer F. (1979). Modality and the English Modals. London and New-York. 196 p.
16. Pym, A. (2007). Natural and directional equivalence in theories of translation. Target 19(2): 271-294.
17. Robinson, D. (2003). Performative Linguistics. Speaking and Translating as Doing Things with Words. New York and London: Routledge.

Rezyume: Maqolada tarjima jarayonida uni ifodalashning kommunikativ va pragmatik xususiyatlari nuqtai nazaridan modallikning ko'p qirrali va murakkab hodisasi ta'kidlangan. Tadqiqotning maqsadi badiiy nutq kontekstida modallikni ifodalashning kommunikativ va pragmatik xususiyatlarini o'rganish va tahlil qilishdir. Zamonaviy ilmiy paradigmada modallikning lingvistik kategoriyasi funksional-semantik, semantik-pragmatik, semantik-sintaktik, sintaktik, grammatik yoki mantiqiy kategoriya sifatida qaraladi. Keng ma'noda modallikni ma'ruzachining bayon mazmuniga munosabati va bayon mazmunining haqiqatga munosabati sifatida aniqlash mumkin. Kommunikativ-pragmatik yondashuv doirasida modallik nutq, nutq harakati va umuman kommunikativ vaziyat bilan uzviy bog'liq holda ko'rib chiqiladi, ularni muvaffaqiyatli amalga oshirish uchun kommunikativ xatti-harakatlarning belgilangan qoidalariga amal qilgan holda aloqa ishtirokchilari o'zlarining pragmatik xususiyatlarini ochib beradigan muayyan til birliklarini boshqaradilar.

Резюме: В статье освещается многогранный и сложный феномен модальности с точки зрения коммуникативно-прагматических особенностей его выражения в процессе перевода. Целью исследования является изучение и анализ коммуникативно-прагматических особенностей выражения модальности в контексте художественного дискурса. В современной научной парадигме лингвистическая категория модальности рассматривается как функционально-семантическая, семантико-прагматическая, семантико-синтаксическая, синтаксико-грамматическая или логическая категория. В самом широком смысле модальность можно определить как отношение говорящего к содержанию высказывания и отношение содержания высказывания к реальности. В рамках коммуникативно-прагматического подхода модальность рассматривается в неразрывной связи с высказыванием, речевым актом и коммуникативной ситуацией в целом, для успешной реализации которых участники коммуникации, руководствуясь установленными правилами коммуникативного поведения, оперируют определенными языковыми единицами, раскрывающими их прагматические свойства.

Kalit so'zlar: modallik kategoriyasi, modal markerlar, pragmatik tarjima, kommunikativ ekvivalentlilik, illokatsion va perlokatsion nutq aktlari.

Ключевые слова: категория действия, модальные маркеры, прагматика перевода, коммуникативная эквивалентность, иллокутивные и перлокутивные речевые акты.

MODERN APPROACHES IN WORKING WITH STUDENTS OF THE ADVANCED PROFESSIONAL SYSTEM

Pirniyazov I.K.

*Candidate of Pedagogical Sciences National Center for Teacher Training in New Methods
Republic of Karakalpakstan.*

Summary: *The author presents the experience of using modern approaches in education in the system of advanced training for teachers of the National Center for Educational and Technical Education, describes the technologies for implementing student-oriented, personal-activity, competence-based, andragogical approaches that ensure the quality of training for students in the advanced training system.*

Key words: *modern approaches in the field of education, personal-activity, personality-oriented, competence-based, andragogical approaches, motivation of the teacher, subjectivity of the listener, subject-subject interaction between teacher and listener.*

Modern policy in the field of education of the Republic of Uzbekistan dictates the need to update approaches to organizing work with educational subjects. In the system of advanced training, such subjects are students of advanced training courses. Let us dwell in more detail on some approaches that ensure the quality of retraining of students: personal-activity-based, student-oriented, competence-based, andragogical.

The personal-activity approach, as the main goal, main criterion and result of education, puts forward the development of the individual, interpreted as a level of human development at which his actions are not only determined by external circumstances, but also mediated by “internal conditions.” This approach requires the construction of educational concepts taking into account the characteristics of the subjects of education and assumes that in order to master the achievements of human culture, each new generation must carry out activities similar (though not identical) to those that stand behind these achievements [8].

The essence of the personal-activity approach is considered in the works of B.G. Ananyeva, L.S. Vygotsky, A.A. Leontyeva, I.A. Winter. Researchers focus on the development of the child’s personality, who is considered as a subject of activity. The personal-activity approach focuses not only on the assimilation of knowledge, but also on the methods of this assimilation [2; 4; 8]. This approach involves constructing the educational process from the position of transition from subject-object relations to subject-subject relations, taking into account the leading types of activities, high motivation and effectiveness of any type of activity, etc. Let us correlate these positions with the system of advanced training for teachers of the National Center for Education and Science.

In the system of advanced training, the department of special (correctional) education trains the following categories of teachers: teacher-psychologists, primary school teachers, subject teachers, technology teachers. The peculiarities of using the personal-activity approach in working with each category of students lies in the selection of cases of practical tasks for organizing the project work of students.

Thus, teacher-psychologists, working with a case on the regulatory framework of special (correctional) education, learn to draw up a protocol for examining a child with disabilities, design recommendations for working with him, taking into account the theoretical concepts that they mastered during lectures. The personal-activity approach to the organization of the system of advanced training for teachers of the National Center for Education and Science provides the opportunity to study this process in the logic of a holistic consideration of all its components, which ensures the activation and updating of the internal structures of the teacher’s personality through his inclusion in active work, the competent choice by teachers of the directions of their own activities, and also ensures personal meaning of professional activities of teachers.

A component of the personal-activity approach is the personal approach. The personal approach is considered by V.V. Serikov as the construction of a special kind of pedagogical process (with specific goals, content, technologies), which is focused on the development and self-development of the individual's own personal properties. At the same time, he believes that the personal approach, like personality itself, is a complex, elusive subject of many sciences and cannot be reduced to one single way of understanding it. As a result, what is needed is not a competition of ideas, but a different methodology, focused on a multi-paradigmatic vision of the problem, on the multidimensional space of ideas of personality-oriented education, which is not the formation of a personality with given properties, but creates conditions for the full manifestation and, accordingly, the development of personal functions [9]. Let us correlate these theoretical positions with the system of advanced training for teachers. Groups of advanced training students are heterogeneous in composition: by level of education, by qualifications, by the content of teaching experience. In this regard, the problems and topics of the final certification work of students are differentiated, the substantive component of each certification work is clarified, depending on the level of professional competence of the teacher and his aspirations. Teachers work with each student in terms of supporting this type of activity. For this purpose, individual counseling of students and preliminary study of the materials of the final certification work are used. Materials that are significant for broad pedagogical practice then become teaching aids and recommendations. And this process is also accompanied by the teachers of the department.

Let's move on to consider the personality-oriented approach. This approach is a leading direction in modern education, contributing to the manifestation of innovations in education. E.F. Zeer defines the person-oriented approach as "the formation of the spirituality of the individual, allowing him to realize his natural, biological and social essence. The goal is to create conditions to satisfy the need to be a spiritually rich, morally stable, mentally healthy person" [3].

I.Ya Zimnyaya names the following features of a personality-oriented approach: organization of subject-subject interaction, creation of conditions for self-actualization; activation of the learner; ensuring the unity of external and internal motives; obtaining satisfaction from solving educational problems and assignments in collaboration with other students [4]. Providing conditions for self-assessment, self-regulation and self-actualization; shifting the emphasis in the functions of a teacher of the advanced training system to the position of a facilitator.

Its founders identify "subjective experience" as a key concept to characterize the person-oriented approach. A.K. Osnitsky includes the following features in the content of subjective experience: value experience; reflection experience; knowledge in the field of human studies; knowledge in the field of communicative communication, etc. N.A. Alekseev and V.V. Serikov, V.N. Kulyutkin identify "personal functions" as characteristics of a person-oriented approach, such as: conflict, reflexive, meaning-creative; orienting; creatively transformative; self-realizing. E.V. Bondarevskaya defines personal structures, characterizing them as "manifestations of the activity of consciousness (functions of consciousness), which regulate, control the mental activity of a person, determining his behavior at the personal level [1; 7; 8].

E.F. Zeer, characterizing the personality-oriented approach in education, identifies its essential features based on a generalization of modern developments: the main goal of education is the development of the student's personality (in our case, a student of advanced training courses); personality acts as a system-forming factor in organizing the entire educational process; the leading motives of education and its value become self-development and self-realization of all subjects of learning; the formation of strong competencies becomes a condition for ensuring the competence of the individual; full competence is ensured by including his subjective experience [3].

A person-centered approach is a methodological approach that places the personality and the development of its individual abilities at the center of the educational system. What is the personality-oriented approach to working with students? The final lesson of the advanced training courses is a presentation by each student of the practical part of the certification work. We consider this event as a collective way of learning, when each of the listeners brings to the discussion their

own developments and achievements, presents their own valuable experience and receives the experience of their colleagues in return. The experience of reflection, embedded in the essence of the person-centered approach, is reflected in the correlation of one's own experience with the experience of colleagues.

The competency-based approach means the ability of subjects of the advanced training system to appropriate positive innovative pedagogical experience, which is the basis of an individual's professional competence [5]. You should also focus on the andragogical approach, since we are talking about adult education within the framework of an organized system of advanced training.

A.I. Kukuev notes that the development of pedagogical theory requires an appropriate approach, which is the basis for constructing a pedagogical theory. As a special scientific category, the approach is considered the basis for the formation of not only any pedagogical theory, but also practice: it is the approach that underlies the formation of principles and methods of teaching, upbringing, and education. In this regard, to build a theory of adult education, an andragogical approach is needed [6].

In the 21st century understanding of the importance of adult education is increasing. Moreover, it requires not only appropriate theory and practice of teaching, but also specially trained personnel of teachers, tutors, facilitators, and trainers. The implementation of these requirements is possible based on the use of an andragogical approach focused on synergetic methodology. In modern practice of adult education, the "main difference" of the andragogical approach is highlighted as the subject's awareness of his needs, satisfied in the field of education, and conscious activity, activities to satisfy them. In the system of advanced training of education, tutors have been trained from among the teachers of the National Center for Education and Science, who today, speaking on behalf of our center, are organizing a system of modular courses on current problems of public education in remote areas of the Republic of Karakalpakstan, using the accumulated professional experience, the competence of transferring their own experience to students.

Thus, the use of modern approaches in the system of advanced training ensures the active position of students as subjects of education, personality-oriented and personal-activity approaches help students prepare for the certification procedure, the identified positive experience of students becomes the property of wide teaching practice.

References:

1. Бондаревская, Е.В. Педагогика: Личность в гуманистических теориях и системах воспитания / Е.В. Бондаревская, С.В. Кульневич. – Ростов-н/Д., 1999. – 558 с.
2. Выготский, Л.С. Вопросы теории и истории психологии. Сбор. соч. в 6 т. Т. 1. / Л.С. Выготский. – М., Наука, 1982.
3. Зеер, Э.Ф. Личностно-ориентированное профессиональное образование / Э.Ф. Зеер. – М.: Издат. Центр АПО, 2002. – 43 с.
4. Зимняя, И.А. Педагогическая психология: учебник для ВУЗов / И.А. Зимняя. – М.: Изд-во корпорация «Логос», 1999. – 384 с.
5. Компетентностный подход в педагогическом образовании: кол. монография. – СПб.: Изд-во РГПУ им. А.И. Герцена, 2004. – 392 с.
6. Кукуев, А.И. Современные подходы в образовании // А.И. Кукуев, В.А. Шевченко / А.И. Кукуев. – Ростов-н/Д.: ИПО ПИ ЮФУ, 2010. – 345 с.
7. Кулюткин, Ю.Н. Психология обучений взрослых / Ю.Н. Кулюткин. – М., 1985. – 143 с.
8. Леонтьев, А.Н. Деятельность. Сознание. Личность / А.Н. Леонтьев. – М., 1975. – С. 104-105.
9. Сериков, В.В. Личностный подход в образовании: концепция и технологии / В.В. Сериков. – Волгоград, 1994. – 150 с

Rezyume: *Muallif O'quv-texnik ta'lim milliy markazi o'qituvchilari malakasini oshirish tizimida ta'limda zamonaviy yondashuvlardan foydalanish tajribasini taqdim etadi, o'quvchiga yo'naltirilgan, shaxs-faoliyat, kompetensiyaga asoslangan, andragogik yondashuvlarni amalga oshirish texnologiyalarini tavsiflaydi. . malaka oshirish tizimida talabalarni tayyorlash sifatini ta'minlash.*

Резюме: Автор представляет опыт использования современных подходов в образовании в системе повышения квалификации преподавателей Национального центра образовательно-технического образования, описывает технологии реализации личностно-ориентированного, личностно-деятельностного, компетентностного, андрагогического подходов, обеспечивающие качество обучения обучающихся в системе повышения квалификации.

Kalit so'zlar: ta'lim sohasidagi zamonaviy yondashuvlar, shaxsiy-faoliyat, shaxsga yo'naltirilgan, kompetentsiyaga asoslangan, andragogik yondashuvlar, o'qituvchi motivatsiyasi, tinglovchining subyektivligi, o'qituvchi va tinglovchining sub'ekt-sub'ekt o'zaro ta'siri.

Ключевые слова: современные подходы в сфере образования, личностно-деятельностный, личностно-ориентированный, компетентностный, андрагогический подходы, мотивация педагога, субъектность слушателя, субъект-субъектное взаимодействие педагога и слушателя.

METHODS OF USING BLOOM'S TAXONOMY TECHNOLOGY IN DEVELOPING STUDENTS' COGNITIVE ABILITIES

Ganiyev T.S.

National Center for Training of Pedagogues in New Methods of the Republic of Karakalpakstan

Summary: *The article discusses methods of using Bloom's Taxonomy technology in the development of students' cognitive abilities in history lessons and draws appropriate conclusions.*

Keywords: *cognitive abilities, Bloom's taxonomy, hierarchy, 6 levels of thinking*

In recent years, basic changes have been observed in the field of education. School education has become a type of education that requires special attention in our country. If the main goal of education during the first years of the school period was to provide quality education, Today in addition that, increasing the effectiveness of the educational process are included in the agenda.

The President of the Republic of Uzbekistan, Sh.M.Mirziyoyev, at the congratulatory ceremony of the 29th anniversary of the Independence of the Republic of Uzbekistan, noted that a new renaissance - the Third Renaissance has been entered in Uzbekistan, and he addressed to The Oliy Majlis and the people of Uzbekistan, that attention should be paid to the support of education, which is the biggest investment of New Uzbekistan. Because he emphasized that all successful goals are achieved through education and nurture.[1] therefore, these expressed opinions and tasks impose a great responsibility on school teachers.

Today, the interest and attention to the use of interactive methods, innovative, pedagogical and information technologies in the educational process is growing day by day. Because until today, traditional education only allowed students to acquire ready-made knowledge, now it teaches learners to search for their own knowledge, learn on their own, analyze, and even to draw their own conclusions by using modern technologies. In such a situation, the teacher acts only as a manager and observer, and the learner becomes the central form of the educational process.

Methodist scientists from Uzbekistan expressed their thoughts about the pedagogical technologies that enable the effects ways of teaching from the theory into practice and that as a result of the cooperation of teachers and students in this process, students have a wide range of opportunities for self-education. « If Every educational technology used in the educational process to achieve a guaranteed result according to its purpose is able to form cooperation between the teacher and the student, if both achieve positive results, in the educational process students can think freely, be creative, search, analyze, draw their own conclusions, evaluate themselves, their group and the vice versa, and if the teacher creates an opportunity of such services for students, this is the main part of the educational process from our point of view[2.161].

Cognitive abilities are a set of intellectual abilities that relate to our brain, information about the world, in particular, our past experience - what we perceive with our feelings, thoughts and views [3.343].

Although the word "Mind" refers to the act or process of acquiring knowledge, cognitive functions can also be attained with the help of previously acquired knowledge. There are some examples for cognitive abilities of humankind including: short and long term memory, communication process and the problem solving skills.

The study of the human mind is called cognitive science. It is an interdisciplinary department that focuses on the study of the human mind and its processes. It is based on disciplines of some subjects such as philosophy, psychology, anthropology, neuroscience, and even artificial intelligence and computer science. Cognitive science tries to explain how we learn and understand things, how we discuss and perceive situations, how we design things, how we solve problems and many other things. And for these, Cognitive scientists carry out various experiments and use brain scans and computational models.

Cognitive skills are considered as the basis of human life and play a crucial role for development. This concept has a complex variety of qualities, such as rationality, doubt (skepticism), proper analysis and fact-checking. Accordingly, critical thinking includes self-management, self-discipline, self-control, and self-reflection. Critical thinking requires interpersonal and problem-solving skills.

How can students' cognitive abilities be developed in history lessons? In this article, we will look at ways to use Bloom's taxonomy technology in developing students' cognitive abilities.

The technique of Bloom's taxonomy is designed to visualize the development of cognitive abilities within the framework of the model by calculating a hierarchical model of six different levels of expressive abilities [4.138]. Because the tasks and questions used by the teacher to develop cognitive abilities in students and to monitor them should be able to determine the level of development of the mind and consciousness of students. Bloom's taxonomy - it helps to observe the mental activity of students in any form.

Bloom's taxonomy is a classification of educating goals in the cognitive (creative) section, presented in 1956 by B. Bloom in the book "Taxonomy of educational goals: educational direction".

Bloom's taxonomy is now widely used as a planning tool in science.

Bloom's taxonomy includes categories of cognitive (creative) synchronicity: knowledge (remember), understanding, apply, analyze, synthesis (evaluation), evaluation (create). Thinking abilities are arranged in a hierarchy from simplicity to complexity. This technology can be used in history classes in the following ways:

Example: History. 6th grade. Topic: § 2. Stages of development of the ancient people
[5]

Level 1 – knowledge (remembering). At this level students Who? What? When? they find answers to questions, learn words and phrases, express and try to show.

1. What are the names of the ancient people in history?
2. In which area did scientists learn to find the oldest human bone remains?
3. About how old are the ancient people?
4. What do scientists call the ancient people?
5. When did the Great Ice Age begin?
6. Why did people have to live together in ancient times?

Level 2 - Understanding. At this stage, students look for answers to questions such as what examples do they give, what is the main idea, can you explain or not and try to express the topic in their own words.

1. What trials did the Great Ice Age put humanity through?
2. During the Great Ice Age, what did people do to overcome their difficulties?
3. Which people survived the Great Ice Age?

Level 3 - Apply. At this level, students will be able to answer questions such as what would be the result, if..., how can be used, can be used and they will have ability to use their knowledge.

1. Do you think the actions people took to save themselves were right?
2. Do you think they should have prepared in advance to save themselves?

Level 4 - Analyze. Students at this level can categorize what is related..., what is different..., search for answers to questions about what evidence they have, and compare, investigate, experiment, discuss, categorize a mine is formed.

The Great Ice Age

In ancient times, people realized that they were weak in front of the growing cold, so they sought refuge from the heat and went to faraway places. An old man who has been coughing for a long time begins to lag behind. He was sick and walking with difficulty. People often hesitated to stop because it could have resulted in many deaths. The old man is left behind, but the others continue on their way without waiting for him. He feels loneliness, suffers and complains. Then other people passing by the same road see a sick old man who is freezing. But they don't help him

either. The snowstorm did not stop and increased more and more. More difficult tests were waiting for the people. It was a continuous, ruthless past. During the Ice Age, strong people survived.

Read this episode once, then answer the following questions:

- 1) What would you do if you were those people?
- 2) Why didn't the group members help that person?

Level 5 – Synthesis (evaluate). Learners at this level look for answers to questions such as how to come to a different ending... They can express their thoughts and express new points of view.

1. Study the lives of ancient people, develop a list of problems that you will face in your relationship with your students.

2. Try to understand the ancient people.

3. Write a short essay about the stages of development of ancient people.

Level 6 - Evaluation. Students at this level seek answers to questions such as "Do you agree with..., what can be recommended..., what are the strengths and weaknesses..., what is the basis for agreeing..." and students express their opinions on the text, defend their independent opinion, and develop the skills of argumentation.

1. How do you evaluate the lives of ancient people?

2. What kind of person do they seem to you?

3. Have you ever thought about the challenges that await them?

In conclusion, the technology of Bloom's taxonomy described below leads students to develop their knowledge using a hierarchy, from simple to complex, and teaches them to have their own ideas and solutions in any difficult situation and to transfer them to others. Helps them to have historical knowledge as well as life experience.

References:

1. O'zbekiston Respublikasi Prezidenti Shavkat Mirziyoyevning O'qituvchi va murabbiylar kuniga bag'ishlangan tantanali marosimdagi [nutqi](#) (30.09.2020)
2. Toshpo'latov, Ya.Gafforov, Tarix o'qitish metodikasi. T-2010
3. O'zbekiston Milliy enciklopediyasi T-2011
4. Климова Т.В. Способы формирования критического мышления студента. Вестник ОГУ №2 (138)/февраль 2012.
5. Sagdullaev A.S. Kosteckiy V. A. Tariyx (Áyyemgi dúnya) T-2022

Rezyume: Maqolada tarix darslarida o'quvchilarning kognitivlik qobiliyatlarini rivojlantirishda Blum taksonomiyasi texnologiyasidan foydalanish usullari ko'rib o'tilgan va tegishli xulosalar chiqarilgan.

Резюме: В статье рассматриваются методы использования технологии таксономии Блума в развитии познавательных способностей учащихся на уроках истории и делаются соответствующие выводы.

Kalit so'zlar: kognitivlik qobiliyat, Blum taksonomiyasi, ierarxiya, fikrlashning 6 darajasi.

Ключевые слова: когнитивные способности, таксономия Блума, иерархия, 6 уровней мышления.

PROBLEMS OF PROFESSIONAL DEVELOPMENT OF FUTURE PHYSICAL CULTURE TEACHERS

Tatlmuratov A.T.

Karakalpak State University named after Berdakh

Summary: *This article focuses on the problems of improving the professional skills of future physical culture teachers, in particular, the specific aspects of the development of pedagogical competence, some solutions to the problem situations related to the improvement of professional skills are given. At the same time, critical attitudes towards professional development are presented.*

Keywords: *Education, modern technology, development, new pedagogy, physical culture, system, expert, educational school, social status, culture, professional activity, skills and competence.*

RESULTS AND DISCUSSION

The speed of modern technological development in the field of education and the emergence of new pedagogical tools implies a rapid and fundamental change in the system of training specialists in physical culture. Taking into account the fact that the social status, interests, values and outlook on life of general secondary school students are changing in the 21st century with the development of modern technologies, the interest in physical culture has also decreased. One of the important ways to increase this motivation is to regularly improve the professional skills of physical culture teachers, to rapidly develop new modern knowledge in the field of their professional activity.

In a number of scientific studies, it was noted that today the level of teaching "Physical culture" does not meet the current high requirements for teachers' knowledge, skills and qualifications. This situation has a negative impact on the physical fitness of general secondary school students, their health, and even their social component. All this shows the need to develop new methods of improving the professional skills of physical culture teachers based on the experience of Uzbek and foreign experts[1]. In this regard, there is a need to study advanced technologies of teaching physical culture.

Specialists who are engaged in creating training programs of physical culture teachers in accordance with the latest, modern requirements, have recently focused on the content of textbooks, not on the method of conveying new information. The most popular way for teachers to improve their skills is to attend courses and lectures. It can be recognized that this method can be effective in the period when technologies, programs, innovations are adapted to the new requirements, to study how people use them. Specialists in the field of additional education in the field of physical culture, wellness and sports in Uzbekistan and abroad are studying this problem. They emphasize the need to "master new technologies and educate students based on these technologies." According to foreign authors, this is the only way to catch up with modern schoolchildren in the ability to perform any task with the help of gadgets. The teacher must constantly feel the moment of competition with students in terms of mastering and applying new technologies.

To increase the speed of transfer of new information for teachers in the modern system of improving the professional skills of physical culture teachers in Uzbekistan, to introduce innovative technologies in the process of pedagogical activity, the emergence of online communication platforms and the exchange of experience of teachers in all regions, to create new and diverse methods of retraining on their use certain updates are required.

In order to solve this problem, the science of pedagogy must have the following tasks: First, it requires an analysis of modern, domestic and foreign innovative methods of improving the professional skills of physical culture teachers. Secondly, it is necessary to determine the important indicators that describe the modern physical culture teacher and give an opportunity to evaluate his

professional skills[2]. Thirdly, there is a need to determine innovative methods of improving the professional skills of physical culture teachers and to take them into account when developing an appropriate experimental program based on the use of information and computer technologies. Fourthly, it is necessary to solve the problems of improving the effective technologies, criteria, indicators and levels in the implementation of the training program for physical culture teachers in the educational process.

It should also be said that a comparative-analytical study of the historical experiences of the system of physical education of the young generation in our country, generalization based on a critical observation of practical experiences, allows to properly organize the professional pedagogical activity of physical culture teachers, and to determine its future strategy. For this, there is a need to carry out targeted pedagogical research. Therefore, teaching the content of physical culture to future physical culture teachers on a scientific basis, modernizing its organizational and technological foundations, developing future development trends is one of the urgent issues facing the science of pedagogy. In this case, the goal of innovative activity should be determined by the society and its result should be related to the interests of the society, it should direct the youth towards social relations, it should be focused on the realization of the natural possibilities of a person in order to gain social experience[3]. As a result of studying, analyzing and summarizing the existing situation of the problem in the theory and practice of philosophy, psychology and pedagogy, studying scientific views, concepts, and analyzing the literature, the following conclusions were reached:

The teacher's professional pedagogical skill is a process that is formed and improved over a certain period of time, consisting of organizing the educational process on the basis of innovations.

Research results show that the problems of developing professional pedagogical skills of future physical culture teachers have not been analyzed in the example of the higher education system and the educational institutions implementing it.

As a result of the research, it was found that the future physical culture is implemented from the point of view of two components, i.e. heuristic and creative approach to the issues of preparation of teachers for innovative activities.

Reforms in the education system of our country promote the need to improve the mechanisms of management of educational processes, that is, to abandon the old methods of ensuring the quality and efficiency of education, and to form professional pedagogical activities based on democratic principles that correspond to socio-economic developments and modern requirements.

A retrospective analysis of the courses and institutes available in the country for improving the professional skills of physical culture teachers shows that in most cases they offer traditional forms of training of specialists and do not set the tasks of using innovative tools and methods of training specialists. In our opinion, the knowledge of modern physical culture and wellness technologies should be presented in new forms of organizing the process of training specialists in the organization of improving the professional pedagogical skills of specialists working in the field of physical culture and sports.

Because innovation is an effective means of improving the quality of education, even developed countries try to introduce continuous innovation into the educational process. The experience of many countries shows that all members of the educational system should participate in innovative processes. But if the innovative processes move from top to bottom, and the sleeper becomes a subordinate, that is, a consumer of innovation, then this process takes on a bureaucratic tone. For this reason, it is necessary to take into account the general functions of the management of professional pedagogical activities, such as planning, organization, motivation, and control, as well as other social systems,

when preparing future students of physical culture for professional pedagogical activities.

As education is a dynamic social system in constant motion, the object of management in preparing future physical culture students for professional pedagogical activities includes all the features characteristic of social systems. From this point of view, education as a system should also operate, identify the stages of development, growth and development, predict them in advance and creatively plan.

The science of physical culture is the most important tool that introduces the young generation to a healthy lifestyle and popularizes sports and physical activity. In general secondary education, the physical culture teacher performs the most important functions: spreading knowledge about physical culture, teaching movements and popularizing physical activity, monitoring the physical condition of students, creating motivation to engage in sports and lead a healthy lifestyle.

A physical culture teacher should be aware of the interests of students, observe the rapid development of modern technologies, be able to use these technologies, and constantly develop the level of professional pedagogical skills. The introduction of new types of physical activity, for example, rhythmic gymnastics, functional training, dance into the educational activities of the general secondary education in the country, increases the requirements for the knowledge and skills of modern physical culture teachers[4]. One of the most important tasks in the process of improving physical culture in general secondary education should be the task of improving the professional skills of pedagogues.

Undoubtedly, the manifestation of the inability of physical culture teachers to implement methods of working with new information options is related to their low level of professional skills. When developing the content of professional pedagogical skill development programs, teachers should pay attention to the development of information and computer technologies to the extent necessary for professional activity and self-education.

CONCLUSIONS

Implementation of a number of works on the creation of the innovative system of the republic on the basis of the innovative potential of educational structures is in sync with the reforms implemented in the continuous education system introduced in our country. As a result of effective work carried out in the areas of construction of modern educational institutions, reconstruction of existing ones, capital and current repairs, provision of educational and laboratory equipment and computer equipment, improvement of the quality and content of education, independent and new thinking, meeting the needs of our country It has a unique practical significance in the preparation of specialists who are able to take the future and destiny into their own hands, and who can widely use world information sources, who have wide opportunities to freely demonstrate their knowledge, skills and abilities in international cooperation and communication processes. In general, it can be concluded that there are not enough programs developed in our country today to improve the professional pedagogical skills of physical culture specialists, which are practical in nature, oriented to the interests of modern schoolchildren and available for distance learning, and this phenomenon calls for further research into this problem.

References:

1. Азизходжаева Н.Н. Педагогик технологиялар ва педагогик маҳорат. – Т.: Молия, 2003. – 192 б.
2. Zunnunov A., Mahkamov U. Didaktika. –Toshkent.: “Sharq”, 2006. -126 b.
3. Ибрагимов Х., Абдуллаева Ш. Педагогика / Ўқув кулланма. – Т.: Фан, 2004.- 182 б.
4. Сочнев, А.М. Интенсификация обучения на основе интерактивной технологии мультимедиа [Текст] / А. М. Сочнев // Военная мысль. – 2008. – № 8. – С. 74–76.

Rezyume: *Ushbu maqolada bo'lajak jismoniy madaniyat o'qituvchilarining kasbiy mahoratini oshirish muammolari, xususan, pedagogik kompetentsiyani rivojlantirishning o'ziga xos jihatlari, kasbiy mahoratini oshirish bilan bog'liq muammoli vaziyatlarning ba'zi echimlari keltirilgan. Shu bilan birga, kasbiy rivojlanishga nisbatan tanqidiy munosabatlar taqdim etiladi.*

Резюме: В данной статье представлены проблемы повышения профессионального мастерства будущих учителей физической культуры, в частности, конкретные аспекты развития педагогической компетентности, некоторые пути решения проблемных ситуаций, связанных с повышением профессионального мастерства. При этом представлены критические отношения к профессиональному развитию.

Kalit soʻzlar: Taʼlim, zamonaviy texnologiya, taraqqiyot, yangi pedagogika, jismoniy madaniyat, tizim, ekspert, taʼlim maktabi, ijtimoiy mavqei, kasbiy faoliyat.

Ключевые слова: Образование, современные технологии, развитие, новая педагогика, физическая культура, система, специалист, образовательная школа, социальный статус, культура, профессиональная деятельность, квалификация и квалификация

THE BASIC APPROACHES AND PRINCIPLES USED IN IMPROVING LEARNERS' VOCABULARY

Tuzikenova J.A.

Nukus state pedagogical institute named after Ajiniyaz

Summary: *This article provides vocabulary work to improve learners' vocabulary in native language lessons, a number of approaches and principles in organizing and conducting vocabulary work, and mentions the possibilities of achieving higher efficiency when implementing them.*

Key words: *word, vocabulary, word meaning, active and passive vocabulary, vocabulary work, approach and principles.*

Today, in native language lessons, a competency-based approach to educational activities is being introduced, which is associated with increasing the learners' vocabulary. According to this approach, the learner must acquire the ability to consciously and freely use lexical material in speech. The "National Native Language Curriculum" defines two types of competence: speech competence, language competence [1]. Within these competencies, competencies such as communicative competence, lexical competence and textual competence are distinguished.

A paradigmatic approach has been chosen to achieve quantitative and qualitative indicators of vocabulary growth. The advantage of this approach (direction) is explained by the fact that lexical units embody the features of use in semantic fields and subject groups. Further results of linguistic research revealed the task of acquiring the paradigmatic properties of lexical units, that is, the use of words depending on their semantic relationship to each other. Only then the learner will be able to observe not only the meaning of a word within a sentence, but also the semantic connection of this word with the next or previous sentence.

One of the suitable approaches to selecting words for educational purposes is a differentiated approach by type of speech activity. The words chosen in this way must meet the requirements of an indicative approach to speech activity.

General pedagogical and didactic principles are outlined in several sources. For example, scientific character, awareness, activity, systematicity and consistency and a number of other principles are explained.

The central guideline for organizing the work of the dictionary is adherence to the principle of "semantization". It is necessary to determine the possibility of "subordinating" this principle to work to increase learners' vocabulary in accordance with methodological and didactic requirements. Semantization means revealing the meaning of a word, expressing meaning.

The principle of connecting education with life can be understood in two ways: 1) introduce the learner to words that prepare him to communicate on social issues with people around him; 2) increasing active and passive vocabulary within the framework of life knowledge.

In the process of increasing learner's active vocabulary, a number of principles are adhered to. N.I. Bekniyazova identifies the following principles of teaching words (adjectives) denoting a subject: scientific character, unity of education and training, developmental education, unity of science and practice, regularity, instructiveness, understandability, awareness, activity, variability, knowledge and methods of action [2].

The importance of following the principle of forming a concept according to the volume of the meaning of a word is that the properties of the combination of a word with other words are revealed, and in addition to the dictionary meaning, the grammatical meanings of an object, attribute, or action change. Exercises for the formation of many phrases involving one word effectively serve the development of learners' oral speech and the development of their thinking.

The principle of dividing words into active and passive plays an important role in the development of learners' oral speech and the activation of lexical material. According to this principle, only the active part of new words learned in each lesson is introduced into oral speech.

Knowing this, the teacher avoids futile attempts to teach the use of passive words in oral speech: no matter how hard the teacher tries, passive words remain the same.

According to the principle of dividing new words into familiar and unfamiliar, refining vocabulary to reach the learners' speaking level, in cases where there are no difficulties in pronunciation and spelling of familiar words, is the basis for not spending too much time on educational activities.

The principle of taking into account the influence of oral speech is that, due to differences in the rules of pronunciation and writing, it is necessary to carry out some work on pronunciation and spelling, to develop additional knowledge, skills and abilities related to the translation of the pronunciation of a word into its spelling, the spelling of a word into pronunciation. This also helps prevent spelling errors in reading text. Since spelling reading negatively affects the work of preparing learners for life in terms of developing skills in listening and understanding speech translated according to spelling norms, it saves them from listening to stupid speech, as in cases where words and word forms are pronounced as they are written.

When analyzing a word that is considered a linguistic unit, it is necessary to take into account its following features: the direct connection of the word with the outside world, the semantic connection of words with other words, the dependence of the lexical meaning on the word on other words, the stylistic use of words in all forms of speech.

Based on the above features, when organizing lexical-semantic work, special methodological principles are taken into account: extralinguistic, paradigmatic and syntagmatic principles [3].

Extralinguistic principle. The extralinguistic principle is expressed in the connection of the word with the outside world. Based on the extralinguistic principle, it is advisable to teach how to clearly express meanings in words, that is, rely on the content of education.

Paradigmatic principle. In the paradigmatic principle, words are related to each other by their associative properties. At the same time, they interact according to categorical, typical, synonymous, antonymic, thematic-content, lexical-semantic and word-formation characteristics. In practice, they manifest themselves in the relationships between words based on quantitative and macro-semantic fields.

According to the principle of integrating education in the native language with other academic subjects, work on maintaining the relationships between academic subjects is organically and firmly organized on the basis of texts.

The selection of verbal units by lexical-semantic groups can also be based on several principles:

a) the principle of periodicity (frequency). This principle involves the periodic use (repetition) of words according to the volume of methodological use.

b) communicative principle. According to this principle, if we express our thoughts through simple concepts, we will communicate about life's problems.

c) system principle. This principle takes into account systemic relationships according to the paradigmatic nature of words. The vocabulary of subject groups is based on synonymous, hyperonymic and oppositional dominants, which requires a semantic connection of such relations.

d) stylistic and methodological principle of choosing words for the dictionary of lexical-semantic groups. In this principle, more attention is paid to the choice of words that have a stylistic connotation in relation to the subject.

New words learned in the process of reading works of fiction, watching feature films, listening to the radio, watching television, visiting theaters and museums are automatically added to the learner's vocabulary. Since they are freely chosen by learners, they cannot be strictly controlled. A product of extralinguistic sources, a vocabulary of new words sometimes appears in a child's speech. In this regard, the principle of reference to sources of information arises.

Finally, special attention is paid to the principle of providing thematic word lists. To follow this principle, we turn to a dictionary of thematic words. In the "Minimal Dictionary of the Uzbek

Language for Grades I-XI of Russian Schools,” compiled under the leadership of R.A. Yoldoshev [4], words related to the noun group are presented in the form of thematic lists. Themes also served to classify words. For example, here is an example of a list of words associated with the word “Nature”: stream, spring, cloud, field, river, earth, summer, rain, autumn, sky, water, rock, mountain, winter, snow, air; spring, place, coal, mud, moon, dust, desert, star, mountain; river bank, sea, ice, fire, gold, island, stream, shore; river bank, surroundings, fire, river bank, cut, thunder, light, sun, stream, iron, gold, drop, morning, night, soil, smoke, wave, season, lightning, rain, fire, cave, pool.

Such lists allow you to track words that the child knows and does not know (does not use in speech, does not understand the meaning).

A teacher who knows the list of words for the topic or at least has an idea of the vocabulary of the topic can guess the words used in the text based on the topic and title.

The principle of encouraging a child to learn their native language better and speak it more should become a rule for both teachers and parents. Unfortunately, as a result of feeding a child a phone when he is small, he pays little attention to his surroundings, sees and hears conversations, and if games and cartoons are in a foreign language (for example, Russian), he gradually begins to speak this foreign language. Whatever language a person speaks, he thinks in this language, his thinking is formed in this language. When parents require a child to speak his native language, the child learns his native language through a foreign language he knows, through communication in the family. Naturally, it is not surprising that some children speak their native language poorly and have a limited vocabulary.

Vocabulary is acquired in an integrative way within the vocabulary of various areas. It is an integrative teaching method. But in life, vocabulary from different areas is not learned in isolation: when a child is sick, he learns about medicine, when he plays with a computer, about computer science, when he plays with cars and other toys, about technology. Such acquaintance has no sectoral or thematic boundaries. When a child entering the 1st grade, in addition to the subject of his native language, masters reading, mathematics and other subjects, an increase in vocabulary occurs in an integrative way. In particular, mutual support for the native language and reading subjects is very high. If the texts to be studied in reading are selected in such a way that they relate to different areas, then the integration of field vocabulary will also be facilitated.

The effectiveness of increasing learners' vocabulary in their native language and reading literacy in primary school classes with teaching in the Kazakh and Karakalpak languages, on the one hand, depends on the opportunities provided by textbooks for integrating materials related to the native language and reading subjects, secondly, from the methodological skills of the teacher, thirdly, from a new vocabulary for the learner - subject to a minimum vocabulary.

In conclusion, it should be noted that by following a number of approaches and principles in organizing and conducting vocabulary work in native language lessons, the chances of achieving high efficiency increase.

References:

1. National curriculum of native language. 2022-2023 academic year. Tashkent: Republican Education Center, 2022. - 138 p.
2. Bekniyazova N.I. Dissertation, pp. 61–65.
3. Methods of teaching the Russian language at school: Textbook M54 for students. higher ped. educational institutions / M. T. Baranov, N. A. Ippolitova, T. A. Ladyjenskaya, M. R. Lvov; Ed. M. T. Baranova. - M.: Publishing Center “Academy”, 2001. – 250–251.
4. Minimum vocabulary on the Uzbek language for grades I-XI of Russian schools. Compilers: M. Saidova, M. Ishakova, S. Mullamuhamedov, Sh. Tosheva. - Tashkent, UzPFITI, 1992. - 68 p.

Rezyume: *Ushbu maqolada ona tili darslarida o‘quvchilar so‘z boyligini oshirishda lug‘at ishi, lug‘at ishini tashkil etish va o‘tkazishda bir qator yondashuvlar va prinsiplar to‘g‘risida va ularga amal qilish orqoli yuqori samaradorlikka erishish imkoniyatlari haqida aytib o‘tilgan.*

Резюме: в данной статье рассказывается о ряде подходов и принципов к словарной работе, организации и проведении словарной работы по пополнению словарного запаса учащихся на уроках родного языка, а также о возможностях достижения высокой эффективности путем их выполнения.

Kalit so‘zlar: so‘z, so‘z boyligi, so‘z ma‘nosi, faol va passiv so‘z boyligi, lug‘at ishi, yondoshuv va prinsiplar.

Ключевые слова: слово, словарный запас, значение слова, активный и пассивный словарный запас, словарная работа, подходы и принципы.

THE CONCEPT OF COMPULSION MEASURES IN THE MEDICAL WAY AND GOALS

Fayzullaeva T.H.

Karakalpak State University named after Berdah

Summary: *Medical coercive measures are used to treat and improve the health of persons suffering from mental illness, alcoholism, drug addiction, or mentally disordered persons who do not exclude sanity, and those persons have committed dangerous acts to society intended to prevent this article shows the concept, purpose of coercive measures in medical field and its difference from criminal punishment.*

Keywords: *Punishment, coercive measures of medical nature, mental illness sanity, insanity.*

Medically, coercive measures are not considered criminal penalties, and when applied to individuals, they are subject to punishment, suffering, they do not cause a certain degree of deprivation or limitation of their rights, and are not taken into account in determining the duration of their conviction. At the same time, coercive measures in the medical context also share certain similarities with criminal punishment. They are appointed by a judicial decree on behalf of the state, as they are considered state coercion measure. In general, medical coercion measures are designed to treat people with mental health disorders, including but not limited to mental illness, alcoholism, drug addiction, and poisoning. The aim is to improve their health and prevent the commission of dangerous acts on society by these individuals.

Medical coercion measures are aimed at treating these persons with a particular mental illness based on the conclusion of a forensic psychiatric examination and committing one of the socially dangerous acts specified in a special part of the Criminal Code and preventing them from committing new socially dangerous acts, as well as punishing persons with mental disorders in a way that does not exclude, may be appointed by the court for treatment and to create conditions that promote the achievement of the goal of punishment.

Medically induced coercion measures are state coercion measures applied by the court without the consent of the person who committed a socially dangerous act [1.27].

Assistance to individuals with mental illness is guaranteed by the state and is based on legality, social protection, humanity, compliance with human rights and freedoms, and the confidentiality of information. Mental illness can seriously change a person's attitude towards life, towards himself and society, as well as the attitude of society towards a person [2.42-43].

The insufficient regulation of the grounds for applying, amending and abolishing compulsion measures in a medical way in law can harm the health and freedom of citizens as a result of their improper and uniform application [3.131-133].

In cases provided for by Article 92 of the Criminal Code of the Republic of Uzbekistan, persons with mental illness have all the rights and freedoms established by the Constitution of our country and the law of the Republic of Uzbekistan "on psychiatric assistance". It is not allowed to limit the rights and freedoms of such persons only due to the fact that they are mentally ill. Rights and freedoms may only be limited due to mental illness in cases specified by the laws of the Republic of Uzbekistan.

The rights of persons for whom compulsory measures of medical means are applied, guarantees given to them are regulated by the law of the Republic of Uzbekistan "on psychiatric assistance" [4]. This law expanded the rights of persons whose mental state was violated. In particular, they have the right to receive information about the nature of the mental state disorder contained in them and the methods of treatment used in a form understandable to them, timely and complete, as well as within the period necessary to provide only psychiatric assistance in a medical institution that provides psychiatric care in stationary conditions. In addition, the circle of persons with the right to engage in activities for the provision of psychiatric assistance was clearly defined.

Compulsion measures by medical means are carried out by the court:

- a socially dangerous act, in which responsibility is established in the criminal law, committed in a state of mental malaise;
- suffered from mental illness after committing a crime or until sentencing;
- medical coercion measures against persons with mental illness at the time of serving the sentence according to the court's ruling;
- medical coercion measures against persons with impaired mental state in a way that does not exclude alcoholism, drug addiction, poisoning or sanity are assigned together with criminal punishment.

In accordance with Article 91 of the Criminal Code of the Republic of Uzbekistan, measures of coercion in a medical way are applied to persons who committed a socially dangerous act in the event of a mental illness in order to treat them and prevent new socially dangerous acts from being committed by them.

In addition to punishment, the court may prescribe medically induced coercion measures to create conditions that promote treatment and the achievement of the goal of punishment for persons with mental disorders in a way that does not exclude alcoholism, drug addiction or intoxication.

The fact that these goals are established in the Law testifies to the fact that the mental state of a person is a factor that led to the commission of a socially dangerous act and its social danger, is aimed at preventing the need to apply a medicated treatment measure to him and the occurrence of another socially dangerous act of the patient during and after. The law states that the treatment of the patient in question is the primary purpose of medically appropriate coercive measures applied to individuals suffering from alcoholism, drug addiction, or poisoning. Treatment of persons of this category who committed a crime is one of the necessary conditions for achieving the goals set at the same time. Treatment consists in eliminating the dependence of convicts on alcohol, psychotropic substances or drugs that affect their mental, volitional activity.

The definition of the goals of compulsion measures in a medical way in law helps to resolve issues of prolonging, amending or terminating the use of compulsion measures in a medical way in judicial practice. It is also important that it is not the interests of the state that are prioritized, but the interests of achieving a person's mental health. The purpose of medically induced coercion measures covers the protection of the interests of the mentally ill and the interests of society[5.498].

The measure of coercion in a medical way is used primarily for the purpose of treating the individual.

Treatment refers to the adaptation of a person to social life, for the purpose of changing his psyche, for the purpose of which a compulsion measure is applied medically [6.340]

Methods of treatment based on a medically induced coercive measure are assigned to the measures that are being applied to individuals who are being treated without regard to this measure of influence. Treatment refers to the complete recovery of the patient, that is, the loss of signs of mental illness, and is the main goal of the implementation of mandatory treatment. But not all mental illness can fully recover. That is why, in addition to the treatment of the mentally ill, the law also states that improving their mental state should be indicated as a goal. Improving the mental state of the individual is understood as a partial loss of signs of mental illness and a decrease in the level of social danger of the patient. Treatment in this way focuses on correcting the mental state of an individual to a degree that does not pose a threat to society, even if it does not aim for a complete recovery of the individual. Usually this goal can be achieved in the process of mandatory treatment.

Following the application of medically induced coercion measures to the person who committed a socially dangerous act, the court aims not only to provide treatment but also to prevent the occurrence of new socially dangerous acts.

The court prescribes medically induced coercion measures against a mental patient who committed a socially dangerous act, while health facilities enforce it. Also, the type of coercion measures medically against persons with mental illness who committed a socially dangerous act is determined by the court [7.26].

Medically, coercive measures do not have the property of evaluating the actions of a person with mental illness, it does not have the goal of reeducation, prevents socially dangerous acts that can be committed by a person with mental illness, serves to treat them and protect the interests of society. Before applying a specific type of compulsion measure medically, the court must pay attention to the fact that each of the set goals can be achieved.

References:

1. Колмаков П. Понятие и сущность принудительных мер медицинского характера // Уголовное право, 2003. - №3. – С. 27.
2. Спасенников Б. Освобождение от наказания в связи с психическим расстройством // Российская юстиция, 2003. - № 4. – С. 42-43.
3. Колмаков П. О законных интересах лица, к которому применяются принудительных мер медицинского характера // Уголовное право, 2006, - №2. – С. 131-133.
4. Ўзбекистон Республикаси “Психиатрия ёрдами тўғрисида”ги Қонуни // ЎРҚ 690-сон. 12.05.2021.
5. Уголовное право Российской Федерации. Общая часть / Под ред.А.И.Рарога. - М., 2001. – С.498.
6. Рустамбаев М.Х. Ўзбекистон Республикаси Жиноят ҳуқуқи курси. Том 2. Жазо ҳақида таълимот. Дарслик. 2-нашр, тўлдирилган ва қайта ишланган. – Т.: Ўзбекистон Республикаси Миллий гвардияси Ҳарбий-техник институти. - 2018. – Б.338-340.
7. Файзуллаева Т.Х.Тиббий йўсиндаги мажбурлов чораларининг қўлланилиши. Ўқув қўлланма. Нукус. «Билим» - 2010. – Б. 26.

Rezyume: *Tibbiy yo'sindagi majburlov choralari ruhiy kasallikka hamda alkogolizmga, giyohvandlikka, zaharvandlikka yo'liqqan yoxud aqli rasolikni istisno etmaydigan tarzda ruhiy holati buzilgan shaxslarni davolash uchun, salomatligini yaxshilash uchun va bu shaxslar tomonidan jamiyatga xavfli qilmish sodir etilishining oldini olish uchun mo'ljallangan. Ushbu maqolada tibbiy yo'sindagi majburlov choralari tushunchasi, maqsadi va uning jinoiyy jazodan farqi ko'rsatilgan.*

Резюме: *Меры медицинского принуждения предназначены для лечения лиц, страдающих психическими заболеваниями, алкоголизмом, наркоманией или психическими расстройствами, не исключая вменяемости, улучшения их здоровья, а также предотвращения совершения этими лицами действий, опасных для общества. В данной статье раскрыты понятие, цель принудительных мер в медицинской сфере и их отличие от уголовного наказания.*

Kalit so'zlar: *Jazo, tibbiy yo'sindagi majburlov choralari, ruhiy kasallik, aqli rasolik, aqli norasolik.*

Ключевые слова: *Наказание, принудительные меры медицинского характера, психическое заболевания, вменяемость, невменяемость.*

**ESCROW AS A NEW TYPE OF CONTRACTUAL LEGAL RELATIONSHIP IN THE
REPUBLIC OF UZBEKISTAN**

Klicheva B.M.

Karakalpak State University named after Berdakh

Summary: *This article considers the positive sides, as well as the purposes and functions of escrow agreement as a novelty in the legislation of the Republic of Uzbekistan.*

Keywords: *escrow, contractual relations, functions of the contract, parties to escrow agreement.*

With the introduction of such terms as escrow into the practice of Uzbekistan there is a need for their legalisation as a separate type of contractual relations. Well-formed legal framework from my point of view is a guarantee of an attractive state in many senses, because each participant of relations wants to be sure that from entering into contractual relations can achieve the desired result, and confirming the above-mentioned clear rules for the parties to these contractual relations.

An escrow agreement, also known as an escrow agreement, like other contracts is a consensus, but in this case the contract is between three parties: the customer, the executor and a third neutral party (the depositor). The purpose and function of this contract is to provide security and guaranteed performance under the agreement, especially in cases where there are certain risks between the parties, like distance, doubts, which may hinder the contract.

Confirming the above, the main purpose of the escrow agreement is to create a relationship of trust between the parties, where the depositor acts as a neutral party as mentioned above, who assumes custody and management of certain funds, documents, until certain conditions arising from the agreement between the parties are fulfilled. The main functions of an escrow agreement include the following, which are discussed individually below:

Risk management: The escrow agreement helps to manage the risks associated with the execution of the transaction [1]. The escrow agent, acting neutrally, can monitor the fulfilment of the terms of the contract and ensure that each party fulfils its obligations to the other.

Transfer of property or documents: An escrow agreement is often used to transfer ownership, or documents of a transaction. The escrow agent acts as an intermediary, holding and controlling the funds or documents until conditions specified by the parties are met, resulting in a safe and proper transfer. **Dispute resolution:** An escrow agreement can serve as a tool for resolving disputes between parties to a transaction. If a disagreement arises regarding the fulfilment of the terms of the contract, the escrow agent can participate in the dispute resolution process and release funds or documents in accordance with the decision or agreement of the parties [2].

The purposes and functions of an escrow agreement may vary depending on the specific circumstances and needs of the parties [3]. However, their common purpose is to ensure the safety and security of fulfilment of obligations in transactions. Thus, an escrow agreement fulfils a number of purposes and functions that focus on ensuring the safety and security of obligations between the parties to a transaction. In my opinion, escrow agreement is an important tool in modern commercial practice, and with the gradual introduction of the term escrow in Uzbekistan's practice, I believe it is necessary to give the concept and disclosure of escrow agreement.

An escrow agreement may contain various terms and conditions, depending on the objectives pursued by the parties, which must be fulfilled in order to effect the transfer of funds or documents. Some common types of conditions include reaching certain milestones in the project, obtaining permits or third-party consent, obtaining quality assurance approval, or fulfilling other predetermined conditions. These conditions can be detailed in the contract to ensure transparency and consistency between the parties [4].

An escrow account agreement can also help spread the risk between the parties to a transaction. Putting funds or documents into an escrow account provides the parties with the assurance that they will not lose their funds or documents if the other party defaults. In the event of default, the escrow agent can return the funds or documents to the party that has less risk or

liability. The role of the escrow agent in the contract in question is to act as a neutral third party, separating the funds or documents from both parties to the transaction and ensuring that they are stored safely and securely. This is a practice most people have encountered when it comes to online shopping i.e., when funds are deposited into a third-party account. The escrow agent also monitors the fulfilment of the terms of the contract and only transfers funds or documents if they are in compliance. Thus, the selection of a reliable and competent escrow agent is an important aspect of the escrow account agreement.

Also, the escrow account agreement usually provides for escrow agent fees. The cost may be specified in the contract and is usually split between the parties to the transaction. It may include fees or charges for custody and control of funds or documents in the escrow account. The escrow agent's fees may vary depending on the complexity and size of the transaction and the requirements and responsibilities associated with the execution of the contract.

An escrow (escrow) agreement usually has conditions and procedures for completion. This may include release of the escrow agent from liability, return of funds or documents to the parties, and closing of the escrow account. The termination of the contract may occur when all conditions are reached, the contract expires, or as a result of voluntary agreement between the parties.

The escrow account agreement is an important instrument for enforcing obligations between the parties to a transaction. It provides the parties with security, control and transparency in the transaction and helps to manage risk and resolve disputes.

It should be noted that at the moment the term escrow is mentioned only in some normative legal acts such as the Law of the Republic of Uzbekistan from 29.09.2023 "On electronic commerce", as well as in the Law of the Republic of Uzbekistan from 20.07.2006 "On copyright and related rights", which in turn indicates the lack of disclosure of this contract on the part of the legislator, which may lead to difficulties when entering into contractual relations. "On Copyright and Related Rights", which in turn speaks about the lack of disclosure as a contract on the part of the legislator, but only mentioning it, which may lead to difficulties in entering into contractual relations. Thus, this paper considers the purposes and functions of the contract under study, as well as the existing problems in the legislation.

References:

1. Коневина Ю.Л. Применение договора эскроу // Экономика. Налоги. Право. 2013. № 5. С. 149.
2. Батин В.В. Понятие и сущность договора условного депонирования (эскроу) // Юрист. 2013. № 8. С. 18.
3. Блинкова Е.В. Договор счета эскроу в гражданском праве // Конвергенция частного и публичного права: первые итоги модернизации российского законодательства и перспективы его развития: сб. ст. / отв. ред. Ю.С. Харитонов. М., 2014. С. 70.
4. Токмаков М.А. Условное депонирование (эскроу) в праве России и США: дис. ... канд. юрид. наук. Самара, 2017. С. 63.
5. Закон Республики Узбекистан Закон Республики Узбекистан, от 29.09.2022 г. № ЗРУ-792 «Об электронной коммерции» [Электронный ресурс] Доступ из URL <https://lex.uz/ru/docs/6213428> (дата обращения 27.04.24)
6. Закон Республики Узбекистан от 20.07.2006 г. № ЗРУ-42 «Об авторском праве и смежных правах» [Электронный ресурс] Доступ из URL <https://lex.uz/docs/1023494> (дата обращения 27.04.24)

Rezyume: *Ушбу мақолада эскров шартномасининг ижобий томонлари, шунингдек, мақсад ва вазифалари Ўзбекистон Республикаси қонунчилигидаги янгилик сифатида кўриб чиқилади.*

Резюме: *В данной статье рассматриваются положительные стороны, а также цели и функции договора условного депонирования как новеллы в законодательстве Республики Узбекистан.*

Kalit soʻzlar: *эскров, шартнома муносабатлари, шартноманинг вазифалари, эскров шартномаси томонлари.*

Ключевые слова: *эскроу, договорные отношения, функции договора, стороны договора условного депонирования.*

**ELOQUENT JIYRENSHE'S OPINIONS ABOUT EDUCATING THE YOUTH
AND TEACHING ORATORY**

Purkhanov Yu.E.

Karakalpak State University named after Berdakh

Summary: *The eloquent and wise opinions of the orator Jiyrenshe, one of the wise thinkers of the Golden Horde and Nogai period, about youth education are discussed in this article.*

Key words: *education, sage, personality, psychology, education.*

The art of oratory originated from very early times among the Turkic peoples, especially the Karakalpak, Kazakh, Kyrgyz, Bashkir, and Nogai peoples. However, it is known that its most popular period is the XV century. The reason is that eloquence came to this era and was embodied in the quality of art. The name of eloquent Jiyrenshe, the most prominent representative of the art of oratory, is widely spread among many Turkic peoples.

Eloquent Jiyrenshe is one of the famous art masters of the Karakalpak people in the Golden Horde of Nogai period. He deserves the honorable title of a master eloquent with many words of wisdom and thoughts. He was a highly educated thinker of his time, who paid special attention to teaching oratory to young people with this artistic background, being an example to the people with his rare oratorical talent. Eloquent means master of the word. And the master of words has no right to be defeated by anyone [1;179].

Since there were frequent arguments in life during the era of the sage, the depth of people's thoughts and verbal ingenuity were of great importance. The art of eloquence has been perfected in reconciling the two sides in resolving the old conflicts that have arisen in such debates. If they were not strong enough in oratory, their brothers or relatives would come together and fight. In such a situation, every village, every clan needed deep-thinking, eloquent people who had mastered the rules and customs of the society with words of wisdom and protection of the brotherhood. The people, who were tired of fighting, encouraged that in the case of a majority, it is better to have a mutually agreed-upon solution.

In front of the people, the eloquent man took the plaintiff's side, and one of the elders the side of the accused. And the third one is a high-ranking, fair judge for both sides. This folk method of settling disputes in the affairs of the country during the Golden Horde and Nogai period had an impact on the development of the art of oratory and the interest of young people in oratory.

Eloquent words are not only necessary in quarrels, but they are widespread in the daily games, meetings and parties of young people. Young people were able to spend their holidays interestingly, were entertained, and received an aesthetic education only from funny conversations and jokes.

During the speech, the problem was solved not by many words, but by rationality and wisdom of thought. Characteristic features of eloquent speech are the fairness of opinion, clarity of thought, the expression of a large content of a single word, the fact that a person's inner secret is revealed to himself due to the fact that the words to be spoken are explained in a metaphorical manner, he understands a lot of things, makes the defeated person feel regret and pain, also taking the aesthetic inspiration of a person from the jokes, the emotional impact of the masterly spoken words, and the understanding of the joy of life. In particular, he was a model of clever and well-expressed, quick-spreading, well-conceived wisdom thoughts. Jiyrenshe, who has a good understanding of the peculiarity of eloquent words, attaches great importance to influencing young people's speech skills and their education through the art of eloquence.

According to legends, Jiyrenshe's father was a well-known man who was engaged in the fishing business, who was able to get a reward from the king for his eloquence. The king marries the old fisherman to the daughter of the maid in his palace. The famous Jiyrenshe, who was awarded a thousand coins for every his word was born from them.

Written literature does not provide clear information about when eloquent Jiyrenshe lived. For example, Professor U. Alevov tells that Zhiyrenshe was born at the beginning of the 15th century and died at the end of this century, that he held the position of minister and adviser of Zhanibek Khan (1456-1478), and was known as the state figure [3; 253]. And the well-known literary scientist K. Maksetov in his research found that there were two Zhanibek khans in the Middle Ages, and the first one was Zhanibek Khan, the son of Uzbek Khan, who ruled the Golden Horde in 1342-1357. The second Zhanibek Khan founded and ruled the Kazakh Khanate in 1456-1478. They come to the opinion that Jiyrenshe must have lived during the time of Zhanibek Khan (1342-1357) of the Golden Horde [4; 136]. In our opinion, eloquent Jiyrenshe is considered a historical figure of the 15th century. The reason is that as many scientists K. Mambetov, based on the information provided by historians confirms the sage was a contemporary of Zhanibek Khan, who lived in the 15th century [1; 180].

Zhanibek Khan is considered to be one of the khans who was famous for his achievements in managing the people, who received the title of Az Zhanibek, and whose eloquence and words of wisdom gained eternal fame in the history of the Golden Horde. Many legends and wisdoms of Jiyrenshe have been spread about him.

Even though Jiyrenshe criticizes and hates some of Zhanibek Khan's cruelty, he admires and respects his thoughtfulness, his eloquence, and his justice in giving a just decision to his words and opinions.

Jiyrenshe was married to Mrs. Karakoz, after her death, to Karashash. Both of his wives were eloquent, intelligent, and wise. Jiyrenshe's life mostly was dedicated to social and political affairs in the palace.

We can see from the opinions of many artists of the 19th century that the words of wisdom of great thinker Jiyrenshe were accurately preserved among the Kazakh, Karakalpak, and Nogai peoples living together in the Golden Horde and Nogai period. In his poem "Volost manager Kulen", the poet Berdakh described how Jiyrenshe was a minister to Zhanibek, served in the Khan's place, and received a gift of a thousand coins for every word of wisdom spoken with wit. Also, in the poem "Aidos Biy" it is mentioned that Zhiyrenshe is a master of artistic words, that the people were satisfied with his wisdom, especially that the meaningful life of the orator was a special model and expression for the education of young people.

Eloquent Jiyrenshe's education and scholarship and his approach to the problems of society and marriage, to the khan in the capacity of an intelligent and consultative civil servant resulted in a transfer to the field of education as well [2;119]. In many eloquent speeches, he criticized his contemporaneous khans who were ruling the country. He considered that the country's leader should make the people's life prosperous and flourishing only by proper organizing.

Jiyrenshe demanded that both the khan and the state figures should be intelligent and rule the people with justice. He said that the ruler's desire to do whatever he wants out of boredom, and his contempt for his great position, puts his subordinates in trouble.

There are his eloquent words about Zhanibek Khan and Mrs. Karakoz, "If the butter spoils, you will add salt, what will you add if you the salt spoils?" There were opinions that the leader of the people should not abuse his people, especially his servants, and that the khan should be a guardian and a refuge for all the people.

When Mrs. Karakoz asked Zhanibek Khan, "If the people are spoilt, who will change it?", the answer was: "If the people are spoilt, the Khan will change it." Here, the interpretations of the character of the khan as a good guide and educator to the people are described. And when he asked, "Who will correct the khan?" - the khan was unable to express his opinion against the skillful words of Ms. Karakoz, and he knew his mistake from his actions, he should listen to the words of wisdom and justice, regardless of whether he is a khan or a citizen. [3;255] In particular, it is said that the head of the people, Khan, has a great responsibility. It was decided that the corruption of the people, the disobedience of the youth was due to the khan in the country, and it was demanded that the rule of the state should be accepted equally by both the khan and the simple citizen, and it should be

implemented equally by everyone. Socio-political concepts about justice in such a society and people's personal life, and the thoughts of the people are also expressed in the wise legend of the orator Jirenshe about becoming a gardener and growing pomegranate juice.

As it is explained in the legend that the additional tax imposed by the government worsens the condition of the people, that if justice comes from the khan, the country will be blessed, and that if the khan gives freedom to the country and specifies the payments to be paid, the citizens will live in prosperity.

It is known that wise eloquent words related to the psychological characteristics and character of a person. He appreciated the age-relatedness of people's spirituality, behavior, the fact that behavior changes with age, and the opinion that human age and behavior are related to anatomical and physiological phenomena.

Analyzing the psychological differences in childhood, the wise eloquent analyzes the characteristics of adolescence and later adulthood, taking into account the differences between adolescence and adulthood, and divides them into eight periods as follows:

"The fifteenth of the youths is equal to the wind.

Twenty five is equal to the fairy who beat storms.

Thirty-five is like flowing streams,

Forty-five is like a bear are as tall as me.

At seventy-five, my soul is equal to the earth,

At eighty you are an old man,

At ninety your full brain falls to the half,

At hundred you lose hope in the world.

Even if you don't die, you will be less than dead." According to [3;258], the phenomena of the organism in the spiritual process of people, which have already grown and reached their full strength, stopped and get back again, are more closely understood from anatomical and physiological points. It talks about the psychology of the young ages of a person and its peculiarities. These concepts and experiences of the sage are of great importance for personal psychology. Therefore, the content of Jiyrenshe's views on education is considered to educate young people with moral and humane qualities and improve human behavior.

Reference:

1. Mambetov K. Karakalpak literature in early period. -Nukus "Karakalpakstan", 2020. 232 p.
2. A. Pirnazarov. Was Jiyrenshe a real person in history? "Amiudarya" journal, 1975. No. 2.- 119 p
3. Aleuov U. Cultivation and development of educational ideas in Karakalpakstan.-Nukus. "Bilim", 1993. 504 pp.
4. Maksetov K. The folklore of the Karakalpak people. -Nukus, "Bilim", 1996. -340 p.

Rezyume: *Maqolada Oltin Urda va Nug'oyli davridagi donishmand mutafakkirlarning biri Jiyrencha chechanning yoshlar tarbiyasi haqida chechanlik va donolik fikrlari so'z yuritiladi.*

Резюме: *В статье рассматриваются красноречивые и мудрые суждения оратора Жийренише, одного из мудрых мыслителей золотоордынского и ногайского периода, о воспитании молодежи.*

Kalit so'zlar: *ta'lim-tarbiya, donishmand, shaxs, psixologiya, bilim.*

Ключевые слова: *образование, мудрец, личность, психология, образование.*

**PEDAGOGICAL POSSIBILITIES OF SELF-STUDIES FOR THE DEVELOPMENT OF
COMMUNICATIVE COMPETENCE OF NON PHILOLOGICAL STUDENTS**

Eshboyev J.I.

Doctoral student of Navoi state pedagogical institute, Uzbekistan

Summary: *This article defines the pedagogical possibilities of independent education for the development of communicative competence. Currently, the competency-based approach in teacher education serves as the foundational framework that informs the quality, objectives, and content of higher education*

Keywords: *competence, competency, interchangeably, pedagogical possibilities, communicative, development, self-study*

INTRODUCTION. In modern teaching methods, there is a clear issue with the confusion between the terms “competence” and “competency”, specifically in relation to “communicative competence”. This confusion often leads to these terms being used interchangeably, and it is important to clarify and differentiate between them for better understanding and resolution. Currently, the competency-based approach in teacher education serves as the foundational framework that informs the quality, objectives, and content of higher education.

An analysis of the literature on the subject reveals that “competence” and “competency” are intricate, interdisciplinary, and multifaceted terms with varied definitions and interpretations. These concepts differ in their logical structure, semantics, and scope. Many researchers describe competence as a personal attribute of individuals involved in pedagogical activities, emphasizing the organization of knowledge, techniques, skills, and personal qualities necessary for addressing multifunctional tasks.

Differentiating the concepts of “competence” and “competency,” A.V.Khutorskoy [1., 58] provides the following distinctions:

- **Competence:** It encompasses the interrelated qualities of a person, such as modes of action, knowledge, abilities, and skills, that are pertinent to a specific range of processes and subjects. These qualities are essential for performing high-quality, productive activities.

- **Competency:** It refers to the possession and mastery of the relevant competence by a specialist, including their personal attitude toward it and the subject of their activity.

In this framework, competence is viewed as a broader concept, incorporating various attributes needed for effective performance, while competency denotes the actual possession and practical application of those attributes by an individual.

In our research, we align with the perspective of I.A. Zimnya [2., 384], who asserts that competence is the actual manifestation of competency. It is an integrative attribute of an individual, evident in practice, that showcases their ability and readiness to utilize skills, knowledge, personal qualities, and behavior patterns for productive activities. This view highlights the dynamic and practical nature of competence, emphasizing its role in real-world applications and its dependence on the effective integration of various personal attributes. As a result of considering this issue, we came to the conclusion that “competence” and “competency” are mutually subordinate components of a person’s personal characteristics. Competence is a set of specified characteristics of competence that must be mastered in order to be competent. Competence is possession of a certain amount of knowledge, professionalism.

RESEARCH METHODOLOGY. An analysis of scientific research indicates that one of the fundamental and essential competences required by individuals in any educational organization is communicative competence. This competence is deeply connected to the personal characteristics of an individual and is demonstrated through the ability to effectively manage and understand communication situations, as well as through a heightened sensitivity to other communication

partners. This involves not only possessing language skills but also understanding social and cultural contexts, which enable effective and meaningful interactions. [3]

According to the research we analyzed tips to make students learning more productive [4]:

Set a realistic goal. Setting work goals for yourself, ones that realistically fit in with your life and other commitments, is important when creating self-study habits. You can set yourself up for success by assigning only a certain number of chapters to read each night, adjusting your workload according to how hectic your schedule is in any given week, and giving yourself a mental break each week to let your mind rest.

Study in a way that works for you. There are many ways to learn, and it is important to adjust studying techniques to find what works for your brain. Some students find reading aloud helpful, others like taking handwritten notes rather than typing. Discover whatever works best for you and stick with it.

Review material the same day you learn it. After taking notes in an online course, or reading the next chapter in your textbook, review all the new material by typing up your notes, practicing your new skill, or reading over a chapter again to help it resonate. While this may seem tedious, it only takes a short amount of time. Reviewing can help with long-term absorption of material, so it decreases the need of cramming in the future.

Study in short, frequent sessions. Instead of treating your study session like a marathon, break up your material by topic into a series of short sessions, separated by short breaks. That way, you won't be staring at your books or computer for too long while wearing on your focus, and your brain can absorb the material more easily. While cramming may seem like a great way to cover a lot of material in a condensed amount of time, studying in short, frequent sessions is a more effective way to learn subject matter and self-study.

Test yourself regularly. Testing yourself helps you understand what you've learned and what areas still need work. You can use an online resource like [Quizlet](#) to help you convert your notes into flashcards and generate essay questions. This will help you better prepare for quizzes and tests you may need to take as part of the course.

Explore additional resources. You can find a variety of additional resources that can enhance your understanding of the subject you're studying. Look for videos, podcasts, books, and articles that can help you dive deeper into the subject. If the course you're taking recommends resources for further study, check those out, too.

Be consistent. Self-studying requires discipline, so it can be helpful to stick to a schedule. Designate a study time — preferably the same time each day — and commit to it. Add a reminder to your phone, so you're prompted to study at the designated time. Before too long, it will develop into a habit.

Create a personalized study space. When learning remotely, it is important to create a study space for yourself. By setting aside a desk or table that is a designated environment for self-studying or completing an online course, you will know to be mentally prepared to learn when you enter that space.

Stay organized: Keep your study materials organized. Create a system for notes, assignments, and resources. This will make it easier to review and locate information when needed.

Reflect and adjust: Regularly assess your study methods and adjust them as needed. If something is not working, be open to trying new approaches. Reflect on your progress and make changes to optimize your learning experience.

I. A. Zimnyaya identifies the components of a teacher's communicative competence [5., 42]:

- motivational-value component - determines the readiness to improve professional skills, sustainable interest in advanced activities, the need for professional growth, the desire for self-realization and self-development [6., 8];

- cognitive component — characterizes knowledge of the essence of communicative competence, the ability to know another person, the ability to effectively and promptly solve problems that arise in communication [7., 8];

- operational-activity component - determines the teacher's ability to interact in a person-oriented manner during the educational process, the ability to manifest itself in various ordinary and specific situations, the ability to remain calm in any situation, prevent and resolve conflicts in a fruitful way, mastery of the art of eloquence, competent oral and written speech, the ability to publicly present the results of one's work, to select effective methods of self-presentation, the ability to predict and justify the result of effective interaction [8., 8].

Conclusions and suggestions. Organization of professional training based on the stated provisions is a way of self-improvement, self-realization and ensures sustainable trends in the development of professional communicative competence among students of pedagogical universities.

When mastered, self-studying is a helpful technique to improve any learning experience, and both young and old pupils profit from it. Self-studying can open up new academic and career options, whether it's done for an AP exam or just out of pure eagerness to learn something new. Don't forget to make use of your surroundings! You now have access to knowledge thanks to technology, so make the most of all the readily available, reasonably priced resources.

Students can practice professional skills in settings that are similar to actual ones by enrolling in classes that are designed just for them. When summarizing outcomes, pupils' errors are analyzed to lessen the chance that they will recur in practice. Additionally, this shortens the time it takes a young specialist to adjust and fulfill their professional responsibilities.

References:

1. Хуторской А. В. Ключевые компетенции как компонент личностно-ориентированного образования // Народное образование. 2003. № 2. С. 58–64.
2. Зимняя И. А. Педагогическая психология. М.: Логос, 2004. 384 с.
3. <https://nsportal.ru/npo-spo/obrazovanie-i-pedagogika/library/2020/09/26/formirovanie-inoyazychnoy-kommunikativnoy>
4. <https://www.ivywise.com/ivywise-knowledgebase/resources/article/self-studying-whats-the-benefit-and-how-to-do-it/>
5. Zimnyaya I. A. Key competencies as a result-target basis of the competency-based approach in education. Author's version./ Zimnyaya I.A. - M.: Research Center for Problems of Quality of Training of Specialists, 2004. - 42 p.
6. Zakharova, S. N. Formation of communicative competence as a condition for professional training of students in a pedagogical university / S. N. Zakharova. — Text: direct // Young scientist. — 2017. — No. 3.1 (137.1). — P. 8-10. — URL: <https://moluch.ru/archive/137/38212/> (date of access: 05.15.2024).
7. Zakharova, S. N. Formation of communicative competence as a condition for professional training of students in a pedagogical university / S. N. Zakharova. — Text: direct // Young scientist. — 2017. — No. 3.1 (137.1). — P. 8-10. — URL: <https://moluch.ru/archive/137/38212/> (date of access: 05.15.2024).
8. Zakharova, S. N. Formation of communicative competence as a condition for professional training of students in a pedagogical university / S. N. Zakharova. — Text: direct // Young scientist. — 2017. — No. 3.1 (137.1). — P. 8-10. — URL: <https://moluch.ru/archive/137/38212/> (date of access: 05.15.2024)

Rezyume: *Ushbu maqolada kommunikativ kompetentsiyani rivojlantirish uchun mustaqil ta'limning pedagogik imkoniyatlari aniqlangan. Hozirgi kunda o'qituvchilar ta'limda kompetensiyaga asoslangan yondashuv oliy ta'lim sifati, maqsadi va mazmunini belgilovchi fundamental asos bo'lib xizmat qilmoqda.*

Резюме: *В данной статье определены педагогические возможности самостоятельного обучения для развития коммуникативной компетентности. В настоящее время а подход в педагогическом образовании служит основополагающей основой, определяющей качество, цели и содержание высшего образования.*

Kalit so'zlar: *kompetentsiya, o'zaro almashinish, pedagogik imkoniyatlar, rivojlanish, o'z-o'zini o'rganish.*

Ключевые слова: *компетентность, взаимозаменяемость, педагогические возможности, развитие, самообучение.*

**THEORETICAL AND METHODOLOGICAL BASIS OF TRAINING AND EDUCATION
OF STUDENTS ON THE COURSE OF INFORMATICS AND INFORMATION
COMMUNICATION TECHNOLOGIES IN GENERAL SECONDARY SCHOOLS**

Aimbetova G.N., Djumabekova R.K., Sarsenbaeva H.Q.

*Nukus branch of Tashkent University of Information Technology named after Muxammad Al
Khwarizmi*

Summary: *In schools of General secondary education, it is important to train and educate students on the course of Informatics and information communicative technologies. Helps prepare students for the modern world and teaches them the secrets of using modern technologies. This helps them to express independent thought, solve problems, and strive for innovation. In this area, the cultivation of strong personnel is a current requirement, as well as the protection of personal data, safe use and protection of information is important.*

Keywords: *information communicative technologies, Genesis, fundamentalism, informatization, conceptual approach, integrity, integral approach, integrated approach, modernization.*

Introduction. The concept of modernization of the general secondary education system in Uzbekistan implies the development of concrete measures to achieve the goals of the development of the general secondary education system. One of the directions of modernization of general secondary education is to increase the quality of the educational process based on the implementation of the principles of fundamentalization, integrity and orientation to personal development.

One of the most important specific features of the current stage of the reform of the general secondary education system is its implementation in the developing conditions of the process of informatization of the society, which leads to fundamental changes in the process of education and upbringing. Therefore, in recent years, various aspects of the process of informatization of education have become the object of increasing attention not only of scientists: sociologists, psychologists, teachers, but also of practicing pedagogues. Informatization should be socially oriented by its essence, and today the humanistic direction of the process of educational informatization, paying attention to the spiritual qualities of a person is of particular importance.

Problems of training and education of students on the course of informatics and information communication technologies in general secondary schools

The modern education system created the need not only to equip students with knowledge, skills and abilities, but also to acquire independent continuous knowledge and creatively master it during their active life. There was a need to prepare students to work in the information environment under new conditions, to use its opportunities effectively, to protect themselves from negative effects, and to acquire professional skills in the future.

In addition to functional literacy, modern general secondary education aims to ensure the social adaptation of students and encourage their social and civic self-determination. These functions of education help adolescents: to form a socially literate and socially active person who knows his civil rights and obligations, clearly expresses his potential opportunities, resources and ways of realizing the chosen life path, to determine the direction of his goals in advance helps [1].

Classical pedagogy considers teaching as inextricably linked with student education. Formation of a perfect personality and education of a growing personality as its socialization is one of the main tasks of a developed democratic society, which is at the stage of transition to the information age of its development.

When discussing the tasks of informatization of education, as a rule, priority is given to fundamental knowledge and practical skills that teachers and students should acquire.

The emergence and wide spread of information and communication educational technologies (ICT), including multimedia and the Internet, allows them to be used as a means of communication, education and integration of students into society. New opportunities are opening up in the artistic, aesthetic, economic, political and social education of students.

The actual pedagogical experience shows that the new information technologies can definitely contribute to the development of the teenager and the promotion of human values. Information technology can have a negative effect on a teenager, even his personality is deformed in the new information environment [2]. At the present stage of the development of the school informatics course, it was understood that there is no need to implement the integral, professional orientation, socializing and culture-forming functions of the discipline in education. Solving specific educational problems is reflected in many original programs of basic and special computer science courses. However, as a rule, these programs are aimed at forming an ethical attitude to information in students, developing an attitude towards positive activities in the information society, and preventing violations of the ethical norms of working with information. Thus, the knowledge of computer science, for example, in terms of the use of ICT tools, legal education tasks are not considered as an element of solving a complex of educational problems related to information society and its social consequences. It can be seen that the revision of the concept of informatics and information communication technologies course in the school from the position of systematic solution of educational problems; it is required to activate the educational opportunities of the informatics and information communication technologies course, as well as to develop methods of using information and communication tools to support educational work within the unified information environment of the school. In this regard, teaching informatics and information communication technologies in a broad sense, not only when studying informatics and information communication technologies, but also within the framework of learning other school subjects based on integration, students' information preparation and ICT tools should be viewed as a broad use.

Pedagogical informatics includes the problems of educational work at school in the conditions of the modern information environment [3], but until now, it is in the context of solving the educational problems of teaching informatics and information communication technologies in general secondary schools and related the concept of teaching methods has not been created.

Based on the above, several groups of contradictions can be formed:

1) contradictions between the need to activate work in the field of education and the course of informatics and information communication technologies, the informatization of the educational process based on the wide use of ICT tools, and in fact the lack of appropriate methodologies and methods;

2) contradictions between the possible wide range of ICT use in the teacher's educational activities and the actual level of ICT use in solving educational problems in the teaching of various academic subjects at school;

3) contradictions between the objective need for wide use of ICT in solving educational problems in various school subjects and the lack of appropriate teaching and training methods.

The above-mentioned contradictions allow us to formulate a number of problems, which consist of the need to create a holistic concept of teaching and training in the course of informatics and informational communication technologies, as well as methods of its implementation.

Theoretical and methodological basis of training and education of students on the course of informatics and information communication technologies in general secondary schools

It was determined that it is necessary to solve the following problems regarding the education and upbringing of students of general secondary schools in the field of informatics and information communication technologies:

➤ determining the genesis of scientific and pedagogical problems of education during the entire development of the school course on informatics and information communication technologies;

➤ justifying the possibilities of expanding the socio-personally oriented approach to education and upbringing in the problematic field of the school informatics and information communication technologies course;

➤ determining the tasks and role of the informatics teacher in solving educational tasks;

➤ in the context of solving educational problems, to determine the main conceptual approaches of building a modern school course of informatics and information communication technologies;

➤ Grounding of integrated approaches in the context of solving educational and educational problems in the teaching and training course on informatics and information communication technologies in secondary schools;

➤ development of a system of educational work based on the use of ICT within the unified information environment of the school;

➤ Development and testing of methods of education of schoolchildren in the spirit of ecology, law, citizenship and patriotism in teaching and education courses on informatics and information communication technologies within the framework of integrated and competitive courses;

➤ Use of information and communication technologies in educational work in general secondary schools;

➤ developing and testing the teaching methodology of the informatics and information communication technologies course in the aspect of solving social education problems as part of the optional course;

The teaching of informatics and information communication courses in general secondary schools puts before the teachers the tasks of solving a number of educational problems. The most important hierarchical tasks of an informatics teacher in solving educational problems are:

1) orientation (formation of moral and volitional qualities of the student, views, beliefs, habits, rules of behavior in the context of informing the society);

2) developmental (achieving high creative potential of students in conditions of professional and specialized training);

3) mobilization (formation of skills to use ICT tools).

The main conceptual approaches to building a modern school course on informatics and information communication technologies in the context of solving educational problems are as follows:

❖ The laws that provide the most general trends in the educational process should be:

- activity;

- education and upbringing,

- unity of education and communication,

- intensity of education and self-education;

❖ The principles of education should include:

- scientific, continuous, systematic, pedagogically appropriate combination of general, differentiated and individual training and education of schoolchildren;

- educational principles that develop social activity;

- social creativity, individual and collective interaction;

- developmental education, integrity of the educational process, etc. [4].

The solution of educational problems from the point of view of an integrated approach should be implemented in a system that includes the use of ICT in the teaching of informatics and information communication technologies, as well as in teaching other subjects, in classroom and extracurricular activities.

Social-pedagogical approaches aimed at preventing information addiction in the school environment require a system of taking into account psychological and social factors. Formation of information and full satisfaction of students' social and communicative needs for extracurricular activities, development of a set of preventive measures is required.

The methodology for the implementation of the concept of the Informatics and information communication technologies course aimed at solving problems should include the following elements: the content of integrated, elective courses, forms and methods of teaching and training, forms of control and legal culture that ensure the formation of an ecological environment, joint formation of civic and patriotic feelings by mastering the content of the school course on informatics and information communication technologies, taking into account the age characteristics of students, the stage of learning the school course on informatics and information communication technologies.

Conclusion. The main subject of the Informatics and information communication technologies course in general secondary schools is information systems and information technologies, and the main tasks of the educational activity are to solve socially important problems and develop self-awareness of the student. is used for development.

Thus, by studying the course of informatics and information communication technologies, the student will:

- the ability and desire to demonstrate and implement their abilities;
- development of personal creativity, striving for excellence;
- achievement of one or more activities;
- formation and implementation of moral forms and methods of self-affirmation and self-realization;
- will have such features as positive self-esteem, confidence in one's own strength and capabilities, and the formation of a reflection of development.

References:

- [1]. Роберт И.В., Панюкова С.В., Кузнецов А.А., Кравцова А.Ю. (2006). Информационные и коммуникационные технологии в образовании: 374 с.
- [2]. Shukurov M.A., Qurbonov M.N. (2020). Informations-kommunikatsion texnologiyalar.
- [3]. Qobilov A.K., Asatullaeva G.K. (2019). I Informations-kommunikativ texnologiyalar tartibi va ma'naviy tarbiya. Journal "Pedagogika va psixologiyada yangiliklar".
- [4]. Abylova G.Zh., Aimbetova G.N. (2024). Main aspects of improving the methodology of teaching digital technologies in the context of virtual learning. Journal "Science and Education in Karakalpakstan", №1/(38), 186-192.

Rezyume: Umumiy o'rta ta'lim berish maktablarida o'quvchilarni informatika va informatsion kommunikativ texnologiyalar kursi bo'yicha o'qitish va tarbiyalash muhim ahamiyatga ega. O'quvchilarni zamonaviy dunyoga tayyorlashga yordam beradi va ularga zamonaviy texnologiyalardan foydalanish sirlarini o'rgatadi. Bu esa, ularning mustaqil fikrni ifodalash, muammolarni hal qilish va yangiliklarga intilishga yordam beradi.

Резюме: В общеобразовательных школах важно обучать учащихся по курсу информатики и информационно - коммуникационных технологий. Это помогает подготовить учащихся к современному миру и учит их навыкам использования современных технологий. Способствует им свободно выражать свои мнения, решать препятствия и стремиться к инновациям.

Kalit so'zlar: information kommunikativ texnologiyalar, genezis, fundamentalism, axborotlashtirish, kontseptual yondashuv, yaxlitlik, integral yondashuv, integratsiyalangan yondashuv, modernizatsiya.

Ключевые слова: информационно-коммуникативные технологии, Генезис, фундаментализм, информатизация, концептуальный подход, целостность, интегративный подход, комплексный подход, модернизация

ADVANTAGES OF USING PEDAGOGICAL TECHNOLOGIES TO FORM ARCHAIC CONCEPTS OF STUDENTS IN HISTORY TEXTBOOKS

Ganiyev T.S.

National Center for Training of Pedagogues in New Methods of the Republic of Karakalpakstan

Summary: *The article analyses the data regarding the value of history and the benefits of educational technology, and it provides examples of ways to use interactive techniques to help students develop antiquated concepts in their history lessons.*

Key words: *History, Education, Innovation, Pedagogical Technology, Archaic Concepts, Conceptual Chart, Board, "The 6th is odd".*

In science, the term "history" refers to two related ideas. First, history is a science that studies how human civilization has evolved. Its topics include the history of human society, its multiple paths of growth, and the process of change. Second, history is the science of humanity, which is the study of the past of society through research, the study of the process created by man in the past, which is the product of human consciousness, and the period up to this time. It is a science that can be learned and passed on to the next generation.

The opinions expressed by several scientists of the past and present about historical topics are reflected in the works of our scientists who researched the methodology of history teaching. In particular, Cicero called him a "master of history and life." According to Leonardo da Vinci, the world and world states called him "a man of knowledge." To the father of Russian history, N. Koshish Karamzin's "History is a holy book of peoples, a mirror of their lives and services, more than the inventions left to their forefathers and an example of manners, it is a model for the present and the future, serving and fulfilling it, he emphasized that he wrote "makes it necessary to kill."

Based on these ideas, history is distinguished from all other sciences, connects humanity with the future, promotes a society based on clear evidence, provides valuable information about the life of humanity, and gives meaning to historical events and processes. It can help us understand our identity from our point of view and from the perspective of time.

So, when studying history, students should learn to evaluate historical events and their origins, causes and consequences, historical figures served and time, and get acquainted with historical countries, people, and names. At the same time, the breadth of the students' thinking ability, and the strength of their memory ability will be of great importance for the in-depth study of this subject.

History is taught as the main subject in the 6th grade. This class teaches students about the period from the beginning of mankind to 476 AD, the fall of the Western Roman Empire. This period is a unique civilizational period in the history of mankind, and historians call it ancient secular history. The materials given during the lessons reflect the archaic concepts of ancient times. A great deal of skill is required from the teacher to form these concepts in students.

Therefore, each lesson and subject of history is taught with its own technology. Pedagogical technologies in the learning process are an individual process that constitutes a pedagogical process aimed at achieving specific goal-oriented pedagogical results by meeting the needs of the teacher.

Methodist scientists of Uzbekistan expressed a positive opinion that pedagogical technologies encourage students to teach effectively in the process of education and that, as a result of cooperation between the teacher and the student, there are ample opportunities for students to acquire independent knowledge. "Each educational technology used in the educational process to achieve a targeted guaranteed result can ensure cooperation between the teacher and the student, both of whom can achieve a positive result, in the educational process. If the students can think freely, have a creative attitude, search, analyze, draw their conclusions, and evaluate themselves in the group, and if the teachers can provide such services to the students, we can think that it affects the benefit of the learning process. Therefore, pedagogical technology is independent of the

methodology and achieves results, and the methodology is related to the personal skills of the teacher.

We believe that the use of interactive teaching methods, which are widely used in the educational system today, is of great importance in studying the interesting, difficult, and complex subjects of reading, and in the article, we consider methods that are convenient for students to use archaic concepts.

A conceptual table is a method - an organizer designed to compare different ideas, and thoughts and evaluate them by comparing them in different categories [2]. The method teaches students to compare two or more aspects of a studied topic (problem or topic). By using it, students' ability to think logically about the subject and to express information systematically develops. To use this method, the teacher first determines the topic that needs to be solved. Students are introduced to the topic and ways to use the method. Groups recommend a group decision, and group decisions are discussed in a group meeting.

The following sample is recommended to the students:

Sample: 1§ The beginning of the ancient history. [3]

Stone age	significant signs, classifications		
	Annex 1 (classification) Chronological limit	Annex 2 (classification) Discoveries, news	Annex 3 (classification) places
Paleolithic			
Mesolithic			
Neolithic			
Eneolithic			

Students complete the given table, which defines the chronological boundaries of the Stone Ages, discovers human-made innovations in each period, remembers information about places belonging to those periods, and reinforces the knowledge learned.

This method can be used in history lessons in all grades and on various topics. The advantages of this method are that, firstly, it allows the teacher to learn several activities together with the students at the same time, and secondly, it serves to develop students' thinking and memory skills and deliver accurate information. Thirdly, it creates an opportunity to learn with students individually and in groups, does not require excessive resources from translation, and teaching, and helps to learn with the classroom board.

Good results are obtained when using the "Pinboard" method in history classes in 6th grade. Pinboard (from English: pin-strengthening, board-board) - systematization and grouping (classification) of thoughts necessary to solve the problem by coordinating the basis of methodical discussion or the studied topics with the practical basis. Enables the realization of, in general, the acquisition of self-or opposing positions.

To use this method, the teacher first asks the students for their opinions on the proposed problem. Organizes (encourages) the beginning of direct or mass brainstorming. Offers ideas, discusses, evaluates, and chooses the most appropriate idea.

Example: § 3 tribal community [3]

Late Paleolithic period.	Mesolithic period

When teaching using this method, thoughts about the lecture (no more than 2 words) arising from the content of the topic are written on separate pieces of paper and closed on the board. Examples: harvesting of crops, settlements, Kundli farming, cattle farming, Kolbulak, Zarautsay, cronjob, Obishir, Machai, etc.

Together with the students, ideas and information are collected, and classified, and optimal decisions are determined during discussions using a flipchart (a special board and a special adhesive tape that can be attached to a special piece of paper).

The group leadership goes to the blackboard and discusses the following:

- removes mistakes or repeated thoughts;
- identifies points of discussion;

- identifies signs that can systematize thoughts;
- based on these signs, divides all thoughts on the board (on paper and sheets) into groups; - shows their relationship using lines or other symbols, develops the same or opposite positions of the public.

This method can be used in history lessons in all grades in the consolidation phase of the lesson based on the content of the new subject. The advantage of this method is that it develops students' thinking and communication skills, teaches them to analyze data, makes students express their thoughts, teaches them to defend and challenge others, encourages discussion, and allows teachers to interact with students individually or in groups.

"The sixth... is odd" method This method is very important for students to develop logical thinking skills [4]. This method can be used as follows:

- 1) creating a system of concepts that serves to reveal the content of the studied topic;
- 2) achieving the replacement of four (the six... is odd) concepts related to the topic by one concept not related to the topic;
- 3) entrust students with the task of identifying concepts unrelated to the topic and removing them from the system;
- 4) To encourage students to feel the importance of their actions and to strengthen the topic, it is required to separate the concepts stored in the system by students, to ensure a logical connection between them.

Task sample [3]: late Paleolithic, tribal society, choppers, Mesolithic, bow. Additional non-topical information for this task is the name of the choppers. The method allows students to use the acquired theoretical knowledge in new, unexpected situations. Using the method at the stage of strengthening the new topic of the lesson gives good results.

The advantage of the method is that, firstly, it does not require excessive resources from the teacher, and uses the opportunity to learn at the classroom table. Secondly, it creates an opportunity to involve all students in the lesson and evaluate students personally. Thirdly, classmates reveal the topic, and the content shows a logical connection between them and creates an opportunity for students to think freely, justify their points of view, and compare the opinions and personal ideas of their peers. Fourthly, students compete with each other in lessons.

In conclusion, every teacher will undoubtedly improve his professional skills by using modern technologies in his pedagogical skills. This, in turn, affects the quality of knowledge delivered to teachers. At the same time, it serves to increase students' interest in studying and to develop their desire for education.

References:

1. Тошпўлатов, Я.Ғаффоров, Тарих ўқитиш методикаси. Т-2010. 9,160-161 бетлер
2. Sagdullaev A.S. Kosteckiy V. A. Tariyx (Ayyemgi dunya) T-2022
3. Ишмухаммедов Р. Юлдашев М. Таълим ва тарбияда инновацион педагогик технологиялар Т-2013
4. Ruzieva D., Usmonboeva M., Xoliqova Z. Interfaol metodlar: mohiyati va qo'llanilishi (Metodik qo'llanma). Toshkent: Nizomiy nomidagi TDPU nashriyoti, 2013. - 136 bet

Rezyume: Maqolada tarix fanining ahamiyati va pedagogik texnologiyalarning afzalliklari to'g'risida ma'lumotlar tahlil qilingan hamda tarix darslarida o'quvchilarda arxaiik tushunchalarni shakllantirishda interfaol metodlardan foydalanish usullari ko'rsatib o'tilgan.

Резюме: В статье анализируются сведения о значении истории и преимуществах педагогических технологий, а также показаны способы использования интерактивных методов при формировании архаичных понятий на уроках истории.

Kalit so'zlar: Tarix, ta'lim, innovatsiya, pedagogik texnologiya, arxaiik tushunchalar, Kontseptual jadval, Pinbord, Beshinchisi, oltinchisi ortiqcha metodi.

Ключевые слова: История, Образование, Инновации, Педагогические технологии, Архаичные концепции, Концептуальная схема, Доска, Пятая, Шестая...линий.

**THE SCIENTIFIC BASIS OF BRINGING UP YOUNG PEOPLE IN THE SPIRIT OF
NATIONAL IDEAS AND INCULCATING THEM LEGAL CULTURE**

Kamalova M., Uzaqbaev Q.

Karakalpak State University named after Berdakh

Summary: In terms of its content, the article talks about the history of mankind and the meanings of the word Goya. About the socio-political cultural and systems of the states is said

Key words: And from this point of view, "On State Policy Regarding Youth" Central Asia is special, For this, it is necessary, without leaving the importance.

In all periods of human history, scientists tried to understand the meaning and principles of the word "idea". The system of socio-political, cultural, and educational activities of the countries during all periods is connected with the above goal. There are specific goals in these works. Such goals and their contents are defined in the ideology of the system which is created by various political forces and state[1]

When people understand themselves so deeply from all sides, his desire for freedom, truth and justice will continue to grow. That is why civil society and its promotion is a strategic task at the level of humanity's greatest goal. A democratic society is a society in which the rule of law is fully ensured for the development of democracy. Promoting politeness and friendly culture among young people means that a person does not force his feelings, habits, and things he likes on others. Each of us start to establish our own beliefs about what a person should be, what behaviors and qualities are most important. And from this point of view, we consciously and unconsciously evaluate not only ourselves, but also other people. [2,23]

The adoption of the new version of the Law "On State Policy Regarding Youth" adopted in our country in September 2016, in which special attention is paid to the education of young people, is considered as a bright practical representation of this. In this regard, it is necessary to emphasize the systematic implementation of legal, economic, moral-educational, ideological-ideological measures aimed at ensuring that young people gain knowledge and take their place in society. Within the framework of the program, it is worth noting that the complex activities related to the issues of educating the young generation in the spirit of strong faith and vision for life, in the spirit of respect for national and universal values that can resist the harmful influences and currents that are familiar to our mentality, have shown high results and quality. Of course, it is not unusual to pay attention to such issues in the current era, when the human mind and heart have become a battlefield. As our first President I. Karimov said, "... it is the duty to keep our holy Islam pure, to protect it from all kinds of malicious attacks, attacks, slanders, to explain its content and meaning to our growing young people, and to spread the successful ideas of Islamic culture." which are still very important obligations" [3,43-48]

Extremism is also present in our wider society, analyzing the characteristics of the emergence of terrorism and the reasons why young women and girls become clear symbols of such forces, and working within the framework of the idea of "Enlightenment against illiteracy and ignorance" is of great importance.

International politicians and famous scientists clearly show that the role of Uzbekistan in preventing and fighting against extremism and terrorism is incomparable. Uzbekistan's strict policy in these areas, its role in ensuring security and stability in Central Asia is special. At the same time, in order to ensure social stability and development, it is necessary to strengthen the large-scale reforms implemented in our country, the importance of science-oriented policy in religious circles, and the ideological immunity of the population. "It is necessary to deeply instill in people's minds that the infiltration and spread of political, religious extremism, dogmatism and other evil currents, which are completely alien to the nature of our people, pose a great threat to peace and harmony

and the future of our people. our children. It is necessary to form and strengthen moral and spiritual abilities, which do not exist in our people, to direct them to fight against evil forces" [4,32-36].

Today, our state pays special attention to the problems of raising the morale of young people. Because the idea of national altruism aimed at human and national abilities, restoring national identity and enriching the content of altruism, spirituality and enlightenment is being implemented as the most important system of fighting extremism and terrorism. society. It is our sincere gratitude and duty to our people to form noble thoughts about the secular state in our youth, to form ideological immunity against religious extremism and fundamentalism, and to direct them to the right path.

In today's globalization, every country strives for its own goals, and the national idea and national ideology are necessary to protect it. With the development of modern techniques and technologies, the globalization of information distribution, on the one hand, the interaction between human beings and countries, and the cooperation between countries, on the other hand, have turned into powerful ideological influence methods. "Today, like a hammer with a marked hammer, the hearts of the bodies that we are smelling today can poison the mind, and the fears directed from the face to the face are increasing. It is necessary to fight against such ideological attacks, we must work together, we must improve the cooperation of schools, schools and neighborhoods" [5,25-26]

It is important that the number of people learn such skills in education and get involved in the process of learning. In fact, the development of our country depends on the intellectual potential of future generations, education based on world experiences. For this, it is necessary to provide the educational system with personnel who have modern thinking, modern knowledge, and scientific potential. In his turn, he took the inferiors to his work:

- familiarizing people with modern information technology possibilities;
- study of educational process using modern technologies, management and education, methods and methods;
- to provide opportunities for personal development in the field of education;
- each training should implement a system of educational activities aimed at the development of a person who is perfect;
- enlightenment of modern scientific achievements in the educational process, etc.

Spiritual education programs, scientific-theoretical literature, practical applications have come to the fore. The programs that will be created will be changed in the same way as the innocent people who passed through our country on the streets, and our society will become more active.

They equip themselves with scientific knowledge, put their knowledge into practice, and teach them important skills. Every student achieves intellectual and spiritual maturity by seeking and experientially applying his knowledge. In addition to this experience, artyry institutions and their environment require knowledge related to the cross-section of humanities, spiritual planning, numbers, economics, ecology, and legal knowledge.

In the development of Uzbekistan, the concept of national development is "Education in all areas of the education system, free thinking, and the future of Uzbekistan, and this is the national plan of innovation." considered one of the most important aspects of the idea of ``anyo" concept of idea development. 2019 year. November 27. ID-10558. Project.].

In the spirit of the national idea, the creation of education plays a big role in the country. In this, our people pay attention to the historical facts of our country, national-spiritual and humanitarian values, and use the examples given in Turkey to give favorable results. In this way, it is necessary to learn the national values from our people, to teach them national values, to take care of them, and to follow the example of our national heroes and our ancestors.

In general, the national idea is the formation of a social idea that includes the nation's past, present, and future, determines its main goals, and serves the people and society. Together with the number, any national idea of the state is one of the important spiritual-developmental factors that determine the socio-political planning of the society and the planning principles [6,15]

It is important to adhere to the following conditions while educating children in the spirit of national ideals:

- in the spirit of the national ideal, the old method is free from prejudices, and it shows its value in education;
- so that the free thinking of the people can be done without pressure;
- students improve cooperation between students and organize human participation in the learning process;
- to give detailed explanations about the ideas created and taught in the spirit of the national idea;
- in order to achieve the content of the national idea and its sacred value to every student, to ensure the harmony of national and universal values.
- The programs and programs related to the subjects are used as didactic tools and take into account the differences in the level of knowledge and worldview of the students.

The above-mentioned pedagogic conditions contribute to the development of education based on the free, creative, democratic and humane principles of the whole process, without leaving the importance of education in the spirit of the national idea.

So, education is a purposeful process of education in the spirit of the national idea, in which education affects the mind, feelings and behavior of the people. This kind of education takes into account the demands of the society, and through this system, the national idea influences the moral education of the individual, and leads to the development of humane qualities.

References:

1. The inquiry of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis // "Khalk so'zi" newspaper, issue of December 23, 2017.
2. Mirziyoyev Sh.M. The approval of our people is the highest evaluation given to our activities. Volume II. -Tashkent: Uzbekistan, 2018.
3. Greetings of the President of the Republic of Uzbekistan Shavkat Mirziyoyev on the occasion of the Teachers' and Coaches' Day on October 1 28.09.2019 <https://uza.uz/uz/politics/zbekiston-ituchij-vamurabbiyalariga-bayram-tabrigi-28-09-2019>
4. The concept of developing the national idea from a new stage of Uzbekistan's development. 2019 year. November 27. ID-10558. Project. <https://regulation.gov.uz/uz/document/10558>
5. Abilov O'. National idea: moral factors. - T.: Spirituality, 2000;
6. Abu Nasr Farabi. City of virtuous people. - T.: "People's heritage", 1993.
7. Joraev N., Ibrohimov A., Sultanov Kh. A sense of homeland. - T.: Uzbekistan, 1996. - B.144.

Rezyume: Maqolada yoshlar tarbiyalashning milliy ruhdagi ilmiy maqsad, va vazifalari haqida soʻz boradi. Yoshlarda ajdodlarimizdan meros milliy qadriyatlarimiz bilan faxrlanish, mamlakatimizning har bir fuqarosida Vatan tagʻdiri uchun masʼuliyat hissini shakllantirish, munosib va komil insonni kamol toptirish maqsadida milliy gʻoya koʻrsatiladi.

Резюме: В статье рассматриваются научные основы, цели и задачи патриотического воспитания молодежи. Описывается общенациональный характер национальной идеи, побуждать каждого гражданина страны к жизни с чувством ответственности за судьбу Родины, воспитывать гордость за богатейшее наследие предков, накопленные ценности и благородные традиции, формировать высоко нравственных и гармонично развитых людей.

Ключевые слова: национальная идея, традиции, духовность, нравственность, знание, общество, воспитание, творчество.

Key words: national idea, traditions, spirituality, morality, knowledge, society, education, creativity.

**THE ROLE OF THE NEIGHBORHOOD IN REFLECTING OUR NATIONAL CULTURE
IN THE MINDS OF YOUNG PEOPLE**

Ganieva G.M., Saparniyazova D.A.

Karakalpakstan State University named after Berdakh

Summary: *The article focuses on the values of the family, the role of culture in the minds of young people, the role of the nation and traditions, the work being done to make the future brighter, and the parents' special attention is paid to the spiritual education of young people, the acquisition of knowledge and skills.*

Keywords: *Education, Person, Family, Society, Values, Culture, Spirituality*

Spiritual values are important not only in the life of an individual or a nation, but also in the life of all mankind. In the work of these values, our national culture, customs and traditions act as a compass that directs our worldview, regulates our life and guides us. Our national culture is the root of our national history. Thus, in recent years, reforms have been carried out in the field of science, having studied our own history. We reveal the secrets of the true culture of the nation. Dear President Sh. Mirziyoyev "In the life of any country, any nation, the concept of Person, Family, Society, and State plays an important role. The family, which is the primary and main link of society, cannot be imagined without the image of a woman, which emphasizes the role of the mother, who is the main person in our families, and some values in human life [1]. This reveals the unique characteristics of our nations. If we talk about our long history, empires and glories called me to appear, and in time their dispersal also started from the family. Unrest in the family, wars led to the rise of the blessing, and eventually its destruction. Family is the most sensitive and precious part of society. According to the points of our President, the longevity of life, continuity of generations, and the personality of future generations directly depend on the family. The family unites on the basis of virtues such as the religious and educational foundations of the community, careful preservation of land and water, community living, kinship ties, and work skills. The uniqueness of our country is that there are parents from different nationalities in the country, who work in all areas of our country and serve for the well-being of our people, at the same time, they educate children and make them aware of national values.

In families, national education and national traditions are passed on mainly around the table. For example, not to spit in the water, not to put anything else on the bread, not to cross the path of the elderly, not to laugh at the orphans, not to rock the empty cradle, not to break ties with close relatives are instilled in the ears of young people. Today, there are about 35 million people in our country, and more than 65 percent of them are young people. Therefore, it is an important task to educate young people on the basis of our national culture. Representatives of three, four, even five generations live in harmony in our families. Each generation has its own duty and responsibility, its own will and dignity. Creating a family is considered as a very responsible job. Family is not an old thing. It is sacred, it embodies the future of the nation in the family. Educating young people, bringing them to maturity, teaching them knowledge, and making them happy are the highest goals of most families. The goal of our nation in life is to have children, to see their wedding and their success. Attitudes related to guiding the young generation to marriage and creating a starting point are considered as a starting position for them differ in different nations. In the mentality of some peoples, children abandon their parents when they grow up and leave their family members to achieve success on their own. When he creates a family, has a child, and brings it to maturity, he leaves the family, putting an end to the inheritance of the descendants [2,39].

In our nation, a high starting position is created for young people and they are directed to marriage. A house with at least 1-2 rooms is given to a young man who is getting married, and furniture and household items are given to a girl who is getting married. After having a baby, they also start preparing their children for marriage. This national value stops the process of alienation

that can occur in family relationships, and creates a great basis for the inheritance of generations. At the same time, this value cancels such vices as carelessness in young people, leaving the responsibility for their marriage only to adults, and encourages them to create their own future with their own hands. In strong families, most of the issues are solved by mutual exchange of ideas and consultation. Some conflicts that may arise between husband and wife, mother-in-law, daughter-in-law, and siblings are resolved among the neighborhood and relatives.

Showing respect and honor to parents is one of the qualities that form the basis of the human spiritual world. In the hadiths of Muhammad, it is said: A child who does not try to get the consent of his parents during old age, or at least one of them, will be despised [3,48]. Respecting parents, showing kindness to children, and respecting the elderly are among the values that show the moral and mature humanity of a person. The main law of our country, our constitution, is defined based on the main ideas of our national values, which are the human gratitude of children to society, family and parents. When we talk about the relationship between parents and children, we must emphasize that parents also have a responsibility to their children in solving moral and educational issues. In raising children, the father's ability to lead in economic, legal, spiritual and other relations with justice and knowledge, he can guide the children in the right way in the implementation of these principles, the mother must be caring for their children. Year 2019 was declared as the "Year of Rapid Investments and Social Development" in our country. This, of course, brought joy to all families in Uzbekistan and Karakalpakstan.

The reason is that in the special events of the President's plan, there are many works to be done in order to protect society, materially and spiritually, to protect motherhood and childhood, and to appreciate our elderly people. Our country is grateful to the parents for the spiritual upbringing of the children, for paying special attention to the deep values of knowledge and the deep values of the children. Family is considered as the basis of the society's present, future development of the country. In recent years, the state has taken the energy of the country to its limits, and every training has been strengthened. The unity of people after family is considered as a neighbourhood (place, mosque) and it could be called as a big family in Eastern nations. When we hear the word neighbourhood, the thing comes to our mind is Motherland. On that sacred place, our past, our littleness is reflected. In the mind of young people, the role of neighbourhood in shaping our national culture is huge. Narshahi, a historical scholar, stated that there were neighbourhoods before 1100 years. So, the neighbourhood has taken thousands of years from this, and has created its own rules. The rules, relationships and traditions have been absorbed into the mind of people, but these habits were much effective rather than current rules. The influence of the neighbourhood is dynamic that the idea of unity, the superiority of the idea of community, fair work, and the humanity of the orphans and widows are worth mentioning. In every case, it is necessary place to teach a lesson about morality, charity, and faith, and if necessary, call for investigation. On national and religious holidays and many other occasions, the neighbourhood worked together. Therefore, it is said that "If there is a neighbourhood, we don't have any worry. There is not any place like neighbourhood which brings together people from different communities to educate people with our customs, national abilities, and faith. Actually, good customs, speech culture, respect for parents, kindness to people, peacefulness, hospitality, virtues worth helping each other are formed within neighborhood. However, there are some cases where the influence of education is not good, such evils as indolence and crime appears. Today, in our country, great attention is being paid to the neighborhoods. Neighbourhood is a form of education. Considering one of the important concepts of the community's spiritual-educational process, the President said: "The harmony in our society is also the unquestionable basis of human education - the community... generosity, the wonderful human qualities of mutual love, and this is the center of the community. Therefore, the neighborhood can be called a school of self-management, and a school of democracy." The special rules of social and economic activities of the indigenous people, respect for the community's abilities, and the principles of mutual communication have been preserved through neighbourhood. This is the guarantee of unconditional fulfillment of the gratitude and responsibilities received by

the society. [4,37] The spirit of neighbourhood has penetrated deeply into the soul of every person in our republic. The role of the neighbourhood was of great importance in educating young people and still remains as it was. The good manners of the elders of the neighborhood, the respectable people, the good manners of the people, their personal lives, being among the first to hear the times of joy and hardship, and having a deep impact on the family in which they live, have an impact on the level of their mental health during their life. The counsels of the elderly people of the neighborhood could not be exchanged with any lessons. There, we heard a lot of people who listened attentively to the words of their members, the rich and poor, the elderly people of the neighborhood, and the honorable women, and as a result they became happy. There are a lot of opportunities that we aren't using in the community for the proper care of the spiritual world of young adults. It is a demand for deeper learning. In our country, "Neighbourhood" has put in order the tasks of the creation of the charity womb, together with the honor of the communities, turning them into real educational institutions. Overall, it is our national spiritual heritage to mold the bodies into a good spirituality, taking into account the achievements of modern civilization in the fields of education and training, and the places of education. Each element of this system is slightly influenced by others. The success achieved in each generation affects the proper fulfillment of the tasks of other generations. In contrast, several flaws in each syllable make it difficult to replace the tasks of other syllables. It is possible to organize according to the following scheme of the mentioned chain of family, neighbourhood, spiritual education:

Today, the elderly people of the village pay great attention to the education of the children and take various measures to clarify the needs of the children and pass their free time. For the purpose of improving the environment, every person is employed in the factories, and a number of measures are implemented to protect the health of the environment. On the occasion of the national holidays, the elderly people of the neighbourhood involve young people in the work of perpetuating the corpses, decorating them. "The best family", "Elegant neighborhood" contests are being held. This is the reason why we pay attention to our surroundings. Today's communication technologies are developing, and ideological exercises are being carried out. Today's communication technologies are developing, and ideological problems are concerned, therefore, it is essential to educate young people to honor the traditions of the country. In today's era of advanced communication technologies, fights for human mind and soul, globalization processes, attempts to take over the world from an ideological point of view are increasing, as a result preserving our national culture is one of the most important tasks. If we talk about the ideological influence, we should say that a number of explanations have been introduced into the scientific circulation, which would be clear, valuable, and distinguished by their characteristics. Among them, there are concepts like "Ideological Immunity" and "Ideological Prevention". And when we clarify the meaning of these concepts, we can have a deeper understanding of the character of the ideological processes that are taking place in the modern world. It is possible to use the selfish goals of people through cartoons and movies, which are harmless at first glance. It is an important task of our day not to turn the region of our country into an ideological landfill, to form ideological beliefs in the hearts of the people of Uzbekistan, to the world, to the life of society, and to instill the ideology of national altruism in the hearts of our compatriots. One of the ways for this is to educate young people to proud by their nation, their ancestors and respect their traditions. Today, the democracy of the western countries is rapidly affecting to our young generation. Among our youth, there are some cases where youth follow western traditions. It is the demand of the times to prevent the emergence of such unsavory habits in our society, so we need to implement education and training in families, neighborhoods, and educational institutions. [5,40] That's why we should organize a life-long exchange between the elderly and the youth by "Neighbourhood activists" in each neighborhood. If competitions related to our national cultural traditions are organized with the participation of young people in educational institutions and radio broadcasts prepared by students will also be effective. [6,41].

To sum up, there are many reforms that are being implemented in the areas of culture, the restoration of our national culture, and the adaptation of our national culture to the needs of the times the hope of our nation, with the help of which it is of special importance for young people to enhance the national mentality, national culture, and national psyche which is the basis of our country. On the basis of these, the great educational power of the values showed its valuable effect.

References:

1. Ўзбекистон Республикаси Президенти Шавкат Мирзиёевнинг Олий Мажлис Сенатининг йиғирманчи ялпи мажлисидаги нутқи. //Халқ сўзи. 22 июнь, 2019 йил №127 (7357)
2. Отамуратов С. Ўзбекистонда маънавий-рухий тикланиш. Т.: «Янги аср авлоди», 2003й. 39-б.
3. Ахлоқ – одобга оид ҳадис намуналари. Т.: «Фан», 1990 й., 48-б.
4. Саидов С. Маҳалла институт ива демократик ривожланишлар. Т.: Фан, 2015й., 37-б.
5. Саидов С. Маҳалла институт ива демократик ривожланишлар. Т.: Фан, 2015й., 40-б.
6. Саидов С. Маҳалла институт ива демократик ривожланишлар. Т.: Фан, 2015й., 41-б.

Rezyume: *Maqolada oilaviy qadriyatlar, madaniyatning yoshlar ongida tutgan o‘rni, millat va an‘analar o‘rni, ertangi kunni yorug‘ bo‘lishi yo‘lida amalga oshirilayotgan ishlar, otalarning yoshlar ma‘naviyatini yuksaltirishga alohida e‘tibor qaratilmoqda. , bilim va ko‘nikmalarni egallash.*

Резюме: *В статье уделяется внимание ценностям семьи, роли культуры в сознании молодежи, роли нации и традиций, работе, проводимой для того, чтобы будущее было светлее, а особое внимание родителей уделяется духовное воспитание молодежи, приобретение знаний и умений.*

Kalit so‘zlar: *Ta'lim, Shaxs, Oila, Jamiyat, Qadriyatlar, Madaniyat, Ma'naviyat.*

Ключевые слова: *Образование, Человек, Семья, Общество, Ценности, Культура, Духовность.*

**EMERGENCE OF THE STATE FOLK MUSIC ORCHESTRA NAMED AFTER THE
TEACHER, CONDUCTOR, COMPOSER DONI ZAKIROV**

Jumaniyazov I.R.

Nukus branch of Uzbekistan state conservatory

Summary: *In this article, we talk about the emergence and development of the Uzbek folk music orchestra, and mainly, you can see how the master, conductor, composer Doni Zakirov made a significant contribution to the working on the compositions and public (choir) forming. He tried not only to use folk songs in the formation of the orchestra, but also tried to discuss the history of that composition and how it formed.*

Key words: *folk music orchestra, chang, orchestra, girzhek, composition, score, composer, music, song, singer.*

In 1959, an ensemble of musicians was formed at the radio station of Uzbekistan, and the task of leading the ensemble was entrusted to master teacher Yunus Rajabii. The orchestra will be led by the famous conductor, composer Doni Zakirov. In 1960, the orchestra choir is consisted of forty-six (46) musicians. H.Nosirova and S.Yarashev, well-known conductors from the orchestra, and then K.Ismoilova, M.Dadaboyeva, B.Davidova, H.Yusupova and F.Abdurakhmonov from solo performers will join the choir. The orchestra achieved great achievements both individually and as joint performers. Playing of the orchestra in high spirit while soft, cheerful music in lyrical music - it gave an incomparable beauty to the musics of the individual performers. In particular, the timbres of girzhek, chang, dutar and flute voices help to improve the composition and performance skills, as well as from the content point of view by harmoniously combining with the timbre of individual performers and the timbre of soloists,. [2.44-45].

Uzbek radio broadcasters are eagerly waiting for the compositions of composers such as "Ma'rt jigitletler (Brave guys)" by F. Toshmatov, "Ko'rmedim (Haven't seen)" by D. Zakirov, "Diyarimsan' (My land)" by K. Jabborov, "Toylarin'iz mu'ba'rek (Happy weddings)" by N. Hasanov, "Tappadim (Haven't found)" and "Duwtarim (My dutar)" by S. Kalonov. Professional specialist musicians, in particular rubabists K. Usmonov, I. Mallaev, S. Takhalov, T. Rajabov, A. Bobokhonov, as well as flute musician H. Juraev, chang musician A. Mutalov, from girzhek musicians T. Azimov and K. Komilov's joining to the choir increased the performance level of the orchestra.

In those years, it was possible to record the ensemble's works and concert programs on magnetic tape for the first time. After this process was honored by the specialists, it became a tradition of regular broadcasting the works on magnetic tapes with the help of radio waves. Later, it had the opportunity to be broadcast on television. The performance activity of the orchestra was not limited to radio and television performances, concerts, performance activities, and entertainment began to be enjoyed by the wider public.

In particular, the orchestra's concert programs were often performed in collective farms and urban factories. At such concerts, the listeners were more and more accustomed to the skills of the orchestra. During this period, composers A. Kozlovsky, I. Akbarov, H. Rahimov, A. Muhammedov, Sh. Ramazonov, R. Hamroev and others enriched the repertoire of the orchestra with their compositions in various genres. Despite the differences in the score, the performers performed their parts to the best of their abilities. The reason is that some compositions were well known to folk artists. In addition to this, the orchestra also performed Arabic, Afghan, Iranian and Azerbaijani folk music and songs. The basis of choir at that time were bright performers of the traditional performance school were T. Alimatov (sato), S. Kalonov (flute), F. Sodikov (chang), F. Toshmatov (girzhek), H. Ubaidullaev (double flute), M. Yusupov (dutar). These musicians were not only engaged in orchestra activity, but also trained talented students of music educational place and conservatory for professional conducting. At that time, one of the main tasks of the radio orchestra

was to develop national performance traditions in a new way. For that reason, the Uzbek folk songs that made up the relevant part of the concert programs were harmonized not in the way of ensemble performance, but in a form suitable for orchestra performance. Also, this orchestra, which aspired to national traditionalism in its composition, repertoire and performance, was different from the orchestra that was doing business near the Philharmonic. Their goal and mission was different from each other. For example, the orchestra named after Tokhtasin Jalilov performed in open arenas and in large concert halls, while the radio orchestra performed in recording studios by recording works on magnetic tapes. For that reason, in the radio orchestra, the place of more delicate and soft-sounding songs was important. In addition, main part of the orchestra's repertoire consists of folk music and songs reworked by composers, and the rest consists of songs of Uzbek composers and compositions specially created for the orchestra. At the same time, the choir tried its creative skills in the performance of the reworked music of the Azerbaijani, Kazakh, Karakalpak, Tajik and Russian peoples, which were related nations. In the performance of music samples of Uzbek and Eastern peoples, the performance skills of the "master-disciple" school were very necessary for orchestra musicians. Doni Zakirov, a senior scientist of Uzbek folk music and compositions, paid special attention to the compatibility of the main music and voice, and tried to exaggerate the characteristic decorations and colors of the composition, which determined the quality of the work, regardless of which sample was suitable for the orchestra. For that reason, Doni Zakirov's contribution to the first-time development of the method of creativity is considered infinite. [7.189-192].

There is no doubt that he was one of the first to adapt folk songs and classical music samples to the orchestra, and gradually began to create special compositions for the choir.

Creative achievements were also in line with this. In particular, the composition "Jabayi Chorgoh", reworked by D. Zakirov in 1962, revealed new aspects of the orchestra's performance. In creating this score, D. Zakirov tried to explain the individual performance of each tone and to show the possibilities of performance in the combination of different tones. Importantly, the unison performance of various musical ensembles is characteristic factor to the traditional performance of Uzbek national songs, that is, the predominance of the music from the beginning to the end of the work, has preserved its power.

If a single piece of music is performed by a choir of pieces, an ensemble is replaced by a polyphonic orchestra. All of these were implemented so that composers could perform multi-toned music deeply and intelligently, without losing the national uniqueness of the work. Despite the simple composition of the score, some problems related to the performance position of the orchestra had already been appeared.

The musicians trained in the basis of the unison form of performance brought out the difficulties of performing various parties and voices. This situation, especially when it is demanded the musicians to listen to each other during the performance, or to pay special attention to individual performance parts, which were given an important place in the composition, was noticeable.

For that reason, during the rehearsals, D. Zakirov gave more effort that each performer should work individually on their shortcomings, that the orchestra choirs should to stabilize the balance in the performance, and try to fully illuminate the artistic content of the composition. In other words, it was aimed to achieve the same clear and quiet tone of the full and individual music choirs of the orchestra. Under the influence of such requirements, the orchestra choir, whose performance level has matured, was able to successfully perform the work "Jabayi Chorgoh" in particular. D. Zakirov was able to demonstrate the performance skills and possibilities of the orchestra and each choir through fast speed, as well as the variety and rich timbres of Uzbek folk music, in the reworked music "Jazoir" for the orchestra. [5.146-148].

That's probably why these works are regularly performed in concert programs without losing their value till this day.

D. Zakirov while working in the orchestra, not only taught the musicians performance skills, but also tried to improve their musical education. In particular, in order to introduce them to the

Uzbek, Russian and European music culture, including the models of composition creativity, and the activity of famous performers, he organized lectures on various topics for a couple of hours a week, apart from the orchestra training. Such lectures aroused great interest among the choir musicians.

Each composition created by D. Zakirov for the orchestra is played in its own sounds. One of the works written by the composer especially for the choir at that time was created in the basis of Uyghur folk songs music, and this work reflected the peculiarities of the four-part collection. Therefore, each part has its own music theme, size and characteristic images.

For example, the first part (Andante) of the soft sounds presented in four time measure plays the music-theme in a narrating style, the theme of the second part (Andantino) is lively, i.e. in the style of dance, and the third (Allegretto) is cheerful and fast-playing, i.e. in the style of dance, and the last part, the fourth part (Allegro), is concluded with the theme that radiates strong speed.

In this composition, D. Zakirov effectively used off-beat method of musical instruments characteristic of Uyghur folklore. In the second song, he appropriately used the pentatonic scale characteristic of Uyghur folk music. Each song in group (collection) has its own characteristics and leaves a great impression on listeners. In its place, skillful execution of this composition served to improve the performance level of the orchestra musicians. "Doni Zakirov used in his compositions the methods used in Russian and Western European symphonic music in accordance with national traditions."

During rehearsals, D. Zakirov overcame technical difficulties together with the musicians, using the possibilities of the orchestra effectively, and he found sounds that were characteristic for the composition.

Saifi Jalil's khashkar rubab and "Suite" written for orchestra also imposes a number of artistic duties on orchestra musicians. Below is an example of the structure of the opening note from this composition: The parts of a suite-type collection work are based on the stress difference between each other. However, in this composition, Saifi Jalil stress intervals are changed in the following order according to the national artistic traditions: Andante-Allegretto-Allegro. This leads to a dynamic and stressful acceleration in closing part in its place. In addition, the dynamic condition of the Suite at the level of each section and collection is also determined according to the gradual integration of the music. Because of this, the progress of dynamic condition becomes more and more intense during the transition from part to part, and density appears in the score. The dynamics are connected with the stress in place. If the stress is really fast, the sound is so strong, and the texture is so complex. [7.201-203].

The score differs from the individual characteristics of each musical part. The use of delicate dynamic signs makes it possible to clearly show the musical theme. Individual performances of the Kashkar rubab are well sounded together with dutar bass, dutar contrabass, girzhek, girzhek bass and girzhek contrabass.

Looking at the development of the musical material, the composer used the method of repeating the music by the second choir which performed by one musical choir. The main difficulty for the performers is changes in tempo (stress), tonality, size, dynamics, and boom.

The gradual increase in dynamics demonstrates the breadth of the orchestra's range of possibilities and the infinity of sound power.

The compositions analyzed above were among the most prominent examples of the orchestra's performance during the period of its formation. They are clearly revealed in the excess of performance skills of the choir. These works were performed only on television and radio waves, or among the public, that is, in collective farms, factories, plants, and other places, and were promoted in a proper manner. Thus, from the day of formation of the orchestra until the end of the 1960s, the orchestra mastered the skills of performing polyphonic music and learned the musical "language" characteristic of real orchestra performance. In other words, the choir had the potential to perform compositions of various genres as well as reworked Uzbek folk music.

Over the years, the composition of the orchestra has expanded and strengthened due to professionally trained musicians. The joint of talented musicians helped the orchestra to grow in performing skill. The role of the conductor, who radiated the content of the performed work with the help of a mysterious stick, and led the audience artistically, was also determined. Each musician, who was an orchestra performer, learned the skills of performing a standard piece not in his own form, but in the company of other musicians, listening to each other with the help of a conductor.

As a result, a multi-toned and colorful timbre orchestra was created that contained the national music. The orchestra has had a lot of experiences during the past era. All of these were aimed at strengthening the composition of the choir, improving performance skills, expanding and enriching the repertoire.

In short, the composers tried to write beautiful and meaningful special compositions, while the orchestra tried to fully understand and convey the content of the compositions being performed.

References:

1. Rajabiy.Yu., Akbarov.I. O'zbek xalq musiqasi tarixi. O'qituvchi. 1981.
2. Odilov.A. O'zbek xalq cholg'ularida ijrochilik tarixi. T.2002.
3. Jabborov.A. O'zbek bastakor va musiqashunoslari. Toshkent. 2004.
4. Leviev.A. O'zbek milliy cholg'u sozlik tarixi. Toshkent. 2005.
5. Lutfullaev.A. Ijrochilik san'ati tarixi. Toshkent. 2006.
6. Lutfullaev.A. Istoriya ispolnitel'stva na uzbekskix narodnix instrumentax. Tashkent. 2010.
7. Tashmatova.A. Ijrochilik san'ati tarixi. Toshkent. 2017.

Rezyume: *Bu maqolada o'zbek xalq sozlari orkestirining yaratilish tarixi va rivojlanish bosqichlari haqida ma'lumot berilgan bo'lib, asosan ustoz, dirijyor, kompozitor Doni Zakirovning asarlari bilan ishlash va orkestr jamoasini tuzishda qilgan mexnatlarini ko'rish mumkin. Orkestr yaratishda faqat xalq musiqalaridangina emas balki asar tarixini, paydo bolishini chuqur tahlil qilganini ko'rishimiz mumkin.*

Аннотация: *в этой статье мы рассказываем о возникновении и развитии узбекского оркестра народной музыки, и, главным образом, вы можете увидеть, как мастер, дирижер, композитор Дони Закиров внес значительный вклад в работу над композициями и формирование публики (хора). Он попытался не только использовать народные песни при создании оркестра, но и попытался рассказать об истории этой композиции и о том, как она формировалась.*

Kalit so'zlar: *Xalq sozlari orketsri, chang, orkestr, girjak, asar, partitura, kompozitor, musiqa, ashula, sozanda.*

Ключевые слова: *оркестр народной музыки, чанг, оркестр, гиржеск, композиция, партитура, композитор, музыка, песня, певец.*

HISTORY OF THE LIBERATION MOVEMENT IN KARAKALPAKSTAN OF THE XIX CENTURY IN ENGLISH-LANGUAGE LITERATURE

Bayniyazov A.T.

Karakalpak state University named after Berdakh

Summary: *This article describes the importance of the action of freedom of the people of Karakalpakstan in the nineteenth century and their research in a foreign language abroad.*

Key words: *the history of Karakalpakstan, foreign literature, foreign historical schools, foreign researchers, English-speaking authors*

“An exceptionally significant place in the process of revival and growth of national self-consciousness, national pride, emphasized the first President of the Republic of Uzbekistan I.A. Karimov, - occupies historical memory, restoration of the objective and true history of the people, native land, territory of the state” [1.134].

The publication of the decrees of the Government of the Republic of Uzbekistan “On the preparation and publication of the New History of the Republic of Uzbekistan” and “On the activities of the Institute of History of the Academy of Sciences of the Republic of Uzbekistan” indicates that domestic historical science, if it really claims to be a science, will have to undergo a radical revision of the accumulated knowledge, their rather thorough revision.

The negative consequences of the Soviet society, the lack of pluralism of opinions and wide international scientific contacts, for many years made it difficult for Karakalpak historians to turn to the materials of foreign authors. The negative consequences of ignoring the achievements of foreign historiography still hinder progress in this area today.

The sprouts of a creative approach to the study of foreign material about Karakalpakstan began to break through already in the period of gaining independence and sovereignty in the works of B.A. Koshchanov and A.M. Dzhumashev, in the candidate dissertations of S. Nurzhanov and R. Sapaev. Nevertheless, there is no comprehensive study in domestic historiography, where a scientific analysis of foreign literature on the history of the liberation movement of the peoples of Karakalpakstan in the 19th century would be given. While most of the materials, unique in their content, are the works of foreign authors, such as Seymour Becker, Richard Pipes, Alexander Park, Width Akiner, William Mendel, have no analogies. Taking into account the achievements of foreign science on the history of Karakalpakstan not only makes it possible to rethink many traditional stories, but also allows you to see new horizons, get out of the vicious impasse of self-isolation in the study of the historical path traveled by the peoples of Karakalpakstan.

The following problems remain relevant in Russian historiography:

- study of the main trends of scientific and professional interest of foreign authors of the history of Karakalpakstan;
- determination of the influence of external, internal political and personal factors on the development of certain problems in the history of Karakalpakstan in various countries;
- comparison of methods of using archival and literary materials on the history of Karakalpakstan by foreign authors;
- studying the ideas and conclusions of foreign researchers and political scientists on the nature of popular uprisings on the territory of Karakalpakstan in the 19th century.

The main attention should be focused on the analysis of foreign literature on a wide range of key issues in the history of Karakalpakstan, including:

- the uprising of 1827;
- the uprising of 1855-1956;
- the uprising of 1858-1959.

In the assessments of popular uprisings in the territory of Karakalpakstan, there is much more politics and emotions than a holistic, objective and scientific approach. It is necessary to highlight the main provisions of foreign historical schools regarding these events, continuing the traditions of modern domestic historiography. Western scholars have done a lot to understand the

history of Karakalpakstan in the 19th century. Recently, there has been an active process of introducing our historians to foreign historiography.

Foreign researchers Seymour Becker, William Mendel, Richard Pipes, Geoffrey Wheeler, Alexander Park, Baimirza Khait, Shirin Akiner and others have written works that are distinguished by originality and unexpectedness of the subject matter and posing questions. Among them, an important historiographical source is the monograph by Seymour Becker, Doctor of Philosophy, Professor of Rutgers University (USA) "Russian protectorates in Central Asia: Bukhara and Khiva in 1865-1924" Professor of the Center for Central Asian Studies at Columbia University (USA) Edward Alfred Olward published a monograph in California in 1990 under the title "Modern Uzbeks: the history of culture from the 19th century to the present day". Shirin Akiner, a Turkish woman, director of the Central Asian Research Forum at the University of London (Great Britain) is interested in the history, political events, science, culture of the Central Asian republics of the last two centuries. She published the monographs "Muslim Peoples of the Soviet Union" (London, 1986), "Cultural Changes in Central Asia" (London, 1991), [2; 4-7].

However, foreign researchers used fragmentary and incomplete sources with significant gaps and gaps in the study of national-state processes in the Khorezm Republic. Some conclusions of foreign authors are in the nature of hypotheses and assumptions, not always confirmed by archival documents. By the way, Western researchers were the first to understand this, who, not limited to simple conversations and complaints about the closed nature of the archives, are much more active and persistent in trying to gain access to the archives.

The Russian imperial policy towards the indigenous peoples of the Khiva Khanate was somewhat different. In foreign English-language historiography, it is believed that it was less interventionist than the policy of other European colonial powers. For example, it is said in the report of the Director of the Central Asian Research Forum of the University of London Shirin Akiner [3; 42].

The study of the works of foreign English-speaking authors on the history of Karakalpakstan is of great scientific importance. Work in this direction is still being carried out by a small group of historians. We need scientific controversy and dialogue with foreign colleagues.

References:

1. Karimov I.A. Uzbekistan on the Threshold of the 21st Century: Threats to Security, Conditions and Guarantees of Progress. Tashkent. "Uzbekistan" 1997.
2. Becker S. Russia's Protectorates in Central Asia: Bukhara and Khiva. 1865-1924 - Cambridge Massach. Press, 1968. 2 print: Mendel W. The Soviet Far East and Central Asia.
- New York: The Deal Press 1944; Pipes R. The Formation of the Soviet Union. Communism and Nationalism. 1917-1923 - Cambridge, Harvard Univ. Press, 1954, Wheeler J. The People of the Soviet Central Asia - London: Bodley Heard Press, 1966; Park A. Bolshevism in Turkestan. 1917-1927 - New York: The Deal Press. 1957. Hait B. Turkestan im XX Jahrhundert - Darmstadt: Press: 1956; Hait B. Some Problems of Modern Turkestan History. Dusseldorf 1963; Akiner Sh. Periodization of socio-cultural change in Central Asia (XIX-XX centuries) // "Independence and history: new approaches to the study of the history of Uzbekistan." Abstracts of reports int. scientific Conf.// European Union Tacis Tempus Jep "Tarikh". Tashkent. "TashGU". 1997. Critchlow J. The struggle of the Uzbek people for national independence //
3. Akiner Sh. Periodization of socio-cultural change in Central Asia (XIX-XX centuries) // Independence and history of Uzbekistan. Materials of the international conference of historians. Tashkent April 15-20, 1997 - Tashkent: Tashkent State University. 1997.

Rezyume: *Ushbu maqolada XIX asrda Qoraqalpog'istonda xalq erkin harakatining o'ziga xos tavsifi va ularning chet tillarda olib borilgan izlanishlari haqida ma'lumot berilgan.*

Резюме: *В этой статье говорится о важности описания действий свободы народа Каракалпакстана в XIX веке и их исследования на иностранном языке за рубежом.*

Kalit so'zlar: *Qoraqalpog'iston tarixi, chet el adabiyoti, xorijiy tarixiy maktablar, chet el tadqiqotchilari, ingliz tilida so'zlashuvchi mualliflar*

Ключевые слова: *история Каракалпакстана, зарубежная литература, зарубежные исторические школы, зарубежные исследователи, англоязычные авторы*

**THE SKILL OF CREATING COMPOSITION IN A WORK OF ART
(in small prose works)**

Kamalova D.E.

Nukus branch of the State Conservatory of Uzbekistan

Summary: *This article talks about the skill of creating compositions in small prose genres in Karakalpak literature. The works of famous writers K.Smamutov, M.Taumuratov, A.Sultanov are analyzed and the specific features of the composition are revealed with examples.*

Key words: *literature, genre, prose, story, novella, plot, composition, skill*

Introduction

The artistry of each work can be seen in its content and compositional construction. The compactness of the composition is important mainly in works of small genre. A peculiar feature of the short story is that it describes events that awaken the mind and soul of a person. If V. Goethe emphasizes: “the fascination of an event lies in its novelty,” then I.A. Vinogradov points out that “...there are many events that have new and artistically beautiful stories than novelty.”

The main part

In fact, in the short story, compared to the story, the truthfulness of life is conveyed, life situations are built for a short time, in it the emotional experiences and thoughts of people are given deep lyricism, events are depicted with an unexpected and sharp turn, the clear solution of conclusions and thoughts is especially striking. In Karakalpak literature in the short story genre, such writers as K. Smamutov, A. Sultanov, M. Taumuratov and others work tirelessly. For example, the short story “Bala” (“Boy”) by K. Smamutov tells the boundless love of a son for his parents, and tells how some parents work in difficult situations abroad in order to accumulate wealth. The boy in this story lives with longing for his parents. He is waiting for them and believes that they will return soon. These are everyday incidents from our lives. But the author depicts the plot with skill and was able to ensure the artistry of the images. And in the work “Poshsha Torgay” (The Lark) the theme of the Motherland is raised. It does not consist of dry statements from the author such as “I love”, “I suffer”, but depicts the inner world and the special, unique love for the native land of the main character Aimurat.

The lark is a piece of nature; it does not leave its native land. Although the lark suffers from the harmful disasters of nature, it does not renounce its homeland, its native nature. This is an inherent distinctive feature of the lark. But, although this is the name of K. Smamutov’s short story “The Lark,” this image symbolically tells about a person and his fate, his attitude to his native nature, to the world around him.

The short story “The Lark” is a unique work that tells about the native land and the Motherland; the author gives it the name elegy. About this work, the famous critic K. Zharimbetov in the article “Aimurat, lark and saxaul (seksewil) or a word about the Motherland” notes: “Basically, elegy is the name given to works that convey sad, sorrowful, sorrowful feelings. These feelings are both in words and in poetic form” - reflecting, he believes that the work can be called “story- elegy” (elegiac story). But, in our opinion, calling this work a short story corresponds to the genre characteristics. Since, today in Russian and Uzbek literary criticism, the specific properties of this genre are scientifically substantiated.

Every writer, when choosing his literary genre, strives to show interest among readers. Therefore, he tries to artistically depict the meaning and idea of the work based on personal skill. The short story is a genre that incorporates these features. It briefly and clearly conveys the writer’s thoughts. It depends on the skill of the writer. The epic narrative in the short story is not given sequentially as in a story, but develops grotesquely, unexpectedly and with rich drama. It shows the personal actions of the characters, not the narrator. Through such actions, the plot becomes more complicated, the conflict intensifies, and events take a sharp turn. This means that this shows the

specific features of the novel. In the short story "The Lark" by K. Smamutov, through the image of Aimurat, we see a thirteen-fourteen year old poet praising his native land, a loving son of his Motherland, a little man who values his family, in need of the love and attention of his parents. In the work, events are built in the shortest period, it ends with a complication of the plot, an intensification of the conflict, an unexpected turn of events and complete drama. From the first lines of the novella, the image of Aimurat and his individual character are revealed. He differs from others in the heartlessness and cruelty of his parents. He doesn't speak much. Doesn't make friends with peers. Even the guys call him "an old man." With such sketches you can see the inner world of Aimurat. He values and values the concepts of the Motherland, mercy and family relationships. The author's internal monologue in the work provides the content and artistic skill of creating the character of the hero. Aimurat is a simple rural boy. He grows up with his younger sister without parental care due to the fact that they earned a living abroad. He puts his homeland on an equal footing with his own mother. But Aimurat had only a homeland. Therefore, he conveys his boundless love for his homeland in poetic form as a poet. Also, the work ends with an unexpected decision unusual for a short story, that is, the death of the main character Aimurat - this ensures the expressiveness of the work and the high level in the human mind of the ideology of the feeling of the Motherland. The author's artistic skill is visible in the authentic depiction of events. The author summarizes this episode briefly. "... A squad consisting of three people of the railway police, three hundred meters from the border of Karakalpakstan with a foreign state, found the lifeless body of one teenager... It was Aimurat." The famous critic K. Zharimbetov notes this and gives the following review: "This episode is the culmination of the story, it should have been artistically depicted more broadly by the author. Here it was appropriate and not superfluous to use one of the literary and folklore traditions - the motive of farewell." Undoubtedly, the end of the work is given very concisely. But this conciseness is a phenomenon characteristic of the genre features of the short story. The presence in the work of an unexpected sharp turn and drama completely reveals the image of Aimurat. He wanted to stay in his native land, in the arms of the Motherland. And he stayed! In our opinion, the writer's conclusion is close to reality. If at the end of the work the boy, knowing about his death, or wants to stay in his native land with his sister, would tell his parents or someone, or he and his parents would go to a foreign country, then the ending of the story would occur. And his tragic death is an unexpected decision, an unexpected end, and meets the requirements of the short story genre. At the same time, the short story "Korkytyý" (Intimidation) by the famous short story writer A. Sultanov tells about the tragic death of a homeless three-year-old boy who became the prey of rats. A father who put alcoholism higher than raising his own child locks a three-year-old boy in the basement so that he is afraid of his father. The father forgets his son for some time in the basement. The already lifeless body of the son had long ago become the prey of rats in the basement. These cases undoubtedly call on parents to be vigilant in raising their children. The works of the famous writer M. Taumuratov "Jolli" (Dog named Zholly), "Doctor", "Algısnama" (Gratitude) meet the genre requirements of the short story in the presentation of events, in plotting, in revealing the inner feelings of the characters and differ from the story in an unexpected sharp turn. M. Taumuratov's short story "Zholly" ("A Dog Named Zholly" attracts the attention of readers with its artistic features. The unconventional presentation of the plot and the peculiarity in the structure of the composition indicate the ideological and thematic artistry of the work. The author cites an important aspect of the continuous connection between man and nature today. At the same time, questions are raised, such as the struggle for survival, the price of life. The writer skillfully reveals the concepts of life and death, which are the law of reality through the spiritual state of the animal. Zholly hurried to this guy, dear to him. But that didn't happen...

"Zholly was running about his dog business when he heard a whistle. He looked around, turned his head from side to side, pricked up his ears, and wagged his tail. The whistle was quite familiar and it was his name. He was overcome by an unknown lightness that he had not experienced for a long time. He happily ran towards the guy who called out to him. When he was

very close, a dry click was heard and warm moisture began to spread throughout his chest... It was the sound of an iron hit by Zholla's dog in the head.

The peculiarity of the compositional structure is that the author does not depict events sequentially. Now, in a few moments of suffering and torment from the blow he received, the best pictures of his dog's life flashed before Zholly. "Now I can't even remember when it happened, but one day Zholly fell ill. His gaze dimmed and his temperature rose. I just lay there and lay there: there was no strength to get up. Then the master's children cast spells over him day and night. They cherished him and stuffed him with medicine. But the dog's body categorically rejected them. But time passed and gradually he began to come to his senses. And when I recovered, I clearly noticed the joyful sparkle in the boys' eyes! And this joy of caring boys touched the depths of his soul, a devoted dog. He didn't even realize then that such concepts, pleasant as life itself and terrible as death itself, always follow closely." The guy in the hat often came to them and flirted with him every time. Zholla's dog's heart was simple-minded, he gradually began to get used to it. Zholly got so used to the guy that he literally began to follow him on his heels. "Three times he had to lie waiting for him in front of one of the houses. One day he went there long after midnight and left just before dawn. And then Zholly walked nearby..."

Through such an image, the author wants to show the betrayal of people to each other and the loyalty of animals to people. Zholly wants to breathe pure oxygen in that spiritually suffered state. His last wish to survive was in vain and he falls at the feet of his friend. The work ends with drama. The boys searched for a long time for a dog named Zholly, but found only his skin and bones. A week later, a puppy similar to Zholly appeared in this house. The work ends with the following words of the author: "... And life continued to take its course. Like a road without end and edge, completely unaware of the disappearance of the pathetic mongrel..." Through the psychologism inherent in the novella, such feelings as valuing life, mercy, love for neighbors and friendship are artistically depicted through the image of an ordinary mongrel named Zholly.

The author in the work uses scientific terms a lot in his presentation of events. The work seems to have been written for people with a high level of literacy. For example, "In individual cells of the damaged brain, in memory codes, this data appeared with a capacity of several billion kilobytes ...", while the scientific terms used cannot be understood by ordinary people.

Also, they will create difficulties for readers to understand the work. But all this testifies to the writer's skill in conveying in scientific terms the internal state of a person, the concepts of life and death.

The works of M. Taumuratov and the use of scientific terms in their titles are of interest to readers. We think that these qualities are characteristic of the writer's individual style. Since, M. Taumuratov graduated from the Faculty of Mathematics of Karakalpak State University, Department of Probability Theory in 1983. It is no coincidence that the titles of his short stories often use mathematical terms. As an example, we can cite the following works by the author: "Turmistiń ekinshi nızamı" (The second pattern of life), "Jalgızlıq salmağı" (Mass of loneliness), "Tirishiliktiń birinshi formulası" (The first formula for survival), "Táǵdır jollarınıń kesispesi" (Crossroads of the paths of destinies), "Tórtinshi ólshem" (Fourth dimension).

Conclusion

In conclusion, it should be especially noted that the content of a work is assessed by its artistry. The writer, as a result of his artistic skill, conveys figuratively and expressively everyday events from life. It is important to convey them in a certain form. This means that the content and form of a work are both sides of artistry. In the short story, which is one of the small prose genres, the depiction of a large volume of events is often found in the works of Karakalpak writers of our time. They vividly depict action-packed events, a specific compositional structure and artistic skill. If the short stories of the writer K. Smamutov are distinguished by their simplicity in conveying their ideological themes, then the short stories of M. Taumuratov are distinguished by the peculiarity of their presentation, collecting events occurring in real life around one detail. A. Sultanov, in his short stories, depicts cases of reality, arouses the interest of readers with sharp

conflicts and turning points. Therefore, carrying out special research work on the genre and artistic features of works of this genre that appeared in the last quarter of the twentieth century until today in Karakalpak literature, in connection with this, there is a need to introduce them into scientific circulation. In this case, there will be a greater opportunity to distinguish between the genres of stories and short stories and to reveal the features of the depiction of works of these genres.

References:

1. Adabiy turlar va janrlar [Literary types and genres] Ed. by E. Karimov, B.Sarimsakov. – Tashkent, 1991. (In Uzbek).
2. Axmetov, S., Esenov, J., Jarimbetov, Q. Adebityattanıw atamalarınń orıssha-qaraqalpaqsha tu'sindirme so'zligi [Russian-Karakalpak Dictionary of Literary terms]. Nukus: Bilim[Knowledge] (In Karakalpak). 1994
3. Axmetov, S., Sultanov, Q. A'debityattanıw. – Nukus: Karakalpakstan, 1987 (In Karakalpak); Allambergenov, K. (1997). Novellanın' jetik sheberi (A.Sultanov haqqında) [Mature novelist (about A. Sultanov)] // Journal of the Amudarya, № 3-4. (In Karakalpak). 1997.
4. Vinogradov, I.A. O teorii novelli [About the novell theory] // Voprosı marksistskoy poetiki. – M.: Sovetskiy pisatel (In Russ); 1972.
5. Qo'shjonov, M. Ma'no va mezon [Content and criteria]. Tashkent, Publishing of Literature and Art (In Uzbek). 1974.
6. Meletinskiy, E.M. Istoricheskaya poetika novelli [Historical Poetics novell]. M.: Nauka (In Russ). 1990.
7. Sulton, I. Adabiyot nazariyasi [Literature theory]. Tashkent: Teaching (In Uzbek). 1986.
8. Toshpo'latov, A. O'zbek adabiyotida novella janri va uning badiiyati (A.Kahhor, Sh.Xolmirzaev, N.Eshonqul ijodi misolida) [The genre of the novell and its art in the Uzbek literature (on the example of A. Kahhor, Sh.Kolmirzaev and N. Eshankul)]. Samarqand (In Uzbek). 2018.

Rezyume: *Ushbu maqolada qoraqalpoq adabiyotida kichik nasriy janrlarda kompozitsiya yaratish mahorati haqida so'z boradi. Atoqli yozuvchilar K.Smamutov, M.Taumuratov, A.Sultonovlar ijodi tahlil qilinib, kompozitsiyaning o'ziga xos xususiyatlari misollar bilan ochib berilgan.*

Резюме: *В данной статье говорится об умении создавать композиции в жанрах малой прозы в каракалпакской литературе. Анализируются произведения известных писателей К.Смамутова, М.Таумуратова, А.Султанова и на примерах раскрываются особенности композиции.*

Kalit so'zlar: *adabiyot, janr, nasr, hikoya, novella, syujet, kompozitsiya, mahorat*

Ключевые слова: *литература, жанр, проза, рассказ, новелла, сюжет, композиция, мастерство*

HISTORICAL ROOTS OF ORAL CREATION OF THE PEOPLE

Utayev A.Kh.

Karshi State University

Summary: *The article talks about the historical roots, culture, customs, folklore art of the folk art. It is briefly shown how extensive and unique the history of the cultural and spiritual heritage of the Uzbek people is.*

Key words: *"Tolgonay", "Khurshidoy", "Yakka Akhmad", "Go'rog'li", typical, ancestors.*

Among the masterpieces of Uzbek folklore are Tomaris, Shiroq, Alp Ertonga, Alpomish, Gorogli, Elikbek, Jaloliddin Manguberdi, Temur Malik, and the creation of legends, narratives and heroic epics about Aysuluv. They are directly related to the history of the Uzbek people, and they praise the history of our ancestors' struggle for the independence of the country, the realization of their national identity, and their heroism. Undoubtedly, there were many historical figures in history whose fate became the fate of the people, just like the above heroes. The folklore of the people turned the life of these passionate individuals into an artistic image in a holistic system.

According to the typical traditional characteristics and ideological-artistic features of the epic genre, it is performed at a level comparable to epics such as "Tolganoy", "Khurshidoy", "Yakka Akhmad", "Shirin bilan Shakar". According to researchers who checked the existence of epics belonging to ancient times, such as "Alpomish", "Rustamkhan", "Go'rog'li" epics, through the repertoires of representatives of Sherabad, Shakhrisabz, Kamay epic schools, out of 100 known to folklore It is acknowledged that there are more epics and tales with dozens of unexplored variants and versions, as well as epics with an original plot.

In the 20th century, Uzbek folklore has made great progress in the field of recording, collecting and studying folk songs. That is why the product of valuable researches of B. Sarimsakov, M. Alaviya, O. Safarov, M. Zorayev, A. Musakulov, H. Razzokov still serves as an important resource for young scientists and researchers. But among our creative people, there are many examples of folklore that still need to be recorded and are waiting for their own monographic studies.

Each genre of epic type has active and passive formulas. V. M. Zhirmunsky and Kh.T. Zarifov thought about the traditional active formulas used for Uzbek folklore epics. There is a need to conduct special research on the formulas that come in epic genres such as fairy tales, legends, narratives, narratives. After all, it is clear from the above analysis that the influence of the improviser plays a significant role as a result of the mutual proportional connection between genres or the adaptation and coordination of important typical elements of one genre to another. It is true that the researchers who conducted research on the poetics of the fairy tale genre and the characteristics of the genre thought about the typical important formulas for Uzbek folk tales, but no scientific-theoretical opinion has yet been expressed about the role of formulas in the issue of the relationship between genres.

The Bakhsh who continue the tradition of folk folklore have long been familiar with the content of historical legends, when the traditions of the epic genre were developed, the image of Tomaris was transformed into Oysuluv, Sparganiz Kun into a hero, and Cyrus into Caesar, in accordance with the specific system conditions. is also not without possibility. That is, the myth genre, the plot of which has a more informative character, after its initial creative act - the motive of sacrificing one's life for the tribe, later moved to the genres of fairy tales and epics, the essence of the content expanded even more. In the process of performance, people who sang fairy tales and epics enriched the ancient concepts of the people and introduced actual issues required by the conditions in which they live. The plot of the historical legend of an informative nature, expressing the patriotic motive related to the image of Tomaris, has turned into large-scale epic works that perform an aesthetic function within the genres of fairy tales and epics.

Folklorist scientist, academician T.M. Mirzayev "Personality, creation and performance methods of folklore creators and performers, methods of telling, singing, showing and managing examples of folk oral works in the conditions of live performance, commonalities and peculiarities in recitation, traditional text A number of issues such as the mechanism of re-creation and execution, ways of professional education, beliefs in this, relationships between teachers and students should always be in the focus of the inspectors", he said.

The epics of the "Alpomish" series, which are widespread among the Turkic peoples, have always been the object of research by many folklorists, literary critics, philosophers, historians and ethnographers in terms of their historical significance and artistic value. , such world scientists as In Gyong O; G'O.Yunusov, H.T.Zarifov, T.G'oziboyev, M.Saidov, M.Afzalov, T.Mirzayev, M.Murodov, A.Ergashev, K.Imomov, Kh.Egamov, H. Abdullayev, O. Madayev, B. Sarimsakov, M. Koshmakov, N. Rahmonov, S. Ro'zimboev, M. Jo'rayev, S. Yoldosheva, I. Yormatov, Sh. Turdimov, J. Uzbek folklorists such as Eshankulov, N. Madrahimova; Karakalpak folklorists such as I.T. Sagitov, N. Davkarayev, Q. Ayimbetov, Q. Maqsetov, S. Bahadirova, J. Khoshniyazov, K. Allambergenov have conducted research on this epic in different periods, and this process is still ongoing.

The territory of Uzbekistan was one of the oldest centers of civilization. This region is a country rich in many tangible and intangible historical monuments formed over thousands of years. Intangible cultural heritage is a link between the past and the future, and represents the valuable wealth of different communities. In addition, the intangible cultural heritage of the Uzbek people has been polished by centuries-old ancestors and is valued as an important subject for the deepening of democratic reforms and the development of civil society. At the same time, intangible cultural heritage educates and glorifies people, reveals the beauty of nature and life. The Republic of Uzbekistan ratified the International Convention on the Protection of Intangible Cultural Heritage in December 2007 and became a full participant in it from April 29, 2008.

Recognition of 15 intangible cultural heritages of Uzbekistan as priceless spiritual masterpieces of mankind has become a historical event. "Boysun Cultural Environment", "Shashmaqom", "Navroz", "Katta Ashula", "Askiya", "Uzbek Pilov", "Atlas", "Lazgi", "Miniature", "Bakhshi san" by UNESCO Ati, "Silk Traditions", "Anecdotes of Nasriddin Efandi", "Uzbekistan Pottery", "Iftar", "Tazhib Book Decoration Art", etc. is another confirmation of how ancient and deep the spiritual and cultural heritage of our people is. These values are described at the international level as an integral part of the cultural heritage of all humanity and serve to greatly increase the recognition and wide promotion of the value of these types of intangible cultural heritage.

It is a natural process for samples of folk art to change over time, to be polished, to be enriched with new images, images and motifs. The spiritual heritage of the Turkic peoples has been preserved until now.

References:

1. Турдимов Ш. Этнос ва эпос. – Тошкент, Ўзбекистон, 2002. 75.бет.
2. Эргашев А. Шерабадскаядастанная школа, АҚД, Ташкент, 1991, стр. 14-15.
3. О'таев А.Х. Rangtasvir o'quv qo'llanma. – Qarshi, Uzbekistan, 2023. 156.bet.
4. Utaev Asror. "Journal of innovations in scientific and educational research". Works of fine and applied arts found in the ayrtom archeological site, their role and significance in our national cultural heritage.
5. Otayev A.H. Science and Education in Karakalpakstan ISSN 2181-9203. Portrait of Uzbek national epic heroes in fine arts in its own style.
6. Utaev Asror. ACADEMICIA: An International Multidisciplinary Research Journal. THE peculiarities of training in the field of practical art and teacher-student traditions in art ceramics
7. Ўтаев асрор «Образование и наука в ххi веке». Айртом археологик объектидан топилган тасвирий ва амалий- безак санъати асарлари уларнинг миллий маданий меъросимизда ўрни ва ахамият.

8. Ибрагимов Р. Анимация санъатининг тарбиявий ва психологияси муаммолари // International scientific and practical conference on the topic: "Priority areas for ensuring the continuity of fine art education: problems and solutions". – 2023. – Т. 1. – №. 01.

9. С. Булатов — Ўзбек халқ амалий безак санъати. Тошкент — Меҳнат 1991 йил 290-б

10. У. Мавлонов. "Болалар таълим-тарбияси ва миллий руҳни шакллантиришда амалий санъат турларининг ўрни ва аҳамияти". "Pedagogs" international research journal

11. E. Jabborov. Kompozitya san'atining nazariy va amaliy asoslari // O'zbekistonning yangi taraqqiyot davrida ta'lim-tarbiya va ilm-fan sohalarini takomillashtirish muammolari. Xalqaro onlayn ilmiy-amaliy konferensiya materiallari. – Qarshi shahri, 2022. –B. 405-407

Rezyume: Maqolada halq og'izaki ijodining tarixiy ildizlari, madaniyati, urf odatlari, folklorlik san'ati haqida so'z boradi. Uzbek xalqining madaniy, ma'naviy meros durdonalarining tarixi qanchalik darajada keng va betakror ekanligini qisqacha qilib ko'rsatilgan.

Резюме: В статье говорится об исторических корнях, культуре, обычаях, фольклорном искусстве народного творчества. Кратко показано, насколько обширна и уникальна история культурного и духовного наследия узбекского народа.

Kalit so'zlari: "Tolgonay", "Xurshidoy", "Yakka Ahmad", "Go'rog'li", tipik, ajdodlar.

Ключевая слова: «Толгонай», «Хуришидой», «Якка Ахмад», гўролгли, типичные, предки.

ANGLICISMS IN MODERN RUSSIAN

Bekmuratova U.A., Tajibaeva G.G.

Karakalpak State University named after Berdakh

Summary: *This scientific article examines the active use of Anglicisms in modern Russian. The authors analyze the reasons for the use of Anglicisms in various spheres of life.*

Keywords: *Anglicisms, borrowings, calque, Direct borrowings, exoticism, hybrids.*

Modern Russian, like many other languages, is influenced by globalization and intercultural contacts, which leads to the active use of borrowings from the English language, or Anglicisms in its vocabulary. Anglicisms in modern Russian have become an integral part of its linguistic landscape, reflecting changes in society, economics, science and technology. In this article, we will look at various aspects and reasons for the use of English loanwords in modern Russian.

Anglicisms in modern Russian have become widespread in various spheres of life, such as media, business, science, information technology, fashion, beauty, health, etc. These borrowings include both words and phrases that were borrowed from English and integrated into Russian.

However, what should be understood by the term "borrowing"?

Let's pay attention to the definition of borrowing by I. G. Dobrodomov: borrowing is the inclusion in the vocabulary of one language of elements of another, such as words, phrases, morphemes, etc. as a result of language contacts, as well as the process of transition of these linguistic elements from one language to another"[9].

L. P. Krysin sees borrowing as a process of transferring various linguistic elements from one language to another, which includes units at all levels of the language structure – from phonetics and word formation to morphology, syntax, vocabulary and semantics"

O.S. Akhmanova considers borrowing from two sides, borrowing is: firstly, "an appeal to the lexical fund of other languages to express new realities, further differentiate existing ones and designate previously unknown objects"; secondly, "these are words, word-formation affixes and constructions that entered this language as a result of borrowing"[1].

Based on the definitions mentioned above, it can be concluded that borrowing is the process of transferring words or constructions from one language to another, as well as elements of one language transferred to another as a result of socio-political, economic and cultural communications between countries.

And now let's move on to the term "Anglicism". According to Efremova, Anglicism is a word or a turn of speech borrowed from the English language.

The definition of "Anglicism" is also given in the dictionary of S. I. Ozhegov:

Anglicism is a word or a turn of speech in some language borrowed from the English language or modeled after an English word or expression[8].

The penetration of Anglicisms into Russian began at the turn of the 18th and 19th centuries, but until the 1990s their influence remained rather limited. In the 90s, there was an active process of borrowing from the English language: new terms were introduced for which there had previously been no equivalent in the Russian language, for example, in the computer field (the words "шредер"(shredder), "оверхенд"(overhand), "принтер" (printer), "лэптоп" (laptop), as well as in business vocabulary (words like "дефолт" (default), "оффшор" (offshore). Russian words also tended to be replaced by English words to express positive or negative connotations that their Russian counterparts did not have – so "пивная" (beer hall) could be replaced by the word "pub", and the "убийца" by "killer"[3].

The reasons for borrowing are very diverse and contain many aspects. Let's highlight the most important of them.

1. One of the key reasons for borrowing words from another language is the lack of proper terms to define new concepts. So, the words "laptop", "timer", "scanner" have no direct analogues

in the Russian language. In such cases, it is easier to use existing terms from another language than to invent new ones. M. A. Breiter notes that about 15% of the latest Anglicisms are borrowed due to the lack of an appropriate equivalent in the receptor language[2].

2. The second reason for borrowing is the tendency to make a semantic difference between "native" and "foreign". For example, the word "имидж" literally means "image" in English, but in modern Russian this word acquires a deeper meaning: "an idea (often purposefully created) about someone's inner and outer appearance, image (image of politics; image of a television presenter)"[5]; the word "рейтинг" comes from the English language "rating" (from the verb to rate; to define a class, category) was originally a sports term and denoted the position of an athlete among his competitors, estimated by a certain number of points. Subsequently, this word began to be used figuratively, denoting "the degree of popularity of someone (for example, a politician, a public figure), established by sociological surveys of experts, voting, etc. and determined by the place that this person occupies among his kind" [5].

3. Another reason is that the use of borrowed terms is preferable to a descriptive phrase consisting of several words. Examples of such abbreviations: "меткий стрелок" (sure shot) can be replaced with "снайпер" (sniper); "жареная картошка" (fried potatoes) with "чипсы" (chips); "бегун на короткие дистанции" (short-distance runner) with "спринтер"; "выпускной версий уже существующего произведения" (release of new versions of existing works of art) with "remake", etc.

Often words in a foreign language do not fully correspond to the meaning of Russian equivalents with Russian ones – in most cases there is a semantic difference between them, adding a unique meaning or functional and stylistic coloring: a foreign language element can often be terminological, while its Russian counterpart is an ordinary, commonly used word. Let's consider such pairs as "barter" instead of "меновая торговля", "discrimination" as "ограничение прав" (restriction of rights), "investment" in the meaning of "вложение капитала", "consensus" – "agreement, unity of opinion", "стагнация" implies "stagnation, immobility (in the economy)", and "транш" (tranche) – "part of the payment, loan", etc. [5].

4. Another reason for using borrowings in the Russian language is the possibility of transmitting certain emotional shades or associations that cannot be accurately conveyed using Russian equivalents. For example, the word "auto-rental" may carry the idea of prestige or modernity, which may be lost when using the phrase "прокат машин". Similarly, the expression "лучший паб" (the best pub) can evoke certain associations or emotions that cannot always be conveyed by the word "пивная" (pub) [2].

There are several ways of forming Anglicisms. The most common of them are:

Direct borrowings. These are words that have same sounds in Russian as English spelling. For example, "тинейджер" - teenager, "пати" - party, "панкейк" - pancake, "овертайм" – overtime, "спорт" - sport.

Hybrids. Foreign words with Russian affixes ("креативный" from the word creative, "бузить" - busy, "спикать" - speak

Exoticism is a unique term reflecting the specifics of the customs of other peoples, used to convey non-Russian reality. They stand out because they do not have direct Russian analogues (burger, sandwich, diaper, etc.)

A calque. A word or expression formed by literal translation and literally corresponding in its foreign language composition[6]. For example, in Russian "небоскреб" (skyscraper) has a calque. Sky - "небо", scrape - "скрести".

Foreign language inclusions. These words or phrases often have lexical analogues, but are stylistically different and are used to give expression to speech ("окей" (okay) instead of "хорошо" (good), "wow" instead of "ух ты", etc.)

Jargonisms. Words or expressions used by a narrow circle of people united by common interests[7]. For example, "клевый" from the word "clever", крезанутый from "crazy".

Many widely used borrowings retain some features of the original language in accordance with the rules of word formation of the Russian language. Certain characteristics of loanwords from the English language have been identified:

a combination of *дж* or *тч*: "джинсы" (jeans) – trousers made of thick cotton fabric, "стретч" (stretch)– elastic fabric that stretches well, "жем" – jam, with a jelly-like consistency [4].

suffixes –*ер* (-er) or –*ор* (-or): "свитер"(sweater) is a knitted sweater worn in the cold season, "крекер"(cracker) is a crunchy and brittle cookie

suffixes –*инг* (-ing): "кейтеринг" – catering, "дайвинг" - diving;

suffixes –*мент* (-ment): "истеблишмент" – establishment, "менеджмент" – management;

suffixes –*бельн*, –*абельн*, –*ибельн* from "-able" - meaning having quality, ability: "комфортабельный" – comfortable, "презентабельный" – presentable.

All Anglicisms can be divided into certain classifications according to the spheres of their use:

1. Information technology. The most extensive category of Anglicisms refers to the computer and Internet sphere. These terms are widely reflected not only in virtual communication, but also in everyday life. For example, "мем" (meme), "чекин" (checkin), "лайк" (like), and the verb "лайкнуть" - (from to love, to like) an expression of a positive attitude or approval to something, a manifestation of sympathy or delight. The terms "лэптоп" (laptop), "юзер" (user) and the action "юзать" (use), "девайс" (device), "gadget", "хейтеры" (haters) are also widely used. hate - hate) people who actively express a negative attitude towards creativity or other manifestations that they did not like; words indicating the status of activity "онлайн" (online) or "офлайн" (offline), "офтопик" (offtopic), "комьюнити" (community), "тайминг" (timing) are also often found in speech.

2. The everyday sphere of communication. For example, "дедлайн" (deadline), "ивент" (event), "шусты" (shoes), "лейбл" (label, brand), "сэндвич" (sandwich), "фейк" (fake), "хэнд-мейд" (handmade), "ноу-хау" (know-how) original invention), "second-hand" (used items), "дисконт" (discount), "sale" (sale), "юкей" (UK), "юэса" (USA) and many others.

3. Sports. In sports vocabulary, borrowings from the English language are often found in the names of new sports and related terms that accurately convey the essence of physical activity. Examples of such words are "фитнес" (fitness), "сноубординг" (snowboarding), "дайвинг" (diving), "боулинг" (bowling), "кросс" (cross) etc.

4. Science and Technology. In this area, examples of borrowings may include words like "плеер" (player), "танк" (tank).

5. Beauty and health. As for this area, Anglicisms are often used not so much to create precision as to create an attractive and stylish sound. Examples include "стайлинг" (styling), "мейк-ап" (make up), "релакс" (relax) and "relaxation", "скраб" (scrub) and other.

Studying borrowings and their classifications, it becomes clear that Anglicisms are widespread in various spheres of human activity.

Language is dynamic by nature, it does not stand still, but constantly integrates new elements, weeds out the unnecessary and retains what it vitally needs. The process of borrowing words is a key component of the evolution of any language, and there is no language that is completely free from foreign influences.

References:

1. Akhmanova O. S. Dictionary of linguistic terms. 2nd ed., revised. Moscow: URSS, 2004. 571.
2. Breiter M. A. Anglicisms in modern Russian: history and prospects: A manual for students of Russian studies. Russian Russian Dictionary - Vladivostok: publishing house "Dialog" 2005.
3. Englishloanwords/[Electronic resource]. Access mode: <https://www.englishdom.com/blog/anglijskie-zaimstvovannye-slova-v-russkom-yazyke> (date of reference: 05/15/2024).
4. English borrowings in Russian: 120 frequently used words/[Electronic resource]. Access mode: <https://englex.ru/english-borrowings-in-russian/> (date of reference: 05/15/2024).
5. Krysin L. P. The Word in modern texts and dictionaries: Essays on Russian vocabulary and lexicography 5-6.

6. Large dictionary of foreign words [Electronic resource]. Access mode: https://gufo.me/dict/foreign_words/%D0%BA%D0%B0%D0%BB%D1%8C%D0%BA%D0%B0 (date of reference: 05/15/2024).
7. Large explanatory dictionary of the Russian language [https://gramota.ru/poisk?query=%D0%96%D0%B0%D1%80%D0%B3%D0%BE%D0%BD%D0%B8%D0%B7%D0%BC%D1%8B&mode=slovari&dicts\[\]=42](https://gramota.ru/poisk?query=%D0%96%D0%B0%D1%80%D0%B3%D0%BE%D0%BD%D0%B8%D0%B7%D0%BC%D1%8B&mode=slovari&dicts[]=42) (accessed 05/15/2024).
8. Ozhegov S. I. Dictionary of the Russian language / edited by N. Y. Shvedova.-14 ed.-M.: Rus. yaz.,1983.-816.
9. The Great Russian Encyclopedia// [Electronic resource]. Access mode: <https://old.bigenc.ru/linguistics/text/1985739> (date of reference: 05/15/2024).

Rezyume: Maqolada zamonaviy rus tilida xorijiy so'zlarni o'zlashtirishga yordam beradigan asosiy omillar o'rganiladi. Asosiy sabablarga iqtisodiy aloqalar, madaniy almashinuv kiradi. Maqolada, shuningdek, ingliz tilidan o'zlashtirilgan so'zlarning misollari, belgilari, shakllanish usullari, ulardan foydalanish sohalari keltirilgan. Tadqiqot global muloqot va madaniy o'zaro ta'sir kontekstida til rivojlanish dinamikasini yaxshiroq tushunishga imkon beradi.

Резюме: Статья исследует основные факторы, способствующие заимствованию иностранных слов в современном русском языке. Основные причины включают в себя экономические связи, культурный обмен. В статье также представлены примеры заимствованных слов из английского языка, признаки, способы образования, сферы их использования. Исследование позволяет лучше понять динамику языкового развития в условиях глобальной коммуникации и культурного взаимодействия.

Kalit so'zlar: anglikizmlar, o'zlashmalar, kalka, fono-o'zlashmalar, ekotizmlar, gibridlar

Ключевые слова: англицизмы, заимствования, калька, фоно-заимствования, экзотизмы, гибриды

IMAGE OF MAKHTIMKULI AND HISTORICAL TRUTH IN MODERN UZBEK AND TURKMEN NOVELS

Bayniyazov A.T.

Karakalpak State University named after Berdakh

Summary: *In this article, the creation of the image of the famous character Makhtumkuli Pyragyi and the problems of the development of historical truth are discussed in comparison with the examples of the historical novels "Makhtumkuli" by an Uzbek writer K. Muhammadrizo and "Makhtumkuli" by the Turkmen writers T. Taganov, "Pyragyi" by O. Nepesov.*

Key words: *historical novel, image, reality of life, historical events, comparative analysis*

At the present time, the problems of researching and studying historical works in the science of world literature are worldwide indispensable. In particular, it is obvious that there is a need to discuss such issues as the connection between history and literature, the reflection of the reality of life in fiction, the creation of the image of historical figures, in relation to the previous experiences and new scientific and theoretical concepts in the study of world literature. From this point of view, in the literature of the Turkic peoples, in their work, in Uzbek and Turkmen prose works, the authors' corrective researches in the image of historical figures and historical reality, typological similarities and differences between them, literary influence and the identification of differences, provide new scientific and theoretical results for the modern literary studies. Therefore, in this article, we tried to compare the image of the character Makhtimkuli and the historical truth in the historical novels of the Uzbek writer K. Muhammadrizo's "Makhtimkuli" and the Turkmen writers T. Taganov's "Makhtimkuli" and O. Nepesov's "Piragi".

When we compare the modern Uzbek and Turkmen novels, it is noticeable that there were several works related to the art of music in different eras. For example, in our classical literature, in the saga "Ashik Najep", the image of Pir Ashiq aydin, Albent baksi, and Najep is depicted, in the Turkmen literature, in the story "Shukir Baksi" by N. Sarykhanov, the image of Shukir baksi is depicted. In the novel "Chuval Baksi" by H. Divangulyev, the master of the art of baksi, Makhtimkuli Harliev and others. His life, leadership, and Tatar events that took place in the Turkmen country at the beginning of the 20th century are depicted. This novel is written on a cultural-historical theme, in which the images of people created in a certain historical period are brought to life.

D. Nuraliyev, a Turkmen scholar, paid attention to the poetics of this novel and expressed the following opinion: "Three differences are clearly visible in the poetics of the novel: that is, words, language, proverbs, conjunctions, phraseological units are presented in a mixed form; preservation of the personal status of each great shaman, the reliable transmission of events; words and thoughts of Chuval baksi are equally revealing" [1,5].

The Turkmen writer T. Taganov, who creates such an image and clearly reflects historical events in his works, "Makhtimkuli" is written on a cultural and historical theme, in which the image of Makhtimkuli, a brave man who participated in the struggle against external enemies who invaded the Turkmen people, is created. However, in this novel, the author was not able to create the image of Makhtimkuli until the end. In the novel, the first part of the work is made up of historical events such as the youth of Makhtimkuli, the hero's work as a blacksmith, the invitation of Makhtimkuli to Muhammethasan Khan, his imprisonment, and his rescue by his fellow villagers.

And in the novel "Piragi" by the well-known Turkmen writer O. Nepesov, the character of Makhtimkuli was created, and it is observed that in creating the main character and highlighting the historical events, folk legends, together with me, focused on more scientific facts. Therefore, the artistic depictions of the life of the main character Makhtimkuli are narrated very close to the reality of marriage. In the work, the author shows that the main character, Makhtimkuli, took part in the battles and fights. When we compare these works with scientific and historical data, it is obvious

that this author is more prone to fantasy. In this regard, as noted by M. Tuvakov, a well-known scholar, in the novel "Piragi" by U. Nepesov, Makhtimkuli's participation in the battles with a weapon in his hand is unbelievable. It would be appropriate if he was presented as a wise-scientific scholar. The reason is that even if he does not participate in the battles, he can invite brave and courageous young men to patriotism [2,14].

The image of the great poet Makhtimkuli was widely described in the novel "Makhtimkuli" by the Uzbek writer K. Muhammadrizo. In the novel, the king of Iran, Nadir, is portrayed as unjust, and Elbars, if true, is hailed as a just king. In the section of the work "Under the hood", the episodes of Makhtimkuli throwing himself on the battlefield when he was about to kill the Uzbekboy (a rich Uzbek man) in the story of the emir of Bukhara hanging a number of young men are impressively depicted.

"Amir Mohammad Rahim did not want to participate in the execution ceremony at first. However, he regretted coming with his uncle Danyolbiy, who inevitably interfered in political affairs, and hated him even more than a demon.

The incident on the field drove him completely mad. Danyolbiy, first of all, watched the cries of the executed prisoner's children and wife for a while, then ordered the soldiers to quickly push them out.

The soldiers arrived and instantly "swept" the "strangers" out of the field.

The crowd went wild. When Makhtimkuli couldn't stand it, he was about to throw himself on the field two or three times, Mujrim Obid stopped him" [3,172].

And one of the places where historical events are depicted in the novel:

"When it was the second prisoner's turn, Makhtimkuli held the dagger on his back and stood ready to attack, like a tiger preparing to attack, his eyes burning.

They put a scarf around the Uzbekboy's neck. At that time, an accident happened. Makhtimkuli's heart fluttered and went out of place:

- Okay, now they will be executed for sure! - He said and completely losing himself, without thinking about the consequences, he rushed to the field like an arrow and soon appeared in the middle like a tornado... Mujrim Obid, who became unconscious from this accident, could not catch his companion this time. It was late now. Amir and his entourage were surprised by the inevitable incident and stared with hatred at the young man who, like a lion, was pointing his bow like an arrow at the state. He pointed to one of the strong navkars (guards) next to Kushbegi. Navkar (guard) rushed towards the "prey" like a hunter's hound. Seeing him running, Makhtimkuli took out his dagger and said in Turkmen:

- Stop! I will tell you what to do when you die. Don't stop; let the Muslim mind listen to me!

Navkar looked at Qushbegi, Qushbegi looked at Amir. And Amir, with a hand gesture, "Stop, don't touch!" expressed the meaning. Kushbegi also stopped the narrator with a sign that they understood [4,174].

In these episodes, Makhtimkuli sacrifices his life to free the criminals in prison, Muhammad Rahim looks at the poet with angry anger, but Makhtimkuli is not afraid, looks at them and tells his story. He complains that there is no justice at that time as well as no Amir who are willing to listen to people's aspirations.

In recent novels, although the main character is poet Makhtimkuli, he is portrayed as a hero who sacrifices his life for the people, along with his boyfriends, in parallel with the political and historical events that took place in his marriage. However, in the novels, some places where historical events are depicted by the author in an unbelievable way are also noticeable.

In conclusion, in the novels of the writers who are the subject of research, it can be said that each author is closely related to his stylistic researches in the creation of the character of Makhtimkuli. As for the issue of the presentation of historical events, it is expected that historical events are presented in their novels in a more mixed form than artistic fabrics. For example, in the novels of the Turkmen writers, the historical information clearly corresponds to the historical data, while in the novels of the Uzbek writers, when we compare the historical events with the

information related to the period when the poet lived, it is noticeable that more artistic fantasy is used in them.

References:

1. Nuralıyew D. Hazynaly çuwalıň çöwrülişi. Kitapda: H. Diwangulyýew. Çuwal bagşy. - Aşgabat, 1992. 5 s.
2. Tuwakow M. Garaşsyzlyk döwründäki türkmen romanlarynyň poetikasy (çeperçiligi). Dokt. diss. Awtoferaty. – Aşgabat, 2024. – B.14.
3. Qurbon Muhammadrizo. Maxtumquli. Tariyxiy roman. – Toshkent: Chashma print, 2012. –B. 172.
4. Qurbon Muhammadrizo. Maxtumquli. Tariyxiy roman. – Toshkent: Chashma print, 2012. –B. 174.

Rezyume: *Maqolada buyruk shoir shaxs Maxtumquli Firog'i obrazining yaratilishi va tarixiy haqiqat masalalari o'zbek yozuvchisi Q. Muhammadrizoning "Maxtumquli" va turkman yozuvchilari T. Taganovning "Maxtumquli", O'. Nepesovning "Firog'i" tarixiy romanlari misolida qiyosiy tahlil qilinadi.*

Резюме: *В данной статье рассматривается образ воссоздания великого поэта Махтымкули Фираги, на примерах исторических романов узбекского писателя К. Мухаммадризо "Махтымкули" и туркменских писателя Т. Таганова "Махтымкули", У. Непесова "Фираги".*

Kalit so'zlar: *tarixiy roman, obraz, hayot haqiqatligi, tarixiy voqea, qiyosiy tahlil*

Ключевые слова: *исторический роман, образ, реальность жизни, исторические события, сравнительный анализ*

THE USE OF STYLISTIC FIGURES IN THE WORKS OF THE CLASSICAL POETS OF KARAKALPAK (IN THE EXAMPLE OF THE WORKS OF THE POET UMAR)

Abdiev A.T., Baymuratova A.P.

Nukus State Pedagogical Institute named after Ajiniyaz

Summary: *In the article, the author studied some topical issues of linguistics. Attention was paid to the linguistic features, stylistic differences and the use of artistic means of the poet Umar's works.*

Key words: *Linguistics, vocabulary, poetic style, semantics, phraseology, uniqueness.*

Although the artistic tools in our language have a common function, they have their distinctive features and figurative creations. Words in the language of a work of art are often figurative. The service of tropes among artistic tools in enhancing the imagery of words, increasing their expressiveness and emotional impact. the poet skillfully used the lexical semantic wealth of the language and the tools of artistic words in his works.

Therefore, the knowledge of the Karakalpak language, is one of the most actual and one of the comprehensive problems that require in-depth study and research. Nowadays, when the scientific views on this matter are focused on the conditions of study, especially in the study of the Turkic language, the linguists often pay more attention to the phonetic, lexical, morphological, and syntactic aspects of the language. It can be evidenced by the lack of scientific works related to the problems of stylistics, which are often related to those structural systems.

The issue of style in the Karakalpak language is one of the first to be mentioned separately in the works of E.Berdimuratov. About functional styles, we can show his work entitled "Development of Karakalpak lexicon with the development of functional styles of the literary language" (Nukus, 1973) . In this work, the issues of the emergence and formation of functional styles in the Karakalpak literary language are analyzed from all sides, and it is scientifically researched that they are the main source of enrichment of the vocabulary of the Karakalpak language. Each type of functional style is defined, and the ways and reasons for their current development are revealed.

The subject and tasks of the stylistics of the Karakalpak language, the stylistics of lexical, morphological and syntactic tools, tropes and stylistic figures and other issues are briefly described in A. Bekbergenov's work entitled "The Stylistics of the Karakalpak Language" (Nukus, 1990). [2]

A special study was conducted by Kidirbay Bekbergenov on the scientific style of the current Karakalpak language. In his candidate's thesis, which is called this style, the scientific style of the current Karakalpak language is comprehensively characterized and its main features are revealed [3].

Famous linguist E.M. Galkina-Fedurok paid special attention to the style of artistic words in his valuable work "About the style of poetry of Sergey Yesenin" and said: The style of a master of artistic words expresses his view of the world, the language tools he has accumulated in artistic images. For this reason, it is impossible to study the style of the master of artistic words, his functional direction separately from the figurative content of the work. This is a condition for both prose and poetry [4.5].

This idea is very true. Indeed, when studying the works of the master of artistic words, it is impossible to evaluate his style, the style of the work without paying special attention to his world view, the content he collected in artistic expression, the language tool he chose.

In this regard, when evaluating the artistic works of the poet Umar from the linguistic point of view, it is necessary to look at his world view, the ideological content of the related works, his image, the style of artistic words, and the level of use of artistic tools in the language.

Umar the poet is a contemporary of his contemporaries Kunkhoja, Berdakh, Ajiniyaz poets, he is knew traditions, he saw with his own eyes the narrowness of the times, the sufferings of

inequality, the miserable life of the people, the situation, the oppression of the ruling groups, the hard life of the working people. He was a poet who felt pain in his heart, worried, and hoped for good in the future. For this reason, the main theme, form, and theme of his works are similar to the ideological content of the poetry of Kunkhoja, Ajiniyaz, Berdak, and even this similarity and similarity can be felt in the use of artistic tools from the language side of the works.

Let's say that in one of his most famous works, "What the benefit?", he was full of pityful feelings about the waste of time, inequality, cruelty, the plight of the people, the idea of the show is clear, the content of the story is very beautiful, the author's content is beautiful and the images are beautiful. It is designed to flow in a beautiful form. In our opinion, this task that has been put before the company has been fulfilled due to the quality of work. From this point of view, let's take a look at the content and beauty of his work in the following poetic lines, and the stylistic elements used in the poem

Qarasañ qapılıp túnerip turğan,
Gárdishi zamannıń bul pálek urğan,
Basqa aqır-zaman sawdalar salğan,
Bul dúnyağa shıqqan menen ne payda.
Etpedi zalımlar kewlimniń xoshın,
Jedik bárha baydıń, dumpishin, mushın,
Kórsettiler bizge qolınıń kúshin,
Bul dúnyağa shıqqanıńnan ne payda.
Aspanı-zaminniń astı qapılıp,
Zalımlarğa pulsız diyxan tabılıp,
Keshe-kúndiz júrgen menen sarsılıp,
Bizlerge payda joq, baylarğa payda.

This is similar to Kunkhoja's poem and similar in number, content and style

Ordıq oraq, shaptıq otın, qazdıq jap,
Terdik masaq, iynimizge saldıq qap,
Jas ómirler güldey solıp, *boldıq sap*,
Bul júristen endi bizge kún qayda.

We are not going to say the content of Kunkhoja's poem "Kun qayda" is similar to song "Ne payda". Both of them about the hard life of the man of the past life, no matter how much he sweats, there is no profit for himself, only the profit of the oppressors of others, the man's dissatisfaction with the authority, the psychological difficulties of the work, the cruelty of the era of forgiveness, the description of the cruelty of the man is clear and figurative expressed. In fact, almost the majority of classic literary works are similar to the content, form, and the vivid expression of feelings of displeasure with the times.

The aim of the research is to use with the poem of Omar writer's style as a means of creating a beautiful picture in accordance with the ideal, aesthetic requirements and content of the unlimited riches of the great national language, and to give a linguistic value to the use of tropes in it.

From the above point of view, the folk language of the left period of the wrt literature is written with the quality of beauty at the level of effectiveness with a clear, understandable ending. Tropes related to the content of the composition and aesthetic requirements are used selectively where necessary.

The first poetic poem is constructed in the hyperbole style by means of hyperbola, the environment of life, time, the nature of the world is closed, it has a direct effect on the psychological state of a person, and the guard (metaphorical meaning) of the time is like a "pálek urğan" (quday urğan) pálek (metaphor), other (metaphor tágdirge degen mánide), aqır zaman (epithet), sawdalar (metaphor in the sense of difficulties, heavy sufferings), bul dúnyağa shıqqannan ne payda (hyperbola). All of these tropes are in the people's spoken structure, and the poet choose them very well. Such poetic lines give both beauty and expression to the content of the story, and if they affect the practical feeling of the reader, it will be difficult to see that it is as meaningful as

the time. Omar poet literary works are related to the fact that A. Pirnazarovtın's most of his pieces are characterized as a unique poetic work of body psychology [5. 41-42].

In the following lines taken from the language of the piece of people mentioned above, there are words used traditionally in the folk language to describe the tropics that are growing up, *kewlimniń xoshi, jerdiń dúmpeshin, mushin, kórsettiler qolınan kúshin, dúnyağa shıqqanıńnan, aspan zaminniń, astı qapılıp, pulsız diyxan, júrgen sarsılıp* such as tropes as place of needed to show one of the principles of poet's masters can be established in the selective use of style.

Bul dúnyağa shıqqanıńnan ne payda" shuddered the lyrical hero. In the second one, the psychological situation of the people is expressed in the form of a poem, in the sense of a poem.

The next couplet begins with the poetic line "Aspan zaminniń astı qapılıp" and has the tradition of saying it in the vernacular. Aspan zaminniń astı qapılıp Búlgen elge búkir bala , Máten jırtıq bolǵan emespe! He also used the traditional language of the country. In it, hyperbole is clearly felt, almost all the words in the composition, the content and the figurative expressiveness are colorful. When this poem reached the level of phraseologism, the meaning of the lining was used in the service of a proper style.

The epithet "Pulsız diyxan" at the beginning of the word "Pulsız" gives a metaphor to the thought, "Keshe kúndiz júrgen menen sarsılıp" appeared from the hyperbole, the word "sarsılıp" in its composition is used in a metaphorical service in the sense of heaviness of the work, the tormented feelings of the hero due to he is free are reflected. In conclusion, it gives additional imagery which creates the antithesis of "there is no good for us, good for the rich".

Omar's song "Ayırıqsha" was inspired by the style of Ájiniyaz's poem "Bozataw". The wonderfulness of the country where he was born, the feelings of missing, the poor life of the people, the author's love for the country was described with similar psychological feelings:

Jaqsılıqtan aǵardı ǵoy biziń shash,
Qıs kúni hawada qıppa jalańash,
Bala shaǵa óler boldı ashtan-ash,
Endi óler boldı ballar, Ayırsha.
Kózim yashlı, men ketermen sharam joq,
Bir qudadan basqa pushtı panam joq,
Hámme ketti, sende turar adam joq,
Xosh aman bol, bizden qaldır Bozataw (Ájiniyaz)

In both, the descriptive words of the tropics are chosen according to the content and the personal style of each one. All the meanings of the words, speech, whole meaning of poetic point of view is giving meaning, and from the point of view of selective use of the tropes, they give imagery and impact to the thought.

"Jaqsılıqtan aǵardı ǵoy biziń shash" said Omar. The phraseological phrase "shashım aǵardı" in the folk speech means I did not get rid of all the difficulties, I was confused, I was in trouble and based on the meanings of the semantics, person who in trouble, often uses phrases "*shashtı aǵarttı, shashım aǵardı, shashımdı shala aǵarttı*". The poet took the model of the people's style, according to the style of his own writing, he reduced it to a poetic line in the form of "my hair has been turned since I was young". It is clearly understood that the word "man" has been created with the "g'oy" element of emotion and modality, and as a result, it has been written in a poetic way. "Qıs kúni hawada qıppa jalańash" "" is a hyperbole. The epithet "naked" in this hyperbole firstly, indicates a social state. Secondly, it is a reason for the performance of a descriptive task. The epithet "*ashtan-ash*" means hyperbole. In this work the author's creativity is also clearly visible. When evaluating the language of Omar poet's works and the usage of tropes, it is worth paying attention to the poem "Elim".

As literature scientists say, the feelings of deep love born in the poem of the poet "Elim" are depicted in a beautiful and effective way. The poet reminds people with good traditions, his neighbors, and the nature of the country. Ájiniyaz's song "Ellerim bardı" is a song that clearly shows the pure love to the motherland. He thought that the feeling of love for the people of the

country, his dissatisfaction with the social order of his time, and the idea of fighting for happy life were clearly expressed [6.206].

It is noteworthy because of the beauty of the language of the poem, the choice of tropes for the stylistic service.

Úyrek ushıp, ğazlar qonğan kóllerim,
Qatar qonğan jaz jaylawda ellerim,
Ten qurdaslar menen júrgen kúnlerim,
Yadıma túsip meniń náyleyin.

Sharqı pálek ketse bir kún sharq urıp,
Gúl júzine güller qosıp barq urıp,
El degende baǵrım kabap ah urıp,
Elatım yadıma tústi nayleyin!

In the first line, it is seen that the term “kóllerim” special noun, epithet “úyrek ushıp, ğazlar qonğan”. They serve to describe the beauty and effectiveness of the poetic line. The meaning meaning is also serves to meaning epithet. From the row *Days which teń qurdaslar menen júrgen*, the epithet “” has stylistic meaning. The word figurative meaning came from folk word has psychologic and colorful meaning. By means of this poem, he expresses his feelings of being away from his friends, and relatives in a stylistic way, and thus he makes a special use of emotions in his poems.

“*Sharqı pálek ketse bir kún sharq urıp*” it has figurative and stylistic phraseologic and semantic meaning, From the line *adding flowers to the face of the flower*, adding face flower is used rarely in folk works ang has color and ephitet meaning. “barh u’rip” is aslo has traditional tropic element. Both 2 lines are expressed in a hyperbola way: “*baǵrım kabap, ah urıp*”, “*kúnlerim*” and have figurative meaning. “Baǵrım kepap” hyperbole, semantic-stylistic change is clearly felt in phraseologisms, and there is also an emotional coloring in them.

So, through the deep and effective poetic description of these poetic lines, the tropes serve a special semantic-stylistic service and provide the beauty of the poem.

In the song "Berermen, he gives sharpness to the meaning of the picture by equalizing people to scorpion and snakes that crushes the people and reminded he would be champion one day in fight:

Adamǵa miyrimsiz shaqqan shayannıń,
Tańda bir ózine azap berermen,
Záhárli qastıyan qara jılanıń,
Ordaların buzıp oyran etermen.

Jerin basıp alıp egin ekkennin,
Jazıqsız gúnalap jandı sókkenniń,
Ózindeydiń abırayın tókkenniń,
Tańda bir ózine azap berermen.
Ǵarıplerdiń múlkin alıp jılatıp,
Kóz aldımda iytlerine talatıp,
Saw denesin tayaq urıp qanatıp,
Azap bergenlerge ğazap berermen.

Let’s say there is no language element and there is no figurative, semantic- stylistic meaning: shayan-metaphora, tańda-metonymy, azap berermen-hyperbola, záhárli qastıyan-epithet, qara-epithet, jılan-metaphora, orda-metafora, oyran etermen-giperbola, jandı-metonimiya, jazıqsız-epithet, ózindeydiń-simile, tókkenniń-metaphora, azap-metaphora, ǵarıplerdiń-metaphora, iytlerine-metanomy, talatıp-metaphora, ğazap-metaphora and e.t.c

All of these are more than the language of the poet, and they show the beauty of poetry. The poet's ability to choose the aesthetic requirements of the tropes in his poetry is clearly noticeable in all his poetic compositions.

References:

1. Бердимуратов Е. Ҳазирги заман қарақалпақ тилининг лексикологиясы. Нөкис, 1994.
2. Доспанов О., Бекбергенов А. Стиль – это человек. // «Советская Каракалпакия», 1973, 21 июня;
3. Бекбергенов К. Лексико-семантические и грамматические особенности научного стиля в современном каракалпакском литературном языке. Автореферат кандидатской диссертации. Нукус, 2001.
4. Галкина-Федорук Е.М. Современный русский язык. Лексика, МГУ, 1954, 148-б.
5. Қарақалпақ тили фразеологиялық системасы ҳәм оның стилистикалық имканиятлары. Монография. Нөкис: Qaraqalpaqstan, 2020.
6. Омаров А., Қайырбаев Ж., Доспанов О. Қарақалпақ лексикасы ҳақында. // «Совет Қарақалпақстаны», 1973, 17-июль.

Rezyume: Maqolada muallif tilshunoslikning ayrim dolzarb masalalarini o'rgangan. Shoir Umar asarlarining til xususiyatlari, uslubiy farqlari, badiiy vositalardan foydalanishga e'tibor qaratildi.

Резюме: В статье автор исследовал некоторые актуальные вопросы языкознания. Уделено внимание языковым особенностям, стилистическим различиям, использованию художественных средств произведений поэта Умара.

Kalit so'zlar: Tilshunoslik, leksika, she'riy uslub, semantika, frazeologiya, o'ziga xoslik.

Ключевые слова: Языкознание, лексика, поэтический стиль, семантика, фразеология, уникальность.

SCALES AND THEIR PECULIARITIES IN ONAMASTICS

Saydullayeva B.S.

National University of Uzbekistan named after Mirzo Ulugbek

Summary: *In this article, the grouping of names, which is one of the most urgent problems in the field of onomastics today, is discussed, and the main onomastic units and their main types in the field of onomastics are studied.*

Key words: *onomastic scale, proper names, super scale, macro scale, micro scale, anthroponyms.*

Introduction. Determining the existing types and volume of proper names in a particular language helps to know the range of proper names in that language, the onomastic area in which they are distributed. This problem is interpreted in onomastic research in connection with the concept and term “onomastic scale”. The term “toponymic scale” was first used by V.N. Toporov, and later imitating Toporov, A.V. Superanskaya in her research used the terms “onomastic scale”, “toponymic scale”. According to A.V. Superanskaya, “Onomastic scale is a set of proper names used to name real, approximate, and imaginary objects” [1]. Based on the above-stated ideas, E. Begmatov stated that the onomastic scale of the Uzbek language is a set of all proper name types in this language. Continuing his thought, he adds: “The onomastic scale has a wide and narrow meaning. Because there are small scales that make up the onomastic scale”. Therefore, E. Begmatov noted that the general onomastic scale of language can be defined as superscale (the largest).

Experts from all over the world have also expressed different views on this issue.

In 1940, Alan Gardiner classified names into groups this way although the members of these groups may not even be considered proper nouns in every language. There were – indeed a bit uniquely grouped – for example, place names, personal names, animal names, ship names, house names and celestial names in his classification but also such groups as titles, names of the months and holidays. Examples such January and Christmas would be included in this latter group. However, months and holidays, for example, do not really have any specific referent and have more of a classifying rather than identifying function. He also makes note, in his investigation, of patent medicine and commercial products as such referent groups which can receive a name [2].

After A. Gardiner, a number of scholars have presented referent-based classification models, some more randomly, others quite logically, following his chosen principle. In 1985, Gerhard Bauer classified names so, that the relation of a referent to a person was his point of view: for example, personal names are names whose referent is a person, the referent of place names is a person's habitat and the referent of an event name is a person's actions. anthroponyms, zoonyms, hydronyms.

A. Gurbanov included ms, ctematonyms, ethnonyms, toponyms in the list of onomastic units of the Azerbaijani language [3].

Swedish scholar Bengt Pamp made an extensive and quite consistent classification in 1994. He set off from names of living beings, in other words, personal names as well as animal and plant names, after which a third group made up of place names. A fourth group included concrete names of objects (aeroplanes, weapons, works of art etc.), then places more abstract names of events and eras (for example Baroque which may not be considered a name at all in some languages) and the last being group names which are brought together by abstraction (names of books, names of compositions, company names, trademarks) [4].

In his classification system of names, Wilbur Zelinsky aimed at extreme accuracy. His classification included eight main classes, under which there were altogether over 130 name categories. This classification was in places up to a four- tier system [5]. His idea was to achieve a classification, which would encompass the entire broad field of onomastics and thus would enable an extensive development of nomenclature theory. At the same time however, he showed that name

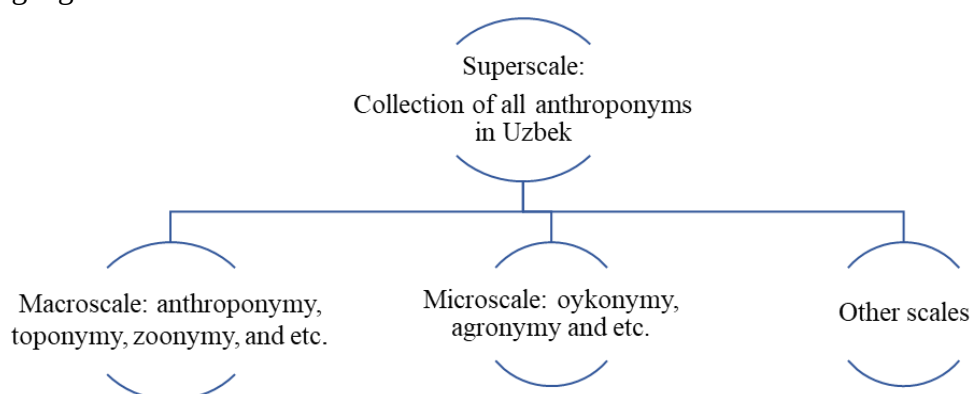
types are continuously being created all the time, along with society, technology and education. Basically, there were no limits to referents, which can generally receive a name. A classification system that aims at perfection in the end serves no one because, consequently, we would end up classifying the extra linguistic world and not names starting from names themselves. It is important to understand that the classification of nomenclature depends on many factors. Classification is unavoidably language-specific because the concept of “name” is understood in different ways in different languages. For example, as in English, many German scholars consider language and nationality terms to be proper nouns. Classification is also system- specific: we can examine certain naming systems and categorize the names included in them into different classes or examine the relationship of different names systems to one another. Classification ultimately always depends on the perspective the investigator himself chooses. If the foundation for classification is based upon the referents of names, the surrounding world that the names mirror will, in actuality, be classified instead of them. In the examination of names, the investigation and categorization of their structure and content, taking a person as an individual that gives and uses names into consideration is essential. It is also necessary to take the language community and its social and cultural customs and societal needs as a context in which names are used and created [4].

In this line, prominent onomastician A.V.Superanskaya stated that modern onomastics distinguishes many groups of onyms: anthroponyms (names of people), place names (names of geographical objects), zoonyms (names / nicknames of animals), phytonyms or plant names, astronoms (names of celestial bodies), cosmonyms (names of space zones), chrononyms or names of points and periods of time, document names or names of documents and their types, chrematonyms or names of objects ma territorial culture, includes names of weapons, musical instruments, jewelry, precious stones, utensils [6], mythonyms or names of heroes myths, legends, fairy tales; include demononyms, theonyms, mythological names, fictional names or names used in works of fiction and many others [7].

For the systematization and study of such diverse and voluminous material as onyms, foreign and domestic researchers have developed a number of classifications. Among the most complete and detailed, it is worth highlighting the classification of names in connection with the named objects, proposed by the German linguist A. Bach, who distinguishes 6 categories of names in connection with the designated objects:

1. The names of living beings or beings believed to be alive;
2. Names of things, which include places, houses, vehicles, works of art, names of astrological and space objects;
3. Names of institutions, societies;
4. Naming actions, dances, games;
5. Names of literary works;
6. Naming of musical motives and works [8].

Uzbek anthroponomist E. Begmatov defined the following dimensions of onomastics of the Uzbek language:



As part of his research, E. Begmatov divides the macro-scale of the Uzbek language into two: 1) named macro-scales, 2) unnamed macro-scales. In his work, he also provided detailed information about micronyms [9].

Taking into account the lingual and extralingual characteristics of the names, A.V. Superanskaya identifies nine principles of classifying names:

1. Classification of names in connection with named objects;
2. Naturally occurring and artificially created names.

This classification is closely related to the classification of names by their purpose and to the dichotomy of “names in official and unofficial use”;

3. Classification according to the line “micro” – “macro”;
4. Structural classification of names;
5. Chronological classification;

6. Classification of names in connection with their motivation and the related etymological classification, as well as the division of names into appellative and eponymous, into primary and “transferred”;

7. Classification of names in connection with the volume of concepts enshrined in them;
8. Classification due to the language-speech dichotomy;
9. Stylistic and ethnic classification [7].

These principles apply to the classification of various types of names. For some of them, one principle is more important, for others - another. Note that these principles are very diverse: the first are linguistic, the second are historical, the third are logical, the fourth are social, others are psychological, but they are all reflected in onomastics, therefore it is impossible to classify proper names only taking into account one principle.

The classification developed by A.V. Superanskaya is most consistent with the objectives of our study. In accordance with it, proper names are subdivided into “the names of living beings and beings perceived as living” and “names of inanimate objects”. The first group includes anthroponyms (group and individual), zoonyms, mythonyms; to the second - toponyms, chrematonyms, phytoonyms, cosmonyms and astronoms, names of vehicles, trademarks, varietal and brand names. A separate group is formed by the proper names of complex objects (names of enterprises, societies, institutions, associations; names of periodical press; chrononyms; names of holidays, celebrations, anniversaries; names of campaigns, events, wars; titles of works literature and art; documentary names; names of natural disasters; phaleronyms) [7].

Classification by A.V. Superanskaya supplemented by N.V. Podolskaya and includes:

- 1) names of the outer space zone:
 - cosmonym;
 - astronym;
 - planetonym (or astrotoponym)
- 2) names of terrestrial space:
 - toponym;
- 3) the names of the zone of earthly space (living and inanimate nature);
- 4) the names of living and non-living space (world ocean, land);
- 5) the names of the sphere of human activity.

All in all, onomastics, being one of the branches of linguistics, has various issues to be dealt with. This very field of study has its own subject and object. Having analyzed the theoretical bases of onomastics, it has become apparent that onomasticians have stated different types the linguistic units of onomastics, such as anthroponyms, toponyms, zoonyms, hydronyms, cosmonyms, ethnonyms and their macro and micro scales. These given types have been investigated sufficiently by researchers.

References:

1. Суперанская А.В. Имя – через века и страны // Издательство ЛКИ. – М., 2007, № 2, С. 5.

2. Gardiner A. The theory of proper names: a controversial essay. – London: Oxford University Press, 1940. – P. 15.
3. Гурбанов Л. Азэрбайжан ономастикасы. – Бақы: В. 38.
4. Terhi A. Names in Focus: An introduction to Finnish onomastics. – Helsinki: Finnish Literature Society, 2002. – P. 18.
5. Zelinsky W. Slouching toward a theory of names: a tentative taxonomic fix. – Names. – New York: The American Name Society, 1989. P. 243–262.
6. Подольская Н.В. Словарь русской ономастической терминологии. – М.: Издательство Наука, 1978. – С. 161.
7. Суперанская А.В. Общая теория имени собственного. – М.: Книжный дом «ЛИБРОКОМ», 2009. – 144-145 стр.
8. Гоюшова Л. М. Структурные и лексико-семантические особенности систем личных имён в английском, русском и азербайджанском языках. Кан. фил. наук. ...дисс. – Москва, 2017, С. 19.
9. Бегматов Э. А. Ўзбек тили антропономикаси. – Тошкент: Фан, 2013. – Б. 35.

Rezyume: *Ushbu maqolada bugungi kunda onomastika sohasidagi eng dolzarb muammolardan biri bo'lgan nomlarni guruhlash masalasi ko'rib chiqiladi, shuningdek, onomastika sohasidagi asosiy onomastik birliklar va ularning asosiy turlari o'rganiladi.*

Резюме: *В данной статье рассматривается группировка имен, которая является одной из самых актуальных проблем в области ономастики на сегодняшний день, а также изучаются основные ономастические единицы и их основные типы в области ономастики.*

Kalit so'zlar: *onomastik masshtab, o'ziga xos nomlar, o'ta shkala, makroshkala, mikroshkala, antroponimlar.*

Ключевые слова: *ономастическая шкала, имена собственные, супершкала, макрошкала, микрошкала, антропонимы.*

FORMATION OF LINGUISTIC AND CULTURAL COMPETENCE IN RUSSIAN LANGUAGE LESSONS

Bekmuratova U.A., Kaypanova E.A.

Karakalpak State University named after Berdakh

Summary: in this article, the author attempts to generalize approaches to understanding the terms “competence” and “linguocultural competence” and formulate on its basis his own definition of these concepts. The structural elements of linguocultural competence are considered, its significance is determined, and individual pedagogical techniques are proposed for its formation in Russian language lessons in secondary schools.

Key words: competence, linguocultural competence, sociocultural environment, communication, Russian language.

The relevance of the topic of this study is due to the fact that today’s secondary school in Uzbekistan is a sociocultural space that allows students not only to gain certain amounts of knowledge, but also experience of communication and interaction with other people and the world around them. In this context, the sociocultural environment at school can be defined as a space for the comprehensive cultural development of children, including the assimilation of values, relationships, symbols and other attributes of culture. Obviously, these elements cannot be unified due to cultural diversity, therefore, many educational models and approaches to organizing the life activities of students in the sociocultural space of the school are formed and implemented in schools. The sociocultural environment performs a number of important functions:

- creates an opportunity for the dissemination of cultural values;
- promotes the formation of group interests;
- promotes activation of communication;
- defines and forms attitudes towards cultural and basic values;
- provides an opportunity to gain social experience and acquire personal qualities that a person needs for a favorable existence in society.

At the same time, when teaching the Russian language, students receive not only knowledge directly of the norms and rules of using the Russian language, but also the peculiarities of its relationship with national cultural values, because as we know, the Russian language in Russia is the official national language, and is also part of the culture of Russia.

Before defining the essence of the concept of “linguocultural competence”, let us turn to the concept of “competence”. For further theoretical analysis, let us turn to the essence of the concept of “competence” in dictionaries - table. 1.

Table 1 – The concept of “competence” in dictionaries

Dictionary	Definition of the concept of “competence”
S. I. Ozhegova	“...a range of issues in which someone is knowledgeable; terms of reference, rights of the body, official; knowledge, experience in a particular field» [1., 1376]
Explanatory Dictionary, edited by D.I. Ushakova	“...a range of issues, phenomena in which a given person has authority, knowledge, experience, range of authority» [2., 959]
Explanatory dictionary of psychology	«competence is a set of interrelated personality qualities (knowledge, abilities, skills, methods of activity), specified in relation to a certain range of objects and processes, and necessary for high-quality productive activity in relation to them» [3., 811]
Pedagogical dictionary of G. M. Kodzhaspirova	“Competence in pedagogy is a set of knowledge, abilities and skills that allow a teacher to effectively carry out his professional activities» [4., 173]

I. A. Zimnyaya connects the concept of “competence” with the name of the ancient Greek philosopher Aristotle, who correlated human capabilities with strength, developing and improving into a characteristic personality trait [5., 447].

In the educational sphere, this concept spread in the second half of the 20th century. A. V. Khutorsky defines competence as “a set of professional powers and functions that create the necessary conditions for effective activity in the educational space.” In the scientific works of S. G. Molchanov, competence is “something that covers all three spheres of personality” [6., 21]. And it is here that the author examines in detail the components of the broader concept of “social competence”. In the monograph by I.M. Grinevich, A.A. Chuprina et al., “competence is a set of specific knowledge, abilities, skills, personal qualities in a certain field of activity,” and “competence is the quality of mastery of competencies” [7., 99].

Linguistic and cultural competence today does not have a single terminological designation. T.V. Samsonenkova proposes to define linguocultural competence as “mastering the national culture of the people of the language being studied; development of the spiritual and moral aspect of the individual; formation of a person’s linguistic culture associated with mentality” [8., 60]. M. S. Biryukova understands linguocultural competence as “knowledge of language and culture, the ability to master basic characteristics that reflect the mentality, spirituality and specifics of a particular society, as well as their implementation in various fields of activity” [9., 120].

Based on the definitions discussed, we can say that linguocultural competence is understood as a set of specific knowledge and skills required by an individual to carry out full-fledged speech actions. It implies a set of certain linguistic competencies on the basis of which sentences are constructed and perceived, and language is used for communication and communication.

We consider the structure of linguocultural competence as a systemic formation consisting of interconnected components (Fig. 1).

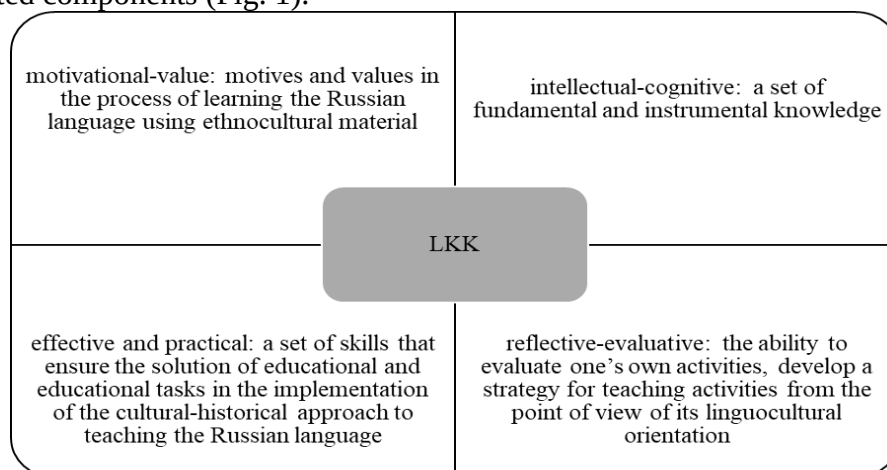


Figure 1 – Structure of linguistic and cultural competence [10., 123]

To develop linguocultural competence in Russian language lessons, you can use the following techniques:

- linguoculturological portrait of the word, “etymological studies”, linguoculturological essay of the word;
- interlingual comparisons;
- linguocultural and sociocultural comments on the texts used in lessons;
- a text by art historians on the content of reproductions of paintings by great Russian artists, masters of landscapes and portraits;
- formation of a sense of belonging to the historical past of the region, the Motherland, nature using examples of poems by Russian poets;
- information on the history and practice of speech etiquette, presentation of the linguistic substantiation of stereotypes of Russian speech behavior;
- linguocultural analysis of literary text.

Thus, Russian language lessons at school provide ample opportunities for students to develop linguocultural competence, by which we mean the totality of acquired knowledge, skills and abilities in the field of using the language and its linguistic features for successful

communication in the sociocultural space. The culturological aspect of such competence consists in the student's understanding of the values and norms of cultural linguistic behavior and their use in accordance with the historical specifics of the development of culture and language. To form linguocultural competence, it is important to focus on its systematic nature, namely, to take into account that its structure includes motivational, knowledge, activity and evaluative components.

References:

- ¹ Ozhegov, S. I. Explanatory dictionary of the Russian language: About 100,000 words, terms and phraseological expressions: dictionary / S. I. Ozhegov; edited by prof. L. I. Skvortsova. — 28th ed., revised. — Moscow: World and Education, 2019. — 1376 p.
- ¹ Ushakov D.I.. Large explanatory dictionary of the Russian language: modern edition / D.I. Ushakov. - Moscow: House of Slavic Books, 2008. - 959 p.
- ¹ Large psychological dictionary / [Avdeeva N. N. et al.]; edited by B. G. Meshcheryakova, V. P. Zinchenko. - 4th ed., expanded. - Moscow: AST; St. Petersburg: Prime-Eurosign, 2009. - 811 p.
- ¹ Kodzhaspirova G.M. Pedagogical dictionary: for higher education students. and Wednesday ped. textbook institutions / G. M. Kodzhaspirova, A. Yu. Kodzhaspirov. - 2nd ed., erased. - Moscow: Academia, 2005. - 173 p.
- ¹ Zimnyaya I. A. Pedagogical psychology [Text]: textbook for universities: textbook for students of higher educational institutions studying in pedagogical and psychological directions and specialties / I. A. Zimnyaya. - 3rd ed., revision. — Moscow: Publishing house of the Moscow Psychological and Social Institute; Voronezh: MODEK, 2020. - 447 p.
- ¹ Molchanov S. G. Formation of social competencies in an educational institution. Instrumental support of educational work [Text] / S. G. Molchanov, N. V. Voinilenko; Municipal special (correctional) educational institution for students and pupils with disabilities, special (correctional) general education boarding school of the V type No. 11, Chelyabinsk. - Chelyabinsk: IIUMTS "Education", 2020. - 21 cm.
- ¹ Grinevich I. M. Preschool pedagogy [Text]: textbook: (professional retraining and advanced training of education workers) / [I. M. Grinevich, A. A. Chuprina] ; GBU DPO "Stavropol Regional Institute for Educational Development, Advanced Training and Retraining of Education Workers." - Stavropol: Circulation, 2017. - 99 p.
- ¹ Samosenkova T.V., Shapovalova A, E. Communicative and linguocultural competencies // Moscow Pedagogical Journal. 2023. No. 3. pp. 60-69.
- ¹ Biryukova M.S. Linguistic and cultural competence: content and theoretical foundations // Scientific notes. Electronic scientific journal of Kursk State University. 2016. No. 4 (40). pp. 114-120.
- ¹ Functional literacy in education: scientific and methodological. allowance; edited by A. V. Khutorskoy. - M.: Publishing House of the Institute of Human Education, 2023. - 123 p.

Rezyume: *maqola umumta'lim muassasalarida rus tilini o'rganishga lingvokulturologik yondashuvni tatbiq etish muammosiga bag'ishlangan: biz quyidagilarni aniqlaymiz: madaniyatshunoslik to'garaklarini yaratish; xususiy dizayn texnologiyalarini ishlab chiqish - aniq ta'lim fanlari bo'lishi uchun asos bo'ladi: "Madaniyatlar muloqotida rus tili", "Tilshunoslik va mintaqashunoslik".*

Резюме: *статья посвящена проблеме реализации лингвокультурологического подхода к изучению русского языка в общеобразовательных учебных заведениях определяем следующие: создание клубов культурологии; разработка авторских проектных технологий - базой, которых и станут конкретные учебные предметы: «Русский язык в диалоге культур», «Лингвострановедение».*

Kalit soʻzlar: *kompetentsiya, lingvomadaniy kompetentsiya, ijtimoiy-madaniy muhit, muloqot, rus tili.*

Ключевые слова: *компетентность, лингвокультурная компетентность, социокультурная среда, общение, русский язык.*

INTERPRETATION OF SPIRITUAL AND MORAL PROBLEMS

Orimbetova L.

*Department of "Methods of Teaching Languages" of The National Center For Teacher Training n
New Methods of The Republic of Karakalpakstan*

Summary: *This article talks about the interpretation of spiritual and moral problems in the work of I. Zoir, a bright figure of Uzbek literature. The originality of the artist's style, the skill of using words and the way of creating an image are analyzed.*

Key words: *Literary, morality, spirituality, goodness, education, prose, novella, style*

A realistic creative approach to the reality of life, glorification of moral virtues, and at the same time artistic research of existing shortcomings in social life found its own expression in the work of I. Zoir. The use of natural phenomena to express universal ideas is increasingly developing as a tradition in world literature. Ch. Aytmatov's images of animals such as Gursara, Ona bugu, Karanor explain in depth the human qualities, characters and images of creative heroes such as Tanoboy, Momin, Edigey. It seems that Ilhom Zoir, who creates images using this method in Uzbek literature, has succeeded in the principle of revealing moral problems through the medium of animals.

"Ilhom Zoir learns from Abdulla Qahhar the secrets of sparing words, assigning great meanings to details, making the conflicts in the psyche of the characters simple and vital, concisely describing them, and creating a vivid scene from dialogues. However, we should not look for influence only from the outside. This effect should be sought from the commonality of artistic principles in reflecting the spiritual world of the heroes.

Every writer has his own creative credo. In Zoir, inspiration is credo-nature. His characters act as a divine force of nature for deeper self-understanding[1,214].

It is difficult to examine the stories of I.Zoir by dividing them into different periods of the development of the novella genre. The fact is that the stories of him and his peers do not provide an opportunity to research a theoretical problem, but rather demonstrate their individuality. Each of their works shows the characteristic features of their creative style. For example, the contract between the characters created by I.Zoir is strong, and it sometimes acquires a dramatic tone (in the stories "Yosuman", "Kulgan mi kuldorgan"). I.Zoir shows such characters not in a solemn setting, but in ordinary, everyday events, and the facets of their character are clearly visible in such a situation.

It is known that the creator aims to illuminate a specific artistic intention from the work. The higher and nobler the artistic intention, the higher its performance should be. Also, the artistic form is an important condition of the literary work and depends on the development of such components as the system of images, plot, composition and other artistic speech. In this sense, tools such as the genre of the work, depiction of characters, conflict and landscape also play an important role in the perfection of the form of the work.

So, the process from the birth of the intention to the completion of the work is the process of formation of the artistic form. I.Zoir, as the owner of a unique artistic style, avoids imitation, one-sidedness and narration. Although he is stingy with words, he succeeds in conveying his thoughts to the reader fully and brightly. Sometimes some of his works give the impression that his thoughts are unfinished. Adib usually does not draw portraits of heroes, but focuses on character creation. This situation can be seen in all the works of the writer.

As Abdulla Qahhor pointed out, the idea given in the two-line poem can be expressed in a thousand different ways. But none of these thousand options will be as simple, short, funny, strong and impressive as these two lines. I.Zoir's stories are like these two-line poems. There is no other way to say it. And, as we mentioned above, the writer achieves this through the highness of the artistic intention.

Scientist Shoirra Doniyorova, who successfully defended her candidate's thesis on Sh.Kholmirzaev's work, had an interview with the writer. In particular, he recalled the words of writer Chingiz Aitmatov in the interview and said: "Chingiz Aitmatov told us, 'You should write colder than a demon, don't send it too fast.' Indeed, this is what "Cruel Realism" demands. It is necessary to show as much as possible. There is a danger in this. In order to show as much as possible, it is necessary not to interfere with feelings. Even if feeling is added, it should be at the level of reason. Let the measurements be the same so that both the Arab and the Negro accept it equally. If it reaches this level, you are realistic, naked images. In the stories of I.Zoir, realism is fully reflected. In other words, I. Zoir is a unique realistic writer

If you observe the development of Uzbek prose consistently, you can understand that there are not so many writers who have developed their own creative principles. His works, in particular, his stories, serve as a literary proof that Ilhom Zoir is placed among other contemporary writers among the unique talents such as Abdulla Qadiri, Oybek Abdulla Qahhor, Shukur Kholmirzaev. Everyone knows that I. Zoir is a writer with a unique style. Naturally, this unique literary style has grown and developed from work to work, and at every turning point it has acquired new qualities and improved.

From the first years of his literary work, I.Zoir was recognized as a talented storyteller from his first steps. As a result of many years of creative work, the writer comes to the conclusion that it is necessary to create based on the principle of "I see, hear and feel" as the "first, most correct and effective" stages of the image path. In this regard, I. Zoir believes that any artist has taken a step towards mastering the principles of realistic image only if he writes about the reality that he has seen, known and is close to him. This ensures the natural, vital output of the writer's works. The material of life depicted in the works of Ilhom Zoir is close to him, and his heroes are the people of the mountains, steppes and villages where he was born and raised. The unique features of the character of these people are shown through the simple events of their daily life.

We took a look at the horizons of today's Uzbek storytelling and its main principles, using the example of analyzing the stories and artistic skills of I. Zoir, a mature representative of Uzbek prose, a skilled master of our modern storytelling. It is observed that I. Zoir tried to express the joys and pains of the Uzbek people in his stories. This principle is his «Tarsaki» (1995), «Yelpatak» (1997), «Tabassum bekati» (2000), «Qoidasi shunaqa» (2002), «To'g'ri so'zning to'qimog'i» (2003), «Sehrli qalam» (2005), «Sichqoncha Tabuning sarguzashtlari» (2006), «Uchovlonning sarguzashtlari», «Holva yemagan bola» (2007) found its reflection and expression in stories like.

I.Zoir is trying to improve Uzbek prose in every way, using all his talent and creative potential. The images created by him are distinguished by the fact that they embody the current issues of the time and important features of social life. During the analysis of the writer's stories, we observed that one of the factors that ensure the success of I.Zoir's works is his sincerity in the attitude of the author to the subject of the image and the spirituality of the characters. Also, based on the writer's stories, observing his individual style and artistic skills, we came to the following conclusions:

- The heroes of I.Zoir's stories are distinguished by the nationality of their spiritual world;
- the interpretation of national color plays a leading role in the portrayal of heroes; at the same time, this color rises to the level of a phenomenon that includes national characteristics;
- in the stories of the writer, the artistic intention and the form are seen as a phenomenon of mutual harmony;
- the artistic intention acquires primary importance in the creation of an artistic work, and in many cases it is realized in connection with the image of the hero's mental state;
- artistic form is one of the main components of the work, it is created through the system of images, plot, composition and artistic speech;
- the fact that the artistic work is perfect in terms of form is the reason why it finds its way into the reader's heart and affects his consciousness;

- In the stories of I.Zoir, there is a harmonious form of realism and romanticism, this harmony also influenced the composition of the writer's stories;
- Dialectism in the language of I.Zoir's stories is primarily linguistic and aesthetic, and it is connected with the wide use of the possibilities of the folk language;
- the writer assigns great meaning to every word in the artistic image, as a result, laconism becomes one of the main factors determining the style of the writer's works.

In fact, I. Zoir is a real master of Uzbek literature. He is a sensitive writer who has always served his country sincerely, conscientiously and honestly.

References:

1. XX asr o'zbek adabiyoti tarixi. –T., Fan. 1999.
2. Yo'ldoshev Q. Yoniq so'z. T.:2006. Yangi asr avlodi.
3. Nazarov B. Bu sehrli dunyo. – Toshkent: Adabiyot va san'at, 1980. – B.156.
4. Sharafiddinov O. Hayot bilan hamnafas. – Toshkent: Yosh gvardiya, 1982. – B. 216.
5. Abdullaev O. She'riyatning tiniq osmoni. - Toshkent: Adabiyot va san'at, 1959. –B.155.
6. Haqqulov I. She'riyat – ruhiy munosabat. - Toshkent: Adabiyot va san'at, 1990. –B.240..
7. Rasulov T. Badiiy asar qanotlari. – Toshkent: Adabiyot va san'at, 1959. – B. 206.
8. Sharopov A. Olamlar ichra olamlar. – Toshkent: Adabiyot va san'at, 1958. – B.165.

Rezyume: *Ushbu maqolada o'zbek adabiyotining yorqin siymosi I.Zoir ijodidagi ma'naviy-axloqiy muammolar talqini haqida so'z boradi. Ijodkor uslubining o'ziga xosligi, so'z qo'llash mahorati va obraz yaratish uslubi tahlil qilingan.*

Резюме. *В данной статье говорится об интерпретации духовно-нравственных проблем в творчестве И. Зоира, яркого деятеля узбекской литературы. Анализируются своеобразие стиля художника, мастерство использования слова и способ создания образа.*

Kalit so'zlar. *Adib, azloq, ma'naviyat, ezgulik, tarbiya, nasr, novella, uslub.*

Ключевые слова. *Литература, мораль, духовность, добро, образование, проза, новелла, стиль.*

PECULIARITIES OF POETIC GENRES

Akmuratova B¹., Razzakova M².

¹*Karakalpak State University named after Berdak*

²*Department of "Methods of Teaching Languages" of The National Center For Teacher Training n
New Methods of The Republic of Karakalpakstan*

Summary: *This article analyzes the scientific views on lyrical genres and their classification. The theories of literary scholars and their views were summarized and lyrical genres were classified.*

Key words: *Lyrics, genre, folklore, nationality, form, novella, sonnet, quartet.*

In the definitions given to the poem, it is emphasized that it is a "form of speech with a rhythm based on a certain measure"[1,352]. In fact, a poem is a speech with a certain rhythm, that is, a tone. In this sense, the term "poetry" is widely used. Regardless of the genre, any lyrical work is a poem. In the literature of all nations, there are poetic epics, poetic dramas, poetic novels, and other poetic works.

Lyric is one of the three main types of fiction. In lyrics, reality is reflected through the feelings of the lyrical subject. For him, the subject and not the object of artistic speech is primary. The specific features of the lyric have been emphasized since ancient times. For example, Plato, who considered poetry to be "taqlid", said that this type of poetry "consists entirely of what the poet says", and according to Aristotle, in this type of poetry, he performs taqlid "without changing the image of the imitator". The German philosopher Hegel shows that the subject and the object are combined in one person as a characteristic of the lyric, and the author himself, his inner world, becomes the subject for the lyric work. Accordingly, the image subject of the lyrics remains a feeling, an experience. That is, lyrics, unlike epics and dramas, do not describe reality, for which reality is important only as the basis of the spiritual experiences of the lyrical subject, as a factor that motivates them. Therefore, in the lyrical work, reality is expressed through the prism of the heart of the lyrical hero, more precisely, in the lyric, only enough fragments and details of reality are taken to describe the experience.

Even in a lyrical work, the subject is not clearly visible, in which some objective thing is described or described, such as landscape poems, in eventful poems, it is not the main thing, the main thing is the lyrical subject and its experiences at the basis of this image or description. In the lyrics, the momentary experiences of the subject under the influence of reality are forever sealed. As these experiences belong to an individual, they have a universal meaning and value, and the poet finds his pain and experiences in them, because there is a relatively stable foundation and substance of human feelings and experiences born in a changing world. Based on the spiritual nature of lyrics, it is possible to list some specific features of poetic genres. First of all, lyrical works that describe a momentary experience are usually small in size. In the lyrics that express feelings and experiences, the form of poetic speech that resonates in accordance with the feeling expressed because it is emotionally saturated and rhythmically arranged takes precedence. At the same time, there are also few lyrical works written in prose. Since it expresses the experiences of a separate subject, the monologic form of speech takes precedence in lyrics. The forms of dialogic speech found in it become a structural element of monologic speech.

The artistic time of the lyric describing the immediate experience is always "now": it describes the feelings that are going on in the heart right now, regardless of when the poem was written, the poet perceives it as the feeling that is going on in the heart right now.

Since lyrical works mainly reflect mental scenes and arise as an expression of excited emotions, in the process of analysis, the description of the system of sensations and feelings should be given priority. It is important to study and make observations about the fact that the lyrics convey not the narrative of events, but the scale of the actions. Since words in lyrics are a means of

expressing mood, drawing a picture of a situation, and showing a scene of impressions, in the analysis of a lyrical work, it is necessary to pay special attention to the leading tone in the artistic word, to find the factors that determine the music of the work. The degree to which the mood is depicted in a lyrical work is the main factor that determines its aesthetic value. In works of this type, it is more important to examine how it is depicted than what is depicted.

In the history of our national literature, works of the lyrical type occupy a great place both in terms of weight and quality. The main thing for the works of the lyrical type is to give an expression of the wisdom of life, infused with feelings and emotions. In the lyrics, the description of events, not the logic of the character, but the description of the state of mind, the expression of feelings, the sincerity of feelings are important. A truly lyrical poem not only gives pleasure to the listener or reader, but also awakens his emotional and moral potential and encourages him to act. It is known from the conclusions of psychological science that a sincere lyrical word can have a stronger effect on the human psyche than even real events.

For this reason, the analysis of the lyrical work serves to improve a person not only from an aesthetic-spiritual point of view, but also from a functional-mental point of view. Man differs from the animal world in his subtle and subtle feelings.

Speaking about the nature of lyrics, Belinsky said: "Whatever preoccupies, excites, rejoices, saddens, delights, calms, excites a person, in short, everything that forms the spiritual life of the subject, whatever enters the subject, whatever appears in it, these all of which the lyric takes as its legitimate wealth. The subject here has no value in itself, it all depends on the importance given to it by the subject, everything depends on the spirit that enters the subject with imagination and intuition[2,184].

As mentioned, experience is the basis of the poem. Experience is a process consisting of a series of feelings. It is the transition of the feeling to complex stages and the acquisition of new colors. He sees the face of the world as a result of the poet's specific attitude to the environment. If the experience is valuable only for one poet, the poem based on it will have little influence on others. Accordingly, it is very important that the experience has a social character.

There are certain complications in the classification of lyrical works in terms of genres, and the basis for dividing them into genres was different at different stages of the development of literature. Including

lyrical works in folklore are more based on their function, that is, the time, place, and relationship of their performance (season, ceremony, labor songs);

according to the style of performance (chorus, solo) in ancient poetry;

in later periods according to the main aesthetic sign (ode, diphramb, elegy);

according to strict form indicators (sonnet, octave);

divided into genres according to thematic features (intimate, civil, philosophical, political, intellectual) and taking into account other similar aspects. The difficulty is that genres that have passed their period of activity as a historical category are still traditionally used in poetry. For example, in modern Uzbek poetry, there are genres of folk poetry (lapar, yor-yor), classic poetry genres (ghazal, muhammas), genres borrowed from foreign literature (sonnet, hokku, tanka), and currently active genres. Therefore, it is necessary to approach the issue of lyrical genres in terms of synchrony or diachrony[3,354].

Genre itself is, in fact, one of the core issues of literature. It is the form of growth of literature, the type of creation of a hero's character. Each genre, as observed in national literature, stands at one of the following stages:

1. Syncretic (mixed) period;
2. The period of separation;
3. Formed period;
4. Developing period;
5. The period of maturity[4,32].

In the genre, the important laws of the literary process: content and form, the author's purpose and the requirements of the tradition, the expectations of the readers, the relationship between the stable and rapidly changing features characteristic of literature find their expression and intersect. By today's era, the poetic perception of the world is rising to a new level, it is shown in genres. This can be seen in the example of independent poetry. In it, the research of emotional layers, the desire to poetically explore the rich, distant and colorful climates of the human psyche increased, special attention was paid to cleansing the soul. The scope of formal research in poetry has expanded. In it, the desire to study and enrich the fruitful experiences in the literature of the West has increased tremendously. Literary scholar Qazoqboy Yoldashev writes about this: instead of the five-line tanka with thirty-one syllables and the three-line hokkul with seventeen syllables without rhyme, which began to be implemented in the seventies of the last century, the process of using the soyashi poem form, which is widespread in modern Chinese poetry, has accelerated[5,5]. Because shading does not shape the author in any way. It could be rhymed or unrhymed, one-line, two-, three-, four-, or five-line. Since the desire to strive for complete freedom of expression has created the need for similar forms in Uzbek independence poetry, the way of expanding formal possibilities is being pursued.

References:

1. Куронов Д., Мамажонов З., Шералиева М. Адабиётшунослик луғати.- Т.: Академнашр, 2010.- Б. 352.
2. Белинский В.Г. Танланган асарлар.-Т., 1955.- Б.184-185.
3. Куронов Д., Мамажонов З., Шералиева М. Адабиётшунослик луғати.- Т.: Академнашр, 2010.- Б. 354.
4. Адабий турлар ва жанрлар. Лирика. – Т.: Фан, 1992.
5. Йўлдошев Қ.Истиқлол шеърятидан шеърый истиқлолга. Гулистон. 2002. 5-сон.

Rezyume: *Ushbu maqolada lirik janrlar va ularning tasnifi haqidagi ilmiy qarashlar tahlil qilingan. Adabiyotshunos olimlarning nazariyalari va ular ilgari surgan qarashlar umumlashtirilib lirik tur janrlari tasniflangan.*

Резюме: *В данной статье анализируются научные взгляды на лирические жанры и их классификацию. Обобщены теории литературоведов, их взгляды, классифицированы лирические жанры.*

Kalit so'zlar: *Lirika, janr, xalq og'zaki ijodi, milliylik, shakl, novella, sonet, to'rtlik.*

Ключевые слова: *Лирика, жанр, фольклор, национальность, форма, новелла, сонет, квартет.*

**FEATURES OF EDUCATION OF YOUTH TO PATRIOTISM IN THE PEDAGOGY OF
THE KARAKALPAK PEOPLE**

Orazimbetov E.K.

*Doctor of philosophy in pedagogical sciences (PhD), associate professor
Tashkent university of humanities*

Summary: *In this article, based on Karakalpak folk pedagogy, the originality of Karakalpak folk proverbs, songs and epics, as well as the life experience of our ancestors, is interpreted pedagogically in all aspects.*

Key words: *Folk pedagogy, patriotic education, proverbs, folk songs, epics, Avesta, Holy Quran, hadiths, pedagogical views*

Today is a very dangerous time. This requires us to cooperate in ensuring stable and sustainable development in our country, to increase the creativity of our youth, their faith in the future, and the spirit of patriotism.

Because of this, it is appropriate to widely use the traditions of Karakalpak folk pedagogy in the educational process to educate youth in the spirit of patriotism, to instill in their hearts the feelings of decency, care, humility, humanitarianism, and patriotism. Then every young person will feel the direct participation in the past, present and future of his people, he will deeply understand that he is responsible for the destiny of the Motherland.

The main goal of the Karakalpak folk pedagogy is to educate youth as «Jeti qırlı, bir sırılı» who are fully developed on the basis of national education.

In the process of conducting our research, we studied the unique aspects of Karakalpak folk pedagogy in educating youth to patriotism.

First, the effectiveness of the Karakalpak folk pedagogy in educating youth to be dignified and professional who love their country, motherland, husband, and people. Folk pedagogy teaches youth «Ata jurt – altın besik», «Jawğa janındı berseñ de, arıñdı berme», «Watan ushın otqa tús, arıñ ushın jan ber», «Eldi súygen elge dos», «Er jigít eli ushın tuwıladı, eli ushın óledi» «Óneri joq kisiniñ, mazası joq isiniñ», «Ustalı el dúzeler», «Ónerdi úyren de – jiyren» [1] encourages a citizen who loves his country, motherland, land and people based on the teachings of our ancestors.

In his address to parliament on December 22, 2017, President Sh. Mirziyoyev stated: “We have a common goal - Uzbekistan must be competitive at the global level in science, intellectual potential, modern personnel and high technology” [2] - his thoughts encourage young people to honor your profession, be proud of it, see in it the meaning of your life, be faithful to your profession, love your country and be sincere in your love for your country.

Secondly, directions of folk pedagogy in educating youth to be hardworking, demanding and responsible. The sources of Karakalpak folk pedagogy are lullabies, traditions, epics, fairy tales, narratives, folktales, proverbs, and songs, reflecting views on educating youth to be moral, loyal to friendship, hardworking, demanding, and responsible. For example, in the epic «Qırıq qız», Gulayim asks his father for the island «Miywalı», builds a strong fortress, works together with the people, and improves the fortress.

«Atawdıń bálent jerlerin,
Qos ákelip súrgizdi,
Shor bolıp qalğan jerine,
Hasıl tógin tókkizdi,
Suwğa ábden qandırıp,
Gúl baqshalar ekkizdi.
Bir neshe kúnler ótkende,
Jıl etip, aylar jetkende,
«Miywalı» ataw bağ boldı,

Jaynağan güller ashıldı,
Ishinde búlbil sayradı,
Miywalar pisip jaynadı,
Xalqı menen Gulayım,
Ullı toydı toyladı» [3].

Karakalpak folk pedagogy really teaches that work develops the human mind, finds its place in life, and respects oneself and others. These examples given above encourage youth to work, help each other, and develop the qualities of evaluating their own and others' work.

Thirdly, the rules for observing the rules of a healthy lifestyle in folk pedagogy. Our people have always tried to live healthy. People paid special attention to a healthy life, saying «Den sawlıq - tereñ baylıq», «Awırırw astan», «Deni sawdıñ - táni saw» [4].

Our people say that after the birth of a child, bathing him in salt water every day, stroking him with oil, and pulling his legs have a great effect on his healthy growth and use it in life. Our ancestors, relying on the concept of «Sap denede - sap aqıl», raised young people to be physically strong from childhood. He paid special attention to the importance of national games in physical education of young people. Because of this, studying national games and using them in everyday life play an important role in the physical development of youth and their upbringing as patriots, suitable for our time.

Fourthly, forms of educating youth to humanity, bravery, bravery in folk pedagogy. Karakalpak folk pedagogy has various forms of educating youth to patriotism. For example, proverbs and sayings such as «Jawğa janıñdı berseñde, ariñdı berme», «Watan ushın otqa tús, ariñ ushın jan ber», «Erdiñ sáni el bolar, Eldiñ sáni jer bolar, Jerdiñ sáni suw bolar», «Eldi súygen elge dos», «Jaqsı perzent – súyenish...», «Jaqsıdan baғ qaladı...» [4] and «Bir degende ne jaman», «Ata dárkar jigitke», «Jaqsı» «Jaqsı-jaman», «Maqtanba», «Jigit bolsañ» [1] encourage youth to be kind, patriotic, honest, conscientious, and faithful to their promises.

«Shiyrin-shiyrin sóylemek,
Dananıñ iliminde jaqsı,
Bahası qımbat qanazat,
Márt jigit astında jaqsı,
Koñırawlı aq nayza,
Jumırı pitken bilegi,

Batırdıñ dástinde jaqsı» [1] such poems motivate youth to form educational traditions, to find their place in society, to understand socio-economic, historical changes, to form science and culture in themselves.

Fifthly, in folk pedagogy, views on raising youth to understand the sanctity of the family and to value it.

Our people have always paid special attention to family as a high value. The family is honored as a place where affection, love, respect, and honor are embodied, where family members love each other, rely on each other, and find education. Because of this, there is an expression in folk pedagogy: «Watan ot basınan baslanadı».

The ideas about the sanctity of the family, the fact that the father and the mother are equally responsible for its well-being and child's education, are deeply expressed in the books “Avesta”, “Holy Quran” and “Hadiths”. The holy book of Zoroastrianism – “Avesta” says about the peace and prosperity of the family: “If a person rebuilds a house and allocates a place for fire, his family, his wife and children, if his house is filled with delicacies, if his wife and children live comfortably, then faith, constant fire in his house “If there is fire and plenty of other things, that address is respectable.”

In the holy book of Islam, the “Holy Quran”, great attention is paid to the issues of family building, relations between husband and wife, parents and children, manners, roles and responsibilities of husband and wife in the family, and raising children. For example, the fact that it is obligatory for every person to start a family is stated in verse 223 of Surah Al-Baqarah of the

Holy Quran as follows: “You shall not have wives, and you shall have agricultural lands. Farmland yields fruit when it sows seed. A wife is also a farmer, and the harvest is a child...».

In the religion of Islam, you can find answers to the family, how to organize it, the rights of family members, raising children, handling disagreements in the family, and all the issues of family life in general.

Indeed, family education is important for the all-round development of the young generation. Discipline, environment, and interaction of family members are the main factors in raising a healthy generation. Educational scientist A.K. Munavvarov «The family is the smallest unit of society. In this holy place, the person of the future matures. Old people often say «If you sow wheat, you will get wheat, if you sow barley, you will get barley». That’s why our future depends on how we educate them today, what feelings and dreams we fill their hearts with» [5].

Sixthly, that folk pedagogy is a source of education for youth. Our nation has long encouraged youth to learn and be educated. «Bilim – tawsılmas kán, óner – ólmes miyras», «Bilegi kúshli birdi jıgadı, bilimi kúshli mırdı jıgadı», «Aqıl kópke jetkizer, óner kókke jetkizer», «Oqıw – bilim bulağı, Bilim – ómir shırağı» considered mastering a profession to be a criterion of livelihood, a beacon of life. This is reflected in the song «Bir degende ne jaman» which is widely used among Karakalpak national songs.

«Bir degende ne jaman,
Bilimsiz ósken ul jaman,
Ekilenshi ne jaman,
Elewsiz ósken qız jaman.
Ysh degende ne jaman,
Úshkilsiz pishken ton jaman,
Tórt degende ne jaman,
Tórelesip barganda,

Tóreligin buzğan biy jaman» [1] – they call youth to be knowledgeable, educated and intelligent.

When our ancestors sent their children to school, they said, «The flesh is yours, the bones are ours». This is not to say that you should kill my child, but to give your child a good education in any way possible, so that in the future he will grow up to be knowledgeable, moral, cultured, and intelligent and serve his people through the knowledge he has acquired. Therefore, Karakalpak folk pedagogy is considered as an important resource for the comprehensive education of youth.

Seventhly, on the basis of folk pedagogy, to teach youth that human life is closely connected with nature. The powerful source of all nature is the sun, earth, air and water. Because of this, our people aim to preserve nature throughout their lives and respect it like their mother.

Folk pedagogy connects these natural sources with the motherland and native land. So, our people’s views on these sources are closely related to the concept of patriotism.

One of the most powerful sources of nature is the sun. Our ancestors have been worshipping the sun since time immemorial. According to historical sources, Tumaris, the brave female king of the Sac-Massagets, the ancient ancestors of the Karakalpaks, said to the Persian king Kir: “Bloodthirsty Kir!... leave my place”. I swear by the sun god if you don't. I will fill your eyes with blood...» [6] - she swore in the name of the sun.

The second source of nature is land. The people of Karakalpak say land, Mother - land. «Jeri baydıń – eli bay», «Tuwğan jer – altın besik», «Jerdi baqsan – jer seni bağadı», the people protect and honor the earth like a mother. There is a saying in our people: «Er tuwğan jerinde, iyt toyğan jerinde». Each person’s place of birth is more valuable than anything else.

The third source of nature is water. No living being can survive without water. 75 percent of the human body is water. Our people consider water to be special. Our ancestors always advised us not to waste water, saying «Suw – tirishilik deregi», «Suwdıń da sorawı bar», «Suwlı jer – nurlı jer», «Suw bar jerde ómir bar», «Bulaq kórseń, kózin ash», «Suwday taza, súttay aq bol».

The fourth source of nature is air. For this reason, our people called to keep the air clean, saying «Taza hawa – tánge dawa».

Keeping these four sources of livelihood: the sun, earth, water and air is the tradition and law of life of our people. They are the golden treasure of folk pedagogy formed in the chest of our people for centuries, they show a clear way in improving the patriotic upbringing of youth and serve as a bright example of spiritual strength.

Of course, loving the motherland and looking at its tomorrow with confidence imposes responsibility on a person. It makes it possible to move forward with hope and strong desire at every step. Because of this, it is appropriate to scientifically explain the views on patriotic education in folk pedagogy, the patriotic education formed through the sieve of history, and to apply it in today's educational process.

In conclusion, the educational views of folk pedagogy given above help youth to understand their responsibility towards the fate of the state and society they live in, the people, the Motherland and the fate of human civilization in the process of mass culture in today's socio-political environment, and to weaken the sense of patriotism in the minds of youth, the education of our ancestors - eliminates shortcomings such as straying from the educational path and shows the principles that reflect the patriotic spirit of our people in the thinking of youth.

References:

1. Қарақалпақ фольклоры. Көп томлық. V том. Қарақалпақ халық қосықлары хәм салт жырлары. Н.: 1980. – 467 б.
2. Ўзбекистон Республикаси Президенти Шавкат Мирзиёевнинг Олий Мажлис палаталарига навбатдаги Мурожаатномаси. 22,12,2017. <https://www.xabar.uz/siyosat/prezident-shavkat-mirziyoyevning-oliymajlisga-murojaatnomasi>
3. Қарақалпақ фольклоры. Көп томлық. VI том. Қырық қыз дәстаны. Н., 1980. – 463 б.
4. Қарақалпақ фольклоры. Көп томлық. IV том, Қарақалпақ халық нақыл-мақаллары, 1978. -332 б.
5. Мунавваров А.К. Оила педагогикаси. Т.: Ўқитувчи. 1994. -112 б.
6. Геродот. Книга 1. <http://ancientrome.ru/antlittr/t.htm?a=1269001000>
7. Orazimbetov E. Globallashuv sharoitida xalq pedagogikasining vatanparvarlik tarbiyani takomillashtirishda ahamiyati //Science and Society. – 2023. – Т. 1. – №. 1. – С. 94-109.

Rezyume: *Ushbu maqolada qoraqalpoq xalq pedagogikasi asosida yoshlarni batanparvarlikka tarbiyalashda qoraqalpoq xalq naql-maqollari, qo'shiqlari va dostonlarining o'ziga xosligi hamda ajdodlarimizning hayotiy tajribalari har tomonloma pedagogik jihatdan talqin etilgan.*

Резюме: *В данной статье на основе каракалпакской народной педагогики педагогически во всех аспектах интерпретируется своеобразие каракалпакских народных пословиц, песен и эпосов, а также жизненный опыт наших предков.*

Kalit so'zlar: *Xalq pedagogikasi, vatanparvarlik tarbiya, naql-moqollar., xalq qo'shiqlari, dostonlar, Avesta, Quroni karim, hadislar, pedagogik qarashlar.*

Ключевые слова: *Народная педагогика, патриотическое воспитание, пословицы. народные песни, былины, Авеста, Священный Коран, хадисы, педагогические взгляды*

**FUNCTIONING OF SOME FORMS OF POLITENESS IN SPEECH COMMUNICATION
OF THE ENGLISH AND KARAKALPAK LANGUAGES**

Genjekaraeva Z.

doctoral student of the Department of theory and practice of translation.

Summary: *In this article the forms and functions of address terms relating to various concepts of politeness in English and Karakalpak languages are examined. English culture is generally considered to be friendly and informal. The Karakalpak language, in contrast, has a rich system of honorific terms based on the hierarchal structure of society. Thus, the correspondence between the linguistic means used to express the politeness in these languages is small.*

Key words: *politeness, address terms, pronominal and nominal forms of address, formal and informal terms of address, professional terms, kinship terms, addresser, addressee.*

Politeness is compliance with the rules of decency in speech and actions, manifestation of good manners. In the monograph T.V.Larina writes “Politeness is understood as a national specific communicative category, the content of which is a system of ritualized strategies of communicative behavior (linguistic and nonlinguistic) aimed at harmonious, conflict free communication and compliance with socially accepted norms in interethnic communication (establishment, maintenance and completion of interpersonal contact)”. [3;57]

Address terms are one of the main communicative units associated with the politeness system. A term of address is a word, phrase, name, or title used to address someone. [2; 85] According to Braun “Address terms are words and phrases used as the name or symbol of person, while address forms are words and phrases used for addressing or referring to his/her collocutor”. [1; 180]

Address terms, as well as concept of politeness, are conveyed using different approaches in different cultures. Therefore, it is important to use appropriate address to establish contact and achieve mutual understanding.

The choice of terms used in expressing someone tends to be governed by some factors as: distinguishing between addressing a familiar and unfamiliar addressee; treatment of partners equal in age and status; the appeal of elders to younger ones and vice versa; speech communication in formal and informal settings. Also, should be taken into account the type of relationship between the interlocutors (they can be intimate, friendly, cold, strained etc.). [4; 301]

The main forms of address are related to pronoun and noun.

One of the features of address terms in English and Karakalpak languages is the discrepancy between pronominal forms. It is known that in English there is only one pronominal form of address “you” used in formal and informal communication.

- You have his key, sir (7;73)
- But you believe in it, don't you Mr. Webb?
- Darling, you haven't counted Auntie Marge's present (7;20)

The repertoire of Karakalpak speech culture contains two pronominal forms of address, “sen” and the respectful form “siz”. The pronoun “sen” is an indicator of intimacy and equality, and is used in informal situations. It demonstrates close and friendly relationship, also applied by speaker to a listener who is younger in age and lower in status, rank, position etc. [5; 102]

- Sen usı Aynagúlge iras- aq úyleneyindep júrsenbe? (Do you really want to marry Aynagúl) the young man asks his friend [6;35]

- Sen mağan erteñnen qaldırmay anketañdı toltırıp tapsır, eñ qapılğanda «Húrmet jarlıǵı» alıp beremen. (You bring me your poems by tomorrow, I'll get you at least a “Certificate of Honor”) says the famous writer to the aspiring writer. [6;89]

The form “siz” functions in various situations of official communication: between unfamiliar communicants; when younger people address elders, when a speaker addresses a listener who is superior in rank, position, status. Also it can be used by older person to younger in order to express deep respect.

- Siz ol balaislep shıqqan 5 qabatlı ıssıqhananıń proektin kórip shıǵıwıńız lazım. (You should look at the five-story greenhouse project designed by this boy)says the employee to his boss.[6;67]

- Siz júdá tanımalı adamsız. Hámme sizdi húrmet etedi. (You are a very famous person. Everybody respects you.)an older man addresses the young writer.[6;103]

The nominal system of address is the richest and most productive of all lexical means of address. It includes names, professional terms, kinship terms and titles.

One of the forms of nominal addresses are the titles “sir” and “madam”, which are used in addressing an unfamiliar addressee. Via these words, not only verbal contact is established with the interlocutor, but also the role positions of partners are determined, the superior position of the addressee and inferior position of the addresser are emphasized.

However, the scope of use of these speech formulas has recently decreased significantly, which indicates the influence of the process of democratization of society on the language. If previously it was used when children respectfully address unfamiliar adults; school children and students address male teachers, and towards people from privileged circle, currently these formulas can only be heard in the following situations:

1 When addressing customers politely in the service sector.

- Good evening sir...madam. Can I take your coats?

2 Talk show host addressing the audience in the studio

- The gentleman in the orange shirt... - Me? Yes you, sir, in the orange shirt.

3 In letters when addressing an unfamiliar addressee: “Dear sir/madam”.

- Dear Sir or Madam

We shall shortly be requiring 50 reams of good quality white poster paper suitable for auction bills and poster work generally...

In Karakalpak language when addressing unfamiliar people kinship terms are used. Elderly people are addressed as “ata” (grandpa), “apa” (grandma), “aǵa” (uncle or brother). To younger interlocutors “sıńlim” (my sister), “inim” (my brother), “balam” (my son), “qızım” (my daughter). Old people are addressed as aqsaqal, yashúlken, yashulı- elder.

- İnim usı sawatlı jigitke uqsaysañ-ǵo (6;24)(Inim, it seems you are a literate person)

- Xaw balam, bir jeriń awırıp kiyatırǵan joqpa. (6;144) (My son, are you sick?)

- Qızım on bes som tús (My daughter, make a discount) (6; 206)

Such a kindred attitude towards strangers evokes a special, respectful attitude of speakers towards each other.

In English and Karakalpak speech communication, when addressing an unfamiliar addressee in public spaces, the zero form of address “excuse me” is also used (Without directly indicating the addressee). In English communication, the zero formula of address is the main polite form when addressing strangers.

- Excuse me, is there a post office near there?

- Keshirersiz waqıt neshe bolǵanın ayta almaysızba?(Excuse me, could you tell the time please?)

Addressing acquaintances depends on the relationship between the participants of communication, their official position, age and the situation.

Formal terms of polite address “Professor”, “his/her excellency”, “doctor”, “captain” are typically used in professional contexts such as academia, government, medicine, religion and the military.

- The first years, Professor McGonagall.[7;109]

- Now, minister, can you explain this policy to us?
- But one of the other officers, Lieutenant Calvin, has turned up.
- Willingly, Your Excellency!

Informal titles used to show respect to familiar people are the followings: “Mr.”, “Mrs.”, “Miss.”, “Ms.” followed by the surnames of the addressees. Unlike formal titles they do not indicate any level of professional or educational accomplishment.

- So proud Mr. Potter. I’m just so proud.[7;69]
- Mr. Malfoy what a pleasure to see you again.[7;51]

In informal relationships, i.e. when there is a close socio-psychological distance, addressee may be called by name, often combined with endearment term “dear” to show affection and friendship.

- My dear Friar, haven’t we given Peeves all the chances he deserves?[7;115]
- Err, Petunia, dear- haven’t you heard from your sister lately, have you?[7;25]

In Karakalpak culture in addressing to familiar people in official situation used the addressee’s name and patronymic (middle name).

- Yaqshı, Azat Daribaevich.[6;258] (Ok, Azat Daribaevich)
- Aynazar Qunnazarovich, sizdi telefonğa shaqırıp atr.[6;146](Aynazar Qunnazarovich, phone call for you)

In formal setting used the words “apa” and “ağa” preceded by the name of the addressee.

- Xaw Jabbar ağa biziñ jaqlarğa keledi ekensizgo. [6;201](Jabbar ağa, what brings you by?)
- Gúlmiyra apa, keliñ.(Gúlmiyra apa, please come in)

If we talk about addressing within the family, we see a big difference between English and Karakalpak languages. In English culture, family members are often called in a diminutive form as “Grandpa!”, “Grandma!”, “Mummy!”, “Daddy” or by their names regardless of the age and relationship. While Karakalpak culture is very sensitive to family hierarchy and emphasize age differences. Younger members rarely call the elder members of the family by their name, but politely address ajapa, ajağa, dayı etc. Another feature of kinship terminology in Karakalpak culture is prohibition to the daughter-in-law saying the names of her husband’s relatives. She must strictly adhere the terms of kinship while addressing them and call as: “ata, qaynata-father in law”, “enemother in law”, “qaynağa –Brother in law”, “qaynapa, sheshe- sister in law”. When addressing younger members of the family, as a sign of respect, she comes up with endearing nicknames as: “Mirzağa”, “Sulıw qız”, “Ayjigit” which means Elder boy, Moonson, Beauty etc.

- Ajag’a birge oynayıq. (Brother, let’s play together)
- Mirzağa, enem sizdi shaqiripatır. (Mirzağa, mother-in-law calls you)

Summing up the results of the study we can note the followings:

- Addressing is one of the important tools of speech communication in society, therefore the choice of appropriate form of address term is essential for showing politeness in different cultures.

- In contrast to English where, there is only one form of pronominal addressing, in Karakalpak language there are two forms of pronominal addressing with different pragmatic meanings.

- In English culture, in formal speech communication, indicating the level of educational and professional accomplishment is mandatory, while in Karakalpak culture the first name and patronymic (middle name) are used.

- In English culture, age differences between family members are not particularly emphasized and first names are often used when addressing each other, while in Karakalpak culture there are strict kinship terminologies, the use of which is strictly observed.

References:

1. Braun F. Terms of address: Problems of Patterns and Usage in Various languages and Cultures. - Berlin: Mouton de Gruyter, 1988. -390p
2. Cambridge International Dictionary-of English. –Cambridge:Cambridge University Press, 1995. -1773
3. Larina T.V. The category of politeness and style of communication: Comparison of English and Russian linguistic and traditions. - Moscow:Yaziky slavyanskoy kulturi,2009. - 258p
4. Wardhaugh R. An Introduction to Sociolinguistics. – Oxford:Blackwell Publishing, 2006. -418p
5. Наурызова А.К. \\Этикетная лексика каракалпакского языка\\ Вестник РУДН. Серия: Теория языка. Семиотика.Семантика. 2017.Е.8.№4 С 999-1004
- 6.Nızanov M. Tañlamalı shıǵarmalar. III tom. -Nókis:Bilim, 2014.-287b
7. Rowling J. K. Harry Potter and the Sorcerer's Stone.-New York:SCHOLASTIC, 1999. -309 P

Rezyume: *ushbu maqolada ingliz va qoraqalpoq tillaridagi turli xil xushmuomalalik tushunchalariga tegishli murojaat atamalarining shakllari va funktsiyalari ko'rib chiqildi. Ingliz madaniyati odatda do'stona va norasmiy hisoblanadi. Qoraqalpoq tili, aksincha, jamiyatning ierarxik tuzilishiga asoslangan hurmatli ifodalarning boy tizimiga ega. Shunday qilib,ushbu tillarda xushmuomalalikni ifodalash uchun ishlatiladigan lingvistik vositalar o'rtasidagi o'xshashliklar juda oz.*

Резюме: *В данной статье рассматриваются формы и функции терминов обращения, относящиеся к различным концепциям вежливости в английском и каракалпакском языках. Английская культура в целом считается дружественной и неформальной. Каракалпакский язык, напротив, имеет богатую систему почтительных выражений, основанную на иерархической структуре общества. Таким образом, соответствие между языковыми средствами, используемыми для выражения вежливости в этих языках, невелико.*

Kalit so'zlar: *Xushmuomalalik, olmosh va ot murojaat terminlari, rasmiy va norasmiy murojaat terminlari, kasb terminlari, qarindoshlik terminlari, adresat, qabulqiluvchi (adresant)*

Ключевые слова: *вежливость, термины обращения, местоименные и существительные термины обращения, формальные и неформальные термины обращения, профессиональные термины, термины родства, адресат, адресант.*

TRUST MANAGEMENT AGREEMENT PROPERTY AND PROSPECTS FOR ITS DEVELOPMENT

Topildiev B.R.

DSc in Law, Professor of the Department of Civil Law, Tashkent state University of Law (Tashkent)

Summary: *the article deals with issues related to the contract of trust management of property and problems of its development in the Republic of Uzbekistan. Attention is drawn to the stage of development of the legal basis of the contract of trust management of property in the world and in the Republic of Uzbekistan. Mention the elements that reflect the trust, according to the author “in the clear”, given the conclusion that the civil law point of view, trust management associated with the introduction of common law system the rules of the Institute of trust with adaptation to the system of continental law, and its basis is an agreement involving two or three parties.*

Keywords: *trust, trust management, legislation, property, legal system, owner, element, law, contract.*

The trust management institution and the asset trust agreement are considered to be essentially interrelated categories. Article 850 of the Civil Code of the Republic of Uzbekistan lists the grounds for the establishment of trust management of property and, first of all, it states “the agreement of trust management of property concluded between the founder and the trustee” [1]. Although other facts are given in this article as grounds for the emergence of trust management, a contract should be concluded between the founder and the trustee for relations of trust management. For example, when appointing trust management of property on the basis of a court decision, it is indicated who is the founder of the management, trust manager and beneficiary, and also that the property should be managed in the interests of the beneficiary, in addition, the conclusion of an agreement between the parties is provided. In such situations, trust management also applies to other grounds for its appointment. So, when trust management is appointed “by the decision of the guardianship and trusteeship body on the determination of trusteeship over the property of the person over whom trusteeship is established”, an agreement may also be concluded between the guardianship authority and the guardian. This provision was provided for in article 35 of the Law of the Republic of Uzbekistan dated January 2, 2014 No. 3PY-364 “On guardianship and trusteeship” [2].

If you pay attention to the stage of development of the legal foundations of the asset trust agreement, you need to pay attention to the laws of England. Since trusting property, the institution of a trust in English, initially arises in England, a series of laws were subsequently passed on the institution. In particular, the Law of April 9, 1925, “On Trustees”, adopted in England and Wales, provides rules regarding the coordination of trustees, in the Act of 1996 “On Real Estate Trust and the Appointment of Trustees”, Laws of 1987 “On the recognition of trusts”, of 2000 “On trustees” provide important rules on trust management of property.

Subsequently, this institution began to be applied not only in the countries of the Anglo-American system of law, but also in the countries of continental law. In the 20s of the last century, the rules regarding trust management were also reflected in the legislation of such countries as Russia, Germany, Japan, the Netherlands, Italy and others. But, the institution of trust management in these countries was not expressed in the traditional “pure” form. Since, in legal systems formed on the basis of Roman law, the institution of trust management of property was introduced into the legislation in a unique way, proceeding from other approaches and legal mechanisms.

Today, most researchers acknowledge that the following four elements are required to reflect the trust “in its purest form”:

- a) trust is governed by fair law;
- b) the right of the beneficiary to the property is ensured by the right on the basis of fair right;

c) the obligations of the trustee are vested in fair law;

d) the obligations of the trustee are trusted by nature (based on trust, i.e. fiduciation) [4].

But, the legal definition of a trust is not given either in the laws of England or in the judicial practice of this country. Most English authors give similar definitions of this concept. So, in the opinion of E. Zhenks, the trustee conscientiously and voluntarily assumes obligations, and the law, if such an obligation is accepted, imposes the obligation to fulfill it, that is, conscientiously own and manage the property in the interests of another person or persons. [5]

According to A. Underhill, a trust is an obligation, in accordance with it one person (trustee) must manage the property transferred to him by another person (founder) in the interests of a third party (beneficiary) who has the right to demand enforcement.[6]

Judge Haighton notes that “a trust governed by English law is an obligation under the law of justice, and the founder and beneficiary have the right to demand that the trustee faithfully fulfill the obligation to manage the property” [7].

It is worth emphasizing that the asset trust agreement is a relatively new institution for the industry and science of civil law of Uzbekistan. In addition, this institution is relevant in the face of differences in the understanding of property rights in the continental and Anglo-American systems of law, as well as the harmonization of legal systems at present. At the same time, in the Anglo-American system of law, the determination of the positive and negative features of a trust agreement, called a trust, and included in the system of substantive legal institutions, located in the system of contractual constructions of continental law, its introduction into the legislation and law enforcement practice of Uzbekistan is one of the civilistic tasks Sciences.

Most jurists who have studied the history of the trust institute put forward the idea that trust management of property appeared in the 12th-13th centuries in England. It is known that land has always been transferred only to the heir on the basis of inheritance. Overcoming various obstacles to the allocation of land for other purposes created considerable problems. As a result, a trust institution arose to radically “circumvent” these barriers and not violate established standards. [8].

In the legal literature [9], it can be noted that the development of trust management of property was divided into four stages:

The first stage, the use of special land rights. This right appeared after the Norman War (XI-XII century). In the law of 1376, norms were introduced that the lands of the debtor could be seized by the creditor and transferred to a third party for trust management of property, in the law of 1391 - that if the land owner transfers them to trust management of religious and other corporations, other individuals, his right to land terminates.

The second stage, refers to the beginning of the XV century, as a means of combating the feudal lords, the Lord Chancellors recognized the right to trust the property of others. During this period, the right to “trust” is protected by the court. All disputes arising from the relationship of “trust” were resolved by the courts of justice. The property, mainly land plots were divided into two parts, that is, the legal property owned by the owner and the property of the trustee — the property of “justice”.

The third stage, in England in 1536 the Law "On trust management of property" was adopted. After the adoption of this law, all disputes arising from the “trust” passed from the “justice” courts to the courts of general jurisdiction. But, the execution of the law remained the responsibility of the Lord Chancellor. In turn, the Lord Chancellor conducted business on the basis of the law of “justice.” The general courts still relied not on the rule of law, but on primary law - the right to “justice.” Only by the XVII century, the proceedings on began to be conducted in accordance with the provisions of this law.

The fourth stage is in the XVII century. At this time, after the abolition of the feudal system (1660), the relations of “trust” began to be applied to other property objects besides land plots. The “trust” has become more modern and the limits of the law of “trust” have been expanded.

The above steps indicate the absence of a relationship between the institution of trust management of property and Roman law. This institution arose directly during the development of

England, on the basis of the actions of officials aimed at regulating the relations between the estates existing in society.

At the present stage of development, in our opinion, trust management of property can be appointed for various reasons, including a will, an agreement. On these grounds, the interests of the person trusting the property and the owner may be provided. In determining trust management of property, the owner transfers to the person managing the trust property all rights associated with this. The owner can determine the goal of management for the trustee or transfer the right to freely manage the property, indicating the receipt of any income.

In English-American law, the real content of the concept of trust management of property is that the person transferring the property to trust management - the founder - is the owner, and the person whose interests he pursues is the beneficiary. In this case, the owner transfers his property to another person for management, pursuing the interests of the beneficiary. In this case, the owner may be the beneficiary.

There is no concept that a specific person should act as a beneficiary. Beneficiaries can be an unlimited number of persons. Such "trusts" are considered public trusts. Otherwise, they can be considered trusteeship trusts. For example, trusts can be assigned during a health or cultural event. If the interests of a particular person are pursued in a private trust, the public trust, on the contrary, is applied in the interests of the public interest [10].

"Trust" is also used in forming a portfolio of securities, organizing the activities of pension funds, insolvent organizations (bankrupts). In addition, holding companies are organized based on trust relations. These companies have the status of a legal entity, they are engaged in the transfer of shares of other companies to a person for trust management of property, they are in charge of the activities of these companies.

There are constructive forms of trust management. That is, in practice the concept of special or special trust is applied. We can observe a similar form of trust in the relationship between the principal and the agent, the company and its directors, members of the partnership, the trustee and the lawyer, guardian, guardian, etc. In trust management, one person, acting in the interests of another person, is able to receive income for his score [11].

The property transferred to the trust must be managed separately from the property of the trustee. The obligation to compensate the harm caused to the beneficiary as a result of improper performance of his duties rests with the trustee. In case of abuse of authority, the issue of criminal liability of the trustee may also be considered.

Upon the achievement of the goals set upon the organization of the trust, the expiration of the agreed period of validity, the death of the beneficiary, and other cases, the relationship of trust management of property shall be considered terminated, the contract shall cease to be valid. Cases of termination of transactions are indicated in the contracts.

The trust institute has a concept of dividing property into separate parts in the course of trust management. So, part of the property for management and use belongs to the trustee, and the second part, that is, the income part and the profit received as a result of using the property, belongs to the beneficiary.

Canadian law is based on the Anglo-American system of law, but there is no application of the concept of separation of property. In particular, the civil law of Quebec Canada does not recognize trust relationships. Articles 1260–1370 of the Civil Code of a given province [12] describe in detail the relationship of fiduciation (based on trust) and the management of another person's property. At the same time, the founder allocates his property or part thereof, thereby creating other property. Allocated for specific purposes, this new property is transferred to the fiduciary manager. The fiduciary manager takes this property, uses it and manages it. In relation to this property, the founder and the fiduciary will not have any property rights (Articles 1260-1261 of the Quebec Civil Code).

Fiduciation is established for personal or public interests. The establishment of a fiduciary for personal interests should be understood as pursuing the goals of honoring the memory of the

deceased, other personal interests, earning income for members of a pension fund, or shareholders, employees, members of a company or association. When a fiduciation is created in the public interest, public interests or public goals are provided. For example, income received from fiduciation may be spent on future cultural, religious, educational or scientific events. In this case, the receipt of profit by the founder or fiduciary, or the management of the enterprise are not determined as the main goal (Articles 1266, 1268-1270 of the Quebec Civil Code).

The fiduciary manager does not have title to fiduciary property. He uses only the right to use other people's property. The fiduciary manager maintains documentation related to the management of property on his behalf, controls property, takes measures for the purposeful storage of property (article 1278 of the Quebec Civil Code).

The introduction into the Anglo-American legal system of certain conflict of laws rules can be seen in addition to Quebec civil law in the laws of other states that are not based on the Anglo-American legal system. For example, if you pay attention to German law, here you can also note the regulation of legal relations between the owner and the person managing his property. "In such relations, the owner - this may be the owner of the property or the person managing the property of others. Their relationship is governed by a contract concluded between them or other acts. Income derived from property management activities is distributed between the owner and the person entrusted with property management. This form of relationship is used mainly when the owner-founder transfers the property to the trustee taking into account the legal status." For example, the owner, being a foreign citizen, does not have the citizenship of the state where his property is located, or does not have the ability to work on its territory, and accordingly cannot manage his property. In this regard, he entrusts the management of property to a trustee [13].

As a conclusion, we can say that in the Anglo-American system of law, in contrast to the continental system of law, the principle of separation of property is applied. In this case, the right of ownership can be divided between the owner and the person with whom he enters into an agreement, as a result of this situation to some extent may threaten the ownership of the owner. Unlike Anglo-American law, the principle of unity and indivisibility of property rights is applied in the system of continental law, which to a certain extent ensures the priority of the rights of the owner. But, recently, the harmonization of legal systems of the whole world has had a sensitive effect on all legal systems of the world, this situation indicates the need to study and study legal mechanisms similar to a trust in the Anglo-American legal system.

At the stage of the consistent development of the provisions regarding the trust management agreement, it should be said that certain features of this agreement were used in some civil law constructions, including in such civil law relations as "recognition of a citizen as missing", "custody and guardianship", "executor of the will", but, in essence, the purpose of the appointment and the procedure for the implementation of such structures was mixed with some administrative and legal elements. From the civil law point of view, trust management is connected with the implementation of the rules of the institution of trust from the common law system with adaptation to the continental law system, and its basis is an agreement with the participation of two or three parties.

References:

1. Civil Code of the Republic of Uzbekistan // National Database of Legislation of the Republic of Uzbekistan. Lex.uz.
2. Law of the Republic of Uzbekistan dated January 2, 2014 No. 3PY-364 "On Guardianship and Trusteeship" // National Database of Legislation of the Republic of Uzbekistan. Lex.uz.
3. Falcon P.V., Shakirova M.R. The legal nature of the institutions of trust (trust) and trust: the experience of comparative studies // Notary Bulletin / <http://old.notariat.ru/start.htm> / 04/07/2011.
4. Thomas G., Hudson A. The law of trusts. N.Y., 2004. P. 13 / Itibos Kuyidagi manbadan olindi: Benevolenskaya Z.E. Definition, classification of species and qualifying attributes of trust (trust) under the law of Great Britain // Journal of Russian Law. 2008. - No. 9. - P. 32.
5. Jenks E. English Law / Cit. by: Mikheeva L.Yu. Trust management of property. - M.: 1999. - S. 5.
6. McLoughlin P., Rendell K. Law of Trusts / Cit. by: Funtikova N.V. On the regulation of trust and a trust management agreement // Journal of Russian Law. 2002. - No. 12. - S. 85.

7. Hayton D.J. Developing the obligation characteristic of the trust // The Law Quarterly review. 2001 .-- P. 107.
8. Civil and commercial law of the capitalist states: Textbook. 2nd edition, revised. add. - M.: 1992. - S. 236; Naryshikina R.L. Trust in civil law of England and the USA. - M.: 1965. - P.4.
9. Austin Wakeman Scott and Austin Wakeman Scott, Jr. Select Cases and Other Authorities on the law of trusts. Fifth Edition. - Boston, Toronto. 1966. - P. 2-3.
10. Civil and commercial law of the capitalist states: Textbook. - M.: 1993. - S. 236, 240.
11. Senyuk G.V. Trust management of property: some problems of theory and practice // Notary. - 2011. - No. 6. - S. 30-35.
12. The Quebec Civil Code. M., 1999 .-- S. 202-220.
13. The Quebec Civil Code. M., 1999 .-- 42 p.

Rezyume: Maqolada mulkni ishonchli boshqarish shartnomasi bilan bog'liq masalalar va O'zbekiston Respublikasida uni rivojlantirish muammolari muhokama qilinadi. Jahonda va O'zbekiston Respublikasida mulkni ishonchli boshqarish shartnomasining huquqiy asoslarini ishlab chiqish bosqichiga e'tibor qaratilmoqda. Muallifning fikriga ko'ra, "sof shaklda" ishonchni aks ettiruvchi elementlarga to'xtalib o'tsak, fuqarolik-huquqiy nuqtai nazardan, ishonchli boshqaruv instituti qoidalarini joriy etish bilan bog'liq degan xulosaga keladi. kontinental huquq tizimiga moslashish bilan umumiy huquq tizimidan ishonch va uning asosi ikki yoki uch tomon ishtirokidagi kelishuvdir.

Резюме: в статье рассматриваются вопросы, связанные с договором доверительного управления имуществом и проблемы его развития в Республике Узбекистан. Обращено внимание на стадии развития правовых основ договора доверительного управления имуществом в мире и в республике Узбекистан. Упоминается о элементах, отражающих траст, по мнению автора "в чистом виде", дается вывод о том, что с гражданско-правовой точки зрения доверительное управление связано с внедрением из системы общего права правил института траста с адаптацией к системе континентального права, а ее основанием является договор с участием двух либо трех сторон.

Kalit so'zlar: ishonch, ishonchli boshqaruv, qonunchilik, mulk, huquq tizimi, mulkdor, element, qonun, shartnoma.

Ключевые слова: траст, доверительное управление, законодательство, имущество, система права, собственник, элемент, закон, договор.

УДК 343.9.

SOME ASPECTS OF THE INTERRELATION BETWEEN ADMINISTRATIVE AND CRIMINAL LIABILITY FOR ENVIRONMENTAL CRIMES

Utemuratova S.Sh.

Karakalpak State University named after Berdak

Summary: *This article analyzes the interrelation aspects of administrative and criminal liability for environmental violations.*

Keywords: *Environmental protection, natural resource use, environmental crimes, ecological situation, Administrative Liability Code of the Republic of Uzbekistan, Criminal Code.*

In addition to norms for protecting nature, laws that establish liability for actions that harm or pose a real threat to environmental protection and natural resource use are crucial. The Administrative Liability Code of the Republic of Uzbekistan [1] specifies which actions or inactions in the environmental field constitute administrative offenses, the procedures for imposing administrative penalties on offenders, and the execution of these penalties.

In modern conditions, it is necessary to formulate the policy of applying legal liability very carefully. The general trend observed over many years is that criminal liability is rarely applied, while law enforcement agencies are more inclined to apply administrative liability.

According to the analytical data of the inspection for environmental protection and environmental control activities, 23,284 violations were identified nationwide in the first nine months of 2019, 37,543 in the same period of 2020, and 34,275 individuals were identified in the first nine months of 2021 [2]. In 2022, 25,395 individuals were identified for violating environmental legislation, while in 2023, this figure was 35,351 [3].

Given the current ecological situation in Uzbekistan, the issue of establishing liability for environmental offenses remains urgent. Unfortunately, violations of laws protecting land, subsoil resources, water, forests, and atmospheric air, as well as illegal cutting, damaging, destroying, or transferring trees, shrubs, and other plants, frequently occur nationwide. The high number of these violations causes significant damage to the national economy and society as a whole. It should be remembered that many administrative offenses are closely related to criminal offenses (e.g., water body and air pollution, violation of fire safety rules in forests, illegal hunting, etc.), and in many cases, they evolve into criminal environmental actions.

Both the Administrative Liability Code and the Criminal Code of the Republic of Uzbekistan contain similar offenses concerning violations of environmental laws. The general rule is that criminal liability represents the "last resort" of the legislator. It is applied only when other social regulation measures, including legal liability, do not yield positive results or cannot ensure lawful behavior in a particular field.

This general rule is reflected in many legal institutions and norms. It is known that one manifestation of a cautious attitude towards criminal liability is the widespread occurrence of intersectoral competition between criminal and administrative liability norms.

Legal literature on criminal law considers the social danger of administrative offenses, which can be similar in content to criminal-legal and administrative-legal sanctions. The general problems of distinguishing between criminal and administrative liability remain in cases where the characteristics of the objective side, including the consequences and the actual object of the attack, coincide.

Administrative offenses in the field of environmental protection and natural resource use are protected by administrative law. Unlike environmental crimes, administrative offenses in the field of environmental protection and natural resource use are not multi-object offenses. This is important for distinguishing environmental crimes. Several similar criminal and administrative offenses

infringe on the same objects. For example, the following offenses in the Administrative Liability Code: violation of the rules for using forest fund lands (Article 77), violation of the rules for using the cut forest fund (Article 78), illegal cutting, damaging, destroying, or transferring trees, shrubs, other plants, and saplings (Article 79), violation of the rules and conditions for collecting, procuring, and using plant world objects (Article 791), and violation of the rules for restoring forests (Article 80), have the same objects as the crime specified in Article 198 of the Criminal Code – damaging or destroying crops, forests, trees, or other plants. The difference is that for a crime to be constituted, additional necessary elements are required, such as causing significant damage or other severe consequences as a result of careless handling of fire (Article 198 of the Criminal Code).

The subject of administrative offenses in the environmental field (as well as environmental crimes) can include natural, natural-anthropogenic objects posing high danger to the environment, various results of human activity, as well as anthropogenic objects (e.g., water management structures and installations, as stated in Article 76 of the Administrative Liability Code).

As a general rule, both environmental crimes and offenses can be committed through action or inaction. Environmental crimes and offenses often involve active changes to the natural environment's balance. Inaction in environmental crimes usually involves failure to comply with specific regulatory norms of ecological safety, while in administrative environmental offenses, it involves failing to adhere to normative rules for rational use of nature, thereby altering the natural environment's balance.

Regarding the consequences of administrative environmental offenses, we pay attention to the legal-technical features of Chapter 8 of the Administrative Liability Code of the Republic of Uzbekistan. Out of 42 articles in this chapter, only five have a material element:

1. Improper use of land, failure to remove the fertile layer during construction, use of land for other purposes, actions leading to the removal of land from use, reduction of fertility, or other actions causing soil degradation or destruction (Article 65).

2. Illegal cutting, damaging, destroying, or transferring trees, shrubs, other plants, and saplings (Article 79).

3. Destruction of beneficial fauna for forests (Article 83).

4. Violation of the rules for transporting, storing, and using plant protection agents and other chemicals, as well as highly toxic substances and volatile compounds, leading to soil, water, or air pollution, or causing damage to the plant and animal world (Article 89, part 2).

5. Destroying or illegally obtaining animals listed in the Red Book of the Republic of Uzbekistan, destroying their nests, eggs, or shelters, or committing other actions leading to the extinction or reduction in numbers of such animals or damaging their habitats (Article 94).

The method of unlawful encroachment serves as a distinguishing feature for crimes and administrative offenses. Article 202, part 2, paragraph “v” of the Criminal Code and Article 90, part 4 of the Administrative Liability Code mention the method of committing offenses against the rules for using plant and animal world objects as a distinguishing feature. For criminal liability, the method involves the use of mechanized tools on land, water, or in the air.

It is necessary to clarify the method of committing offenses specified in Article 202 of the Criminal Code and Article 89 of the Administrative Liability Code. For instance, in economic activities, violating the rules for producing, storing, transporting, or using plant protection chemicals, mineral fertilizers, growth biostimulants, or other chemicals (Article 202 of the Criminal Code) and violating the rules for transporting, storing, using, and disposing of containers of plant protection agents, growth stimulants, mineral fertilizers, and other chemicals, as well as highly toxic substances and volatile compounds (Article 89 of the Administrative Liability Code). In fact, these articles refer to the same method of committing an offense – “violation of rules for handling hazardous chemical and biological substances.” Thus, it is necessary to unify the content of the methods of committing offenses specified in Article 202 of the Criminal Code and Article 89 of the Administrative Liability Code.

In general, there is a fine line between criminal and administrative liability. Therefore, to correctly qualify an unlawful act, it is essential to thoroughly study all the elements of the crime. If something is overlooked, administrative liability may turn into criminal liability, and vice versa.

References:

1. Ўзбекистон Республикаси Маъмурий жавобгарлик тўғрисидаги кодекси [Электрон манба]. URL:<https://lex.uz/docs/97664>
2. Ўзбекистонда 2021 йилнинг 9 ойида қонунбузарлардан 16,3 млрд сўм ундириб олинган — Экология қўмитаси. URL:<https://daryo.uz/k/2021/10/29/>
3. Экология, атроф-муҳитни муҳофаза қилиш ва иқлим ўзгариши вазирлиги томонидан 2023 йилда амалга оширилган тадбирлар тўғрисида маълумот. [Электрон манба]. URL:<https://www.uznature.uz/yz>

Rezyume: Ushbu maqolada ekologiya sohasidagi huquqbuzarliklar uchun ma'muriy va jinoiy javobgarlikning o'zaro bog'liqlik jihatlari tahlil qilinadi.

Резюме: В данной статье анализируются взаимообусловленность административной и уголовной ответственности за правонарушения в сфере экологии.

Kalit so'zlar: Atrof-muhit muhofazasi, tabiatdan foydalanish, ekologiya sohasidagi jinoyatlar, ekologik vaziyat, O'zbekiston Respublikasining Ma'muriy javobgarlik to'g'risidagi kodeksi, Jinoyat kodeksi.

Ключевые слова: Охрана окружающей среды, природопользование, преступления в сфере экологии, экологическая ситуация, Кодекс об административной ответственности Республики Узбекистан, Уголовный кодекс.

LEXICAL-GRAMMATICAL PROPERTIES OF THE WORD IN THE CONTEXT AND ADAPTATION

Temirxanova G.U.

Nukus Mining Institute at Navoi State Mining and Technology University

Summary: *This article talks about the loaned words which were taken from other languages into Karakalpak at the end of the XX and beginning of the XXI century. It also mentions morphological-semantic relationships.*

Key words: *loaned words, morphology, semantic, karakalpak language, foreign language, lexical unit, grammatical category, noun, vocabulary, linguistics.*

The process of morphological and semantic transformation of a specific lexical unit is complex and cannot be accepted in one sense. First of all, it is impossible to clearly establish the relations between the two transmitting and receiving systems, because the morphological process of bringing words into circulation through reworking can occur in the place of Karakalpakstan and may have already been mastered. In some cases, it is very difficult to determine the linguistic origin of a word, because when we talk about several connections of a certain lexical unit from different languages, that is, the unit can be taken from the Karakalpak language on the basis of a valid language. Difficulties also arise in the question of whether a clear lexical unit belongs to a certain morphological category in the receiving language.

It is possible to distinguish between the educational exercises that are considered from the perspective of "Foreign language - this is a change". For example, V.G. Demyanov defines the following: [1,25]

- 1) In connection with the linguistic adaptation of foreign language words, the practice of the types of inflection;
- 2) practice the inflection of foreign language words;
- 3) the practice of creating derivatives from foreign words and the degree of productivity of derivative affixes.

Therefore, the meanings of the same word in the target language and in the receiving language are usually realized in composite morphological-semantic relations. The words of a foreign language, which are related to a certain grammatical category in the mother tongue, have a motivational meaning, are adapted from another language, not only structurally (externally), but often semantically as well, but they can be freely connected to any part of the adapted word in the language.

In our thematic group, we distinguish the following models of nominations related to morphological-semantic relationships:

1. Action → subject

The education in this module is very effective, for example, the specific semantics of food names in the Karakalpak language is related to the process of their preparation:

Biscuits (from the French language, literally translated to mean *double-boiled*) is a pastry dough based on eggs.

Roast beef (from the English language, when translated literally means *to (fry) roast beef*) is a piece of stewed beef.

Compote (derived from the German language and translated literally means *mixing, to be in the component*) is a drink made from fruits and vegetables.

Mashed food (taken from the French language and literally translates *to mash*) is a kind of thick mass.

2. Subject → subject

- a) In the Karakalpak language, the names of foods appeared in connection with this model that was the main, copiable the attribute:

beefsteak (taken from the English language and translated literally means *a piece of beef*) - a piece of cutlet made from crushed beef.

juice (from the French language borrowing, when translated literally means *juice*) is a liquid seasoning for food;

6) this model is also used in Karakalpak language to form subject terms in terms of external similarity between something:

Waffle (derived from the German language, when translated literally means *honeycombs, cells*) is a dry biscuit with rough cells, usually filled with filling.

Pudding (taken from the English language and translated literally means *a smooth look*) is a food made from dough, grain, cottage cheese, and other related products.

Vermicelli (derived from Italian and translated literally means *"worms"*) is a doughy food made from thin crust.

filet mignon (taken from the French language and translated literally means *the division of the cut object into parts*) - small parts of the meat.

Starch (derived from the German language and translated literally means *hard flour*) is a powdered adhesive of starchy vegetables.

3. Sign → object

According to this model, adjectives related to the names of foods with motivational properties appear:

jelly (taken from the French language and literally translates as *frozen*) is a frozen mass of elastic consistency.

candy (taken from the French language and translated literally means *mixed with sugar*) – lollipops.

4. Name of the person → item

We should also mention that this given model is widespread in many thematic groups, and here the names of individuals become nicknames: bolivar (S. Bolivar – banknote and men's broad-brimmed hat), nagan (L. Nagan - a type of revolver) and others. According to this model, noun names are created after someone or something:

Madera (taken from the Portuguese language and named after the name Madeira) is a type of strong grape wine.

Champagne (taken from the French language and named after the province of Champagne) is grape wine.

Charlotte (taken from French and named after Charlotte) is a hot dish made from dough and fruits.

Port wine (taken from the German language, named after the Portuguese city "*Porto*" + "*wein*" meaning *wine*) is a strong grape wine.

It seems that the stream of borrowed words will continue to enter our society, and it will not fail to show its influence on the lexicon of the Karakalpak language, and it will affect the expansion and enrichment of the lexicon of the Karakalpak language.

The vocabulary of a foreign language in the Karakalpak language traditionally arouses the interest of linguists. The study of theoretical and practical exercises as a result of the interaction of various language systems has a certain importance due to the intercultural activity at the present time. Linguistic communication is considered to be the interaction of several languages influencing each other. One of the most favorable conditions of linguistic communication is considered to be bilingualism, that is, the way an individual can understand two languages. We should also mention that this given concept is primarily related to the degree of language stability, which is determined by the possibility of structural change at different levels of the language. Although lexical change is one of the most widespread types of change, when words enter the target language from various sources of life, the Karakalpak language is also characterized by a process similar to structural change.

The construction of a word in a foreign language is understood as the external structure of the lexical unit, which is the arrangement and order of the parts that ensure its integrity. However, we must also remember that representatives of all languages can understand the morpheme structure of the words in question depending on their linguistic competence and linguistic ability. According to M. Martysyuk: "many possessive words in the modern language are morphologically indistinguishable from each other." [2,57]. If we look at knowledge of a foreign language from a different point of view typical of language representatives, it is possible and right to consider that it is possible to separate individual words. For example, E. Haugen, classifying borrowed words according to their structure, distinguishes between hybrid variants (imperfect copy), i.e., words that came from a foreign language and were built from original elements [3,344-382].

Looking at the structure of the foreign language lexicon of the Karakalpak language from the point of view of separation and non-separation, we distinguish the following types of constructions.

1. Words that do not require transliteration.

First of all, it is possible to see lexical units from the point of view of singular or plural. Words may retain a tendency to be structurally corrected in the language they have adopted over a long period of time. Custom words that cannot be transliterated are considered to be custom words that phonetically and graphically correspond to the target language. They should be distinguished from compounds in foreign languages, their use is connected with the need to depict the society, customs, behavior and traditions of a nation or state. If this group of lexical units has graphic inscriptions in the Karakalpak language, or does not require translation, it cannot be connected with foreign language compounds. In this case, we should talk about untransliterated words. As an example, we can consider the following words and conditional abbreviations: CD (English, compact disk), bye (English, see you later), Ltd (English, limited) - limited liability company, OK (English, good), VIP (English, very important person).

2. Transliterated words that match the prototypes in structure

At the time of transliteration, the word in a foreign language is pronounced according to the rules of the native language, but slows down to graphic assimilation. In addition to this group of words, it is logical to include words that have undergone phonemic adaptation in the Karakalpak language (that is, they have phoneme inconsistencies associated with the introduction of foreign language vocabulary into the Karakalpak language). As an example, the following words are changed in the transliteration tool: bestseller ("bestseller" in English), pineapple ("ananas" in German is a tropical plant and its fruit), screening ("screening" in English is a medical examination of the local population or checking the creditworthiness of partners), allegri (in Italian "allegri" "lottery where one game is played after buying a ticket), pawnbroker (French "Lombard" credit institution), present (French "présent" sale), syrup (French "sirop" concentrated solution), innovator (Latin "novator" following progressive principles person), screenshot (using "screenshot" in English, the image you see on the monitor screen), cruise (in English "cruise" is a sea trip along a closed route), motel (in English "motel" is a hotel for motorists), muscat (French "muscat" is a grape and dessert wine), poltergeist (German "Poltergeist" is a supernatural phenomenon), addressee (German "Adressat" receiving), short track (in English "short track" is a type of sport played on ice skates) and many others.

In the Karakalpak language, proper noun was transliterated at the time of the change. For example, Washington (English "Washington"), London (English "London"), Mississippi (English "Mississipy"), Ray Charles (English "Ray Charles") and others.

3. Transliterated words based on grammatical substitution.

A) Loaned words transliterated by adding affixes to the host language. The lexical units that made up this group were adapted to the accepted language to such an extent that they began to participate in the word formation process in the Karakalpak language. A word that accepts the affixes of this receiver takes the substituted words into its case. Examples include tartinka (French "tartine" is a piece of bread with something added or spread on it), marinating (French "mariner" to

prepare something in a marinade), breading (German "panieren" to coat in breadcrumbs or flour before frying) [4,64], frikadelka (from the German "Frikadelle" a ball made of minced meat) and many other words can be mentioned.

Б) Abbreviated words transliterated by shortening of relative affixes. In this case, the lexical unit in the Karakalpak language can have its own "abbreviated" appearance. For example: plumber (French "plombières") - ice cream made from sour cream and egg yolk; profi (German "Professional") - professional; tattoo (French "tatouage") - drawing on the human body by applying paints under the skin; parameter (Greek "parametron") - a term describing some property of a process or substance included in formulas; Infarct (Latin "infarctus") is a necrosis center in tissues and others due to impaired blood circulation.

4. A foreign language is a combination of a noun and a defining word of the host language.

From the etymological point of view, the word clarity of the Karakalpak language may not be the most authentic Karakalpak, but it is accepted as such by the speakers due to the fact that it entered the language very early or was actively used in various spheres of life. In such cases, the adjective (characteristic) is used to specify the concept of a foreign language. As an example, we can consider the following words: lemon caramel (French), linden tea (Turkish), plum, apple (according to taste) sauce (French), ketchup (in terms of national component) produced in Holland, Tatar (in English).

5. The concept of a foreign language is replaced by the Karakalpak equivalent combination

The entry of a foreign language word into the Karakalpak language is determined by the presence of two options in it, i.e. borrowed words and word chains in the Karakalpak language. For example, vinaigrette (French) is French okroshka, tomato (Italian) is green apple, kartoffel (German) is apple.

We should accept it as a fact that no language is structurally isolated, agglutinative or inflective. The lexicon of a foreign language adapts to the system of the Karakalpak language, shows dynamics in all directions, and undergoes certain changes. Analyzing structural inconsistencies between languages provides an opportunity to see language development in diachrony.

References:

1. Демьянов В. Г. Иноязычная лексика в истории русского языка XI–XVII вв. Проблемы Морфологической адаптации. -М.: «Наука», 2001.
2. Мартысюк М. Родовая ассимиляция немиских заимствований в русском языке. 1970.
3. Хауген Э. Процесс заимствования. Новое в лингвистике. Языковые контакты. - М.: «Прогресс», Вып. 6. 1972. -С. 344-382.
4. Бахтина С.И. Структурно-семантические особенности заимствованной лексики (на примере тематической группы «Пища и напитки»). -Казань. 2008. -С. 64

Rezume: *Ushbu maqolada XX asr oxiri XXI asr boshlarida qoraqalpoq tiliga boshqa tillardan o'zlashtirilgan o'zlashma so'zlar haqida so'z boradi. Morfologik-semantik aloqalar ham tilga olinadi.*

Резюме: *В данной статье говорится о заимствованных словах, которые были заимствованы из других языков в каракалпакский язык в конце XX начале XXI века. Также упоминаются морфолого-семантические связи.*

Kalit so'zlar: *o'zlashtirilgan so'zlar, morfologiya, semantika, qoraqalpoq tili, chet tili, leksik birlik, grammatik kategoriya, ot, so'z, tilshunoslik.*

Ключевые слова: *заимствованные слова, морфология, семантика, каракалпакский язык, иностранный язык, лексическая единица, грамматическая категория, существительное, слова, лингвистика.*

CONTRACTUAL AND LEGAL BASES OF MINING FARMS

Xursanov R.X.

Assistant Professor of Civil Law Department of Tashkent State Law University, The Doctor of Legal Science

Summary: *The article analyzes the contractual and legal basis of mining farms. Civil legal contracts that may arise in the operation of mining farms are highlighted. The results of the study help to understand the contractual legal basis of mining farms.*

Keywords: *mining farms, cryptocurrency, founding agreement, cooperation agreement, lease agreement, energy supply agreement, sales agreement, insurance agreement.*

INTRODUCTION.

Contractual and legal bases of mining farms are an important component of mining farms and are important for their efficient and stable operation. Along with the widespread use of cryptocurrencies and blockchain technology, mining farms are also booming. These processes create complexities not only technologically, but also legally and contractually. Therefore, it is necessary to analyze the legal bases regulating the activity of mining farms in depth.

Contractual relations are the main component of mining farms. Agreements between mining farms and their customers, contracts with suppliers of mining equipment, and energy supply agreements ensure the efficient operation of mining farms. These contracts must be legally correct and clearly define the rights and obligations of the parties.

DISCUSSION AND RESULTS

It is important to analyze the contractual and legal basis of mining farms, to ensure their efficient and stable operation. At the same time, this analysis will help to develop the necessary recommendations to improve the legal framework of mining farms and ensure their sustainable development.

The initial type of contract that arises during the operation of mining farms is the foundation contract. According to Article 43 of the Civil Code of the Republic of Uzbekistan, a legal entity operates on the basis of the charter or on the basis of the founding agreement and the charter or only on the basis of the founding agreement. Mining farms operate only as a legal entity. For this, a founding agreement is required.

The founding agreement plays an important role in the operation of mining farms, because it is the main document that regulates the organization, management and operation of farms. The founding agreement determines the legal status of mining farms and enables them to conduct their activities on a legal basis. Through this contract, mining farms will be established from their establishment, and will determine the management system, financial issues, shareholders' rights and obligations, as well as the regulations governing the day-to-day operations of the farms.

Mining farms are often capital-intensive and high-tech enterprises, and the founding agreement is important for their successful operation. Legal relations between the parties participating in the establishment of farms are determined through the foundation contract, and their rights and obligations are determined. This contract defines the management system of the farms, that is, the board of directors, management bodies and their powers, which ensures effective management of the farms.

Financial issues also play an important role in the founding agreement. The contract determines the capital of the farms, issue of shares, distribution of dividends and financial reports. This helps ensure the financial stability of farms and creates a reliable environment for investors. Also, the rights and obligations of the shareholders are determined through the founding agreement, which is important to ensure the long-term success of the farms.

The founding agreement also regulates the day-to-day operations of mining farms. Through this agreement, the operational rules of farms, relations with employees, the procedure for

concluding contracts and other operational issues are defined. This helps farms to operate efficiently and sustainably.

In short, the founding agreement plays an important role in the activities of mining farms and is the main document that regulates their organization, management, financial issues and daily activities. This agreement defines the legal status of farms and enables them to operate successfully.

Another of the main agreements that arise in the operation of mining farms is the cooperation agreement. A cooperative agreement is important in the operation of mining farms because it ensures efficient and successful operation of farms by pooling resources, knowledge and expertise between several parties. Mining farms often require large amounts of capital, high-tech equipment, and specialized knowledge, so through a cooperative agreement, multiple parties pool their resources to help farms run successfully.

Legal relations between the parties are determined through the partnership agreement, and their rights and obligations are determined. This agreement ensures a reliable and stable relationship between the parties, which is important to ensure the long-term success of the farms. Through the agreement, resources such as capital, technology, infrastructure and knowledge will be exchanged between the parties, which will increase the efficiency of the farms.

The cooperation agreement also plays an important role in ensuring the financial stability of mining farms. The procedure for the distribution of financial obligations, profits and losses between the parties is determined by the contract. This helps ensure the financial stability of farms and creates a reliable environment for investors. Also, through the contract, the financial reporting and audit procedure will be determined between the parties, which will allow monitoring the financial status of the farms.

The management system of the farms is also regulated through the partnership agreement. Management bodies, their powers and responsibilities are determined between the parties through the contract. This ensures effective management of farms and regulates their daily activities. Also, the contract establishes a decision-making procedure between the parties, which helps farms to make quick and effective decisions.

The cooperation agreement will also contribute to the technological development of mining farms. The procedure for the exchange of technologies and the introduction of innovations between the parties will be established through the agreement. This ensures the technological development of farms and increases their competitiveness.

In conclusion, the cooperation agreement plays an important role in the operation of mining farms and defines the legal, financial and management framework necessary to ensure their efficient and successful operation. Through this agreement, resources, knowledge and experience will be exchanged between the parties, which will increase the efficiency of the farms and ensure their long-term success.

The lease agreement is important in the operation of min farms because it ensures that the farms have the necessary infrastructure and equipment, which is necessary to ensure their efficient operation. Mining farms often require specialized equipment and infrastructure that require large amounts of capital. Through a lease agreement, farms are able to use these resources by renting them instead of buying them, which reduces upfront costs and ensures financial stability.

Through a lease agreement, mining farms can have the necessary equipment and infrastructure. Through this contract, farms can rent mining equipment, servers, power supply systems and other necessary infrastructure. This reduces the initial investment costs of farms and ensures their financial stability. Also, through leased equipment and infrastructure, farms will have the opportunity to quickly use technological innovations, which will increase their efficiency.

Farms will have the opportunity to flexibly and quickly expand their activities through the lease agreement. Through the contract, farms can quickly expand their operations by renting the necessary equipment and infrastructure. This helps farms quickly respond to market demands and increases their competitiveness. Also, through leased equipment and infrastructure, farms will be able to reduce or change their operations, which will ensure their financial stability.

Through the lease agreement, farms will have the opportunity to manage and control their activities. Through the contract, farms can arrange maintenance and repair of leased equipment and infrastructure. This ensures efficient operation of farms and provides an opportunity to quickly solve their technical problems. Also, through leased equipment and infrastructure, farms will be able to monitor and manage their operations, which will increase their efficiency.

Farms will have the opportunity to effectively manage their financial resources through the lease agreement. Through the contract, farms can make payments for leased equipment and infrastructure at fixed times, which facilitates their financial planning. Also, through leased equipment and infrastructure, farms will be able to direct their financial resources to other important projects, which will ensure their financial stability.

In conclusion, the lease agreement plays an important role in the operation of mining farms and provides the opportunity to have the necessary infrastructure and equipment to ensure their efficient and successful operation. Through this contract, farms reduce initial costs by renting the necessary resources, expand their activities flexibly and quickly, organize maintenance and repair issues, and manage their financial resources effectively. This increases the efficiency of farms and ensures their long-term success.

Another important contract is the energy supply contract. The energy supply contract is important in the operation of mining farms, because the mining process requires a large amount of electricity. Mining farms use high-powered computers and special equipment to mining cryptocurrencies, which consume large amounts of electricity. Through the energy supply contract, farms will have access to sustainable and affordable energy sources, which will increase their efficiency and reduce their operating costs.

Power supply contracts are important for mining farms because electricity costs make up a large portion of their total operating costs. For example, according to a study conducted by the Cambridge Center for Alternative Finance, the electricity consumed by global mining farms in 2021 was 121.36 terawatt-hours per year. This amount is equal to the annual electricity consumption of all of Argentina. Therefore, through an energy supply contract, farms can significantly reduce their costs by having access to cheap and sustainable energy sources.

Through the energy supply contract, farms will have the opportunity to have sustainable energy sources. Through this contract, farms will be able to obtain electricity from renewable sources, such as solar, wind or hydropower. This not only reduces the ecological footprint of farms, but also makes their energy supply stable and long-term. For example, mining farms located in Iceland often use hydropower and geothermal energy, which reduces their energy costs and ensures environmental sustainability.

Through the energy supply contract, farms will have the opportunity to stabilize energy prices. Through the contract, farms will be able to purchase electricity at fixed prices, which will facilitate their financial planning and protect them from changes in energy prices. This is especially important for farms located in areas with volatile energy prices. For example, mining farms located in Texas are protected from changes in energy prices through energy supply contracts and have a stable energy supply.

Through the energy supply contract, farms will have the opportunity to improve energy efficiency. Through the agreement, farms will have the opportunity to introduce the technologies and infrastructure necessary to improve energy efficiency. This reduces their energy consumption and operating costs. For example, mining farms in Canada and Sweden have implemented cooling systems and other technologies to improve energy efficiency, which have significantly reduced their energy consumption.

In conclusion, the energy supply contract plays an important role in the operation of mining farms and provides an opportunity to have stable and affordable energy sources necessary to ensure their efficient and successful operation. Through this agreement, farms will reduce their costs, stabilize energy prices, increase energy efficiency and ensure environmental sustainability by having access to affordable and sustainable energy sources. This increases the efficiency of farms

and ensures their long-term success. The sales contract is important in the operation of mining farms, because through this contract, farms purchase equipment, software and other resources necessary to carry out their main activities. Mining farms use high-powered computers, graphics processing units (GPUs), special integrated circuits (ASICs) and other technological equipment to mining cryptocurrencies. Purchase agreements are made for the purchase of these equipment and resources, which ensure the efficient and sustainable operation of farms.

It is important for mining farms to purchase equipment and resources through the purchase agreement, as these equipment are necessary to carry out the main activities of the farms. For example, ASIC devices are specially designed for mining cryptocurrencies, and they work with high efficiency and speed. These devices can be expensive, so farms buy them through trade-in contracts and keep their technology infrastructure up to date. In 2021, ASIC devices cost an average of \$2,000 to \$10,000, which requires a significant investment for farms.

Through the sales contract, farms will have the opportunity to ensure quality and guarantees when purchasing equipment. Through the contract, farms buy quality and guaranteed products from equipment suppliers, which increases their efficiency and reduces the risk of technical failures. For example, major ASIC manufacturers such as Bitmain and Canaan offer warranty and maintenance services for their products, which ensure long-term and stable operation of farm equipment.

Farms will have the opportunity to stabilize prices for the purchase of equipment through the pre-sale contract. Through the contract, farms will be able to purchase equipment at fixed prices, which will facilitate their financial planning and protect against changes in equipment prices. This is especially important in a market where equipment prices are volatile. For example, changes in the cryptocurrency market can affect the prices of ASIC devices, so farms seek to stabilize prices through trading contracts.

Through the pre-sales agreement, farms will have the opportunity to provide delivery and installation services when purchasing equipment. Through the contract, farms also purchase equipment delivery and installation services, which allows them to quickly and efficiently upgrade their technological infrastructure. For example, large mining farms enter into contracts that include delivery and installation services when purchasing equipment, which speeds up their operational processes and increases efficiency.

Through the pre-sale agreement, farms will have the opportunity to ensure financial and legal protection when purchasing equipment. The contract provides financial and legal protection for farms when purchasing equipment, which protects their investment and prevents legal disputes. For example, through the contract, farms clearly define the delivery period of equipment, quality requirements and warranty conditions, which ensures their legal protection.

In conclusion, the sale and purchase agreement plays an important role in the operation of mining farms and provides the opportunity to purchase the necessary equipment and resources to ensure their efficient and successful operation. Through this agreement, farms will have the opportunity to purchase quality and guaranteed equipment, stabilize prices, provide delivery and installation services, and provide financial and legal protection. This increases the efficiency of farms and ensures their long-term success.

Insurance contracts play an important role in the operation of mining farms, because these contracts are necessary to ensure the financial security of farms and protect against unexpected events. Mining farms require large amounts of capital and resources, including expensive equipment, electricity, cooling systems, and other infrastructure elements. These resources and infrastructure elements can be exposed to various risks, such as fire, flood, theft, technical failures and other natural or human factors. Insurance contracts are an important tool to reduce these risks and ensure the financial stability of farms.

Through insurance contracts, mining farms will be able to insure their equipment and infrastructure. These contracts are concluded with insurance companies to protect farms against fire, flood, theft and other risks. Insurance companies pay insurance premiums to farms to help cover financial losses that farms may incur due to unexpected events. For example, if a fire breaks out on

a mining farm and the equipment is damaged, the insurance company will provide funds to replace or repair the damaged equipment. This will help to quickly restore the activity of farms and reduce financial losses.

Insurance contracts play an important role in ensuring the financial stability of mining farms. Mining farms are capital-intensive businesses, and unexpected events can have a serious impact on farms' finances. Through insurance contracts, farms are able to cover financial losses caused by unexpected events, which ensures their financial stability. Insurance contracts increase the financial security of farms and ensure their long-term success.

Insurance contracts also ensure the operational security of mining farms. Mining farms require continuous operation to run efficiently. Unexpected events can interrupt or slow down farm operations, which negatively affects farm income. With insurance contracts, farms are able to reduce operational downtime caused by unexpected events and quickly recover. This increases the operational safety of farms and ensures their efficiency.

Insurance contracts increase the reliability of mining farms. Insurance contracts increase the reliability of farms by ensuring their financial and operational security. This gives confidence to the customers, partners and investors of the farms and increases their confidence in the farms. Insurance contracts increase the reliability of farms and strengthen their business relations.

In conclusion, insurance contracts play an important role in the operation of mining farms. These contracts are necessary to ensure the financial security of farms, protect against unexpected events, increase operational security and ensure reliability. Insurance contracts are an important tool in ensuring the long-term success of farms and ensure their stable and efficient operation.

References:

1. O'zbekiston Respublikasi Konstitutsiyasi. Qonunchilik ma'lumotlari milliy bazasi, 01.05.2023-y., 03/23/837/0241-son. <https://lex.uz/docs/-6445145>
2. O'zbekiston Respublikasining Fuqarolik kodeksi. O'zbekiston Respublikasi Oliy Majlisining Axborotnomasi 28.02.2024-y., 03/24/914/0161-son. <https://lex.uz/docs/-111189>
3. O'zbekiston Respublikasida Raqamli iqtisodiyotni va kriptο-aktivlar aylanmasi sohasini rivojlantirish chora-tadbirlari to'g'risida O'zbekiston Respublikasi Prezidentining Qarori. Qonunchilik ma'lumotlari milliy bazasi, 24.07.2021-y., 06/21/6268/0700-son; 28.04.2022-y., 06/22/121/0354-son <https://lex.uz/uz/docs/-3806053>
4. Litsenziyalash, ruxsat berish va xabardor qilish tartib-taomillari to'g'risida O'zbekiston Respublikasining Qonuni. Qonunchilik ma'lumotlari milliy bazasi, 26.02.2024-y., 03/24/912/0147-son <https://lex.uz/uz/docs/-5511879>
5. Mayning faoliyatini amalga oshirish uchun ruxsatnoma berish tartibi to'g'risidagi nizomni tasdiqlash to'g'risida. Qonunchilik ma'lumotlari milliy bazasi, 03.10.2023-y., 10/23/3461/0743-son <https://lex.uz/uz/docs/-6623726>
6. Mayning-pul faoliyatini amalga oshirish qoidalarini tasdiqlash to'g'risida O'zbekiston Respublikasi Istiqbolli loyihalar milliy agentligi direktorining buyrug'i. Qonunchilik ma'lumotlari milliy bazasi, 20.03.2024-y., 10/24/3507/0237-son <https://lex.uz/uz/docs/-6845472>
7. Gabriele Camera et al., Money and Trust Among Strangers, 110(37) Proceedings of the national academy of sciences 14889 (2013).
8. Charles A.E. Goodhart, The Two Concepts of Money: Implications for the Analysis of Optimal Currency Areas, 14(3) european Journal of Political economy 407 (1998).
9. David I.K. Chuen, Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data
10. Benjamin Guttman, The Bitcoin Bible: All You Need to Know About Bitcoins 123–124 (germany: BoD,2013).
11. Benjamin Guttman, The Bitcoin Bible: All You Need to Know About Bitcoins 123–124 (germany: BoD,2013)
12. Lewis R. The Cryptocurrency Revolution: Finance in the Age of Bitcoin, Blockchains and Tokens. – Kogan Page Publishers, 2020.

Rezyume: Maqolada mayning fermalarining shartnomaviy-huquqiy asoslari tahlil qilinadi. Mayning fermalari faoliyatida yuzaga kelishi mumkin bo'lgan fuqarolik huquqiy shartnomalar

yoritiladi. Tadqiqot natijalari mayning fermalarining shartnomaviy huquqiy asoslarini tushunishga yordam beradi.

Резюме: В статье анализируется договорно-правовая база майнинговых ферм. Выделены гражданско-правовые договоры, которые могут возникнуть при работе майнинговых ферм. Результаты исследования помогают понять договорно-правовую основу майнинговых ферм.

Kalit so'zlari: mayning fermalari, kriptoalyuta, ta'sis shartnomasi, hamkorlik shartnomasi, ijara shartnomasi, energiya ta'minoti shartnomasi, oldi-sotdi shartnomasi, sug'urta shartnomasi.

Ключевые слова: майнинговые фермы, криптовалюта, учредительный договор, договор о сотрудничестве, договор аренды, договор энергоснабжения, договор купли-продажи, договор страхования.

LEGAL CAPACITY OF MINING FARMS

Bobojonov J.I.

Master of Tashkent State Law University

Summary: *The article analyzes the rights and legal capacity of mining farms. Mining farms are evaluated from a civil legal point of view. The results of the research will help to understand the legal status of mining farms and will be the basis for the formation of effective approaches to legal issues related to this field.*

Keywords: *mining farms, cryptocurrency, legal entity, insolvency, resident, contracts, blockchain technology, leasing.*

INTRODUCTION

We know that mining farms and cryptocurrency in particular are involved in several areas of law. Among these, we can say that there is everything from business law to cyber law. Also, many of its aspects are mainly related to civil rights. Through this article, we will try to clarify the civil legal aspects of mining farms, legal and legal capacity of mining farms. We will analyze several aspects of them, noting them separately.

DISCUSSION AND RESULTS

Mining farms are subject to civil law. Subjects of civil-legal relations - participants of civil-legal relations - citizens, legal entities and the state.

The concept of a national miner is defined in the order of the director of the National Agency of Prospective Projects of the Republic of Uzbekistan on the approval of the rules for the implementation of mining-money activities. According to it, a national miner is a legal person who is a resident of the Republic of Uzbekistan and has received a permit for mining in the territory of the Republic of Uzbekistan.

Based on this, the mining farm is a legal entity and, in turn, a subject of civil law. Mining farms as subjects of civil law are important in the following aspects: firstly, they have become valuable rare assets as objects of property rights. It is related to property rights in the form of property, tools and equipment belonging to the owners of mining farms.

Secondly, as a subject of civil legal relations, mining farms can cause various legal disputes between their owners or users. For example, this can be reflected in contracts, leasing, provision of service services, disputes regarding electricity supply. Contracts between electricity suppliers and mining farms are important because electricity is a key resource.

Another important aspect of the civil legal regulation of mining farms is that mining farms are subjects of private property rights.

According to Article 208 of the Civil Code of the Republic of Uzbekistan, citizens, business companies and societies, cooperatives, public associations, social funds and other legal entities not belonging to the state are considered subjects of private property rights. Mining farms, i.e. infrastructures used by cryptocurrency miners, have their own legal significance as a subject of private property rights. This type of technology and activity has different aspects than the traditional classification under private property law and creates several new challenges and opportunities.

Mining farms are primarily a large infrastructure complex consisting of many different pieces of equipment, the main function of which is to "mine" cryptocurrencies by performing complex mathematical calculations. These devices and farms require high levels of computing power in terms of technological development. This equipment—servers, graphics cards, processors, and other technological devices—can be considered traditional property and are subject to private property rights against their owners.

There are several important aspects regarding the legal status of mining farms in the context of private property rights. First, the owner (or owners) of this infrastructure have full ownership of their property, which gives them the ability to use, manage, generate income from, and dispose of

the property. This is one of the basic principles of private property rights and is often guaranteed by state law. In this case, the location, use and management of mining farms must be approved by legal documents.

The mining process requires a large amount of electricity, which creates special demands on land and infrastructure. As owners of private property, owners of mining farms have the right to enter into contracts for the purchase and use of energy resources, and have the opportunity to control and optimize this process. Private property rights and contractual relations play an important role in energy sources.

We have explained above the significance of mining farms as a subject of civil law and as a subject of private property law. It should be noted that mining farms are considered as legal entities with legal capacity and legal capacity. Interpretation of the concept of rights and legal capacity of mining farms is also important in understanding its legal nature. Mining farms can operate as a legal entity and must be organized in accordance with the laws of the Republic of Uzbekistan on legal entities. A mining farm as a legal entity must have separate assets in its ownership, management or operational management. These assets include mining equipment, servers, buildings and other assets.

The mining farm is responsible for its obligations with its property. This means that if the farm has debts or other liabilities, they must cover those liabilities with their assets. A mining farm must have and be able to exercise property or personal non-property rights in its own name. These rights include entering into contracts, buying and selling property, protecting intellectual property rights, and more.

A mining farm can be both a plaintiff and a defendant in court. This means that farms can sue or be held liable in court to protect their rights or enforce their obligations. A mining farm must have an independent balance sheet or budget. This is necessary to clearly show their financial situation and report to the tax authorities.

They must have separate property, answer for their obligations, have property and personal immovable rights, participate in court and have an independent balance sheet or estimate. Mining farms can be organized in various forms as a commercial organization and can engage in business activities in the frameworks suitable for their purposes.

As a legal entity, the rights of mining farms can be limited only in cases and according to the procedure provided by law. These restrictions may be imposed by government authorities, and if the mining farm does not agree to these restrictions, then it has the right to appeal to the courts. This right gives mining farms an opportunity to protect their interests and helps them to carry out their activities on a legal basis.

They must have civil legal capacity, have special legal capacity and receive appropriate permits for the types of activities to be licensed in accordance with the goals and tasks defined in their founding documents. Also, mining farms will have the right to apply to court to protect their rights. All these requirements are aimed at ensuring the legal and efficient operation of mining farms.

Legal entities are established by the owner or a person represented by him or on the basis of an order of an authorized body, as well as in accordance with the law. This means that mining farms can also be established by owners or their representatives. Owners, subjects of the right to conduct business or operational management or persons represented by them are the founders of legal entities. These founders are responsible for the organization and management of the mining farm.

Mining farms can conduct their activities on the basis of the charter or on the basis of the founding agreement and the charter or only on the basis of the founding agreement. In the cases stipulated by the law, legal entities that are not commercial organizations may operate on the basis of the regulations on such organizations. This means that mining farms must prepare and approve relevant documents for the implementation of their activities. The founding contract of a legal entity is drawn up by its founders, and its charter is approved. If the mining farm was established by one founder, then it operates on the basis of the charter approved by this founder.

The charter and other founding documents of the mining farm shall specify the name of the legal entity, its location (postal address), the procedure for managing the activities of the legal entity, as well as other information provided by law on the relevant types of legal entities. should be. These documents ensure that the mining farm operates on a legal basis and contains information necessary for its organization and management.

In the founding agreement, the parties (founders) undertake to establish a legal entity, determine the procedure for joint activity in the field of its establishment, the conditions for giving it their property and participation in its activities. The agreement also defines the terms and conditions for the distribution of profits and losses among the participants, the management of the activity of the legal entity, and the departure of the founders from its structure. This means that the founders must reach a mutual agreement and determine the order of joint activity in the establishment of mining farms. The agreement should clearly define the conditions for the distribution of profits and losses, management and the departure of the founders.

Amendments to the constituent documents become effective for third parties from the moment of state registration, and in the cases established by law - from the moment the state registration body is notified of such changes. . This means that if mining farms make changes to their founding documents, these changes must be registered with the state, and these changes will be binding for third parties. Legal entities and their founders do not have the right to pretend that such changes have not been registered in their relations with third parties taking into account these changes. This means that mining farms must state the changes in their founding documents and take these changes into account in their relations with third parties.

Mining farms must be state registered in order to operate as a legal entity. This process is carried out in accordance with the law, and information on state registration is entered into the unified state register of legal entities, which is open to everyone. Through this registry, it will be possible to obtain information about mining farms, which will make their activities transparent and legal.

The location of the mining farm is determined by the place of state registration, unless otherwise specified in the founding documents of the legal entity in accordance with the law. This means that the state registered address of my farm is its official location. This address must be specified in the founding documents of the legal entity.

A mining farm must have a mailing address where it can be contacted. My farm can be contacted through this email address. If the postal address of my farm changes, it must inform the competent state authorities about it. This requirement is necessary to update the contact information of the mining farm and ensure interaction with state authorities.

The name and location (postal address) of the mining farm must be specified in its founding documents. These documents contain the official information of the mining farm and are necessary for the legal implementation of its activities.

Mining farms operate as legal entities, and their liquidation is carried out in accordance with the rules established for general legal entities. Termination of the mining farm means that its rights and obligations are terminated without transfer to another person. This process can be done under a number of circumstances and conditions.

First, a mining farm can be terminated according to the decision of its founders or the body authorized to terminate it by the founding documents. This situation may occur, for example, due to the expiration of the mining farm or the achievement of the goal of its creation. Also, if legal violations were committed during the establishment of a mining farm and these violations cannot be eliminated, the court may declare the registration of a legal entity invalid.

Second, if a mining farm is operating without a license or permit, or is engaged in activities prohibited by law, it can be terminated by court order. This situation can occur, for example, if a mining farm is engaged in cryptocurrency mining and does not have the necessary license or permission for this activity.

Thirdly, if the mining farm does not carry out financial and economic activities and has been transferred to the inactive mode in accordance with the established procedure, it may be terminated by the decision of the registration body if the activity is not resumed within three years. This situation can occur, for example, if the mining farm has been inactive for a long time and has not resumed its activity during this period.

In the decision of the court on the liquidation of a legal entity, the founders of the mining farm or the body authorized to liquidate it by the founding documents may be entrusted with the task of liquidation of the legal entity. This process involves selling all the assets of the mining farm, paying off its debts and distributing the remaining funds to the founders.

Termination of a mining farm means termination of its activity and termination of its legal existence. This process requires the fulfillment of all obligations of a legal entity and the distribution of its property. Therefore, mining farms must constantly monitor their activities and comply with the law. The termination process can be complicated and time-consuming, so mining farms should take all necessary precautions to avoid this process.

In the process of liquidation of mining farms, it is important to satisfy the demands of creditors. This process is carried out in order to fulfill all the obligations of the legal entity and ensure the protection of the rights of creditors. Therefore, mining farms must take all necessary measures during the liquidation process and ensure that sufficient funds are available to satisfy the demands of creditors.

Mining farms are commercial entities as legal entities and may also become insolvent. Insolvency, i.e. bankruptcy, occurs when a mining farm cannot fully satisfy its monetary obligations to creditors or fulfill its obligations regarding taxes and fees. In this case, the mining farm may be declared insolvent by the court.

A number of grounds must exist for a mining farm to be declared insolvent. These bases are usually related to the financial condition of the farm, its debts and their maturity, as well as the income and expenses of the farm. If a farm does not have enough funds to pay its debts or is unable to meet its obligations regarding taxes and fees, these are the main signs of insolvency.

In the event of insolvency, the mining farm may go to court or be sued by creditors. The court will review the situation and if the mining farm is found to be insolvent, it will be officially declared insolvent. The procedure and consequences of this process are clearly defined by law.

The consequences of failure to pay can be severe for mining farm. A mining farm declared insolvent by a court may not be able to continue its activities or its assets may be sold. This process is carried out to satisfy the demands of creditors. There may also be certain legal and financial consequences for the management and shareholders of the mining farm.

The insolvency of a mining farm means that it has lost its financial stability and is unable to meet its obligations. This situation limits the farm's ability to continue its operations and forces it to sell its assets to satisfy its obligations to its creditors. Therefore, mining farms should constantly monitor their financial situation and take necessary measures to avoid insolvency.

References:

1. O'zbekiston Respublikasi Konstitutsiyasi. Qonunchilik ma'lumotlari milliy bazasi, 01.05.2023-y., 03/23/837/0241-son. <https://lex.uz/docs/-6445145>
2. Fuqarolik huquqi: Darslik. I qism. Mualliflar jamoasi. O'zbekiston Respublikasida xizmat ko'rsatgan yurist, prof. O.Oqyulovning umumiy tahriri ostida. T.: TDYU nashriyoti, 2017. - 311 bet.
3. O'zbekiston Respublikasining Fuqarolik kodeksi. O'zbekiston Respublikasi Oliy Majlisining Axborotnomasi 28.02.2024-y., 03/24/914/0161-son. <https://lex.uz/docs/-111189>
4. O'zbekiston Respublikasining Fuqarolik kodeksi. O'zbekiston Respublikasi Oliy Majlisining Axborotnomasi 28.02.2024-y., 03/24/914/0161-son. <https://lex.uz/docs/-111189>
5. Litsenziyalash, ruxsat berish va xabardor qilish tartib-taomillari to'g'risida O'zbekiston Respublikasining Qonuni. Qonunchilik ma'lumotlari milliy bazasi, 26.02.2024-y., 03/24/912/0147-son <https://lex.uz/uz/docs/-5511879>
6. O'zbekiston Respublikasida Raqamli iqtisodiyotni va kripto-aktivlar aylanmasi sohasini rivojlantirish chora-tadbirlari to'g'risida O'zbekiston Respublikasi Prezidentining Qarori. Qonunchilik ma'lumotlari milliy

bazasi, 24.07.2021-y., 06/21/6268/0700-son; 28.04.2022-y., 06/22/121/0354-son <https://lex.uz/uz/docs/-3806053>

7. Mayning faoliyatini amalga oshirish uchun ruxsatnoma berish tartibi to'g'risidagi nizomni tasdiqlash to'g'risida. Qonunchilik ma'lumotlari milliy bazasi, 03.10.2023-y., 10/23/3461/0743-son <https://lex.uz/uz/docs/-6623726>

8. Mayning-pul faoliyatini amalga oshirish qoidalarini tasdiqlash to'g'risida O'zbekiston Respublikasi Istiqbolli loyihalar milliy agentligi direktorining buyrug'i. Qonunchilik ma'lumotlari milliy bazasi, 20.03.2024-y., 10/24/3507/0237-son <https://lex.uz/uz/docs/-6845472>

9. Davlat xizmatlari yagona reyestrini tasdiqlash to'g'risida O'zbekiston Respublikasi adliya vazirining buyrug'i. Qonunchilik ma'lumotlari milliy bazasi, 30.10.2023-y., 10/23/3467/0806-son; 26.04.2024-y., 10/24/3467-1/0301-son <https://lex.uz/uz/docs/-6646956>

10. Kripto-aktivlar aylanmasi sohasida tartibga solish maxsus rejimida ("Tartibga solish qumdoni" maxsus rejimi) ishtirokchilarni ro'yxatdan o'tkazish tartibi to'g'risidagi nizomni tasdiqlash haqida O'zbekiston Respublikasi Istiqbolli loyihalar milliy agentligi direktorining buyrug'i. Qonunchilik ma'lumotlari milliy bazasi, 30.12.2022-y., 10/22/3409/1138-son. <https://lex.uz/uz/docs/-6332985>

Rezyume: Maqolada mayning fermalari huquq va muomala layoqati tahlil qilinadi. Mayning fermalariga fuqarolik huquqiy nuqtayi nazardan baho beriladi. Tadqiqot natijalari mayning fermalaring huquqiy maqomini tushunishga yordam beradi va bu sohaga oid huquqiy masalalarda samarali yondashuvlarni shakllantirishga asos bo'ladi.

Резюме: В статье анализируются права и дееспособность майнинговых ферм. Майнинговые фермы оцениваются с гражданско-правовой точки зрения. Результаты исследования помогут понять правовой статус шахтных ферм и станут основой для формирования эффективных подходов к правовым вопросам, связанным с этой сферой.

Kalit so'zlari: mayning fermalari, kriptoalyuta, yuridik shaxs, to'lovga qobiliyatsizlik, rezident, shartnomalar, blokcheyn texnologiyasi, lizing.

Ключевые слова: майнинг-фермы, криптовалюта, юридическое лицо, неплатежеспособность, резидент, контракты, технология блокчейн, лизинг.

УДК 343.9.

SOME FOREIGN COUNTRIES' CRIMINAL LEGISLATION ON LIABILITY FOR ENVIRONMENTAL CRIMES

Utemuratova S.Sh.

Karakalpak State University named after Berdak

Summary: *This article explores the issues of liability for environmental crimes based on the foreign experience (CIS countries).*

Keywords: *Ecology, environment, foreign experience, environmental legislation, improvement, liability.*

Often, environmental damage threatens human life and health. Environmental damage to specific components of the environment (atmospheric air, marine waters) can impact the environmental interests of the entire international community (e.g., accidents at the Chernobyl and Fukushima nuclear power plants, and the Deepwater Horizon oil platform near the USA). That is why attacks on environmental safety are recognized as punishable under the legislation of all developed countries in the world. However, approaches to the legal prevention of environmental delicts are not universal, depending on different legal traditions of the states and varying approaches to determining the social danger of such offenses. As correctly pointed out by S. A. Bogolyubov [1], studying foreign experience should provide information about general and specific issues. This is particularly important in the context of this work, as one of the dissertation's objectives is to identify optimal models of environmental regulations that can be used in liability for environmental crimes in the country.

The comparative law method is an integral part of modern legal research. It helps to understand the characteristics of legal institutions in foreign countries' legislation and critically evaluate the specific provisions of national laws based on comparative analysis. Let's start the comparative analysis with the criminal legislation of nearby foreign countries – the former Soviet republics, now members of the CIS.

The criminal-legal norms of the CIS member states that establish criminal liability for environmental crimes are separated into specific chapters or sections, but their content varies. For example, such a specific chapter (26) in the Criminal Code of the Republic of Belarus [2] is titled "Crimes against environmental safety, the environment, and natural resource use" and includes 21 articles. According to the Criminal Code of the Republic of Belarus, environmental crimes include, among others: intentional destruction or damage to valuable natural complexes or objects in specially protected natural areas, violation of the regime of protection and use of specially protected natural areas, violation of environmental safety requirements, knowingly accepting objects that do not meet environmental safety requirements for operation during construction, failure to take measures to eliminate the consequences of violations of environmental protection and natural resource use legislation, hiding or deliberately falsifying information about environmental pollution, causing damage to the land, destroying or damaging peatlands, violating the rules of protection of mineral resources, polluting or clogging water, polluting the atmosphere, polluting forests, tree and shrub environments, etc. The most severe penalty is provided for crimes such as violating environmental safety requirements, commissioning environmentally hazardous facilities, failing to take measures to eliminate the consequences of violations of environmental protection legislation, hiding or deliberately falsifying information about environmental pollution (imprisonment from two to seven years).

The criminal codes of republics such as Azerbaijan [3], Kyrgyzstan [4], and Moldova [5] have chapters dedicated to liability for environmental crimes, similar to the Criminal Code of the Republic of Uzbekistan – “Crimes in the Field of Ecology,” Chapter 26 (Section 4), “Crimes in the Field of Environmental Protection and Natural Resource Use.”

In the 2014 Criminal Code of Kazakhstan [6], norms regarding environmental crimes and offenses are found in Chapter 13 of the Special Part of the Criminal Code under the title “Environmental Criminal Offenses.”

Sanctions for environmental crimes provided in Kazakhstan's criminal legislation generally correspond to the sanctions for environmental crimes in the Criminal Code of the Republic of Uzbekistan. This can be explained by the fact that the system of compositions of environmental crimes in the Criminal Code of Kazakhstan is almost entirely consistent with the system of compositions of environmental crimes in the Criminal

Code of the Republic of Uzbekistan.

In the Criminal Code of Ukraine [7], the analyzed crimes are provided in the chapter titled “Crimes against the Environment.”

In Russia, criminal liability is detailed in Chapter 26 of the Criminal Code of the Russian Federation, “Crimes in the Field of Ecology.” This chapter includes 18 crime compositions [8].

A closer look reveals that, according to the criminal legislation of the CIS member states mentioned above, environmental crimes represent a similar set of criminal acts. However, there are certain differences in approaches to eliminating the damage caused by environmental crimes. For example, committing environmental crimes can lead to compensation for moral damage. For instance, Article 14 of the Law “On Environmental Protection” of the Republic of Belarus stipulates that moral damage caused by a violation of a citizen's right to a favorable environment must be compensated “in accordance with the legislation of the Republic of Belarus.” Similarly, Article 321, paragraph 6 of the Environmental Code of the Republic of Kazakhstan states that moral damage caused by a violation of Kazakhstan's environmental legislation must be compensated “in accordance with the civil legislation of the Republic of Kazakhstan.”

Based on the above, it is proposed to amend Article 49 of the Law “On Environmental Protection” of the Republic of Uzbekistan as follows:

Article 49. Obligation to compensate for damage caused by violations of environmental legislation

Enterprises, institutions, organizations, and individuals that have caused damage to the natural environment, including lost profits, must compensate for it in accordance with the legislation.

Persons accused of violating environmental requirements and held administratively or criminally liable must eliminate the damage caused to the natural environment.

Overall, the legal analysis of crimes against the environment and their treatment in the legislation of near and far foreign countries shows significant differences in our country's criminal legislation in this area. However, utilizing the experience of foreign countries could positively impact the level of criminal-legal regulation of liability for these actions in the Republic of Uzbekistan. It would be appropriate to use the main positive aspects of the criminal legislation of the foreign countries mentioned above when drafting the norms of our country's criminal legislation.

References:

1. Боголюбов С.А. Экологическое право: Учебник. М.: Инфра-М, 1998. С. 13
2. Уголовный кодекс Республики Беларусь 9 июля 1999 г. № 275-з
Источник: URL:<https://pravo.by/document/?guid=3871&p0=xk9900275> – Национальный правовой Интернет-портал Республики Беларусь.

3. Уголовный кодекс Азербайджанской Республики. (Утвержден Законом Азербайджанской Республики от 30 декабря 1999 года № 787-ІК) (с изменениями и дополнениями по состоянию на 22.12.2023 г.) [Электронный ресурс]//URL:https://continent-online.com/Document/?doc_id=30420353

4. Уголовный кодекс Кыргызской Республики от 28 октября 2021 года № 127(Введен в действие Законом Кыргызской Республики от 28 октября 2021 года № 126) [Электронный ресурс]//URL:<https://cbd.minjust.gov.kg/112309/edition/3548/ru>

5. Уголовный кодекс Республики Молдова от 18 апреля 2002 года № 985-XV (с изменениями и дополнениями по состоянию на 24.11.2023 г.) URL:https://continent-online.com/Document/?doc_id=30394923

6. Уголовный кодекс Республики Казахстан от 3 июля 2014г. №226-V [Электронный ресурс]//Ведомости Парламента Республики Казахстан. 2014. №13. Ст.83.

7. Уголовный кодекс Украины от 5 апреля 2001 года № 2341-III (с изменениями и дополнениями по состоянию на 28.03.2024 г.) URL:https://online.zakon.kz/Document/?doc_id=30418109.

8. "Уголовный кодекс Российской Федерации" от 13.06.1996 N 63-ФЗ (ред. от 06.04.2024) URL:https://www.consultant.ru/document/cons_doc_LAW_10699.

Rezyume: Ushbu maqolada ekologiya sohasidagi jinoyatlar uchun javobgarlik masalasininig chet el tajribasi (MDH davlatlari) tadqiq qilinadi.

Резюме: В данной статье рассматривается зарубежный опыт (стран СНГ) вопроса ответственности за преступления в сфере экологии.

Kalit soʻzlar: Ekologiya, atrof-muhit, xorijiy tajriba, ekologiya qonunchiligi, takomillashtirish, javobgarlik.

Ключевые слова: Экология, окружающая среда, зарубежный опыт, экологическое законодательство, благоустройство, ответственность.