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1-SECTION

XORAZM VILOYATI POMIDOR AGROTSENOZIDA KO‘P UCHROVCHI ENTOMOFAUNA VAKILLARI

Allabergenova Shaxlo Allaberganovna

Al-Beruniy nomidagi Urganch davlat universiteti tayanch doktoranti

Annotatsiya*: Ushbu maqolada Xorazm viloyati sharoitida pomidor agrotsenozlarida uchraydigan entomofauna vakillarining turlari, ularning biologik xususiyatlari, fenologik davriyligi va o‘simlik rivojlanish bosqichlariga ta’siri ilmiy jihatdan tahlil qilingan. Tadqiqotda entomofaunaning ekologik ahamiyati, foydali va zararli hasharotlar o‘rtasidagi biologik muvozanat, shuningdek, entomokompleks tarkibining mavsumiy dinamikasi yoritilgan. Natijalar pomidor ekinlarida barqaror agroekotizimni shakllantirish, biologik himoya usullarini takomillashtirish hamda zararli hasharotlarni ekologik nazorat ostida ushlab turish uchun ilmiy asos bo‘lib xizmat qiladi.*

Kalit so‘zlar: *entomofauna, pomidor agrotsenozi, Xorazm viloyati, biologik muvozanat, foydali hasharotlar, zararli hasharotlar, ekologik nazorat, agroekotizim.*

Abstract: *This article scientifically analyzes the species of entomofauna representatives found in tomato agrocenoses in the conditions of the Khorezm region, their biological characteristics, phenological periodicity and impact on plant development stages. The study highlights the ecological significance of entomofauna, the biological balance between beneficial and harmful insects, as well as the seasonal dynamics of the composition of the entomocomplex. The results serve as a scientific basis for the formation of a stable agroecosystem in tomato crops, the improvement of biological protection methods, and the maintenance of harmful insects under ecological control.*

Keywords: *entomofauna, tomato agrocenosis, Khorezm region, biological balance, beneficial insects, harmful insects, ecological control, agroecosystem.*

Xorazm viloyati O‘zbekistonning eng muhim agrar hududlaridan biri bo‘lib, bu yerda pomidor ekinlari keng maydonlarda yetishtiriladi. Viloyatning iqlim sharoiti — yozda yuqori harorat, past namlik va uzoq quyoshli kunlar — pomidor o‘sishi uchun qulay bo‘lishi bilan birga, hasharotlar, ayniqsa entomofauna vakillarining faol rivojlanishi uchun ham mos sharoit yaratadi. Pomidor agrotsenozlarida entomofaunaning turlari, soni va ularning ekologik

rollarini o‘rganish nafaqat agronomik, balki ekologik jihatdan ham muhim ahamiyat kasb etadi. Chunki entomofauna o‘simliklarning changlanishida, zararkunandalar populyatsiyasini tabiiy nazoratda ushlab turishda, hamda agroekotizimning tabiiy barqarorligini saqlashda hal qiluvchi rol o‘ynaydi.

Xorazm viloyatining pomidor agrotsenozlarida uchraydigan entomofauna vakillari turli trofik guruhlarga mansub bo‘lib, ular orasida zararli, foydali va neytral turlar mavjud. Zararli hasharotlar orasida eng ko‘p uchraydiganlari pomidor shiralari (*Aphis gossypii*), o‘simlik bitlari (*Myzus persicae*), pomidor mo‘ylovkasi (*Tuta absoluta*), oqkanotli hasharot (*Trialeurodes vaporariorum*), tripslar (*Thrips tabaci*), va o‘simlik qurtlari (*Helicoverpa armigera*) hisoblanadi. Ushbu turlar o‘simliklarning barglari, gullari va mevalariga jiddiy zarar yetkazib, hosildorlikni sezilarli kamaytiradi. Ayniqsa *Tuta absoluta* turlari pomidor agrotsenozida xavfli zararkunanda sifatida tanilgan bo‘lib, u barglar ichiga tuxum qo‘yadi, lichinkalari esa barg to‘qimalarini yemiradi. Natijada fotosintez jarayoni izdan chiqadi, o‘simlikning umumiy fiziologik holati yomonlashadi.

Biroq entomofaunaning barcha vakillari zararli emas. Pomidor agrotsenozida foydali hasharotlarning mavjudligi tabiiy biologik nazorat mexanizmini shakllantiradi. Masalan, *Coccinellidae* oilasiga mansub qo‘ng‘izlar (xususan, *Coccinella septempunctata*), *Chrysopidae* oilasiga mansub oltin ko‘zchalar, hamda parazit ari turlari (*Encarsia formosa*, *Trichogramma evanescens*) shira, oqkanotli va tripslarning tabiiy dushmanlari hisoblanadi. Ular agrotsenozda biologik muvozanatni ta’minlab, kimyoviy pestitsidlar qo‘llash zaruratini kamaytiradi. Ayniqsa, foydali entomofauna sonining ko‘payishi agroekotizimda barqarorlikni ta’minlaydi va ekologik toza mahsulot yetishtirish imkonini beradi.

Pomidor agrotsenozidagi entomofauna tarkibi mavsumiy o‘zgarishlarga ham bog‘liq. Bahor oylarida asosan changlatuvchi va o‘simlik bitlari ustunlik qilsa, yoz o‘rtalariga kelib, yuqori harorat va past namlik sharoitida tripslar va

oqkanotli hasharotlar faol bo‘lib qoladi. Kuz faslida esa *Tuta absoluta* va *Helicoverpa armigera* populyatsiyasi keskin oshadi. Bu davrda pomidorning vegetativ qismlari to‘liq shakllanib bo‘lganligi sababli, zararkunandalar aynan meva bosqichiga jiddiy ta’sir ko‘rsatadi. Tadqiqotlar shuni ko‘rsatadiki, Xorazm viloyati sharoitida pomidor agrotsenozlarida entomofaunaning umumiy soni vegetatsiya davomida bosqichma-bosqich oshib, iyul–avgust oylarida eng yuqori nuqtaga yetadi.

Entomofauna vakillarining biologik faoliyati o‘simlik rivojlanish bosqichlariga ham bevosita ta’sir ko‘rsatadi. Pomidorning boshlang‘ich o‘sish bosqichida (ko‘chat paytida) asosan shira va tripslar faol bo‘ladi, ular o‘simlikning yosh barglarini so‘rib, o‘sish sur’atini sekinlashtiradi. Gullash davrida esa changlatuvchi hasharotlar, masalan, asalarilar va yovvoyi arilar faol bo‘lib, hosil bog‘lanishini ta’minlaydi. Meva hosil bo‘lish davrida esa pomidor mo‘ylovkasi va oqkanotli hasharotlar soni ortadi, bu esa o‘simlikning meva sifati va miqdoriga salbiy ta’sir qiladi. Shunday qilib, entomofaunaning har bir trofik guruhi pomidor agrotsenozida o‘ziga xos ekologik rol o‘ynaydi.

Ekologik muvozanatni saqlash maqsadida, Xorazm viloyatida ko‘plab fermer xo‘jaliklari kimyoviy kurash o‘rniga biologik nazorat usullariga o‘tmoqda. Bu usullarga foydali entomofauna vakillarini sun’iy ko‘paytirish va agrotsenozga kiritish, zararkunandalarning tabiiy dushmanlarini saqlab qolish, hamda agrotexnik tadbirlarni to‘g‘ri olib borish kiradi. Misol uchun, foydali hasharotlarni jalb qilish uchun agrotsenoz atrofida nektarli o‘simliklar ekilishi, pestitsidlar faqat zarur holatlarda va selektiv shaklda qo‘llanilishi lozim. Shuningdek, *Trichogramma* turlarining tuxum parazitligi tufayli pomidor mo‘ylovkasining tarqalish darajasi 35–45% gacha kamayishi kuzatilgan.

Tadqiqotlar shuni ko‘rsatmoqdaki, Xorazm viloyati pomidor agrotsenozida entomofauna turlari tarkibi yuqori darajada diversifikatsiyalashgan bo‘lib, ularning umumiy soni 40 dan ortiq turga yetadi. Shundan 25% foydali, 60% zararli va 15% neytral turlarni tashkil etadi.

Foydali turlar sonining nisbatan kamligi antropogen ta’sir, pestitsidlardan haddan tashqari foydalanish va tabiiy yashash joylarining qisqarishi bilan bog‘liq. Shu sababli, biologik himoya konsepsiyasini rivojlantirish, foydali entomofauna populyatsiyasini tiklash hamda ekotizimning tabiiy muvozanatini saqlash dolzarb masala hisoblanadi.

Pomidor agrotsenozidagi entomofauna o‘rganish nafaqat zararli turlarni aniqlash, balki ularning tabiiy dushmanlarini aniqlash, biologik kurash strategiyalarini ishlab chiqish va ekologik xavfsizlikni ta’minlash nuqtai nazaridan ham muhimdir. Har bir trofik daraja o‘rtasida o‘zaro bog‘liqlik mavjudligi sababli, entomofauna tarkibidagi o‘zgarishlar pomidor agrotsenozining umumiy barqarorligiga bevosita ta’sir ko‘rsatadi. Shu boisdan, Xorazm viloyati sharoitida entomofaunaning ekologik va bioindikativ ahamiyatini o‘rganish pomidor yetishtirishda samaradorlikni oshirishga, pestitsidlar miqdorini kamaytirishga va ekologik toza mahsulot olishga xizmat qiladi.

Yakuniy xulosa sifatida ta’kidlash joizki, Xorazm viloyatining pomidor agrotsenozlari murakkab entomokompleksga ega bo‘lib, ularning o‘zaro ekologik aloqalari tabiiy muvozanatni belgilovchi asosiy omillardan biridir. Entomofaunaning turli vakillarini kompleks o‘rganish orqali agroekotizimni barqaror boshqarish imkoniyati yaratiladi. Shuningdek, ekologik barqaror agrotexnologiyalarni joriy etish, foydali hasharotlarni muhofaza qilish va ularning sonini ko‘paytirish orqali Xorazm viloyatida pomidor yetishtirishda yuqori samaradorlikka erishish mumkin.

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BO‘LAKLI UZLUKLI O‘ZGARMAS KOEFFISIENTLI KVAZICHIZIQLI TEMPERATURAVIY JARAYON UCHUN DIFFERENSIAL MASALANING QO‘YILISHI

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Annotatsiya. *Fizika-matematika masalalari hayotimizdagi ko‘plab masalalarni hal qiladi. Ushbu masalalar matematik hisob-kitoblar orqali yechiladi. Bunga doir matematik-fizika fani mavjud bo‘lib, undagi masalalarni approksimatsiyalash orqali ayirmali sxemalar ko‘rinishiga keltirib, sonli (taqribiy) hisob-kitoblarni amalga oshirish mumkin. Asosan sonli (taqribiy) hisob-kitoblarni yechishlar ko‘pincha juda murakkab funksiyalarni bajarishda, hisoblashda qo‘llaniladi. Masalan, bo‘lakli uzlukli o‘zgarmas va chiziqli bo‘lmagan koeffisientli kvazichiziqli temperaturaviy jarayonlarni sonli modellashtirish masalalarini sonli yechish algoritmlarini ishlab chiqish mumkin.*

Kalit so‘zlar*. arifmetik amallar soni, approksimatsiya, to‘r qadamlari, issiqlik o‘tkazuvchanlik koeffitsienti, kvazichiziqli tenglama, oshkormas sxema, o‘zgarmas koeffitsientli, progonka metodi, boshlang‘ich va chegaraviy shartlar.* ***Abstract.*** *Physics and mathematical problems play an important role in solving a wide range of practical problems encountered in everyday life. Such problems are generally solved using mathematical calculations and computational methods. Mathematical physics provides an appropriate framework for studying these problems. By approximating mathematical models and transforming them into finite-difference schemes, numerical (approximate) solutions can be obtained. Numerical methods are particularly useful for solving complex mathematical problems that arise in the analysis and simulation of physical processes. For example, numerical solution algorithms can be developed for the numerical modeling of quasi-linear thermal processes with piecewise-continuous, constant, and nonlinear coefficients. Such approaches make it possible to obtain approximate solutions to heat-transfer problems under various initial and boundary conditions.*

Keywords: *number of arithmetic operations, approximation, mesh steps, thermal conductivity coefficient, quasi-linear equation, implicit scheme, constant coefficient, tridiagonal matrix algorithm (Thomas algorithm), initial and boundary conditions.*

Kirish. Dunyoda amaliy tadbiqqa ega bo‘lgan ko‘plab fizika, tibbiyot masalalarini matematik modellashtirish, matematik-fizika masalalaridagi

muammolarni tadqiq qilish, ularni ayirmali sxemalarda qo‘llash, sonli yechimini topish hamda amaliy natijalarga ega bo‘lish, ularni amaliyotda qo‘llashga doir ilmiy izlanishlar olib borilmoqda, vaqt o‘tishi, hayot o‘zgarishi bilan odamlarning iste’mol talabi va ehtiyojlari ham muttasil ortib bormoqda. Yerimiz, suvimiz esa ko‘paymasligi tabiiy, albatta. Bunday resurslar nafaqat bizda, butun dunyoda cheklangan. Binobarin, biz endi aqlimizni, intellektual salohiyatimizni, bilim va tajribamizni oshirishimiz, aynan ana shu omillarni iqtisodiy o‘sish nuqtalari va resurs manbalariga aylantirishimiz shart.

Bo‘lakli uzlukli o‘zgarmas koeffitsientli kvazichiziqli temperaturaviy jarayonlar uchun quyidagi boshlang‘ich-chegaraviy masala qo‘yilgan bo‘lsin:

$$\frac{\partial u}{\partial t} = \frac{\partial}{\partial x}\ k(x)\frac{\partial u}{\partial x}\ ,\ a < x < b,\ 0 \quad t \quad T, \tag{1.1}$$

$$\begin{aligned} &u(a,t) = 0, \\ &u(b,t) = 0, \end{aligned} \tag{1.2}$$

$$u(x,0) = u_0(x). \tag{1.3}$$

Kelgusida spektral-to‘r metodini qo‘llashda differentsial masala (1.1) ning quyidagi ko‘rinishda yozilishidan foydalaniladi:

$$\frac{\partial u}{\partial t} = \frac{\partial k(x)}{\partial x}\quad \frac{\partial u}{\partial x}\ + k(x)\frac{\partial^2 u}{\partial x^2}$$

[a,b] kesmaga to‘r kiritamiz: $\varpi_h = \ x_i = ih, i = 0,1,2,...,N,\ h = \dfrac{b-a}{N}$ hamda tenglama koeffitsienti *k(x)* –qaralayotgan to‘r bo‘laklarida turli o‘zgarmas k_i qiymatlarni qabul qilsin va bunda

$$k(x) = \begin{array}{l} k_1, x_0 < x < x_1, \\ k_2, x_1 < x < x_2, \\ k_3, x_2 < x < x_3, \\ \ldots\ldots\ldots\ldots\ldots \\ k_M, x_{M-1} < x < x_M, \end{array}$$

qiymatlarga ega bo‘lsin.

Ushbu paragrafda boshlang‘ich-chegaraviy masala (1.1)-(1.3) ni chekli ayirmalar usuli bilan sonli yechish qaraladi.

Qaralayotgan

$$D = \{a \quad x \quad b, 0 \quad t \quad T\}$$

sohada ayirmali to‘r quyidagicha kiritiladi:

$$\overline{\omega}_{h\tau} = (x_i, t_j), \begin{matrix} x_i = ih, i = 0,1,2,..., N, \quad h = (b-a)/N, \\ t_j = j\tau, j = 0,1,2,..., M, \tau = T/M \end{matrix} .$$

Masala (1.1)-(1.3) sof oshkormas ayirmali sxema yordamida approksimatsiya qilinadi. Natijada differensial masala (1.1)-(1.3) ga mos quyidagi ko‘rinishdagi ayirmali masala qo‘yiladi:

$$\frac{y_i^{j+1} - y_i^j}{\tau} = \frac{1}{h}\left(\frac{k_{l+1} + k_i}{2}\frac{y_{i+1}^{j+1} - y_i^{j+1}}{h} - \frac{k_i + k_{i-1}}{2}\frac{y_i^{j+1} - y_{i-1}^{j+1}}{h}\right), \begin{matrix} i = 1,2,...N-1, \\ j = 0,1,...M-1, \end{matrix} \quad (1.4)$$

$$y_0^{j+1} = 0,\ y_N^{j+1} = 0,\ j = 0,1,..M-1, \quad (1.5)$$

$$y_i^0 = u_0(x_i), i = 0,1,...N. \quad (1.6)$$

Ayirmali masala (1.4)-(1.6) ni yechishda progonka usulini qo‘llash uchun tenglama (1.4) quyidagi ko‘rinishga keltiriladi:

$$Ay_{i-1}^{j+1} - Cy_i^{j+1} + By_{i+1}^{j+1} = -F_i, \quad (1.7)$$

bunda

$$A = \frac{(k_i + k_{i-1})\tau}{2h^2},\ B = \frac{(k_{i+1} + k_i)\tau}{2h^2},\ C = 1 + \frac{((k_{i+1} + k_i) + (k_i + k_{i-1}))\tau}{2h^2},\ F_i = y_i^j;$$

ayirmali tenglama (1.7) ni, shartlar (1.5)-(1.6) bilan progonka usulini qo‘llash orqali sonli yechiladi.

Progonka metodi algoritmi quyidagi ko‘rinishga ega bo‘ladi:

$$\begin{matrix} \overset{(\rightarrow)}{\alpha}_{i+1} = \frac{B}{C - A\alpha_i}, \\ \overset{(\rightarrow)}{\beta}_{i+1} = \frac{A\beta_i + F_i^j}{C - A\alpha_i}, i = 1,2,..., N-1, \end{matrix} \quad (1.8)$$

$$\begin{matrix} y_N^{j+1} = 0, \\ y_i^{j+1} = \alpha_{i+1} y_{i+1}^{j+1} + \beta_{i+1}, i = N-1,...1,0, j = 0,1,..., M-1, \end{matrix} \quad (1.9)$$

Progonka koeffitsientlari uchun boshlang‘ich qiymatlarni topish ifoda (1.8) ga $i = 0$ ni qo‘yib quyidagi tenglama hosil qilinadi:

$$y_0^{j+1} = \alpha_1 y_1^{j+1} + \beta_1. \qquad (1.10)$$

Tenglama (1.10) ni chegaraviy shart (1.5) bilan taqqoslab, α_1 va β_1 uchun quyidagi ifodalar hosil qilinadi:

$$y_0^{j+1} = \alpha_1 y_1^{j+1} + \beta_1 = 0,\ \alpha_1 = 0,\ \beta_1 = 0. \qquad (1.11)$$

ifoda (1.8) progonka usulining to‘g‘ri yo‘li, ifoda (1.9) esa progonka usulining teskari yo‘lidan iborat.

Hisoblash modeli

$$k(x) = \begin{matrix} 1, & 0 & x < 0.5, \\ 5, & 0.5 & x & 1, \end{matrix}$$

boshlang‘ich shart: u(x,0)=sin(πx),

chegaraviy shartlar: u(0,t)=u(1,t)=0.

Bo‘laklar tutashgan x=0.5 nuqtada: u(0.5−0,t)=u(0.5+0,t),

va issiqlik oqimining uzluksizligi: $k_1\, u_x\,(0.5-,t) = k_2\, u_x\,(0.5+,t)$ hisobga olingan.



Spektral-to‘r algoritmi

1. [a, ξ] va [ξ, b] sohalar alohida olinadi.
2. Har bir bo‘lakda Chebyshev tugunlari hosil qilinadi.

3. Chebyshev differensial matritsasi D tuziladi.
4. Ikkinchi hosila

$$D^{(2)}=D\cdot D$$

orqali aniqlanadi.

5. Har bir bo‘lak uchun

$$k_1 D_1^{(2)}, \quad k_2 D_2^{(2)}$$

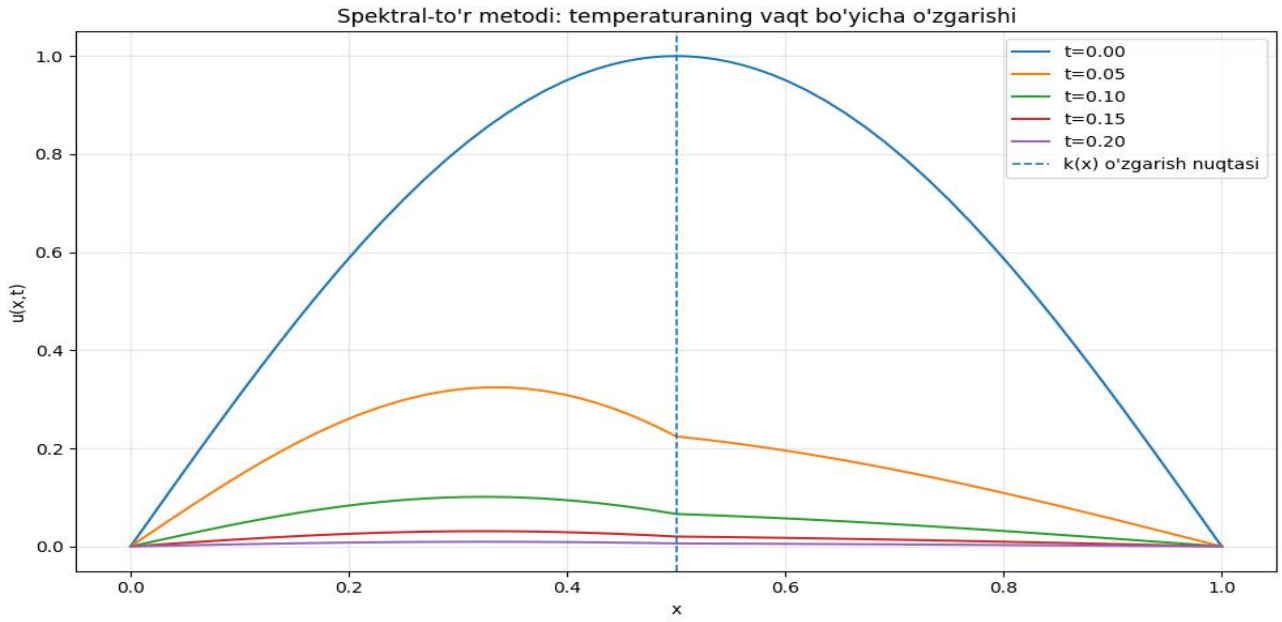
operatorlari hosil qilinadi.

6. Vaqt bo‘yicha sof oshkormas sxema:

$$\frac{U^{\underline{n+1}} - U^{\underline{n}}}{t} = kD^{\underline{(2)}} U^{n+1};$$

ishlatiladi.

7. x=ξ da temperatura va issiqlik oqimi uzluksizligi ta'minlanadi.
8. Har bir vaqt qatlamida hosil bo‘lgan algebraik sistema yechiladi.
9. Natija 2D va 3D grafiklarda tasvirlanadi.



Xulosalar

Matematik-fizika masalalari, hamda kvazichiziqli temperaturaviy jarayonlarni sonli modellashtirish masalalarini ayirmali sxema va spektral-to‘r metodlarini qo‘llagan holda o‘rganishga bag‘ishlangan.

Bo‘lakli uzlukli o‘zgarmas koeffisientli kvazichiziqli temperaturaviy jarayon uchun differensial masalaning qo‘yilishi keltirilgan.

Bo‘lakli uzlukli o‘zgarmas koeffisientli issiqlik o‘tkazuvchanlik masalasini ayirmali sxema metodi bilan sonli modellashtirish masalalari qaralди.

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AMUDARYO DELTASINING TABIIY SHAROITLARI VA RESURSLARINI KOMPLEKS BAHOLASHNING EKOLOGIK-GEOGRAFIK ASOSLARI

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Annotatsiya. *Amudaryo deltasida ekologik beqaror vaziyatni yaxshilash ekologik-geografik asoslarga bog‘liqligini hisobga olgan holda, deltaning cho‘llanayotgan qismi tabiiy sharoitlari va resurslarini kompleks baholash mavzusi o‘rganildi. Tadqiqotning maqsadi — geotizimlar va ekotizimlarning holati, dinamikasi hamda o‘zgarish tendensiyalarini hisobga olgan holda tabaqalashtirilgan kompleks chora-tadbirlarni ilmiy asoslab joriy etishdir.*

Kalit so‘zlar: *delta, geotizimlar, ekotizimlar, landshaft baholashi, majmuaviylik tamoyili, tarixiy-genetik tamoyil, landshaft barqarorligi, Amudaryo deltasi, differensial yondashuv, ekologik-geografik asoslar.*

Abstract. *Taking into account that the improvement of the ecologically unstable situation in the Amu Darya delta depends on ecological-geographical foundations, the topic of a comprehensive assessment of the natural conditions and resources of the desertifying part of the delta was investigated. The aim of the study is to scientifically substantiate and implement differentiated integrated measures, taking into account the state, dynamics, and change tendencies of geosystems and ecosystems.*

Keywords: *delta, geosystems, ecosystems, landscape assessment, principle of complexity, historical-genetic principle, landscape stability, Amu Darya delta, differentiated approach, ecological-geographical foundations.*

Kirish. Amudaryo deltasida vujudga kelgan ekologik beqaror vaziyatning yaxshilanishi ko‘p jihatdan ekologik-geografik asoslarga bog‘liq. Bu asoslar meliorativ yo‘nalishdagi turli loyihalarning ilmiy asoslanishini, ya’ni hududning ekologik-geografik sharoitlari xususiyatini majburiy tartibda hisobga olishni nazarda tutadi. Geotizimlar va ekotizimlarning aniq holati, dinamikasi va o‘zgarish tendensiyasiga qarab, u yoki bu tadbirlarni asoslash mumkin bo‘ladi. Ekologik va geografik asoslar har qanday hududni qishloq

xo‘jaligining turli sohalarida, gidrotexnika inshootlari, dam olish maskanlari, fuqarolik va sanoat qurilishida foydalanish imkoniyatini belgilaydi. Binobarin, ushbu asosning ustuvorligi mintaqada kompleks chora-tadbirlarni amalga oshirish uchun juda muhimdir [1, 69].

Janubiy Orolbo‘yi mintaqasida ekologik muvozanatning buzilishi, deltaning cho‘llanishi hamda Amudaryo deltasi va qurigan dengiz tubining geotizimlarida kuzatilayotgan murakkab, xilma-xil va makonda o‘zgaruvchan jarayonlar milliy iqtisodiyotning turli tarmoqlarida tabiiy resurslardan samarali foydalanishni keskin qiyinlashtirmoqda. Geotizimlar va ekotizimlarning holati, dinamikasi va transformatsiya tendensiyalarini hisobga olmagan holda amalga oshiriladigan loyihalar meliorativ tadbirlarning samarasizligiga, resurslarning behuda sarflanishiga va tabiiy muhitning yanada degradatsiyasiga olib kelmoqda. Shu sababli tabiiy sharoit va resurslarni tabaqalashtirilgan holda kompleks baholash orqali differensial yondashuvni qo‘llash bugungi kunning dolzarb ilmiy-amaliy masalasiga aylangan [2, 59–60].

Tadqiqotning asosiy maqsadi — Janubiy Orolbo‘yi deltasining cho‘llanayotgan qismi tabiiy sharoitlari va resurslarini ekologik-geografik asoslarda kompleks baholash orqali tabaqalashtirilgan kompleks chora-tadbirlarni ilmiy asoslab joriy etishdir.

Asosiy qism. Amudaryo deltasining tabiiy sharoiti va resurslari murakkabligi, xilma-xilligi va makonda o‘zgaruvchanligi bilan ajralib turadi. Bu xususiyat hududning tabiiy resurslaridan foydalanishda differensial yondashuvni qo‘llashni, ya’ni sharoitlari xalq xo‘jaligining u yoki bu tarmoqlarida foydalanish uchun qulay bo‘lgan hududlarni aniqlashni taqozo etadi. Bu hududlarni resurslari bilan xalq xo‘jaligi oborotiga jalb qilish bir vaqtning o‘zida ularning boyliklaridan eng ko‘p darajada foydalanish va tabiiy muhitni optimallashtirish bo‘yicha tegishli chora-tadbirlarni qo‘llash imkonini beradi [2, 59–60].

Tabiiy sharoit va resurslarni baholash tamoyillari va usullari. Hududning tabiiy sharoitlari va resurslarini qishloq xo‘jaligining turli tarmoqlarida, gidrotexnik inshootlarda, fuqarolik va sanoat qurilishida foydalanish nuqtayi nazaridan umumiy baholash ularni baholanayotgan obyektlar talablariga javob beradigan “universal” tamoyilni qo‘llashni taqozo etadi. Bu borada butun hudud bo‘ylab landshaftlarning barcha xususiyatlarini hisobga oluvchi majmuaviylik tamoyili maqbulroq bo‘lib, u tabiiy chegaralarga ega har qanday hududni ma’lum darajadagi geotizim sifatida ko‘rib chiqadi. Ushbu geotizim esa tuzilish xarakteriga ko‘ra xo‘jalikning u yoki bu tarmog‘iga mos kelishi mumkin [2].

Tarixiy-genetik tamoyil geotizimlarning holati va dinamikasini tarixiy jihatdan, ya’ni landshaftlarning rivojlanish bosqichlarini tabiiy muhitning zamonaviy xususiyatlari va xossalarini shakllantirish davrida hisobga olishga asoslanadi [2]. Shu jihatdan, Amudaryo deltasi va dengiz tubining qurigan qismi geotizimlarining o‘zgarish bosqichlari ko‘p sonliligi bilan ajralib turadi va ularning asosiy qismida deyarli bir xil transformatsiya tendensiyasiga — landshaftlarning morfologik qismlarining ellyuvial o‘zgarishiga ega. Ushbu bosqichlarda (gidromorfdan avtomorfgacha) geotizimlar rivojlanishida turli dinamik jarayonlar sodir bo‘lgan: jadal tuz to‘planishi — tuz to‘planishining barqarorlashuvi — ba’zi joylarda yer yuzasining sho‘rsizlanishi. Oxirgi bosqichda esa eol jarayonlari kuchayadi [4].

Mintaqaning tabiiy sharoiti va resurslarini baholashning asosiy usullaridan biri hududlarning landshaft-strukturaviy tahlili hisoblanib, uning qo‘llanilishi xo‘jalik yuritish sharoitlari va resurslari turlicha bo‘lgan areallarni ajratish imkonini beradi. Ushbu usul hududning sug‘orishni tashkil etish, yaylov chorvachiligini rivojlantirish va boshqa sohalar uchun qulayligini, shuningdek ularning xo‘jalik yuritishning u yoki bu turlarini amalga oshirishga qay darajada mosligini aniqlashga asoslanadi [4].

Landshaft funksiyalari va potensiali. A.G. Isachenko [2] landshaftning ikkita funksiyasi borligini ta’kidlaydi. Birinchisi — ekologik, ya’ni hayotni ta’minlash funksiyasi bo‘lib, tirik tabiatning bir qismi sifatida birlamchi yashash vositalari — yorug‘lik, issiqlik, havo, suv va oziq-ovqatga bo‘lgan ehtiyojlarni qondiradi. Ikkinchisi — resurs yoki ishlab chiqarish funksiyasi bo‘lib, landshaftning ijtimoiy ishlab chiqarishni zarur energiya va xomashyo resurslari bilan ta’minlash qobiliyatida ifodalanadi. Bundan landshaft potensialining ikkita asosiy tarkibiy qismi — ekologik va resurs potensiali kelib chiqadi. Bundan tashqari, uchinchi tarkibiy qismni ajratish uchun ham asos mavjud: tashqi, shu jumladan texnogen ta’sirlarga qarshi turish, texnogen aralashmalardan o‘z-o‘zini tozalash va buzilishlardan keyin tiklanish qobiliyatida ifodalangan landshaft barqarorligi salohiyati.

Yuqoridagi tamoyil va usullarga asoslangan tabaqalashtirilgan kompleks baholash Orolbo‘yining buzilgan ekologik muvozanatini optimallashtirishga nisbatan eng maqbul yondashuv hisoblanadi. Chunki u yoki bu tarmoqdan foydalanish uchun hududlarni baholash jarayonida bir vaqtning o‘zida resurslar samaradorligini oshiradigan aniq chora-tadbirlar ko‘rsatiladi. Shu bois ishda asosiy e’tibor tegishli ekinlarni yetishtirish, hudud sharoitiga mos muhandislik inshootlarini qurish va boshqalar uchun qulay bo‘lgan alohida hududlar bo‘yicha maqsadli baholashga qaratilgan [3, 133].

Xulosa. Janubiy Orolbo‘yining tabiiy sharoitlari va resurslarini ekologik-geografik asoslarda kompleks baholash mintaqadagi ekologik beqaror vaziyatni yaxshilashning asosiy ilmiy sharti hisoblanadi. Tadqiqot geotizimlar dinamikasini, landshaft funksiyalari va potensialini hisobga olgan holda tabaqalashtirilgan chora-tadbirlarni joriy etish zarurligini isbotladi. Ushbu yondashuv hudud resurslaridan eng samarali foydalanish, tabiiy muhitni optimallashtirish va milliy iqtisodiyotni barqaror rivojlantirish imkoniyatini yaratadi. Kelgusidagi tadqiqotlar baholash usullarini yanada takomillashtirish va amaliyotga keng joriy etishga qaratilishi lozim.

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YURTIMIZDAGI XUSHBO'Y VA XUSHT'AM O'SIMLIKLARDAN FOYDALANISH YO'LLARI

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Annotatsiya. *Ushbu maqolada xushbo`y va xushtam o`simiklar biologik aktiv moddalarga boy bo`libgina qolmasdan, balki fitonsitlik hamda antibakteriositlik xususiyatlariga ham egadirlar. Shu sababli ulardan oziq – ovqat mahsulotlari ishlab chiqarishda hamda tayyorlashda foydalanganda, oziq – ovqat mahsulotlari sifatini, ta`mini, to`yimliligini, organizmda tez hazm bo`lishini ta`minlabgina qolmasdan, balki ularni tez aynib qolishdan saqlash va foydalanish masalalari hususida mulohaza yuritiladi.*

***Kalit so`zlari:*** *Fitonsit, antibakteriosit, alkaro`t, sherolg`in, arpabodiyon, efir moylari, limonli shuvoq, tog`rayxon, mavrak, bakteriosit, kompanentlar*

Annotation. *In this article, fragrant and fragrant plants are not only rich in biologically active substances, but also have phytoncide and antibacterial properties. Therefore, when using them in the production and preparation of food, it is important not only to ensure the quality, taste, nutrition, digestibility of food, but also to protect and use it from rapid spoilage*

Keywords: *Phytoncide, antibacteriocyte, alcohol, lily of the valley, dill, essential oils, lemon wormwood, thyme, mavrak, bacteriocyte, components .*

Аннотация. *В статье душистые и душистые растения не только богаты биологически активными веществами, но также обладают фитонцидными и антибактериальными свойствами. Поэтому при их использовании в производстве и приготовлении пищи внимание уделяется не только обеспечению качества, вкуса, питательности, быстрого переваривания пищи, но и вопросам их защиты и использования от быстрой порчи. . .*

Ключевые слова: *фитонцид, антибактериоцит, спирт, ландыш, укроп, эфирные масла, лимонная полынь, тимьян, маврак, бактериоцит, компоненты.*

O`zbekistonda xushbo`y va xusht`am o`simliklardan homashyo sifatida foydalanish, ularan efir moylarini ajratib olishni yo`lga qo`yish uchun barcha imkoniyatlar bor.Biz tabiiy holda o`sadigan efir moyli o`simliklardan to`g`ri va oqilona foydalanishni yo`lga qo`yishimiz bilan bir qatorda, qimmatbaho xom ashyo manbayi hisoblanadigan, yuqori sifatli efir moylarini beradigan limonli shuvoq, yorongul, yalpiz, mavrak, rayhon, arpabodiyon, kiyiko`t, tog`rayhon, alkaro`t, zira, sherolg`in kabi o`simliklarni ekinga aylantirsak, homashyo manmayi mustahkamlanar edi. Ulardan olinishi mumkin bo`lgan efir moylari va tayyorlangan mahsulotlar yuqori sifatli bo`lib, nafaqat mamlakatimiz standartiga hatto jahon standartlariga ham to`g`ri kelar edi. Bu yechimlar amalga oshirilsa, yuqori sifatli efir moylari tayyorlanib, ulardan turli – tuman mahsulotlar ishlab chiqarishda foydalanilsa bu nafaqat ijtimoiy samaradorlikga ega bo`ladi balki iqtisodiy jihatdan ham foyda beradi.

Xushbo`y va xusht`am o`simliklar boyliklaridan foydalanganda o`simlik guruhlarining ekologik muvozanatiga ta`sir etmaslik uchun ularni yig`ishtirib olish va tayyorlash qoidalariga rioya qilinsa, o`simliklar orasidagi muvozanat buzilmaydi, balki ular yo`qotgan massalari qayta tiklanadi. O`simlik xom ashyolarini yig`ishtirishda turlarni bilmaslik, ularning biologik xususiyatlarini hisobga olmaslik, unumli va oqilona foydalanmaslik xom ashyo uchun yig`ishtirilayotgan o`simlik turlari hamda boyliklariga katta zarar yetkazadi.

Xushbo`y va xushtam o`simliklarning a`zolarida to`plangan efir moylarining miqdori ta`sir etuvchi omillarga bog`liq. Birinchi navbatda, o`simliklarning tarqalish rayoni o`sish sharoiti, rivojlanish davrlari, o`simlik guruhlari, tuproq va ob – havo sharoitlari quyosh yorug`ligining va nurlarining ta`siri hamda genetik jihatidan uzviy barqarorligi muhim ahamiyatga ega.

Xushbo`y va xusht`am o`simliklar efir moyining sifatli hamda ta`sirchan bo`lish payti ko`pchilik o`simliklarning g`unchalash va gullash davriga to`g`ri keladi. Ana shu paytda o`simliklarning yerustki massalari yig`ishtirilib olinishi lozim. G`uncha va gullari to`liq yetilganda, urug` va mevalari esa to`liq

pishganda, ildiz, ildizpoya, tugunak hamda piyozlari o`simlik o`sish davrining oxirida, ya`ni o`simlik uyquga ketishi oldidan yig`ishtirib olinadi.

Xushbo`y va xusht`am o`simlik boyliklaridan noo`rin foydalanishlik, ularning biologik hususiyatlarini hisobga olmaslik, yig`im terimni belgilangan muddatlarda tashkil etmaslik belgilangan rejadan ko`proq xom ashyo yig`ishtirish, boyliklarni noo`rin payhon qiluvchi shaxslarga yo`l ochib berish o`simlik turlarining yo`qolib ketishiga hamda boyliklarining qayta tiklanishiga zarar keltiribgina qolmasdan, ayrim o`simlik turlari yo`qolib ketishiga sabab bo`ladi. Shu sababli xushbo`y va xushtam o`simlik xom ashyolarini tayyorlashda ilmiy asosda yaratilgan tadbir chora va qoidalarga to`liq amal etish kerak. Xushbo`y va xusht`am o`simliklar biologik aktiv moddalarga boy bo`libgina qolmasdan, balki fitonsitlik hamda antibakteriositlik xususiyatlariga ham egadirlar. Shu sababli ulardan oziq – ovqat mahsulotlari ishlab chiqarishda hamda tayyorlashda foydalanganda, oziq – ovqat mahsulotlari sifatini, ta`mini, to`yimliligini, organizmda tez hazm bo`lishini ta`minlabgina qolmasdan, balki ularni tez aynib qolishdan, saqlaydi.

Ziravorlangan oziq – ovqat mahsulotlari tarkibida turli vitaminlar, xushbo`y, juda ham yoqimli efir moylari, turli xil organik kislotalar karbon suvlar, oshlovchi moddalar, mikro va makro elementlar, fitonsit hamda bakterisit moddalari bo`ladi. Bunday biologik aktiv moddalar bilan boyigan oziq ovqat mahsulotlari ishtaha bilan tanovvul etiladi hamda osonlik bilan hazm bo`ladi. Natijada inson organizimida modda almashinuv jarayoni yaxshilanadi, turli kasalliklarga bo`lgan qarshiligi kuchayadi. Hozirgi kunda eng ko`p ishlatiladigan xushbo`y va xushtam o`simliklardan zira, oq zira, qora zira, kariandr, karafs, qizil va achchiq qalampir, yer qalampir, rayhon, tog` rayhon, yalpiz, kiyiko`t, limo`no`t, mavrak, sarimsoq piyoz, qarqand, jambil, zanjabil, zarchava, yerchoy, tog` jambili va bir qancha ko`plab boshqa o`simliklar ishlatiladi.

*Tog`jambili*: sershox, pastbo`yli (10 – 15) cm chala butalardan iborat, mayda, teskari tuxumsimon yoki lansetsimon qarama – qarshi joylashgan. Guli mayda pushti va qizg`ish hushbo`y. Mevasi kosachabarglari bilan qo`shilib o`sgan 4 ta yong`oqcha. O`zbekistonda 2 ta turi bor. Tog`jambili yozning boshlarida gullab oxirida meva qiladi. U efir moyli va shirali o`simlik bo`lib xalq tabobatida ishlatiladi.

Limo`no`t: ikki uyli chirmashib o`sadi bargi qizil cho`ziq tuxumsimon, o`tkir uchli, cheti kungurali bandli ketma – ket guli bir jinsli, oq yoki pushti xushbo`y. Mevasi 1-2 urug`li, dumaloq, qizil, limon mazasi va hidi bor. Mevasi va urug`i tarkibida limon, olma va boshqa organik kislotalar uglevodlar vitamin C , efir moylari va boshqa darmon dorilar mavjud. Limo`no`tning kukuni aqliy va jismoniy charchaganda mehnat qilish va ko`rish qobiliyati susayganda markaziy nerv sistemasi faoliyatini kuchaytiruvchi shuningdek yurak – tomir sistemasi va nafasni yaxshilovchi vosita sifatida ishlatiladi.

Yerchoy: Ranodoshlar oilasiga mansub ko`p yillik o`t, bo`yi 45 cm. Gullari sariq mevasi murakkab pista. Yerchoyning yerostki qismi tarkibida gein gliozidi, 0,42 % gacha efir moyi 36 % dan ortiqroq oshlovchi moddalar organik kislotalar va boshqalar bor. Yerchoy xalq tabobatida tish kasalliklarini davolash va og`riqni qoldirishda, damlamasi meda – ichak kasalliklarini davolashda ishlatiladi.

Jambil: Labguldoshlar oilasiga mansub 1 yillik xushbo`y o`simlik. O`zbekistonda sug`oriladigan yerlarda ziravor o`simlik sifatida ekiladi. Bo`yi 20 – 30 cm poyasi yuqori qismidan. Poyasi yuqori qismidan shoxlaydi, barg chetlari tekis etli. Gullari pushti, boshoqsimon to`pgullarga yig`ilgan poy va shoxlarining uchida joylashgan. Jambil atir-upa sanoatida va meda ichak kasalliklarini davolashda ishlatiladi.

Xulosa qilib shuni aytish mumkinki, tabiiy xolda o’sadigan xushboy va xushtam o’simliklarning oxirigacha aniqlangan emas. Keyingi yillarda o’tkazilishi lozim bo’lgan yanada chuuqur ilmiy tatqiqotlar yangidan –

xushbo’y va xushtam giyohlarning topilishiga olib keladi. Xushbo’y va xushtam o’simliklardan foydalanish faqat ularning tarkibida saqlanadigan efir moylari miqdorining ko’pligi bilan belgilanmasdan, balki ular saqlaydigan komponentlarning miqdori hamda xususiyatlari bilan chambarchas bog’liqdir.

Xushbo’y va xushtam giyohlardan oziq – ovqat sanoatida keng miqiyosda ishlatish lozim bo’lgan turlar mavrak, kiyiko’t, zufo, rayhon, tog’ rayhon, yalpiz, zanjabil, upor, bo’ymadaron, andiz, zira va shu kabi turkumlarni tashkil etadi.

Xushbo’y va xushtam o’simlik xom ashyolaridan foydalanayotganda, albatta, ular yig’im – terimini o’tkazish, tayyorlash, quritish saqlash hamda qo’llash to’g’risidagi ko’rsatmalarga to’liq rioya qilish zarur. Aks holda uladan foydalanganda ham yaxshi natijalar bermaydi.

Yurtimizda shu o’simliklar xom ashyosidan efir moylarini ajratib oladigan zavotlar bunyod qilishdan iboratdir.

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BIO-MOS POLIMERLAR ASOSIDA NANOPOLONLI QATLAMLI MATERIALLAR VA SUN`IY POLIMER TOLA

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Annotatsiya. *Nano tolalar va ular asosidagi materiallar, fibrion va xitosan eritmalar, polarizatsiya optik tadqiqotlar, polimer tolalarni oladigan xomashyolar, anorganik birikmalardan olinadigan tolalar, sanoatda ishlab chiqariladigan kimyoviy tolalarni turlari, kimyoviy tolalarni ishlab chiqarish.*

***Kalit so`zlar:*** *Nanotexnika, nantexnologiya, nano tolalar, xitozan, fibroin, to`qimagan laminatlar. Gen-nokaut texnologiysi, paxta bo`yicha xalqaro konsultativ qo`mita.*

Abstract: *Nanofibers and materials based on them, fibrion and chitosan solutions, polarization optical studies, raw materials for obtaining polymer fibers, fibers obtained from inorganic compounds, types of chemical fibers produced in industry, production of chemical fibers.*

Keywords: *Nanotechnology, nanotechnology, nanofibers, chitosan, fibroin, nonwoven laminates. Gene knockout technology, International Advisory Committee on Cotton.*

Nano tolalar va ularning asosidagi to`qilmagan materiallarning xarakteristikalari ko`p jihatdan polimer va elektrospinning shartlarini tanlashga bog`liq. Shu jihatdan, biologik mos polimerlarning nanofilalarini, masalan, xitosan, fibrion, akriloniyril kopolimer, sellyuloza va uning hosilalarini va boshqalarni olish katta qiziqish uyg`otadi. Xitozan va fibrionli nanofilalar aniq bioaktivlik bilan ajralib turadi, bu esa to`quv bo`lmagan materiallar yuzasidan eng aniq namoyon bo`ladi. Shuning uchun, sirt qatlami biaktiv biologik mos keladigan polimer nanofilalardan iborat bo`lgan to`qilmagan qatlamli materiallarni olish maqsadga muvofiqdir. Bunday qatlamli nanomateriallar,

albatta, tibbiyot, farmasevtika, kosmetologiya, to`qimachilik, ekologiya va boshqa sohalarda keng amaliy qo`llanilishini topadi. Ushbu ish yo`nalishda maxsus yig`ilgan elektrospinning o`rnatilishi yordamida amalga oshiriladi, bu polimer nanofilalarini hosil qilish va ularni ekranda to`qilmagan qatlamli materiallar shaklida amalga oshirish imkonini beradi. Fibroin va xitosan eritmalari navbati bilan formik va sirka kislotalarida, akrolitril kopolimeri esa dimetilformamida tayyorlangan. Elektrospinning optimal sharoitlari anod va katod orasidagi masofani (3-15 sm) V=15kV doimiy voltajga polimer eritmalarining konsentratsiyasini (3-20%) o`zgartirish orqali tanlanadi.

Tajribalarda to`quv bo`lmagan material uchun asos bo`lib xizmat qilgan nanofiber qatlami biologik mos akrilonitril kopolimer eritmasidan elektrospinning va bioaktiv sirt qatlamining xitosan yoki fibrion eritmalaridan hosil bo`lgan. Olingan laminatlar yuqori mexanik quvvat va deformatsion taranglikka chidamliligi bilan ajralib turadi. Masalan, o`rtacha qalinligi 50 mikrometr bo`lgan namunalar nisbatan 15-20% gacha cho`zilganda ishdan chiqadi va Yung moduli 5-10 ga teng bo`lib, materiallarning takroriy egilishi va burilishi paytida yuqori mexanik moslashuvchanlikni saqlaydi.

Ushbu namunalarni polarizatsiya optik tadqiqotlar shuni ko`rsatadiki, qatlamning qalinligi materiallar bazasi taxminan 30-45 mikrometr, sirt qatlami qalinligi esa 5-20 mikrometr oralig`ida. Ushbu materiallar nanoporous ekanligi va gozenek hajmi 1mkm dan kam ekanligi aniqlandi. Umuman olganda, ushbu polimerlarning nano tolalari yuqori optik anizotropiya bilan tavsiflanadi.

Shu bilan birga to`quv bo`lmagan laminatlar namunalardagi nanofilalarning tasodifiy tartibsiz joylashuvi tufayli aniq optik anizotropiyani namoyish etmaydi. To`quv bo`lmagan laminatlar izotrop hisoblanadi. To`qimagan laminatlarning sirt faolligi asosan funktsional faol elementlar, ya`ni amin va karboksil guruhlari, tanlangan polimerlarning mavjudligi bilan bog`liq. Ushbu guruhlar qarama-qarshi zaryadlangan elementlar, ionlar, guruhlar va boshqalar bilan o`zaro ta`sir o`tkazish bilan tavsiflanadi. Ushbu

xususiyat gazli va suyuq fazali aralashmalar to`quv bo`lmagan materiallar qatlamlari orqali o`tayotganda aniq namoyon bo`ladi, ya`ni filtrlash paytida. Bunday filtrlash tajribalari o`rtacha 10,100 va 300 nm teshik o`lchamlari bilan tavsiflangan to`quv bo`lmagan qatlamli materiallardan o`tib, chiqindi mashinalar yog`ini tozalash maqsadida o`tkaziladi. Chiqindilarni mashinasi yog`i to`qilmagan qatlam orqali 80 daqiqa davomida oqishi va 95% yog`ni tozalashga erishgani aniqlandi. Ushbu natijalar to`qilmagan qatlamli materiallarning nanofiltrlar sifatida yuqori sirt faolligini ko`rsatadi. To`qimagan qatlamli materiallarning sirt faol elementlarining metall ionlari bilan o`zaro ta`siri elektroosmoz usuli yordamida, nanoporous membrana sifatida to`qilmagan qatlamdan foydalanilgan.

Polimer tolalar-tabiiy va sintetik polimerlardan olinadigan tolalar. Dastlabki xom ashyoga qarab sintetik (sintetik polimerlardan, mas, sellyuloza va uning poliakrilonitril tolalar) va sun’iy (tabiiy polimerlardan, mas, sellyuloza va uning efirlaridan olinadigan tolalar) turlarga bo`linadi. Anorganik birikmalardan olinadigan tolalar (shisha, basalt, kvars tolalari)ni ham ba’zan kimyoviy tolalarga qo`shishadi. Sanoatda ishlab chiqariladigan kimyoviy tolalar turlari:

1) Uzun yakka tola;
2) Shtapel tola (ingichka tolalalarning kalta bo‘laklari);
3) Filament iplar (bir talay ingichka va juda uzun tolalarning eshilgan tutami). Kimyoviy tolalar qanday maqsad uchun ishlatilishiga qarab to‘qimachilik va texnika iplariga bo‘linadi. Ularning ko‘pchiligi pishiq, g‘ijimlanmaydi, yorug‘lik, namlik, zamburug‘lar, bakteriyalar, kimyoviy moddalar va issiqlik ta’siriga chidamli. Kimyoviy tolalarni tabiiy tolalarga aralashtirib ishlatish mumkin. Kimyoviy tolalar ishlab chiqarish uchun elastik va uzun, tarmoqsiz yoki kam tarmoqlangan, makromolekula hosil qiluvchi polimerlar ishlatiladi. Bu tolalar yetarlicha katta molekulyar massaga ega bo‘lib, eritilganda va qizdirilganda parchalanmasdan suyuqlanadi.

Kimyoviy tolalarni ishlab chiqarish jarayoni: yigiriladigan eritmalar tayyorlash; tola olish va tolaga shakl berish; tolani pardozlashdan iborat. Kimyoviy tolalar arzonligi va sifati (mexanik xossalari: mustahkamligi, elastikligi, yeyilishi, kirishimligi) tabiiy tolalarga nisbatan yaxshi bo‘lgan uchun tobora ko‘p ishlab chiqariladi. 1990-yilda butun dunyoda tayyorlangan tabiiy tolalarga nisbatan 1,5 barobar ko‘p miqdorda (26 mln. t ga yaqin) kimyoviy tolalar ishlab chiqarilgan bo‘lsa, 2000-yilda tabiiy tolalarga nisbatan 2,5 barobar ko‘p miqdorda 45 – 50 mln kimyoviy tolalar ishlab chiqarildi. Kimyoviy tolalar turli sohalarda tabiiy ipak, zig‘ir tolasi, maxsus ish kiyimlari ishlab chiqarishda tabiiy tolalar bilan birga ishlatiladi. .

O‘zbekistonda “Navoiy Azot” zavodida nitron tola. Farg‘ona kimyoviy tolalar zavodida atsetat tola va texnik maqsadlar uchun kapron tola va texnik maqsadlar uchun kapron tola ishlab chiqariladi. Sintetik tolalar kimyosi sohasidagi so‘nggi yangiliklar. Kimyoviy texnilogiyaning so‘nggi yutuqlari yaqin kelajakda ichi bo‘sh kimyoviy tolalarga umid qilmoqda. Membran texnologiyalarida yangi materiallardan foydalanish uchun bunday texnologiya allaqachon ishlab chiqilmoqda.1980-yillarning boshlarida Gollandiyaning DCM kimyoviy kompaniyasi yangi og‘ir polimer moddasi – polietilen tolasini ishlab chiqarishni boshladi. Sinab ko‘rilganda uning kuchlanish kuchi bir xil qalinlikdagi po‘lat simlarga qaraganda 10 baravar yuqori edi. 1985-yilda nufuzli Design News jurnalining ma’lumotlariga ko‘ra, Spectrum-900 deb nomlangan og‘ir tolali tolalarni ishlab chiqarish texnologiyasi ishlab chiqilgan. U sentrifugalar yordamida jelega o‘xshash yuqori molekulyar og‘irlikdagi polietilendan hosil bo‘ladi. Yuqori darajadagi kuchga qo‘shimcha ravishda, bu tola yuqori asinma qarshilik, namlik qarshilik va yengilikka ega. Shuning uchun undan raketa korpuslari, bosimli kemalar, sun’iy bo‘g‘inlar va yelkanlar yashash mumkin.

Silikon karbiddan katta uzunlikdagi og‘ir sintetik tolalarni ishlab chiqarish usuli yapon kimyogari Seishi Yajima tomonidan ishlab chiqilgan. Ushbu

tolalar po‘latning eng yaxshi navlariga qaraganda 1,5 baravar kuchli. Bundan tashqari, uzoq vaqt + 1200 C gacha qizdirilsa ham materialning kuchi yo‘qolmaydi.

1983-yilda dunyo matbuotida sintetik matoning yaratilishi haqida xabarlar paydo bo‘ldi, ular + 1400 C ga qadar qizdirilganda issiqqa chidamli bo‘lib qoldi. Sintetik organik material ilgari 10 ming darajaga qadar haroratga bardoshli bo‘lgan. U 1960-yillarning boshlarida sotib olingan va pluto nomi bilan tarixga kirgan. Uning mlekulasi uglerod atomlari, vodorod, kislorod va azotdan iborat edi. Shu bilan birga, pluton past kuchga ega edi, kaprondan 9-10 marta past edi. Bugungi kunda issiqqa eng chidamli tola Kevlar savdo nomi ostida ishlab chiqarilmoqda. Lavsan kabi polyester tolalari yorug‘lik, mog‘or va ob-havoga nisbatan yuqori ko‘rsatkichlarga ega va organik erituvchilarga reaksiya bermaydi..

Lavsan yana bir rekordni ushlab turibdi. Uning o‘ziga xos elektr qarshiligi 10 dan 100 Om gacha, undan yuqorida boshqa barcha moddalar ta’sir qilmaydi. Aynan shu ko‘rsatgichlar jahonda tola ishlab chiqarish yilga 6 million tonnadan oshib ketishiga olib keladi. Poliakrilonitril tolalar ob-havoga chidamliligini oshirdi va kuchli kislotalarga nisbatan eng katta qarshilikka ega. Ular gilam, mo‘ynali kiyimlar, zambil, qoplama, va filtr materiallari ishlab chiqarishda keng qo‘llaniladi.

Mog‘or qarshiligi jihatdan polikaproamid tolasiga teng keladigan narsa yo‘q, amalda keng qo‘llaniladigan polivinil spirit va oilivinilxlorid tolalari boshqa sintetik materiallardan farq qiladi, chunki ular mikroorganizmlarning har qanday zararli ta’siriga qarshilik ko‘rsatadi.

Moskva avtomobilsozlik traktor materillari ilmiy-tadqiqot instituti, Ivanovo Iskoz zavodi va Ivanovo kino materiallari institut mutaxassislarining birgalikdagi harakatlari bilan 1980-yillarning o‘rtalarida Teza-M yangi material yaratildi. Bu polivinilxlorid plyonkasining qatlamlari orasiga joylashtirilgan sintetik mato. Eng muhimi, ushbu material yong‘indan, suvdan

yoki qattiq sovuqlardan qo‘rqmaydi. Undan turli xil mahsulotlar tikilmaydi, lekin turli xil mahsulotlar payvandlanadi. Birinchi navbatda Kamaz yuk mashinalari uchun tentlarloza

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ГЕОГРАФИЧЕСКИЕ И ЭКОЛОГИЧЕСКИЕ ОСНОВЫ ПРОЕКТИРОВАНИЯ АВТОНОМНОЙ АВТОМАТИЗИРОВАННОЙ СИСТЕМЫ МОНИТОРИНГА УРОВНЯ ПОДЗЕМНЫХ ВОД В ЗАРАФШАНСКОМ НАЦИОНАЛЬНОМ ПРИРОДНОМ ПАРКЕ В УСЛОВИЯХ ИЗМЕНЕНИЯ КЛИМАТА

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Аннотация

В статье разработаны географические, экологические и технические основы проектирования автономного автоматизированного устройства мониторинга уровня подземных вод для оценки водно-экологической устойчивости Зарафшанского национального природного парка в условиях изменения климата. Принципиально важно, что предлагаемое устройство в настоящее время не установлено на территории парка; в работе представлены его конструктивная концепция, алгоритм функционирования, принципы размещения пунктов наблюдений и программа последующих испытаний. Устройство предусматривает объединение датчика уровня воды, микроконтроллера, автономного электропитания, модуля хранения данных, GSM-связи и защищённого корпуса. В качестве научной новизны предложена геоэкологическая концепция интегрального мониторинга, при которой непрерывные данные об уровне подземных вод сопоставляются с климатическими факторами, влажностью почвы, поверхностными водами и состоянием растительности в GIS-среде. Вопрос патентоспособности окончательно определяется патентной экспертизой.

Ключевые слова: изменение климата, Зарафшанский национальный природный парк, подземные воды, автоматизированный мониторинг, автономная станция, GSM, солнечная панель, тугайная экосистема, GIS, водный стресс.

GEOGRAPHICAL AND ECOLOGICAL FOUNDATIONS FOR DESIGNING AN AUTONOMOUS AUTOMATED GROUNDWATER-LEVEL MONITORING SYSTEM IN THE ZARAFSHAN NATIONAL NATURE PARK UNDER CLIMATE CHANGE CONDITIONS

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Abstract. *This article develops the geographical, ecological, and technical foundations for designing an autonomous, automated groundwater-level monitoring device intended to assess the water-ecological sustainability of the Zarafshan National Nature Park under climate change. It is emphasized that the proposed device has not yet been installed within the park; the paper instead presents its design concept, operating algorithm, principles for siting observation points, and a program for subsequent testing. The device integrates a water-level sensor, a microcontroller, an autonomous power supply, a data-storage module, GSM communication, and a protective enclosure. As a scientific novelty, the article proposes a geo-ecological concept of integrated monitoring in which continuous groundwater-level data are compared with climatic factors, soil moisture, surface water, and vegetation condition within a GIS environment. The question of patentability is to be finally determined by patent examination.*

Keywords: *climate change, Zarafshan National Nature Park, groundwater, automated monitoring, autonomous station, GSM, solar panel, tugai ecosystem, GIS, water stress.*

1. Введение

В условиях изменения климата изменения объёма водных ресурсов, их сезонного распределения и возможностей возобновления оказывают непосредственное влияние на экологическую устойчивость особо охраняемых природных территорий. В частности, сохранение тугайных экосистем, сформировавшихся в речных долинах, во многом зависит от гидрологической взаимосвязи между поверхностными и подземными водами. По этой причине актуальной задачей является мониторинг изменения уровня подземных вод не эпизодически, а посредством непрерывной, стандартизированной системы с возможностью дистанционной передачи данных.

В Узбекистане требуется публикация научных результатов по теме диссертации в периодических научных изданиях. Согласно официальным данным ВАК, научные работы по диссертации должны отражать научную новизну диссертации, основные результаты должны публиковаться в периодических научных изданиях, отвечающих установленным требованиям к качеству и научной этике; в статье должна быть обеспечена постановка проблемы, теоретико-методологическая и методическая обоснованность, достоверность источников, а также обоснованность выводов и рекомендаций [1, 10].

В 2026 году ВАК особо подчёркивает необходимость достаточного обоснования качества научных публикаций, научной новизны и теоретико-практической значимости. Это обстоятельство требует, чтобы в данной статье результаты реально не установленного устройства не преподносились как «действующий результат», а чётко разграничивались его проектно-техническое решение, научная новизна и программа экспериментальных испытаний [2].

2. Степень изученности проблемы

Мониторинг подземных вод является одним из важных направлений управления мировыми водными ресурсами. В докладе ЮНЕСКО «World Water Development Report» за 2022 год отмечается, что подземные воды имеют стратегическое значение для населения, сельского хозяйства и экосистем во многих регионах, а также подчёркивается необходимость достоверного мониторинга их состояния [3]. В материалах ВМО (WMO) внимание уделяется формированию временных рядов уровня подземных вод, контролю качества данных и их использованию при оценке водных ресурсов [4].

Прямой перенос этих подходов на условия Зарафшанского национального природного парка недостаточен, поскольку аллювиально-речная долина парка, тугайная растительность, каналы, естественные

родники и антропогенные процессы водозабора взаимосвязаны между собой. Поэтому необходимо разработать автономную станцию, соответствующую местным ландшафтно-экологическим условиям, и географические принципы её размещения.

3. Цель исследования

Целью исследования является разработка конструктивной концепции автономного автоматического устройства мониторинга, предназначенного для непрерывного наблюдения за уровнем подземных вод в условиях Зарафшанского национального природного парка, обоснование географических принципов его размещения и создание научно-методической основы для последующих опытно-испытательных работ.

4. Задачи исследования

- функциональное зонирование территорий парка с различным водным режимом для пунктов мониторинга;
- разработка концепции устройства, объединяющего датчик уровня подземных вод, микроконтроллер, память, GSM-связь и автономный источник питания;
- формирование автономной схемы электропитания на основе солнечной панели и аккумулятора;
- определение алгоритма автоматической регистрации данных, их сохранения с временной меткой и дистанционной передачи;
- объединение результатов мониторинга в среде GIS со слоями рек, каналов, родников, тугаев и антропогенного воздействия;
- разработка поэтапной программы проверки устройства в лабораторных и полевых условиях перед установкой в парке;
- определение отличительных признаков технического решения для патентования и подготовка к последующей патентной экспертизе.

5. Объект и предмет исследования

Объектом исследования является природная среда Зарафшанского национального природного парка и связанные с водой геоэкологические процессы. Предметом исследования являются автоматическая регистрация изменения уровня подземных вод во времени и пространстве, устройство мониторинга, позволяющее связать эти изменения с климатическими факторами, поверхностными водами, влажностью почвы и растительным покровом, а также комплекс географо-аналитических методов.

6. Материалы и методы исследования

Проектная часть статьи основана на официальных данных о Зарафшанском национальном природном парке [8], международных методических материалах по мониторингу подземных вод, принципах применения автоматических датчиков и разрабатываемой автором концепции устройства [3–7]. Поскольку устройство ещё не установлено на территории парка, в данной статье не приводятся реальные эксплуатационные показатели станции, эмпирические ряды уровня воды или результаты полевых испытаний.

В методическом подходе предусматривается использование методов географического сравнения, ландшафтно-экологического районирования, маршрутной рекогносцировки, инструментальных измерений, статистического анализа временных рядов, корреляционного анализа, анализа трендов и GIS-картографирования.

При испытании устройства показания датчика сравниваются с контрольным значением, измеренным вручную. Оценка производится по формулам абсолютной погрешности $\Delta h = |h_s - h_r|$ и относительной погрешности $E = |h_s - h_r|/h_r \times 100\%$, где h_s — показание датчика, h_r — эталонное/контрольное измерение. Допустимый предел точности определяется на основе паспорта конкретного датчика, применяемого в устройстве, и методики испытаний.

7. Конструктивное решение предлагаемого устройства

Предлагаемая автономная станция основана на объединении нескольких функциональных модулей в едином защищённом корпусе. Её основные блоки: 1) датчик уровня воды; 2) микроконтроллер; 3) модуль хранения данных; 4) модуль GSM-связи; 5) солнечная панель; 6) аккумулятор; 7) защитный корпус; 8) механизм размещения датчика в скважине или наблюдательной камере.

Рис. 1. Концепция автономной автоматической станции мониторинга уровня подземных вод, разрабатываемой автором.

(На плакате-схеме показаны: общий вид станции; техническая схема с обозначениями — 1: датчик уровня воды, 2: наблюдательная скважина, 3: микроконтроллер, 4: аккумулятор 12В, 5: антенна GSM, 6: солнечная панель 20 Вт, 7: защитный корпус, 8: модуль передачи данных; таблица технических параметров — диапазон измерения 0–100 м, точность ±1 см, дальность связи GSM (SMS/Интернет), источник питания — солнечная панель 20 Вт и аккумулятор 12 В, рабочая температура от −20 °C до +60 °C, класс защиты корпуса IP65, хранение данных на SD-карте; принцип работы; простая схема установки; основные преимущества — работает на солнечной энергии, передаёт данные дистанционно (через GSM), автоматически измеряет уровень подземных вод, малое энергопотребление, лёгкость установки и эксплуатации, устойчивость к любым погодным условиям; области применения — мониторинг подземных вод на территории Зарафшанского национального парка, наблюдение за тугайными массивами и водными ресурсами, орошаемые и сельскохозяйственные земли, мониторинг водных ресурсов в засушливых и пустынных зонах; результат изобретения, объект патентования, автор изобретения (вакансия), перечень документов и краткая аннотация.)

Принцип работы устройства следующий: датчик измеряет уровень подземных вод через заданные временные интервалы; микроконтроллер принимает сигнал и записывает его в память данных с временной меткой; данные с заданной периодичностью передаются на центральную базу через модуль GSM. Солнечная панель заряжает аккумулятор, а аккумулятор обеспечивает автономную работу системы в ночное время и в периоды низкой солнечной радиации.

Научно-практически важной особенностью устройства является то, что оно проектируется не просто как технический датчик, а как часть геоэкологического мониторинга на охраняемой территории. Поэтому в паспорте станции сохраняются данные о координатах, абсолютной высоте, глубине скважины, высоте установки датчика, дате калибровки и техническом состоянии.

8. Функциональный алгоритм устройства

1. запуск датчика и автоматическая диагностика;
2. измерение уровня подземных вод;
3. оцифровка сигнала и фильтрация шумов;
4. запись данных в память с указанием даты и времени;
5. передача данных через GSM с заданным интервалом;
6. при разрыве связи — сохранение данных в локальной памяти;
7. повторная передача накопленных данных при восстановлении связи;
8. включение поступивших на центральную базу данных в систему GIS и статистического анализа;
9. формирование условного предупреждающего сигнала при резком понижении уровня воды.

9. Географическое размещение пунктов мониторинга

№	Тип территории	Цель мониторинга	Основной показатель	Рекомендация
1	Тугайные массивы	Естественный режим влажности	Уровень подземных вод,	Совместно с растительным покровом

			влажность почвы	
2	Естественные родники	Обводнённость родников	Уровень воды, температура	Связь с дебитом родников
3	Зона влияния реки Зарафшан	Инфильтрация и влияние орошения	Уровень подземных и канальных вод	Сопоставление с периодами подачи воды
4	Участок с ограниченным водоснабжением	Риск водного стресса	Уровень подземных вод	Раннее предупреждение
5	Контрольный участок	Естественный фон	Уровень подземных вод	Сравнение с другими пунктами

При размещении пунктов приоритет отдаётся не принципу равного расстояния, а принципу ландшафтно-экологической репрезентативности. Охват близких, средних и относительно удалённых от реки участков позволяет оценить возможную гидравлическую связь уровня подземных вод с поверхностными водами.

10. Комплексный анализ данных мониторинга

Данные, получаемые с автоматической станции, должны интегрироваться с климатическими и экосистемными показателями. В качестве основных информационных слоёв формируются: уровень подземных вод, осадки, температура воздуха, влажность почвы, уровень воды в реке и канале, состояние растительного покрова, а также данные об антропогенном водозаборе.

Показатель	Единица	Периодичность наблюдения	Аналитическая задача
Уровень подземных вод	м	почасовая/суточная	Тренд и сезонная амплитуда
Температура воздуха	°C	почасовая/суточная	Оценка теплового стресса
Осадки	мм	по событию/суточная	Влияние на пополнение запасов
Влажность почвы	%	почасовая/суточная	Влажность для растений
Уровень реки/канала	м	суточная	Связь поверхностных и подземных вод
Состояние растительности	балл/индекс	еженедельная/ежемесячная	Экологическая реакция

На следующем этапе для оценки водного стресса может быть разработан комплексный индекс на основе нормализованных индикаторов. Например, совместно оцениваются снижение уровня

подземных вод относительно нормативного периода, уменьшение влажности почвы и повышенные температуры. Пороговые значения индекса будут откалиброваны эмпирически после испытания устройства в парке и накопления реальных данных как минимум за несколько сезонов. В условиях роста числа периодов экстремальной жары синхронизация мониторинга подземных вод с мерами по охране дикой природы в такие периоды приобретает дополнительное практическое значение [9].

11. Геоэкологический мониторинг на основе GIS

GPS-координаты станций мониторинга вносятся в базу GIS, на их основе составляются тематические карты уровня подземных вод. На картах в единой системе отражаются русло реки, каналы, родники, тугайные массивы, охранные зоны, участки антропогенного воздействия и пункты мониторинга.

После формирования многолетних временных рядов возможно проведение интерполяции пространственного распределения уровня подземных вод, выделение участков с высокой скоростью снижения и их сопоставление с зонами экологического риска. Такой подход служит для планирования пунктов орошения и определения приоритетности мероприятий по восстановлению тугайных экосистем.

12. Техническая новизна и концепция изобретения

Основная идея предлагаемого технического решения — объединение в единой компактной системе модулей, автономно измеряющих уровень подземных вод в условиях особо охраняемой природной территории, локально сохраняющих данные, передающих их через GSM и работающих на солнечной энергии.

С точки зрения патентования обоснование новизны только отдельным наличием элементов «солнечная панель + GSM + датчик» недостаточно. Поэтому в последующем патентном исследовании

необходимо проверить именно их конструктивную взаимосвязь, алгоритм передачи данных, защитный корпус, механизм размещения датчика и отличительные признаки, обеспечивающие функциональный результат в условиях охраняемой территории, в соответствии с действующим законодательством в области интеллектуальной собственности [11].

При этом данная статья не даёт окончательной правовой оценки патентоспособности. Окончательное заключение о «новизне», «изобретательском уровне» и «промышленной применимости» изобретения должно определяться уполномоченной патентной экспертизой и сопоставлением с существующей базой патентов [11].

13. Предлагаемая программа лабораторных и полевых испытаний

10. Калибровка датчика при известных значениях уровня воды.
11. Проверка непрерывности данных в ходе 24–72-часового непрерывного стендового испытания.
12. Оценка времени автономной работы солнечной панели и аккумулятора.
13. Проверка зоны покрытия GSM-связи и стабильности передачи данных.
14. Сравнение показаний датчика с ручными контрольными измерениями.
15. Проверка устойчивости защитного корпуса к воздействию влажности, пыли и температуры.
16. Проведение опытной эксплуатации на 2–3 пилотных пунктах в условиях парка.
17. Совершенствование конструкции и алгоритма на основе результатов испытаний.

14. Научная новизна

Первая научная новизна исследования заключается в разработке принципов ландшафтно-экологического размещения для автоматического мониторинга уровня подземных вод в условиях тугайно-речной долины Зарафшанского национального природного парка.

Вторая научная новизна — предложена концепция станции мониторинга, объединяющей функции непрерывной регистрации уровня подземных вод, автономного хранения данных и их передачи через GSM.

Третья научная новизна — разработана модель геоэкологического мониторинга, предназначенная для комплексной оценки динамики подземных вод совместно с климатом, влажностью почвы, поверхностными водами и растительным покровом на основе GIS.

Четвёртая научная новизна — предложена методика поэтапного проведения лабораторных и полевых испытаний устройства перед внедрением в практику с последующей калибровкой местных индикаторов водного стресса на основе эмпирических данных.

15. Теоретическая и практическая значимость результатов

В теоретическом плане исследование позволяет комплексно оценивать гидрологические и экологические процессы в охраняемых речно-тугайных ландшафтах. В практическом плане автономная станция мониторинга может стать основой для организации непрерывных наблюдений на участках Зарафшанского национального природного парка, где отсутствует электросеть.

Реальные временные ряды, получаемые после внедрения устройства, могут служить для раннего выявления воздействия дефицита воды, засухи, высоких температур и изменений водоснабжения на экосистемы. Однако данная практическая эффективность должна быть подтверждена эмпирическими данными после установки устройства, его калибровки и прохождения полевых испытаний.

16. Достоверность результатов исследования

На нынешнем этапе исследования достоверность обеспечивается технико-концептуальной и методической обоснованностью. Открыто отмечается, что реальные полевые результаты пока отсутствуют. На следующем этапе устройство будет испытано, показания датчика будут проверены с контрольными измерениями вручную, составлен протокол калибровки, а данные пройдут контроль качества.

В целях дальнейшего усиления достоверности для диссертации рекомендуется собрать в качестве первичных документов ежегодные отчёты Зарафшанского национального природного парка [8, 12], данные уполномоченных экологических организаций, гидрометеорологические наблюдения [5, 6], протоколы лабораторных испытаний, технический паспорт устройства, а также акты последующего внедрения в практику.

17. Обсуждение

Важным методологическим моментом статьи является рассмотрение технического устройства не как самостоятельного изобретения, а как структурного элемента системы мониторинга природной среды. Ведь сам по себе уровень воды не полностью отражает экологическое состояние; его значение проявляется во взаимосвязи с влажностью почвы, растительным покровом, температурой, осадками и поверхностными водами.

С этой точки зрения ценность устройства для диссертации формируется на двух уровнях: на первом уровне — техническое решение; на втором уровне — методика оценки водно-экологической устойчивости природной среды парка с использованием данного технического решения. Второй уровень усиливает научно-практическую значимость, соответствующую специальности 11.00.05 диссертации.

ВАК в 2026 году особо отмечает необходимость достаточного обоснования научной новизны и теоретико-практической значимости в научных публикациях [2]. Поэтому в статье наряду с технической схемой

устройства в качестве основного результата показан механизм решения научной проблемы — раннее выявление дефицита воды, охрана тугаев и информационное обеспечение экологических управленческих решений.

18. Заключение

1. Актуальность и постановка проблемы. В условиях изменения климата и связанного с ним изменения водного режима Зарафшанского национального природного парка существует необходимость непрерывного автоматического мониторинга уровня подземных вод как основы для оценки водно-экологической устойчивости охраняемой территории.

2. Статус предложенного решения. Разработанная в статье автономная станция мониторинга представляет собой проектно-техническую концепцию: устройство пока не установлено на территории парка, и его практическая эффективность не подтверждена эмпирическими данными. Это ограничение открыто зафиксировано и определяет дальнейшие шаги исследования.

3. Техническое содержание концепции. Объединение основных модулей устройства — датчика уровня воды, микроконтроллера, памяти данных, GSM-связи, солнечной панели, аккумулятора и защитного корпуса — в единую автономную систему является перспективным техническим решением для организации мониторинга на охраняемых территориях, не обеспеченных электросетью.

4. Географические принципы размещения. Рекомендована географическая дифференциация пунктов мониторинга по тугаям, естественным родникам, зонам влияния каналов и реки Зарафшан, участкам с ограниченным водоснабжением и контрольным территориям, основанная на принципе ландшафтно-экологической репрезентативности, а не равного расстояния между пунктами.

5. Геоэкологическая интеграция данных. Интеграция данных о подземных водах с климатическими факторами, влажностью почвы, поверхностными водами и растительным покровом на основе GIS усиливает географические основы охраны природной среды парка и создаёт условия для раннего выявления водного стресса.

6. Патентная перспектива. Окончательное заключение о патентоспособности устройства зависит от результатов патентной экспертизы; на следующем этапе необходимо провести патентный поиск, подготовить технические чертежи, формулу изобретения и испытания прототипа в соответствии с действующим законодательством в области интеллектуальной собственности.

7. Дальнейшие шаги. После практической установки и испытания устройства эмпирическая часть исследования может быть усилена реальными временными рядами, показателями точности, анализом погрешностей и результатами оценки экологической эффективности, что станет основой для последующих публикаций по теме диссертации.

19. Рекомендации по внедрению в практику

- выбор 2–3 пунктов мониторинга на пилотном этапе;
- составление технического паспорта и карты GPS-координат для каждого пункта;
- калибровка датчиков и разработка протокола контрольных измерений;
- формирование базы данных с непрерывными наблюдениями не менее чем за один год;
- разработка на основе GIS карт динамики уровня воды и экологического риска;
- проведение патентного поиска по техническим решениям устройства и подготовка проекта формулы изобретения;

- оформление на основе результатов испытаний акта внедрения совместно с администрацией Зарафшанского национального природного парка.

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2. Высшая аттестационная комиссия при Академии наук Республики Узбекистан. Информация о соответствии национальных научных изданий требованиям научной этики и качества. — 2026. URL: https://oak.uz/index.php/pages/30617

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3-SECTION

BO‘LAJAK SHIFOKORLAR KASBIY-LINGVISTIK KOMPETENTLIGINI TAKOMILLASHTIRISHNING BOSQICHLI MODELI (STRUKTURAVIY-KOMPONENTLI TARKIBI)

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Annotatsiya. *Ushbu maqolada tibbiyot yo‘nalishi talabalarida kasbiy-lingvistik kompetentlikni rivojlantirishning pedagogik-metodik asoslari yoritilgan. Bo‘lajak shifokorlarning muloqot va nutqiy tayyorgarligi ularning kasbiy mahorati va tibbiy deontologiyaga amal qilishining muhim omili sifatida tahlil qilingan. Tadqiqotda kasbiy-lingvistik kompetentlikning strukturaviy-komponentli tarkibi (kognitiv, operatsional, deontologik-empatik, refleksiv) atroflicha asoslab berilgan hamda uni bosqichma-bosqich takomillashtirish modeli (propedevtik, klinik-simulyatsion, real-klinik va ilmiy-refleksiv) taklif etilgan.*

Kalit so‘zlar: *kasbiy-lingvistik kompetentlik, bo‘lajak shifokorlar, bosqichli model, strukturaviy-komponentli tarkib, tibbiy terminologiya, "shifokor–bemor" muloqoti, deontologiya, empatik muloqot.*

ЭТАПНАЯ МОДЕЛЬ СОВЕРШЕНСТВОВАНИЯ ПРОФЕССИОНАЛЬНО-ЛИНГВИСТИЧЕСКОЙ КОМПЕТЕНТНОСТИ БУДУЩИХ ВРАЧЕЙ (СТРУКТУРНО-КОМПОНЕНТНЫЙ СОСТАВ)

Аннотация. *В данной статье освещаются педагогико-методические основы развития профессионально-лингвистической компетентности у студентов медицинских вузов. Коммуникативная и речевая подготовка будущих врачей анализируется как важнейший фактор их профессионального мастерства и соблюдения медицинской деонтологии. В исследовании детально обоснован структурно-компонентный состав профессионально-лингвистической компетентности (когнитивный, операциональный, деонтолого-эмпатический,*

рефлексивный), а также предложена поэтапная модель ее совершенствования (пропедевтический, клинико-симуляционный, реально-клинический и научно-рефлексивный этапы).

Ключевые слова: *профессионально-лингвистическая компетентность, будущие врачи, этапная модель, структурно-компонентный состав, медицинская терминология, общение «врач–пациент», деонтология, эмпатическое общение.*

STEP-BY-STEP MODEL FOR IMPROVING THE PROFESSIONAL-LINGUISTIC COMPETENCE OF FUTURE DOCTORS (STRUCTURAL AND COMPONENT COMPOSITION

Abstract. *This article highlights the pedagogical and methodological foundations for developing professional-linguistic competence among medical students. The communicative and speech training of future doctors is analyzed as a crucial factor in their professional skills and adherence to medical deontology. The study systematically substantiates the structural-component composition of professional-linguistic competence (cognitive, operational, deontological-empathic, reflective) and proposes a phased model for its development (propaedeutic, clinical-simulation, real-clinical, and scientific-reflective stages).*

Keywords: *professional-linguistic competence, future doctors, step-by-step model, structural-component composition, medical terminology, "doctor–patient" communication, deontology, empathic communication.*

Zamonaviy tibbiyot ta’limi oldida turgan eng muhim vazifalardan biri nafaqat chuqur nazariy va amaliy bilimlarga ega bo‘lgan, balki yuqori muloqot madaniyatini egallagan raqobatbardosh mutaxassislarni tayyorlashdan iboratdir. Tibbiyot xodimining kasbiy faoliyatida lingvistik kompetentlik yetakchi o‘rin tutadi, chunki diagnostika, davolash va profilaktika jarayonlarining samaradorligi bevosita shifokorning bemor, uning yaqinlari va hamkasblari bilan o‘rnata oladigan muloqot sifatiga bog‘liq.

Tibbiyot sohasi tili o‘zining murakkab terminologik tizimi, lotin-grek etimologik bazasi va o‘ziga xos uslubiyati bilan ajralib turadi. Shu bilan birga, shifokor murakkab tibbiy tushunchalarni bemorga tushunarli va hamdardlik (empatiya) ruhida yetkazib bera olishi lozim. Bu esa bo‘lajak shifokorlarda kasbiy-lingvistik kompetentlikni tasodifiy emas, balki aniq maqsadga yo‘naltirilgan, bosqichli va tizimli model asosida shakllantirish zaruratini yuzaga keltiradi.

1. Kasbiy-lingvistik kompetentlikning strukturaviy-komponentli tarkibi

Bo‘lajak shifokorlarning kasbiy-lingvistik kompetentligi deganda, ularning tibbiy va umumiy til resurslaridan kasbiy vazifalarni hal etish, "shifokor–bemor" hamda "shifokor–shifokor" tizimidagi muloqotni samarali tashkil etishda to‘g‘ri va o‘rinli foydalanishga bo‘lgan tayyorgarligi hamda qobiliyati tushuniladi.

Ushbu kompetentlik murakkab tuzilishga ega bo‘lib, u bir-biri bilan uzviy bog‘liq bo‘lgan 4 ta asosiy komponentdan tashkil topadi:

Komponent	Mazmuni va tibbiy xususiyati
1. Tibbiy-kognitiv komponent	Tibbiy terminologiya (lotin, grek va milliy atamalar), kasalliklar nomlanishi, anatomik hamda klinika lug‘atini mukammal bilish; tibbiy matnlar tuzilishini anglash hamda professional tibbiy diskurs qoidalarini egallaganlik.
2. Klinik-operatsional komponent	Anamnez yig‘ish, kasallik tarixini (istoriya bolezni) to‘g‘ri rasmiylashtirish, tibbiy konsilium va muloqotlarda tibbiy tildan to‘g‘ri va samarali foydalana olish.
3. Deontologik-empatik (motivatsion) komponent	Shifokor etikasi (deontologiya)ga amal qilish (yatrogeniyaning oldini olish), bemor va qarindoshlar holatini tushunib, empatik muloqot olib borish hamda og‘ir tashxislarni yetkazishda lingvistik nazoratni saqlash.
4. Refleksiv-baholash komponenti	O‘z nutqidagi xatolar va tushunmovchiliklarni tahlil qilish, muloqotdagi to‘siqlarni bartaraf etish hamda uzluksiz sohaviy-lingvistik o‘z ustida ishlash.

2. Bo‘lajak shifokorlar kasbiy-lingvistik kompetentligini takomillashtirishning bosqichli modeli

Tibbiyot oliy ta’lim muassasalarida talabalarning lingvistik kompetentligini oshirish zanjirsimon va ketma-ket joylashgan 4 ta bosqich orqali amalga oshiriladi:

1-bosqich: Propedevtik-proterminologik bosqich (1-2 kurslar)
Maqsad: Tibbiyot sohasiga kirish va ilmiy-terminologik lug‘at fondini shakllantirish.
Mazmuni: Lotin tili, anatomiya, gistologiya hamda umumiy biologiya fanlari doirasida termin yasovchi elementlarni o‘rganish. Lotin-grek terminologik birliklarining semantik va grammatik tuzilishini o‘zlashtirish.
Natija: Talaba tibbiy atamalarni to‘g‘ri talaffuz qiladi, tushunadi va o‘zaro bog‘lay oladi.

2-bosqich: Klinik-simulyatsion bosqich (3-4 kurslar)
Maqsad: Nazariy lingvistik bilimlarni kvazi-kasbiy (simulyativ) sharoitda amaliyotga tatbiq etish.
Mazmuni: Simulyatsion markazlarda "Standartlashtirilgan bemor" texnologiyasi orqali muloqot ssenariylarini o‘ynash. Anamnez yig‘ish, tashxisni tushuntirish va amaliyot darslarida kasallik tarixini to‘ldirish bo‘yicha nutqiy mashqlar o‘tkazish.
Natija: Talabada "shifokor–bemor" muloqotining lingvistik qoliplari va tibbiy hujjatlashtirish ko‘nikmasi hosil bo‘ladi.

3-bosqich: Real-klinik (integratsiyalashgan) bosqich (5-6 kurslar va ordinatura)
Maqsad: Real klinik sharoitda va turli xarakterdagi bemorlar bilan bevosita nutqiy muloqot o‘rnatish.
Mazmuni: Shifoxona bo‘limlarida bemorlarni ko‘rikdan o‘tkazish jarayonida ishtirok etish, bemor va ularning qarindoshlariga kasallik hamda davolash tartibini tushuntirish. Konsiliumlarda qatnashib, o‘z nuqtai nazarini ilmiy tilda asoslash.
Natija: Shifokor murakkab tibbiy terminlarni oddiy xalq tiliga moslashtirish (code-switching) va deontologik normalarga mos holda muloqot qilish mahoratini egallaydi.

4-bosqich: Ilmiy-refleksiv bosqich (Uzluksiz va aspirantura/PhD)
Maqsad: Yuqori darajadagi akademik va ilmiy-lingvistik kompetentlikni shakllantirish.
Mazmuni: Ilmiy maqola va tezislar yozish, xalqaro va mahalliy tibbiy konferensiyalarda ma’ruzalar qilish, ilmiy debat va diskussiyalarda qatnashish. O‘z nutqiy tajribasini tahlil qilish va baholash.
Natija: Mutaxassis ilmiy va akademik hamjamiyatda erkin muloqot qila oladigan, mualliflik matnlarini yarata oladigan ekspert darajasiga yetishadi.

PEDAGOGIK SHART-SHAROITLAR VA METODLAR

Ushbu modelni amaliyotga muvaffaqiyatli tatbiq etish uchun quyidagi pedagogik sharoitlar ta’minlanishi zarur:

- **Interaktiv metodlarni qo‘llash:** Keys-stadi (Case-study), rolli va ishbilarmonlik o‘yinlari, videoyozuvlar tahlili (bemor bilan muloqot yozuvini birgalikda tahlil qilish).
- **Penta-integratsiya:** Til kafedralari hamda klinik kafedralarning o‘zaro integratsiyasini ta’minlash (masalan, chet tili yoki o‘zbek tili darslarini klinik fanlar mavzulari bilan bog‘lab o‘tish).
- **Raqamli texnologiyalardan foydalanish:** Virtual simulyatorlar va tibbiy axborot tizimlarida (HIS) hujjatlarni to‘g‘ri rasmiylashtirish mashqlari.

XULOSA

Bo‘lajak shifokorlarning kasbiy-lingvistik kompetentligini takomillashtirish – bu shunchaki til o‘rgatish emas, balki shifokor shaxsining professional madaniyatini shakllantirish jarayonidir. Taqdim etilgan strukturaviy-komponentli tarkib (kognitiv, operatsional, deontologik-empatik, refleksiv) va bosqichli model (propedevtik, klinik-simulyatsion, real-klinik, ilmiy-refleksiv) bo‘lajak shifokorlarni muloqotga tayyorlash tizimini izchil va natijador qilish imkonini beradi.

Ushbu modelning amaliyotga joriy etilishi bo‘lajak shifokorlarga tibbiy xatolar va yatrogeniyalarning oldini olish, bemorlar ishonchini qozonish hamda xalqaro tibbiy va ilmiy hamjamiyatga integratsiyalashuv imkoniyatini beradi.

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ZAMONAVIY TIBBIYOTDA QALQONSIMON BEZDAGI O‘CHOQLI O‘ZGARISHLARINI TASHXISLASHDA SAMARALI YONDASHUVLAR

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Annotatsiya. *Ushbu tadqiqot zamonaviy tibbiyotning eng dolzarb muammolaridan biri bo‘lgan qalqonsimon bezning o‘choqli va tugunli o‘zgarishlarini erta bosqichlarda aniqlash hamda ularning differensial diagnostikasini takomillashtirish masalalariga bag‘ishlangan. Maqolada an’anaviy diagnostika usullari bilan bir qatorda, so‘nggi yillarda klinik amaliyotga joriy etilgan yuqori texnologik instrumental va laborator tekshiruvlarning samara-dorligi qiyosiy tahlil qilinadi. Xususan, yuqori aniqlikdagi ultra-tovush tekshiruvi va tugunlarning qattiqlik darajasini aniqlovchi elastografiya usulining jarayonning xavflilik ehtimolini baho-lashdagi o‘rni keng yoritilgan. Amaliy tavsiyalar qismida esa ushbu ilg‘or va gibrid diagnostik yondashuvlarni integratsiya qilish orqali asossiz jarrohlik amaliyotlarini kamaytirish hamda bemorlarni davolash taktikasini optimallashtirish strategiyalari taklif etilgan.*

Kalit so‘zlar: *qalqonsimon bez, o‘choqli o‘zgarishlar, differensial diagnostika, ultratovush elastografiyasi, qalqon-simon bezning UTTi, qalqonsimon bezdagi o‘choqli o‘zgarishlar ultratovush elastografiyasi*

EFFECTIVE APPROACHES TO THE DIAGNOSIS OF FOCAL THYROID LESIONS IN MODERN MEDICINE

Abstract. *This study is dedicated to one of the most pressing problems in modern medicine: the early detection of focal and nodular changes in the thyroid gland and the improvement of their differential diagnosis. Along with traditional diagnostic methods, the article provides a comparative analysis of the effectiveness of high-tech instrumental and laboratory tests introduced into clinical practice in recent years. In particular, the role of high-resolution ultrasonography and elastography, which determines the degree of nodule stiffness, in assessing the probability of process malignancy is widely highlighted. In the practical recommendations section, strategies are proposed to reduce unjustified surgical interventions and optimize patient treatment tactics through the integration of these advanced and hybrid diagnostic approaches.*

Keywords: *thyroid gland, focal lesions, differential diagnosis, ultrasound elastography, thyroid ultrasound, ultrasound elastography of thyroid focal lesions.*

Mavzuning dolzarbligi. Qalqonsimon bezning o‘choqli o‘zgarishlari bo‘lgan bemorlarni aniqlash, tashxislash va davolash jiddiy tibbiy-ijtimoiy muammo hisoblanadi[1,3,6]. Ekologik vaziyatlar hamda odamlar yashash va ovqatlanish sharoitlarini yaxshilanib borishi natijasida qalqonsimon bezida patologiyasi bo‘lgan bemorlar sonining ortib borishiga olib keladi. Keying yillarda qalqonsimon bezida o‘choqli o‘zgarishlar kuzatilayotgan bemorlar sonining oshib borishi ko‘plab kuza-tilmoqda[2,7,11].

Qalqonsimon bezdagi o‘choqli o‘zgarishlar ko‘p uchraydigan gistologik patologiya bo‘lib, atrofdagi limfa tugunlariga erta tarqalib borishi bilan tavsiflanadi[4,5,9].

Qalqonsimon bezdagi o‘choqli o‘zgarishlari bo‘lgan bemor-larni erta aniqlash imkoniyati amaliy sog‘liqni saqlash sohasiga ultratovush tekshiruvining tatbiq qilinishi sezilarli darajada oshdi[8,10].

Hozirgi davrda zamonaviy texnologiyalardan multipara-metrik ultratovush tekshiruvi butun dunyoda, jumladan MDH mamlakatlarida nur tashxisining ustuvor usullardan biri hisob-lanib, qalqonsimon bezidagi o‘choqli o‘zgarishlarni aniqlashda yetakchi usul sifatida targ‘ib qilinmoqda[4,11]. Ultratovush elas-tografiyasi va kontrast kuchaytirilgan ultratovush tekshiruv-laridan foydalanilishi qalqonsimon bezdagi o‘choqli o‘zgarishlar-ni tashxislashda multiparametrik ultratovush tekshiruvining aha-miyatini sezilarli darajada oshiradi[1,6,11].

Bugungi kunga kelib, ultratovush belgilarining bir qismini hamda ularning birgalikda kombinatsiyalarini qo‘llanilishi qalqonsimon bezdagi o‘choqli o‘zgarishlarning ultratovush belgilari mavjud bo‘lganda qalqonsimon bezning o‘choqli o‘zga-rishlarining rivojlanish ehtimolidan kelib chiqqan holda davolash va tashxisot taktikasini tavsiya etishga asos bo‘lishi mumkin[3, 10].

Tadqiqotning maqsadi qalqonsimon bezdagi o‘choqli o‘zgarishlarni erta aniqlashda multiparametrik ultratovush tek-shiruvining imkoniyatlarini aniqlashdan iborat.

Tadqiqot materiallari va usullari. Tadqiqot ishi Xorazm viloyati Urganch shahridagi “ULTRA VEDA” oilaviy klinikasiga qalqonsimon bezning o‘choqli o‘zgarishlari bilan 2022-2026 yillar davomida murojaat qilgan, 80 nafar bemorning tibbiy ambulator kartalari hamda kasallik tarixi ma’lumotlaridagi tekshirish va davolash natijalarining retrospektiv tahliliga asoslangan. Murojaat qilgan bemorlar Xitoy davlatida ishlab chiqarilgan “Chison” va “Mindrey” apparatida 3-7,5MHzli datchiklarda tekshirildi.

Olingan ma’lumotlar tahlili. Aniqlangan ma’lumotlar tahlili bo‘yicha bemorlarning yoshi 20 yoshdan 80 yoshgacha tashkil qilib, o‘rtacha yosh 51,3±14,8ni tashkil qildi. Qalqon-simon bezning o‘choqli o‘zgarishlari keng tarqalgan bo‘lib, ko‘pincha nazoratni talab qiladigan mahalliy zichlashish zonalari yoki kistalar shaklidagi xavfsiz o‘smalar aniqlanadi.

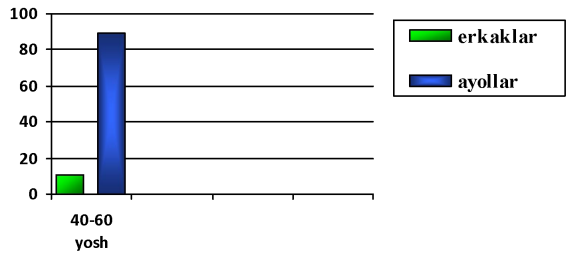
Olingan ma’lumotlar tahliliga ko‘ra 30-40 yoshgacha bo‘lgan davrda o‘choqli o‘zgarishlar kam uchraydi, ammo nazoratni talab qiladi. Ko‘pincha xavfsiz o‘smalar, jumladan, kolloid tugunlar, kistalar nisbatan ko‘proq uchrashi aniqlandi.

O‘rta yoshlarda ya’ni 30-50 yoshlilarda, ayniqsa, ayollar orasida tugunli tuzilmalarni aniqlanish chastotasi ancha ko‘payadi. Bunda asosan tugunli kolloid buqoqning aniqlanish holatlari ko‘proq kuzatildi. Faol dispanserizatsiya bilan bog‘liq holatlarda tashxis qo‘yilgan o‘smalarning eng yuqori cho‘qqisi ko‘pincha 30-45 yoshga to‘g‘ri keladi.

Katta yoshlilarda (50-60 yosh) Ko‘pchiligida tugunlar aniqlanadi, tugunli buqoq uchrash darajasi oshib bordi. Ultratovush tekshiruvida ko‘pincha gipoexogen, notekis konturli va qon oqimi kuchaygan ko‘rinada aniqlanadigan xavfli o‘smalar uchrash ehtimoli orti boradi.

Keksa yosh (60 yosh va undan kattalar)lilarda o‘choqli tugunlarning 78,5% gacha maksimal tarqalishi kuzatiladi, bunda bez hajmi fiziologik jihatdan kamayganligi va bo‘yin bo‘ylab biroz pastroqqa siljiganligi aniqlanadi.

Demak, qalqonsimon bezning o‘choqli o‘zgarishlari bilan kasallanishning maksimal darajasi 40-60 yosh guruhida kuza-tildi(55,81%). Barcha yosh toifalaridagi bemorlar orasida ayol-larning erkaklarga nisbatan ustunligi (89,53%) qayd etil-di(10,47%).



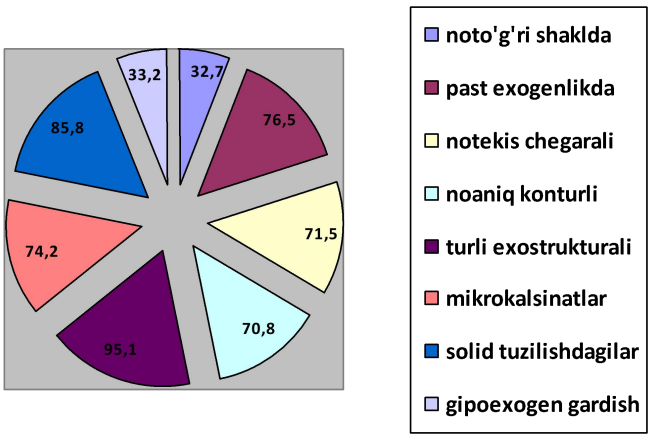
1-rasm. Qalqonsimon bez o‘choqli o‘zgarishlarining jins bo‘yicha taqsimlanishi

Qalqonsimon bezning o‘choqli o‘zgarishlarida ko‘ndalang to‘lqin tezligi 4,5±1,2 m/s bo‘lib, unda Ii(ishonchlilik indeksi) - 90%, elastiklik indeksi - 95% (4,85±1,7) ni tashkil etdi.

Shunday qilib, o‘tkazilgan tadqiqot shuni ko‘rsatdiki, multiparametrik ultratovush usullarini (B-rejim, rangli doppler rejimi, kompression elastografiya rejimi, siljish to‘lqinli elastografiya ultratovushi) kompleks qo‘llash yuqori ma’lumot beradi va operatsiyadan oldingi davrda qalqonsimon bezdagi o‘choqli o‘zgarishlarni qiyosiy tashxis-lashda qo‘llanilishi lozim.

Siljish to‘lqinli elastografiyada vizual sifatli baholash bilan bir qatorda miqdoriy ko‘rsatkichlar: ko‘ndalang to‘lqin tezligi (B) aniqlandi. Natijalar standart statistik usullar yordamida qayta ishlandi. Farqlar $p<0,05$ da statistik jihatdan ahamiyatli deb hisoblandi.

Tadqiqot natijalari va ularning muhokamasi. Tadqiqotimiz natijalariga ko‘ra, kulrang shkala rejimida ultratovush tekshiruvi o‘tkazilganda qalqonsimon bezning o‘choqli o‘zgarishlarida tu-gunlar asosan noto‘g‘ri shaklga ega bo‘lganlari 32,7%ni, past exogenlikdagilari 76,5%, notekis chegaraga egalari 71,5%, noaniq konturlilar 70,8%, bir xil bo‘lmagan exostrukturalilar 95,1%, mikrokalsinatlar 74,2%, solid tuzilish 85,8%, gipoexogen Halo gardishi 33,2%larni tashkil qildi.



2-rasm. Kulrang shkala rejimida qalqonsimon bezning o‘choqli o‘zgarishlarida tugunlar tavsifi.

Xulosalar. Qalqonsimon bezning o‘choqli o‘zgarishlarida "sovuq" tonlar ustunlik qildi. Ko‘ndalang to‘lqin tezligi 4,65±1,32 m/s (95%-li II), Yung moduli - 63,3±14,7kPa (95%-li II), elastiklik indeksi (strain ratio) - 4,89±1,65 (95%-li II).

EK TPI o‘lchanganda ko‘rsatkich 21,64±4,7 s, PI-32,18±1,56 dB, PI (DT/2)-63,90±10,296 s.ni tashkil etdi.

Shunday qilib, o‘tkazilgan tadqiqot shuni ko‘rsatdiki, multiparametrik ultratovush usullarini (B-rejim, rangli doppler rejimi, kompression elastografiya rejimi, siljish to‘lqinli elastografiya) kompleks qo‘llash yuqori ma’lumotga ega va operatsiyadan oldingi davrda qalqonsimon bez papillyar saratonining qiyosiy tashxisotida qo‘llanilishi kerak. Qalqonsimon bezning o‘choqli o‘zgarishlarini tashxislashda ultratovush vizualizatsiyasining zamonaviy innovatsion texnologiyalarini (STE va UTT) kompleks qo‘llash tugun tuzilishini baholash, tugunlarning haqiqiy o‘lchamlarini aniqlash, o‘smaning atrofdagi to‘qimalarga invaziyasini aniqlash, qalqonsimon bezning o‘choqli o‘zgarishlarida qon oqimini obyektiv miqdoriy baholash va qalqonsimon bezning o‘choqli o‘zgarishlari bo‘lgan bemorlarda individual diagnostika yechimlarini shakllantirish va davolash taktikasini tanlash imkonini beradi.

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QUYONLARDA ATEROSKLEROZNI EKSPERIMENTAL MODELLASHTIRISH VA ANTIATEROSKLEROTIK PREPARATLAR BILAN KORREKSIYALASHNING PATOMORFOLOGIK TAHLILI

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Annotatsiya. *Olib borilgan mazkur tadqiqotda tajriba quyonlarida ateroskle-rozni turli xil usullarda modellashtirib, ularni farmakologik korreksiya qilishda patomorfologik xususiyatlari o‘rganib chiqildi. Tajribada sepid preparati, kukunli xoleste-rin+vitamin D_2 kombinatsiyasi hamda tiosulfat, kompleks dorivor moddalardan iborat bo‘lgan preparatlardan Lyukofit va rozuvastatin bilan davolash ishlari olib borildi. Morfologik jihatdan tahlil natijalariga ko‘ra xolesterin+vitamin D_2 modeli ateroskle-rozning lipomatoz, fibrolipomatoz, yaralanish va aterokalsinozlarning bosqichlarining rivojlanish holatlari aniqlandi. Tomirlardagi aterokalsinoz prog-ressiyasi Tiosulfat yordamida qisman cheklagan bo‘lsa, o‘simliklardan olingan Lyukofit bilan kompleks preparat guruhlarida bir qancha sezilarli o‘zgarishlar ku-zatilib, aterokalsinoz bosqichidagi plakchalarning progressiyasini to‘xtatib, atero-kalsilizis belgilari morfologik jihatdan tasdiqlandi. Rozuvastatin guruhida kichik va o‘choqli aterokalsinozlari aniqlandi, biroq ushbu guruh quyonlarining jigarida gistotopografik sohalarida yog‘li distrofiya va monotselluyar nekroz va fibroz kabi qaytar va qaytmas shikastlanish belgilari aniqlandi. Lekin sepid preparati qo‘llanil-ganida ateroskleroz jarayonlarini chaqirmadi. Tajribalarda olingan natijalar ekspe-rimental*

ateroskleroz modelini takomillashtirish va antiaterosklerotik davo samara-dorligini baholashda muhim ahamiyatga ega.

Kalit so‘zlar: *sepid, xolesterin, vitamin D2, Vitamin D3, ateramatoz pilak-chalar, ateroskleroz, aterokalsinoz, lipomatoz, rozuvastatin, tiosulat, lyukofit, patomorfologiya, aorta, fibrolipopatoz, fibromatoz,*

EXPERIMENTAL MODELING OF ATHEROSCLEROSIS IN RABBITS AND PATHOLOGICAL ANALYSIS OF CORRECTION WITH THE HELP OF ANTIATHEROSCLEROTIC DRUGS

Abstract. *This study examined the pathomorphological features of atherosclerosis modeling in experimental rabbits using various methods and their pharmacological correction. During the experiment, treatment was conducted with the drug Sepid, which is a combination of powdered cholesterol and vitamin D2, as well as thiosulfate, a complex of medicinal substances, leukofit, and rosuvastatin. According to the results of the morphological analysis of the cholesterol+vitamin D2 model, cases of developing lipomatous, fibrolipomatous, ulcerative, and atherocalcinous stages of atherosclerosis were identified. While the progression of atherocalcinosis in the vessels was partially limited by thiosulfate, significant changes were observed in the groups of complex drugs with herbal Lyukofit, which morphologically confirmed signs of atherocalcinosis, stopping the progression of plaques in the atherocalcinosis stage. In the rosuvastatin group, small and focal atherocalcinoses were found, but in the histotopographic areas of the liver of rabbits in this group, signs of reversible and irreversible damage were found, such as fatty dystrophy and monocellular necrosis and fibrosis. However, the use of the drug sepid did not cause atherosclerosis processes. The results obtained in the experiments are of great importance for improving the model of experimental atherosclerosis and assessing the effectiveness of antiatherosclerotic therapy.*

Key words: *sepid, cholesterol, vitamin D2, vitamin D3, atherosclerotic platelets, atherosclerosis, atherocalcinosis, lipomatosis, rosuvastatin, thiosulate, leukophyte, pathomorphology, aorta, fibrolipopathy, fibromatosis*

Mavzuning dolzarbligi. Bugungi kunda barchaga ma’lumki, qon aylanish kasalliklari butun dunyo bo‘ylab o‘lim va kasallanishning asosiy sababi bo‘lib, yiliga 16,7 million o‘limni tashkil qiladi. Qon aylanish

kasalliklari dunyo miqyosida o‘limning etakchi sababi bo‘lib qolmoqda, shu bois ateroskleroz patogenezini chuqur o‘rganish va samarali terapevtik usullarni ishlab chiqish dolzarb masala hisoblanadi. Ko‘pgina qon aylanish kasalliklaring asosiy va etakchi patologik jarayoni ateroskleroz kasalligi bo‘lib, bu diametrlari katta va o‘rtacha o‘lchamdagi arteriyalarning intimasiga ta’sir qiluvchi sekin rivojlanayotgan, ko‘p o‘choqli, surunkali, immun yallig‘lanish kasalligidir.

Ateroskleroz bu arterial tizimdagi qon tomir devorining tizimli kasalligi bo‘lib, u arterial devorning qalinlashishiga, sklerozga va tomir bo‘shlig‘ining torayishiga olib keladi. Bosh miya tomirlaridagi ateroskle-rotik shikastlanishlar osiyoliklarda ishemik insultning eng muhim sababchi omillaridan biridir [2].

Ateroskleroz rivojlanish mexanizmi ko‘p qirrali, ularning ichida etakchi bo‘lgan giperxolesterinemiya eng muhim omil hisoblanadi. Aterogenez va lipid metabolizmi buzilishlari o‘rtasidagi bog‘liqlik birinchi marta 1913-yilda rus olimlari N.N. Anichkov va S.S. Xalatov tomonidan ko‘rsatilgan, ular keyinchalik patogenezning kombinatsiyalangan nazariyasini shakllantirganlar. [6].

Eksperimental modellar yaratish nafaqat patogenezni o‘rganish, balki farmakologik korreksiya samaradorligini baholash imkonini ham beradi. Statinlar, xususan rozuvastatin, gipolipidemik ta’sirdan tashqari yallig‘lanishga qarshi va endoteliyni muhofaza qiluvchi pleyotrop xususiyatlariga ham ega. Biroq ularning aktiv kalsifikasiya bosqichiga ta’siri hozirgi kungacha hali to‘liq o‘rganilmagan.

Butun dunyo bo‘ylab har yili ateroskleroznin tarqalish darajasi ortib bormoqda va qon aylanish tizimi kasalliklariga chalingan odamlarning 50% dan oshig‘i, asosan zamonaviy jamiyatlarda, ushbu asoratlardan vafot etmoqda. O‘tkazilgan epidemiologik tadqiqotlar natijasida ateroskleroznin patogenetik asosini erta rivojlanishi bilan bog‘liq bo‘lgan dislipidemiya, gipertenziya,

diabet, semizlik, chekish kabi bir nechta turdagi ekologik va genetik xavf omillarini aniqlashdi [1,15].

Aterosklerotik pilakchalarning shakllanishi arterial qon tomirlari intima qavatining yallig‘lanish jarayoni bo‘lib, lipidlar cho‘kishi, ko‘pikli hujayralar shakllanishi va qon tomir silliq mushak hujayralarining migrasiyasi bilan birga kelishi mumkin[3]. Olib borilgan epidemiologik, klinik va morfologik tadqiqotlar shuni ko‘rsatadiki, aterosklerotik jarayonlar homila va chaqaloqlarda karotid arteriya tomirlari intima-media qavati qalinligining oshishi bilan bachadonda boshlanadi, bu esa bolalar va o‘smirlarda aterosklerotik jarayonning tarqalishi va rivojlanishini sezilarli darajada oshiradi. O‘tkazilgan global tadqiqotlar natijalariga ko‘ra lipid metabolizmining buzilishi bolalar va o‘smirlarning 70%idan ortig‘ida uchraydi [4].

Ekstrakranial uyqu arteriyalari va intrakranial arteriyalarda yuzaga keladigan aterosklerotik kasalliklar insult va vaqtinchalik ishemik xuruj kabi ishemik serebrovaskulyar hodisalarning asosiy etiologiyasi hisoblanadi. Ko‘p fokusli aterosklerotik kasallikning tarqalishi 16% dan 40% gacha ekanligi haqida xabar berilgan [5].

A.Ya. Gushin va boshqalarning maqolasida tajribada aterosklerotik shikastlanishlar darajasini aniqlash, o‘rganish va tahlil qilish uchun keng tarqalgan usullar qo‘llanilgan[7].

Hozirgi vaqtda odam aterosklerozi va lipid metabolizmini o‘rganish uchun uch xil quyon modellari keng qo‘llaniladi: (1) xolesterin bilan oziqlanadigan quyonlar, (2) LDL retseptorlarining genetik yetishmovchiligi tufayli inson oilaviy giperxolesterinemiyasiga o‘xshash Shatanabe irsiy giperlipid-emiyasiga ega quyonlar va (3) genetik modifikatsiyalangan (transgen va nokaut) quyonlar. Rossiyaning Samara shaxri olimlari guruhi, jumladan, A.M. Chaulin va boshqalar [8] quyonlarda aterosklerozning eksperimental modellari natijalarini taqdim etdilar. 1980-yilda yapon tadqiqotchisi Y.Sh. Shatanabening irsiy giperlipidemik quyonlari (ShHHL quyonlari) yordamida ateroskleroz

rivojlanishining yangi modelini ishlab chiqdi. ShHHL quyonlari past zichlikdagi lipoprotein retseptorlarini kodlovchi gendagi genetik mutatsiyani o‘z ichiga oladi, natijada bu hayvonlar normal ovqatlanishda yuqori plazma xolesterin darajasiga ega bo‘ladi. Zamonaviy genetik texnologiyalar ateroskleroznin turli xil genetik modellarini yaratishga ham imkon berdi [9].

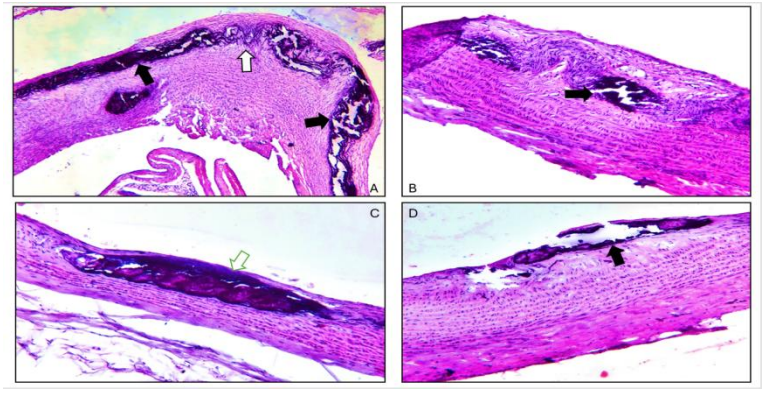
Maqsad. Quyonlarning qon tomirlarida aterosklerozni muvaffaqiyatli rivoj-lantiruvchi xolesterin va vitamin D_2 bilan kombinatsiyalangan aterogen preparatlar ta’sirida magistral qon tomirlarda rivojlanadigan morfologik o‘zgarishlarni baho-lash. Xuddi shunday muddat mobaynida aterogen preparat berilgan quyonlar guruhiga antiaterosklerotik preparatlar Tiosulfat, Lyukofit kompleks dorivor mod-dalari va Rozuvastatin berib korreksiyalangandan so‘ng, ushbu guruh quyonlar ma-gistral qon tomirlarini patomorfologik o‘rganish.

Material va metodlar. Tadqiqotda 60 ta quyon 6 guruhga (har birida 10 tadan) ajratildi. Aterogen model sifatida sepid, xolesterin (kukun ko‘rinishida), xolesterin + vitamin D_2 kombinatsiyalari per os 90–180 kun davomida qo‘llanildi. 1-gurux nazorat guruxi. 2-gurux kuyonlarga 3 oy davomida sepid preparati berildi. 3-gurux 90 kun davomida kukunli xolesterin va vitamin D_2 kombinatsiyasi berilib ateroskleroz chaqirildi. 4-gurux yuqoridagi aterogen preparatlar berilgan xayvonlarga 90-kunidan natriy tiosulfat preparati berila boshlagan. 5-gurux yuqoridagi aterogen preparatlar berilgan xayvonlarga 90-kunidan kompleks dorivor modda Lyukofit (Gibiskus, Lyusera va Anis) preparati berila boshlagan. 6-guruh yuqoridagi aterogen preparatlar berilgan xayvonlarga 90-kunidan rozuvastatin preparati bilan davolangan.

Materiallar 10% neytral buferlangan formalinda fiksasiya qilinib, standart gistologik ishlovdan o‘tkazildi. 5–7 mkm qalinlikdagi kesmalar gematoksilin-eozin bilan bo‘yaldi. Mikroskopik tahlil “ZEISS Primo Star” mikroskopida amalga oshirildi.

Natijalar. Sepid preparati berilgan 2-guruh. Ushbu guruhda makroskopik aortaning chiquvchi qismi, yoy qismi, ko‘krak va qorin segmentlari hamda magistral arteriyalarda klassik aterosklerotik plakchalar aniqlanmadi. Mikroskopik: Endoteliy qavatida notekislik va ayrim soxalarda o‘choqli deskvamatsiya, subendoteliy qavatida mukoid va plazmatik shimilish topildi. Tunika mediada elastik lamellalarda, laminar tuzilishining saqlaganligi, o‘choqli gipersellyulyarlik (miotsit va fibroblastlar hisobiga) aniqlandi. Tunika adventitsiya qavati intakt holatda. Kalsinoz, nekrotik yadro, fibroz kapsula yoki nostabil blyashka belgilari kuzatilmadi. Morfologik o‘zgarishlar engil distrofik xarakterga ega bo‘lib, progressiv aterosklerozga xos substrat shakllanmadi.

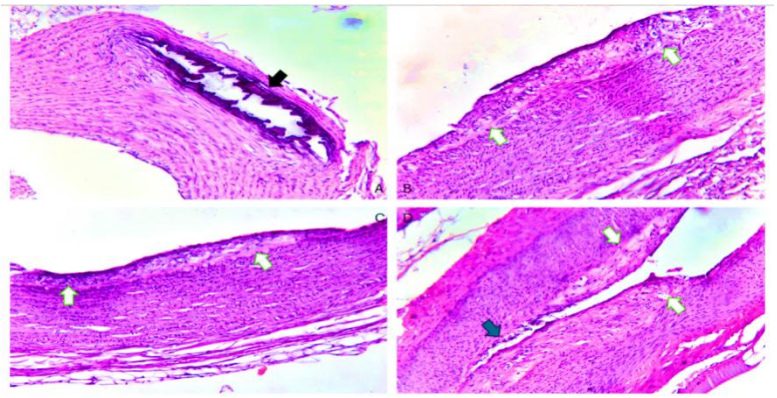
Xolesterin + vitamin D_2 berilgan 3-gurux. Ushbu guruhda makroskopik aortaning chiquvchi qismi, yoy qismi, ko‘krak va qorin segmentlari hamda magistral arteriyalarda klassik aterosklerotik pilakchalar aniqlandi. Aterosklerozning barcha bosqichlari morfologik jihatdan aniq namoyon bo‘ldi. Nekrotik massalarda kalsiy tuzlari cho‘kishi. Elastik tolalar depolimerizatsiyasi va defragmentatsiyasi. Media qavatida xam mineralizasiyalashgan soxalar aniqlandi. Soxta anevrizmaga moyillik. Ayniqsa aortaning yoy qismi va qorin qismida kalsinoz o‘choqlari keng tarqalgan bo‘lib, media qavatidagi laminar tuzilish sezilarli darajada buzilgan. (1-rasmga qaralsin).



1-rasm. *Xolesterin + vitamin D_2 berilgan 3-gurux.* **A.** Kuyon aorta yoyi. (Qora o‘q uchlari aterokalsinoz (nekrozlangan to‘qimaga minerallarning cho‘kishi) o‘choqlar). (Oq o‘q uchi elastik lamellalarning xaotik joylashuvi defragmentatsiyasi, depolimerizatsiya o‘choqlari). **B.** Ko‘krak aorta (Qora o‘q uchlari aterokalsinoz o‘choqlar). **C.** Qorin aorta (qorin aortasi aterokalsinoz o‘chog‘i, nostabil blyashka) oq o‘q uchi. **D.** Yonbosh arteriyasi aterokalsinoz

o‘chog‘i. Yuza joylashgan nostabil plakchada yaralanish va minerallashishi xisobiga plakcha yuzasida anevrizmatik deffekt xosil bo‘lishi qora o‘q uchi. **Bo‘yoq G-E. O‘lcham 4x10,10x10.**

Tiosulfat bilan korreksiya qilingan 4-guruh. Ushbu guruhda: Aterokalsinoz bosqichidagi plakchalar magistral barcha qon tomirlarda kuzatilmadi, faqat aortaning ma’lum qismida uchraydi. Tomirlarda aniqlangan kalsinat o‘choqlari 3-guruxdagi aynan shu qon tomirlariga nisbatan kichikroq xajmda. Ko‘piksimon hujayralar soni kamaygan lekin fibroblastlar va silliq



mushak xujayralar proliferatsiyasi ko‘zga tashlandi. Fibrolipomatoz bosqichidagi belgilari saqlanganligi aniqlandi. Tunika media qavatidagi elastik lamellalar laminar tuzilish 3-guruxga solishtirilganda bir xil ko‘rinishdaligi aniqlanadi. Buyrak arteriyasida ateroskleroz belgilari aniqlanmadi. (2-rasmga qaralsin).

2-rasm. *Xolesterin + vitamin D_2 berilgan va Tiosulfat preparati berilib koreksiyalangan 4-gurux.* **A.** Kuyon aorta yoyi. (Qora o‘q uchlari aterokalsinoz pilakcha). **B.** Ko‘krak aorta (Oq o‘q uchlari fibrolipomatoz bosqichidagi pilakcha). **C.** Qorin aorta (oq o‘q uchi) fibrolipomatoz bosqichidagi plakcha. **D.** Yonbosh arteriyasi (oq o‘q uchlar) fibrolipomatoz bosqichidagi plakcha, yalliglanish infiltrati va plazmatik shimilishi aniqlanadi. (Ko‘k o‘q uchi) endoteoliy xujayralarning proliferatsiyasi va immunokompitent xujayralarning endoteliy qavatiga adgeziyasi. **Bo‘yoq G-E. O‘lcham 4x10,10x10.**

4. Muhokama. Ushbu tadqiqot natijalari xolesterin + vitamin D_2 kombinatsiyasi aterosklerozning ilg‘or, jumladan aterokalsinoz bosqichini qisqa muddatda chaqirish qobiliyatiga ega ekanligini tasdiqlaydi. Vitamin D_2 kalsiy-fosfor metabolizmini o‘zgartirib, media qavatida osteogen transformatsiyani rag‘batlantirishi mumkin. Bu jarayon faqat passiv mineral cho‘kish emas, balki silliq mushak hujayralarining fenotipik qayta o‘zgarishlarga uchrashi bilan kechadi.

Aterokalsinoz rivojlanishi elastik lamellalarning depoli-merizasiyasi va matriks dezorganizasiyasi bilan chambarchas bog‘liq ekani kuzatildi. Bu holat tomir devorining mexanik barqarorligini pasaytiradi va nostabil plakchalar hosil bo‘lishiga olib keladi.

Tiosulfat qo‘llanilishi kalsinoz progressiyasini qisman cheklashini ko‘rsatdi. Bu uning kalsiy ionlari bilan xelat hosil qilish va antioksidant xususiyatlari bilan izohlanishi mumkin. Biroq u ilgari shakllangan fibroz va lipidli blyashkalarni to‘liq regressiyaga uchrata olmaydi.

Kompleks terapiya (Lyukofit) sklerotik qayta tuzilishni rag‘batlantiradi, ya’ni plakchalar fibroz kapsula bilan qoplanishi aniqlanadi. Bu morfologik jihatdan pilakchalarni stabilizasiyasini anglatadi ya’ni nostabil plakchalarni stabil plakchalarga aylanishini morfologik substratlari topiladi (ayniqsa mushak-elastik tipdagi qon tomirlarda). Bu ateroskleroznin aterokalsinoz bosqichidagi plakchalarga lizisli tasiri va qayta progressini sezilarli kamaytirgaligini isbotlayadi.

Rozuvastatin guruhida aterokalsinoz bosqichidagi plakchalarning yo‘qligi uning samaradorligini ko‘rsatadi. Bu ta’sir nafaqat gipolipidemik mexanizm, balki yallig‘lanishni susaytirish, endoteliy funksiyasini yaxshilash va oksidlanish stressini kamaytirish bilan bog‘liq bo‘lishi mumkin. Natijada ateroskleroznin progressivlanishiga qarshi ta’sir ko‘rsatib keyingi bosqichiga o‘tishini to‘xtatgan. Lekin ushbu guruxdagi magistral qon tomirlar devorida bir qancha savollar ochiq qoladi yani aterokalsinoz plakchalar lizislangan bo‘lsa yuqoridagi guruxlarga o‘xshash lizislangan soxada sklerotik yoki fibrozlanish belgilari topilmaganligi bu guruxda aterokalsinoz bosqichiga o‘tmagan plakchalar korreksiya qilingan degan xulosaga kelish mumkin. Bundan tashqari ushbu gurux kuyonlar jigarida qaytar va qaytmas shikastlanish belgilari yog‘li distrofiya va monotselulyar nekroz o‘choqlarning topilishi preparatning jigar to‘qimasiga shikastlovchi tasir kuchuga ega ekanligi bilan bog‘lanadi.

Muhim jihat shundaki, ateroskleroz bosqichlari har doim klassik ketma-ketlikda rivojlanmadi. Ayrim hollarda oraliq bosqichlar to‘liq shakllanmasdan aterokalsinoz rivojlangan. Bu jarayonning patogenetik geterogenligini ko‘rsatadi.

Xulosa. Mazkur tadqiqot natijalari shuni ko‘rsatdiki, xolesterin va vitamin D_2 kombinasiyasi qo‘llanilgan eksperimental model quyonlarda ateroskle-rozning nafaqat erta bosqichlarini (lipomatoz, fibrolipomatoz), balki uning ilg‘or va asoratli shakllarini, jumladan yaralanish va aterokal-sinozni ishonchli ravishda chaqirish imkonini beradi. Ushbu model qisqa muddatda kalsifikasiyalangan pilakchalarni hosil qilishi bilan patogenetik jihatdan ahamiyatli hisoblanadi.

Tadqiqot davomida aniqlangan morfologik o‘zgarishlar — elastik lamellalarning depolimerizasiyasi(u yirik qon tomirlar (masalan, aorta) devoridagi elastik tolali qatlamlarning (lamellalarning) kimyoviy yoki fermentativ ta’sir natijasida parchalanishi va o‘z elastiklik xususiyatini yo‘qotishi jarayonidir), silliq mushak hujayralarining fenotipik transformasiyasi, nekrotik lipidli yadro shakllanishi va mineral cho‘kish — aterosklerozning kompleks va ko‘p bosqichli jarayon ekanligini tasdiqlaydi. Aterokalsinoz faqat passiv kalsiy cho‘kishi emas, balki qon tomir devorining faol qayta tuzilishi natijasi ekanligi morfologik jihatdan asoslandi.

Sepid qo‘llanilgan guruhda klassik aterosklerotik blyashkalar kuzatilmagani mazkur preparatning mustaqil ravishda aterogen ta’sirga ega emasligini ko‘rsatadi. Bu holat nazorat modeli sifatida uning qo‘llanilishi mumkinligini anglatadi.

Natriy tiosulfat qo‘llanilishi kalsinoz progressiyasini qisman cheklash va yangi mineralizatsiya o‘choqlari shakllanishini kamaytirishga xizmat qildi. Biroq u ilgari shakllangan fibrolipomatoz blyashkalarni to‘liq regressiyaga uchratmadi. Demak, tiosulfat asosan antikalsifik vosita sifatida samarali bo‘lib, aterosklerozning ilg‘or bosqichlarida qo‘llash uchun maqbul bo‘lishi mumkin.

Kompleks terapiya fibroz qayta tuzilishni kuchaytirib, plakchalarni nisbatan stabil holatga keltirdi. Bu morfologik jihatdan aterosklerotik pilakcha barqarorligining oshishi bilan xarakterlanadi. Biroq kalsinoz o‘choqlari ayrim hollarda saqlanib qolgani uning ta’siri cheklanganligini ko‘rsatadi.

Rozuvastatin samaradorligi namoyon bo‘lishida kalsinoz o‘choqlari kuzatilmadi, yallig‘lanish infiltrasiyasi kamaydi, elastik tuzilmalar yaxshiroq saqlandi va intima qalinlashuv darajasi pasaydi. Bu preparat-ning nafaqat gipolipidemik, balki pleyotrop ya’ni yallig‘lanishga qarshi va endoteliyni muhofaza qiluvchi ta’siri mavjudligini ko‘rsatadi. Lekin preparatning jigar to‘qimasiga salbiy ta’sirining morfologik substrati sifatida qaytar va qaytmas shikastlanish (yog‘li gepatozi distrofiyasi va monotselulyar nekroz) belgilari aniqlandi.

Muhim ilmiy xulosa shundan iboratki, ateroskleroz bosqichlari har doim klassik ketma-ketlikda rivojlanmasligi mumkin. Ayrim hollarda oraliq bosqichlar to‘liq shakllanmasdan to‘g‘ridan-to‘g‘ri aterokalsinoz kuzatildi. Bu jarayon patogenezining geterogenligini va qo‘shimcha regulyator mexanizmlar mavjudligini ko‘rsatadi.

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СОВРЕМЕННЫЕ ПРЕДСТАВЛЕНИЯ ОБ ЭТИОЛОГИИ, ПАТОГЕНЕЗЕ И КЛАССИФИКАЦИИ МИОМЫ МАТКИ

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Аннотация. *Цель обзора — систематизировать современные данные об этиологии, молекулярно-генетических механизмах патогенеза и действующих классификациях миомы матки и обосновать выбор классификационных критериев для стратификации пациенток. Проведён нарративный анализ публикаций баз PubMed/MEDLINE, Scopus, Web of Science и eLIBRARY за 2001–2025 гг. Ведущими патогенетическими звеньями признаны соматические драйверные мутации (MED12, перестройки HMGA2), зависимость от эстрогенов и прогестерона, реорганизация внеклеточного матрикса и эпигенетические изменения. Международным стандартом описания локализации узлов является субклассификация FIGO (типы 0–8) в составе системы PALM-COEIN, применение которой обосновано как основной критерий группировки пациенток.*

Ключевые слова: *миома матки; лейомиома; миометрий; этиология; патогенез; MED12; HMGA2; половые стероиды; внеклеточный матрикс; классификация FIGO; PALM-COEIN.*

Abstract. *The aim of this review is to systematize current data on the etiology, molecular genetic mechanisms of pathogenesis and existing classifications of uterine fibroids, and to justify the choice of classification criteria for patient stratification. A narrative analysis of publications indexed in PubMed/MEDLINE, Scopus, Web of Science and eLIBRARY for 2001–2025 was performed. Somatic driver mutations (MED12, HMGA2 rearrangements), dependence on estrogens and progesterone, extracellular matrix reorganization and epigenetic changes are recognized as the leading pathogenetic links. The FIGO subclassification (types 0–8) within the PALM-COEIN system is substantiated as the main criterion for patient grouping.*

Keywords: *uterine fibroids; leiomyoma; myometrium; etiology; pathogenesis; MED12; HMGA2; sex steroids; extracellular matrix; FIGO classification; PALM-COEIN.*

Введение.

Миома матки (лейомиома) — наиболее частая доброкачественная опухоль женской репродуктивной системы, происходящая из гладкомышечных клеток миометрия и характеризующаяся избыточным отложением компонентов внеклеточного матрикса (Stewart et al., 2016). Кумулятивная частота заболевания к 50 годам превышает 70 % у представительниц европеоидной расы и достигает более 80 % у женщин африканского происхождения (Baird et al., 2003), а клинически значимые симптомы — аномальные маточные кровотечения, анемия, тазовая боль и нарушения репродуктивной функции — развиваются приблизительно у трети носительниц узлов (Al-Hendy et al., 2017). Особое значение имеет влияние миомы на течение беременности и родов: заболевание ассоциировано с угрозой невынашивания, аномалиями положения плода и повышенным риском послеродовых кровотечений (Safarova & Xajiyeva, 2026).

Несмотря на высокую медико-социальную значимость, методы патогенетической терапии остаются ограниченными вследствие недостаточного понимания молекулярных механизмов инициации и роста опухоли (Yang et al., 2022). Кроме того, длительное отсутствие единой системы описания локализации узлов затрудняло сопоставление результатов исследований, что было преодолено внедрением и последующим пересмотром субклассификации FIGO (Munro et al., 2011, 2018).

Цель обзора — систематизировать современные данные об этиологии, патогенезе и классификациях миомы матки и обосновать выбор классификационных критериев (в первую очередь системы FIGO)

для распределения пациенток по группам в рамках планируемого диссертационного исследования.

Материалы и методы.

Работа выполнена в дизайне нарративного обзора литературы. Поиск проводился в базах PubMed/MEDLINE, Scopus, Web of Science, eLIBRARY.RU и Google Scholar за 2001–2025 гг. по ключевым словам «uterine fibroids», «leiomyoma», «pathogenesis», «MED12», «FIGO classification», «миома матки» и их комбинациям, с приоритетом систематических обзоров, метаанализов и оригинальных исследований последних пяти лет. Включались полнотекстовые рецензируемые публикации на русском и английском языках; исключались тезисы без полного текста и неверифицируемые источники.

Результаты обзора.

Эпидемиология и этиология. Миома матки — гормонозависимая опухоль, развивающаяся после менархе и, как правило, регрессирующая в постменопаузе (Bulun, 2013). У женщин африканского происхождения она встречается приблизительно втрое чаще, чем у европеоидных, отличаясь более ранним началом и более тяжёлым течением (Yang et al., 2022). К немодифицируемым факторам риска относят поздний репродуктивный возраст, расовую принадлежность, раннее менархе, отягощённый семейный анамнез и нуллипарность; к потенциально модифицируемым — ожирение и метаболический синдром, артериальную гипертензию, дефицит витамина D и воздействие эндокринных дизрапторов. Миома является моноклональной опухолью: каждый узел развивается из единственной трансформированной клетки миометрия (Stewart et al., 2016), а инициирующим событием считается соматическая мутация в стволовой клетке, возникающая в период циклической, стимулированной эстрадиолом и прогестероном пролиферации (Bulun, 2013).

Молекулярно-генетические механизмы. Полногеномное секвенирование позволило описать спектр соматических нарушений, характерных для лейомиом; хромосомные аберрации выявляются приблизительно в 40 % опухолей (Flake et al., 2003; Mehine et al., 2013). Наиболее частым драйверным событием служат мутации экзонов 1–2 гена MED12, кодирующего субъединицу медиаторного комплекса РНК-полимеразы II; они регистрируются, по разным данным, в 45–90 % узлов и рассматриваются как раннее, инициирующее нарушение (Mäkinen et al., 2011). Вторым по значимости событием являются перестройки гена HMGA2 (12q14–15, около 10 % узлов), ведущие к гиперэкспрессии белка и активации протоонкогена PLAG1 (Yang et al., 2022). Отдельную группу составляют опухоли с биаллельной инактивацией гена FH; герминальные мутации FH лежат в основе синдрома наследственного лейомиоматоза и почечно-клеточного рака (Tomlinson et al., 2002). Исследования полиморфизмов COMT, TGF-β1 и IGF2 указывают на популяционно-специфическую предрасположенность (Dubey et al., 2024).

Гормональная регуляция и внеклеточный матрикс. Эстрогены повышают экспрессию рецепторов прогестерона, тогда как прогестерон стимулирует пролиферацию, подавляет апоптоз и усиливает продукцию внеклеточного матрикса (Reis et al., 2016); гормональные эффекты реализуются преимущественно через рецепторы зрелых клеток миометрия с последующим паракринным воздействием на стволовые клетки (Bulun, 2013). Существенную роль играют митогенные факторы роста TGF-β, bFGF, EGF и IGF-I (Flake et al., 2003). Избыточное и дезорганизованное отложение коллагена, фибронектина и протеогликанов формирует ригидный матрикс, изменяющий механическую передачу сигналов и рассматриваемый как перспективная терапевтическая мишень (Islam et al., 2018); дополнительный вклад вносят эпигенетические

механизмы — метилирование ДНК, модификации гистонов и дисрегуляция микроРНК (Mäkinen et al., 2011).

Классификации миомы матки. Исторически применялась анатомо-топографическая классификация (субмукозные, интрамуральные и субсерозные узлы); гистологическая классификация ВОЗ разграничивает обычную лейомиому, её варианты и пограничные гладкомышечные опухоли неопределённого злокачественного потенциала (STUMP), что важно для дифференциальной диагностики с лейомиосаркомой (Stewart et al., 2016). Действующим международным стандартом является субклассификация FIGO, введённая в 2011 г. в составе системы PALM-COEIN и пересмотренная в 2018 г.: узлы распределяются по восьми типам (0–8) с учётом их отношения к эндометрию и серозной оболочке (Munro et al., 2011, 2018).

Таблица.Субклассификация лейомиом по системе FIGO

Тип	Группа	Характеристика локализации
0–2	Субмукозные (SM)	0 — полностью внутриполостной узел на ножке; 1 — интрамуральный компонент < 50 % диаметра; 2 — ≥ 50 %
3	Субмукозные (SM)*	Полностью интрамуральный, но контактирует с эндометрием
4	Прочие (O)	Полностью интрамуральный, без контакта с эндометрием и серозой
5–7	Прочие (O)	Субсерозные: 5 — интрамуральный компонент ≥ 50 %; 6 — < 50 %; 7 — узел на ножке
8	Прочие (O)	Иные локализации (шеечные, паразитарные и др.)
2–5 и т. п.	Гибридные	Контакт и с эндометрием, и с серозой; два числа через дефис

*Примечание. * В пересмотре FIGO 2018 г. тип 3 реклассифицирован как субмукозный. Составлено по данным: Munro et al., 2011, 2018.*

Обсуждение.

Анализ литературы подтверждает многофакторную природу миомы матки, в которой генетические, гормональные, средовые и эпигенетические механизмы действуют во взаимодействии, а концепция инициации опухоли соматической мутацией в стволовой клетке на фоне

циклической гормональной стимуляции объединяет разрозненные наблюдения в единую патогенетическую модель (Bulun, 2013; Yang et al., 2022). Тем не менее не установлены механизмы возникновения мутаций MED12 и характер их взаимодействия с гормональными путями (Mäkinen et al., 2011). С позиций планируемого диссертационного исследования принципиальное значение имеет выбор инструмента стратификации пациенток: анатомо-топографическая классификация проста, но недостаточно воспроизводима, тогда как субклассификация FIGO обеспечивает объективные, визуально верифицируемые критерии и облегчает сравнение результатов (Munro et al., 2011). Практическая значимость точной топической диагностики подтверждается тем, что локализация узлов — прежде всего шеечная и перешеечная — непосредственно определяет акушерскую тактику и риск осложнений в родах (Safarova & Xajiyeva, 2026). Поэтому в качестве основного критерия распределения пациенток по группам целесообразно использовать систему FIGO (типы 0–8), дополняя её сведениями о количестве, размере узлов и гистологическом варианте по классификации ВОЗ. Ограничения обзора связаны с его нарративным характером и преобладанием зарубежных источников, что не исключает публикационного смещения.

Заключение.

Миома матки — наиболее распространённая доброкачественная моноклональная опухоль миометрия с многофакторным этиопатогенезом, в основе которого лежат соматические драйверные мутации (прежде всего MED12 и перестройки HMGA2), гормональная зависимость от эстрогенов и прогестерона, дисрегуляция факторов роста, реорганизация внеклеточного матрикса и эпигенетические изменения. Действующим международным стандартом описания локализации узлов является субклассификация FIGO (типы 0–8). Систематизированные данные

формируют теоретическую базу диссертационного исследования и обосновывают применение классификации FIGO в качестве основного критерия распределения пациенток по группам.

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MINIMALLY INVASIVE METHODS OF BILIARY DECOMPRESSION IN TUMORS OF THE PROXIMAL BILE DUCTS

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Abstract. Tumors of the proximal bile ducts (Klatskin tumors) account for 10-26% of malignant lesions of the biliary tract, with their incidence ranging from 50 to 110 cases per 100,000 population in Asian countries. At the time of diagnosis, the disease is unresectable in the majority of patients (65-80%), which highlights the importance of developing an optimal algorithm for minimally invasive biliary decompression as the main method of palliative treatment of obstructive jaundice.

Objective. To evaluate the immediate and long-term outcomes of various minimally invasive methods of biliary decompression in patients with tumors of the proximal bile ducts and to develop an algorithm for selecting the optimal intervention strategy.

Materials and Methods. The results of 185 minimally invasive biliary drainage procedures were analyzed, including retrograde (n=33), antegrade (n=5), and combined "rendezvous" (n=5) endoprosthetic procedures, as well as percutaneous transhepatic interventions, including external (n=57) and external-internal (n=85) drainage. The frequency of complications, mortality, long-term survival (Kaplan-Meier method), and quality of life (EORTC QLQ-C30 and QLQ-BIL21 questionnaires) were assessed.

Keywords: endobiliary stenting, tumors of the proximal bile ducts, percutaneous transhepatic cholangiostomy, Klatskin tumor.

Results. Endoprosthetic stenting was performed in 43 patients (23.2%), whereas percutaneous transhepatic cholangiostomy (PTC) was performed in 142 patients (76.7%). Complications occurred in 18.6% of cases after endoprosthetic stenting and in 27.5% after PTC (p=0.685). Mortality rates were 2.3% and 12.0%, respectively (p>0.05). Median survival after endoprosthetic stenting was significantly longer than after PTC: 12.1 versus 7.2 months (log-rank χ^2=5.70; p=0.017; p=0.04 according to Gehan's test). According to the EORTC QLQ-BIL21 questionnaire, the drainage-related discomfort score was 14.2±1.7 after endoprosthetic stenting compared with 53.9±1.7 after PTC (p<0.001). The choice of decompression method depended on the anatomical

type of tumor involvement according to the Bismuth-Corlette classification: retrograde transpapillary stenting predominated in type I-II lesions, whereas antegrade and combined interventions were preferred in type III-IV lesions.

Conclusions. When technically feasible, endobiliary stenting should be considered the preferred method of palliative biliary decompression in patients with Klatskin tumors, as it is associated with a lower incidence of complications and fatal outcomes and has a more favorable effect on quality of life compared with percutaneous transhepatic interventions. PTC remains important in cases of high-level biliary obstruction, separation of the lobar ducts in Bismuth-Corlette type III-IV lesions, and when adequate retrograde drainage cannot be achieved.

The optimal biliary decompression strategy should be individualized based on the anatomical characteristics of the tumor stricture, severity of obstructive jaundice, presence of cholangitis, tumor resectability, and expected patient survival.

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FIRST-TRIMESTER URIC ACID AS AN EARLY PLACENTAL RISK SIGNAL AFTER PROGRAMMED FROZEN EMBRYO TRANSFER

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Abstract. *Background: Programmed frozen embryo transfer (FET) occurs without corpus-luteum formation, a setting associated with altered early cardiovascular and renal adaptation. Objective: To determine whether first-trimester serum uric acid within the conventional normal range is associated with later placenta-mediated complications. Methods: This retrospective cohort included 158 singleton programmed-FET pregnancies delivered from 2022 to 2024. The prespecified composite comprised pre-eclampsia, Doppler-confirmed placental dysfunction, or placental abruption. Logistic regression adjusted for maternal age, pre-pregnancy body mass index, nulliparity, and insulin resistance. Model performance was exploratory and internally validated by 2,000 bootstrap resamples. Results: The composite occurred in 54 pregnancies (34.2%). Median uric acid was 222.5 µmol/L in affected pregnancies and 180.0 µmol/L in unaffected pregnancies ($p < .001$); both values were below 4 mg/dL. Each 10-µmol/L increase was associated with 41% higher adjusted odds (adjusted odds ratio [aOR] = 1.41, 95% confidence interval [CI] [1.21, 1.64], $p < .001$). Adding uric acid to clinical variables increased the apparent area under the curve from 0.745 to 0.827; the optimism-corrected value was 0.805. Conclusion: First-trimester uric acid may capture early vascular-metabolic stress before overt hyperuricaemia develops. It should not be used as a stand-alone threshold; prospective external validation is required.*

Keywords: *uric acid; programmed frozen embryo transfer; pre-eclampsia; placental dysfunction; early pregnancy screening*

Introduction

Frozen embryo transfer has become a routine component of assisted reproduction, but maternal outcomes differ according to endometrial preparation. Systematic reviews and large cohort studies consistently report

more hypertensive and placenta-mediated complications after programmed or artificial-cycle FET than after natural-cycle FET (Busnelli et al., 2022; Zaat et al., 2023). Unlike an ovulatory cycle, programmed FET relies on exogenous oestrogen and progesterone and does not produce a corpus luteum. This distinction is biologically relevant because the corpus luteum secretes relaxin and other vasoactive mediators involved in early arterial compliance, plasma-volume expansion, and renal adaptation (Conrad et al., 2022; von Versen-Höynck et al., 2019).

Serum uric acid normally decreases in early pregnancy as renal plasma flow and glomerular filtration increase. A relatively higher value may therefore reflect incomplete renal adaptation, oxidative stress, endothelial dysfunction, or a combination of these processes. Previous studies have linked early-pregnancy uric acid with pre-eclampsia and adverse pregnancy outcomes, although its role may be that of a marker rather than a causal mediator (Bellos et al., 2020; Laughon et al., 2011; Yue et al., 2023). Evidence specifically focused on programmed FET remains limited, and conventional hyperuricaemia thresholds may overlook smaller but clinically meaningful changes within the reference range.

The aim of this study was to assess the association between first-trimester serum uric acid and a prespecified composite of placenta-mediated complications in singleton programmed-FET pregnancies. A secondary, hypothesis-generating objective was to examine whether uric acid added discriminative and calibration information to routinely available maternal characteristics.

Methods

A retrospective cohort study was conducted using anonymised medical records from pregnancies delivered between 1 January 2022 and 31 December 2024. Reporting followed the STROBE framework, with exploratory prediction-model reporting guided by TRIPOD (Collins et al., 2015; von Elm et al., 2007). Eligible participants had a singleton pregnancy conceived after programmed FET and delivered at 22 completed weeks or later. Programmed cycles were defined as endometrial preparation with exogenous oestrogen and progesterone without spontaneous ovulation or corpus-luteum formation.

Exclusion criteria were multiple pregnancy, major fetal structural or chromosomal abnormality, severe decompensated extragenital disease, known chronic kidney disease, first-trimester creatinine above the local upper reference limit, or missing exposure or primary-outcome data. The first serum uric-acid result recorded at or before 13 weeks and 6 days was analysed continuously per 10 μmol/L; no data-derived cut-off was selected. Prespecified covariates were maternal age, pre-pregnancy body mass index (BMI), nulliparity, and insulin resistance documented in the source record.

The primary outcome was a composite of pre-eclampsia, placental dysfunction accompanied by an abnormal uteroplacental or fetoplacental Doppler classification in the formal ultrasound report, or clinically diagnosed placental abruption. Pre-eclampsia was defined according to International Society for the Study of Hypertension in Pregnancy recommendations (Magee et al., 2022). Secondary outcomes were individual composite components and preterm birth before 37 weeks.

Continuous variables were compared with the Mann-Whitney U test and categorical variables with Fisher’s exact test. Logistic regression estimated odds ratios (ORs) and 95% CIs. The adjusted model included uric acid, age, BMI, nulliparity, and insulin resistance. Of 158 participants, 155 complete cases with 52 primary events were available, providing 10.4 events per

parameter. Secondary analyses evaluated pre-eclampsia alone, a broader placental-dysfunction definition, and a model omitting BMI. Exploratory discrimination, calibration, and decision-curve analyses used the same complete-case sample; 2,000 bootstrap resamples estimated optimism-corrected performance. No external validation was performed.

Results

The cohort included 158 singleton programmed-FET pregnancies. The primary composite occurred in 54 pregnancies (34.2%), including 26 cases of pre-eclampsia (16.5%), 36 cases of Doppler-confirmed placental dysfunction (22.8%), and six placental abruptions (3.8%); components were not mutually exclusive. Women with the composite had higher BMI and more obesity and insulin resistance. Overall median first-trimester uric acid was 193.5 µmol/L (interquartile range [IQR], 170.3-219.5).

Median uric acid was 222.5 µmol/L (IQR, 197.0-248.2) among women who later developed the composite and 180.0 µmol/L (IQR, 164.8-200.0) among those who did not ($p < .001$). Expressed in mg/dL, these medians were 3.74 and 3.03, respectively; both remained below the 4-mg/dL threshold commonly used to denote hyperuricaemia in pregnancy. Each 10-µmol/L increase was associated with higher unadjusted odds of the composite (OR = 1.45, 95% CI [1.27, 1.65]) and higher adjusted odds (aOR = 1.41, 95% CI [1.21, 1.64], $p < .001$).

Table 1

Key associations and exploratory model performance

Measure	Events	Effect estimate / value	p
Primary composite	54/158 (34.2%)	aOR per 10 µmol/L: 1.41 (95% CI [1.21, 1.64])	< .001
Pre-eclampsia	26/158 (16.5%)	aOR per 10 µmol/L: 1.45 (95% CI [1.20, 1.75])	< .001
Doppler-confirmed placental dysfunction	36/158 (22.8%)	Unadjusted OR per 10 µmol/L: 1.33 (95% CI [1.18, 1.51])	< .001
Preterm birth < 37 weeks	25/158 (15.8%)	Unadjusted OR per 10 µmol/L: 1.29 (95% CI [1.14, 1.46])	< .001

Measure	Events	Effect estimate / value	p
Clinical model + uric acid	155; 52 events	Apparent AUC: 0.827; optimism-corrected AUC: 0.805	Exploratory

Note. AUC = area under the curve; aOR = adjusted odds ratio; CI = confidence interval; OR = odds ratio. Secondary outcome analyses were exploratory and not adjusted for multiplicity.

The pre-eclampsia-only association remained consistent after penalised-likelihood analysis. Findings were also similar when the broader placental-dysfunction definition was used (aOR = 1.38, 95% CI [1.19, 1.59]) and when BMI was removed from the primary model (aOR = 1.44, 95% CI [1.25, 1.65]). In exploratory performance analyses, the apparent area under the curve (AUC) was 0.745 for the clinical model and 0.827 after uric acid was added. The combined model's optimism-corrected AUC was 0.805, with a Brier score of 0.172, calibration intercept of -0.057, and calibration slope of 0.877.

Discussion

The principal finding is not simply that uric acid was higher in complicated pregnancies, but that the separation appeared while group medians remained within the conventional normal range. In programmed-FET pregnancies, a value that is not frankly elevated may still reflect incomplete early renal and vascular adaptation. This interpretation is compatible with the absence of corpus-luteum-derived vasoactive mediators and with previous evidence of reduced arterial compliance in corpus-luteum-deficient conceptions (Conrad et al., 2022; von Versen-Höynck et al., 2019).

Uric acid may integrate several pathways relevant to abnormal placentation: reduced renal clearance, xanthine-oxidase-related oxidative stress, impaired nitric-oxide bioavailability, endothelial dysfunction, and inflammatory signalling. However, the present study cannot determine whether uric acid is causal, lies on a metabolic-to-vascular pathway, or is an early consequence of subclinical disease. The moderate correlation between uric acid and BMI also means that adiposity and metabolic burden remain important even though the uric-acid coefficient persisted after adjustment.

The study's strengths include a homogeneous programmed-transfer population, first-trimester exposure preceding the outcomes, continuous threshold-free analysis, prespecified adjustment, sensitivity analyses, and bootstrap internal validation. Important limitations include its retrospective single-centre design, inconsistent retrieval of exact sampling week and numerical Doppler indices, potential outcome ascertainment bias, incomplete data on aspirin use and prior obstetric history, and the absence of external validation. The unexpected inverse nulliparity coefficient may reflect selection or unmeasured prior pregnancy history and must not be interpreted as a protective effect.

Clinically, uric acid is inexpensive and widely available, making it attractive for resource-conscious risk assessment. Nevertheless, these results do not support replacing validated pre-eclampsia screening or applying a single treatment threshold. The more defensible next step is prospective multicentre validation with standardised gestational timing, creatinine measurement, detailed FET and aspirin exposure, angiogenic markers, objective Doppler indices, and neonatal outcomes. External calibration and decision-curve assessment are necessary before individual risk estimates are used in practice.

Conclusion

In singleton pregnancies after programmed FET, higher first-trimester serum uric acid was independently associated with subsequent placenta-mediated complications, including pre-eclampsia, even though median concentrations remained within the conventional normal range. Uric acid may serve as an early, accessible signal of vascular-metabolic maladaptation, but its clinical role remains hypothesis-generating pending prospective external validation.

Ethics, Funding, and Conflicts of Interest

The study received institutional review-board approval with waiver of individual consent for anonymised retrospective data. No external funding was received, and the authors declared no conflicts of interest.

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СРАВНИТЕЛЬНАЯ ОЦЕНКА ЭФФЕКТИВНОСТИ НЕПОСРЕДСТВЕННО КОНТРОЛИРУЕМОГО И ВИДЕО-КОНТРОЛИРУЕМОГО МОНИТОРИНГА ЛЕЧЕНИЯ ТУБЕРКУЛЁЗА ЛЁГКИХ

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Аннотация. *Результаты лечения туберкулеза легких во многом зависят от приверженности пациентов противотуберкулезной терапии и качества контроля приема препаратов. Проведен сравнительный анализ мониторинга лечения 286 пациентов в 2021–2025 гг.: 107 получали непосредственно контролируемое лечение (НКЛ), 179 — видео-контролируемое лечение (ВКЛ). Полное излечение достигнуто у 75,7% и 84,9% пациентов соответственно. Лекарственно-устойчивая форма туберкулеза сформировалась в 15,9% против 5,6% случаев (χ^2=7,15; p=0,007), безуспешное лечение — в 6,5% против 2,2%. Минимальная и максимальная продолжительность лечения при ВКЛ сократилась на 169 и 298 дней. Полученные данные подтверждают перспективность более широкого применения цифрового мониторинга в противотуберкулезной службе.*

Ключевые слова: *туберкулез легких, мониторинг лечения туберкулёза, непосредственно контролируемое лечение, видео-контролируемое лечение, лекарственно-устойчивая форма туберкулеза.*

Abstract. *Treatment outcomes in pulmonary tuberculosis largely depend on adherence to anti-tuberculosis therapy and the quality of medication-intake monitoring. This comparative study analyzed 286 patients treated in 2021–2025: 107 received directly observed treatment (DOT) and 179 received video-observed treatment (VOT). Complete cure was achieved in 75.7% and 84.9%, respectively. Drug-resistant tuberculosis occurred in 15.9% versus 5.6% ($\chi^2=7.15$; $p=0.007$), while treatment failure decreased from 6.5% to 2.2%. VOT shortened minimum and maximum treatment duration by 169 and 298 days. The findings support wider implementation of digital treatment monitoring in tuberculosis care.*

Key words: *pulmonary tuberculosis, treatment monitoring, directly observed treatment, video-observed treatment, drug-resistant tuberculosis.*

Введение

Эффективность лечения туберкулеза легких определяется не одним фактором: значение имеют микробная нагрузка, лекарственная чувствительность Mycobacterium tuberculosis, активность и переносимость противотуберкулезных препаратов [5, 6, 8]. Вместе с тем даже правильно подобранная схема терапии не дает ожидаемого результата при нерегулярном приеме лекарств. Именно поэтому контроль приверженности остается одной из ключевых задач современной фтизиатрии, особенно при риске формирования лекарственно-устойчивых форм заболевания [3–6, 8, 12].

Стратегии DOT и DOTS предусматривают непосредственное наблюдение медицинского работника за приемом препаратов [7, 9, 11]. Подход доказал свою практическую значимость, однако требует

регулярных посещений лечебного учреждения, времени персонала и дополнительных расходов пациента. Возникает закономерный вопрос: можно ли сохранить надежность визуального контроля, одновременно сделав лечение менее обременительным для пациента? Развитие цифрового здравоохранения фактически создало такую возможность [1, 2, 4, 10, 12].

Видео-контролируемое лечение позволяет пациенту фиксировать прием препаратов с помощью мобильного приложения или специализированной веб-платформы, а ответственному медицинскому работнику — просматривать запись сразу либо в удобное время [1, 4, 10, 12]. Примечательно, что при временной смене места проживания контроль лечения при этом не прерывается.

Цель исследования — улучшение эффективности мониторинга лечения больных туберкулезом легких путем применения видео-контролируемого лечения и сравнительная оценка его результатов с НКЛ.

Материалы и методы исследования

Проведен ретроспективный сравнительный анализ результатов мониторинга лечения 286 пациентов с туберкулезом легких, находившихся под наблюдением в Республиканском специализированном научно-практическом медицинском центре фтизиатрии и пульмонологии и его областных филиалах в 2021–2025 гг. Контрольную группу составили 107 пациентов, получавших НКЛ, основную — 179 пациентов, находившихся на ВКЛ.

В контрольной группе было 54 (50,5%) женщины и 53 (49,5%) мужчины, средний возраст — 44,5±4,2 года. В основной группе — 84 (46,9%) женщины и 95 (53,1%) мужчин, средний возраст — 39,1±5,4 года.

Таблица 1

Исходная характеристика исследуемых групп

Показатель	НКЛ (n=107)	ВКЛ (n=179)

Женщины	54 (50,5%)	84 (46,9%)
Мужчины	53 (49,5%)	95 (53,1%)
Средний возраст, лет	44,5±4,2	39,1±5,4
Инфильтративный туберкулез	55 (51,4%)	92 (51,4%)
Ишемическая болезнь сердца	24 (22,4%)	38 (21,2%)
Артериальная гипертензия	16 (14,9%)	22 (12,3%)
ХОБЛ	17 (18,9%)	33 (18,4%)
Сахарный диабет	8 (7,5%)	15 (8,4%)
Язвенная болезнь 12 п.к.	6 (5,6%)	10 (5,6%)
Хронический пиелонефрит	7 (6,5%)	11 (6,1%)

В программу ВКЛ включали пациентов старше 18 лет на амбулаторном этапе либо после выписки из стационара при подтвержденной 100%-ной приверженности НКЛ не менее 14 дней, наличии информированного согласия, доступа к Интернету и навыков использования электронного устройства самостоятельно или с помощью семьи. Пациенты должны были уметь принимать препараты в соответствии с назначенным режимом после обучения медицинским персоналом.

Критериями невключения были возраст младше 18 лет, отказ от информированного согласия, наличие инъекционных противотуберкулезных препаратов, отсутствие технической возможности подключения к Интернету, неспособность самостоятельно принимать препараты, психические заболевания и нахождение в местах лишения свободы.

Диагностика и динамическое наблюдение основывались на комплексном клинико-лабораторном и инструментальном обследовании: рентгенографии органов грудной клетки, ультразвуковом исследовании, мультиспиральной компьютерной томографии, а при показаниях — торакоцентезе и диагностической торакоскопии.

Статистическую обработку проводили методами вариационной статистики. Количественные показатели представлены как M±SD и 95% доверительный интервал (95% ДИ). Для сравнения качественных

признаков использовали критерий χ^2 Пирсона; различия считали статистически значимыми при $p<0,05$.

Результаты и их обсуждение

Полное излечение зарегистрировано у 81 пациента контрольной группы (75,7%; 95% ДИ 67,8–83,6) и у 152 пациентов основной группы (84,9%; 95% ДИ 79,7–90,1). Таким образом, при ВКЛ доля полностью излечившихся была выше на 9,2 процентного пункта, хотя статистической значимости различие не достигло ($\chi^2=3,18$; $p=0,074$).

Лекарственно-устойчивая форма туберкулеза развилась у 17 (15,9%; 95% ДИ 9,0–22,8) пациентов при НКЛ и у 10 (5,6%; 95% ДИ 2,3–8,9) при ВКЛ. Здесь различие уже было статистически значимым ($\chi^2=7,15$; $p=0,007$): частота формирования лекарственной устойчивости снизилась на 10,3 процентного пункта.

Таблица 2

Исходы лечения в зависимости от способа мониторинга

Исход	НКЛ (n=107)	ВКЛ (n=179)	Разница
Излечение	81 (75,7%)	152 (84,9%)	+9,2
Лекарственно-устойчивый туберкулез	17 (15,9%)	10 (5,6%)	−10,3
Безуспешное лечение	7 (6,5%)	4 (2,2%)	−4,3
Летальность	2 (1,9%)	1 (0,5%)	−1,4
Другие исходы	0	12 (6,7%)	+6,7

Безуспешное лечение отмечено у 7 (6,5%) пациентов НКЛ и у 4 (2,2%) пациентов ВКЛ. Летальность составила соответственно 2 (1,9%) и 1 (0,5%) случая. В контрольной группе одна смерть была связана с утяжелением состояния и легочным кровотечением на фоне безуспешного лечения, вторая — с прогрессированием фиброзно-кавернозного туберкулеза. В основной группе причиной смерти стало прогрессирование ИБС с развитием инфаркта миокарда на фоне безуспешного противотуберкулезного лечения.

В основной группе 12 (6,7%) пациентов выбыли из наблюдения по другим причинам: 5 (2,8%) переехали за пределы Республики Узбекистан, 6 (3,3%) — в другой район и были выведены из обследования, 1 (0,5%) пациент без предупреждения потерял связь с группой наблюдения. Положительно оценили предложенный мониторинг 171 пациент (95,5%). Чаще всего отмечались отсутствие необходимости ежедневного посещения поликлиники, удобство приложения и доступность мониторинга в разных регионах страны.

Особого внимания заслуживает продолжительность терапии. Разница в минимальных сроках продолжительности лечения в исследуемых группах составил 9 дней, а разница максимального срока 61 день. Межгрупповые различия оценены как статистически значимые ($p<0,05$).

Выводы

Применение ВКЛ сопровождалось увеличением доли полного излечения с 75,7% до 84,9%, снижением лекарственно-устойчивых форм туберкулеза с 15,9% до 5,6%, безуспешного лечения — с 6,5% до 2,2%, летальности — с 1,9% до 0,5%.

Основными причинами перехода в лекарственно-устойчивую форму и неэффективности лечения в контрольной группе являлись несвоевременное получение препаратов, бесконтрольный прием и отказ от продолжения терапии. Предлагаемая программа ВКЛ проста в обучении и применении, облегчает регулярное направление отчетов о приеме препаратов, снижает расходы, связанные с посещением лечебно-профилактических учреждений, и уменьшает неудобства дальних поездок. Полученные результаты обосновывают более широкое внедрение ВКЛ у пациентов, соответствующих критериям программы.

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МОРФОЛОГИЧЕСКИЕ И МОРФОМЕТРИЧЕСКИЕ ОСОБЕННОСТИ ЯИЧНИКОВ ПРИ ОПУХОЛЕ БРЕННЕРА

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Аннотация. *В данной статье приведена материалы которое впервые комплексного патоморфологического и морфометрического исследования у 45 пациенток, проведенной на основе сравнительных анализ доброкачественных, пограничных и злокачественных форм опухоли Бреннера яичников с оценкой их клинического и прогностического значения. Установлены особенности опухолевой прогрессии от доброкачественных к пограничным и злокачест-венным вариантам, выражающиеся в после-довательном усилении клеточной атипии, повышении митотической активности, уменьшении доли строма-ль-ного компонента и появлении инвазивного роста. Кроме этого ещё прилагается материалы иммуногистохимический профилья, морфометри-ческие измерение и морфологические изменение опухолья Бреннера*

Ключевые слова*: Опухоль Бреннера, злокачественные опухолы яичника, морфометрические показатели яичника при опухолья Бреннера, морфологические изменение яичника при опухолья Бреннера, иммуно-гистохимические исследования, ранная диагностика опухолей женской репродуктивной системы*

MORPHOLOGICAL AND MORPHOMETRIC CHARACTERISTICS OF OVARIES IN BRENNER TUMOR

Annotation. *This article presents materials from a comprehensive pathomorphological and morphometric study conducted for the first time on 45 patients, based on a comparative analysis of benign, borderline, and malignant forms of Brenner's tumor of the ovaries, with an assessment of their clinical and prognostic significance. The study identified the features of tumor progression from benign to borderline and malignant variants, which manifested as a sequential increase in cellular atypia, an increase in mitotic activity, a decrease in the proportion of the stromal component, and the appearance of invasive growth. In addition, materials are also provided, including an immunohistochemical profile, morphometric measurements, and morphological changes in Brenner's tumor.*

Keywords: *Brenner tumor, malignant ovarian tumors, morphometric indicators of the ovary in Brenner tumor, morphological changes in the ovary in Brenner tumor, immunohistochemical studies, early diagnosis of tumors of the female reproductive system.*

Актуальность. Опухоли яичников остаются одной из наиболее актуальных проблем современной онкогинекологии вследствие сложности ранней диагностики, морфологической неоднородности и высокого риска опухолевой прогрессии [15;7–33-б, 17;209–249-б.]. Опухоль Бреннера яич-ников представляет собой редкий вариант эпителиальных новообразований, относящийся к группе переходно-клеточных опухолей и характеризующийся признаками уротелиальной дифференцировки. В современной классифи-кации Всемирной организации здравоохранения данная опухоль выделяется как самостоятельная нозологическая единица в составе эпителиальных опухолей яичников, что обусловлено её специфическими морфологическими и иммуногистохимическими особенностями. Согласно современной класси-фикации Всемирной организации здравоохранения, опухоль Бреннера относится к редким эпителиальным

опухолям яичников и характеризуется уротелиальной дифференцировкой опухолевых клеток [19;1–300-б., 20:1–10-б.].

По данным эпидемиологических исследований, опухоль Бреннера сос-тавляет в среднем 1–2% всех опухолей яичников, что определяет её как редкую патологию. Несмотря на низкую распространённость, клиническая значимость данной опухоли обусловлена сложностями морфологической диагностики, вариабельностью гистологического строения и возможностью злокачественной трансформации.

В настоящее время особое значение приобретает изучение молекулярно-морфологических механизмов опухолевой прогрессии, а также иммуногистохимических критериев биологической агрессивности опухоли [7; 1–12-б., 8;1–12-б., 14;1–9-б.].

В последние годы особое внимание уделяется морфометрическим методам исследования, позволяющим объективизировать степень клеточной атипии, пролиферативной активности и опухолевой прогрессии [3;1–250-б., 4;1–12-б.]. Одной из наиболее значимых проблем является дифферен-циальная диагностика опухоли Бреннера с другими эпителиальными ново-образованиями яичников, в первую очередь с переходноклеточным раком, а также с метастатическими поражениями, имеющими сходное морфоло-гическое строение. Это обусловлено тем, что в ряде случаев морфологи-ческие признаки перекрываются, что требует использования дополнительных методов исследования. Иммуногистохимический анализ играет ключевую роль в уточнении диагноза. Современные методы иммуногистохимического исследования позволяют уточнить гистогенез опухоли, определить уровень пролиферативной активности и оценить риск злокачественной трансформации [5;1–15-б., 12;1–15-б.,].

Несмотря на значительное количество исследований, посвящённых эпителиальным опухолям яичников, морфологические и

иммуногистохими-ческие особенности опухоли Бреннера остаются недостаточно изученными, особенно в аспекте взаимосвязи морфометрических показателей с клиничес-ким течением и результатами лечения [9;1–6-б., 14;1–9-б., 16;1–7-б, 20;1–10-б.].

В последние годы в Республике Узбекистан активно развиваются исследования в области онкоморфологии, иммуногистохимии и диагностики опухолей женской репродуктивной системы. Существенный вклад в развитие отечественной онкологии и патологической анатомии внесли узбекские учёные, занимающиеся вопросами морфологической диагностики опухолей, совершенствованием иммуногистохимических методов исследования и изучением клинико-морфологических особенностей онкогинекологических заболеваний.

Отечественными исследователями отмечается рост онкологической заболеваемости среди женского населения, а также необходимость совер-шенствования морфологической диагностики эпителиальных опухолей яичников [1;1-120-б., 2;1-95-б.]. Ряд исследований узбекских учёных пос-вящён изучению возможностей иммуногистохимической диагностики опухолей женской репродуктивной системы, включая оценку проли-феративной активности, экспрессии онкопротеинов и факторов опухолевой прогрессии [10;1–300-б., 18;1–180-б.].

В региональном аспекте, в том числе в Республике Узбекистан, проблема усугубляется недостатком статистических данных и отсутствием систематизированных исследований, посвящённых данной патологии. Это ограничивает возможности сравнения с международными данными и затруд-няет разработку региональных диагностических стандартов. В отечественной литературе подчёркивается недостаточная изученность редких эпителиаль-ных опухолей яичников, в том числе опухоли Бреннера, что определяет необходимость дальнейших комплексных морфологических и иммуно-гистохимических

исследований данной патологии [6;1–250-б., 11; 1–220-б.]. Работы узбекских учёных подтверждают актуальность дальнейшего изучения морфологических, иммуногистохимических и клинико-прогностических особенностей опухоли Бреннера яичников и необходимость внедрения современных методов диагностики в практическое здравоохранение Респуб-лики Узбекистан.

В исследованиях M. Karimov освещены современные проблемы онко-логической службы Узбекистана, вопросы ранней диагностики злокачественных опухолей и совершенствования специализированной онкологической помощи населению [6;1–250-б.]. Работы O. Tursunov пос-вящены развитию патологической анатомии и современным направлениям морфологической диагностики опухолевых заболеваний в Узбекистане. Автором подчёркивается важность внедрения иммуногистохимических методов исследования в практическую деятельность патоморфологических лабораторий[18;1–180-б.]. В исследованиях A. Rasulov рассмотрены акту-альные вопросы развития онкогинекологической помощи, совершенст-вования диагностики опухолей яичников и повышения эффективности комплексного лечения пациенток с онкогинекологической патологией [11;1–220-б.].

Целью. Изучить морфологические, иммуногистохимические и морфо-метрические особенности различных форм опухоли Бреннера яичников, определить их взаимосвязь с клинико-онкологическими характеристиками заболевания и результатами лечения для совершенствования диагностики, прогнозирования и индивидуализации лечебной тактики.

Материалы и методы исследования. В ходе выполнения диссертаци-онной работы были использованы клинические, патоморфологические, иммуногистохимические, морфометрические и статистические методы иссле-дования. В исследование были включены

45 пациенток с морфологически верифицированной опухолью Бреннера яичников, проходивших обследо-вание и лечение в специализированных онкологических и гинекологических учреждениях. Формирование исследуемой группы осуществлялось с учётом клинических, морфологических и иммуногистохимических критериев, что позволило обеспечить однородность выборки и провести достоверный сравнительный анализ различных гистологических вариантов опухоли. Возраст обследованных пациенток варьировал от 25 до 70 лет. Средний возраст составил 51,8±9,6 года. Наибольшее количество случаев приходилось на пациенток перименопаузального и постменопаузального периода, что соответствует современным литературным данным об эпидемиологических особенностях опухоли Бреннера.

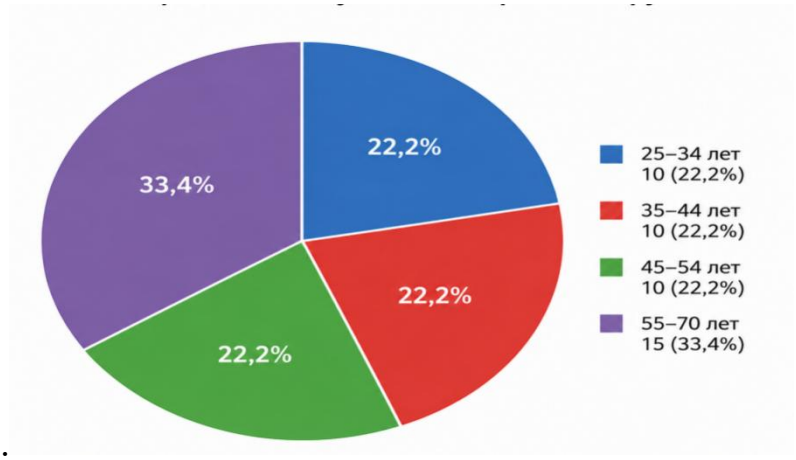

Рисунок 1. Распределение случаев по возрастным группам

Анализ возрастной структуры показал, что наибольшая частота опухоли Бреннера наблюдалась у пациенток старшей возрастной группы — 55–70 лет (33,4%). Полученные данные подтверждают преимущественное развитие данной патологии в перименопаузальном и постменопаузальном периоде.

По гистологическим вариантам обследованные пациентки распре-делялись следующим образом: доброкачественная опухоль Бреннера диаг-ностирована у 36 пациенток (80,0%), пограничная форма у 6 (13,3%), злокачественная у 3 пациенток (6,7%).

Морфометрическое исследование. Морфометрический анализ являлся важной составной частью настоящего исследования и использовался для объективизации морфологических изменений опухоли Бреннера яичников, количественной оценки структурных характеристик и выявления закономерностей, связанных со степенью злокачественности опухоли. В отличие от традиционного гистологического анализа, основанного преи-мущественно на качественной оценке, морфометрия позволяет получить количественные параметры, что значительно повышает воспроизводимость результатов и снижает субъективность интерпретации.

Среди 45 обследованных пациенток репродуктивный возраст отмечался у 15 женщин (33,3%), перименопаузальный период — у 12 (26,7%), постменопауза — у 18 пациенток (40,0%). При этом в группе доброкачественных опухолей Бреннера преобладали пациентки репродуктивного и перименопаузального возраста, тогда как злокачественные формы чаще диагностировались у женщин старше 55 лет.

Полученные результаты. При анализе морфологических особен-ностей установлено, что у пациенток репродуктивного возраста преобладали опухоли с низкой пролиферативной активностью, выраженным стромальным компонентом и минимальной клеточной атипией. В перименопаузальном периоде чаще наблюдались признаки усиленной эпителиальной проли-ферации и очаговой дисплазии. У пациенток постменопаузального возраста отмечалось увеличение частоты пограничных и злокачественных форм, характеризующихся высокой клеточной плотностью, выраженной атипией. Дополнительно выявлена связь между репродуктивным статусом и пролиферативной активностью опухоли. У пациенток постменопаузального возраста показатели достоверно выше по сравнению с женщинами репродуктивного периода,

что свидетельствует о более высокой биологической агрессивности опухоли в данной возрастной группе.

Распределение пациенток по репродуктивному статусу и морфологическим формам опухоли представлено в таблице 1.

Таблица 1.

Связь репродуктивного статуса с морфологическим диагнозом

Репродуктивный статус	**Доброкачественная форма**	**Пограничная форма**	**Злокачественная форма**	**Всего**
Репродуктивный период	14	1	0	15
Перименопауза	11	1	0	12
Постменопауза	11	4	3	18
Всего	**36**	**6**	**3**	**45**

Таким образом, проведённый анализ показал наличие тесной взаимо-связи между репродуктивным статусом пациенток и морфологическим вариантом опухоли Бреннера. Наиболее агрессивные формы опухоли преимущественно выявлялись у женщин постменопаузального возраста, что указывает на важную роль возрастно-гормональных факторов в процессах опухолевой прогрессии и малигнизации.

Результаты и обсуждения материалов. Гистологическое исследование опухоли Бреннера яичников выявило выраженную морфологическую неоднородность и наличие характерных различий между доброкачест-венными, пограничными и злокачественными формами опухоли. По мере прогрессии заболевания наблюдалось усиление клеточной пролиферации, увеличение степени атипии, повышение митотической активности и появление признаков инвазивного роста.

Несмотря на высокую информативность, гистологическое иссле-дование имеет ряд ограничений: субъективность оценки морфологических признаков; трудности при интерпретации пограничных

форм; ограни-ченность при дифференциальной диагностике редких опухолей. В связи с этим гистологический анализ дополнялся морфометрическими методами.

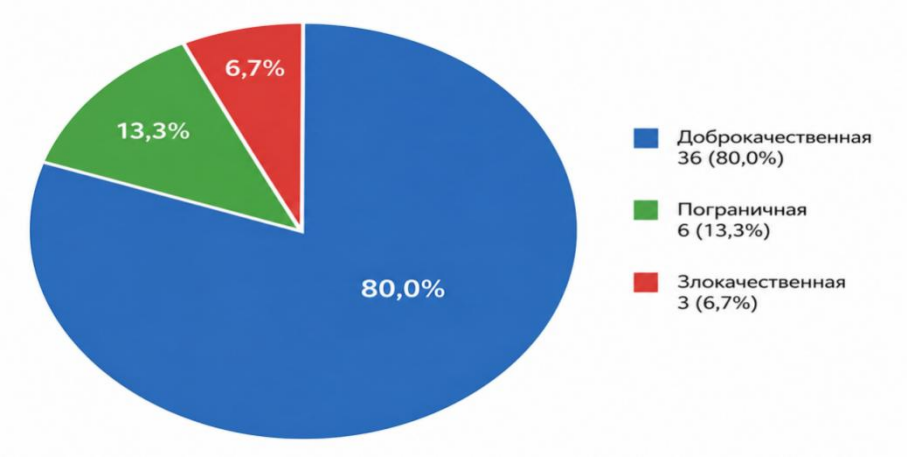

Рисунок 2. Распределение случаев по гистологической форме.

Полученные данные отражают типичное распределение опухоли Бреннера и соответствуют современным литературным сведениям о её преимущественно доброкачественном характере. При этом выявление погра-ничных и злокачественных форм подчёркивает клиническую значимость данной патологии и необходимость её детального изучения.

Статистический анализ показал, что различия между группами являются достоверными ($p<0,05$), что свидетельствует о неравномерном распределении гистологических форм и подтверждает преобладание доброкачественных вариантов. Возраст пациенток варьировал от 25 до 70 лет, что позволило оценить влияние возрастного фактора на морфоло-гические и иммуногистохимические характеристики опухоли.

Наибольшее число наблюдений приходилось на возрастную группу 55–70 лет (33,4%), что соответствует эпидемиологическим особенностям опу-холи Бреннера и подтверждает её преимущественную встречаемость в перименопаузальном и постменопаузальном периоде.

Морфометрическое исследование позволило объективизировать морфологические изменения опухоли Бреннера, количественно оценить

степень её прогрессии и установить взаимосвязь между структурными. Проведённое морфометрическое исследование позволило установить последовательные количественные изменения клеточных и тканевых параметров при переходе от доброкачественной к пограничной и далее к злокачественной форме опухоли Бреннера яичника, что отражает постепенное нарастание биологической агрессивности опухолевого процесса. Сравнительный морфометрический анализ показал, что по мере опухолевой прогрессии происходит последовательное увеличение размеров опухолевых комплексов, площади клеточных ядер, клеточной плотности и степени клеточного полиморфизма при одновременном уменьшении объёма стромального компонента.

Гистологический анализ показал, что доброкачественные формы опухоли Бреннера характеризуются сохранённой архитектоникой, преобладанием плотного фиброзного стромального компонента, наличием гнёзд уротелиоподобных клеток с минимальной клеточной атипией и низкой митотической активностью. Злокачественные формы опухоли Бреннера характеризовались выраженной структурной дезорганизацией, высокой клеточной плотностью, резким полиморфизмом клеток и ядер, гиперхромией, увеличением ядерно-цитоплазматического соотношения и высокой митотической активностью. Морфометрический анализ позволил объективизировать количественные различия между различными формами опухоли Бреннера. В доброкачественных формах клеточная плотность оставалась относительно низкой, а площадь ядер не превышала физиологических значений. Для доброкачественных форм было характерно преобладание плотной фиброзной стромы, тогда как при злокачественных вариантах отмечалось значительное преобладание паренхиматозного компонента над стромальным.

ВЫВОДЫ. Выявлена достоверная зависимость между возрастом пациенток и степенью злокачественности опухоли: в возрасте до 44 лет преобладали доброкачественные формы (до 90%), в группе 45–54 лет увеличивалась доля пограничных опухолей (до 20%), тогда как все злокачественные формы диагностированы у пациенток 55–70 лет ($p < 0,05$). Внедрение комплексного подхода позволяет повысить точность диагностики до 90–95%, что сопровождается снижением частоты диагностических ошибок на 20–25%. При оптимизации диагностики средняя продолжительность пребывания пациенток в стационаре уменьшается на 2–3 койко-дня, что в масштабах медицинских учреждений приводит к увеличению пропускной способности стационаров на 10–15%.

Таким образом, внедрение разработанного подхода обеспечивает не только повышение точности диагностики до 90–95%, но и значительное снижение нагрузки на систему здравоохранения с экономией ресурсов до 20%, что подтверждает его высокую практическую и экономическую значимость для Республики Узбекистан.

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4-SECTION

MAMLAKATLARARO TASHQI SAVDO MA'LUMOTLARINI SOLISHTIRISHNING AMALIY JIHATLARI

Soatov Sanjar Sarvarovich

Bojxona qo`mitasi, Tashqi iqtisodiy faoliyat ilmiy markazi yetakchi ilmiy xodimi

Annotatsiya. *Mazkur maqolada mamlakatlararo tashqi savdo ma'lumotlarini ko'zgu statistikasi asosida solishtirma tahlil qilishning amaliy jihatlari yoritilgan. O'zbekiston va Xitoyning 2024-yildagi tashqi savdo statistikasi misolida eksport va import ko'rsatkichlari o'rtasidagi tafovutlar tahlil qilinib, ularning asosiy tovar guruhlari kesimidagi ko'lami aniqlangan. Tadqiqot yakunida ikki davlat bojxona organlari o'rtasida tashqi savdo ma'lumotlarini o'zaro solishtirish mexanizmini rivojlantirish hamda real vaqt rejimida axborot almashinuvini yo'lga qo'yish bo'yicha takliflar ishlab chiqilgan.*

Kalit so'zlar: *BIG Data, ko'zgu statistikasi, tashqi savdo, bojxona statistikasi, eksport, import, statistik tafovut, bojxona to'lovlari, noqonuniy import, ma'lumotlar almashinuvi.*

Abstract. *This article examines the practical aspects of comparative analysis of international foreign trade data based on mirror statistics. Using the 2024 foreign trade statistics of Uzbekistan and China as a case study, discrepancies between export and import indicators are analyzed, and their scale across the main commodity groups is identified. Based on the results of the study, proposals are developed to improve the mechanism for mutual reconciliation of foreign trade data between the customs authorities of the two countries and to establish real-time information exchange.*

Keywords: *Big Data, mirror statistics, foreign trade, customs statistics, export, import, statistical discrepancy, customs duties, illegal imports, information exchange.*

O'zbekiston tashqi savdo aylanmasi yildan-yilga o'sib borayotgan bugungi zamonda, BIG data asosida tahliliy amallar asosida muammolarni hal qilishga bo'lgan talab ham oshib bormoqda. Shunga ko'ra, bugungi kunda bojxona organlarida BIG data tahlil imkoniyatlaridan amalda keng foydalanilishi hisobiga quyidagi bir qator ijobiy natijalarga erishilmoqda:

birinchidan, tashqi savdo aylanmasi bo‘yicha to‘plangan ma’lumotlar bazasi asosida xavf profillari va indikatorlari shakllanmoqda.

ikkinchidan, bojxona organlari o‘zidagi mavjud kuch va vositalarni BIG datada yuqori xavfga ega bo‘lgan elementga safarbar etmoqda va shu asosida mehnat resursini optimal taqsimotiga erishilmoqda.

uchinchidan, bojxona organlari katta ma’lumotlar bazasini boshqa davlat tashkilotlar bilan o‘zaro almashish asosida, bojxona to‘lovlarini to‘liq undirilishiga va noqonuniy Tovar aylanmasining oldi olinishiga erishilmoqda.

To‘rtinchidan, BIG datadagi mantiqiy amallar asosida bojxona organlarining ayrim ish jarayonlarida avtomatlashtirilishiga erishilmoqda.

Beshinchidan, ikki hamkor mamlakatning tashqi savdo bojxona statistikasi ma’lumotlarini tahliliy solishtirish, ya’ni ko‘zgu statistikasini amalga oshirish asosida bojxona to‘lovlarini to‘liq undirilishiga va bojxona qonun buzilishi holatlarining oldi olinishiga erishilmoqda.

BIG data imkoniyatlarini bojxona organlaridagi ahamiyatini e’tirof etgan holda ushbu maqolada katta ma’lumotlar bazasiga asoslangan “Ko‘zgu” statistikasini amalda qo‘llanilishining uslubiy jihatlarini ko‘rib chiqamiz.

Ko‘zgu statistikasi asosida ma’lumotlarini tahlil qilish bu bir xil tovar va davr uchun eksport qiluvchi mamlakatning tovar oqimi to‘g‘risida rasmiy ma’lumoti bilan import qiluvchi mamlakat tomonidan bildirilgan oqimlar bilan taqqoslash va nomuvofiqliklarni aniqlashdan iborat. Ushbu ma’lumotlarni tahlil qilish texnikasi bojxona ma’muriyatini takomillashtirishda, ayniqsa, bojxona to‘lovlarini undiruvdanligini yanada oshirishda yuqori ahamiyatga ega.

Shunga ko‘ra O‘zbekiston tashqi savdosida eng yuqori ulushga ega bo‘lgan Xitoy davlati bilan ko‘zgu statistikasi tahlil qilindi (1-jadval).

1-jadval

O‘zbekiston Xitoy tovar oqimining qiyosiy tahlili[1]

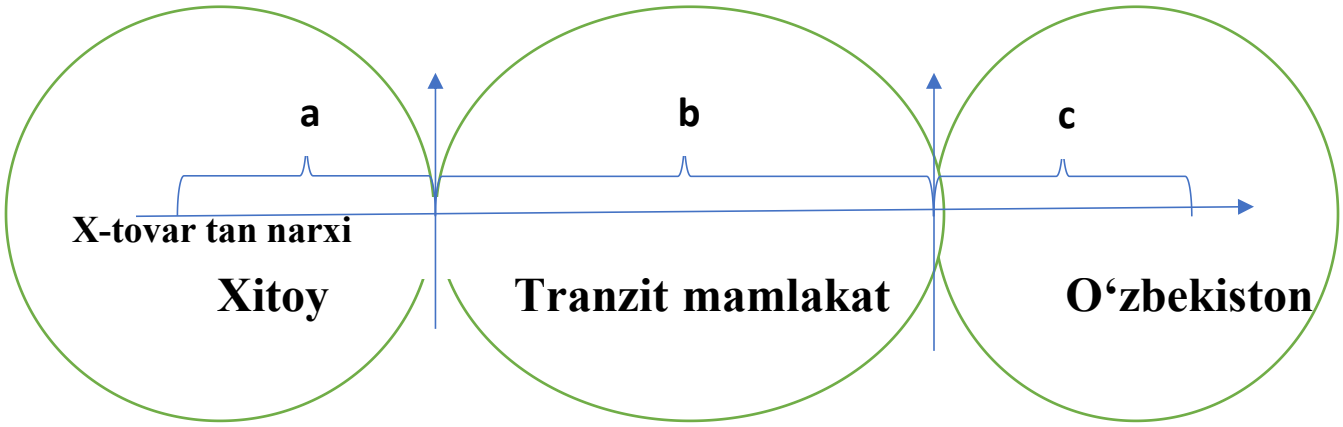
(mlrd. AQSH dollarda)

[1] Xalqaro savdo markazi rasmiy sayti – trademap.org ma’lumotlar bazasi asosida muallif tomonidan tahlil qilindi.

Davlatlar	Tovar oqimi	2024-yil
O‘zbekiston rasmiy ma’lumoti	Xitoydan import	10,3
Xitoy rasmiy ma’lumoti	O‘zbekistonga eksport	11,7
Farq		**-1,3**

O‘zbekistonning jami importi tarkibida Xitoyning ulushi 29 foizni tashkil etadi. O‘zbekistonning rasmiy ma’lumotiga ko‘ra, 2024-yil Xitoydan O‘zbekistonga 10,3 mlrd AQSH dollarlik tovarlar import qilingan. Biroq Xitoyning rasmiy ma’lumotiga ko‘ra Xitoydan O‘zbekistonga 11,7 mlrd AQSH dollarlik tovarlar eksport qilingan. Mazkur holatda 1,3 mlrd AQSH dollarlik tovarlar norasmiy import bo‘lgan deb faraz qilish mumkin.

Aslida, tashqi savdo bojxona statistikasi uslubiyatiga ko‘ra, Xitoy bergan rasmiy eksport qiymatidan O‘zbekistonning rasmiy import qiymati ko‘p bo‘lishi kerak. Buni quyidagi rasmda yaqqol ko‘rish mumkin.



Xitoyning X tovarni O‘zbekistonga eksporti bo‘yicha rasmiy qiymati = **X+a**

O‘zbekistonning X tovarni Xitoydan importi bo‘yicha rasmiy qiymati = **X+a + b**

X – Tovar tan narxi;

a – Tovarni eksportyor mamlakatning chegarasigacha tashish bilan bog‘liq xarajatlar;

b – Tovarni tranzit mamlakat hududida tashish bilan bog‘liq xarajatlar;

c — Tovarni importyor mamlakat hududida tashish bilan bog‘liq xarajatlar.

O‘zbekiston va Xitoy o‘rtasida yuzaga kelgan 1,3 mlrd. AQSH dollar farq qaysi tovarlar hisobiga yuzaga kelganligini aniqlash maqsadida tovarlar kesimida Xitoy eksporti va O‘zbekiston importi tahlil qilindi (2-jadval).

2-**jadval**

Tovar guruhi bo‘yicha ikki davlat o‘rtasidagi eksport-import operatsiyalarining solishtirma tahlili (1000 dollarda)

Guruhi	**Tovar nomi**	**O‘zbekiston importi Xitoydan**	**Xitoy eksporti O‘zbekistonga**	**Farq**
		a	b	a-b
87	**Transport vositalari va qismlari**	1 684 167	2 393 424	-709 257
60	**Trikotaj matolar**	86 893	372 458	-285 565
54	**Kimyoviy iplar**	70 826	231 939	-161 113
73	**Qora metall mahsulotlari**	405 705	517 470	-111 765

2024-yil O‘zbekiston va Xitoy ko‘zgu statistikasi bo‘yicha eng katta farqga ega bo‘lgan tovar guruhlariga aniqlik kiritildi[2]. Ushbu holatda eng ko‘p farq Transport vositalari va qismlariga to‘g‘ri kelmoqda. Ya’ni, Xitoydan olingan rasmiy ma’lumotlarga ko‘ra, Xitoy O‘zbekistonga 2,4 mlrd AQSH dollar eksport qilgan, O‘zbekiston rasmiy ma’lumotlariga ko‘ra, O‘zbekiston Xitoydan 1,7 mlrd AQSH dollar import qilgan. Shunga ko‘ra o‘rtadagi farq 709 mln. AQSH dollarni tashkil etmoqda. Bu kabi muammolar ko‘plab tovarlarda kuzatiladi.

O‘zbekiston tashqi savdosida bu kabi salbiy farqning chiqishi quyidagi bir qator salbiy oqibatlarni yuzaga keltirishi mumkin:

birinchidan, nolegal importning ko‘payishiga zamin yaratadi.

ikkinchidan, mamlakatda “Xufiyona iqtisodiyot” darajasi o‘sishiga zamin yaratadi.

[2] Xalqaro savdo markazi rasmiy sayti – trademap.org ma’lumotlar bazasi asosida muallif tomonidan tahlil qilindi.

uchinchidan, nolegal import bojxona to‘lovlari undiriluvdanligiga salbiy ta’sir ko‘rsatadi.

Yuqoridagi kabi salbiy holatlarni bartaraf etish maqsadida quyidagi takliflar beriladi:

birinchidan, Xitoy bilan mamlakatlararo o‘zaro solishtirma tahlil amalga oshirish uchun ikki tomonlama rasmiy muzokaralar tashkil etish;

ikkinchidan, Markaziy Osiyo Mintaqaviy Iqtisodiy Hamkorlik tashkiloti **(CAREC)** o‘rtasida yagona oyna tizimini joriy etish. Bu real vaqt rejimida bojxona organlari o‘rtasida tashqi savdo ma’lumotlarini almashish imkoniyatini beradi.

IMPROVING THE INVESTMENT RISK MANAGEMENT MECHANISM UNDER DIGITAL TRANSFORMATION: PROSPECTS FOR DEVELOPMENT USING THE EXAMPLE OF MANUFACTURING ENTERPRISES

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Abstract. *This article examines the improvement of the investment risk management mechanism in manufacturing enterprises under digital transformation. International evidence is mixed: digitalization increases corporate risk in some settings (Zhao, 2024), while financial flexibility mitigates it in others (ScienceDirect, 2025). The study enriches traditional ISO 31000:2018- and COSO ERM-based approaches with a three-dimensional national conceptual model (3D-UzIRM) and a Risk Management Index (RMI) integrated with artificial intelligence, a Risk Management Information System (RMIS), and real-time monitoring. The methodological basis includes panel data from six manufacturing enterprises in the Namangan region (2021–2025), expert assessment, and implementation results at "Active Chorkesar Light" LLC. The findings show that a digitally augmented RMI improves early risk detection; the GAP index is projected to rise from 2.92 points (2025) to 7.45 points (2030).*

Keywords: *investment risk management; digital transformation; 3D-UzIRM; Risk Management Index (RMI); ISO 31000; COSO ERM; artificial intelligence; RMIS; manufacturing enterprises.*

1. INTRODUCTION

Digital transformation is reshaping investment activity in manufacturing enterprises, yet its effect on corporate risk is uneven: some studies find digitalization increases overall risk (Zhao, 2024; ScienceDirect, 2024), while others show this effect is mitigated where financial flexibility is high (ScienceDirect, 2025). The global risk-management market is projected to

grow from USD 12.6 billion (2022) to USD 52 billion by 2032 (15.4% CAGR; TrustCloud, 2025), driven by AI-based solutions such as the COSO–Deloitte AI guidance (2023) and standards ISO/IEC 42001:2023 and 23894:2023 (RiskPublishing, 2026).

Under Uzbekistan's "Digital Uzbekistan – 2030" strategy, foreign investment in the digital economy has reached USD 3.4 billion over twenty years (OECD, 2025), with ICT a key GDP driver (UNDP, 2025; Yakhshiboev, 2025). Yet no digitally integrated risk mechanism exists for national manufacturing enterprises – the gap this study addresses, by: (1) analyzing the digital gap in existing models; (2) extending the author's 3D-UzIRM model and RMI index with a digital component; (3) piloting it in Namangan-region enterprises; (4) forecasting development to 2030 via the GAP index. Its novelty is the first national 3D-UzIRM model integrated with AI, an RMIS, and real-time monitoring.

2. LITERATURE REVIEW

ISO 31000:2018 offers a context-adaptive approach without prescribed metrics, universal across industries (Neotas, 2026), while COSO ERM integrates risk with strategy and performance through 20 principles and 5 components, aligning more closely with governance and audit requirements. Both emphasize embedding a risk-aware culture into core processes. Their key recent development (2024–2025) is AI-risk integration: ISO/IEC 42001:2023, 23894:2023, and the NIST AI RMF are being folded into ISO 31000-based programs, and COSO–Deloitte guidance (2023) adapted COSO ERM to AI – trends expected to make AI risk a standard board-level KRI by 2026 (RiskPublishing, 2026).

No consensus exists on digital transformation's effect on corporate risk: Chinese listed firms (2012–2020) show digitalization increasing overall risk, especially in high-tech industries (ScienceDirect, 2024), whereas high financial flexibility mitigates such risk (ScienceDirect, 2025), and R&D investment

moderates the digitalization–performance link (Emerald, 2025); other work links digital transformation to sustainable development via "risk" and "reputation" effects (Tandfonline, 2025). In Uzbekistan, research remains largely macroeconomic (OECD, 2025; Yakhshiboev, 2025; ACM ICFNDS, 2025); no study yet models an enterprise-level mechanism integrated with digital instruments – the gap this article fills.

3. RESEARCH METHODOLOGY

A mixed-methods design was used: the digital components of the 3D-UzIRM model and RMI index were developed theoretically, then tested on panel data from six light-industry enterprises in the Namangan region (2021–2025), with "Active Chorkesar Light" LLC as the implementation site. The model integrates three dimensions – vertical (strategic, tactical, operational levels), horizontal (financial, operational, technological/digital, institutional-legal risks), and time (ex-ante, real-time, ex-post) – linked via a "principle–method–instrument" model to practical instruments (RMIS, AI-based forecasting). RMI, a composite maturity index, is expressed as:

$$RMI = \Sigma(w_i \times R_i),\ i = 1, \ldots, n$$

where R_i are normalized risk-component values and w_i are weights from expert assessment (Likert/Delphi, $\Sigma w_i = 1$), calculated through an eight-stage algorithm (context, identification, assessment, digital monitoring, 3×3 matrix placement, prioritization, mitigation, re-evaluation). Panel fixed-effects regression, correlation analysis, and an ISO 31000/COSO ERM-based expert survey were applied; the GAP index (0–10) was forecast to 2030 via trend extrapolation.

4. RESULTS

Table 1 cross-references each 3D-UzIRM dimension with its digital extension.

Dimension	Traditional component	Digital extension (post-2026)

Dimension	Traditional component	Digital extension (post-2026)
Vertical	CRO institution, Three Lines of Defense, RACI matrix	Real-time RMIS dashboard; AI-based KRI reporting to board
Horizontal	Financial, operational, strategic risks	Technological/digital risk as independent category; IIoT-based monitoring
Time	Periodic (annual/quarterly) assessment	Continuous AI/ML-based real-time risk scoring

Table 1. Integration of the 3D-UzIRM model with digital transformation

Table 2 shows relative RMI weights from expert assessment (n=6).

Risk component	Weight	Digital instrument
Financial risk	0.28	Financial database, automated ratio monitoring
Operational risk	0.22	IIoT sensors, process monitoring
Strategic/market risk	0.20	AI-based market data analysis
Technological/digital risk	0.18	Cybersecurity monitoring, RMIS
Institutional-legal risk	0.12	Automated regulatory monitoring

Table 2. RMI components and relative weights

The model was piloted at "Active Chorkesar Light" LLC: a RACI matrix distributed CRO functions, the Three Lines of Defense model was adapted organizationally, and an RMIS architecture was designed, confirmed by the Namangan Regional Chamber of Commerce and Industry – demonstrating scalability to other enterprises. The GAP index stood at 2.92 points in 2025, projected to reach 7.45 by 2030 (Table 3).

Year	GAP index	Note
2026	3.83	Forecast – RMIS pilot expansion
2027	4.74	Forecast – wider CRO rollout
2028	5.65	Forecast – AI-based monitoring modules
2029	6.56	Forecast – cross-industry integration
2030	7.45	Target value (dissertation forecast)

Table 3. GAP index forecast, 2026–2030 (linear interpolation)

5. DISCUSSION

While Chinese evidence links digital transformation to higher corporate risk, especially in high-technology industries (ScienceDirect, 2024), the "Active Chorkesar Light" experience shows that pairing digitalization with RMIS and a CRO institution can manage that risk (financial flexibility mitigates it; ScienceDirect, 2025). Separating technological/digital risk into an independent 3D-UzIRM category aligns ISO 31000:2018 and COSO ERM

with the integration of ISO/IEC 42001:2023 and 23894:2023 into ERM frameworks (RiskPublishing, 2026). Limitations: a single-region/industry pilot; a linear GAP-index forecast; and RMI weights from a limited expert panel requiring broader Delphi validation.

6. CONCLUSION AND PROSPECTS FOR DEVELOPMENT

Improving investment risk management under digital transformation requires integrated organizational structure (CRO, Three Lines of Defense, RACI), methodology (RMI, 3D-UzIRM), and digital infrastructure (RMIS, AI-monitoring): AI/ML risk-forecasting integration with the RMIS; blockchain for investment-contract transparency; broader RMI/GAP validation across industries and regions; and aligning regulation with ISO/IEC 42001:2023 and 23894:2023.

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A MULTILEVEL MODEL FOR MANAGING INVESTMENT ATTRACTION IN AGROTOURISM: THE "3M" APPROACH

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Abstract: *This thesis theoretically substantiates a multilevel model for managing investment attraction in the agrotourism sector. The study examines the interrelationship between microeconomic, mesoeconomic, and macroeconomic levels based on a systematic analysis of the factors influencing investment attraction in agrotourism. Within the proposed "3M" approach, initiatives of economic entities and investors are systematized at the microeconomic level, regional management and coordination mechanisms at the mesoeconomic level, and state investment policy and institutional support measures at the macroeconomic level. The proposed model may serve as a theoretical basis for systematizing investment management mechanisms in the agrotourism sector and coordinating management measures implemented at different levels.*

Keywords: *Agrotourism, investment, management, investment process, investment policy, microeconomics, mesoeconomics, macroeconomics, systems approach, multilevel management, regional development, investment environment.*

Introduction.

Today, the development of agrotourism is considered an important direction for making effective use of the economic potential of rural areas, expanding sources of household income, and diversifying tourism services. The development of agrotourism is directly associated with attracting investment to the sector and ensuring the effective management of investment processes. Therefore, developing effective mechanisms for managing investment attraction in agrotourism represents a relevant scientific and practical issue.

The aim of the study is to systematize the microeconomic, mesoeconomic, and macroeconomic levels of managing investment attraction in agrotourism and to theoretically substantiate the “3M” approach based on the interrelationship among these levels.

The study employs a systems approach, analysis and synthesis, and comparative analysis. Based on the systems approach, the process of investment attraction in agrotourism is examined in terms of the interrelationship among the microeconomic, mesoeconomic, and macroeconomic levels.

Main Part.

Increasing urbanization and environmental challenges have contributed to growing demand among urban residents for recreation in natural environments. Rural tourism has long been widespread in international practice and, when supported by effective public administration, can generate tangible economic benefits for both rural areas and the state [1].

According to the United Nations World Tourism Organization (UNWTO), agrotourism encompasses tourism activities associated with agriculture, rural lifestyles, ecological activities, and other services characteristic of rural areas [2].

The mechanism for managing investment attraction in agrotourism represents a set of management measures aimed at directing investment toward the sector. This mechanism is based on coordinating the interests of the state and regions and ensuring the effective use of material and financial resources.

The specific characteristics of agrotourism require the integration of tourism services, infrastructure, and economic activities in rural areas. At the same time, the development of agrotourism services, effective use of existing tourism potential, and creation of new tourism products require financial resources and investment. Therefore, an important condition for the

development of agrotourism is the effective organization and management of investment attraction processes.

The effective functioning of the agrotourism complex is based on interaction among agrotourism facilities, investors, organizational and management structures, the tourism sector, and service consumers. Therefore, investment attraction should be managed in an integrated manner at the enterprise, regional, and national levels. Based on the research findings, it was established that investment attraction in agrotourism in Uzbekistan can be considered as an integrated "3M" system operating at three levels: 1) microeconomic, 2) mesoeconomic, and 3) macroeconomic.

Microeconomic level	Mesoeconomic level	Macroeconomic level
• Individual households • Farms and dehkan farms • Entities engaged in agricultural production • Various investors	• Local self-government bodies • District, city and regional authorities • Republic of Karakalpakstan • Tashkent City Administration	• Cabinet of Ministers of the Republic of Uzbekistan • Ministry of Investments, Industry and Trade of the Republic of Uzbekistan • Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan • Tourism Committee of the Republic of Uzbekistan

Figure 1. The "3M" Multilevel System for Investment Attraction in Agrotourism (*Source: Developed by the author).*

At the macroeconomic level, the management of investment attraction in the agrotourism sector at the national and regional levels is primarily implemented through state investment policy. This includes regulating and stimulating investment activity, implementing state policy aimed at attracting investment in agrotourism through the regulation of tourism activities, developing relevant programs, defining the main norms, rules, and

development directions of agrotourism, standardizing and classifying agrotourism facilities, ensuring information provision, tourist safety, and other related measures.

At the mesoeconomic level, processes of coordinating and regulating investments directed toward the agrotourism sector take place within regions. At this level, state policy in the tourism sector is implemented at the regional level, and regional programs for attracting investment in agrotourism are developed and approved. Management of investment attraction in agrotourism at the mesoeconomic level is important for creating agrotourism destinations and products and ensuring their competitiveness.

At the microeconomic level, individual households, farms and dehkan farms, entities engaged in agricultural production, and various investors participate in the implementation of measures related to the development of agrotourism. Most importantly, new tourism products and services are created at this level, forming the basis for the functioning and development of agrotourism. The investment process begins with an analysis of demand and supply in the tourism services market, based on which tourism products are developed. Subsequently, investment projects are prepared, their effectiveness is analyzed, and the most effective projects are selected [3].

The theoretical essence of the “3M” system lies in the interconnectedness of these levels. Initiatives related to entrepreneurship and investment formed at the microeconomic level are supported at the mesoeconomic level through regional programs, infrastructure, and coordination mechanisms. In turn, the sustainability of this process depends on investment policy, the institutional environment, and government support measures established at the macroeconomic level. Therefore, the effectiveness of investment attraction in agrotourism is determined by the coordinated interaction of mechanisms operating at these three levels.

Conclusion.

The study theoretically substantiates the organization of investment attraction management in agrotourism through the “3M” multilevel approach, based on the interconnected influence of microeconomic, mesoeconomic, and macroeconomic levels. Within this approach, the microeconomic level represents investment and entrepreneurial initiatives, the mesoeconomic level encompasses mechanisms for regional coordination and development, while the macroeconomic level reflects state investment policy and institutional support measures.

The main scientific contribution of the “3M” approach is the interpretation of investment attraction in agrotourism not as a process limited to an individual enterprise or region, but as an integrated system of interconnected management mechanisms operating at the microeconomic, mesoeconomic, and macroeconomic levels. The proposed model provides a theoretical basis for coordinating investment processes in agrotourism, making effective use of regional potential, and improving the investment environment created through government policy.

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5-SECTION

TO DEVELOP A SENSE OF RESPECT FOR THE IMAGE OF FOLK HEROES IN STUDENTS OF SPECIALIZED SCHOOLS

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Abstract: *This article analyzes the role of an integrated educational ecosystem in strengthening the spiritual immunity of the younger generation in the context of globalization, in educating them on the basis of historical roots. In particular, modern approaches to the formation of patriotism and civic feelings by deeply instilling in students the activities of national heroes in specialized schools are highlighted. The educational ecosystem is explained based on the metaphor of a biological ecosystem, revealing the interrelationship of its components, their role in organizing an effective educational and upbringing process. Methods for introducing images of national heroes into the educational process based on interdisciplinary integration are substantiated through methodological recommendations and suggestions.*

Keywords: *Integrated educational ecosystem, national heroes, Patriotism, civic education, specialized school, interdisciplinary integration, spiritual immunity, holistic approach, educational methodology, historical consciousness.*

In today's globalization environment, strengthening the spiritual immunity of the younger generation and educating them on the basis of historical roots is more important than ever. Especially in specialized schools, developing civic consciousness and patriotic feelings by deeply instilling in students the activities of national heroes has become a priority of state policy. The modern educational ecosystem approach serves as an important tool in this.

An integrated educational ecosystem is an educational model based on the integration of various educational areas, disciplines, pedagogical methods, environments, and technologies into an integral, collaborative system, which

serves the comprehensive education and development of students as individuals.

The ecosystem is similar to the interconnected elements in a biological system, and in education, all components - student, teacher, parent, educational institution, media, society, technology - work together, in systematic cooperation. That is, education is organized not in a single approach, but in an environment based on broad interaction.

The word ecosystem in biology refers to a system of interactions between different organisms and their environment. In education, the concept is used metaphorically and refers to:

-The interconnectedness of student - teacher - parent - school - society - technology;

-The learning process should be dynamic, flexible, comprehensive, and balanced;

-Each component directly affects the quality of education.

The formation of a sense of patriotism in students of specialized schools is one of the important tasks of today's education system. In this process, the effective use of images of national heroes is of great importance. Because the lives of historical and modern heroes, their services for the development of the Motherland instill a sense of pride, honor and responsibility in students. An integrated educational ecosystem further enriches this process. When various subjects are taught in harmony with each other, students begin to deeply understand the activities of national heroes not only historically, but also literary, spiritual and social. As a result, they form strong patriotic views.

Ecosystem integrated model

As a result, the student simultaneously acquires historical awareness, technical knowledge, artistic expression, modern skills, and patriotism.

An integrated education ecosystem is a holistic approach to modern education that serves to shape the student not only with knowledge, but also with spirituality, citizenship, and social skills. This approach is especially effective for purposes such as teaching national values and providing patriotic education.

Lessons are not limited to theoretical knowledge. The student applies what he has learned in life tasks, practical assignments. This way, knowledge is consolidated in a "real environment". The unique talents, interests, and needs of each student are taken into account. For example, students in the technical direction are approached through the engineering aspects of Amir Temur, and those in the art direction are approached through the miniature art of Baburi.

An integrated education ecosystem is a holistic approach to modern education that serves to shape the student not only with knowledge, but also with spirituality, citizenship, and social skills. This approach is especially effective for purposes such as teaching national values and providing patriotic education.

An educational ecosystem is a complex system in which all components of the educational environment (student, teacher, resources, methodologies, external influences) operate in an interconnected manner. Integrated education is based on the integration of various disciplines, spiritual values, and social activities into a holistic approach. This approach ensures the comprehensive development of students.

National heroes are people who have selflessly served for the freedom, development and culture of their people. The life path of such people can be a school of example for students. For example:

Amir Temur - an example of justice, determination and culture of governance;

Jaloliddin Manguberdi - a symbol of patriotism and courage;

Zulfiyakhanim, Abdulla Qodiriy, Fitrat - propagators of the national idea, culture and enlightenment.

The lives, works and services of these individuals should be studied in depth in the curricula. Students of specialized schools receive in-depth knowledge in a specific field (technology, art, language, natural sciences). Therefore, the images of national heroes should be approached in connection with these areas: Integration into technological sciences based on the military-engineering work of Amir Temur. Education through literature and theater based on the poetic heritage of Zulfiya. Historical analysis lessons based on the combat strategy of Jaloliddin Manguberdi. The following methods can be effectively used when using images of national heroes:

– Students conduct research on the lives of national heroes;

– Increase emotional impact by performing historical scenes;

– Create logical connections through national images in lessons that combine several subjects;

– Create interactivity through animation, video lessons, and AR/VR tools related to the lives of heroes.

National heroes are great personalities who, through their lives, activities and courage, selflessly served the people to preserve and develop their freedom, independence, cultural heritage and values. They have become a symbol of freedom, national pride and patriotism not only in their time, but also for future

generations. In order to form a sense of national identity and loyalty to the Motherland in the hearts of young people, it is necessary to actively use the exemplary life and activities of these heroes in the process of education. In this regard, it is advisable to effectively use the following methodological approaches: studying historical and artistic works about national heroes, organizing role-playing games, stage performances and debates based on their lives, reviving the image of images through audiovisual materials, as well as educating young people as active readers and seekers through independent research and research assignments. Such methodological approaches allow us to further form in the minds of the younger generation a sense of respect for their history, love for the Motherland and loyalty to national values.

Practical activities organized in specialized schools to solve the problem of improving the technology of educating students in the spirit of patriotism using images of national heroes were carried out using various forms, methods and tools. Within the framework of this activity, modern pedagogical technologies, interactive lesson designs, group and individual work methods, as well as artistic and historical materials related to the life and work of national heroes were widely used.

It is effective to use various methods in studying the images of national heroes and forming their patriotic feelings in the younger generation. Each method helps students to understand the selfless activities of historical figures more deeply, to understand national values, and to feel their responsibility to the Motherland. The study aims to form a positive attitude towards the lives of national heroes through the selected methods, to follow their example, and to convey their values to the modern younger generation. The study also considers various ways to help students understand historical truths, to determine the opinions of young people through pedagogical experience and sociological surveys, and to increase their respect for national values. These methods not only provide knowledge in the educational process, but also greatly contribute to the emotional and spiritual development of students, and to the formation of their personality.

The role of history in educating young students in the spirit of patriotism, instilling in them feelings of loyalty to the Motherland, national pride and respect for ancestors is incomparable. History, with its many real examples, serves to instill the essence of patriotism in the minds of the younger generation. Through these examples, studying the lives of ancestors who selflessly served the Motherland and the people, learning from them, encourages today's youth to feel responsible for the fate of the Motherland.

Conclusion: The images of national heroes play a great educational role in education, not only in raising historical awareness, but also in raising the spirit of patriotism. Implementing this process in specialized schools on the basis of an integrated educational ecosystem serves to develop the personal, spiritual and civic qualities of students.

Proposals:

1. Include independent chapters on the lives of national heroes in school textbooks;

2. Develop methodological recommendations for conducting integrated lessons based on interdisciplinary cooperation;

3. Include excursions to local historical sites and museum classes in educational programs;

4. Organize competitions for students to create stage performances, essays, and comics featuring national heroes.

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SUN’IY INTELLEKT VOSITALARI ASOSIDA BOSHLANG‘ICH SINF O‘QUVCHILARIDA AKSIOLOGIK MADANIYATNI RIVOJLANTIRISH

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Annotatsiya. *Ushbu maqolada sun’iy intellekt vositalaridan foydalanish asosida boshlang‘ich sinf o‘quvchilarida aksiologik madaniyatni rivojlantirishning pedagogik imkoniyatlari tahlil qilingan. Zamonaviy ta’lim jarayonida sun’iy intellekt texnologiyalarining kengayib borishi o‘quvchilarning nafaqat bilim va ko‘nikmalarini, balki axloqiy qarashlari, qadriyatlarga munosabati, mustaqil fikrlashi va mas’uliyatli qaror qabul qilish qobiliyatini rivojlantirish uchun ham yangi imkoniyatlarni yuzaga keltirmoqda. Shuningdek, sun’iy intellektdan foydalanishda yoshga moslik, insonparvarlik, xavfsizlik, ma’lumotlar maxfiyligi, tanqidiy fikrlash va o‘qituvchi nazorati kabi tamoyillarga alohida e’tibor qaratilgan.*

Kalit so‘zlar: *sun’iy intellekt, boshlang‘ich ta’lim, aksiologik madaniyat, qadriyat, raqamli ta’lim, axloqiy tarbiya, AI savodxonligi, tanqidiy fikrlash, pedagogik texnologiya, umuminsoniy qadriyatlar.*

Аннотация. *В данной статье анализируются педагогические возможности развития аксиологической культуры у учащихся начальных классов на основе использования средств искусственного интеллекта. Расширение технологий искусственного интеллекта в современном образовательном процессе создает новые возможности для развития у учащихся не только знаний и навыков, но и этических взглядов, отношения к ценностям, самостоятельного мышления и способности принимать ответственные решения. Также особое внимание уделяется таким принципам использования искусственного интеллекта, как соответствие возрасту, гуманность, безопасность, конфиденциальность данных, критическое мышление и контроль со стороны учителя.*

Ключевые слова: *искусственный интеллект, начальное образование, аксиологическая культура, ценность, цифровое образование, нравственное*

воспитание, ИИ-грамотность, критическое мышление, педагогическая технология, общечеловеческие ценности.

Annotation. *This article analyzes the pedagogical possibilities of developing axiological culture in primary school students based on the use of artificial intelligence tools. The increasing integration of artificial intelligence technologies into modern educational processes creates new opportunities not only for enhancing students' knowledge and skills, but also for fostering their ethical views, attitude towards values, independent thinking, and ability to make responsible decisions. Special attention is also paid to principles such as age appropriateness, humanism, safety, data privacy, critical thinking, and teacher supervision when utilizing artificial intelligence.*

Keywords: *artificial intelligence, primary education, axiological culture, value, digital education, moral education, AI literacy, critical thinking, pedagogical technology, universal values.*

KIRISH

Bugungi kunda raqamli texnologiyalarning jadal rivojlanishi ta’lim tizimining mazmuni, shakli va metodlariga sezilarli ta’sir ko‘rsatmoqda. Ayniqsa, sun’iy intellekt texnologiyalarining ta’lim jarayoniga kirib kelishi o‘qituvchi va o‘quvchi faoliyatining yangi shakllarini yuzaga keltirmoqda. Sun’iy intellekt vositalari ta’lim mazmunini individuallashtirish, o‘quv materiallarini turli shakllarda taqdim etish, o‘quvchining qiziqishi va ehtiyojlariga mos topshiriqlar ishlab chiqish imkonini bermoqda.

Biroq sun’iy intellektdan ta’limda foydalanish masalasini faqat texnologik imkoniyatlar nuqtayi nazaridan ko‘rib chiqish yetarli emas. Ayniqsa, boshlang‘ich maktab yoshidagi bolalar bilan ishlashda texnologiyaning insoniy qadriyatlar, axloqiy me’yorlar va bolaning shaxsiy rivojlanishiga ta’sirini hisobga olish zarur.

UNESCO generativ sun’iy intellektdan ta’limda foydalanishda inson markazidagi yondashuv, ma’lumotlar maxfiyligi, pedagogik va etik jihatdan maqbullik hamda yoshga moslikni muhim shartlar sifatida ko‘rsatadi.

Mazkur masala aksiologik yondashuv nuqtayi nazaridan alohida ahamiyat kasb etadi. Chunki aksiologik madaniyat shaxsning qadriyatlarni bilishi bilangina cheklanmay, ularni anglash, baholash, shaxsiy faoliyatida namoyon etish va qadriyatlarga asoslangan xatti-harakatni tanlash qobiliyatini ham o‘z ichiga oladi.

Boshlang‘ich sinf o‘quvchilarida bunday madaniyatni shakllantirishda insonparvarlik, vatanparvarlik, halollik, adolat, hurmat, mehr-oqibat, mas’uliyat, tabiatga ehtiyotkorona munosabat, hamkorlik va bag‘rikenglik kabi qadriyatlar muhim o‘rin tutadi. Shu nuqtayi nazardan, sun’iy intellektni o‘quvchiga tayyor javob beruvchi vosita sifatida emas, balki qadriyatlarni anglash, muammoli vaziyatlarni tahlil qilish, axloqiy tanlovni asoslash va mustaqil fikrlashni rivojlantiruvchi pedagogik vosita sifatida qo‘llash dolzarb ilmiy-pedagogik masalalardan biridir.

2026-yilgi OECD/Yevropa Komissiyasi frameworkida ham AI savodxonligi faqat AI vositalaridan foydalanish emas, balki ularning natijalarini tanqidiy baholash, imkoniyat va xavflarni tushunish hamda texnologiyadan axloqiy va ijodiy foydalanishni nazarda tutadi.

Sun’iy intellekt vositalaridan foydalanishda esa quyidagi pedagogik ketma-ketlik taklif etiladi:

AI vositasi → muammoli vaziyat → qadriyatni anglash → tanqidiy tahlil → axloqiy tanlov → refleksiya → amaliy xulq-atvor. Masalan, o‘quvchiga sun’iy intellekt yordamida “Do‘sting xatoga yo‘l qo‘ydi. Sen nima qilasan?” mazmunidagi vaziyat taqdim etiladi. O‘quvchi tayyor javobni qabul qilmaydi, balki bir nechta variantni tahlil qiladi va o‘z tanlovini asoslaydi.

Bu jarayonda o‘qituvchining vazifasi AI tomonidan berilgan javobni o‘quvchiga tayyor haqiqat sifatida qabul qildirmaslikdan iborat. Aksincha, “Nima uchun bunday deb o‘ylaysan?”, “Qaysi javob adolatliroq?”, “Bu qarorning boshqa insonga qanday ta’siri bo‘ladi?” kabi savollar orqali refleksiv fikrlashni tashkil etish zarur.

Bu yondashuv OECDning 2026-yilgi AI savodxonligi konsepsiyasidagi AI natijalarini tanqidiy baholash va undan etik foydalanish tamoyillari bilan uyg‘unlashadi.

Aksiologik madaniyatning asosiy komponentlari

Kognitiv qadriyatlar haqida bilim va tushunchalarga ega bo‘lish

Emotsional-qadriyatli qadriyatlarga ijobiy munosabat va empatiya

Faoliyatli qadriyatlarni amaliy xatti-harakatda namoyon etish

Refleksiv o‘z xatti-harakatini baholash va xulosa chiqarish

Sun’iy intellekt mazkur komponentlarning har birini rivojlantirish uchun turli pedagogik imkoniyatlarni yaratishi mumkin.

Sun’iy intellekt vositalaridan to‘g‘ri pedagogik yondashuv asosida foydalanish boshlang‘ich sinf o‘quvchilarining aksiologik madaniyatini rivojlantirishda bir qator imkoniyatlarga ega ekanligi aniqlandi.

Birinchidan, AI vositalari orqali qadriyatli vaziyatlarni modellashtirish mumkin. O‘quvchiga kundalik hayotda uchrashi mumkin bo‘lgan muammoli vaziyatlar taqdim etiladi. Masalan, do‘stlik, halollik, adolat, tabiatni asrash, kattalarni hurmat qilish yoki jamoada ishlash bilan bog‘liq vaziyatlar.

Ikkinchidan, sun’iy intellekt yordamida individual ta’lim topshiriqlari yaratish imkoniyati mavjud. Turli tayyorgarlik darajasidagi o‘quvchilarga mazmuni bir xil, ammo murakkablik darajasi turlicha bo‘lgan aksiologik topshiriqlar berish mumkin.

Uchinchidan, AI asosidagi dialogli ta’lim o‘quvchilarning o‘z fikrini asoslash qobiliyatini rivojlantirishi mumkin. Bunda o‘quvchi savol beradi, javobni oladi, uni tahlil qiladi va o‘z nuqtayi nazarini shakllantiradi.

To‘rtinchidan, sun’iy intellekt yordamida qadriyatlar asosidagi hikoyalar yaratish mumkin. Masalan, “Halollikning qadri”, “Tabiatni asraylik”, “Do‘stlik va hamjihatlik”, “Vatanga muhabbat”, “Mehr-oqibat” kabi mavzularda interaktiv hikoyalar tuziladi.

Beshinchidan, o‘quvchilarda tanqidiy fikrlashni rivojlantirish uchun AI tomonidan berilgan javoblarni tekshirish va baholash topshiriqlaridan foydalanish mumkin.

Bu ayniqsa muhim, chunki AI tomonidan yaratilgan har qanday axborot avtomatik ravishda to‘g‘ri deb qabul qilinmasligi kerak. UNESCO generativ AI bo‘yicha tavsiyalarida ham ta’limda texnologiyadan foydalanishda etik, xavfsiz, teng va mazmunli foydalanish masalalariga e’tibor qaratiladi.

AI asosida aksiologik topshiriqlar tizimi

1. “Qadriyatni top” topshirig‘i.

O‘quvchiga kichik hikoya beriladi. U hikoyada namoyon bo‘lgan qadriyatni aniqlaydi.

2. “Tanlov qil” topshirig‘i.

O‘quvchiga muammoli vaziyat berilib, bir nechta xatti-harakat variantlari taklif qilinadi. O‘quvchi o‘z tanlovini asoslaydi.

3. “Nega?” topshirig‘i.

O‘quvchi muayyan xatti-harakatning nima sababdan yaxshi yoki noto‘g‘ri ekanligini tushuntiradi.

4. “Agar sen bo‘lsang...” topshirig‘i.

O‘quvchi vaziyat qahramoni o‘rniga o‘zini qo‘yib ko‘radi.

5. “AI javobini bahola” topshirig‘i.

Sun’iy intellekt tomonidan berilgan javob o‘quvchiga taqdim etiladi. O‘quvchi uning to‘g‘ri yoki noto‘g‘riligini mustaqil baholaydi.

6. “Qadriyatlar daraxti” topshirig‘i.

AI yordamida turli qadriyatlar ro‘yxati shakllantiriladi. O‘quvchilar ularni shaxsiy, milliy va umuminsoniy qadriyatlarga ajratadilar.

Sun’iy intellekt vositalari orqali aksiologik madaniyatni rivojlantirishning quyidagi pedagogik shart-sharoitlari taklif etiladi:

1. AI vositalarini aksiologik maqsadga yo‘naltirish;

2. o‘quvchilarning yosh va psixologik xususiyatlarini hisobga olish;

3. o‘qituvchi tomonidan AI faoliyatini pedagogik nazorat qilish;

4. tanqidiy va refleksiv fikrlashni rivojlantirish;

5. insoniy muloqot va real faoliyatni raqamli faoliyat bilan uyg‘unlashtirish;

6. axborot xavfsizligi va shaxsiy ma’lumotlarni himoya qilish

7. milliy va umuminsoniy qadriyatlarni AI kontentining mazmuniga integratsiya qilish.

UNICEFning 2025-yilgi “Guidance on AI and Children” hujjatida ham bolalar uchun AI tizimlarida xavfsizlik, ma’lumotlar maxfiyligi, adolat va kamsitmaslik, shaffoflik, bolaning manfaatlari, inklyuziya hamda bolalarni AI rivojlanishiga tayyorlash kabi talablar ilgari surilgan.

Olingan nazariy natijalar shuni ko‘rsatadiki, sun’iy intellekt boshlang‘ich ta’limda aksiologik madaniyatni rivojlantirishning mustaqil maqsadi emas, balki ushbu maqsadga erishishga xizmat qiluvchi pedagogik vosita sifatida qaralishi lozim.

Bu yerda muhim jihat shundaki, texnologiyaning mavjudligi o‘z-o‘zidan o‘quvchida qadriyatlarni shakllantirmaydi. Qadriyatli tarbiya pedagogik jihatdan maqsadli tashkil etilgan faoliyat, muloqot, shaxsiy namuna, muammoli vaziyatlar va refleksiya orqali amalga oshadi.

Shuning uchun AI vositalaridan foydalanishda “texnologiya markazli” emas, balki “inson va qadriyat markazli” yondashuv ustuvor bo‘lishi kerak.

OECD ta’limda AI imkoniyatlari bilan bir qatorda tenglik, maxfiylik, raqamli kompetensiya, resurslar sifati va texnologiyadan ortiqcha foydalanish xavflarini ham hisobga olish zarurligini ta’kidlaydi.

Shu sababli boshlang‘ich sinf o‘quvchisi AI bilan ishlaganda quyidagi savollarga javob berishga o‘rgatilishi maqsadga muvofiq:

“Bu ma’lumot to‘g‘rimi?”

“Bu fikr adolatlimi?”

“Bu qaror boshqalarga qanday ta’sir qiladi?”

“Men bu javobga qo‘shilamanmi?”

“Nima uchun?”

Aynan mana shu savollar AI savodxonligini aksiologik madaniyat bilan bog‘laydi. Shuningdek, raqamli vositalar real insoniy munosabatlarning o‘rnini bosmasligi kerak. OECD ham raqamli texnologiyadan foydalanish bilan bir qatorda raqamli bo‘lmagan faoliyatlar bolalarning rivojlanishida muhimligini qayd etadi.

Demak, AI vositalari o‘qituvchi–o‘quvchi muloqotini almashtiruvchi emas, balki uni boyituvchi vosita sifatida qo‘llanishi lozim.

XULOSA

Sun’iy intellekt vositalaridan maqsadli va pedagogik jihatdan asoslangan foydalanish boshlang‘ich sinf o‘quvchilarida aksiologik madaniyatni rivojlantirish uchun yangi imkoniyatlarni yaratadi.

AI asosida yaratilgan muammoli vaziyatlar, interaktiv hikoyalar, axloqiy tanlov topshiriqlari, refleksiv savollar va individual ta’lim topshiriqlari orqali o‘quvchilarning qadriyatlar haqidagi bilimlarini kengaytirish, ularga ijobiy munosabatni shakllantirish hamda qadriyatlarga asoslangan xatti-harakatlarni rivojlantirish mumkin.

Bunda asosiy pedagogik shart — sun’iy intellektni maqsad emas, pedagogik vosita sifatida qo‘llashdir.

Shuningdek, AI vositalaridan foydalanishda bolaning yoshi, psixologik xususiyatlari, axborot xavfsizligi, ma’lumotlar maxfiyligi, insoniy muloqot, tanqidiy fikrlash va milliy-umuminsoniy qadriyatlar uyg‘unligi ta’minlanishi zarur.

Umuman olganda, zamonaviy boshlang‘ich ta’limda aksiologik madaniyatni rivojlantirishning istiqbolli modeli “sun’iy intellekt – tanqidiy fikrlash – qadriyatli tanlov – refleksiya – amaliy faoliyat” ketma-ketligi asosida tashkil etilishi mumkin.

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DEVELOPING PRIMARY SCHOOL STUDENTS' EMOTIONAL INTELLIGENCE THROUGH EDUCATIONAL DIALOGUE: A PEDAGOGICAL TECHNOLOGY APPROACH

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Abstract. *The development of emotional intelligence is an important component of primary education because children need to understand and regulate their emotions, demonstrate empathy, communicate effectively, and adapt to social situations. This study examines the possibilities of developing primary school students' emotional intelligence through educational dialogue and presents a pedagogical technology developed for this purpose. The research employed theoretical analysis, pedagogical observation, questionnaires, interviews, experimental work, and mathematical-statistical analysis. The experimental study involved 143 students from four primary school classes. Two classes were selected as experimental groups and two as control groups. In the experimental groups, dialogic interaction, interactive methods, role-playing activities, reflective conversations, group tasks, and emotional-state assessment activities were systematically implemented. The results demonstrated positive changes in students' emotional awareness, empathy, self-regulation, communication activity, and social adaptation. The average indicator was 78.4% in the experimental second-grade class compared with 70% in the control class, while in the third grade the corresponding indicators were 81.1% and 72%. The overall improvement reported in the dissertation was 8.75%. The findings indicate that educational dialogue can serve as an effective pedagogical means of developing emotional intelligence in primary school students.*

Keywords: *emotional intelligence, primary education, educational dialogue, empathy, self-regulation, communication, pedagogical technology, social-emotional learning.*

Introduction

Contemporary education increasingly focuses not only on students' academic achievement but also on their emotional and social development. Primary school is a particularly important stage in this process because

children establish relationships with teachers and peers, participate in group activities, and develop their ability to understand and regulate emotions.

Emotional intelligence is associated with the ability to recognize, understand, regulate, and appropriately express emotions, as well as understand the emotional states of other people (Goleman, 1995; Salovey & Mayer, 1990). The dissertation considers emotional awareness, empathy, self-regulation, emotional response, and relationship management as important components adapted to primary education.

Educational dialogue creates opportunities for students to express thoughts, listen to others, cooperate, discuss different situations, and reflect on their emotional experiences. From this perspective, dialogue can function not only as a means of information exchange but also as a pedagogical environment for emotional development. The dissertation emphasizes the importance of educational dialogue for developing students' emotional and communicative competencies (Abdurahmonov, 2018; G'oziev, 2008).

The purpose of this study is to substantiate and experimentally examine a pedagogical technology for developing primary school students' emotional intelligence through educational dialogue.

The research objectives were to: (1) analyze the theoretical foundations and components of emotional intelligence in primary education; (2) determine the pedagogical possibilities of educational dialogue; (3) develop a pedagogical technology based on educational dialogue; and (4) experimentally evaluate its effectiveness.

Methods

The study employed theoretical and empirical research methods. The theoretical methods included analysis of psychological and pedagogical literature related to emotional intelligence, educational dialogue, primary school students' developmental characteristics, and pedagogical technologies.

Empirical methods included pedagogical observation, questionnaires, interviews, experimental work, and mathematical-statistical analysis.

Participants. The experimental study was conducted among second- and third-grade students. A total of 143 students from four classes participated: 2-“A” (31 students), 2-“B” (35 students), 3-“A” (38 students), and 3-“B” (39 students). Classes 2-“B” and 3-“A” constituted the experimental groups, while 2-“A” and 3-“B” constituted the control groups.

Research procedure. The developed pedagogical technology was organized around purpose, objectives, subjects, educational environment, methods and means, theoretical foundations, implementation stages, and expected outcomes. Its main purpose was to systematically develop emotional intelligence through educational dialogue.

The intervention included dialogic conversations, interactive discussions, group work, role-playing activities, situational exercises, reflective conversations, emotional cards, observation, and questionnaires. Dialogic conversations were used to help students recognize and verbalize emotional states; group work was used to develop empathy and social communication; situational role-play was used to develop self-regulation; and reflective conversations were used to promote self-awareness. These approaches correspond to the dissertation’s proposed technology and its component structure.

Results

The experimental results demonstrated positive differences between the experimental and control groups.

Second grade. In experimental class 2-“B”, 35 students participated. Four students were classified at the low level, ten at the medium level, and 21 at the high level; thus, 60% reached the high level. In control class 2-“A”, 31 students participated: six at the low level, twelve at the medium level, and thirteen at the high level. The high-level indicator was therefore 41.9%. The

average indicator was 78.4% in the experimental class and 70% in the control class. The dissertation reports an overall improvement of 8.4% for the second-grade results.

Third grade. In experimental class 3-“A”, 38 students participated. Three students were classified at the low level, nine at the medium level, and 26 at the high level, giving a high-level indicator of 68.4%. In control class 3-“B”, 39 students participated: seven at the low level, fourteen at the medium level, and eighteen at the high level. The high-level indicator was 46.2%. The average indicator was 81.1% in the experimental class and 72% in the control class. The dissertation reports a 9.1% improvement in the third-grade results.

Overall, the dissertation reports an average increase of 8.75% in students’ emotional intelligence by the end of the experimental work.

Discussion

The findings suggest that educational dialogue provides a favorable pedagogical environment for developing emotional intelligence in primary school students. The positive changes in the experimental groups can be associated with the systematic use of activities requiring students to recognize emotions, explain feelings, listen to others, cooperate, and reflect on their behavior.

An important feature of the developed technology is that emotional intelligence was not treated as an isolated subject. Instead, emotional-development activities were integrated into classroom interaction. Dialogic conversations, group work, role-playing, and reflection were used as components of educational communication.

This approach is consistent with the theoretical perspectives of emotional intelligence developed by Salovey and Mayer (1990) and Goleman (1995), and with the pedagogical significance of communication emphasized in the dissertation. The results also correspond to the idea that primary school

students require supportive and emotionally safe interaction in order to develop social and emotional competencies.

The experimental data provide practical evidence for the effectiveness of the developed technology. The difference between experimental and control groups was particularly visible in the proportion of students reaching the high level: 18.1 percentage points in the second grade and 22.2 percentage points in the third grade.

The study was conducted with four classes; therefore, the findings should be interpreted within the experimental conditions described in the dissertation. Further studies with larger samples could provide additional evidence.

Conclusion

The study examined the development of primary school students' emotional intelligence through educational dialogue and experimentally evaluated a pedagogical technology designed for this purpose.

The developed technology integrates dialogic conversations, group work, role-playing, situational exercises, reflective conversations, emotional cards, observation, and questionnaires. The experimental study involving 143 students demonstrated higher indicators in the experimental groups than in the control groups.

The average indicator was 78.4% in the experimental second-grade class compared with 70% in the control class, while in the third grade the corresponding indicators were 81.1% and 72%. The overall increase reported in the dissertation was 8.75%.

Thus, the results support the effectiveness of systematically incorporating educational dialogue and interactive pedagogical methods into primary education. The technology can be applied in language and reading-literacy lessons, extracurricular activities, and educational sessions to support students' emotional and social development.

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ZAMONAVIY MUSIQA TA’LIMIDA DUTOR IJROCHILIGINI RIVOJLANTIRISHNING PEDAGOGIK ASOSLARI

Mansurova Maftuna Alijon qizi

Namangan viloyati Chust tumani
15-sonli Bolalar musiqa va san’at maktabi
dutor sinfi o‘qituvchisi

Annotatsiya. *Mazkur maqolada o‘zbek milliy musiqa madaniyatining muhim tarkibiy qismlaridan biri bo‘lgan dutor cholg‘usini zamonaviy musiqa ta’limi tizimida o‘qitishning pedagogik, metodik va ijrochilik asoslari tahlil qilinadi. Tadqiqotda, ayniqsa, Bolalar musiqa va san’at maktablarida dutor ijrochiligini boshlang‘ich bosqichdan samarali shakllantirish masalasiga alohida e’tibor qaratiladi. Dutor ijrochiligini o‘rgatishda an’anaviy “ustoz-shogird” tajribasini zamonaviy pedagogik texnologiyalar, individual ta’lim strategiyalari, audio-video vositalari va raqamli resurslar bilan uyg‘unlashtirish zarurligi asoslanadi. Tadqiqot davomida BMSMlarda uchraydigan asosiy muammolar, jumladan, o‘quvchilarning musiqiy tayyorgarlik darajasi o‘rtasidagi tafovut, dutorni to‘g‘ri ushlash va ijro holatini shakllantirishdagi qiyinchiliklar, o‘ng va chap qo‘l harakatlarining muvofiqlashmaganligi, ritmik aniqlikning yetarli darajada shakllanmasligi, repertuarning o‘quvchining individual imkoniyatlariga har doim ham mos kelmasligi, mustaqil mashg‘ulot ko‘nikmalarining sustligi hamda sahna tajribasining yetishmasligi tahlil qilinadi. Mazkur muammolarni bartaraf etish uchun bosqichma-bosqich ta’lim, differensial va individual yondashuv, texnik mashqlar tizimini takomillashtirish, milliy va zamonaviy repertuarni uyg‘unlashtirish, muntazam nazorat va refleksiya, shuningdek, ansambl va sahna amaliyotini kuchaytirish bo‘yicha metodik takliflar ishlab chiqiladi.*

Kalit so‘zlar: *dutor, dutor ijrochiligi, BMSM, musiqa ta’limi, ijrochilik texnikasi, ustoz-shogird, repertuar, milliy musiqa, pedagogik metodika, individual yondashuv, innovatsion ta’lim, sahna madaniyati, ansambl, musiqiy meros.*

ПЕДАГОГИЧЕСКИЕ ОСНОВЫ РАЗВИТИЯ ИСПОЛНИТЕЛЬСТВА НА ДУТАРЕ В СОВРЕМЕННОМ МУЗЫКАЛЬНОМ ОБРАЗОВАНИИ

Аннотация. *В статье анализируются педагогические, методические и исполнительские основы обучения игре на дутаре в современной системе музыкального образования. Особое внимание уделяется начальному этапу формирования исполнительских навыков игры на дутаре в Детских школах музыки и искусства (ДШМИ). Обосновывается необходимость сочетания традиционной системы «устоз-шогирд» с современными педагогическими технологиями, индивидуальными образовательными стратегиями, аудио- и видеосредствами, а также цифровыми образовательными ресурсами. В исследовании рассматриваются основные проблемы, возникающие в процессе обучения игре на дутаре в ДШМИ, включая различия в уровне начальной музыкальной подготовки учащихся, сложности в формировании правильной посадки и положения инструмента, несогласованность движений правой и левой рук, недостаточную ритмическую точность, проблемы контроля качества звука, несоответствие репертуара индивидуальным возможностям учащихся, недостаточно сформированные навыки самостоятельных занятий и ограниченный сценический опыт. Для решения выявленных проблем предлагаются педагогические подходы, основанные на поэтапном обучении, индивидуализации и дифференциации образовательного процесса, систематизации технических упражнений, рациональном подборе репертуара, развитии навыков самостоятельной работы, использовании аудиовизуальных технологий, а также расширении ансамблевой и сценической практики. Результаты исследования показывают, что ДШМИ является фундаментальным этапом формирования исполнительской культуры учащегося, а эффективность обучения игре на дутаре определяется интеграцией национальных исполнительских традиций, современных педагогических методов и цифровых образовательных технологий.*

Ключевые слова: *дутар, исполнительство на дутаре, детская школа музыки и искусства, музыкальное образование, исполнительская техника, устоз-шогирд, репертуар, национальная музыка, педагогическая методика, индивидуальный подход, инновационное образование, сценическая культура, ансамблевое исполнительство, музыкальное наследие.*

PEDAGOGICAL FOUNDATIONS FOR THE DEVELOPMENT OF DUTAR PERFORMANCE IN MODERN MUSIC EDUCATION

Abstract. *This article analyzes the pedagogical, methodological, and performance-based foundations of teaching dutar performance in the modern music education system.*

Particular attention is paid to the initial stage of developing dutar performance skills in Children's Music and Arts Schools (CMAS). The study substantiates the necessity of combining the traditional "ustoz-shogird" mentor-apprentice system with modern pedagogical technologies, individualized educational strategies, audio and video tools, and digital educational resources. The research examines the main problems encountered in teaching dutar performance in CMAS, including differences in students' initial musical preparation, difficulties in developing correct posture and instrument positioning, insufficient coordination between the right and left hands, inadequate rhythmic accuracy, problems with sound quality control, inconsistency between the repertoire and students' individual abilities, insufficiently developed independent practice skills, and limited stage experience. To address these challenges, the article proposes pedagogical approaches based on step-by-step instruction, individualization and differentiation of the educational process, systematic technical exercises, appropriate repertoire selection, development of independent practice skills, effective use of audiovisual technologies, and expansion of ensemble and stage performance practice. The findings demonstrate that CMAS represents a fundamental stage in the formation of students' performance culture, while the effectiveness of dutar education depends on the integration of national performance traditions, modern pedagogical methods, and digital educational technologies.

Keywords: *dutar, dutar performance, Children's Music and Arts School, music education, performance technique, ustoz-shogird, mentor-apprentice tradition, repertoire, national music, pedagogical methodology, individual approach, innovative education, stage culture, ensemble performance, musical heritage.*

KIRISH

O‘zbek xalq musiqa madaniyati ko‘p asrlik tarixiy taraqqiyot jarayonida shakllangan boy ijrochilik an’analariga ega bo‘lib, ushbu madaniy meros tarkibida milliy cholg‘ular alohida o‘rin egallaydi. Ana shunday cholg‘ulardan biri bo‘lgan dutor sozi o‘zining mayin va o‘ziga xos tembri, ohangdorligi, ijrochilik imkoniyatlarining kengligi bilan ajralib turadi. Dutor ijrochiligi nafaqat xalq musiqa ijodiyotida, balki professional musiqiy ta’lim, ansambl va orkestr ijrochiligi tizimida ham muhim ahamiyat kasb etadi.

Bugungi kunda musiqa ta’limining asosiy vazifalaridan biri milliy musiqa merosini chuqur o‘zlashtirgan, ijrochilik texnikasini puxta egallagan, mustaqil

musiqiy tafakkurga ega va zamonaviy sahna talablariga javob bera oladigan yosh mutaxassislarni tayyorlashdan iborat. Shu nuqtayi nazardan, dutor ijrochiligini o‘qitish metodikasini takomillashtirish ushbu jarayonning dastlabki bosqichi hisoblangan Bolalar musiqa va san’at maktablarida ta’lim mazmunini ilmiy-metodik jihatdan takomillashtirish dolzarb pedagogik masalalardan biridir. O‘quvchi aynan shu bosqichda cholg‘uni to‘g‘ri ushlash, ijro holatini shakllantirish, o‘ng va chap qo‘l harakatlarini muvofiqlashtirish, tovush hosil qilish, oddiy shtrixlardan foydalanish, ritmni his qilish va nota matnini o‘qish kabi dastlabki ko‘nikmalarni egallaydi. Mazkur ko‘nikmalarning noto‘g‘ri shakllanishi keyingi ta’lim bosqichlarida texnik va badiiy ijrochilik imkoniyatlarining cheklanishiga olib kelishiga olib keladi.

Amaliyot shuni ko‘rsatadiki, dutor o‘qitish jarayonida o‘quvchilarning musiqiy qobiliyati, eshitish darajasi, ritmni his qilish qobiliyati, barmoqlarining harakatchanligi va o‘zlashtirish tezligi bir xil emas. Ayrim o‘quvchilar cholg‘uni tez o‘zlashtirsa, boshqalarida oddiy ijro harakatlarini shakllantirish uchun ko‘proq vaqt talab etiladi. Bunday sharoitda barcha o‘quvchilarga bir xil repertuar, bir xil mashq va bir xil sur’atda talab qo‘yish kutilgan pedagogik natijani bermasligi mumkin. Shuning uchun individual va differensial yondashuv dutor ta’limining muhim metodik tamoyillaridan biri sifatida qaralishi lozim.

Musiqa maktablarda kuzatiladigan yana bir muhim muammo — o‘quvchilarning mustaqil mashg‘ulot olib borish ko‘nikmasining yetarli darajada shakllanmaganligidir. Dars davomida o‘qituvchi nazorati ostida to‘g‘ri ijro etilgan mashq uy sharoitida mustaqil takrorlanganda xatolar bilan bajarilishi mumkin. Buning sababi ko‘pincha o‘quvchining mashqdan ko‘zlangan maqsadni anglamasligi, mashq qilish ketma-ketligini bilmasligi yoki o‘z ijrosini mustaqil nazorat qila olmasligi bilan bog‘liq. Shu sababli o‘qituvchi o‘quvchiga nafaqat “nima ijro etish”, balki “qanday mashq qilish” metodikasini ham o‘rgatishi zarur.

Dutor ijrochiligini o‘rgatishda milliy ijrochilik an’analarini saqlash va ularni zamonaviy pedagogik sharoitlarga moslashtirish ham muhimdir. Tarixan dutor ijrochiligi “ustoz-shogird” an’anasi asosida shakllangan bo‘lib, unda ijro texnikasi bilan bir qatorda musiqiy tafakkur, ijro madaniyati, badiiy did va kasbiy mas’uliyat ham shakllantirilgan. Biroq zamonaviy ta’lim jarayoni ushbu an’anani audio-video yozuvlar, raqamli ta’lim resurslari, individual mashq dasturlari va refleksiv pedagogik usullar bilan boyitishni talab etadi.

Tadqiqotning maqsadi zamonaviy musiqa ta’limi tizimida, xususan, bolalar musiqa va san’at maktablarida dutor ijrochiligini o‘qitishning pedagogik va metodik xususiyatlarini tahlil qilish, mavjud muammolarni aniqlash hamda ularni bartaraf etishga qaratilgan samarali yechimlarni ilmiy-metodik jihatdan asoslashdan iborat.

Tadqiqot vazifalari dutor ijrochiligining musiqa ta’limdagi o‘rnini aniqlash, boshlang‘ich bosqichda uchraydigan ijrochilik muammolarini tahlil qilish, texnik ko‘nikmalarni shakllantirishning samarali usullarini belgilash, repertuar tanlash mezonlarini takomillashtirish, individual pedagogik yondashuv imkoniyatlarini ochib berish hamda an’anaviy va innovatsion metodlarni uyg‘unlashtirish bo‘yicha tavsiyalar ishlab chiqishdan iborat.

METODOLOGIYA

Tadqiqotning metodologik asosini dutor ijrochiligi, musiqa pedagogikasi va xalq cholg‘ularini o‘qitish metodikasiga oid ilmiy-metodik manbalarni tahlil qilish, taqqoslash, tizimlashtirish, pedagogik kuzatuv va umumlashtirish metodlari tashkil etadi. Tadqiqotda U. Yunusovning “Xalq cholg‘ularida ijrochilik. Dutor”, R. Xodjayevaning “Xalq cholg‘ularida ijrochilik. Dutor”, I. Toshpo‘latovaning “An’anaviy cholg‘u ijrochiligi (dutor)”, J. Rasultoyevning “O‘zbek dutor ijrochiligi”, O. Qosimovning “Dutor navolari” kabi manbalardan foydalanilgan.

Tahlil metodidan dutor ijrochiligini shakllantirish jarayonida yuzaga keladigan

texnik va metodik muammolarni aniqlashda foydalanildi. Taqqoslash metodi yordamida boshlang‘ich, o‘rta maxsus va oliy ta’lim bosqichlarida dutor ijrochiligiga qo‘yiladigan pedagogik talablarning o‘zaro bog‘liqligi aniqlandi. Tizimlashtirish asosida texnik tayyorgarlik, musiqiy-nazariy bilim, repertuar, badiiy talqin, sahna madaniyati va mustaqil ishlash ko‘nikmalari yagona pedagogik tizim sifatida qaraldi.

Pedagogik kuzatuv va umumlashtirish metodlari orqali o‘quvchilarda uchraydigan ijrochilik qiyinchiliklari, ularning kelib chiqish omillari va mazkur muammolarni bartaraf etishga qaratilgan metodik yondashuvlar tahlil qilindi. Tadqiqotda dutor ijrochiligini o‘rgatishning uzluksizligi asosiy tamoyil sifatida belgilandi. Bunda ilk bosqichlarda shakllangan boshlang‘ich texnik ko‘nikmalar keyingi o‘rta maxsus va oliy ta’lim bosqichlarida murakkab ijrochilik hamda badiiy talqin darajasiga olib chiqilishi nazarda tutiladi. Ko‘pgina mutaxassislarning fikriga ko‘ra, ijro etish texnikasini izlash jarayonida ustuvorlik musiqa va eshitish tasviriga berilishi kerak, bu o‘zini eng samarali deb biladi.[3]

NATIJALAR

Tadqiqot natijalari dutor ijrochiligini samarali o‘rgatish jarayoni izchil, bosqichma-bosqich, individual va kompleks tarzda tashkil etilganda yuqori natijalarga erishish mumkinligini ko‘rsatadi. Bu borada, Bolalar musiqa va san’at maktablari dutor ijrochiligini o‘rgatishning dastlabki va asosiy bosqichi sifatida alohida pedagogik ahamiyatga ega. Chunki o‘quvchining keyingi kasbiy rivojlanishi, avvalo, aynan shu bosqichda shakllanadigan boshlang‘ich ijrochilik ko‘nikmalarining to‘g‘ri egallanishiga bog‘liq. Dutorni ushlash, to‘g‘ri o‘tirish, qo‘l va barmoqlarni to‘g‘ri joylashtirish, tovush chiqarish, ritmga rioya qilish, nota bilan ishlash va musiqani eshitib anglash kabi

[3] Isayeva N. Cholg‘uijrocholigi Dutor T.2024 18-b

ko‘nikmalar dastlabki bosqichda to‘g‘ri shakllantirilmasa, keyinchalik ularni qayta o‘rgatish qiyinlashadi**.**

Dutor ijrochilik ta’limini tashkil etishda o‘quvchilarning boshlang‘ich musiqiy tayyorgarligi bir xil emasligi muhim pedagogik muammolardan biri sifatida namoyon bo‘ladi. Ayrim o‘quvchilar musiqa tinglash, kuyga mos harakat qilish, ritmni his etish va tovush balandligini farqlash bo‘yicha nisbatan yaxshi tayyorgarlikka ega bo‘lsa, boshqalarida ushbu ko‘nikmalarni izchil shakllantirish talab etiladi. Shuningdek, o‘quvchilarning barmoq harakatchanligi, musiqiy xotirasi, eshitish qobiliyati va yangi materialni o‘zlashtirish tezligi ham bir-biridan farq qiladi. Bunday sharoitda barcha o‘quvchilarga bir xil mashq va repertuarni bir xil sur’atda o‘zlashtirish talabini qo‘yish ta’lim samaradorligini pasaytirishi mumkin. Shu sababli dutor o‘qitish jarayonida individual va differensial pedagogik yondashuvni qo‘llash, o‘quvchining mavjud imkoniyatlarini dastlabki kuzatuv asosida aniqlash va uning rivojlanish dinamikasiga mos metodik topshiriqlarni belgilash maqsadga muvofiqdir.

Dutor ijrochiligini o‘zlashtirishdagi muhim qiyinchiliklardan biri cholg‘uni to‘g‘ri ushlash va ijro holatini shakllantirish bilan bog‘liq. Boshlang‘ich ta’lim davrida noto‘g‘ri o‘tirish, cholg‘uning tanaga nisbatan noqulay joylashtirilishi, o‘ng yoki chap qo‘lning ortiqcha zo‘riqishi ijro harakatlarining tabiiyligini buzadi. Bunday kamchiliklar vaqt o‘tishi bilan o‘quvchining texnik imkoniyatlarini cheklab, murakkab asarlarni o‘zlashtirish jarayonida qo‘shimcha qiyinchiliklarni yuzaga keltiradi. Shu bois dastlabki mashg‘ulotlardanoq pedagog o‘quvchining gavda holati, cholg‘uning joylashuvi, qo‘l va barmoqlarning erkinligi hamda harakatlarning tabiiyligini muntazam nazorat qilishi lozim. Mazkur nazorat faqat xatoni ko‘rsatish bilan cheklanmasdan, uning sababini tushuntirish va to‘g‘ri ijro holatini amaliy namoyish etish bilan birgalikda olib borilganda samaraliroq natija beradi.

Dutor ijrosida o‘ng va chap qo‘l harakatlarining o‘zaro muvofiqligi ham alohida metodik e’tiborni talab qiladi. Tovush hosil qilish jarayonida o‘ng qo‘l harakati bilan chap qo‘lning pardalarni aniq bosishi bir vaqtning o‘zida va muvofiqlashgan holda amalga oshirilishi kerak. Ijro jarayonida o‘ng qo‘l mushaklari bo‘sh bo‘lishi va musiqiy dinamikalar o‘zgarishi, tovush maqsadli ko‘tarilishi vaqtida ular kuch berish malakasini to‘g‘ri amalga oshirishi zarurdir. Bu borada qisqa tremolo qilish va tremolo nisbatini uzaytirib borish mashqini bajarish o‘z samarasini beradi.[4] Boshlang‘ich o‘quvchilarda esa ushbu harakatlarni birlashtirish jarayonida ritmik uzilishlar, tovushning noaniq chiqishi yoki tempning beqarorligi kuzatilishi mumkin. Bunday vaziyatda murakkab repertuarga shoshilinch o‘tish o‘rniga har bir texnik elementni alohida shakllantirib, keyinchalik ularni birlashtirish metodik jihatdan maqsadga muvofiqdir. Qisqa texnik mashqlarni sekin tempda bajarish, harakat aniqligiga erishilgandan keyingina ijro tezligini oshirish o‘quvchining motorik ko‘nikmalarini barqarorlashtiradi.

Ritmik aniqlikning yetarli darajada shakllanmasligi ham o‘quvchilarning ijrochilik faoliyatida tez-tez uchraydigan muammolardan biridir.

Dutor ijrosida ritm musiqiy asarning strukturaviy yaxlitligini ta’minlovchi asosiy vositalardan biri bo‘lib, nota balandliklarining to‘g‘ri ijro etilishi o‘z-o‘zidan yetarli natijani ta’minlamaydi. Ijro sur’atining o‘zgarib ketishi, pauzalarning aniq bajarilmasligi yoki ritmik formulalarning buzilishi asarning musiqiy mazmuniga salbiy ta’sir ko‘rsatadi. Shu sababli ilk bosqichidanoq ritmik tarbiyani muntazam olib borish, metronomdan foydalanish, murakkab ritmik shakllarni alohida mashq qilish, sanash orqali ichki pulsni rivojlantirish va asarni dastlab sekin tempda o‘zlashtirib, keyinchalik ijro tezligini bosqichma-bosqich oshirish samarali metodik yechimlardan hisoblanadi.

Dutor ijrosida tovush sifatini shakllantirish masalasi ham boshlang‘ich ta’limning muhim tarkibiy qismidir. Yosh ijrochilar ko‘pincha tovush

[4] Yunusov U. Xalq cholg‘ularida ijrochilik. Dutor. – Toshkent, 2023. 23-b

chiqarishda ortiqcha kuch ishlatishi yoki zarb harakatini yetarlicha nazorat qilmasligi natijasida cholg‘uning tabiiy tembr imkoniyatlarini to‘liq namoyon eta olmaydi. Natijada tovushning keskinligi, notekisligi yoki dinamik jihatdan bir xilligi kuzatiladi. Ushbu muammoni bartaraf etish uchun tovush hosil qilish mexanizmini pedagog tomonidan amaliy namoyish qilish, o‘quvchining ijrosini tinglash orqali tovush sifatini muntazam baholash va turli dinamik darajalarda tovush chiqarishga qaratilgan mashqlarni qo‘llash zarur. Bunda texnik harakatning o‘zi emas, balki uning natijasida hosil bo‘layotgan tovushga eshitish orqali baho berish ko‘nikmasini shakllantirish muhim ahamiyat kasb etadi.

Dutor ijrochilik ta’limida repertuar tanlash ham o‘quvchining rivojlanishiga bevosita ta’sir ko‘rsatuvchi omillardan biridir. O‘quvchining texnik va psixologik imkoniyatidan yuqori bo‘lgan asarlarni erta bosqichda berish ijroning mexanik tus olishiga, ortiqcha zo‘riqishga va cholg‘uga bo‘lgan qiziqishning pasayishiga olib kelishi mumkin. Shu bilan birga, haddan tashqari sodda repertuar o‘quvchining texnik va badiiy rivojlanishini sekinlashtiradi. Shuning uchun repertuar tanlashda “osondan murakkabga” tamoyiliga amal qilish, har bir asar orqali muayyan texnik yoki badiiy vazifani hal qilish va o‘quvchining individual imkoniyatlarini hisobga olish lozim. Repertuar tarkibida xalq kuylarining an’anaviy namunalarini zamonaviy o‘zbek kompozitorlari asarlari hamda o‘quvchining yoshiga mos qayta ishlangan musiqiy namunalar bilan uyg‘unlashtirish uning milliy musiqiy tafakkuri va umumiy musiqiy dunyoqarashini rivojlantirishga xizmat qiladi.

O‘quvchilarning mustaqil mashg‘ulot olib borish ko‘nikmasining yetarli darajada shakllanmaganligi ham dutor ijrochiligini rivojlantirish jarayonida alohida e’tibor talab etadi. Dars davomida o‘qituvchi ko‘rsatmasi asosida to‘g‘ri bajarilgan mashq uy sharoitida mustaqil takrorlanganda xatolar bilan ijro etilishi mumkin. Buning asosiy sabablaridan biri o‘quvchining mashq qilish maqsadi va ketma-ketligini yetarli darajada anglamaganligidir. Shu

sababli dars yakunida o‘quvchiga umumiy topshiriq berish o‘rniga aniq metodik vazifalarni belgilash maqsadga muvofiq. Masalan, muayyan mashqni sekin tempda bir necha marotaba xatosiz bajarish, murakkab taktlarni alohida ishlash, metronom yordamida tempni nazorat qilish yoki o‘z ijrosini audio yozuv orqali qayta tinglash kabi topshiriqlar o‘quvchining mustaqil mashg‘ulotini aniq yo‘nalishga solidi

Dutor ta’limining samaradorligini oshirishda “ustoz-shogird” an’anasini zamonaviy pedagogik yondashuvlar bilan uyg‘unlashtirish alohida ahamiyatga ega. Ustozning ijroni bevosita namoyish etishi, shogirdning kuzatishi, takrorlashi va keyinchalik mustaqil ijroga o‘tishi dutor o‘qitish metodikasining an’anaviy va samarali shakllaridan biridir. Biroq zamonaviy ta’lim sharoitida o‘quvchi faqat taqlid qiluvchi ijrochi bo‘lib qolmasligi, balki bajarilayotgan harakatning musiqiy va texnik sabablarini tushunishi kerak. Shu sababli namoyish, tushuntirish, amaliy mashq, mustaqil tahlil va refleksiya yagona pedagogik tizim sifatida tashkil etilishi maqsadga muvofiq.

MUHOKAMA

Olingan natijalar shuni ko‘rsatadiki, dutor ijrochiligini rivojlantirish masalasida ilk bosqichlarda alohida ahamiyat berish zarur. Chunki aynan ushbu bosqichda shakllangan ijrochilik stereotiplari keyingi ta’lim bosqichlarida davom etadi. Agar cholg‘uni ushlash, qo‘l holati, barmoq qo‘yilishi, tovush hosil qilish yoki ritm bilan bog‘liq xatolar dastlabki davrda nazorat qilinmasa, keyinchalik ularni tuzatish ancha murakkablashadi.

Shu bilan birga, maktablardagi dutor ta’limining samaradorligi faqat texnik natijalar bilan baholanmasligi kerak. O‘quvchining musiqiy eshitishi, badiiy obrazni his qilishi, asar mazmunini tushunishi, mustaqil fikrlashi va musiqaga estetik munosabati ham ta’lim natijasining muhim komponentlari hisoblanadi. Shu ma’noda texnika va badiiylikni qarama-qarshi qo‘yish

noto‘g‘ri. Texnik mashqlar badiiy ijroga xizmat qilishi, badiiy ijro esa texnik ko‘nikmalarning mazmunini ochib berishi kerak.

Tadqiqot natijalariga ko‘ra, dutor ijrochiligini rivojlantirishning istiqbolli modeli uch asosiy yo‘nalishning o‘zaro uyg‘unligiga asoslanadi: milliy ijrochilik an’analarini saqlash, professional ijrochilik texnikasini izchil rivojlantirish va zamonaviy pedagogik hamda raqamli texnologiyalardan foydalanish. Ushbu uch komponentdan birining e’tibordan chetda qolishi ta’lim samaradorligiga salbiy ta’sir ko‘rsatishi mumkin.

XULOSA

O‘tkazilgan tahlillar shuni ko‘rsatadiki, zamonaviy musiqa ta’limida dutor ijrochiligini rivojlantirish uzluksiz, bosqichma-bosqich va ko‘p komponentli pedagogik jarayon sifatida tashkil etilishi lozim. Mazkur jarayonning eng muhim boshlang‘ich bo‘g‘ini bolalar musiqa va san’at maktabi hisoblanadi. Chunki aynan shu bosqichda o‘quvchining cholg‘u bilan munosabati, asosiy ijrochilik harakatlari, musiqiy eshitishi, ritmik sezgisi, nota savodi, mashq qilish madaniyati va sahna faoliyatiga munosabati shakllanadi.

Maktablarda dutor ta’limining asosiy muammolari sifatida o‘quvchilarning tayyorgarlik darajasidagi farqlar, cholg‘uni to‘g‘ri ushlash va ijro holatini shakllantirishdagi kamchiliklar, o‘ng va chap qo‘l harakatlarining muvofiqlashmaganligi, ritmik aniqlikning yetarli emasligi, tovush sifatini nazorat qilishdagi qiyinchiliklar, repertuarning individual imkoniyatlarga mos kelmasligi, mustaqil mashg‘ulot ko‘nikmalarining sustligi va sahna tajribasining yetishmasligini qayd etish mumkin.

Mazkur muammolarni bartaraf etish uchun dutor ta’limida individual-diagnostik yondashuvni joriy etish, texnik mashqlarni bosqichma-bosqich tashkil qilish, ritmik tayyorgarlikni kuchaytirish, repertuarni o‘quvchining yoshi va imkoniyatlariga moslashtirish, audio-video vositalaridan foydalanish, mustaqil mashg‘ulot metodikasini shakllantirish va muntazam sahna

amaliyotini yo‘lga qo‘yish zarur. Bunda har bir o‘quvchi uchun individual rivojlanish strategiyasini ishlab chiqish muhim metodik shartlardan biri sifatida namoyon bo‘ladi.

“Ustoz-shogird” an’anasi dutor ijrochiligi ta’limining muhim pedagogik asosi sifatida o‘z ahamiyatini saqlab qolishi kerak. Biroq uni zamonaviy pedagogik texnologiyalar, raqamli ta’lim resurslari, audio-video tahlil, individual mashg‘ulot dasturlari va refleksiv metodlar bilan boyitish zamonaviy ta’lim talablariga mos keladi. Bunday integratsiya an’anaviy ijrochilik maktabining ijobiy jihatlarini saqlagan holda ta’lim jarayonining samaradorligini oshirish imkonini beradi.

Dutor repertuarini takomillashtirish ham istiqboldagi muhim vazifalardan biridir.

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THE ROLE OF YOUTH INTELLECTUAL AND CULTURAL PROJECTS IN MEDIA DIPLOMACY OF UZBEKISTAN

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Abstract. *This article examines the representation of "Yosh kitobxon" (the Young Reader), "Yosh kitobxon oila ("Young Reader Family), "Besh tashabbus olimpiadasi" (Five Initiatives Olympiad), "Yoshlar ovozi" (Voice of Youth), "Turon" maktab teatri (Turon School Theatre), "Jadidlar izidan" (In the Footsteps of the Jadids), and "Iqtidor" maktab ansambli (Iqtidor School Ensemble) projects–developed as practical manifestations of Uzbekistan's state youth policy–on television and digital platforms from the perspectives of media diplomacy and philological discourse. The empirical corpus comprises television films and audiovisual materials produced by the author within the framework of their creative activities based on these projects.*

The article substantiates the applicability of the categories of "multiplatform national narrative" and "audiovisual personification of state policy" for interpreting Uzbekistan's media diplomacy.

Keywords: *media diplomacy, youth policy, multiplatform communication, philological discourse, multimodality, reading culture, Jadidism*

Introduction

In this article, the units "book," "family," "voice," "stage," "Jadid," "melody," "heritage," "Homeland," and "future" are viewed not as individual lexemes, but as conceptual nodes that contribute to the formation of a national metanarrative associated with the youth of Uzbekistan. In particular, intellectual and cultural projects designed for young people are increasingly emerging as important resources of contemporary media diplomacy. Initiatives such as reading promotion, theatre, music, cinema, creative competitions, scholarly and educational projects, the promotion of historical and cultural heritage, digital education, and youth forums provide platforms through which

national values are articulated in contemporary forms of communication and conveyed to wider audiences. In this regard, the intellectual and cultural engagement of young people represents an important factor in strengthening a country's soft power potential.

In the context of Uzbekistan, this process is of particular significance. The country's rich historical and cultural heritage, longstanding scholarly and educational traditions, the Jadid movement, national schools of literature and art, centuries-old statehood traditions, and the intellectual potential of its contemporary youth create considerable opportunities for international communication.

Main Part. In the twenty-first century, a state's international image is shaped not only by diplomatic notes, political negotiations, or foreign policy statements. Media products that communicate a country's everyday life, education system, younger generation, cultural values, and historical memory to mass audiences also play a significant role in shaping external perceptions. Integrated studies of people-to-people diplomacy and media diplomacy particularly emphasize the role of media, culture, and networked communication in conveying a state's attractiveness, credibility, and values to international audiences.[1, p.122]

Digital convergence has rendered the boundaries between television and online platforms increasingly fluid. A television programme no longer ends with its broadcast: it can be re-edited, divided into short-form content, shared across social media platforms, and subsequently recontextualized by different audiences. Jenkins conceptualizes this process through the notion of convergence culture. Consequently, high-quality national narratives originally produced for domestic audiences can potentially evolve into valuable resources for external communication and international outreach. [2, p. 76]

The institutional development of youth policy in Uzbekistan has created an important framework for the empirical study of this issue. In the Presidential

Resolution No. PQ-92 of January 19, 2022, the key responsibilities of youth leaders include organizing meaningful leisure activities for young people in local communities (mahallas) [3], implementing the “Five Important Initiatives” projects, encouraging talent and initiative, fostering patriotism among young people, and promoting their intellectual and spiritual development. [4]

These legal and policy foundations demonstrate that reading, art, theatre, music, and intellectual competitions are not merely isolated activities, but constitute integral components of the state’s youth policy.

The concept of media diplomacy has emerged at the intersection of *public diplomacy, strategic communication, soft power,* and theories of mediation.[5, p.18] Subsequent studies have demonstrated that *public diplomacy* has gradually shifted from one-way information transmission towards relationship-building, network formation, and dialogue with audiences.[6, p.43] From this perspective, audiovisual narratives focusing on the lives and experiences of young people provide an opportunity to communicate a country’s values by “showcasing” them through lived experiences and relatable stories.

During a dialogue with young people held on February 24, 2026, it was noted that more than 22 million young people in the country constitute a significant economic, social, and political force. The importance of providing them with language and vocational skills, engaging them in sports, and supporting their ideas and start-up initiatives was also emphasized.[7] This political discourse frames young people not merely as objects of social protection, but as active agents of national development.

On May 22, 2026, while launching the National Reading Movement in Uzbekistan, President Shavkat Mirziyoyev identified independent thinking as one of the greatest advantages in the age of digital technologies and artificial intelligence. In the official speech, reading was framed not merely as an

educational issue, but also in relation to the future of the nation, spiritual strength, and the country's competitiveness.[8] This semantic shift is particularly significant for media analysis: the concept of "the book" is transformed from a private cultural practice into a symbol of national development.

The official description of the "Five Initiatives Olympiad" notes that a five-stage system has been established in local communities (*mahallas*) covering reading, culture and the arts, intellectual games, information technologies, and sports. The official objective of the "Turon" School Theatre Competition is to develop students' stage culture and public speaking skills, support school theatre studios, foster their creative and intellectual potential, and strengthen patriotic education.

The "Iqtidor" School Ensemble project is organized by the Republican "Kelajak Markazi" (Future Center) under the Ministry of Preschool and School Education among teams of students in grades 6–10. The project also provides opportunities for the winners of the national stage to participate in educational trips abroad. Meanwhile, the objectives of the "Following in the Footsteps of the Jadids" competition include fostering independent thinking and reading culture, promoting the intellectual and spiritual legacy of Jadid scholars and writers, identifying talented students, and instilling national values in the younger generation.

The substantive coherence of these projects lies in the fact that, despite their different formats, they collectively institutionalize the interconnected chain of "youth – knowledge – culture – historical memory – future." This chain can therefore be interpreted as an important conceptual framework through which youth-oriented intellectual and cultural initiatives acquire broader significance within Uzbekistan's media diplomacy.

Based on the projects discussed above, the study was conducted using a comprehensive methodology grounded in the qualitative research paradigm.

The empirical corpus consists of television programmes and audiovisual materials produced within the creative work of the author, Muslima Omonqulova, focusing on the themes of “Young Reader,” “Young Reader Family,” “Five Initiatives,” “Youth Voice,” “Turon” School Theatre, “Following in the Footsteps of the Jadids,” and the “Iqtidor” School Ensemble. According to the author’s creative portfolio and broadcast records, different versions of this content were aired on the O‘zbekiston 24, O‘zbekiston, Yoshlar, and MY5 television channels, and were also distributed through the Biz TV digital platform. This broadcast and distribution information is used in the article as metadata for the authorial corpus.

From a media perspective, one of the most significant characteristics of the “Five Initiatives” content is that it does not reduce young people to a single social function. Within the same communicative ecosystem, young people are represented as athletes, readers, performers, technology users, and participants in intellectual competitions. Consequently, the project produces a “multidimensional youth” frame. The institutional integration of reading, arts, intellectual games, information technology, and sports within the official framework provides the structural foundation for this frame.

From the perspective of media diplomacy, this model is of strategic significance because it represents the country not only through its historical heritage, but also through its human capital equipped with contemporary competencies. This constitutes a semantic shift from the conventional representation of Uzbekistan primarily through “Eastern traditions, cultural heritage, and diplomacy” towards an image of a “modern, knowledgeable, and socially active society.” Such a shift expands the communicative potential of youth-oriented media content and enables contemporary Uzbekistan to be presented to external audiences through the capacities, aspirations, and achievements of its younger generation.

Conclusion. The main conclusion of the study is that the media-diplomatic image of contemporary Uzbekistan should not be confined solely to historical monuments, tourism, or official political statements. A child reading a book, a student bringing history to life on stage, an ensemble performing national music, a young person exploring the legacy of the Jadids, and the culture of family reading can all serve as strategic communicative resources of the country.

Such content enables Uzbekistan to communicate to the world not only the message of "What kind of history do we have?", but also to address the equally important question: "What kind of future generation are we nurturing?" In this regard, youth-oriented intellectual and cultural media projects can be viewed as an important instrument of contemporary media diplomacy, as they translate national values, historical memory, cultural identity, and aspirations for the future into accessible narratives for both domestic and international audiences.

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6-SECTION

KO‘P KVARTIRALI UYLAR KONSTRUKSIYALARIDAGI DEFORMATSIYALARNI ANIQLASH USULLARI.

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Annotatsiya. Shaharsozlikda ekspluatatsiya qilinayotgan ko‘p kvartirali turar-joy binolarining konstruksiyalari deformatsion holatini tekshirishda poydevor va yuk ko‘taruvchi konstruksiyalarda yuzaga keladigan cho‘kish jarayonlarini aniqlash hamda ularning rivojlanish dinamikasini geodezik monitoring asosida nazorat qilish masalalari yoritilgan.

Tayanch so’zlar: shaharsozlik, ko‘p kvartirali turar-joy binolari, geodezik monitoring, deformatsiya, poydevor cho‘kishi, yuk ko‘taruvchi konstruksiyalar, texnik diagnostika, ekspluatatsion ishonchlilik, fotogrammetriya, konstruksiyalarning texnik holati.

Abstract. The paper addresses the investigation of the deformation state of structural systems in operational multi-apartment residential buildings within urban environments, with particular emphasis on the identification of foundation settlement and deformation processes affecting load-bearing structural elements, as well as the monitoring of their temporal development through geodetic monitoring techniques.

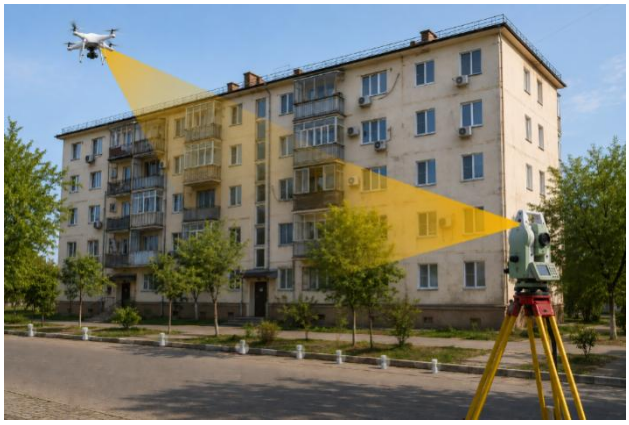
Keywords: urban planning, multi-apartment residential buildings, geodetic monitoring, structural deformation, foundation settlement, load-bearing structures, technical diagnostics, operational reliability, photogrammetry, structural condition assessment.

Kirish. Bugungi kunda respublikamizda urbanizatsiya jarayonining jadallashuvi natijasida ko‘p kvartirali turar joy binolarining soni ortib bormoqda. Aholining zich joylashuvi, yer resurslaridan oqilona foydalanish hamda zamonaviy shaharsozlik talablarini ta’minlash ko‘p kvartirali turar joy binolarining ekspluatatsion ishonchliligini uzoq muddat davomida saqlashni dolzarb vazifalardan biriga aylantirmoqda. Biroq binolar ekspluatatsiyasi davomida gruntlarning fizik-mexanik xususiyatlarining o‘zgarishi, yer osti suvlari sathining ko‘tarilishi, atmosfera yog‘inlari, drenaj tizimlarining yetarli darajada ishlamasligi hamda konstruktiv elementlarning tabiiy eskirishi natijasida poydevor va yuk ko‘taruvchi konstruksiyalarda deformatsiyalar yuzaga keladi. Ushbu holatlar vaqt o‘tishi bilan binolarning texnik holatini yomonlashtirib, ularning xizmat muddatini qisqartiradi hamda avariyaviy holatlar yuzaga kelish xavfini oshiradi [1]. Ko‘p kvartirali uy (KKU)larning texnik holatini baholashda deformatsiyalarni o‘z vaqtida aniqlash va ularning rivojlanish dinamikasini kuzatish muhim ahamiyat kasb etadi. Shu sababli zamonaviy shaharsozlikda geodezik monitoring tizimlarini qo‘llash binolar ekspluatatsiyasi xavfsizligini ta’minlashning eng muhim tarkibiy qismlaridan biri hisoblanadi. Monitoring jarayonida geodezik reperlar, cho‘kish markalari va yuqori aniqlikdagi geodezik asboblar yordamida binolarning vertikal va gorizontal o‘qdan siljishlari muntazam kuzatib boriladi. Davriy o‘lchashlardan olingan natijalar asosida deformatsiya tezligi, cho‘kish miqdori hamda konstruksiyalarning fazoviy holati baholanadi [1, 2].

Asosiy qism: Bino va inshootlarning o‘q chiziqdan o‘g‘ishi hamda cho‘kishini aniqlash maqdsadida geodezik o‘lchov ishlarini qurilish tugaganidan keyin ham davom ettirish (taxminan 5 yil davomida loy asosli tuproqlarda, 2 yil qum asosli tuproqlarda lekin barcha holatlarda o‘zgarish barqarorlashguncha tekshirish) tavsiya etiladi [2].

Geodezik monitoringni asosiy vazifasi nafaqat mavjud deformatsiyalarni qayd etish balki ularning kelajakdagi rivojlanishini prognoz qilish ham

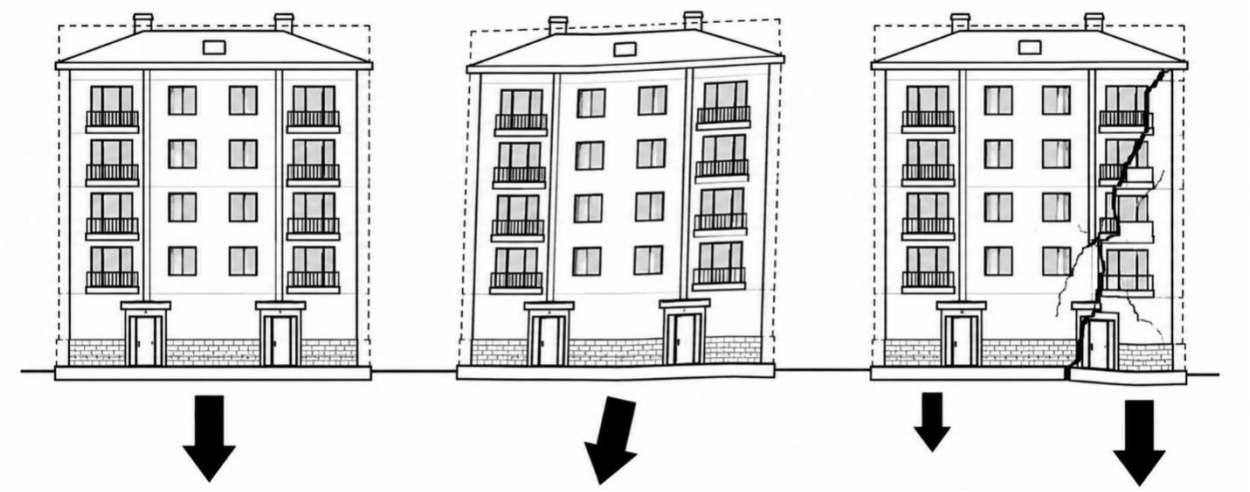
mumkin hisoblanadi. Zamonaviy monitoring texnologiyalari elektron taxeometrlar, lazerli skanerlash va avtomatlashtirilgan kuzatuv komplekslari yordamida yuqori aniqlikdagi o‘lchashlarni amalga oshirish imkonini beradi.



1-rasm. Ekspluatatsiyadagi KKUlarni geodezik monitoring qilish vositalari.

Bunday yondashuv binolar ekspluatatsiyasi davrida konstruktiv elementlarning ishlash holatini kompleks baholash, texnik xizmat ko‘rsatish muddatlarini rejalashtirish hamda ta’mirlash ishlarini o‘z vaqtida amalga oshirish imkoniyatini yaratadi [2].

Binolar deformatsiyalarining asosiy sabablari qatoriga gruntlarning notekis cho‘kishi, sizot suvlari sathining o‘zgarishi, drenaj tizimlarining nosozligi, loyihalashdagi xatolar, qurilish sifati hamda ekspluatatsiya davridagi ortiqcha yuklamalar kiradi. Ayniqsa agressiv gidrogeologik sharoitlarda poydevor gruntining namlanishi va mustahkamligining pasayishi notekis cho‘kishlarni keltirib chiqaradi. Natijada devorlarda yoriqlar, konstruksiyalarda og‘ishlar hamda poydevor deformatsiyalari yuzaga keladi.



2-rasm. Bino joylashgan gruntining cho'kishi natijasida binoning og'ishi va devor konstruksiyalarida yoriqlarni yuzaga kelishi.

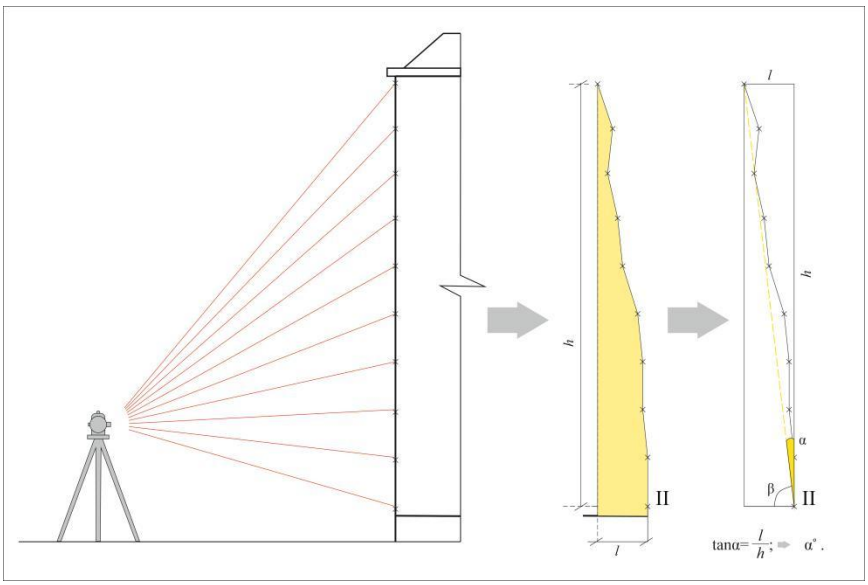
Bunday holatlarda geodezik kuzatuv natijalari muhandislik-geologik tadqiqotlar bilan birgalikda tahlil qilinishi zarur [3].

So'nggi yillarda binolarni texnik nazorat qilishda uchuvchisiz uchish apparatlari va fotogrammetriya texnologiyalaridan foydalanish tobora kengaymoqda. Dronlar yordamida bajarilgan aerofotosuratlar asosida fasadlarning uch o'lchamli raqamli modellari yaratiladi. Mazkur usul balandda joylashgan konstruksiyalarni xavfsiz va qisqa muddatda tekshirish, yoriqlar hamda boshqa nuqsonlarni aniqlash imkonini beradi. Fotogrammetrik monitoring natijalarini geodezik kuzatuv ma'lumotlari bilan integratsiyalash esa ko'p kvartirali uylarning ekspluatatsion ishonchliligini yanada aniq baholash imkoniyatini yaratadi [6]. Binoning tashqi devoriga o'rnatilgan har bitta marka (nuqta)laridagi davriy monitoring natijalariga asosan binoning og'ishini topish mumkin, uni quyidagi ifoda orqali topish mumkin [2].

$$\operatorname{tg}\alpha = \frac{\Delta l}{h} \qquad (1)$$

bu yerda: Δl- devorning og'ish masofasi, $\Delta l = h_{y2} - h_{y1}$ mm.

h- balandlik, $h = h_{z2} - h_{z1}$ mm. α- og'ish burchagi.



3-rasm. Binoning tashqi devor konstruksiyasini og‘ish burchagini topish.

(t) vaqt o‘tishi natijasida qayta davriy o‘lchashlar asosida konstruksiyaning vertikal o‘q chiziqdan og‘ish tezligini quyidagicha topish mumkin:

$$K_{\text{og‘ish}}=\frac{\alpha_1-\alpha_2}{t_1-t_2};\qquad {}^{o}/\text{oy yoki } {}^{o}/\text{yil.} \qquad (2)$$

Texnik diagnostika jarayonida geodezik monitoring natijalari vizual kuzatuvlar, instrumental tekshiruvlar va konstruksiyalar mustahkamligini aniqlash natijalari bilan birgalikda baholanishi lozim. Ushbu kompleks yondashuv binolarning haqiqiy texnik holatini aniqlash, avariya holatlarini erta bosqichda aniqlash hamda ta’mirlash bo‘yicha muhandislik qarorlarini ilmiy asosda qabul qilish imkonini beradi [4].

Ekspluatatsiya davridagi kuzatuv natijalari asosida poydevor gruntlarining deformatsion holatini matematik modellashtirish va prognozlash binolarning xizmat muddatini uzaytirishda muhim omillardan biri hisoblanadi. Poydevor cho‘kishining vaqt bo‘yicha o‘zgarishini baholash, gruntlarning deformatsion xususiyatlarini hisobga olgan holda prognoz modellarini ishlab chiqish hamda monitoring natijalarini raqamli axborot tizimlariga

integratsiyalash zamonaviy shaharsozlikning ustuvor yo‘nalishlaridan biri sifatida qaralmoqda [5]. **Xulosa.** Ko‘p kvartirali turar-joy binolarining ekspluatatsiya davrida deformatsion holatini muntazam kuzatib borish ularning konstruktiv xavfsizligi va uzoq muddatli ishonchli ekspluatatsiyasini ta’minlashning muhim omillaridan biridir. Geodezik monitoring usullaridan foydalanish poydevor cho‘kishi, konstruksiyalarning siljishi va boshqa deformatsion jarayonlarni dastlabki bosqichda aniqlash hamda ularning rivojlanish dinamikasini baholash imkonini beradi. Monitoring natijalari asosida binoning texnik holatini obyektiv baholash, xavfli deformatsiyalarning oldini olish va ekspluatatsiya jarayonida zarur muhandislik qarorlarini o‘z vaqtida qabul qilish imkonini beradi. Shu bois geodezik monitoringni ko‘p kvartirali turar-joy binolarini ekspluatatsiya qilish tizimining ajralmas tarkibiy qismi sifatida qo‘llash binolarning ekspluatatsion ishonchliligini, konstruktiv barqarorligini hamda umrboqiyligini oshirishga xizmat qiladi.

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BO‘LAJAK MUHANDISLARNING IJODIY-GRAFIK TAFAKKURNI RIVOJLANTIRISH

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Annotasiya. *Maqolada oliy ta’lim muassasalarida “muhandislik va kompyuter grafikasi” fanini innovasion o‘qitish bilan bog‘liq bo‘lgan bo‘lajak muhandisning intellektual qobiliyatlarini kasbiy kompententligini faolashtirish sifat-samaradorligini oshirishning ba’zi muammolari echimi mazmun-mohiyati yoritilgan.*

Kalit so‘zlar: *talaba, o‘qitish, ta’lim, tarbiya, bo‘lajak, muhandis, kompyuter grafikasi, grafik tayyorgarlik, kasbiy, qobiliyat, kompetentlik, intellektual, integrasiyalashuv, innovasion, ijodiy, sifat, samaradorlik.*

РАЗВИТИЕ ТВОРЧЕСКОГО И ГРАФИЧЕСКОГО МЫШЛЕНИЯ БУДУЩИХ ИНЖЕНЕРОВ

Аннотация. *В статье раскрыта сущность решения ряда задач повышения качества и эффективности профессиональной компетентности интеллектуальных способностей будущего инженера, связанных с инновационным преподаванием предмета «Инженерная и компьютерная графика» в высшей школе.*

Ключевые слова: *студент, преподавание, обучение, образование, перспектива, инженер, компьютерная графика, графическая подготовка, профессиональный, способности, компетентность, интеллектуальный, интеграционный, инновационный, творческий, качество, эффективность.*

DEVELOPMENT OF CREATIVE AND GRAPHIC THINKING OF FUTURE ENGINEERS

Annotation. *The article describes the essence of the solution of some problems of improving the quality and efficiency of the professional competence of the intellectual*

abilities of the future engineer, associated with the innovative teaching of the subject "Engineering and Computer Graphics" in higher education.

Key words: *student, teaching, learning, education, future, engineer, computer graphics, graphic preparation, professional, ability, competence, intellectual, integration, innovative, creative, quality, efficiency.*

Jamiyatning barcha sohalarida ro‘y berayotgan tub o‘zgarishlar yuqori malakali kadrlar tayyorlash uchun samarali texnologiyalarni izlash va ulardan foydalanish zarurligini taqozo etmoqda. Mamlakatning iqtisodiy rivojlanishidagi muvaffaqiyat turli xil maqsadlar uchun muhandis kadrlarni tayyorlash sifati bilan uzviy bog‘liqdir. Bunday sharoitlarda faoliyatning kasbiy va boshqa faoliyat sohalarida mutaxassislarni ijodiy shaxs sifatida shakllantirish asosiy vazifa hisoblanadi. Muhandisning malakasi yangi uskunalar yaratish, zamonaviy yuqori texnologiyalarni ishlab chiqish, texnik ob’ektlarni ishlab chiqarish va ekspluatasiya qilishni optimallashtirish muammolarini ijodiy hal etish qobiliyati bilan tavsiflanadi[1].

Mamlakatimizda bu ehtiyojlar bir qator holatlar bilan mustahkamlanadi. Insonlarning tez o‘zgaradigan sharoitlarda o‘z aqliy va kasbiy qobiliyatlarini qo‘llashga ko‘niktirish bilan bog‘liq muammolar majmui belgilangan. *(Odamlarning intellektual va kasbiy qobiliyatlarini qo‘llash uchun tez o‘zgarib turadigan sharoitlarga moslashishi bilan bog‘liq muammolar majmui aniqlandi.)* Jamiyat rivojlantirishning an’anaviy mexanizmlarini transformasiyalash jarayoni davlatning ijtimoiy, madaniy, amaliy siyosatida ustuvor vazifalarga urg‘u berish o‘zgarganligi bilan bog‘liq masalalar doirasini kengaytiradi. Ushbu vaziyatlarga bog‘liq holda ta’lim sifati etakchi pedagog-olimlarning va butun jamiyatning diqqat markazida turadi.

Bugungi kun muhandisi - bu yangi tipdagi ishlab chiqarish xodimi, Bunyodkor - quruvchi, me’mor - dizayner – yaratuvchilik faoliyatning ilg‘or vakili. Uning ishlab chiqarish faoliyati jismoniy va aqliy mehnat bilan, keng

ijodiy tafakkur, fazoviy tasavvur va yuqori grafik tayyorgarlik bilan uzviy bog‘liqdir.

Muhandislar keng qamrovdagi tabiiy, ilmiy, umumkasbiy va maxsus bilimlarni egallagan bo‘lishi lozim. Bu bilimlar tizimiga quyidagilar kiradi: sosial, axloqiy, psixologik, tabiiy-ilmiy, matematik, texnikaviy-texnologik, iqtisodiy, demografik, tibbiy-fiziologik, ekologik, xuquqiy, estetik, umummadaniy, informasion va h.k.

Muhandislarning ijodiy faoliyatida fazoviy tasavvur qilish hal qiluvchi axamiyatga egadir. Uning fazoviy tasavvur qilish qobiliyati ob’ekt chizmalarini tuzish va chizish imkonini beradi[3]. Fazoviy tasavvurning muhandis faoliyatida qo‘llanilishining oddiy xolati shuki, fazoviy ob’ektning ortogonal proektsiyasining perspektiv tasvirlarini tuzishda uning fazoviy tasavvur qilish qobiliyati namoyon bo‘ladi. Loyihalash jarayonida muhandis amalda bo‘lmagan, ammo tasavvurida hosil bo‘lgan yangi inshooatning, mashinaning chizmalarini tayyorlaydi. Fazoviy sirtni shakli, tuzilmasi va barcha xususiyatlari bilan tasavvur qilish, uning proektsiyalarini tuzish fazoviy tasavvurni talab etadi. Barcha qobiliyat singari fazoviy tasavvur xam insonning mustaqil amaliy mashg‘ulotlari yordamida o‘sadi, rivojlanadi. Bu chizma geometriyadan amaliy masalalar echishda va xar xil fazoviy shakllarining ortogonal proektsiyalarini bajarishda shakllanadi. Amaliyot ko‘rsatmoqdaki, barcha kishilar muhandisga zarur bo‘lgan darajadagi fazoviy tasavvurga ega bo‘lavermaydilar. Shuning uchun fazoviy tasavvurni tekshirish muhandisning professionallik layoqati (kompetentligi)ni tekshirishning limiti xisoblanadi.

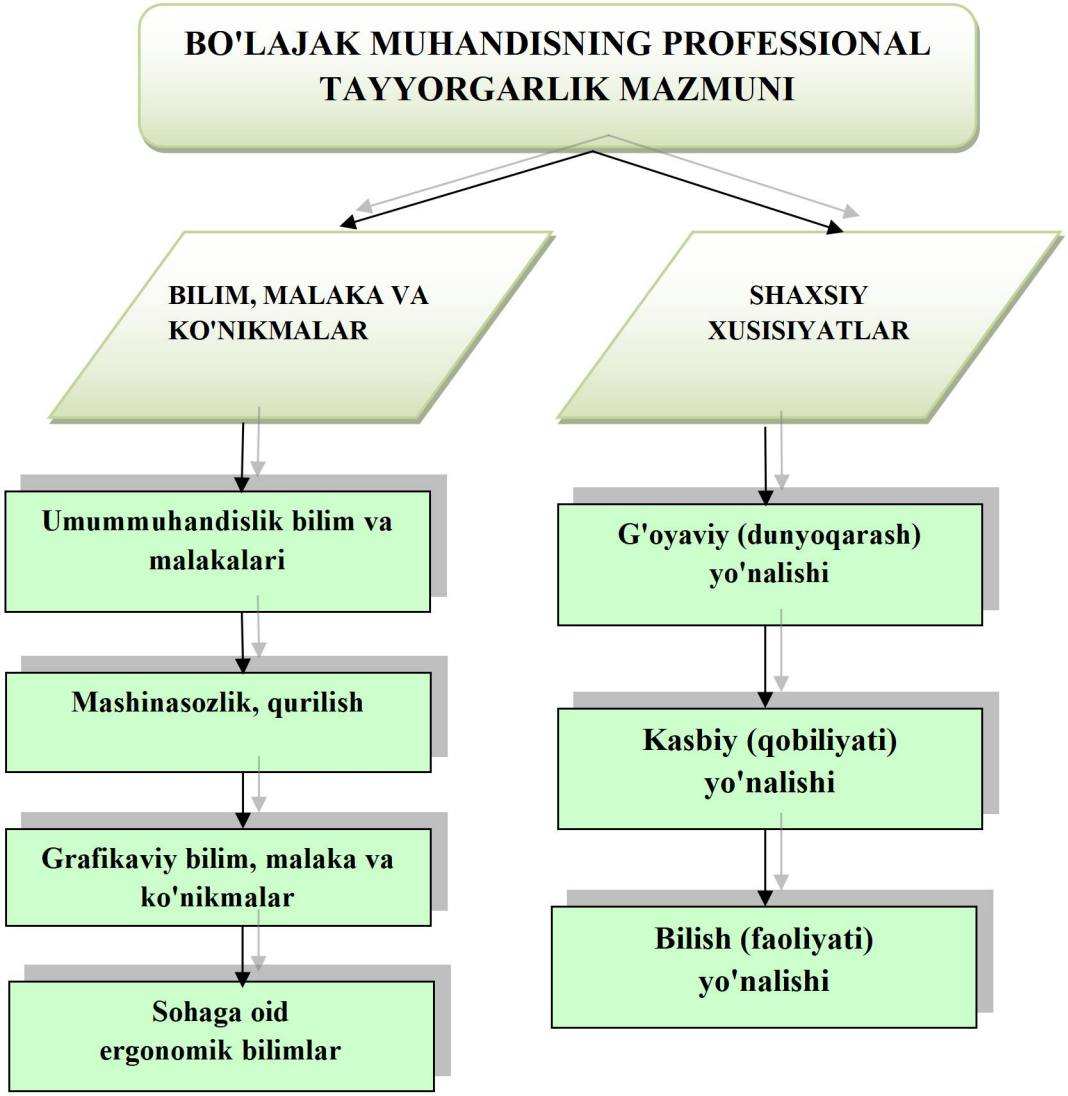
Bilim – inson tomonidan egallangan tushunchalar tizimidir. Grafik bilim esa, loyihalash jarayonida bajariladigan grafik tasvirlarni tasavvur qilish tushunchasidir.

Malaka – insonning o‘z ishini belgilangan vaqtda zaruriy sifatda samarali bajara olish qobiliyatidir. Grafik malaka esa grafik bilim va fazoviy

tasavvur natijasida paydo bo‘lgan ob’ekt loyihasining grafik tasvirlarini proektsiyalash usullarida tasvirlay olishidir.

Ko‘nikma (shu jumladan grafik) – insonning diqqatini maxsus yo‘naltirmasdan, avtomatik ravishda zaruriy faoliyatni bajarish qobiliyatidir.

Muhandislar uchun zarur bo‘lgan umumkasbiy bilim, malaka va ko‘nikmalarga quyidagilar kiradi: umummuhandislik, me’morchilik-qurilish, grafik xamda badiiy-kompozision (1-rasm).



1-rasm. Muhandisning ijodiy - ish faoliyati mazmuni

Oliy ta’lim jarayonida bo‘lajak muhandislarni professional tayyorlashda loyihalash xamda grafik bilim, malaka va ko‘nikmalarni shakllantirish muhim o‘rin tutadi. Bu bilim va malakalarsiz talabalarda zamonaviy muhandislikning

ilmiy asoslarini egallash, ularda masalaga ijodiy yondoshuv, ijodiy-grafik tafakkurni rivojlantirish kabi professional ta’limning bosh masalasini hal qilib bo‘lmaydi[2].

Talabalarda loyihalash - grafik bilim va malakalarni shakllantirish ularni professional tayyorgarligining muhim muammolaridan biri hisoblanadi. Ishlab chiqarish amaliyoti bu haqda ishonchli guvoxlik beradiki, muhandislar chizma-loyihalash malakalari bilan bir vaqtda grafik bilim va malakalarni xam chuqur egallagan bo‘lmog‘i lozim. Bu grafik bilim, malaka va ko‘nikmalarsiz ular o‘z kasbiy faoliyatlarini talab darajasida bajara olmaydilar[6].

Oliy texnik ta’lim tizimidagi pedagogik faoliyat natijasi va ilmiy-pedagogik adabiyotlar tahlili ko‘rsatmoqdaki, o‘quv rejasidagi “chizma geometriya va muhandislik grafikasi” o‘quv fani talabalarda grafik bilim, malaka va ko‘nikmalarni shakllantirishning asosi hisoblanib, ijodiy qobiliyatlarining namoyon bo‘lishiga yo‘l ochadi. Ularning fazoviy tasavvurlarni kengaytirib, loyihalashning asosini tashkil etuvchi chizmalarni o‘qish va bajarish, ob’ektlarning eskizi va ish chizmalarini tuzish, perspektiv tasvirlarini qurish kabi grafik savodxonlik malakalari bilan qurollantiradi. Shuningdek, umummuhandislik fanlarini va maxsus predmetlarni o‘rganish jarayonida grafik savodxonlik darajalari rivojlanib, bosqich loyihalarini bajarish jarayonida egallangan bilim va malakalar yanada takomillashib, bitiruv malakaviy ish loyihasini bajarish jarayonida ularning grafikaviy va ijodiy qobiliyatlari to‘liq namoyon bo‘ladi.

Xulosa qilib aytganimizda, chizma geometriya va muhandislik grafikasi bo‘yicha o‘qitishning maktab darajasida bo‘lsa ham, grafik ma’lumotni jadal ravishda singdirish, chizma geometriya va muhandislik grafikasini grafik qismini o‘z ichiga olgan o‘quv dasturining boshqa fanlari bilan bog‘lanishini ta’minlash, kasb tanlash uchun motivasiya darajasini aniqlash mutaxassislarni tayyorlashga ijobiy ta’sir ko‘rsatadigan vositalardan biri.

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LINTER MASHINASI ISHCHI KAMERASIDA XOMASHYO VALIGI ZICHLIGINI AVTOMATIK NAZORAT QILISH QURILMASINING NAZARIY-MATEMATIK MODELI

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Annotatsiya. *Mahalliy linter mashinalarida arralarning noaniq markazlashtirilishi chigit valigi zichligini o'lchash aniqligini va boshqarish konturi ishonchliligini pasaytiradi. Muammoni hal etish uchun ishchi kamera parametrlarini mikro (chigit dinamikasi), mezo (devor va arrali silindr mustahkamligi) hamda makro (jarayon va o'lchov tizimi) darajalarida tavsiflovchi nazariy-matematik model ishlab chiqildi. Chigit dinamikasi Runge–Kutta usulida, devor deformatsiyasi balka nazariyasi va FEM orqali, arrali silindr esa Gamilton prinsipi asosida tahlil qilindi. Natijada po'lat devor va po'lat St3 silindr eng yuqori mustahkamlik zaxirasini (n≈5,6–7,98) ta'minlashi, strain-gauge qurilmasi esa 80–450 kg/m³ diapazonida ±1,5% aniqlikda ishlashi (R^2=0,9956) aniqlandi.*

Kalit so'zlar: *linter mashinasi; chigit valigi zichligi; avtomatik nazorat qurilmasi; strain-gauge sensori; Gamilton variatsion prinsipi; kritik burchak tezligi; chekli elementlar usuli; arrali silindr*

Abstract. *In domestic linter machines, imprecise saw centering reduces the accuracy of measuring cotton-seed roller density and undermines the reliability of the automatic control loop. To address this problem, a theoretical-mathematical model was developed describing the working chamber parameters at three levels: micro (seed dynamics), meso (wall and*

saw-cylinder structural strength), and macro (process and measurement system). Seed dynamics were analyzed using the Runge–Kutta method, wall deformation via beam theory and FEM, and the saw cylinder using Hamilton's principle. Results showed that the steel wall and steel St3 cylinder provide the highest strength margin ($n \approx 5.6–7.98$), while the strain-gauge-based device operates within 80–450 kg/m³ with ±1.5% accuracy ($R^2=0.9956$).

Keywords: *linter machine; cotton-seed roller density; automatic control device; strain-gauge sensor; Hamilton's variational principle; critical angular velocity; finite element method; saw cylinder*

KIRISH

Paxta tozalash sanoatida linterlash jarayoni chigit yuzasidagi qoldiq tolani ajratib olishga xizmat qiladi va uning samaradorligi ishchi kameradagi chigit valigi zichligining barqarorligiga bog'liq. Mahalliy qurilmalarda arralarning aniq markazlashtirilishi to'liq ta'minlanmagan, bu esa zichlikni o'lchash aniqligini, valik boshqaruvi samaradorligini, energiya sarfi va mahsulot sifati barqarorligini pasaytiradi. Shuningdek, sezgir devor va arrali silindrning dinamik yuklamalar ostidagi xatti-harakati yetarli asoslanmagan: mavjud ishlarda (Krilov, Makarov, Koritisskiy, Kushul, Reley usullari; X.Q.Tursunov, D.M.Muxammadiev va X.A.Ahmedovning Gamilton prinsipiga asoslangan tadqiqotlari) chigit dinamikasidan qurilma mustahkamligi va jarayon modeligacha izchil bog'liqlik ko'rib chiqilmagan.

Shu sababli tadqiqot maqsadi — zichlikni nazorat qilish qurilmasining mikro, mezo va makro darajalarni birlashtiruvchi nazariy-matematik modelini yaratish va uni sonli hamda chekli elementlar usullarida tasdiqlash. Vazifalarga chigit dinamikasini, devor deformatsiyasini, arrali silindr mustahkamligini va o'lchov qurilmasi modelini ishlab chiqish kiradi.

METODLAR

Tadqiqot to'rt bosqichli izchil sxema asosida amalga oshirildi. Birinchi bosqichda chigit zarrachasining burchak harakati Nyuton qonuni asosida modellashtirildi (og'irlik, ishqalanish, qarshilik kuchlari momentlari), tenglama Runge–Kutta to'rtinchi tartibli usulida sonli yechildi; uchta qiyosiy model va boshlang'ich burchak $\varphi = 25–60°$ bo'yicha sezgirlik tahlili o'tkazildi.

Ikkinchi bosqichda sezgir devorning egilishi tekis konsol balka nazariyasi asosida tahlil qilindi. Yuklama q ning real diapazoni (15–30 kN/m) valik massasi, burchak tezligi va kamera radiusi ($n = 600–950$ ayl/min, $\rho = 450–650$ kg/m³, $R \approx 0{,}205–0{,}209$ m) orqali asoslandi; hisoblar Python muhitida po'lat va mis materiallari uchun ($h = 1–2$ mm) bajarildi va APM FEM dasturida (94187 element, 191460 tugun) mustaqil tekshirildi.

Uchinchi bosqichda arrali silindr modeli Gamilton variatsion prinsipi asosida (kinetik, potensial energiya, tashqi kuchlar ishi) tuzildi; Furye usulida xususiy chastota va kritik burchak tezligi formulalari aniqlandi. Uchta material — St3, AK5M2, tekstolit — bir xil geometriyada ($d = 60$ mm, $D = 320$ mm, $L = 0{,}85$ m, $P = 20 \cdot 10^3$ N, $n = 730$ ayl/min) qiyoslandi.

To'rtinchi bosqichda strain-gauge sensori, Wheatstone ko'prigi, INA125 kuchaytirgichi, ADS1015 ADC va STM32F103 mikrokontrolleridan iborat zichlik o'lchov qurilmasi loyihalandi; kalibratsiya tenglamasi kichik kvadratlar usulida topildi, burovchi moment va dvigatel quvvati modellari MATLAB muhitida hisoblandi.

NATIJALAR

Chigit dinamikasi tahlili shuni ko'rsatdiki, faqat og'irlik kuchini hisobga olgan modelda tebranish amplitudasi doimiy saqlanadi, qarshilik kuchi qo'shilganda asta-sekin, quruq ishqalanish hisobga olinganda esa keskin pasayadi; boshlang'ich burchak oshishi bilan maksimal tezlik va markazdan qochma kuch mutanosib ortadi.

Devor deformatsiyasi bo'yicha, po'lat devor ($h = 2$ mm) $q = 30$ kN/m da maksimal egilish 0,018 mm, $\sigma max \approx 44$ MPa (mustahkamlik zaxirasi $n \approx 5{,}6$).

Mis devor h = 1 mm da yaroqsiz katta deformatsiyaga (≈8 mm) ega, h = 2. FEM tahlili σmax = 71,06 N/mm² (n ≈ 7,98) va siljish 2,49 mm ni tasdiqladi.

Arrali silindr bo'yicha po'lat St3 eng kichik egilish (0,154 mm), eng yuqori xususiy chastota (45,7 Gts) va kritik tezlik (n_kr ≈ 2740 ayl/min, zaxira 3,75) ko'rsatdi; alyuminiy — 0,474 mm / 2728 ayl/min, tekstolit — 4,167 mm / 1562 ayl/min.

Zichlik o'lchov qurilmasi 80–450 kg/m³ diapazonida ±1,5% aniqlik, 0,08 s javob vaqti bilan ishladi (R^2 = 0,9956, Figure 16, Table 3). Ish diapazonida (900–1350 ayl/min) umumiy burovchi moment 3,06–3,08 N·m da barqaror qoldi (Figure 17); optimal rejimda (n = 1000–1100 ayl/min, Q = 450–580 kg/soat) quvvat 8,8–11,4 kVt, solishtirma energiya sarfi 0,216–0,231 kVt·soat/kg ni tashkil etdi.

MUHOKAMA

Natijalar chigit zarrachasi darajasidagi dinamikadan texnologik jarayonning yaxlit modeligacha izchil bog'liqlikni tasdiqlaydi: devor va silindr mustahkamligini o'lchov aniqligini belgilovchi omil sifatida ko'rish zarurligini ko'rsatadi.

Po'lat St3 uchun kritik tezlik (n_kr ≈ 2740 ayl/min) A.Umarov va hamkasblarining FEM natijasi (≈2094 ayl/min) bilan bir tartibda, farq analitik va FEM usullari o'rtasidagi metodologik tafovut bilan izohlanadi; D.M.Muxammadiev va X.A.Ahmedovning ωkr ≈ 286 rad/s qiymati bilan yuqori mos keldi. Mis devorning ≈150 marta katta deformatsiyasi elastiklik moduli farqi bilan izohlanib, ilgari qo'llanilgan taxminiy q = 50–100 N/m yuklama real sharoitni (q = 15–30 kN/m) aks ettirmaganligini ko'rsatadi.

Tadqiqot cheklovlariga quyidagilar kiradi: FEM tahlilidagi 50 N to'plangan kuch analitik yuklama bilan bevosita bir xil emas va faqat sifatiy tekshiruv vazifasini bajaradi; ishqalanish va qarshilik koeffitsientlari sobit qabul qilingan, real sharoitda namlik va harorat ta'sirida o'zgarishi mumkin; kalibratsiya tenglamasi laboratoriya sharoitida olingan bo'lib, sanoat

sharoitidagi sensor drift alohida tekshirishni talab qiladi. Kelgusida adaptiv boshqarish algoritmini loyihalash va koeffitsientlarning eksperimental monitoringi tavsiya etiladi.

XULOSA

Tadqiqot natijasida zichlikni avtomatik nazorat qilish qurilmasining uch darajali (mikro-mezo-makro) nazariy-matematik modeli ishlab chiqildi. Nyuton qonuni va Runge–Kutta usuli asosida chigit dinamikasi, balka nazariyasi va FEM orqali devor deformatsiyasi tahlil qilindi — 2 mm qalinlikdagi po'lat devor eng yuqori mustahkamlik zaxirasiga (n ≈ 5,6–7,98) ega ekanligi isbotlandi. Gamilton prinsipi asosida po'lat St3 arrali silindrining ustunligi (egilish 0,154 mm, zaxira 3,75 marta) asoslandi. Strain-gauge sensorli o'lchov qurilmasi 80–450 kg/m³ diapazonida ±1,5% aniqlik bilan ishlashi tajribaviy tasdiqlandi. Natijalar avtomatik boshqarish tizimini loyihalash uchun to'liq va tekshirilgan nazariy negiz bo'lib xizmat qiladi.

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7-SECTION

TURKISTONDA RUS BANK KAPITALINING INSTITUTSIONAL NAZORAT MEXANIZMLARI: MOSKVA XALQARO SAVDO BANKI QO'QON FILIALI MISOLIDA (1903-YIL ARXIV HUJJATI ASOSIDA)

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Annotatsiya: *Maqolada Moskva Xalqaro Savdo Bankining Qo'qon filiali tomonidan 1903-yilda tasdiqlangan "Temir yo'l dublikatlari garoviga ssuda berish qoidalari" arxiv hujjati tahlil qilinadi. Hujjat Turkiston o'lkasida rus bank kapitalining mahalliy don savdosini nazorat qilish uchun ishlab chiqqan institutsional mexanizmlarini kredit-garov shartlarini bir tomonlama belgilash, mijozlar haqidagi axborotni markazlashtirish, artelshchik instituti orqali vositachilik va qat'iy hisobot-buxgalteriya nazoratini ochib beradi. Muallif qoidalarning bandlarini tahlil qilib, mahalliy savdogarning rasmiy "mustaqil mijoz" maqomiga qaramay, amaliyotda tashqi moliyaviy tuzilmaga to'liq bog'liq bo'lganini ko'rsatadi. Tadqiqot Turkiston mustamlaka iqtisodiyotida bank institutlari rolini yangi arxiv dalili bilan boyitadi.*

Kalit so'zlar: *Turkiston, Moskva Xalqaro Savdo Banki, Qo'qon filiali, artelshchik, kredit-garov munosabatlari, mustamlaka iqtisodiyoti, arxiv hujjati.*

Annotation: *This article analyzes an archival document the 1903 regulations of the Kokand branch of the Moscow International Trade Bank on issuing loans against railway duplicate receipts. It reveals the institutional mechanisms used to control the local grain trade in Turkestan: unilateral credit and collateral terms, centralized client information, mediation through the artelshchik institution, and strict accounting oversight. Analyzing each clause, the author shows that despite formally holding "independent client" status, the local merchant remained fully dependent on an external financial structure. The study enriches research on banking institutions in Turkestan's colonial economy with new archival evidence.*

Keywords: *Turkestan, Moscow International Trade Bank, Kokand branch, artelshchik, credit-collateral relations, colonial economy, archival document.*

Kirish.

XIX asr oxiri — XX asr boshlarida Rossiya imperiyasining Turkiston o'lkasini o'ziga qo'shib olishi o'lka uchun chuqur iqtisodiy va siyosiy oqibatlarga olib keldi (Aminov & Bobaxo'jayev, 1966). Shu davrda Rossiya imperiyasining umumiy kredit tizimi va iqtisodiy tuzilmasi (Mironov, 2012) izchil rivojlangan bo'lsa-da, bank kapitalining O'rta Osiyoga kirib borishi o'ziga xos xususiyatlarga ega bo'lgan: mahalliy va xorijiy kapitalning bu yerdagi monopolistik xarakteri hamda rus banklarining tipologik xususiyatlari va iqtisodiy siyosatdagi o'rni (Gindin, 1997) alohida tadqiqot mavzulari sifatida o'rganilgan. Shunga qaramay, bank kapitalining aniq institutsional mexanizmlari jumladan bank filiali darajasida qanday qoidalar, nazorat vositalari va vositachilik institutlari orqali amalga oshirilgani ko'pincha ichki, filial darajasidagi normativ hujjatlar yetishmasligi sababli yetarlicha o'rganilmagan.

Ushbu maqolaning maqsadi, Moskva Xalqaro Savdo Bankining Qo'qon filiali tomonidan ishlab chiqilgan va 1903-yilda Moskva shahrida senzuradan o'tgazilgan ichki qoidalar hujjati misolida, bank kapitalining mahalliy savdogarni nazorat qilish uchun qo'llagan konkret institutsional vositalarini ko'rsatib berishdir. Hujjat 51 banddan iborat bo'lib, kredit ochish, garovga qo'yish, foiz va komissiya belgilash, shuningdek artelshchik deb ataluvchi bank agenti faoliyatini batafsil tartibga soladi, bu esa uni mikro darajadagi institutsional tahlil uchun qimmatli manbaga aylantiradi.

Asosiy qism.

Manba tavsifi. Tahlil qilinayotgan hujjat — Moskva Xalqaro Savdo Bankining Qo'qon filiali arxiviga tegishli "Temir yo'l dublikatlari garoviga ssuda berish: umumiy va xususiy artelshchiklar orqali ssuda berish uchun asosiy qoidalar" nomli bosma nashr (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903). Hujjat 51 banddan iborat bo'lib, quyidagi mantiqiy bo'limlarga bo'linadi: umumiy qoidalar va kredit ochish tartibi (1–13-bandlar), ssuda va

dublikatlarga qo'yiladigan talablar (14–21-bandlar), artelshchiklar orqali ssuda berishning umumiy tamoyillari (22–34-bandlar), artelshchik kassasi va mijozlar bilan munosabatlar (35–42-bandlar), hamda artelshchikning hisobot va buxgalteriya majburiyatlari (43–51-bandlar). Hujjat oxirida "Senzura tomonidan ruxsat etilgan. Moskva, 1903-yil 9-avgust" degan qayd va J. Sheybel tipo-litografiyasi (Moskva, Myasnitskaya, Furmanovskiy tor ko'chasi, Obidina uyi) tomonidan chop etilgani ko'rsatib o’tilgan.

Kredit-garov mexanizmidagi asimmetriya. Qoidalar tuzilishidan ko'rinib turibdiki, filial mahalliy savdogar bilan bevosita emas, balki ikki bosqichli tizim o'z ichki nazorati va artelshchik instituti orqali ishlagan. Qoidalarning 4- va 5-bandlariga ko'ra, har bir mijoz uchun kredit summasi va ssuda miqdori faqat filial tomonidan belgilanadi; mijozning kredit qobiliyati salbiy tomonga o'zgargan taqdirda esa filial kreditni bir tomonlama kamaytirishi yoki butunlay yopishi mumkin edi (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903, § 4–5). 34-bandda foiz, komissiya va porto miqdorini belgilash huquqi ham faqat filialga tegishli ekanligi ta'kidlanadi (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903, § 34). Bu qarama-qarshilikni yanada chuqurlashtirgan omil esa mijoz haqidagi axborotning to'liq bankka tegishli bo'lishi edi: 6-bandda ssuda so'ragan har bir shaxs o'z mulkiy ahvoli, savdo faoliyati haqida batafsil ma'lumot berishga majbur qilingan, ammo bu ma'lumotlarning haqiqiyligini faqat bankning o'zi tekshirgan (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903, § 6).

Artelshchik instituti orqali nazorat. Artelshchik instituti tizimning markaziy bo'g'ini bo'lgan, ammo u mustaqil vositachi emas, balki bankning ko'zi va qo'li sifatida loyihalashtirilgan. Qoidalarning 22–47-bandlari artelshchikning har bir harakatini ya’ni qaysi punktda turishi (33-band), qaysi mijozlarga ssuda berishi (28-band), kassasining hajmi (36-band), hisobot berish muddatlari (43-band) batafsil tartibga solib qo'ygan (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903, § 22–47). 24-bandda artelshchikka o'z hisobidan

savdo yuritish yoki mijozlar bilan shaxsiy-tijorat munosabatlariga kirishish taqiqlangan, bu esa uni sof bank agentiga aylantirish maqsadida kiritilgan chora edi (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903, § 24).

Garov tizimi va risk taqsimoti. 14–17-bandlarda ko'rsatilganidek, ssuda faqat bank filiali yoki korrespondenti mavjud bo'lgan punktlarga jo'natilgan, sifat jihatidan shubha tug'dirmaydigan va nomsiz dublikatlar garoviga berilgan bu esa muddat o'tkazib yuborilgan taqdirda tovarni bankning o'zi to'siqsiz sotib yuborishini ta'minlagan (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903, § 14–17). 12-bandda temir yo'l stansiyalarida ikki haftadan ortiq navbat paydo bo'lganda ssuda berish darhol to'xtatilishi va bunga faqat Bank Boshqaruvi ruxsat bera olishi ko'rsatilgan (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903, § 12).

Hisobot-buxgalteriya nazorati. 48-bandga ko'ra, artelshchik mijozlardan olgan dastlabki arizalar va solo-veksellarni darhol filialga topshirishi shart bo'lgan. 49-bandda kunlik ro'yxatnomalarning tartib raqami bilan yuritilishi, 50-bandda esa kassa kitobining aniq tuzilmaga ega bo'lishi talab etilgan (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903, § 48–50). 51-bandda kitob va ro'yxatnomalarda hech qanday o'chirish yoki tuzatishga yo'l qo'yilmasligi, xatolarning faqat qizil siyoh bilan tuzatilishi belgilangan bu holat artelshchikni doimiy tekshiruvga ochiq subyekt sifatida ko'rish mantig'ini aks ettiradi (Moskva Xalqaro Savdo Banki, Qo'qon filiali, 1903, § 51).

Xulosa.

Tahlil qilingan hujjat Turkiston o'lkasidagi rus bank tizimining mahalliy iqtisodiyotga kirib borish strategiyasini yaqqol ko'rsatadi: bank kredit shartlarini bir tomonlama belgilash, axborotni markazlashtirish, nazoratli vositachi (artelshchik) instituti va qat'iy hisobot tizimi orqali butun tovar-pul aylanmasini o'z tizimiga tortgan. Mahalliy savdogar rasman "mustaqil mijoz" maqomida bo'lsa-da, amalda uning kredit olish, garov qo'yish va tovarini sotish kabi qarorlari to'liq tashqi, kolonial moliyaviy tuzilmaga bog'liq bo'lib qolgan.

Xulosalar hozircha bitta filial hujjati asosida chiqarilgani uchun, ularning boshqa filiallarga tatbiqini aniqlash xuddi shu fondga oid boshqa hujjatlar (O'zbekiston Respublikasi Markaziy davlat arxivi, F. I-124, Ro'yxat 1, Ish 2, varaq 64) va qo'shimcha arxiv manbalari bilan solishtirib tekshirishni talab qiladi.

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GENERATIV SUN'IY INTELLEKT DAVRIDA INGLIZ TILINI XORIJIY TIL SIFATIDA O'RGANADIGAN TALABALAR O'RTASIDA AKADEMIK HALOLLIK MASALALARI

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Annotatsiya. *Generativ sun'iy intellekt (GenAI) davrida til o'rganish va akademik yozuv (Academic writing) jarayoni tubdan o'zgarib, akademik halollik borasida yangi pedagogik imkoniyatlar va muammolar yuzaga kelmoqda. Ayniqsa, ingliz tilini xorijiy til sifatida (EFL) o'rganayotgan talabalar uchun sun'iy intellekt muhim lingvistik yordam ko'rsatish bilan birga, AI ga haddan tashqari bog'lanib qolish, shuningdek, topshiriqlarda o'z fikrlaridan foydalanmaslik kabi salbiy ta'sirlar ham namoyon bo'lmoqda. Mazkur maqolada generativ sun'iy intellektdan foydalanish va EFL talabalari orasidagi akademik halollik so'nggi tadqiqotlarning sharhi orqali o'rganiladi. Xususan, ChatGPT yordamida yozuvni o'qitish, talabalarning akademik halollik va AI haqidagi tasavvurlari, AI tomonidan yaratilgan plagiatni aniqlash hamda oliy ta'limda shaffoflikka oid tadqiqotlar tahlil qilinadi.*

Kalit so'zlar: *akademik halollik, generative sun'iy intellect, ChatGPT, EFL o'rganuvchilar, akademik yozuv, sun'iy intellekt savodxonligi, shaffoflik*

Annotation. *The rapid development of generative artificial intelligence (GenAI) has transformed language learning and academic writing, creating both pedagogical opportunities and new challenges for academic integrity. These challenges are particularly significant for English as a Foreign Language (EFL) students, for whom artificial intelligence can provide valuable linguistic support while simultaneously creating opportunities for over-reliance, inappropriate use in assessed work. This article examines the relationship between generative AI use and academic integrity among EFL students with a focused narrative review of recent research. Particular attention is given to studies investigating ChatGPT-supported writing*

instruction, students' perceptions of academic misconduct, disclosure of AI-generated outputs, AI-generated plagiarism detection, and transparency in higher education.

Keywords: *academic integrity, generative artificial intelligence, ChatGPT, EFL learners, academic writing, AI literacy, transparency*

KIRISH

Generativ sun’iy intellekt (GenAI)dan foydalanish nafaqat oliy ta’lim balki chet tilini o‘rganish jarayonida talabalar hayotining muhim tarkibiy qismiga aylanib ulgurdi. ChatGPT kabi sun’iy intellekt vositalari bir vaqtning o‘zida matn yaratish, maslahat berish, suhbatlashish, yangi so‘zlarni oson tarjima qilish, g‘oyalarni rivojlantirish, grammatikani tushuntirish va yozuv (writing) jarayonida talabalarning yordamchisiga aylandi. Bu orqali ingliz tilini xorijiy til sifatida (EFL) o‘qitishda yangi pedagogik imkoniyatlar bilan birga, mualliflik, plagiat, baholash va akademik halollik haqidagi an’anaviy qarashlarni ham qayta ko‘rib chiqishni talab qilmoqda.

Sun’iy intellekt va akademik halollik aslida yangi hodisa emas. Akademik halollikning buzilishi yillar davomida plagiat, ma’lumotlarni soxtalashtirish va boshqa shaxsning ishini o‘z ishi sifatida taqdim etish kabi holatlarni o‘z ichiga olgan. Rettinger va Bertram Gallant (2022) akademik qoidabuzarlikni faqat individual harakat sifatida emas, balki ta’lim jarayonida kechadigan ijtimoiy, institutsional va o‘rganish muhiti bilan uzviy bog‘liq hodisa sifatida tushunish zarurligini ta’kidlashadi. Hozirgi kunda esa talabalar akademik vazifalarni bajarishda boshqa insonlar ko‘magi yoki kimdandir ko‘chirish orqali emas aksincha, birgina texnologik yordam - Generativ AI dan foydalanishlari mumkin. Biroq aynan shu yordam talabaning mustaqil faoliyatini qo‘llab-quvvatlashdan ko‘ra, uning o‘rnini bosadigan vositaga aylanib, natijada akademik halollik muammosi yuzaga keladi.

So‘nggi tadqiqotlar shuni ko’rsatadiki, AI yordamida EFL talabalarining yozuv ko‘nikmalari rivojlanishi kuzatilmoqda. Misol uchun, Wijaya va Rachmawati (2026) tadqiqotida, 60 nafar universitet talabalari olti hafta davomida ChatGPT dan raqamli yordamchi sifatida foydalanishni o‘rgandilar. Tadqiqot natijalari talabalarning umumiy yozuv ko‘rsatkichlarida statistik jihatdan sezilarli yaxshilanish kuzatilganini ko‘rsatdi. Xususan, matnning izchilligi (coherence), leksik xilma-xilligi (lexical diversity) va grammatik aniqligi (accuracy)da ijobiy o‘zgarishlar qayd etildi.

Ushbu natijalar AI’dan foydalanish to‘g‘ridan-to‘g‘ri akademik halollikning buzilishi degani emasligini ko‘rsatadi.

Shuningdek, Bayraktar Balkir va Zehir Topkaya (2025) Turkiya oliy ta’limidagi EFL talabalarining AI haqidagi qarashlarini o‘rganib, talabalar nuqtayi nazarida muhim o‘zgarishlar mavjudligini aniqladi. Ularning tadqiqotida talabalar

AI ni oddiygina qabul qilish yoki rad etishdan ko‘ra, sun’iy intellektni ehtiyotkorlik bilan boshqarilishi kerak bo‘lgan ta’lim vositasi sifatida ko‘ra boshlaganini aniqlashgan.

Ushbu o‘zgarishlar EFL ta’limi uchun muhim savolni yuzaga keltiradi: Talabalarga generativ AI dan til o‘rganish va akademik yozuvda foydalanish imkonini berish bilan birga akademik halollikni qanday ta’minlash mumkin? GenAI davrida akademik halollik masalasiga faqat ta’qiqlash yoki texnologik aniqlash vositalari (AI detectors) orqali yondashish yetarli emas. Buning o‘rniga AI savodxonligi, shaffoflik va talabaning mas’uliyatini saqlab qoluvchi baholash tizimlariga asoslangan yondashuv zarur.

ASOSIY QISM

Metodologiya

Mazkur maqolada narrativ adabiyotlar sharhi usulidan foydalanilib, unda generativ AI, akademik halollik, oliy ta’lim va EFL ta’limi o‘rtasidagi

munosabatni o‘rgangan zamonaviy ilmiy manbalar tahlil qilindi. Generativ AI texnologiyalarining jadal rivojlanishi 2023–2026-yillarda yuz bergani uchun shu yillarda chop etilgan tadqiqotlarga e’tibor qaratildi. Tanlangan tadqiqotlarning natijalari generativ AI ni EFL ta’limiga mas’uliyatli tarzda integratsiya qilish uchun muhim bo‘lgan umumiy xulosalarni aniqlash maqsadida qo‘llanildi.

Natijalar

Ko‘p tadqiqotlar AI chet tili rivoji va akademik yozuvni oson o‘rganishni qo‘llab-quvvatlashi mumkinligini ko‘rsatadi. Wijaya va Rachmawati (2026) tomonidan olib borilgan tadqiqot ayniqsa muhim empirik dalillardan biridir. Tadqiqotda 60 nafar universitet EFL talabasi olti hafta davomida AI yordamida yozuv mashg‘ulotlarida qatnashgan. Natijalar talabalarning umumiy yozuv ko‘rsatkichlari 15,8 foizga oshganligini ko’rsatgan.

AI imkoniyatlari faqat yozuv bilan cheklanmaydi. Xorijiy til o‘rganishda GenAI og‘zaki muloqot uchun ham foydali ekanligi aniqlangan. Masalan, Hsu va Chen tomonidan olib borilgan tadqiqotda 42 nafar EFL talabasi GenAI chatbotidan foydalangan va yetti haftalik mashg‘ulotdan so‘ng ularning gapirish (speaking) ko‘rsatkichlarida sezilarli yaxshilanish kuzatilgan. Boshlang‘ich guruhdagi talabalar chatbotni ayniqsa foydali deb baholagan.

Biroq Wijaya va Rachmawati (2026) texnologiyadan teng foydalanishning iloji yo‘qligi, AI ga haddan tashqari bog‘lanib qolish kabi muhim muammolar ham mavjudligini ta’kidlashgan. Demak, GenAI ning ta’lim jarayonidagi o‘rni uning ta’lim jarayoniga qay darajada integratsiya qilinishiga bog‘liq.

Ikkinchi muhim natija shundan iboratki, talabalarning akademik halollik haqidagi tushunchalarida ham keskin o’zgarish kuzatilgan. Lund et al. (2025) tomonidan olib borilgan tadqiqot shu fikrni qo‘llab-quvvatlaydi. 277 nafar

universitet talabasi ishtirokidagi so‘rov natijalariga ko‘ra, AI bilan bog‘liq turli faoliyatlar akademik qoidabuzarlikning turli darajalari sifatida baholangan. Talabalarning aksariyati AI yordamida butun ilmiy ishni yozishni jiddiy qoidabuzarlik deb hisoblagan bo‘lsa, AI yordamida bajarilgan kichik topshiriqlarni unchalik jiddiy emas deb baholangan. Shunday qilib, AI dan foydalanishning turli shakllari o‘rtasidagi farq talabalarning qarorlarida muhim o‘rin egallamoqda. Bu holat universitetlarda qat’iy “AI dan foydalanish ta’qiqlanadi” degan umumiy siyosat bilan cheklanib qolishi kerak emasligini yaqqol ko’rsatib beradi.

Uchinchi muhim natija shaffoflik masalasiga bog’liq. Agar talabalar akademik yozuv jarayonida AI dan foydalansa, bu foydalanish qachon va qanday shaklda ko‘rsatilishi kerak degan savol bevosita tug‘iladi. Zhang et al. (2025) ga ko’ra, Xitoy universitetlari talabalar ning AI yordamida yaratilgan ishlarini oshkor qilish niyatini moderated mediation model orqali o‘rgandilar. Tadqiqotda Xitoyning 28 ta provinsiyasi va maxsus ma’muriy hududlaridan 519 nafar respondent qatnashgan. Natijalarga ko’ra, talabalarning akademik halollik haqidagi qarashlari ularning AI tomonidan yaratilgan kontentni oshkor qilish niyatiga bevosita ta’sir qilmasligini ko‘rsatdi. Bundan tashqari, AI’dan foydalanish chastotasi AI etikasi e’tibori va oshkor qilish niyati o‘rtasidagi munosabatga hamda akademik halollik qarashlari va oshkor qilish niyati o‘rtasidagi vositachilikka salbiy moderatorlik ta’sirini ko‘rsatgan.

Bu natijalar talabalarga akademik halollik muhimligini aytishning o‘zi AI’dan foydalanishni avtomatik tarzda shaffof qilishga olib kelmasligini ko‘rsatadi. Talabalar AI texnologiyasining axloqiy jihatlarini ham tushunishi kerak.

Pudasaini et al. (2025) 3 017 nafar maktab va kollej talabasi ishtirokidagi so‘rovni tahlil qilib, respondentlarning deyarli uchdan biri uy vazifalarini bajarishda ChatGPT’dan yordam sifatida foydalanganini bildirganini qayd etgan. Tadqiqotchilar, shuningdek, katta til modellari tobora rivojlanib, inson

tomonidan yozilgan matnga o‘xshash kontent yarata olgani sari AI tomonidan yaratilgan matnlarni aniqlash tobora qiyinlashayotganini ko‘rsatadi. Bu holat akademik halollikni himoya qilishda jiddiy muammo tug‘diradi. Agar universitetlar asosan topshiriq topshirilgandan keyin AI tomonidan yaratilgan matnni aniqlashga tayanadigan bo‘lsa, ta’lim muassasalari doimiy ravishda rivojlanib borayotgan AI texnologiyalari bilan texnologik raqobatga kirishib qoladi.

Generativ AI va akademik halollik o‘rtasidagi munosabat oddiygina “texnologiya va axloq qarama-qarshiligi”dan ancha murakkab ekanini ko‘rsatadi. Samarali institutsional tizim quyidagi to‘rt asosiy komponentni o‘z ichiga olishi mumkin:

1. Aniq chegaralar: universitetlar turli topshiriqlarda AI’dan foydalanishning maqbul va nomaqbul shakllarini belgilashi kerak.

2. AI savodxonligi: talabalar AI yaratgan ma’lumotlarni baholash, uning cheklovlarini tushunish va texnologiyadan tanqidiy foydalanishni o‘rganishi kerak.

3. Shaffoflik: talabalar institutsional talablar asosida AI’dan foydalanishgan bo’lsa ushbu holatlarini oshkora qaysi o’rinda olgsnligi va qanday javob berganligini ekran surati (screenshot) sifatida kiritib oshkora ko’rasatishi kerak.

4. Jarayonga asoslangan baholash: o‘qituvchilar fikrlash, refleksiya, tahrirlash va og‘zaki tushuntirish kabi osonlikcha AI’ga topshirib bo‘lmaydigan o‘quv jarayonlarini ham baholashi kerak.

Akademik halollik bo’yicha ta’limning maqsadi texnologiyani ta’limdan chiqarib tashlash emas, balki talabalarni undan mas’uliyatli foydalanishga tayyorlash bo‘lishi kerak.

XULOSA

So’nggi yillarda Generativ AI texnologiyalarining rivojlanishi texnologiya, til o‘rganish, akademik yozuv va akademik halollik o’rtasidagi

munosabatni yuqori bosqichga olib chiqdi. EFL ta'limi uchun eng maqbul yondashuv esa ta'qiqlashdan ma'uliyatli AI savodxonligiga o'tish hisoblanadi. Talabalar AI'dan o'quv jarayonini qo'llab-quvvatlash uchun foydalanish va AI'ga o'zlarining intellektual ishlarini to'liq topshirish o'rtasidagi farqni tushunishi kerak. Universitetlar aniq yo'riqnomalar ishlab chiqishi, AI etikasi bo'yicha ta'lim berishi, tegishli hollarda AI'dan foydalanishni oshkor qilishni talab qilishi va o'quv jarayonini ko'rsatib beruvchi baholash usullarini ishlab chiqishi zarur. Umuman olganda, generativ AI davrida akademik halollik texnologiyadan umuman foydalanmaslikni anglatmasligi kerak. Aksincha, u talabalar o'z g'oyalari, qarorlari, ta'lim jarayoni va akademik ishlariga o' zlari mas'ul bo'lishi hamda texnologiyadan shaffof va axloqiy tarzda foydalanishini anglatishi kerak.

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AMERICA'S NEW GREAT GAME IN CENTRAL ASIA: COMPETITION FOR MINERAL RESOURCES

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Master's degree

Applied political science

A Geo-Economic Comparison of the United States, China, and Russia, with a Focus on Uzbekistan

Abstract. *This article examines the renewed competition among the United States, China, and Russia for influence over Central Asia's critical-mineral wealth, using Uzbekistan as its principal case. Adopting Edward Luttwak's theory of geo-economics, the conduct of strategic rivalry through the methods of commerce rather than of war, it argues that the so-called "new great game" is best understood not as a contest of armies but as one of capital, supply chains, processing capacity, and transport corridors. Drawing on a qualitative comparative method and on official documents, think-tank reports, trade statistics, and Central Asian scholarship, the study contrasts the three powers across four dimensions: objectives, instruments, modes of engagement, and regional impact. It finds that China operates as the embedded incumbent, Russia as the declining holder of structural leverage, and the United States as a late, capital-light, transactional entrant. The evidence indicates that Uzbekistan, far from a passive prize, exploits this rivalry to diversify partners and extract investment, even as Chinese dominance generates precisely the counter-balancing coalition that Luttwak's logic predicts.*

Keywords: *geo-economics; critical minerals; Central Asia; Uzbekistan; great-power competition; supply chains; multivectorism.*

Annotatsiya. *Ushbu maqola Markaziy Osiyoning muhim mineral resurslari ustidan ta'sir o'tkazish uchun AQSH, Xitoy va Rossiya o'rtasida qayta avj olgan raqobatni O'zbekiston misolida tahlil qiladi. Tadqiqot Edvard Lyuttvakning geoiqtisodiyot nazariyasiga, ya'ni, strategik raqobatni urush emas, balki tijorat usullari orqali olib borishga tayanadi va shu asosda "yangi katta o'yin" armiyalar emas, balki kapital, ta'minot zanjirlari, qayta ishlash quvvatlari va transport yo'laklari kurashi ekanligini ko'rsatadi. Sifat tahliliga asoslangan qiyosiy metod, rasmiy hujjatlar, tahliliy markaz hisobotlari, savdo statistikasi va markaziyosiyolik olimlar ishlaridan foydalanib, uch davlat maqsadlar, vositalar, hamkorlik shakllari va mintaqaviy ta'sir bo'yicha qiyoslanadi. Tahlil shuni ko'rsatadiki, Xitoy hukmron "ichki" ishtirokchi, Rossiya tarkibiy ta'siri so'nayotgan kuch, AQSH esa kech kelgan, kapitali kam va bitimga yo'naltirilgan ishtirokchidir. Dalillar O'zbekistonni passiv "obyekt" emas, balki raqobatdan sheriklarni diversifikatsiya qilish va sarmoya jalb qilish uchun foydalanayotgan faol subyekt sifatida tavsiflaydi.*

Kalit so'zlar: *geoiqtisodiyot; muhim minerallar; Markaziy Osiyo; O'zbekiston; buyuk davlatlar raqobati; ta'minot zanjirlari; ko'p vektorlilik.*

Аннотация. *В статье рассматривается возобновившаяся конкуренция между США, Китаем и Россией за влияние над запасами критически важных минералов Центральной Азии на примере Узбекистана. Опираясь на теорию геоэкономики Эдварда Люттвака, ведение стратегического соперничества методами торговли, а не войны, автор утверждает, что «новая большая игра» есть борьба капитала, цепочек поставок, перерабатывающих мощностей и транспортных коридоров. На основе качественного сравнительного метода, официальных документов, докладов аналитических центров, торговой*

статистики и работ центральноазиатских учёных три державы сравниваются по целям, инструментам, формам вовлечённости и региональному влиянию. Исследование показывает, что Узбекистан не пассивный «приз», а активный игрок, использующий соперничество для диверсификации партнёров и привлечения инвестиций.

Ключевые слова: *геоэкономика; критические минералы; Центральная Азия; Узбекистан; конкуренция великих держав; цепочки поставок; многовекторность.*

1. Introduction

The dissolution of the Soviet Union returned Central Asia to a familiar role in the imagination of distant capitals: a contested space between empires. Three decades later, the framing of a "new great game" has reacquired analytical currency, but its substance has changed. Where nineteenth-century Anglo-Russian rivalry turned on garrisons, buffer zones, and railheads, today's contest in Central Asia is waged largely through investment pledges, offtake agreements, processing plants, and transport corridors. The proximate object of that contest is increasingly specific: the region's endowment of critical minerals-uranium, copper, antimony, tungsten, titanium, lithium, and rare earth elements-whose strategic value has risen with the energy transition and the militarisation of supply-chain policy. As Russia's post-2022 standing erodes, Kazakhstan, Uzbekistan, and their neighbours have begun to recalibrate, and Washington, Beijing, and Moscow have responded in kind.[5]

This recalibration is most visible in the elevation of the C5+1 platform, which convened its first leaders' summit in 2023 and its second at the White House in November 2025, where the United States and the five Central Asian republics signed agreements weighted heavily toward critical minerals and

[5]"A New Great Game Emerges as Central Asia Drifts Away from Moscow," Hudson Institute, December 10, 2025.

investment.[6] Yet a purely descriptive account of summits and memoranda obscures the deeper structure of the competition. The central claim of this article is that the rivalry is fundamentally *geo-economic* in the sense given to that term by Edward Luttwak: the pursuit of adversarial, strategic ends through the instruments of commerce. The analytical question follows from the claim-how do the United States, China, and Russia differ in the objectives they pursue, the instruments they deploy, the modes through which they engage, and the impact they impose on the region, and what does the divergence reveal about the durability of each position?

The argument advances in four moves. First, it establishes the geo-economic framework and the comparative method. Second, it reconstructs each power's strategy from official documents, institutional reporting, and trade data. Third, it synthesises the comparison and reads it through Luttwak's "paradoxical logic of strategy," contending that Chinese pre-eminence is generating the very counter-coalition that the logic predicts. Throughout, Uzbekistan serves as the principal case, because its scale, its mineral discoveries, and its post-2016 opening make it the region's most consequential swing state-and because its conduct exposes the limits of treating Central Asian governments as objects rather than agents.

2. Theoretical Framework and Method

The study's theoretical anchor is Luttwak's 1990 thesis that, as the Cold War waned, "the methods of commerce" would displace military methods, "with disposable capital in lieu of firepower, civilian innovation in lieu of military-technical advancement, and market penetration in lieu of garrisons and bases."[7] Crucially, Luttwak did not predict the disappearance of conflict but its transposition into a new grammar. States remain spatially defined entities

[6]Gracelin Baskaran and Kamal Aubakirov, "Ten Years of C5+1: U.S.–Central Asia Minerals Cooperation," CSIS Commentary, November 4, 2025.

[7]Edward N. Luttwak, "From Geopolitics to Geo-Economics: Logic of Conflict, Grammar of Commerce," The National Interest, no. 20 (Summer 1990): 17–23.

structured to outdo one another; geo-economics is therefore "the admixture of the logic of conflict with the methods of commerce"-the logic of war conducted in the grammar of commerce. The framework supplies a vocabulary precisely suited to Central Asia's minerals contest: the restriction or capture of imports, the subsidisation of strategic exports, the funding of competitive infrastructure, and the cultivation of "chosen instruments", firms selected and guided by the state for strategic purposes.[8]

Two refinements from Luttwak's later work sharpen the analysis. The first is the insistence that the logic of strategy is paradoxical: action provokes reaction, and accumulating power past a "culminating point" begins to corrode itself as other states coalesce against it, "the Soviet Union's accumulation of power eventually resulted in its impotence."[9] The second is the concept of "great-state autism," the tendency of large powers to misread smaller states as simplified reflections of themselves. Both ideas travel directly to the present case: Chinese dominance invites balancing, and all three external powers risk mistaking Uzbekistan for a passive recipient of their designs. Against that risk, the article integrates the corrective offered by Central Asian scholarship-Dadabaev's account of "de-securitisation" and comparative engagement, and Tolipov's reading of Uzbek foreign policy as a "geopolitical pendulum" and multivector balancing.[10]

Methodologically, the study employs a qualitative, structured-focused comparison. The three powers constitute the comparative units; Uzbekistan is the embedded case through which their strategies are observed in practice. Each strategy is coded along four analytic dimensions, objectives, instruments, modes of engagement, and regional impact, and assessed against a common evidentiary base: official strategy documents and government press releases

[8]Luttwak, "From Geopolitics to Geo-Economics," 19.

[9]Luttwak, The Rise of China vs. the Logic of Strategy, 1–6.

[10]Timur Dadabaev, "De-securitizing the 'Silk Road': Uzbekistan's Cooperation Agenda with Russia, China, Japan, and South Korea in the Post-Karimov Era," Journal of Eurasian Studies 11, no. 2 (2020): 174–188.

(the U.S. Department of State, the Statistics Agency of Uzbekistan, Rosatom); think-tank and policy analysis (CSIS, the Hudson Institute, the Carnegie and Caspian Policy centres); peer-reviewed scholarship; and analytical reporting from established outlets. Where figures vary across sources, the most authoritative governmental or institutional value is used and uncertainty is flagged. The approach is interpretive rather than predictive: it seeks to explain the structure and trajectory of the competition, not to forecast discrete outcomes.

3. Findings: Three Geo-Economic Strategies

3.1 The United States: the late, capital-light, transactional entrant

Washington's engagement is best characterised as a belated attempt to convert diplomatic presence into geo-economic position. The defining objective is defensive: to diversify critical-mineral supply chains away from China, which dominates the processing of most strategic metals. The instruments are correspondingly indirect, a diplomatic platform (the C5+1 and its Critical Minerals Dialogue, launched in February 2024), state-backed finance through the Development Finance Corporation and EXIM, and the recruitment of Central Asian states into the Minerals Security Partnership and the FORGE alliance.[11] The November 2025 summit produced a headline package of Uzbek–U.S. agreements valued at more than $100 billion over a decade, including roughly $35 billion across the first three years and eight deals spanning geological surveying for critical minerals, water technology, and artificial intelligence.[12] In February 2026 the two governments signed an intergovernmental memorandum on critical-mineral supply chains, followed by

[11] U.S. Department of State, "Inaugural C5+1 Critical Minerals Dialogue among the United States and Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan," press release, February 2024.

[12] "U.S.–Uzbekistan Sign Strategic Deals Worth over $100bn at C5+1 Summit," AnewZ, November 7, 2025; "US–Central Asia Gathering Yields Deals," Eurasianet, November 7, 2025.

a DFC "heads of terms" for a Joint Investment Framework and a proposed joint holding company.[13]

The mode of engagement is transactional and bilateral rather than programmatic, a quality that is both the strategy's signature and its limitation. The 2025 summit, observers noted, prioritised investment pledges and resource access over the regional coordination that earlier C5+1 statements had emphasised; its fact sheets contained "deals" rather than the language of shared "challenges."[14] In Luttwak's idiom, the United States is assembling chosen instruments, Boeing's $8.5 billion aircraft order, Wabtec's locomotive contract in Kazakhstan, the Colorado School of Mines' planned campus in Zhezkazgan, to project commercial power where it lacks proximity.[15] But the asymmetry is stark. Bilateral U.S.-Uzbekistan trade turnover reached only about $1 billion in 2025, against China's $12.5 billion and Russia's $11.6 billion the year before.[16] The implication is that American influence rests on aspiration and announcement more than on installed capital; its credibility will be judged by whether memoranda convert into financed, operating assets, a conversion that distance, transport bottlenecks, and chronic regional power shortages continue to impede.

3.2 China: the embedded incumbent

China's position is qualitatively different because it is already structural. Its objective is not diversification but consolidation-securing inputs, embedding its firms across the mineral value chain, and binding the region into east-facing corridors. The instruments are the Belt and Road Initiative's patient capital, state-owned enterprises operating in mining and processing, and infrastructure that fixes the direction of trade. Central Asia absorbed an estimated $24.3 billion in BRI engagement in the first half of 2025 alone, much of it in energy,

[13] "Uzbekistan Joins a U.S. Critical Minerals Implementation Track," The Times of Central Asia, February 27, 2026.
[14] "A C5+1 or 5 C1+1s: The New Math of US Central Asia Policy," The Diplomat, November 11, 2025.
[15] "US, Uzbekistan Forge Critical Minerals Pact," Metal Tech News, February 25, 2026.
[16] "U.S. and Uzbekistan Deepen Economic Ties with New Investment Pact," OilPrice.com, June 2026.

mining, and logistics.[17] In Uzbekistan, China is simultaneously the largest trading partner-$12.48 billion, or 18.9 percent of turnover in 2024-and, by 2025, the largest single source of investment and lending, supplying some 28 percent of the total and overtaking Russia.[18]

The granularity of Chinese activity reveals the depth of embedding. During 2024 alone, Chinese firms advanced copper and silver projects in Surkhandarya, uranium development in Navoi, and a cluster of solar, wind, and storage plants, while signing a nuclear-cooperation memorandum with China National Nuclear Corporation.[19] This is geo-economics in its fullest Luttwakian sense: market penetration and infrastructure provision that quietly determine whose standards, currencies, and logistics the region adopts. The mode of engagement is comprehensive and state-directed, packaged in the consensual rhetoric of "win-win" connectivity and the China–Central Asia–West Asia corridor. Its regional impact is the deepest of the three: China shapes not only what Uzbekistan sells but how value is captured, since processing-the chokepoint that converts ore into leverage-remains disproportionately Chinese. The implication is that even Western and Uzbek ambitions to "add value before export" must contend with an incumbent that already owns much of the downstream.

3.3 Russia: the declining holder of structural leverage

Russia's strategy is the inverse of China's trajectory: it commands deep structural leverage that is slowly depreciating. Its objective is preservation-to keep Central Asia within an inherited orbit of dependence rather than to expand. Its instruments are the legacies of empire repurposed as geo-economic tools: the Soviet-era rail and pipeline grid that still channels exports northward; the labour market that absorbs millions of migrants; and, above all, the nuclear, gas,

[17]Christoph Nedopil, China Belt and Road Initiative (BRI) Investment Report 2025 H1 (Brisbane: Griffith Asia Institute / Green Finance & Development Center, 2025).

[18]Statistics Agency of the Republic of Uzbekistan, in "Uzbekistan's Foreign Trade Turnover Reached US$65.9 Billion in 2024," UzDaily, January 21, 2025.

[19]Bruce Pannier, "China's Big Push into Uzbekistan," bne IntelliNews, March 1, 2025.

and security relationships that are difficult to exit. Rosatom is the paradigmatic "chosen instrument." In May 2024 it contracted to build Central Asia's first nuclear plant in Uzbekistan-a 330-megawatt small modular facility in Jizzakh-and in June 2025 agreed to add a high-capacity VVER-1000 station, deepening a dependency that critics warn will be difficult to reverse.[20]

The most binding lever remains labour migration. Remittances reached roughly $14.8 billion in 2024, with about 77 percent originating in Russia and the total equivalent to some 14 percent of Uzbek GDP.[21] Yet the leverage is corroding. Post-invasion sanctions, rouble volatility, and a wave of xenophobia following the 2024 Crocus City Hall attack have pushed Tashkent to diversify migration toward the European Union, while Uzbekistan's pointed refusal to join the Eurasian Economic Union as a full member signals the limits of Russian pull.[22] The mode of engagement is thus increasingly coercive-structural rather than attractive, relying on what is hard to dismantle rather than on what is freely chosen. The implication, consistent with Luttwak's culminating-point logic, is that leverage exercised against the grain of a partner's preferences accelerates the search for alternatives it was meant to foreclose.[23]

3.4 Comparative synthesis

Read side by side, the three strategies occupy distinct positions along a single geo-economic spectrum: China embedded and ascending, Russia entrenched but declining, the United States ambitious but thinly capitalised. Table 1 sets out the quantitative asymmetry that underlies these positions; Table 2 codes the strategies along the four analytic dimensions; and Figure 1

[20] "Russia to Build Nuclear Power Plant in Uzbekistan," Al Jazeera, May 27, 2024; "Rosatom and Uzbekistan Sign Documents to Expand Nuclear Cooperation," Rosatom press release, June 20, 2025.
[21] U.S. International Trade Administration, "Uzbekistan – Market Overview," Country Commercial Guide, 2025; "Breaking Down the Dynamics of Russian–Central Asian Relations," Eurasianet, October 31, 2025.
[22] "Is Uzbekistan's EAEU Membership Dead in the Water?" The Diplomat, November 2024.
[23] Richard Weitz, "Sino-Russian Interactions Regarding Uzbekistan," Hudson Institute, 2025.

visualises the gap between rhetorical and installed presence in the Uzbek market.

Table 1. *Selected indicators of U.S., Chinese, and Russian economic presence in Uzbekistan*

Indicator (most recent year)	United States	China	Russia
Bilateral trade turnover	≈ $1.0 bn (2025)	$12.5 bn (2024)	$11.6 bn (2024)
Share of Uzbek trade turnover	< 2%	18.9%	17.6%
Share of FDI / financing	minimal	≈ 28% (top source, 2025)	≈ 13% (2023)
Flagship instrument	DFC / EXIM finance; C5+1 platform	BRI capital; SOE mining & processing	Rosatom nuclear; labour market
Signature 2024–26 project	Joint Investment Framework (minerals)	Copper, uranium & solar build-out	Jizzakh SMR + VVER-1000 plant
Headline pledge	$100 bn / decade (2025 summit)	$24.3 bn BRI to region, H1 2025	$500 m joint fund (2024)

Sources: Statistics Agency of Uzbekistan; U.S. Department of State; Nedopil, BRI Investment Report 2025 H1; Macro-Advisory; author's compilation. Figures from differing sources are not strictly commensurable and are indicative.

Table 2. *Comparison of objectives, instruments, modes of engagement, and regional impact*

Dimension	United States	China	Russia
Core objective	De-risk supply chains; reduce dependence on China	Consolidate inputs and value chain; bind region eastward	Preserve inherited sphere; prevent defection
Principal instruments	Diplomatic platform; public finance; chosen-	BRI capital; state-owned enterprises; corridors;	Rail/pipeline legacy; migration & remittances;

	instrument firms; alliances (MSP, FORGE)	processing dominance	Rosatom; gas; security
Mode of engagement	Transactional, bilateral, deal-by-deal	Comprehensive, state-directed, infrastructure-led	Coercive-structural; leverage over attraction
Regional impact	Optionality and diversification; uneven follow-through	Deepest embedding; downstream capture; new dependency	Sticky but depreciating; spurs hedging
Luttwakian reading	Late entrant assembling instruments at a distance	Power accumulating toward a culminating point	Leverage exercised against the grain

Source: author's synthesis, applying Luttwak's geo-economic framework to the evidence reviewed in Section 3.

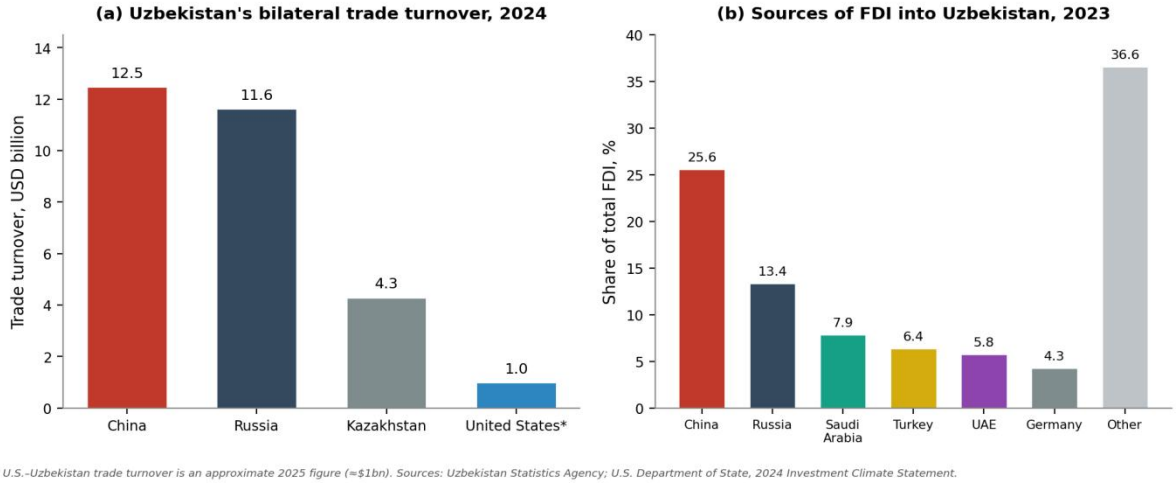

Figure 1. *Uzbekistan's bilateral trade turnover (2024) and sources of FDI (2023). The contrast between China's and Russia's installed presence and the marginal U.S. footprint frames the geo-economic asymmetry analysed below.*

4. Discussion

4.1 The paradoxical logic: dominance as the cause of resistance

The comparison's most theoretically interesting feature is that the strongest position contains the seed of its own checking. Luttwak's logic holds that accumulating power past a culminating point summons a balancing reaction;

the Soviet case furnished his archetype, but the dynamic recurs. The American "return" to Central Asia is most plausibly read not as autonomous initiative but as reaction-triggered by the recognition that China's grip on mineral processing had become a strategic vulnerability. The European Union's $2.9 billion Global Gateway commitment, the entry of Japanese and South Korean geological agencies, and the courting of Gulf co-financiers all point the same way: a loose counter-coalition is forming precisely because Chinese pre-eminence has grown conspicuous. That the coalition is geo-economic-assembled from finance, exploration, and corridor investment rather than from troops-confirms rather than contradicts Luttwak's thesis. The implication is that China's very success is generating friction that a linear projection of its dominance would miss.

It would, however, overstate the case to treat this resistance as decisive. Counter-balancing in Central Asia is constrained by the same structural facts that favour the incumbents: north- and east-facing infrastructure, recurrent power shortages, and the $21 billion still required to make the trans-Caspian Middle Corridor commercially viable. The reaction Luttwak predicts is therefore real but partial-sufficient to deny China an uncontested monopoly, insufficient, for now, to displace it. The competition's likely equilibrium is not the triumph of one power but a contested plurality in which Uzbekistan and its neighbours acquire room to manoeuvre.

4.2 Uzbekistan's agency and the limits of geo-economic capture

That room to manoeuvre is the analytical hinge on which the regional impact turns, and it is here that Central Asian scholarship most usefully disciplines the great-power frame. Tolipov's characterisation of Uzbek foreign policy as a "geopolitical pendulum" and a multivector balancing act, and Dadabaev's account of "de-securitisation"-whereby Tashkent reframes external partners as development opportunities rather than threats-together describe a

state that instrumentalises competition rather than submitting to it.[24] The evidence supports the reading. Uzbekistan has contracted Rosatom for one nuclear plant while signing a nuclear memorandum with China's CNNC and a uranium venture with France's Orano; it courts U.S. and EU capital for minerals while remaining China's largest regional market. Its own $2.6 billion programme for seventy-six critical-mineral projects is explicitly designed to capture downstream value rather than to ship raw ore to any single patron.

This conduct vindicates the corrective against "great-state autism." Each external power is tempted to read Uzbekistan as a smaller version of itself-a market to be penetrated, a dependency to be preserved, a supplier to be locked in-yet Tashkent's behaviour fits none of these scripts cleanly. Recent scholarship reframing the Central Asian states as "middle powers" rather than prizes captures the shift: the war in Ukraine and the diversification it forced have converted multivectorism from, in one apt phrase, a "polite fiction" into an operative strategy.[25] The limit of this agency, however, should not be romanticised. Uzbekistan's leverage is real at the margin but bounded by the same processing and corridor dependencies noted above; it can play suitors against one another, but it cannot yet escape the structural gravity of the two powers on its borders. Uzbek and regional scholars at institutions such as the University of World Economy and Diplomacy have accordingly framed diversification less as emancipation than as risk management-widening the portfolio of partners to dilute any single dependence.[26]

4.3 Implications for the region

Three regional consequences follow. First, the minerals turn offers Central Asia genuine developmental optionality: competing bidders raise the price of access and create leverage for value-addition, environmental standards, and

[24]Farkhod Tolipov, "Uzbekistan-2.0: Continuity and Change in Foreign Policy," Central Asia-Caucasus Analyst, December 19, 2022.

[25]"Rethinking Great Power Competition: The Rise of Central Asia as Middle Powers," The Diplomat, September 2025.

[26]Mukhtar Rakhimov, Akram Umarov, and Gavkhar Ismailova, eds., Central Asia and the European Union in Search of Sustainability (Tashkent: University of World Economy and Diplomacy, 2024).

workforce training that a monopsonist would not concede. Second, that optionality is unevenly distributed and easily overstated; the United States' capital-light, announcement-heavy posture risks generating expectations it cannot finance, while Chinese and Russian commitments, whatever their terms, are already poured in concrete and steel.[27] Third, the contest displaces rather than resolves the region's binding constraints-power generation, transport, and the governance of extraction-which no external patron has yet committed to fixing at the required scale. The danger, in Luttwak's terms, is that the grammar of commerce masks a logic of conflict whose costs-environmental, fiscal, and political-settle on the host society rather than on the competing powers.

5. Conclusion

The renewed scramble for Central Asia's minerals is a textbook instance of geo-economics as Luttwak defined it: strategic rivalry pursued through capital, supply chains, and corridors rather than through force. Coding the three external powers along objectives, instruments, modes of engagement, and impact yields a clear differentiation-China embedded and ascending, Russia entrenched but depreciating, the United States ambitious but thinly capitalised-and locates the competition's motive force in the paradoxical reaction that Chinese dominance has provoked. Uzbekistan, the article has argued, is neither pawn nor prize but a calculating intermediary that converts external rivalry into developmental leverage, within limits set by structural dependence.

The significance of the case extends beyond the region. If geo-economic competition now turns on who controls the midstream of strategic-mineral supply chains, then platforms like the C5+1 are less diplomatic courtesies than instruments of contested supply-chain governance, and their success will be measured in financed, operating assets rather than in summit communiqués.

[27] Gracelin Baskaran and Meredith Schwartz, "Fueling the Future: Recommendations for Strengthening U.S. Uranium Security," CSIS Brief, February 5, 2025.

Several questions remain open. Whether American pledges translate into installed capacity; whether the Middle Corridor attracts the capital to rival eastward routes; whether Uzbek diversification deepens into genuine processing sovereignty or settles into a new pattern of dependence-each will determine where, along the spectrum mapped here, the region ultimately rests. What the evidence already establishes is that the "new great game" is being played in the grammar of commerce, and that its outcome will be decided as much in Tashkent as in Washington, Beijing, or Moscow.[28]

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TRANSFORMING WORDS INTO EVIDENCE WITH FORENSIC LINGUISTICS

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Abstract: *Forensic linguistics, the application of linguistic analysis to legal contexts, has emerged as a pivotal tool in modern investigative and judicial processes. This article traces the evolution of forensic linguistics from its qualitative origins in the 1960s to its current integration with advanced computational methods and artificial intelligence. Key milestones include early authorship attribution in disputed confessions, high-profile cases like the Unabomber investigation, and the expansion into digital forensics in the 21st century. The field encompasses authorship attribution, voice identification, discourse analysis, and deception detection, addressing challenges such as reliability, ethical concerns, and standardization. By examining linguistic patterns in texts, speech, and digital communications, forensic linguistics aids in solving crimes, resolving legal disputes, and analyzing online behavior. This article highlights the field's interdisciplinary nature, its technological advancements, and its growing global impact, while addressing ongoing limitations and future directions for enhancing its role in legal systems.*

Keywords: *forensic linguistics, authorship attribution, voice identification, discourse analysis, deception detection, digital forensics, computational linguistics, legal investigations, stylometry, artificial intelligence.*

ПРЕВРАЩЕНИЕ СЛОВ В ДОКАЗАТЕЛЬСТВА С ПОМОЩЬЮ СУДЕБНОЙ ЛИНГВИСТИЧЕСКОЙ ЭКСПЕРТИЗЫ

Аннотация: *Судебная лингвистика - применение лингвистического анализа в юридических контекстах - стала одним из важнейших инструментов в современных следственных и судебных процессах. В данной статье прослеживается эволюция судебной лингвистики от ее качественных истоков в 1960-х годах до ее современной интеграции с передовыми вычислительными методами и искусственным интеллектом. Среди основных вех - ранняя атрибуция авторства в спорных признаниях, такие громкие дела, как расследование дела Унабомбера, и расширение сферы применения цифровой криминалистики в XXI веке. Эта область охватывает установление авторства, идентификацию голоса, анализ дискурса и обнаружение*

обмана, решая такие задачи, как надежность, этические проблемы и стандартизация. Изучая лингвистические закономерности в текстах, речи и цифровых сообщениях, судебная лингвистика помогает раскрывать преступления, разрешать юридические споры и анализировать поведение в Интернете. В данной статье подчеркивается междисциплинарный характер этой области, ее технологические достижения и растущее глобальное влияние, а также рассматриваются существующие ограничения и будущие направления для повышения ее роли в правовых системах.

Ключевые слова: *судебная лингвистика, атрибуция авторства, идентификация голоса, анализ дискурса, обнаружение обмана, цифровая криминалистика, вычислительная лингвистика, юридические расследования, стилометрия, искусственный интеллект.*

Forensic linguistics is the application of linguistic knowledge, methods, and theories to legal contexts, particularly in criminal and civil investigations. It involves analyzing language—spoken, written, or recorded—to provide evidence or insights in legal cases. This can include identifying authorship of texts (e.g., emails, ransom notes), detecting deception, analyzing confessions, interpreting legal language, or resolving disputes over meaning in contracts or trademarks. It also extends to voice identification, dialect analysis, and understanding language use in specific contexts like police interviews or courtroom discourse.

The roots of forensic linguistics can be traced to the 1960s, when linguists began applying their expertise to legal disputes, primarily through qualitative analysis of texts. One of the earliest documented contributions was by Jan Svartvik, a Swedish linguist, who analyzed the disputed confession in the 1966 case of Timothy Evans, a man wrongfully convicted of murder in the UK. Svartvik's work examined linguistic inconsistencies in the confession, highlighting how language could reveal coercion or fabrication. (Svartvik, J.,1968) This marked the first systematic use of linguistic analysis in a legal context, focusing on discourse analysis and stylistics. It laid the groundwork for forensic linguistics as a field that could challenge legal assumptions through language evidence. Svartvik's analysis involved comparing the linguistic features of Evans' confession (e.g., syntax, vocabulary) with his typical speech patterns, revealing discrepancies suggestive of police influence. This qualitative approach relied heavily on expert interpretation, as computational tools were not yet available.

The 1980s saw forensic linguistics gain recognition as a distinct discipline, with increased focus on authorship attribution and disputed texts. Linguists began working on cases involving anonymous letters, confessions, and contracts. A notable example is the work of Roger Shuy, who applied discourse analysis to legal cases, including analyzing police interrogations for coercive language. (Shuy, R. W., 1990). This period established forensic linguistics as a bridge between linguistics and law, with linguists acting as expert witnesses in court. The field expanded beyond confessions to include plagiarism disputes

and trademark cases. Shuy's work emphasized the importance of context in language analysis, such as how power dynamics in interrogations could influence statements. His methodologies relied on close reading and sociolinguistic principles, as quantitative tools were still limited.

The 1990s marked a turning point with high-profile cases that brought forensic linguistics to public attention. The Unabomber case (1996) is a landmark, where linguistic profiling of Ted Kaczynski's manifesto helped the FBI identify him. FBI agent James Fitzgerald collaborated with linguists to analyze the manifesto's unique stylistic features, such as idiosyncratic phrases and syntax. . (Fitzgerald, J. R. 2004). The analysis compared Kaczynski's known writings with the manifesto, identifying consistent patterns in word choice (e.g., "surrogate activity") and sentence structure. This case highlighted the need for robust methodologies, as linguistic evidence was scrutinized in court. (Fitzgerald, J. R. 2004)

The 2000s saw a shift toward computational methods, with the integration of natural language processing (NLP) and statistical tools into forensic linguistics. Software like JGAAP (Java Graphical Authorship Attribution Program) was developed to analyze large datasets of texts for authorship attribution. Cases like the "D.C. Sniper" investigation (2002) used linguistic analysis to interpret taunting notes left by the perpetrators.

Computational tools increased the precision and scalability of forensic linguistics, allowing for the analysis of digital texts (e.g., emails, text messages). This era also saw the growth of voice identification techniques, combining phonetics with automated speaker recognition systems. JGAAP, developed by researchers like Patrick Juola, used machine learning to quantify stylistic features (e.g., n-grams, function word frequency). Voice analysis advanced with tools like Praat for phonetic measurements, though challenges persisted with low-quality recordings. The D.C. Sniper case involved analyzing lexical choices and dialect features in notes, aiding in suspect profiling. (Juola, P.,2006)

The 2010s marked the expansion of forensic linguistics into digital forensics, driven by the rise of social media and cybercrime. Linguists analyzed online communications for cases involving cyberbullying, fraud, and extremism. The field also grew internationally, with contributions from Europe, Australia, and Asia. The case of Amanda Knox (2011) involved linguistic analysis of her statements to assess coercion and reliability. Digital forensics broadened the scope of forensic linguistics, requiring new methods to handle informal, multimodal texts (e.g., emojis, slang). The field also gained academic legitimacy with dedicated journals and conferences, such as those hosted by the International Association of Forensic Linguists (IAFL). In the Knox case, linguists examined her written and spoken statements for signs of stress or inconsistency, though findings were debated in court. Computational tools like LIWC (Linguistic Inquiry and Word Count) were used to analyze psychological cues in texts. Internationally, forensic linguistics was applied to multilingual cases, such as analyzing Arabic texts in counterterrorism investigations. (Grant, T. 2013)

By the 2020s, artificial intelligence (AI) and machine learning revolutionized forensic linguistics. Advanced NLP models, such as transformers, improved authorship attribution and deception detection. Research expanded into multimodal analysis, combining text, speech, and visual elements (e.g., emojis, memes) in digital forensics. High-profile applications included analyzing extremist propaganda and deepfake voice detection.

AI has made forensic linguistics more robust but raised ethical concerns about privacy, bias, and the reliability of probabilistic evidence in court. The field is also addressing standardization to ensure methodologies meet legal admissibility standards. Transformer-based models like BERT have been adapted for stylometric analysis, achieving high accuracy in authorship tasks. Multimodal analysis is used in cases involving social media, where linguistic patterns are combined with metadata (e.g., timestamps, geolocation). Ethical debates focus on the use of linguistic evidence in surveillance and the risk of misinterpretation in cross-cultural contexts. Research in 2025 continues to explore sociolinguistic factors, such as how dialect or cultural differences affect legal interpretations. (Nini, A. 2023)

Forensic linguistics is now an established field with dedicated programs (e.g., Aston University's Centre for Forensic Linguistics) and journals like *The International Journal of Speech, Language and the Law*. The IAFL fosters global collaboration. The field faces issues with standardization, as methodologies vary widely. Legal systems differ in accepting linguistic evidence, with some jurisdictions (e.g., U.S., U.K.) more receptive than others. Ethical concerns about privacy and bias in AI-driven analysis are ongoing. Research is focusing on improving AI models for multilingual and cross-cultural analysis, developing standardized protocols, and addressing ethical implications. Applications in counterterrorism and cybercrime are expanding, with linguists playing a key role in analyzing online radicalization and fraud.

Forensic linguistics encompasses a diverse range of applications where linguistic expertise intersects with legal processes, offering critical insights into criminal and civil investigations. This interdisciplinary field leverages language analysis to address legal questions, from identifying the authorship of anonymous texts to interpreting the nuances of courtroom discourse. Key areas include authorship attribution, voice identification, discourse analysis, deception detection, and the interpretation of legal texts, each contributing uniquely to the pursuit of justice. By examining linguistic patterns in texts, speech, and digital communications, forensic linguists provide evidence that can clarify intent, reveal deception, or resolve disputes, making the field indispensable in modern legal contexts. The key areas of forensic linguistics demonstrate the field's versatility in addressing complex legal challenges through language analysis. From attributing authorship in criminal cases to decoding the subtleties of legal language, these applications highlight the power of linguistics to uncover truth in diverse contexts. As forensic linguistics continues to evolve, its ability to adapt linguistic tools to new forms of communication, such as digital texts and multilingual settings, ensures its relevance in legal systems worldwide, bridging the gap between language and justice.

Forensic linguistics is experiencing rapid advancements, driven by cutting-edge research and its expanding applications in an increasingly digital world. Current studies leverage computational linguistics, artificial intelligence, and natural language processing to enhance the precision of authorship attribution, voice analysis, and deception detection. The field's applications have grown to include digital forensics, counterterrorism, and the analysis of online communications, reflecting the shift toward technology-driven investigations. By exploring linguistic patterns in social media, extremist propaganda, and

legal discourse, forensic linguistics is redefining how language serves as evidence in modern legal and investigative frameworks.

Current research and applications in forensic linguistics underscore its dynamic role in addressing contemporary challenges, from cybercrime to global security. The integration of AI and computational tools has elevated the field's capabilities, enabling more accurate and scalable analyses of language data. As forensic linguistics continues to expand into new domains, such as multimodal digital analysis and cross-cultural contexts, its contributions to legal investigations and societal safety are poised to grow, solidifying its status as a critical tool in the pursuit of truth.

Despite its advancements, forensic linguistics faces significant challenges and limitations that impact its reliability and acceptance in legal settings. Issues such as the probabilistic nature of linguistic evidence, potential biases in human or computational analysis, and the lack of universal methodological standards pose hurdles for practitioners. Ethical concerns, particularly around privacy and the misuse of linguistic data in surveillance, further complicate the field's application. Understanding these challenges is essential for appreciating the complexities of forensic linguistics and its role in balancing scientific rigor with legal accountability.

The challenges and limitations of forensic linguistics highlight the need for ongoing refinement to ensure its credibility and ethical application. Addressing issues like standardization, bias mitigation, and ethical concerns will be crucial for enhancing the field's reliability in legal contexts. As forensic linguists work toward developing robust methodologies and navigating ethical dilemmas, the field's potential to deliver justice through language analysis remains strong, provided these hurdles are met with innovation and collaboration across disciplines. The field continues to evolve with technology, but its reliance on context-specific analysis means human expertise remains critical. Ongoing research focuses on improving the reliability of linguistic evidence, standardizing methodologies, and addressing ethical challenges in an increasingly digital world.

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IJTIMOIY TARMOQLARNING YOSHLAR DUNYOQARASHIGA TA'SIRI

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Annotatsiya: *Maqolada ijtimoiy tarmoqlarning yoshlar dunyoqarashiga ta'siri ilmiy tahlil qilinadi. Ijtimoiy media platformalarining ta'lim, madaniy xilma-xillik va fuqarolik faolligi kabi ijobiy jihatlari bilan birga, soxta axborot, "filtr pufaklari", kiberbulling va raqamli tobelik kabi salbiy omillari ham yoritilgan. Tadqiqot natijalari asosida yoshlarning mediasavodxonligini oshirish, tanqidiy fikrlash ko'nikmalarini rivojlantirish va ota-onalar hamda ta'lim muassasalarining raqamli tarbiyadagi rolini kuchaytirish zarurligi asoslab berilgan.*

Kalit so'zlar: *ijtimoiy tarmoqlar, yoshlar, dunyoqarash, mediasavodxonlik, soxta axborot, kiberbulling, raqamli ta'sir.*

THE IMPACT OF SOCIAL MEDIA ON YOUNG PEOPLE'S WORLDVIEW

Annotation. *The article scientifically analyzes the impact of social networks on the worldview of youth. It highlights both the positive aspects of social media platforms, such as education, cultural diversity, and civic engagement, as well as negative factors including fake news, "filter bubbles," cyberbullying, and digital addiction. Based on the research findings, the necessity of enhancing media literacy, developing critical thinking skills among young people, and strengthening the role of parents and educational institutions in digital upbringing is substantiated.*

Keywords: *social networks, youth, worldview, media literacy, fake news, cyberbullying, digital influence.*

ВЛИЯНИЕ СОЦИАЛЬНЫХ СЕТЕЙ НА МИРОВОЗЗРЕНИЕ МОЛОДЕЖИ

Аннотация. *В статье научно анализируется влияние социальных сетей на мировоззрение молодёжи. Освещаются как положительные стороны социальных медиа-платформ, такие как образование, культурное разнообразие и гражданская активность, так и негативные факторы, включая фейковые новости, «пузыри фильтров», кибербуллинг и цифровую зависимость. На основе результатов исследования обосновывается необходимость повышения медиаграмотности, развития навыков критического мышления у молодёжи и усиления роли родителей и образовательных учреждений в цифровом воспитании.*

Ключевые слова: *социальные сети, молодёжь, мировоззрение, медиаграмотность, фейковые новости, кибербуллинг, цифровое влияние.*

KIRISH.

Globallashuv va raqamli texnologiyalarning jadal rivojlanishi sharoitida ijtimoiy tarmoqlar nafaqat muloqot vositasi, balki yoshlar dunyoqarashini shakllantiruvchi asosiy omillardan biriga aylandi. Facebook, Instagram, TikTok, Telegram, YouTube kabi platformalar orqali har kuni millionlab foydalanuvchilar axborot almashadi, fikr bildiradi va ijtimoiy muhitni o‘zlashtiradi. Ayniqsa, 15–25 yosh oralig‘idagi yoshlar ushbu tarmoqlarning eng faol ishtirokchilari bo‘lib, ularning qadriyatlar tizimi, siyosiy-ijtimoiy pozitsiyalari va hayotiy mo‘ljallari aynan shu muhit ta’sirida shakllanmoqda.

Mazkur maqolada ijtimoiy tarmoqlarning yoshlar dunyoqarashiga ijobiy va salbiy ta’sir yo‘nalishlari ilmiy asosda tadqiq etiladi, shuningdek, yuzaga kelayotgan muammolarni hal etish bo‘yicha amaliy tavsiyalar beriladi.

ASOSIY QISM.

Ijtimoiy tarmoqlarning yoshlar dunyoqarashiga ta’siri ikki qarama-qarshi yo‘nalishda tahlil qilinadi. Ijobiy tomondan, raqamli platformalar global ochiq ta’lim resurslari, ilmiy-ommabop kontent va onlayn kurslar orqali uzluksiz bilim olish imkonini beradi. Xalqaro ilmiy hamjamiyatlarga ulanish, turli madaniyat vakillari bilan muloqot qilish

tolerantlik va keng dunyoqarashni shakllantiradi. Fuqarolik jamiyatidagi petitsiyalar, volontyorlik loyihalari orqali ijtimoiy mas'uliyat hissi rivojlanadi. Salbiy ta'sir doirasi esa jiddiy xavf tug'diradi: platforma algoritmlari asosida shaxsiylashtirilgan "filtr pufaklari" axborot xilma-xilligini cheklab, "exo-kameralar" hosil qiladi. Bu yoshlarning faqat o'z qarashlariga mos kontent iste'mol qilishiga, tanqidiy fikrlash qobiliyatining susayishiga olib keladi. Soxta xabarlar va manipulyativ kontent faktlar bilan ishlash ko'nikmasiga putur yetkazadi. Kiberbulling va doimiy ijtimoiy solishtirish yoshlarda o'z-o'zini past baholash, xavotirlik va depressiya holatlarini keltirib chiqaradi.

XULOSA

Ijtimoiy tarmoqlar yoshlar dunyoqarashiga bir vaqtning o'zida konstruktiv va destruktiv ta'sir ko'rsatadi. Ular ta'lim, madaniy almashinuv va fuqarolik faolligi uchun keng imkoniyatlar yaratsa-da, soxta axborot, filtr pufaklari, kiberbulling va raqamli tobelik orqali ongni manipulyatsiya qiladi, ruhiy zo'riqishni kuchaytiradi.

Tahlillar shuni ko'rsatadiki, salbiy oqibatlarni kamaytirishning eng ishonchli yo'li yoshlarda ongli raqamli iste'mol madaniyatini shakllantirishdir. Buning uchun ta'limda mediasavodxonlikni kuchaytirish, oila va jamiyatning raqamli tarbiyadagi hamkorligini ta'minlash, platformalar algoritmlarida shaffoflikni oshirish zarur.

Shunday yondashuv orqali ijtimoiy tarmoqlar yoshlar dunyoqarashini boyitadigan, ularni faol, tanqidiy fikrlovchi shaxs sifatida rivojlantiradigan kuchli vositaga aylanadi.

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INTERTEXTUALITY IN THE REPRESENTATION OF FAMILY FIGURES: A COMPARATIVE READING OF FORUGH FARROKHZAD'S POETRY AND JASMIN DARZNIK'S SONG OF A CAPTIVE BIRD

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Abstract. *This article offers a comparative analysis of the intertextual relationship between Forugh Farrokhzad's poem on her family members and Jasmin Darznik's novel Song of a Captive Bird, focusing on the character system the figures of the father, mother, sister, and brother and the garden-and-pool motif that structures both texts. Although the poem (the hypotext) and the novel (the hypertext) select the same set of family members, they assign these figures radically different aesthetic functions. In the poem, family members appear as typified embodiments of a society's moral and spiritual decay, rendered with sharp pathos; in the novel, the same figures are reconstructed through childhood memory and historical process as living, not-yet-fractured individuals who nonetheless conceal internal contradictions. The article also traces the markedly divergent treatment of the father figure the "indifferent father" of the poem versus the two-layered, contradictory Colonel of the novel. Drawing on Gérard Genette's theory of transtextuality, the study argues that intertextuality at the level of characters establishes a cause-and-effect relationship between the two texts: the novel uncovers the psychological and social roots of the tragedy that the poem presents as already accomplished.*

Keywords. *Intertextuality; transtextuality; character system; family figures; garden and pool symbolism; Forugh Farrokhzad; Jasmin Darznik; Song of a Captive Bird; memory and aesthetic gaze; semantic bridge; comparative literature.*

1. INTRODUCTION

Comparative literary scholarship relies on methodologies capable of revealing genetic, typological, and intertextual relationships between two or more texts. Gérard Genette's theory of transtextuality, and in particular his concept of hypertextuality, offers a productive framework for analyzing the complex relationship between an original text (hypotext) and a secondary text

(hypertext) built upon it. Forugh Farrokhzad's poem devoted to her family members and American writer Jasmin Darznik's biographical novel Song of a Captive Bird, based on the poet's life, exemplify precisely such a hypertextual relationship: the novel draws directly on the poet's biography and poetry including the very texts in which her family is portrayed while reconstructing them from an entirely new aesthetic standpoint. The purpose of this article is to examine, through a comparative analysis of the shared character system (father, mother, sister, brother) in both texts, how intertextuality performs its artistic function, and to clarify the central role of the garden-and-pool symbol in this process.

2. MATERIALS AND METHODS

The material for this study consists of two primary sources: Forugh Farrokhzad's poem centered on her family members, and Jasmin Darznik's novel Song of a Captive Bird (Ballantine Books, 2018), a fictionalized biography of the poet. The analysis is conducted within the framework of comparative literary methodology, combined with Gérard Genette's theory of transtextuality (hypertextuality) as the primary theoretical lens, supplemented by insights from Julia Kristeva's concept of intertextuality and Mikhail Bakhtin's dialogism regarding the interaction of voices and texts. The method proceeds in three steps: first, each family figure (father, mother, brother, sister) is examined as it appears in the poem; second, the same figures are examined as they appear in the novel; third, the two sets of representations are juxtaposed to identify points of convergence, divergence, and causal continuity, with particular attention to the garden and pool as a recurring symbolic space linking the two texts.

3. RESULTS

The characters in the two works under analysis display a distinctly intertextual character. Forugh's father, mother, sister, and brother are portrayed with notable artistic skill in both texts. What is striking is that Forugh Farrokhzad and Jasmin Darznik select exactly the same family members, yet present them to the reader through two fundamentally different lenses.

3.1 The Family in the Poem: Typified Figures of Spiritual Decay

In the primary text, the poet portrays family members as figures embodying various psychological and moral states of society. Each figure relates, directly or indirectly, to the space of the garden and the pool, completing an overall picture of decay. Through these figures the poet sharply exposes fatigue, fear, indifference, and artificiality.

The father figure embodies a generation utterly exhausted by life, one that considers its time to have passed. His words carry not only personal decline but also a renunciation of responsibility toward society:

“My time is past, / I've carried my burden”

His absolute indifference to the fate of the garden reveals a broader apathy toward the decay of the sources of life:

“When I'm dead, what will it matter / if the garden lives or dies”

In his view, only material gain retains any importance, while spiritual values lose their meaning:

“My pension / is all that counts”

The mother figure is portrayed as a person consumed by religious fear and superstition, one who views life through the prism of sin:

“Mother's life is a rolled-out prayer rug”

This line shows that her entire existence is bounded by prayer and dread. She lives in terror of hell, searches for sin in every corner, and even imagines the garden itself as tainted by "the sin of a wayward plant." Her blowing of "consecrated breath" onto flowers and fish symbolizes how outward piety cannot heal inner life but instead stifles it.

The brother figure expresses society's ironic indifference and false intellectualism. He calls the garden a graveyard and ruthlessly counts the corpses of the fish, observing life's descent toward death with mockery. His being "addicted to philosophy," and his belief that he "sees the healing of the garden in its death" — regarding death itself as a solution — represents despair disguised as philosophical insight. His repeated insistence that he is "tired, pained and despondent" while drinking reveals the depth, yet the futility, of this despair; his pain is "lost in crowded taverns."

The sister figure is a symbol of outward prosperity and inner rupture. Once "a friend to flowers" who confided her pain to nature, she now lives within an "artificial home" beside an "artificial husband." Though she bears "natural children," her life is wrapped in artificiality. Each time she returns to her father's house, the garden's poverty seems to stain her, and she "bathes herself in perfume." Through this figure the poet exposes the tendency to flee a problem by covering it with ornament and scent.

Taken together, the portrayal of family members elevates the neglected garden to the level of human relationships. Each figure bears its own "share" in the garden's decay — one through indifference, one through fear, one through irony, one through artificial happiness. In this way the family in the poem becomes a small model of an ailing society, and the garden emerges as the central symbol revealing that society's spiritual condition.

3.2 The Family in the Novel: Reconstruction through Memory

In the secondary text — Jasmin Darznik's novel — the family members of young Forugh Farrokhzad are portrayed through the child's own consciousness, filtered through a memory-driven, aesthetic gaze. Where Farrokhzad's poem presents family members as types expressing society's decayed spiritual condition, the novel presents the same figures as a social space that has not yet fractured, though it already conceals internal contradictions. This difference is shaped, above all, around the space of the garden and the pool.

The mother figure in the novel differs fundamentally from her counterpart in the poem. Where the poem shows a mother living in religious fear, sin, and superstition, Darznik's text renders her as a woman in harmony with life and beauty, as the following quotation clearly confirms:

> *"My mother's joy was this garden. Here her face softened and her gaze turned kind."*

For the mother, the garden is not merely a physical space but a realm of psychological ease, social interaction, and self-expression. It is here that she drinks tea with her friends, free from daily worries, converses, and shares small disagreements and secrets. When servants spread carpets beneath the veranda and roses surround the gathering, the women crack melon seeds and eat pastries, passing long summer evenings in conversation. This process transforms the garden into more than a natural setting it becomes a safe and free social space for women. It is therefore telling that once the garden is destroyed, the mother abandons her morning and evening walks and begins receiving guests indoors rather than in the garden a change that reveals both her deep psychological attachment to this space and the void left in her inner world by its loss.

The sister figure (Pouran) is portrayed in the novel as a symbol of innocent childhood solidarity and trust. Where the poem shows a sister adapted to an

artificial life and estranged from the family, the novel shows her still inhabiting a shared space of memory and secrets with her younger sister:

"I told my sister all my secrets, and she told me hers."

This depiction shows that the sisterly bond has not yet been disrupted by social pressure or external constraint, and remains natural and sincere. The sisters play at the edge of the garden, secretly watching their mother and her friends, absorbed in their own games and imaginings. They wear sour cherries as earrings, press pink dahlia petals onto their fingernails in imitation of the women, weave wreaths of acacia blossoms as crowns for their heads. Sitting cross-legged in the shade of quince, pomegranate, and pear trees, the sisters confide their secrets to one another. These small but vivid details reveal the innocence of the child's world and the sister figure's role as a center of protection and closeness — an intimacy that later lays the psychological groundwork for the alienation and artificial life depicted in the poem.

The father figure in the novel — Colonel Farrokhzad — receives a complex, two-layered artistic treatment. On one hand, he appears as a cultured man, well-versed in classical literature, who prizes poetry highly among his fellow officers. In evening gatherings held in the garden, political conversation gradually gives way to literary recitation, and gems of classical Persian poetry resound. The quatrains of Omar Khayyam form an important part of these gatherings:

"I need a jug of wine and a book of poetry, / Half a loaf for a bite to eat…"

Lines from Rumi likewise lend the gatherings a spiritual tone:

"My arrow of love has arrived at the target…"

These verses reveal a refined taste, aesthetic sensibility, and inner spiritual life beneath the father's outward image. His deep, resonant voice reciting

poetry earns the guests' admiration, shaping in the children's minds an image of the father not merely as a military figure but as a cultural authority:

"The men's talk of politics gave way to poetry."

Yet this very affinity for culture and poetry later comes into sharp conflict with his practical decisions — above all, his order to destroy the garden. On the other hand, in the children's minds he remains a figure of fear and domination:

"The Colonel, who could make us cower with a single sidelong glance."

The destruction of the garden expresses the cultural and psychological violence the father enacts under the guise of modernization. On the pretext of transforming the garden into a "modern," Western-style space, he has the ancient trees uprooted, the flowerbeds destroyed, and the blue-tiled pool a source of life filled in with cement. This act is not merely a spatial change but the systematic erasure of memory, tradition, and the symbols of vitality. In this respect, the father figure in the novel emerges as an active, initiating, yet destructive counterpart to the "indifferent father" of Farrokhzad's poem: where the poem's father allows the garden to fade through indifference, the novel's father causes its direct destruction through his own will and decision.

The brother figures, while not central to the novel, are mentioned as individuals drawn into the world of men, participating in the military gatherings:

"Sometimes my father summoned my brothers to join the gathering."

This detail marks the social and gendered divide between daughters and sons, offering an early sign of the alienation that later intensifies in the poem.

Overall, Darznik's novel reconstructs, through childhood memory, the family portrait that reaches its tragic conclusion in Farrokhzad's poem. Where

the poem presents the family as a model of a decayed society, the novel presents it as a space still full of life, yet on the verge of destruction. The gradual destruction of the garden and pool functions as the semantic bridge between the two texts, tracing the movement from personal memory to social tragedy.

4. DISCUSSION

The intertextuality between Forugh Farrokhzad's poem and Jasmin Darznik's novel can be examined through four interconnected layers, each of which carries independent analytical weight while contributing to a unified interpretive conclusion.

The first and most significant layer is the character system. Both works select the same family members: father, mother, sister, and brother(s) yet these figures perform different aesthetic functions in each text. In the poem they are elevated to the level of typified figures expressing society's moral and spiritual crisis; in the novel the same figures are presented as living individuals taking shape within childhood memory and historical process. Through this shift, the novel uncovers the psychological and social roots of the tragedy that concludes the poem. Intertextuality at the level of character, therefore, establishes a cause-and-effect relationship between the two texts.

This finding aligns with Genette's understanding of hypertextuality as a relation in which a later text does not simply repeat but transforms its hypotext, opening new semantic possibilities within it. It also resonates with Kristeva's broader claim that every text is constructed as a mosaic of other texts, absorbing and transforming them a dynamic clearly visible in how Darznik's novel absorbs Farrokhzad's poetic imagery of the family and reworks it into an extended narrative of childhood and historical loss. At the same time, the garden-and-pool motif functions as what might be called the structural anchor

of this intertextual relationship: in the poem the garden is already ruined, a fait accompli, while in the novel its destruction unfolds as process, with visible causes and stages, giving the reader access to the "before" that the poem leaves unspoken.

A further point of discussion concerns the father figure specifically, whose treatment diverges most sharply between the two texts. The poem offers a single, unified image of indifference; the novel offers a divided, contradictory portrait in which cultural refinement and domestic tyranny coexist in the same person. This divergence suggests that intertextual reworking does not merely add biographical detail to a poetic figure but can restructure the very moral logic of that figure, transforming passive neglect into active culpability.

5. CONCLUSION

The comparative analysis undertaken in this article demonstrates that the intertextual relationship between Forugh Farrokhzad's poem and Jasmin Darznik's novel operates on a level far deeper than the mere repetition of shared characters; it is built on a coherent artistic and philosophical logic. The static, typified family members of the poem become, in the novel, dynamic figures shaped within a historical process; as a result, the novel functions as a hypertext that uncovers the causes underlying the tragic conclusion already present in the hypotext. The garden and pool serve as the principal semantic bridge between the two texts: where the poem presents an already-ruined garden, the novel presents the process of its ruin, together with its causes and stages. In this way, intertextuality at the level of the character system binds the two texts into a single artistic-semantic space and makes possible a new, transtextual reading of Forugh Farrokhzad's legacy.

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ANALYSIS OF SOURCES ON THE ISSUANCE OF LOCAL CURRENCY IN TURKESTAN DURING THE EARLY YEARS OF THE SOVIET STATE (ON THE EXAMPLE OF THE SEMIRECHYE BONDS)

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Abstract. *Following the October events, the Bolsheviks, who had seized power, adopted a drastic economic policy due to prevailing military and political factors. This resulted in a financial deficit in the outlying regions. Consequently, during this period, Turkestan chose to issue its own local currency. Additionally, the Semirechye territory, which was part of Turkestan, also issued its own money for a certain time. This article specifically discusses the reasons for the issuance of the Semirechye bonds, along with their results and consequences.*

Keywords. *Verniy ruble, Turkbon, War Communism, Semirechye, bon.*

Introduction. Throughout world history, societies have consistently grappled with economic problems. Just as financial deficits were observed in all countries of the world after World War I in the early 20th century, this process did not bypass the Soviet state, which had emerged on the basis of a new system. In the initial years of Soviet rule, the government followed the path of "war communism" in organizing the economy. This dealt a severe blow to the peasantry. Furthermore, the Soviets also carried out the transfer of private property to state ownership. As a result, competitiveness in the economy was undermined, and the currency circulation system was paralyzed.

Methodological foundations The article is written using the principles of historicity, systematicity, objectivity, as well as problem-chronological, comparative and analytical, civilizational approach to the problem, methods.

Results. Taking the existing situation into account, the Turkestan government began issuing its own temporary credit notes (colloquially known

as "Turkbon") from 1918 with the permission of the central authorities. By mid-1918, a currency shortage had emerged due to several factors. The material resources of the Turkestan Republic were limited. Its nationalized industry, which mainly consisted of enterprises for the primary processing of raw materials, could not meet the republic's growing demand for material resources. North of Orenburg and south of the Caspian fronts, trade with the central part of the RSFSR was cut off. This led to a sharp decrease in demand for cotton from within Turkestan's borders. The lack of banknotes received from the central government also significantly contributed to the monetary crisis..

Historical sources and archival documents indicate that following the establishment of Soviet power in Turkestan, an exceedingly complex socio-political and economic environment emerged in the region. Specifically, the complete lack of transport infrastructure (although design and preparatory work for the construction of the Semirechye railway had commenced), the intensification of armed uprisings in the area, and a number of other negative factors limited the central government's ability to provide consistent funding to the region. Consequently, the Semirechye province experienced a profound economic and financial crisis. Deeply understanding the grave situation in this territory, the Central Executive Committee of the Turkestan Republic made a crucial decision in February 1919. According to this decision, the Semirechye Regional Executive Committee was authorized to issue 100 million rubles worth of bonds into circulation to cover the financial deficit. This information serves as a significant scientific and historical source for studying the governance mechanisms for remote territories in the early years of Soviet rule, the emergency fiscal measures aimed at resolving crisis situations, and the economic condition of the region[29].

[29] Наша газета - 9 февраля 1919

Analysis of historical documents and financial sources indicates that the Semirechye bons, popularly known as the “Verny ruble,” had a very limited area of circulation, despite being fully backed and guaranteed by the central government of the RSFSR like other securities. These regional banknotes were only valid as legal tender within the territory of the Semirechye province and were not accepted in other parts of Turkestan. Sources note that although the government set the official exchange rate of the "Verny ruble" to be equal to that of the Turkestan bons (Turkbons), in real economic relations in the free market their purchasing power was quoted at a much lower value. This financial discrepancy and instability is clearly confirmed by correspondence from that period, specifically an official dispatch sent by the Turkestan trade agent from Ghulja in March 1919. According to this archival document, at that time, "1 Turkestan ruble was valued at 6.5 tiyins, while 1 Semirechye ruble was valued at 3 tiyins."[30].

These facts serve as a valuable historical and economic source for studying the complex monetary system that emerged in the Turkestan region during the early years of Soviet power, the differences between local and central currencies, and hyperinflationary processes in the region.

By mid-1919, the rise in prices and the depreciation of currency had led to social tension, prompting serious discussions about halting the issuance of Yettisuv bonds. Specifically, on June 14, 1919, the Council of People's Commissars for Finance of the Turkestan SSR convened a special meeting to consider stopping the circulation of paper money in Yettisuv. However, the discussion highlighted the extremely acute problem of a shortage of all-Turkestan bonds. Consequently, it was acknowledged that stopping the issuance of Yettisuv (Verniy) bonds was premature given the money shortage, and the measure was temporarily postponed[31].

[30] Народное хозяйство Туркестана. - 1920.- №1. - С.8

[31] O‘zMA, 37 – fond, 1 – ro‘yxat, 31 – ish, 152 – bet

This archival document serves as a valuable scientific source revealing the critical financial crisis of that period, the difficulties in creating a unified monetary system across the republic, and the fact that the government was forced to rely on local money emission to cover the existing deficit.

It proved impossible to prevent the hyperinflation and devaluation of the Verny ruble. The economic crisis in the region reached such a point that the population could no longer purchase even the most essential everyday goods with Verny currency alone. The market quotations of that period clearly illustrate this economic disparity and the sharp difference in prices. In particular, according to 1919 Tashkent market data, purchasing a piece of fabric required 1,500 Turkestan rubles (turkbons), whereas in Verny currency, this figure was 2,500 ruble[32]. This is an important historical fact confirming that the purchasing power of the local currency relative to the national currency is practically zero, and the population is experiencing a severe economic crisis.

In the final months of 1919, the severe financial crisis and intensifying currency devaluation in the region urgently brought the issue of halting the circulation of Semirechye (Yettisuv) bonds back to the forefront. Specifically, an important political and economic decision was made to stabilize local conditions at the 8th Congress of the Przhevalsk Uyezd of the Semirechye Region, held in November 1919. The congress delegates stood firm in their demands, calling for a complete cessation of the issuance of the Verny ruble, which was causing hardship for the population. This significant socio-political event and the activities of the congress were widely covered in the press of that era. For instance, the newspaper of the Przhevalsk district, in its issue dated November 15, 1919, provided detailed reports on the proceedings of the district council session and the decisions made. This periodical source is of

[32] Рапопорт Я. Вырненский рубль // Народное хозяйство Туркестана. 1920, 15 январь. – С.9.

considerable scholarly importance for studying the scale of the financial crisis and public discontent in the region[33].

Conclusion During the initial stages of Soviet rule, the severe economic conditions, lack of transportation links, and armed conflicts in the remote regions of Turkestan posed significant obstacles to the central government's ability to regularly finance the region. To alleviate the resulting acute crisis, central authorities permitted the issuance of special banknotes, known as bons, in the local area. However, the "Verny Ruble," which was put into circulation, was only valid within a limited territory and was not recognized throughout Turkestan. Consequently, this currency depreciated sharply on the open market, and its purchasing power fell to several times lower than that of the general Turkestan bons. The skyrocketing prices in the region and the emergence of a situation where even small purchases became impossible further complicated the already dire living conditions of the ordinary working population.

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RAQAMLASHTIRISH DAVRIDA QORAQALPOQ TILI TERMINOLOGIYASINING RIVOJLANISH TENDENSIYALARI

Embergenova Manzura Ádilbay qizi

Mustaqil izlanuvchi

Annotatsiya: *Mazkur maqolada raqamlashtirish jarayonining qoraqalpoq tili terminologiyasiga ta'siri tahlil qilinadi. Axborot-kommunikatsiya texnologiyalarining jadal rivojlanishi natijasida qoraqalpoq tilining terminologik tizimi yangi ilmiy-texnik terminlar bilan boyib bormoqda. Tadqiqotda terminlarning shakllanish manbalari, ularning yasalish usullari, o‘zlashma terminlarning qo‘llanish xususiyatlari hamda terminlarni me'yorlashtirish masalalari yoritilgan. Shuningdek, zamonaviy raqamli muhitda qoraqalpoq tilining terminologik salohiyatini rivojlantirish istiqbollari tahlil qilingan.*

Kalit so‘zlar: *qoraqalpoq tili, terminologiya, termin, raqamlashtirish, neologizm, axborot texnologiyalari, til taraqqiyoti.*

Abstract: *This article analyzes the impact of the digitalization process on Karakalpak language terminology. As a result of the rapid development of information and communication technologies, the terminological system of the Karakalpak language is being enriched with new scientific and technical terms. The study covers the sources of formation of terms, methods of their formation, features of the use of borrowed terms, and issues of standardization of terms. The prospects for the development of the terminological potential of the Karakalpak language in the modern digital environment are also analyzed.*

Keywords: *Karakalpak language, terminology, term, digitalization, neologism, information technology, language development.*

Kirish. Har qanday tilning rivojlanish darajasi uning ilm-fan, texnika, iqtisodiyot va ijtimoiy hayotning turli sohalaridagi yangi tushunchalarni ifodalash imkoniyatlari bilan belgilanadi. Fan va texnologiyalar taraqqiyoti natijasida yuzaga kelayotgan yangi tushunchalar tilning lug‘at tarkibini boyitib, terminologik tizimning takomillashuviga xizmat qiladi. Shu jihatdan qoraqalpoq tili terminologiyasi ham zamonaviy taraqqiyot ta'sirida izchil rivojlanmoqda.

Bugungi kunda sun'iy intellekt, raqamli texnologiyalar, elektron hukumat, kiberxavfsizlik, bulutli hisoblash, mobil ilovalar kabi ko‘plab yangi tushunchalar tilga kirib kelmoqda. Ushbu terminlarning bir qismi xalqaro shaklda qo‘llansa, ayrimlari qoraqalpoq tilining ichki imkoniyatlari asosida tarjima qilinmoqda yoki yangi terminlar sifatida yaratilmoqda. Bu esa terminologik tizimni ilmiy jihatdan o‘rganish va me'yorlashtirishni dolzarb vazifaga aylantiradi.

Mazkur maqolaning maqsadi qoraqalpoq tili terminologiyasining zamonaviy rivojlanish tendensiyalarini tahlil qilish, yangi terminlarning shakllanish manbalarini aniqlash hamda ularni me'yorlashtirishning dolzarb masalalarini yoritishdir.

Terminologiyaning nazariy asoslari. Terminologiya tilshunoslikning muayyan fan yoki kasb doirasida qo‘llaniladigan maxsus birliklarni o‘rganuvchi sohasidir. Termin muayyan ilmiy tushunchani aniq va bir ma'noda ifodalovchi til birligi hisoblanadi. Terminlarning asosiy xususiyatlari aniqlik, qisqalik, tizimlilik va uslubiy betaraflikdan iborat. Qoraqalpoq tilida terminologik tizimning shakllanishi uzoq tarixiy taraqqiyot mahsulidir. Dastlab xalq xo‘jaligi, chorvachilik, dehqonchilik va hunarmandchilikka oid terminlar shakllangan bo‘lsa, keyinchalik fan va ta'lim rivojlanishi bilan ilmiy terminologiya ham kengaya boshladi. Mustaqillik yillarida davlat boshqaruvi, iqtisodiyot, huquq, tibbiyot va axborot texnologiyalariga oid terminlarning soni sezilarli darajada ortdi.

Raqamlashtirish sharoitida qoraqalpoq tili terminologiyasi bir necha yo‘nalishlarda rivojlanmoqda. Birinchidan, xalqaro terminlarning o‘zlashuvi kuchaydi. Kompyuter, internet, platforma, server, algoritm, interfeys, onlayn, oflayn kabi terminlar kundalik va ilmiy nutqda keng qo‘llanmoqda. Ikkinchidan, milliy termin yaratishga intilish kuchaymoqda. Ayrim xorijiy terminlarning qoraqalpoq tilidagi muqobillarini yaratish va ularni amaliyotga joriy etish bo‘yicha ilmiy ishlar olib borilmoqda. Bu tilning ichki

imkoniyatlaridan samarali foydalanishga xizmat qiladi. Uchinchidan, terminlarning semantik doirasi kengaymoqda. Avvallari faqat ma'lum bir sohada qo‘llangan ayrim terminlar bugungi kunda ommaviy axborot vositalari va kundalik muloqotda ham faol ishlatilmoqda. To‘rtinchidan, elektron lug‘atlar va raqamli korpuslarning yaratilishi terminologiyani tartibga solish imkoniyatlarini kengaytirmoqda. Bu ilmiy terminlarni yagona me'yor asosida qo‘llashga xizmat qiladi.

Har qanday tilda terminologik tizimning boyishi, avvalo, yangi terminlarning yaratilishi bilan bog‘liq. Qoraqalpoq tilida ham terminlar turli lingvistik usullar asosida shakllanadi. Ularning asosiylari morfologik, sintaktik, semantik va o‘zlashma usullardir.

Morfologik usul orqali yangi terminlar so‘z yasovchi qo‘shimchalar yordamida hosil qilinadi. Bu usul qoraqalpoq tilining ichki imkoniyatlaridan unumli foydalanishga xizmat qiladi. Natijada yangi ilmiy tushunchalarni ifodalovchi terminlar milliy til me'yorlariga mos holda yaratiladi.

Sintaktik usul terminologiyada eng faol usullardan biri hisoblanadi. Ikki yoki undan ortiq mustaqil so‘zlarning birikishi orqali murakkab terminlar hosil qilinadi. Ayniqsa, axborot texnologiyalari, iqtisodiyot, huquq va ta'lim sohalarida bunday terminlar keng uchraydi. Masalan, *sun'iy intellekt, axborot xavfsizligi, elektron hujjat aylanishi, raqamli platforma* kabi birikmalar murakkab terminlar sirasiga kiradi.

Semantik usul mavjud so‘zlarga yangi ilmiy ma'no yuklash orqali amalga oshiriladi. Bunda umumxalq tilidagi ayrim birliklar terminologik ma'no kasb etadi. Masalan, *tarmoq, platforma, bulut, oyna* kabi so‘zlar zamonaviy axborot texnologiyalarida yangi mazmun bilan qo‘llanmoqda.

O‘zlashma usul esa bugungi terminologik taraqqiyotning eng faol yo‘nalishlaridan biridir. Ingliz va rus tillari orqali kirib kelayotgan *server, router, brauzer, skaner, mobil ilova, chatbot, sun'iy intellekt* kabi terminlar qoraqalpoq tilida ham faol qo‘llanmoqda. Bunday terminlarni o‘zlashtirishda

ularning fonetik, grafik va grammatik jihatdan milliy til me'yorlariga moslashuvi muhim hisoblanadi.

Raqamli texnologiyalar rivojlanishi natijasida yangi fan tarmoqlari va yangi ilmiy tushunchalar paydo bo‘lmoqda. Bu esa terminologik tizimning muntazam ravishda yangilanishini talab etadi. Bugungi kunda sun'iy intellekt, robototexnika, ma'lumotlar bazasi, bulutli texnologiyalar, blokcheyn, kiberxavfsizlik va raqamli iqtisodiyot sohalariga oid yuzlab yangi terminlar amaliyotga kirib kelgan. Qoraqalpoq tilida ushbu terminlarning aksariyati xalqaro shaklda qo‘llanayotgan bo‘lsa-da, ayrimlarini milliy til imkoniyatlari asosida tarjima qilish va muqobil variantlarini yaratish zarurati mavjud. Bu, bir tomondan, ilmiy muloqotni osonlashtirsa, ikkinchi tomondan, ona tilining termin yasash imkoniyatlarini yanada rivojlantiradi. Shuningdek, internet va ijtimoiy tarmoqlarning keng ommalashuvi terminlarning tez tarqalishiga sabab bo‘lmoqda. Avvallari faqat mutaxassislar nutqida uchraydigan terminlar bugungi kunda ommaviy axborot vositalari, ta'lim platformalari va kundalik muloqotda ham keng qo‘llanmoqda. Natijada ayrim terminlar umumxalq leksikasining tarkibiy qismiga aylanmoqda.

Qoraqalpoq tili terminologiyasini rivojlantirish bilan bir qatorda uni me'yorlashtirish ham dolzarb masalalardan biridir. Amaliyotda bir tushuncha uchun bir nechta termin variantlarining qo‘llanishi, ayrim xorijiy terminlarning tarjimasiz ishlatilishi yoki imlo jihatidan turlicha yozilishi uchrab turadi. Bu holat ilmiy matnlarning yagona standart asosida yozilishiga salbiy ta'sir ko‘rsatadi. Shu sababli zamonaviy terminologik lug‘atlarni muntazam yangilab borish, yangi terminlarni ilmiy ekspertizadan o‘tkazish va ularni me'yoriy hujjatlar asosida tasdiqlash muhim vazifalardan biri hisoblanadi. Oliy ta'lim muassasalari, ilmiy markazlar va tilshunos olimlarning hamkorligi terminologik tizimni takomillashtirishda muhim ahamiyat kasb etadi.

Tadqiqot natijalari va muhokama. Tadqiqot davomida qoraqalpoq tili terminologiyasining zamonaviy rivojlanishi raqamlashtirish jarayonlari bilan

bevosita bog‘liqligi aniqlandi. Axborot-kommunikatsiya texnologiyalarining jadal rivojlanishi natijasida terminologik tizim yangi tushunchalar bilan muntazam boyib bormoqda. Yangi terminlarning aksariyati ingliz tilidan kirib kelayotgan bo‘lsa-da, ularning qoraqalpoq tili me'yorlariga moslashtirilishi til taraqqiyotining muhim omillaridan biri hisoblanadi. Tahlillar shuni ko‘rsatdiki, zamonaviy terminlarning asosiy qismi quyidagi yo‘llar bilan shakllanmoqda:

- xalqaro terminlarning to‘g‘ridan-to‘g‘ri o‘zlashtirilishi;
- mavjud terminlarning semantik jihatdan kengayishi;
- yangi qo‘shma terminlarning hosil qilinishi;
- qoraqalpoq tilining ichki imkoniyatlari asosida yangi terminlarning yaratilishi.

Biroq ayrim terminlarning turlicha yozilishi, bir tushunchani ifodalash uchun bir necha variantning qo‘llanishi hamon dolzarb muammolardan biri bo‘lib qolmoqda. Ayniqsa, axborot texnologiyalariga oid terminlarni me'yorlashtirish bo‘yicha yagona yondashuvni ishlab chiqish zarur.

Xulosa. Qoraqalpoq tili terminologiyasi zamonaviy jamiyat taraqqiyoti bilan bir qatorda uzluksiz rivojlanayotgan til tizimidir. Raqamlashtirish jarayonlari natijasida yangi ilmiy tushunchalar va texnologik yangiliklar tilning terminologik qatlamini sezilarli darajada boyitmoqda. Bu esa yangi terminlarni ilmiy asosda yaratish, ularni tartibga solish va adabiy til me'yorlariga moslashtirish zaruratini yuzaga keltirmoqda. Tadqiqot natijalari asosida quyidagi xulosalarga kelish mumkin:

1. Raqamlashtirish qoraqalpoq tili terminologiyasining rivojlanishiga kuchli ta'sir ko‘rsatmoqda.
2. Terminologik tizimning boyishida xalqaro terminlar muhim o‘rin tutmoqda, biroq ularni milliy til me'yorlariga moslashtirish zarur.
3. Termin yaratishda qoraqalpoq tilining ichki leksik va so‘z yasash imkoniyatlaridan keng foydalanish maqsadga muvofiq.

4. Terminologik komissiyalar, oliy ta'lim muassasalari va ilmiy markazlarning hamkorligini kuchaytirish qoraqalpoq ilmiy tilining rivojlanishiga xizmat qiladi.

Shunday qilib, qoraqalpoq tili terminologiyasini ilmiy asosda rivojlantirish va me'yorlashtirish nafaqat tilshunoslik, balki ilm-fan, ta'lim hamda jamiyatning barqaror taraqqiyoti uchun ham muhim ahamiyat kasb etadi.

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CHANGES IN THE CONTENT AND FORM OF NATIONAL CEREMONIES DURING THE SOVIET ERA

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Abstract. *This article analyzes the changes that occurred in the content and forms of national ceremonies during the Soviet era from a historical and cultural perspective. It examines the ideological policies of the state, processes of secularization, and attitudes toward traditional values. The study highlights how certain ceremonial practices were restricted, others were transformed, and traditional customs were preserved within national cultural memory.*

Keywords: *Soviet era, national ceremonies, traditions, ideology, culture, values, transformation.*

Introduction. Following the Russian Empire's conquest of Central Asia and continuing until the October Revolution, the tsarist government maintained a cautious approach toward national rituals, guided primarily by broader state interests. Seeking to avoid provoking widespread discontent among the local population, the tsarist administration generally refrained from directly interfering in many traditional ceremonial practices. Marriage ceremonies, funeral rites, circumcision celebrations, and religious festivals, which had developed initially under the influence of Zoroastrianism and subsequently Islam, were largely regarded as matters pertaining to the private sphere of the local population's social and cultural life. As V. Bartold noted, the tsarist government sought to adopt a cautious approach to the internal religious and everyday life of the Muslim population of Turkestan, recognizing that any

excessive or abrupt intervention could potentially provoke political discontent[34]. For this reason, the majority of national rituals continued to be practiced in their traditional forms. At the same time, it would be inaccurate to claim that the government of Tsarist Russia left the observance of national rituals completely unrestricted. In particular, certain religious gatherings, public events, and pilgrimages considered significant from the standpoint of state security or colonial administration were placed under strict governmental supervision. During this period, administrative surveillance over Islamic leaders and religious institutions was particularly intensive. The authorities attached considerable importance to preventing national liberation movements and maintaining potential leaders of such movements under close observation.

Subsequently, in the late nineteenth and early twentieth centuries, the establishment of Russian-native schools, the increasing spread of European-style lifestyles in urban areas, and the emergence of new social relations inevitably exerted a certain influence on the organization and practice of some national rituals. However, this influence remained relatively limited, and among the majority of the population, national rituals largely retained their traditional content. Fundamental changes in the content, character, and forms of organization and observance of national rituals began to emerge only during the Soviet period. In view of this circumstance, it is appropriate to regard the Soviet period as the next major stage in the historical evolution of national rituals.

As is well known, following the October Revolution of 1917, an entirely new political system—the Soviet government—was established across the territory of the former Russian Empire. This model of governance was based on the principles of Marxism-Leninism and envisaged the restructuring of all spheres of social life, including the traditional lifestyles, customs, and rituals of different peoples, in accordance with new ideological requirements.

[34] Бартольд В.В. *История культурной жизни Туркестана.* – Ленинград: Изд-во АН СССР, 1927.

Consequently, the Soviet state developed an approach to the rituals of various nationalities and ethnic groups that differed fundamentally from the policy pursued by Tsarist Russia. Whereas the tsarist government generally sought to avoid extensive interference in local ritual practices, the Soviet authorities, by contrast, considered it necessary to intervene actively in the practice of conducting rituals and to reshape their content in accordance with communist ideology.

The Soviet authorities interpreted a significant proportion of national rituals that had been preserved for centuries as social phenomena closely associated with religious worldviews. Religion, in turn, was regarded within Marxist theory as one of the ideological institutions that contributed to the preservation of the existing social order. Karl Marx, for instance, famously characterized religion as the “opium of the people.” Consequently, the Soviet ideological system viewed the transformation of traditional religious and national rituals as an essential component of the broader process of constructing a new socialist society[35]. Vladimir Lenin, in turn, repeatedly emphasized the necessity of separating religious organizations from the state and establishing a scientific-atheistic worldview in society. In his view, the construction of a socialist society required, above all, the liberation of people’s consciousness and activities from the influence of religious beliefs and perceptions[36]. This idea subsequently became the theoretical and methodological foundation of the Soviet state’s approach to various types of rituals.

Analysis and Results. The Soviet authorities regarded national rituals not only as social phenomena shaped under the influence of religious worldviews but also as important elements of the traditional way of life. For this reason, within the framework of the policy of restructuring everyday life

[35] Маркс К. К критике гегелевской философии права. Введение.// Маркс К., Энгельс Ф. Сочинения. Т. 1. – М.: Политиздат, 1955. – С. 414–415.

[36] Ленин В.И. О религии. – М.: Политиздат, 1983.

on socialist foundations implemented during the 1920s and 1930s, large-scale measures were undertaken to reform traditional rituals. State institutions, party organizations, youth associations, trade unions, and various cultural and educational institutions actively participated in this process. Initially, an extremely restrictive policy was pursued toward national rituals. From the 1940s onward, however, a more conciliatory approach toward certain rituals gradually began to emerge. Only nearly half a century after the October Revolution did the authorities begin to emphasize not the complete prohibition of national rituals, but rather their adaptation to the requirements of the Soviet way of life. Thus, although the Soviet authorities' attitude toward national rituals evolved over time, their fundamental objective of adapting their content to communist ideology remained unchanged.

A particularly important aspect of Soviet policy toward national rituals was the implementation of measures aimed at eliminating their religious content. As noted above, the principal objective of this policy was to gradually reduce the influence of religious institutions on the everyday life of the population. Consequently, beginning in the 1920s, a systematic policy was implemented throughout all republics of the Soviet Union, including Uzbekistan, to place national rituals under state control and restrict their sphere of influence. Within the framework of this policy, rituals imbued with religious content, including marriage ceremonies, circumcision ceremonies, funeral rites, religious festivals, Mawlid celebrations, and dhikr, were subjected to severe criticism.

Marriage ceremonies, in particular, became one of the areas most extensively reformed by the Soviet authorities. The Soviet state sought to establish new family relations based on civil legislation. In the traditional societies of Central Asia, however, the legitimacy of marriage was determined by the performance of the nikah ceremony, the presence of two witnesses, fulfillment of the conditions of marriage, and observance of religious rites.

Consequently, marriage was recognized not merely as a family event but also as an important religious and legal institution. Following the establishment of Soviet rule, this system underwent fundamental transformation. The state transferred the authority to regulate marital relations from religious institutions entirely to state institutions. As a result, the registration of marriage by the **Civil Registry Office (FHDYO)** was established as the sole legally recognized form of marriage. Religious marriage was declared to have no legal force and came to be regarded as an act associated exclusively with personal religious belief. Through this transformation, the state established comprehensive legal control over marital relations.

Significant efforts were also undertaken to reorganize funeral rites. Funeral ceremonies constituted one of the most enduring religious traditions in the lives of Muslim populations. They encompassed not only procedures related to burial but also conceptions concerning death, the afterlife, and religious obligations. The Soviet authorities implemented a series of measures aimed at removing the religious content of funeral rites and bringing them under state control. One of the principal directions of this policy was the centralization of burial practices and their organization through the municipal services system. Administrative responsibilities such as cemetery management, grave digging, and transportation of the deceased to cemeteries were increasingly assigned to state and local communal services. Through these measures, the state sought to remove funeral practices from the influence of religious communities and transform them into civil-administrative procedures. At the same time, extensive ideological propaganda was conducted to reduce religious elements within funeral rites and diminish their social significance. Advocates of scientific atheism used the press, radio, cultural centers, and educational institutions to portray funeral prayers, recitation of the Qur’an for the deceased, and commemorative ceremonies held on the third, seventh, twentieth, fortieth days, and the anniversary of death as religious superstition

or remnants of the past. However, because the funeral prayer is regarded in Islam as **fard kifayah**—a collective religious obligation—and as one of the final religious duties owed to a deceased Muslim, these policies did not produce the expected results among the Muslim population. Practices such as performing the ritual washing of the deceased, wrapping the body in a white shroud, performing the funeral prayer, and burying the deceased in a Muslim cemetery in accordance with Islamic requirements continued to be regarded by the population as religious obligations.

The official attitude of the Soviet authorities toward the circumcision ceremony was likewise negative. Communist ideology regarded it as a remnant of the past imbued with religious norms and promoted a scientific-atheistic approach to the upbringing of children. Nevertheless, because circumcision was perceived by a large proportion of the population as a national and cultural ritual, it proved impossible to eliminate the practice completely.

Alongside restricting the religious foundations of national rituals, the Soviet authorities also attached particular importance to introducing a new system of rituals corresponding to communist ideology. These rituals were intended, on the one hand, to contribute to the formation of the **"Soviet person" (sovetskiy chelovek)** and, on the other, to establish the **"Soviet way of life."** During the Soviet period, the concept of the "Soviet person" referred to an individual educated in accordance with the ideological requirements of socialist society, loyal to communist ideology, committed to placing the interests of the state and society above personal interests, and regarding an atheistic worldview as a fundamental principle of life. The formation of such an individual was recognized as one of the most important objectives of socialist society[37]. Subsequently, this objective was formally incorporated into the program of the Communist Party of the Soviet Union.

[37] Афанасьев В.Г. *Научное управление обществом*. – М.: Политиздат, 1973.

According to this program, the "Soviet person" was expected to possess the following fundamental qualities: (a) loyalty to communist ideology; (b) socialist patriotism; (c) internationalism; (d) collectivism; (e) an honest attitude toward work; (f) readiness to protect public property; (g) a scientific-atheistic worldview; and (h) the ability to subordinate personal interests to the interests of the state and society[38].

According to the views of Soviet ideological leaders, the everyday life of the Soviet person was also expected to conform to a specific model. This model came to be known as the **"Soviet way of life" (sovetskiy obraz zhizni)**. In the scholarly and ideological literature of the period, the "Soviet way of life" was defined as a mode of life organized in accordance with the economic, political, and spiritual values of socialist society. The concept encompassed not only the everyday life of members of society but also their attitude toward work, social activity, family life, the nature of their needs, and the ways in which they spent their leisure time. Soviet social philosophy identified the following as the principal characteristics of the Soviet way of life: (a) a conscious attitude toward socialist labor; (b) collectivism; (c) social equality; (d) communist morality; (e) a scientific-atheistic worldview; (f) socialist patriotism; and (g) the harmonization of personal interests with the interests of society[39].

The Soviet government sought to transform national rituals into an integral component of this social mechanism, which was intended to contribute to the formation of such an individual and the establishment of the corresponding way of life. To this end, on the one hand, efforts were made to supplement existing national rituals with new symbols, customs, and public events; on the other hand, attempts were undertaken to establish new forms of civic ceremonies. In particular, new civic rituals were developed around

[38] *Программа Коммунистической партии Советского Союза.*- М.: Политиздат, 1961. – С. 117.

[39] Савин Ю.А. Социалистический образ жизни и нравственное развитие личности.- М.: Мысль, 1987.

significant stages in an individual's life, especially those associated with reaching adulthood and entering the workforce. According to the objectives pursued, these ceremonies were expected to foster a sense of loyalty to the socialist homeland, strengthen commitment to communist ideals, and promote a sense of collectivism among individuals.

Efforts to introduce new civic ceremonies were not limited to rituals associated with the upbringing of children. At the same time, new ceremonies connected with labor activity were also incorporated into the Soviet way of life. One such ceremony was associated with the celebration of an individual's **first day of work**. In local practice, this ceremony was held to mark the admission of young people into a labor collective. It was not conducted according to a completely uniform procedure throughout the USSR; rather, its organization varied depending on the characteristics of individual republics, economic sectors, enterprises, and organizations. The ceremony was generally organized for young people who had graduated from vocational schools, technical colleges, or higher educational institutions. Its primary purpose was to formally welcome young specialists into the labor collective, foster a sense of responsibility toward work, and establish the values of socialist labor.

The ceremony was usually held in the assembly hall of the enterprise or institution where the young people had been employed. It was conducted by the head of the enterprise or organization, the secretary of the party organization, or the chairman of the trade union. Newly employed young workers were invited to the stage, and the participants were provided with information about their education, professional qualifications, and personal qualities. During the ceremony, young specialists were presented with employment record books and commemorative gifts. In some organizations, it was also customary to assign a mentor to each young man or woman. Through this ceremony, the Soviet authorities sought to present labor not merely as an

economic activity but as the highest form of service to the construction of communist society[40].

Another labor-related ritual of the Soviet period involved the ceremonial honoring of labor veterans. The primary purpose of such ceremonies was not only to reward exemplary workers but also to strengthen commitment to socialist labor and labor discipline throughout the entire workforce. These events were regularly organized at enterprises and institutions, collective and state farms, as well as at republican and all-Union levels. In some cases, the results of socialist competitions, the early fulfillment of five-year plans, or major achievements in production served as occasions for holding such ceremonies. The central element of the ceremony was the recognition and honoring of distinguished workers. Exemplary workers were ceremonially presented with state orders and medals, honorary titles, badges such as **"Shock Worker of Communist Labor," "Winner of Socialist Competition," and "Labor Veteran,"** as well as certificates of honor and commemorative gifts. The honored workers were also invited to speak about their professional experience and encourage the younger generation to engage in honest and diligent labor[41].

In the Soviet period, new labor-related rituals interpreted work not as a source of personal well-being, but as a civic duty toward society. At the same time, these ceremonies served the broader objectives of shaping the Soviet person, subordinating the process of labor to communist ideology, and embedding communist values into everyday life.

Under the socialist system, holiday rituals were likewise endowed with new meanings. In this sphere, the Soviet authorities did not simply choose to prohibit or eliminate national holidays; rather, they sought to imbue them with communist ideological content and replace traditional symbols and ceremonial

[40] Черепахова Э. Посвящение в рабочие.// Смена, 1966, №943.

[41] Леонов Г. Как возникло соцсоревнование в СССР и чем награждали победителей?// shkolazhizni.ru/ pro-zazhizni/articles/104070.

practices with the symbols of the socialist state. Particularly noteworthy is the fact that, during the Soviet period, holiday rituals were transformed from forms of cultural recreation into ideological mechanisms designed to promote communist ideas and establish the Soviet way of life. As N. S. Rasulova, Associate Professor at the University of Public Security, has noted, Soviet holidays constituted one of the means of strengthening communist ideology, and their organization was effectively equated with political campaigns, while national holidays were replaced by new revolutionary, proletarian, and professional holidays[42].

During the Soviet period, particular importance was attached to all-Union holidays such as the **October Revolution, May Day, V. I. Lenin's Birthday, Victory Day, and Soviet Army and Navy Day**. They were celebrated through mass demonstrations, rallies, military parades, performances by labor collectives, slogans, red flags, and ceremonial events decorated with portraits of party leaders. Through these rituals, the socialist state sought to demonstrate its political power, ideological supremacy, and extensive capacity to govern social life. For this reason, such ceremonies were transformed into a distinctive ideological technology: their organization, implementation scenarios, participant composition, symbols, and even timing began to be carefully planned. All of this demonstrates that, under the Soviet system, holiday rituals were transformed from popular celebrations into carefully planned ideological events organized and controlled by the state[43].

During the Soviet period, traditional holiday rituals were also endowed with new meanings. For example, local celebrations such as **hashar** (community collective labor), **Navruz**, the Flower Festival, the Melon Festival, and the Harvest Festival did not disappear entirely. However, their content was increasingly infused with Soviet notions of production, labor discipline,

[42] Расулова Н.С. Аҳолига коммунистик мафкурани тарғиб қилишда совет байрамларининг ўрни.// uza.uz, 2024, 5 январь.

[43] Попова В. Н. Праздник как социокультурный феномен.- Екатеринбург: Изд-во Уральского ун-та, 2017.

achievements of collective and state farms, socialist competitions, party initiatives, and loyalty to state policies. As a result, these celebrations became a field of interaction between the people's ancient cultural memory and Soviet ideology.

Nevertheless, despite the Soviet authorities' persistent efforts to eliminate traditional and religious elements from national rituals and replace them with symbols and ceremonial practices reflecting new ideological meanings, such elements continued to survive, often discreetly, in rural communities, neighborhoods, and family environments. Consequently, although national rituals during the Soviet period were placed under strict ideological control, they evolved into complex syncretic phenomena that retained many of their ethnocultural and traditional characteristics. Recent studies have increasingly interpreted this phenomenon as one of the contradictory outcomes of Soviet modernization. For example, in analyzing transformations in marriage and family rituals in Uzbekistan during 1920–2020, R. S. Umarov notes that during the Soviet period marriage ceremonies were subordinated to socialist legal norms, while marriages conducted according to Sharia law were not officially recognized. Nevertheless, the author emphasizes that traditional rituals continued in mahallas and rural communities in concealed or adapted forms[44]. Indeed, throughout the Soviet period, nikah ceremonies conducted according to Islamic law continued in various mahallas and villages, not as open public events, but as discreet practices held within family and kinship circles, often with the participation of a representative of a religious community.

The clandestine preservation of religious and traditional elements during the Soviet period occurred in several ways. First, as noted above, a significant proportion of national rituals moved from the official public sphere into the

[44] Умаров Р.С. Никоҳ ва оила маросимларининг тарихий-антропологик ўзгаришлари (1920-2020) (Ўзбекис-тон мисолида).// International Conference on Modern Science and Scientific Studies. Илмий-назарий конф. мат.- Мадрид, 2025, 20 май.- 20-25-б.

family and mahalla environment. Second, the religious terminology associated with many rituals was softened and increasingly replaced by socially and domestically oriented terms such as “custom,” “tradition,” “remembrance,” and “communal gathering.” Third, certain rituals were performed alongside officially prescribed procedures. For example, a marriage was first registered at the Civil Registry Office (FHDYO), after which a nikah ceremony based on Islamic law was performed at home; in funerals, civil regulations were observed, while the recitation of the Fatiha, prayers for the deceased, and commemorative rituals continued to be practiced. Fourth, knowledge and experience associated with the performance of national rituals were transmitted through members of the older generation, mahalla elders, and senior family members.

Because traditional and religious elements within national rituals continued to survive discreetly in villages, mahallas, and family environments, the Soviet government progressively systematized and intensified its control over ritual practices. Through party organizations, local authorities, youth organizations, trade unions, cultural institutions, and the system of atheistic propaganda, the state sought to continuously monitor the organization and conduct of marriage ceremonies, funerals, circumcision rituals, holidays, seasonal festivities, family celebrations, and labor-related ceremonies. In order to establish control over national rituals, the authorities first sought to Sovietize their legal foundations. The organization of rituals in local communities, particularly the performance of religious rites within them, was subject to continuous surveillance. Local executive committees, party organizations, village councils, and mahalla committees were responsible for identifying and preventing unauthorized ceremonies, restricting the involvement of young people in religiously oriented rituals, and conducting atheistic educational and explanatory activities among the population. Efforts to establish public oversight over the organization and conduct of national rituals also continued.

Nevertheless, despite these measures, national rituals succeeded in preserving many of their stable and enduring elements throughout the Soviet period.

The above considerations demonstrate that the dialectic between change and continuity was particularly evident in the development of national rituals during the Soviet period. Although the forms of performance, organizational procedures, symbols, ceremonial practices, and modes of execution underwent significant transformation and acquired an ideological character, their spiritual foundations—that is, their essential meanings and underlying purposes—did not disappear completely. During the Soviet period, for instance, the procedures governing the formalization of national rituals changed substantially. Various rituals that had previously been spontaneously organized and conducted by communities were transformed into formal ceremonies enriched with political speeches, state symbols, and mass demonstrations. As a result, national rituals were transformed from elements of national culture into social institutions adapted to the requirements of communist ideology. During the Soviet period, the religious content of national rituals weakened, while their secular content became increasingly prominent.

Despite these transformations, however, national rituals did not lose their enduring characteristics during the Soviet period. This continuity was manifested primarily in their functions associated with marking important turning points in human life—birth, marriage, and death—as well as the acquisition of a particular profession or craft, an individual's integration into a specific community, and the establishment of various forms of social relations. Soviet realities altered the forms and symbols through which national rituals were performed, but they could not eliminate their spiritual functions within individual and social life.

The Soviet modernization of national rituals produced two distinctive layers within their content. The first was an official and ideological layer enriched with state symbols and subjected to strict governmental control. The

second was an internal ethnocultural and national-spiritual layer. Whereas the first layer was primarily manifested in public holidays, Civil Registry Office ceremonies, Komsomol and Pioneer events, and labor celebrations, the second found expression in rituals such as marriage ceremonies, funerals, and commemorative practices conducted within villages and mahallas.

Conclusion. The above analysis allows several conclusions to be drawn. The Soviet authorities regarded national rituals as social phenomena shaped under the influence of religious worldviews and as important elements of the traditional way of life. For this reason, they sought to eliminate religious symbols and ceremonial practices associated with marriage, funeral, and circumcision rituals. The socialist state attempted to replace traditional national rituals with civic ceremonies intended to express the socialist way of life and contribute to the formation of the Soviet person, including Octoberist and Pioneer membership ceremonies, admission to youth organizations, and celebrations marking significant stages of labor activity.

Nevertheless, traditional elements continued to survive discreetly in ceremonies conducted in villages, mahallas, and family environments. Although the Soviet authorities sought to adapt national rituals to the requirements of communist ideology, the Soviet period should nevertheless be interpreted as a distinctive stage in the modernization and transformation of national rituals. This period did not result in the complete disappearance of traditional ritual culture; rather, it generated a complex interaction between official Soviet ideological forms and deeply rooted ethnocultural traditions.

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O‘ZBEK TILLI O‘QUVCHILAR GURUHIDA INGLIZ TILINI O‘RGANISH VA O‘QITISHGA IJTIMOIY-LINGVISTIK OMILLARNING TA’SIRI

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Annotatsiya: *Ushbu maqolada o‘zbek maktablarining 10-sinf o‘quvchilari misolida ingliz tilini o‘zlashtirish jarayoniga ijtimoiy-lingvistik omillarning ta’siri tadqiq etilgan. Izlanishda o‘quvchilarning jinsi, ijtimoiy-iqtisodiy kelib chiqishi, mintaqaviy va dialektal xususiyatlari hamda ularning til o‘rganish motivatsiyasi va urg‘u (aktsent) shakllanishidagi roli tahlil qilinadi. B1 darajadagi 12 nafar o‘quvchidan iborat guruhda olib borilgan kuzatuvlar shuni ko‘rsatadiki, gender farqlari talaffuz va topshiriqlarni bajarish uslubida, ijtimoiy-iqtisodiy sharoit esa produktiv ko‘nikmalarni rivojlantirishda muhim o‘rin tutadi. Maqolada Kommunikativ til o‘qitish (CLT), Topshiriqqa asoslangan ta’lim (TBL), Mazmunga integratsiyalashgan til o‘qitish (CLIL) hamda Yaqin rivojlanish zonasi (ZPD) yondashuvlarini ijtimoiy omillarni hisobga olgan holda qo‘llash bo‘yicha amaliy va baholash takliflari ilgari surilgan.*

Kalit so‘zlar: *Ijtimoiy lingvistika, ingliz tilini ikkinchi til sifatida o‘qitish (TESOL), gender farqlari, ijtimoiy-iqtisodiy maqom, talaffuz va aktsent, CLT, CLIL, formativ baholash.*

ВЛИЯНИЕ СОЦИОЛИНГВИСТИЧЕСКИХ ФАКТОРОВ НА ИЗУЧЕНИЕ И ОБУЧЕНИЕ АНГЛИЙСКОМУ ЯЗЫКУ В ГРУППЕ УЧАЩИХСЯ С УЗБЕКСКИМ ЯЗЫКОМ ОБУЧЕНИЯ

Аннотация: *В данной статье исследуется влияние социолингвистических факторов на процесс усвоения английского языка на примере учащихся 10-х классов узбекской школы. В исследовании анализируется роль гендерных различий, социально-экономического статуса, региональных и диалектных особенностей учащихся в формировании мотивации к изучению языка и произношения (акцента). Наблюдения, проведенные в группе из 12 учащихся с уровнем владения B1, показывают, что*

гендерные различия проявляются в стиле выполнения заданий и произношении, тогда как социально-экономические условия влияют на развитие продуктивных навыков. В статье предложены методические и оценочные рекомендации по применению коммуникативного обучения (CLT), обучения на основе заданий (TBL), предметно-языкового интегрированного обучения (CLIL) и зоны ближайшего развития (ZPD) с учетом социальных факторов.

Ключевые слова: *Социолингвистика, преподавание английского языка (TESOL), гендерные различия, социально-экономический статус, произношение и акцент, CLT, CLIL, форматирующее оценивание.*

THE IMPACT OF SOCIOLINGUISTIC FACTORS ON ENGLISH LANGUAGE LEARNING AND TEACHING IN AN UZBEK LEARNER GROUP

Abstract*: This article investigates the impact of sociolinguistic factors on the English language acquisition process using the example of 10th-grade Uzbek school students. The study analyzes the role of gender, socioeconomic background, and regional dialectal features in shaping learners' motivation, language ideologies, and accent development. Based on observations of a mixed-ability group of 12 students at the B1 proficiency level, the findings indicate that gender differences significantly affect pronunciation styles and task-execution strategies, while socioeconomic factors condition access to educational resources and the development of productive skills. The paper proposes pedagogical and assessment implications utilizing Communicative Language Teaching (CLT), Task-Based Learning (TBL), Content and Language Integrated Learning (CLIL), and the Zone of Proximal Development (ZPD) to promote educational equity.*

Keywords: *Sociolinguistics, TESOL, gender differences, socioeconomic status, pronunciation and accent, CLT, CLIL, formative assessment.*

Introduction

All we know the affection of languages to our society; it depends on our originality, ethnicity, and location. Mather (2012) said that language changes happen according to the role of different social factors: age, social class, gender, and saving the identity of an exact population (p. 339). In all investigations, it shows that any society has dominant sounds which show the population's origin. The main aim of this work is to study all given scientific articles and learn how learning and teaching English can influence sociolinguistic groups. The main objective of the research is to identify the distinctions among learners.

According to studied research, I try to identify my learners' main sociolinguistic problems, what the main things in learning English are, and the identity of a group of learners.

Geographical and social factors play a huge role in language retention. In certain regions, sound changes appear and disappear without improving; however, local people adapt sound changes to differentiate themselves from newcomers. Since geographically cozy places welcome tourists, sailors, and emigrants, local older people want to save their originality and keep their accent. Under-theorized regional, especially rural and urban dialectology, is traditional research, and Western-centered approaches cannot open sociolinguistics wider (Tirvassen, 2018, p. 7).

There are strong views covered by authors about sex, gender, and their effects on improving language in society. Men often try to be dominant in speaking and language use, while women try to keep a beautiful speaking style and be nice during speech. This conclusion helps identify learners not only in language learning but also in behavior among students. It changes the view in learning and teaching language by showing examples of language ideology. Among my learners, feelings appear after lessons or during breaks about what kind of accent usage shows their role in society. If pronunciation is clear, accent does not matter; there is no single ideal language, and teachers should teach students not to ignore any accent.

There is no single English; every nation uses English according to their culture, mother tongue originality, and aims, so native English users should not ignore other English language users (Kachru, 1990, pp. 5–6). Among my learners, these variations appear naturally because our language structure, stress, rhythm, and tongue action strongly differ from English. We try to identify many English accents because we are in the expanding circle of English users. Improving English style is natural and important to communicate and become independent English users in the future.

Literature Review

Research shows that language change is closely tied to social context. Mather (2012) highlights how social class, age, gender, and group identity drive linguistic shifts (p. 339). In traditional research, regional and dialectal variations are often under-theorized, as Western-centered approaches fail to fully capture wider sociolinguistic realities (Tirvassen, 2018, p. 7). Tirvassen (2018) also notes that traditional doctrines develop a static vision of human communities based on division, ignoring the role of fusion and creolization in shaping identity (p. 3).

Gender differences in speech patterns are documented extensively. Mesthrie (2009) gave an example of the pronunciation of "-ing" among children: most boys pronounce it as "-in" in different cases, whereas girls pronounce "-ing" correctly in any case (pp. 76–77). This research demonstrates that females try to change and adapt more than males in language learning.

Socioeconomic factors also create significant distinctions in learning environments. Romaine (2009) exclaims that poverty is not just geographically specific, it is socially specific (p. 51). Well-educated family children and working-class family children have different learning atmospheres at home, where listening and watching tools are more available for some than others.

In terms of global language acquisition, Kachru (1990) states that in the developing world, the English language has become one of the most vital tools of ideological and social change (p. 5). Furthermore, Fought (2011) exclaims that the same factors that make the study of language and ethnicity complex also make it rewarding for sociolinguists to illuminate the role of language in identity construction (p. 239). Nuessel (2010) remarks that language is used by human beings belonging to various speech communities so that they may interact (p. 124).

For interactional competence, Van Booven (2018) contends that knowledge of utterance appropriateness figures as centrally into a learner's communicative competence as grammatical knowledge (p. 1). Direct instruction on interactional resources, such as response tokens ("yeah," "okay," "mhmm"), assessments ("good," "fantastic"), and adjacency pairs, maintains the flow of talk (Van Booven, 2018, p. 4). Deumert (2011) remarks that speakers can have good command of grammar and lexicon but poor pronunciation, or use a reduced grammatical structure with near-native pronunciation (pp. 264–265).

Research Methodology

This study utilizes a qualitative action-research methodology based on classroom observation and practical pedagogical tasks in a rural school setting.

Sociolinguistic Profile of a Group of Learners:

- Participants: 12 students, 16 years old, in the 10th grade.
- Proficiency Level: B1 on the CEFR scale, mixed-ability students.
- Location: Local school situated close to a rural area, with most population origins from villages.
- L1 & L2 background: L1 is Uzbek; L2 is English.
- Class Selection: At the beginning of 9th grade, the school authority took an academic survey about choosing special subjects. This group emerged with a shared academic aim: learning English for 8 hours a week.
- Target Goal: All students aim to get a B2 level CEFR certificate and become independent language users. All are strong in receptive skills but weaker in productive skills.
- Group Homogeneity: All share the same nationality, region, and religion, pushing them to join as a group. However, variations exist in family education (well-educated vs. working-class) and gender equality.

Context Differences: Overt discussions about sexuality and changing gender are prohibited in school contexts. The main effective factors observed in learning English are socioeconomic status and gender. Uzbek belongs to the

Asian language family, while English belongs to the European language family. Huge structural differentiations exist across all fields: different sentence structures, sound articulation, speech patterns, and rhythm. These differences create wrong pronunciation and speech speed difficulties for students.

Analysis and Results

1. Sociolinguistic Profile of the Learning Context

The group naturally divides into two sub-groups: well-educated family children and working-class family children. During group activities, these differences disappear because groups are structured for equality. However, individual mock tests reveal clear differences:

- Well-educated family children: Possess strong motivation stemming from educated parents and grandparents. Their parents support them socioeconomically, buying crucial learning items and tools for home preparation, enabling extra English lessons and higher results.
- Working-class family children: Receive lower parental academic motivation (parents feel teacher instruction is enough) and lack technical tools to train after class.

During speaking lessons, only 5 students are active speakers who speak without hesitation, while the other 7 students have pronunciation mistakes, strong shyness, and hesitations. Linguistic capital creates two natural sub-groups, along with a strong competitive atmosphere between male and female students.

2. Gender Differences in Language Learning

Female students' pronunciation is near native speakers and slight. Male students' pronunciation resembles their L1 (Uzbek), as boys do not easily adapt to other language pronunciations. As Mesthrie (2009) illustrated with "-ing" pronunciation, girls try to adapt and follow instructions, completing daily homework carefully to receive positive feedback. However, strong hesitation sometimes prevents girls from grasping the main task idea or managing time. Boys do not think as deeply, perform tasks as they understand them without avoiding mistakes, and achieve realistic results.

To avoid this situation, I instruct students not to be afraid of making mistakes. For female students, sharp corrections are avoided by using the "hamburger method" (mentioning good results first, adding minor mistakes, and encouraging self-correction).

3. Sociolinguistic Context of Future Language Use

Grade 10 students are preparing to enter university, requiring standard English and accent comprehension. As Kachru (1990) notes, English is a vital tool for social change (p. 5). While school students adapt to each other over long-term study, university life brings exposure to different nationalities and regions. Academic English allows them to understand each other before making friends, after which natural behavior and regional accents emerge

without shame. As Tirvassen (2018) states, static vision based on segregation ignores fusion and creolization in shaping identity (p. 3).

4. Pedagogical Implications

- Communicative Language Teaching (CLT): CLT improves speaking skills by using language in real communication rather than learning rules by heart (Van Booven, 2018, p. 1). Short authentic articles are discussed in pairs. Female students prefer same-sex pairs with correct rule-based pronunciation, whereas boys prefer Task-Based Practice and problem-solving. During discussions, Zone of Proximal Development (ZPD) occurs as lower-level students improve through higher-level peers' support.
- Task-Based Learning (TBL): Used in computer-based speaking or picture description. Well-educated students excel confidently, whereas working-class students face gadget discomfort. Pairing students across origin groups ensures equal participation.
- Authentic Materials: BBC 6 Minute English improves listening speed, broadens background knowledge on social/economic/environmental topics, and helps structure academic speech. It aligns with Deumert's (2011) findings on balancing grammar, lexicon, and pronunciation (pp. 264–265).
- CLIL Method: Direct physical participation (e.g., a "cooking competition" lesson) engages boys strongly. When instructions were read academically by girls, their peers struggled to catch the main aim on time. When a boy read instructions loudly in vernacular style, the other boys completed the task correctly according to rules.

SOCIOLINGUISTIC PROFILE MATRIX	
Gender Dynamics	Socioeconomic Background
Females: Near-native pronunciation, rule-following, higher task hesitation.	Well-educated Families: High home tools, private study, high results.
Males: L1-influenced vernacular accent, risk-taking, practical task completion.	Working-class Families: Lack of home gadgets, reliance on school time

Assessment Implications

Assessment must avoid essentialism regarding students' originality, ethnicity, or socioeconomic status. As Romaine (2009) exclaims, poverty is socially specific (p. 51). Differing home environments should never lead to unfair assessment. We should not assess strictly under rubric rules, but encourage students to become independent users. Interactional resources (e.g., "yeah," "okay," assessments, adjacency pairs) maintain talk flow (Van Booven, 2018, p. 4).

For daily classroom tasks, holistic and formative assessment is suitable. Giving feedback together allows error correction without hurting feelings. Girls

are sensitive to feedback before boys, whereas boys remain calm about mistakes due to traditional dominant mindsets. Formative marking during daily tasks prevents hurting self-esteem.

In CLIL and CLT tasks, gender equality appears naturally as students protect their partners during pair work. Scaffolding through ZPD allows lower-level students to learn from peers unconsciously.

For external exam preparation (CEFR or IELTS), analytic assessment is required to identify specific task requests. Practice includes multiple-choice questions, matching headings, and note-taking in listening/reading. Low-level students receive model answers and fewer questions (3–4), while high-level students handle more questions (10+) independently to prevent negative washback. Authentic materials prepare learners for different accents and speech speeds without social factor barriers.

Conclusion/Recommendations

Conclusion: In the modern world, teachers must consider all fields of a learner's origin, needs, gender, geographical location, socioeconomic situation, and family conditions. Learning environments should lead all students toward shared goals without social positioning barriers.

As Fought (2011) exclaims, studying language and ethnicity illuminates how language construct's identity (p. 239). Teachers play the main role in maintaining equality, eliminating artificial language borders, and fostering mutual respect. As Nuessel (2010) remarks, language belongs to various speech communities for interaction (p. 124). Language is not isolated to one ideal society; any accent or version that enables communication is valid.

Recommendations:

1. Formative Feedback: Use the "hamburger method" to correct errors constructively without causing anxiety, especially for female learners.
2. Gender-Equal Classroom Management: In debating tasks where boys dominate, use three-color stickers (Red = polite/standard speech; Blue = boys' turn; Green = girls' turn) to ensure equal turns.
3. Equitable Grouping: Pair students across different socioeconomic backgrounds and skill levels during computer-based (TBL) tasks to provide scaffolding and equal gadget access.
4. Analytic Rubrics for Exams: Implement analytic rubrics and authentic audio materials (BBC) to prepare all learners for external CEFR/IELTS requirements regardless of background.

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MAHALLIY DAVLAT HOKIMIYAT ORGANLARI FAOLIYATINI TASHKIL ETISHNING YURIDIK TABIATI

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Annotatsiya. *Ushbu maqolada mahalliy davlat hokimiyat organlari faoliyatini tashkil etishning yuridik tabiati, uning konstitutsiyaviy-huquqiy asoslari hamda davlat boshqaruvi tizimidagi o'rni tahlil qilingan. Mahalliy davlat hokimiyati organlarining vakolatlari, faoliyatini tashkil etishning huquqiy jihatlari, siyosiy partiyalarning mahalliy vakillik organlari faoliyatidagi ishtiroki va ularning davlat boshqaruvini demokratlashtirishdagi ahamiyati yoritilgan. Shuningdek, mahalliy davlat hokimiyati sohasidagi milliy va xorijiy tajriba tahlil qilinib, mavjud muammolar hamda ularni bartaraf etish bo'yicha takliflar bayon etilgan.*

Kalit so'zlar: *mahalliy davlat hokimiyati, davlat boshqaruvi, mahalliy hokimiyat organlari, yuridik tabiat, huquqiy asoslar, siyosiy partiyalar, xalq deputatlari Kengashlari, vakillik organlari, saylov, demokratlashtirish, fuqarolik jamiyati, davlat hokimiyati.*

Abstract. *This article examines the legal nature of organizing the activities of local state authorities, their constitutional and legal foundations, and their role in the public administration system. Particular attention is paid to the powers of local state authorities, the legal aspects of organizing their activities, and the participation of political parties in local representative bodies. The article also analyzes the role of political parties in democratizing public administration, as well as national and foreign experience in the field of local governance. Existing challenges are identified, and proposals for improving the legal and institutional framework of local state authorities are presented.*

Keywords: *local state authorities, public administration, local government bodies, legal nature, legal foundations, political parties, representative bodies, Councils of People's Deputies, elections, democratization, civil society, state authority.*

Bugungi kunda mahalliy davlat hokimiyatini takomillashtirish borasida jiddiy islohotlar amalga oshirilmoqda. Bu borada mahalliy davlat hokimiyat

organlari faoliyatini tashkil etish alohida o‘rin tutadi. Jamiyat hayotida bo‘layotgan global o‘zgarishlar va inson huquqlari va erkinliklarini ta’minlash borasidagi muammolarni tobora chuqurlashib borishi turli xil siyosiy mafkuralarga ega bo‘lgan siyosiy partiyalar oldiga yangi-yangi vazifalarni qo‘ymoqda. Siyosiy partiyalarning davlat hokimiyatida, ayniqsa, uning mahalliy organlaridagi ishtirokini tashkil etishga oid xorijiy tajriba va bu borada dunyo ijtimoiy fanlarida shakllangan huquqiy g‘oyalar hamda xalqaro huquq normalaridagi qoidalar asosida mamlakatimizda ushbu sohadagi qonunchilikni takomillashtirish bugungi kundagi dolzarb masalalardan biridir.

O‘zbekiston Respublikasi Konstitutsiyasida mahalliy miqyosda boshqaruvni tashkil etishga o‘ziga xos tarzda yondashilgan, MDH va boshqa sobiq ittifoqdosh respublikalar konstitutsiyalaridan farq qilib, O‘zbekiston Konstitutsiyasida mahalliy davlat hokimiyati organlari tizimi alohida, fuqarolarning o‘zini o‘zi boshqarish organlarining tizimi alohida belgilandi. O‘zbekistondan boshqa davlatlarning konstitutsiyalarida mahalliy davlat hokimiyati degan tushuncha ishlatilmagan. Jumladan, Belorussiya Konstitutsiyasida “Mahalliy boshqaruv va o‘zini o‘zi boshqaruv”, Qozog‘iston Konstitutsiyasida “Davlatning hududiy tuzilishi va o‘zini o‘zi boshqaruv”, Qirg‘iziston, Rossiya va Estoniya Konstitutsiyalarida “Mahalliy boshqaruv”, Turkmaniston Konstitutsiyasida “Mahalliy ijro hokimiyati” alohida bobda, “Mahalliy boshqaruv” alohida bobda berilgan. Demak, mamlakatimiz mazkur sohada boshqaruvning o‘ziga xos yo‘lini tanlagan.

Mahalliy davlat hokimiyat organlari faoliyatini tashkil etishda fuqarolik jamiyati institutlarining o‘rni katta. Bu borada siyosiy partiyalar alohida o‘rin tutadi.

Ayrim mamlakatlarda mahalliy hokimiyat organlarining faoliyati milliy saylov jarayoni bilan bevosita bog‘liq. Jumladan, Isroilda mahalliy va markaziy hokimiyat organlari o‘rtasidagi munosabatlarning xarakteri aynan saylov natijalari bilan bog‘liq holda ko‘rib chiqiladi.[2]

Mamlakatimizda “Davlat boshqaruvini yangilash va yanada demokratlashtirish hamda mamlakatni modernizatsiya qilishda siyosiy partiyalarning rolini kuchaytirish to‘g‘risida”gi Konstitutsiyaviy qonun davlat va jamiyat hayotida, davlat qurilishida muhim islohotlar davrini boshlab berdi. Ushbu qonun asosida muhim islohotlarni amalga oshirishga asos bo‘ldi. Viloyat va Toshkent shahar hokimi nomzodlari O‘zbekiston Respublikasi Prezidenti tomonidan tegishli xalq deputatlari Kengashlaridagi partiya guruhlarining har biri bilan maslahatlashuvlar o‘tkazilganidan so‘ng xalq deputatlari viloyat va Toshkent shahar Kengashiga tasdiqlash uchun taqdim etilishi belgilandi. Tegishli xalq deputatlari Kengashi deputatlari umumiy sonining ko‘pchilik ovozini olgan viloyat va Toshkent shahar hokimi nomzodi tasdiqlangan hisoblanadi.

E.S.Shugrina mahalliy davlat hokimiyat organlarining asosiy xususiyatlari sifatida quyidagilarni ta’kidlaydi:

Birinchidan, mahalliy davlat hokimiyati – Konstitutsiya doirasida belgilangan davlat hokimiyati hisoblanadi;

Ikkinchidan, mahalliy miqyosda davlat hokimiyatini amalga oshiradi;

Uchinchidan, mahalliy davlat hokimiyat organlari budjeti, munitsipal shaklda mustaqil moddiy va moliyaviy asosga ega.[3]

A.Yangibayevning fikricha, siyosiy partiyalar faoliyati “Siyosiy partiyalar to‘g‘risida”gi Qonun va boshqa qonun hujjatlari qabul qilinganidan so‘ng huquqiy zamin kasb etdi. Bu siyosiy partiyalarning huquqiy maqomida jiddiy o‘zgarishlar yuz berishiga sabab bo‘ldi.[4]

Xorijiy mamlakatlarda siyosiy partiyalarning o‘rni ularni davlat hokimiyatini shakllantirishdagi o‘rni bilan izohlanadi. Tarixiy nuqtai nazardan partiyalarsiz siyosiy hokimiyatni shakllantirishning biron-bir vositasi o‘ylab topilmagan. Partiyalarning eng muhim funksiyalaridan biri o‘z a’zolari va ijtimoiy qatlamning manfaatlarini ifodalash, balki ularning o‘z manfaatlarini anglash darajasiga erishishiga ham ko‘maklashishdir.

Hali demokratik jamiyatda yashab ko‘rmagan, uzoq davrlar totalitar tuzum zulmi ostida bo‘lgan xalqlarda milliy, iqtisodiy va siyosiy manfaatlar namoyon bo‘lishi mumkin, lekin tashkillashgan siyosiy ijtimoiylashuv jarayonlarisiz ularning siyosiy manfaatlarining shakllanishi qiyin kechadi. Buning asosiy sababi shundaki, insonning siyosiy ongi va qarashlari faqat uning guruhiy tashkilotlarda faol ishtiroki natijasi o‘laroq shakllanishi mumkin. Binobarin, siyosiy ongi yetarli darajada shakllanmagan insonda biron-bir partiyada ishtirok etish uchun ehtiyojning o‘zi yo‘q. Ko‘rinib turibdiki, mamlakatdagi partiyalarning boshlang‘ich tashkilotlari yoki vakillari fuqarolarning yashash va ishlash joylarida faoliyat ko‘rsatmasa, saylovchilar dunyoqarashiga ta’sir eta olmasa, partiyalar o‘z vakolatlarini hayotga tatbiq eta olmaydilar.

2014-yilda bo‘lib o‘tgan saylov natijalari bo‘yicha tuman, shahar, viloyat, Toshkent shahar xalq deputatlari Kengashlari va Qoraqalpog‘iston Respublikasi Jo‘qorg‘i Kengesi deputatlarining 2250 nafari O‘zLiDeP, 2300 nafari – O‘zXDP, 1077 tasi – Milliy tiklanish DP va 431 tasi – Adolat SDP vakillari hisoblanadi.

2017-yil 24-dekabr kuni Toshkent shahar xalq deputatlari tuman Kengashlariga o‘tkazilgan saylov natijalariga ko‘ra siyosiy partiyalardan jami 278 (84,2 foiz) nafar deputat va fuqarolarning o‘zini o‘zi boshqarish organlari tomonidan esa 52 (15,8 foiz) nafar nomzod deputatlik o‘rinlarini egallagan.[4]

Ayni paytda davlatimiz rahbari Sh.M.Mirziyoyev alohida ta’kidlab o‘tganlaridek, “siyosiy partiyalar hokimiyat uchun kurashish huquqiga ega. Lekin shunga qaramasdan, ular o‘rtasida raqobat, fikrlar, pozitsiyalar xilma-xilligi mutlaqo sezilmayapti”.[1]

Mahalliy davlat hokimiyat organlari faoliyatini tashkil etish siyosiy partiyalar faoliyati bilan bog‘liq bo‘lib, zamonaviy rus munitsipalitetining asoschilaridan biri V.I. Fadeev mahalliy hokimiyat organlari faoliyatini tashkil

etish alohida protsessual tartib bo‘lib, vakillik va ijro organi nuqtai nazardan alohida xususiyatga ega hisoblanadi.

Partiyalarning ommaviylashmaganligi, saylovchilar orasida yetarli darajada obro‘-e’tibor qozonmayotganligining asosiy sabablari sifatida quyidagilarni ko‘rsatib o‘tiladi:

1. partiyalar siyosiy mafkurasining yetarli darajada shakllanmaganligi;

2. partiyalar matbuotidagi siyosiy qiyofaning noaniqligi, respublika va jahonda sodir bo‘layotgan voqealarning O‘zbekiston nuqtai nazaridan yetarli darajada sharhlanmayotganligi, partiyalarning fuqarolar siyosiy madaniyatini shakllantirishga kam e’tibor qaratayotganligi;

3. O‘zbekiston fuqarolari o‘zlarining siyosiy huquqlarini yetarlicha anglab yetmaganliklari, siyosiy faollikning yetishmasligi;

4. partiya, fuqarolarning siyosiy huquqlarini amalga oshirishga ko‘mak beruvchi fanning zamon talab va ehtiyojlaridan orqada qolayotganligi va boshqalar”.[5]

Yuqoridagi muammolarni hal qilishda siyosiy partiyalar faoliyatini kuchaytirish va mahalliy vakillik organlarning faoliyatini tashkil etishda ishtirokini tubdan takomillashtirish lozim.

Shunday qilib, mamlakatimizda faoliyat yuritayotgan beshta siyosiy partiya o‘rtasida kechayotgan raqobat hamda ularning davlat va jamiyat ishlarini boshqarishdagi ishtiroki bilan bog‘liq faoliyatini tahlil qilish shuni ko‘rsatadiki, bugungi kunda tez sur’atlarda rivojlanib borayotgan ijtimoiy voqelik bilan hamqadam, zarur bo‘lsa strategik istiqbolni ko‘ra olish va shu asosda o‘zlarining dasturiy vazifalarini belgilashda siyosiy partiyalar tomonidan hali ko‘p ishlarni amalga oshirish zarur.

Xulosa qilib aytganda, mahalliy davlat hokimiyat organlari faoliyatini tashkil etishning yuridik tabiati O‘zbekiston Respublikasining Konstitutsiyasi, konstitutsiyaviy qonunlari hamda mahalliy davlat hokimiyati to‘g‘risidagi

qonunchilik normalari bilan belgilanadi. Ushbu organlar davlat hokimiyatining hududiy bo‘g‘ini sifatida vakillik va ijro etuvchi funksiyalarni amalga oshirib, hududlarni ijtimoiy-iqtisodiy rivojlantirish, fuqarolarning huquq va manfaatlarini ta’minlash hamda davlat siyosatini joylarda ro‘yobga chiqarishda muhim o‘rin egallaydi.

Shuningdek, mahalliy hokimiyat organlari faoliyatining samaradorligi siyosiy partiyalarning vakillik organlaridagi ishtiroki, demokratik saylovlar, ochiqlik va jamoatchilik nazorati bilan chambarchas bog‘liqdir. Xorijiy tajriba shuni ko‘rsatadiki, mahalliy boshqaruvning huquqiy asoslarini takomillashtirish hamda siyosiy raqobatni kuchaytirish boshqaruv sifatini oshirishning muhim omillaridan hisoblanadi. Shu bois O‘zbekistonda mahalliy davlat hokimiyati tizimini yanada demokratlashtirish, vakillik organlarining mustaqilligini mustahkamlash va ularning huquqiy maqomini takomillashtirish ushbu sohadagi islohotlarning ustuvor yo‘nalishlaridan biri bo‘lib qoladi.

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SIMILARITIES OF ADJECTIVE FORMING MODELS IN PERSIAN AND UZBEK

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A Comparative Derivational Analysis

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Abstract. *This study identifies the genuinely comparable adjective-forming models of modern Persian and Uzbek and separates three phenomena that are often conflated in descriptive accounts: formal-semantic correspondence, functional equivalence with different exponents, and constructional parallelism. The material is a controlled inventory of 60 adjectival formations (30 Persian and 30 Uzbek) organized into ten model correspondences. Examples were selected from the derivational descriptions of L. S. Peisikov, A. Hojiyev, and Sh. Rahmatullayev and checked against Persian textbooks and reference works by M. Abdusamatov, A. Quronbekov, A. Vohidov, T. Ziyayeva, E. L. Gladkova, and V. B. Ivanov; O. M. Sotova's account of modern Persian term formation was used to test the boundary between affixation, semi-affixation, and compounding. The analysis shows that six of the ten correspondences contain visible formal overlap, chiefly because= Persian or Persian-mediated formatives have entered Uzbek (-dor, -mand, -nok, -ona, -kor, be-, no-, ser-, kam-, and xush-). Two correspondences preserve the same semantic operation through different morphology, most clearly Persian N + -i versus Uzbek N + -li/-iy/-viy. The remaining two are constructional parallels: participial adjectivization and compound/semi-affixal adjective formation. The findings demonstrate that shared forms do not entail equal productivity. In Uzbek, -li is the central native possessive-characterizing suffix, whereas several Persian-origin markers are restricted or stylistically marked; by contrast, Persian maintains a broader semi-affixal continuum. The article therefore treats contact as the main source of formal similarity and typological convergence as the main source of non-formal similarity.*

Keywords: *Persian; Uzbek; adjective formation; derivational model; affixation; semi-affixation; language contact; productivity*

1. Introduction

Persian and Uzbek are genealogically unrelated: Persian belongs to the Iranian branch of Indo-European, whereas Uzbek is a Southeastern Turkic language. Their adjective-forming systems nevertheless display recurrent similarities at the level of both form and meaning. Some are immediately visible in pairs such as Persian *ma'nadar* 'meaningful' and Uzbek *ma'nodor*, Persian *dustane* 'friendly' and Uzbek *do'stona*, or Persian *bi-xabar* and Uzbek *bexabar* 'unaware'. Other similarities are functional rather than segmental: Persian relational *-i* and Uzbek *-li* frequently convert a nominal base into an attributive property, although they differ in distribution and semantic scope. A third group is constructional: participles and compound structures can function adjectivally in both languages without sharing the same affix.

These facts create a methodological problem. A list of parallel-looking suffixes is not yet a comparative analysis. A defensible comparison must establish (i) the category of the base, (ii) the structural operation applied to it, (iii) the semantic relation contributed by the derivational element, (iv) the output's adjectival status, and (v) the synchronic productivity of the model. Peisikov's account is particularly important because it treats the Persian derivative as a relation between a producing base, a formative, and a recurrent model rather than as an accidental sequence of morphemes. It also distinguishes affixation from semi-affixation, transposition, and compounding. Hojiyev applies an equally strict synchronic criterion to Uzbek and argues that adjective formation is dominated by affixation, while the status of many allegedly compound formations must be reconsidered [Hojiyev 2007: 110].

The historical setting makes such distinctions essential. Persian was a major literary, administrative, and urban language across Central Asia, while successive Turkic written traditions developed in sustained contact with Persian and Tajik. Borrowed lexical material therefore includes not only whole words but also recurring bound or semi-bound elements. Contact linguistics

predicts precisely this layered outcome: high-frequency lexical borrowing may be followed by the replication or integration of derivational patterns, but integration does not guarantee that the borrowed element will retain its source-language valency or productivity. The comparison must consequently avoid two opposite errors: treating every common morpheme as an independent typological coincidence, and treating every similar semantic pattern as a direct borrowing [Thomason and Kaufman 1988: 35].

Existing pedagogical descriptions provide a reliable empirical starting point. Quronbekov, Vohidov, and Ziyayeva systematize the adjective and its formation for Uzbek-speaking learners of Persian, including relative adjectives and recurring derivational elements. Abdusamatov likewise presents Persian adjective classes, degrees, and relative-adjective formation in a university textbook written for the same educational tradition. Gladkova's and Ivanov's teaching grammars supply an independent Russian-language control on the classification and use of Persian adjectives. For newer specialized vocabulary, Sotova demonstrates that modern Persian term formation continues to use affixation, semi-affixation, compounding, transposition, lexicalization, and multiword naming; these categories prevent productive technical formations from being forced into a single 'suffixation' class [Quronbekov, Vohidov, and Ziyayeva 2006].

On the Uzbek side, Rahmatullayev's system-based description is crucial because it explicitly separates a derivational base from the lexeme-forming affix and shows that Persian-Tajik prefixes such as *be-*, *no-*, and *ser-* have become analyzable in Uzbek [Rahmatullayev 2006:31]. Their ability to attach to Uzbek bases - as in *bebosh*, *notanish*, and *serqatnov* - is stronger evidence of morphological integration than the mere presence of inherited loanwords. Hojiyev's detailed inventory adds productivity judgments and semantic restrictions for *-li*, *-dor*, *ser-*, *-chan*, *-siz*, *-iy/-viy*, and related formatives [Hojiyev 2007:110].

The study addresses three questions. First, which Persian and Uzbek adjective-forming patterns instantiate the same base-to-output relation? Second, which similarities are best explained by contact-induced formal overlap and which by typological convergence? Third, where does equivalent surface structure conceal different synchronic status or productivity? The working hypothesis is that contact accounts for most visible morphemic correspondences, while possession, privation, relation, resemblance, and event-based attribution recur cross-linguistically even when the exponents differ. The expected result is therefore a layered system rather than a one-to-one list of equivalent suffixes.

2. Materials and Methods

2.1. Source base and data selection

The core Persian source is Peisikov's derivational monograph, whose affixation chapter separately discusses the valency of *-ane*, *-agin/-gin*, *-in*, *-nak*, and relational *-i*, followed by chapters on semi-affixation, transposition, and compounding. Pedagogical examples and category labels were cross-checked in the textbooks of Quronbekov, Vohidov, and Ziyayeva; Abdusamatov; and Gladkova and Ivanov. Sotova was used only where the analysis required evidence about the productive boundary between affixes, semi-affixes, compounds, and lexicalized term-forming patterns.

The core Uzbek sources are Hojiyev's synchronic word-formation study and Rahmatullayev's university grammar. Hojiyev supplies both the most detailed semantic subclassification and explicit productivity judgments. Rahmatullayev supplies the structural test for a derived lexeme and direct evidence that originally Persian-Tajik preposed elements can select Uzbek bases. Sjoberg's structural grammar and general descriptions by Lazard, Rubinchik, and Windfuhr and Perry were used as controls for category boundaries, not as substitutes for the named primary descriptions.

The analytical sample contains 60 lexeme types or conventional attributive units: 30 Persian and 30 Uzbek forms. Ten correspondences were defined in advance from the intersection of the two descriptive inventories, and three examples per language were assigned to each correspondence. This is a balanced model sample, not a token-frequency corpus. It supports statements about attested structural and semantic correspondences, but it does not support population estimates such as 'x percent of all Persian adjectives'. Forms were included only when the cited descriptions or standard grammatical diagnostics permit adjectival use: attributive modification, predicative property attribution, degree modification where semantically possible, or stable classification as a relational adjective.

2.2. Analytical procedure

Each item was coded by the template Base + Formative -> Output, with four additional variables: source category (noun, adjective, verb, phrase, or compound member), semantic operation, synchronic status, and correspondence type. 'Formal-semantic correspondence' was assigned when the two languages display recognizably cognate or borrowed formatives with comparable functions. 'Functional equivalence' was assigned when the same semantic derivation is realized by different markers. 'Constructional parallel' was assigned when both languages create adjectival expressions by the same higher-order operation, such as participial attribution, but the material exponents are unrelated.

Productivity was not inferred from the number of examples in the balanced sample. It was coded from explicit source judgments and from the documented capacity of a formative to combine with new or native bases. This distinction is necessary because frequency, type productivity, and analyzability are not identical. Hojiyev, for example, treats affixation as the main productive method of Uzbek adjective formation and lists nearly fifty historical or synchronic

formatives, but he separates currently productive markers from those preserved only in established derivatives. The same caution applies to Persian: Peisikov's treatment of valency shows that a suffix may be segmentable yet selective in the bases and meanings it licenses [Hojiyev 2007:111].

Persian examples are presented in Persian script, scientific transliteration without diacritics that are unnecessary for the contrast, and an English gloss. Uzbek examples use the current Latin alphabet. Hyphens indicate analytical morpheme boundaries, not necessarily standard orthographic practice. Polyfunctional forms were classified according to their use in the cited model: for instance, *ijodkor* can denote a person as a noun or qualify activity and style as an adjective. Such cases were retained because categorial flexibility is itself part of the Persian-Uzbek comparison.

3. Results

3.1. Comparative model inventory

The ten correspondences fall into three groups. Six contain visible formal-semantic overlap; two preserve a common semantic operation through different morphology; and two are constructional parallels. The proportions (6:2:2) describe this deliberately balanced inventory and must not be read as corpus frequencies. Table 1 presents the evidence used for classification.

Table 1. Comparative inventory of adjective-forming correspondences

Semantic model	Persian evidence	Uzbek evidence	Classification
Relational / attributive	N + -i ایرانی irani 'Iranian'; دانشگاهی daneshgahi 'university-related'; سنگی sangi 'stony'	N + -iy/-viy/-li ilmiy 'scientific'; oilaviy 'familial'; toshli 'stony/with stone'	Functional equivalence

Semantic model	Persian evidence	Uzbek evidence	Classification
Possession / characterization	N + -dar پولدار puldar 'wealthy'; معنیدار ma'nadar 'meaningful'; دامنهدار damanedar 'extensive'	N + -dor/-li hosildor 'high-yielding'; mazmundor 'content-rich'; bolali 'with a child'	Formal overlap + native equivalent
Possessive / stative	N + -mand هنرمند honarmand 'skilled'; دانشمند daneshmand 'learned'; نیازمند niyazmand 'needy'	N + -mand davlatmand 'wealthy'; orzumand 'desirous'; kasalmand 'sickly'	Formal-semantic correspondence
Privation / negation	bi-/na- + base بیخبر bi-xabar 'unaware'; ناامید na-omid 'hopeless'; بیخطر bi-xatar 'safe'	be-/no- + base; N + -siz bexabar 'unaware'; noumid 'hopeless'; suvsiz 'waterless'	Formal overlap + functional equivalent
Abundance / scarcity	por-/kam- + base پرکار por-kar 'hard-working'; پرمعنا por-ma'na 'meaningful'; کمآب kam-ab 'water-poor'	ser-/kam- + base serhosil 'high-yielding'; sermazmun 'content-rich'; kamgap 'taciturn'	Functional equivalence with contact elements
Manner / resemblance	N + -ane دوستانه dustane 'friendly'; مردانه mardane 'manly'; کودکانه kudakane 'childlike'	N + -ona/-cha do'stona 'friendly'; mardona 'manly'; bolalarcha 'childlike'	Formal-semantic correspondence
Agentive / behavioral	N + -kar/-gar ستمکار setamkar 'oppressive'; گناهکار gonahkar 'guilty'; حیلهگر hilegar 'cunning'	N + -kor/-gar fidokor 'self-sacrificing'; ijodkor 'creative'; hiylagar 'cunning'	Formal-semantic correspondence

Semantic model	Persian evidence	Uzbek evidence	Classification
Affected / evaluative	N + -nak/-gin خطرناک xatarnak 'dangerous'; دردناک dardnak 'painful'; غمگین ghamgin 'sad'	N + -nok/-gin xavfnok 'dangerous'; dardnok 'painful'; g'amgin 'sad'	Formal-semantic correspondence; restricted in Uzbek
Event-based property	V-based participle بسته baste 'closed'; سوزان suzan 'burning'; آینده ayande 'coming/future'	V-based participle yopilgan 'closed'; yonayotgan 'burning'; keladigan 'coming'	Constructional parallel
Compound / semi-affixal	X + lexical or semi-affixal member خودبین xodbin 'conceited'; دلسوز del-suz 'compassionate'; میهنپرست mihan-parast 'patriotic'	X + lexical/bound member xudbin 'conceited'; jonkuyar 'devoted'; vatanparvar 'patriotic'	Constructional parallel + contact

3.2. The central nominal-to-adjectival correspondences

The strongest cross-language convergence is the conversion of a nominal concept into a property. Persian relational *-i* attaches to nominal bases and expresses origin, domain, material, or general association. Uzbek divides this semantic space among native *-li*, learned *-iy/-viy*, zero-marked attributive nouns, and phrasal strategies. The match is therefore a correspondence between operations, not a simple suffix equation. Persian *sangi* and Uzbek *toshli* can both denote a stone-related or stony property, but Uzbek *-li* additionally encodes possession ('having X'), while Persian *-i* has a broader relational function. Peisikov's decision to treat *-i* through its valency rather than a single gloss is therefore essential.

Hojiyev identifies *-li* as one of the most productive Uzbek adjective-forming affixes and shows that it selects concrete and abstract nouns: *shoxli*, *tikanli*, *baxtli*, *iste'dodli*. Its derivatives can participate in adjectival degree constructions and can themselves form abstract nouns in *-lik*, diagnostics that distinguish many lexical adjectives from a merely inflected noun. Persian *-dar* and Uzbek *-dor* overlap more visibly, especially in the meaning 'characterized by a salient or abundant X'. Yet Uzbek often contrasts *-dor* with neutral *-li*: *gulli* means 'having flowers', whereas *guldor* tends toward 'richly flowered'. Hojiyev explicitly links *-dor* to an excess or high-degree component, which prevents unrestricted substitution with *-li* [Hojiyev 2007:117].

The learned relational suffix *-iy/-viy* is another case where diachrony and synchrony diverge. Many Uzbek forms entered with Arabic or Persian learned vocabulary, but Hojiyev argues that the suffix became synchronically available for adjective formation in Uzbek, initially on Arabic bases and then in formations whose existence cannot be explained as direct Arabic loans. Forms such as *hayotiy* and *oilaviy* therefore belong to an integrated Uzbek derivational model even though the material source is non-Turkic. This is a clearer case of morphological borrowing than a fixed lexical item because the recurrent formative participates in new base-formative relations. [Hojiyev 2007:137].

3.3. Shared contact formatives and differences in productivity

The shared series *-mand*, *-nok/-nak*, *-ona/-ane*, *-kor/-kar*, and the prefixes *be-/bi-*, *no-/na-*, *kam-*, and *xush-* supplies the most visible evidence of Persian-Uzbek contact. Nevertheless, the series is internally heterogeneous. Uzbek *-ona* remains transparent in formations such as *do'stona* and *mardona*; *-kor* readily participates in person-characterizing and activity-characterizing formations such as *ijodkor*. By contrast, *-mand*, *-nok*, and *-gin* are more lexically restricted and often associated with literary or learned vocabulary. Their presence proves

formal-semantic continuity, but not equal availability for unrestricted new coinages.

The preposed markers provide a stronger integration test. Rahmatullayev notes that Persian-Tajik *be-*, *no-*, and *ser-* occur not only in borrowed words but also before Uzbek bases, including *bebosh*, *betinim*, *notanish*, *notinch*, *noo'rin*, *serajin*, and *serqatnov*. Hojiyev reaches the same conclusion for *ser-* from a productivity perspective: although its type frequency is lower than that of *-li*, it can still create new adjectives and has therefore become an Uzbek word-former rather than remaining an unanalyzed foreign fragment. The semantic content 'abundant in X' is stable, while the set of admissible bases and the stylistic value are language-specific.

Privation illustrates a mixed strategy. Persian commonly uses *bi-* and *na-*; Uzbek uses the cognate borrowed prefixes *be-* and *no-* but also relies heavily on native *-siz*. Thus Persian *bi-xabar* and Uzbek *bexabar* align both formally and semantically, whereas Persian *bi-ab* and Uzbek *suvsiz* align only at the level of the semantic operation 'without X'. A comparative model must record both relations. If only shared segments are counted, the productive Uzbek suffix *-siz* disappears from the analysis; if only meanings are counted, the historical contact encoded in *bexabar* and *noumid* disappears.

3.4. Constructional parallels

Participial adjectivization is the clearest constructional parallel. Persian past and present participial forms can modify a noun or acquire lexical adjective meanings, as in *baste* 'closed', *suzan* 'burning', and *ayande* 'coming; future'. Uzbek participles in *-gan*, *-(a)yotgan*, and *-adigan* likewise form attributive properties. In neither language should every attributive participle be counted automatically as a derived adjective: the decisive issue is lexicalization and the degree to which verbal argument structure remains active. The textbooks of Abdusamatov, Quronbekov and colleagues, and Gladkova and Ivanov

consistently treat these forms at the verb-adjective interface rather than collapsing them into ordinary denominal adjectives.

Compounding is more problematic. Persian descriptions recognize a broad continuum from transparent compounds to semi-affixal formations whose second member retains a lexical source but functions recurrently, for example *-bin* 'seeing; disposed to view', *-suz* 'burning; caring', and *-parast* 'worshipping; devoted to'. Peisikov assigns this continuum dedicated treatments under semi-affixation and compounding. Uzbek contains many structurally comparable adjectives, including direct loans, hybrid formations, and native compounds. However, Hojiyev rejects 'composition' as a general synchronic word-formation method for Uzbek and argues that many putative compounds are phrases, lexicalizations, or occasional formations rather than products of a live word-combining rule. Consequently, the final row of Table 1 is a constructional correspondence, not proof that the two languages share an identical derivational mechanism.

4. Discussion

4.1. Contact explains form; typology explains recurrent meanings

The results support a two-source explanation. Formal overlap is concentrated in precisely those elements that belong to the historical Persianate layer of Uzbek vocabulary: *-dor*, *-mand*, *-nok*, *-ona*, *-kor*, *be-*, *no-*, *ser-*, *kam-*, and *xush-*. Their integration forms a cline. At one end are unanalyzed loans. In the middle are transparent but selective formatives such as *-mand* and *-nok*. At the productive end are elements that combine with Uzbek bases or support new learned formations, notably *be-*, *no-*, *ser-*, *-kor*, *-dor*, and *-iy/-viy*. Borrowability is thus not a binary property of an affix; it is a history of increasing analyzability, base expansion, and paradigmatic opposition [Sarah G. Thomason and Terrence Kaufman 1988: 37].

The non-formal correspondences do not require borrowing. Languages need routine ways to express 'related to X', 'having X', 'without X', 'resembling X', 'disposed toward X', and 'participating in event X'. Persian and Uzbek often lexicalize these relations differently because Persian derivation operates in a largely suffixing/prefixing and semi-affixal system without Turkic-style agglutinative inflection, whereas Uzbek embeds adjective formation in a strongly suffixing Turkic morphology. Similar onomasiological needs can therefore yield functional convergence without shared material. This explains why Persian *-i* and Uzbek *-li* are close in many contexts but cannot be translated mechanically.

The distinction also improves etymological argumentation. A shared adjective such as *ghamgin/g'amgin* may be a whole-word borrowing and provides weak evidence that *-gin* is productive in Uzbek. By contrast, a novel combination of a Persian-origin marker with an Uzbek base provides stronger evidence for affix borrowing. General loanword typology likewise distinguishes copied words from copied patterns and emphasizes that recurrent segmentation in the recipient language is necessary before a foreign element can function as native morphology. The Uzbek evidence cited by Rahmatullayev and Hojiyev meets this stronger criterion for some prefixes, but not equally for every shared suffix.

4.2. Productivity is language-specific

The most important asymmetry is the role of Uzbek *-li*. It covers neutral possession, characteristic association, and numerous phrase-level attributive formations. Persian distributes corresponding meanings across *-i*, *-dar*, *-mand*, compound patterns, and syntactic constructions. Conversely, Persian has a dense set of suffixes and semi-affixes whose selectional restrictions are described in terms of valency, including *-ane*, *-gin*, *-in*, *-nak*, and *-i*. The result

is not a pair of matching inventories but two systems that intersect in recurrent semantic zones.

This finding argues against measuring productivity by dictionary counts alone. A historical suffix may occur in hundreds of established words and still be closed to new formations; a lower-frequency element may remain productive if speakers extend it to new bases. Bauer's distinction between realized productivity and the potential availability of a process is useful here. Hojiyev's analysis operationalizes the same principle in Uzbek: the *-gi* and *-ki* variants survive in many adjectives but are restricted by the absence of suitable new temporal or locative bases, while *ser-* has fewer types yet can still form new words. The comparative label 'productive equivalent' should therefore be used only when both source descriptions independently support current extensibility.

The formal pair *-dar/-dor* illustrates partial equivalence. Both characterize an entity through possession, but Uzbek *-dor* has developed contrasts with native *-li* and often encodes abundance or salience. Persian *-dar* participates in a broader compound-like network based on the lexical verb *dashtan* 'to have' and can form technical terms. The model is historically connected and synchronically comparable, yet its paradigmatic neighbors differ. The same caution applies to *-kar/-kor*, where noun-adjective polyfunctionality is common, and to *-ane/-ona*, where adverbial uses compete with adjectival ones.

4.3. The affix-compound boundary

The disagreement over compounding is not a terminological nuisance; it changes the comparison. Peisikov's framework treats Persian word formation as a set of distinct but adjacent operations and explicitly recognizes semi-affixes derived from verbal or nominal lexemes. Sotova's study of modern terminology confirms that affixation, semi-affixation, compounding, transposition, and lexicalization remain active and analytically separable in

contemporary Persian. Hojiyev, by contrast, denies that the mere presence of more than one lexical component proves formation by composition in Uzbek. A sequence may be a phrase, a lexicalized unit, or an occasional coinage.

For this reason, 'adjective-forming model' is defined here more broadly than 'productive derivational rule'. It denotes a recurrent mapping between a structural input and an adjectival meaning. The matrix can therefore compare Persian *mihan-parast* and Uzbek *vatanparvar* at the constructional level while still recording that their synchronic analyses are not identical. This solution preserves observable correspondence without overriding the theoretical commitments of the source grammars. It also prevents borrowed compounds such as *xudbin* from being counted twice - once as evidence of a Persian compound rule and again as evidence of an independently productive Uzbek rule.

4.4. Implications for comparative description and teaching

For comparative morphology, equivalence should be stated as a hierarchy. Level 1 is identical or historically related material with comparable meaning (*-dar/-dor*). Level 2 is integrated contact morphology with recipient-language base expansion (*ser-* + Uzbek noun). Level 3 is functional equivalence through different morphology (Persian *-i* versus Uzbek *-li*). Level 4 is constructional parallelism (participial attribution). This hierarchy makes the evidential basis of each claim explicit and prevents the term 'similarity' from masking different causal histories.

For teaching Persian to Uzbek speakers, the same hierarchy predicts errors. Direct positive transfer is possible in *bi-xabar/bexabar*, *dustane/do'stona*, and *xatarnak/xavfnok*. Partial transfer is risky with *-i*, because Uzbek learners may overgeneralize *-li* and produce a possessive reading where Persian requires a relational one. Negative and abundance models also require attention to register: an Uzbek Persian-origin formation may be literary, lexicalized, or less

productive than its Persian counterpart. Teaching materials should therefore present bases, semantic restrictions, and counterexamples, not isolated suffix-to-suffix translations.

The analysis has three limitations. First, the 60-item sample is model-balanced and does not measure running-text frequency. Second, the historical direction of individual forms may involve Tajik, Chagatai, Arabic, or later Russian mediation; formal resemblance alone cannot identify the exact transmission route. Third, adjectivehood is gradient in both languages because participles, nouns, and agent nouns can occupy attributive or predicative positions. A larger follow-up study should annotate balanced Persian and Uzbek corpora for base type, derivational marker, syntactic function, register, and date, then test whether the productivity rankings derived from the grammars predict neologism formation.

5. Conclusion

Persian and Uzbek adjective formation is similar in a structured but non-uniform way. The comparison identified ten recurrent correspondences: six with visible formal-semantic overlap, two with functional equivalence but different exponents, and two constructional parallels. The formal correspondences cluster in the Persianate layer of Uzbek and include *-dor*, *-mand*, *-nok*, *-ona*, *-kor*, and several preposed elements. Their synchronic status ranges from productive recipient-language morphology to restricted or lexicalized material. The strongest evidence of integration is not a shared loanword but a borrowed formative attaching to an Uzbek base.

The central functional convergence is nominal-to-adjectival characterization. Persian distributes it among relational *-i*, possessive *-dar/-mand*, and compound or semi-affixal patterns; Uzbek relies heavily on native *-li* and supplements it with *-dor*, *-iy/-viy*, prefixes, and phrasal constructions. Privation,

abundance, resemblance, and event-based properties likewise recur in both languages, but the division of labor among markers differs.

Accordingly, the shared Persian-Uzbek inventory should not be represented as a table of interchangeable suffixes. Contact explains why many forms resemble one another; typological recurrence explains why the same meanings appear even when form does not; and language-specific productivity explains why apparently equivalent markers behave differently. This three-part account is consistent with Peisikov's model-based treatment of Persian, Hojiyev's synchronic productivity analysis, Rahmatullayev's evidence for morphological integration, and Sotova's affix-to-compound continuum. It provides a stricter basis for further corpus research and for teaching derivational morphology to Uzbek-speaking learners of Persian.

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ON CERTAIN "WORD-IMAGES" ASSOCIATED WITH THE FIGURE OF THE MONARCH IN ALISHER NAVOI'S GHAZALS

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Abstract: *The article examines the character of the monarch in the ghazals of Alisher Navoi’s *Hazoyin ul-Maoniy* collection and its connection to various "word-images" (such as the people of the world, the base world, the seekers of status and wealth, the era, the crown and throne, and crowned rulers). It highlights how these word-images become inextricably linked with the monarch's persona, the royal milieu, and the essence of the prevailing order. Furthermore, the study focuses on instances where specific words or terms evolve into word-images within lines addressing socio-political themes.*

Keywords and phrases: *image of the ruler, socio-political issue, word-images, terminological words, interdependence, socio-political motifs.*

Annotatsiya: *Maqolada Alisher Navoiy “Hazoyin ul-maoniy” kulliyotidagi g‘azalarda shoh obrazining bir qator so‘z-obrazlar bilan aloqadorligi, xarakteri, asosan, shoh obraziga aloqador badiiy talqinlarda so‘z-obrazlar(daxr eli, daxri dun, joh eli, johu mol ahli, davron, toju taxt, tojvarlar va b)ning shoh obrazi, shoh va shohlik muhiti, hukmron tartib qoidalar mohiyati bilan uzviylashgani, ijtimoiy-siyosiy yo‘nalishdagi mavzu-mohiyat o‘rin olgan satrlarda ayrim bir so‘z yoki istilohlarning so‘z-obrazga aylanganiga e’tibor qaratiladi.*

Kalit so‘zlar va iboralar: *shoh obrazi, ijtimoiy-siyosiy masala, so‘z-obrazlar, so‘z-istilohlar, vobastalik, ijtimoiy-siyosiy motivlar.*

Аннотация: *В статье рассматривается образ монарха в газелях из сборника Алишера Навои «Хазоин ул-маоний» и его связь с различными словесными образами; анализируется, как конкретные образы (такие как современники, бренный мир, искатели чинов и богатства, эпоха, корона и трон, монархи) неразрывно связываются с фигурой правителя, придворным окружением и сущностью*

господствующего порядка; также отмечаются случаи, когда определенные слова или термины трансформируются в словесные образы в поэтических строках, затрагивающих общественно-политическую проблематику.

Ключевые слова и фразы: *образ правителя, общественно-политическая проблематика, словесные образы, терминологическая лексика, взаимозависимость, общественно-политические мотивы.*

Introduction. Examining the artistic interpretations of the figure of the monarch in the ghazals of Alisher Navoi's *Khazoyin ul-Maoniy* requires focusing on the connections between this figure and significant socio-political and moral-ethical motifs; in this context, the intrinsic link between the monarch figure and other frequently recurring images in the ghazals makes the study of these artistic interpretations particularly relevant.

Materials and Methods. Analyzing the distinctive features of the artistic interpretations of the monarch figure in Navoi's ghazals—specifically the relationship between the monarch and other figures—necessitates the use of scientific-analytical and descriptive methods to demonstrate that the concept of just governance and the just ruler—an ideal envisioned by the great poet—is one of the key socio-political motifs in his work.

Discussion and Results. Within the field of Navoi studies, there is existing research that offers scholarly insights into the aforementioned "word-images." Notably, Professor Abdurashid Abdug'afurov—a scholar specializing in the works of Ogahiy and Navoi—expresses the following views in his monograph *Satire in the Works of Navoi*: "...it is evident that in the poet's work, these terms (*daxr*, *falak*, *zamon*, *davron*, *charx*, *gardun*, etc. — emphasis added) are not merely vague, abstract concepts; rather, they have transformed into 'word-images' imbued with real meaning and substance, employed by Navoi in a figurative sense. Indeed, through these images (word-images — T.X.), the poet understood and articulated the era, the prevailing social reality, the political system, and the ruling order" 1. It is appropriate to add terms such as *joh eli* (people of status/power), *johu mol ahli* (people

of status and wealth), *vafo ahli* (people of loyalty), *toju taxt* (crown and throne), and *tojvarlar* (crown-bearers/rulers) to the list of "word-images" identified by the scholar in Alisher Navoi's ghazals.

Indeed, by observing the connection between the figure of the monarch and various word-images in Navoi's ghazals (such as "people of the age," "the base world," "people of power," "possessors of power and wealth," "the era," "crown and throne," "wearers of the crown," etc.), we see that the poet focused on the faithlessness of the times and its people within the social reality surrounding him; consequently, depictions linked to the monarch and the royal milieu evolved into distinctive word-images.

For instance, in ghazal No. 365 of the poet's *Favoid ul-Kibar* divan, one observes a hyperbolic expression of the anguish felt by a heart weary of the era's oppressions:

The age oppresses—as do the people of the age and the calamities of the age;

How often the oppressed heart falls captive to the tyrant.2

Navoi [addresses] the tyranny of the age, injustice, deceit, and the...

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1. A. Abdughafurov. *Satire in Navoi's Work*. – Tashkent, 1972, p. 210.

2. Alisher Navoi. *Complete Works* (MAT), 20 volumes, Vol. 6, "*Favoid ul-Kibar*," Tashkent, "Fan," p. 251.

Through a few evocative images—employing distinctive, unexpected similes and contrasts—he portrayed in poignant scenes just how tragic these acts of ruthless cruelty became. Navoi scholar Yo. Is'hoqov, reflecting on the ghazal verses that featured prominently in the poet's later period, specifically emphasized that the concepts frequently cited during this time—such as "the people of the age" (*dahr eli*) and "children of the era" (*abnoyi davron*)—encompassed even the king and his inner circle. In a number of other ghazals, while emphasizing—through the contrast between "power and wealth" and

"affection and loyalty"—that the possessors of status and riches are devoid of affection and loyalty, the poet (acting as the lyrical protagonist) reaches a striking conclusion:

The possessors of power and wealth know no affection or loyalty;

Thus, for me, affection and loyalty constitute my wealth and status.4

In his work on Navoi's eloquence, the scholar Botirxon Akramov offered compelling insights regarding the specific imagery and word choices in this couplet: "...underlying this thought, one can discern meanings of a miraculous spiritual wealth and an inviolable inner sovereignty—qualities like affection and loyalty that surpass the world's treasuries and the thrones and crowns of conquering sultans. Yet, how well can such a symbolic, idealized realm—conceived and explored only through the psyche, spirituality, and creative genius of Navoi—withstand the contradictions of real life? Are there people in this world who, like Navoi, perceive human affection and loyalty as their sole kingdom and sovereignty (their 'wealth and status')? And if such people do exist, what is their worth in the eyes of the 'possessors of power and wealth'?"5

Such timeless [insights] of Navoi...

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3. Yo. Is'hoqov. *Navoiy poetikasi* [The Poetics of Navoiy]. – Tashkent, Fan Publishing House, 1983, p. 39.

4. A. Navoiy. *MAT* [Complete Works], 20 volumes. Vol. 6: *Favoyid ul-kibar*, p. 357.

5. Botirxon Akram. *Fasohat mulkining sohibqironi* [The Sovereign of the Realm of Eloquence]. – Tashkent, "O'zbekiston", 2016, p. 83.

...there is no doubt that the truthful thoughts and judgments found in these lines are of immense significance, insofar as they truly prompt deep reflection and stir profound emotions.

Let us focus on the essence of the *maqta'* (concluding verse) and the preceding mystical couplet from Ghazal 251 of the *Favoyid ul-kibar* divan, which embody the sentiments expressed in such lines:

Not knowing the people of the world to be faithless, I sacrificed my soul;

It turns out that for the people of fidelity, it is fitting to guard against this folk.

Navoiy, pass beyond Nahavand, Isfahan, and Nayriz,

And seek the *Husayni* mode, for the *Hijaz* melody is meant for you.6

Who are the "people of the world" (*dahr eli*) in these couplets, and who are the "people of fidelity" (*vafo ahli*)—those urged to be wary of the former? Why does Navoiy emphasize that the "people of fidelity" must guard themselves against the "people of the world"? Navoiy's lyrical protagonist is one who has realized that expecting loyalty from the "people of the world"—or sacrificing one's soul for them—is a mere mirage. The phrase "ohangi Hijoz" (the melody of Hijaz) in the *maqta* (concluding verse) of the ghazal alludes to the Hijaz—the region encompassing the cities of Mecca and Medina, home to the sacred Kaaba, around which the entire Muslim world performs the *tawaf* (circumambulation) during the Hajj pilgrimage. It is understood that true lovers of the Truth—dervishes, mendicants, and the destitute—are the ones who embody "faithfulness" (*vafo*). Realizing that seeking salvation from the faithlessness of the times is a mere mirage, what else could they do but turn their faces toward the Kaaba and thereby elevate their spirits? It also becomes clear that the term "dahr ahli" (people of the age/world) signifies the ruling forces and established orders of society. For a noble figure like Navoi—who spent his life extolling human faithfulness and the purity of the spirit and faith—it is no coincidence that the yearning for Hijaz (the "melody of Hijaz") frequently surged within him, arising from the many negative phenomena, events, and personal experiences he encountered in his life and the society

surrounding him. Let us now turn our attention to the analysis of a few other verses:

One can find nothing but cruelty from the people of this world,
Yet, to each, one shows faithfulness to the extent that is possible...

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6. Alisher Navoi. *Complete Works* (20 volumes). Vol. 6. – Tashkent, "Fan" Publishing House, p. 175.

If the Beloved inflicts much cruelty, Navoi, lament but little,
For the nightingale cannot teach the rose fidelity, no matter how it wails. 7

In these verses, the specific word-image "dahr eli" (people of the world/age) and other traditional images are employed in combination to express a particular social idea, showcasing distinctive aspects of the poet's artistic mastery. "Dahr eli" is a specific word-image. "Yor" (Beloved) is a traditional image used to signify a lover, a close person, or a friend. The "rose" and the "nightingale" have transcended their traditional semantic boundaries to become symbolic-metaphorical images—a realm unto themselves—thereby acquiring social significance. One of the most brilliant facets of Navoi's poetic artistry is his ability to create a beautiful harmony between verses while maintaining a sense of progression in meaning and essence. It can be said that, through these images, the poet develops his thought from the general to the particular. The "Beloved" transfers the "burden" of meaning it carries onto the "rose." Consequently, the figure of the "nightingale" naturally comes to embody the lyrical protagonist—the poet himself. One can say that a specific balance emerges from the interconnections and relationships between the words and images found here:

Lyrical protagonist _____ Beloved (ruler)
Poet (friend) _____ Ruler (friend)
Nightingale (poet) _____ Rose (ruler)
Lover (poet) _____ Beloved (ruler)

This balance suggests that significant social and educational insights—even those concerning the relationship between two historical figures, the poet and the ruler—can arise from it. The essence of the lines cited above also leads to the conclusion that the lyrical protagonist—the poet—has wrapped his harsh judgment regarding the turbulent times and the ruling powers of the day in such a symbolic guise: “The nightingale cannot teach the rose fidelity, no matter how much it laments.”

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7. Alisher Navoi. *Complete Works* (MAT). 20 volumes. Vol. 6: “Favoid ul-Kibar.” Tashkent, “Fan” Publishing House, p. 42.

Conclusion. The analysis of the verses reveals that the poet’s most significant ideological intent is expressed not merely in the verses preceding the *maqta* (concluding verse)—where such a verse might sometimes appear detached from the ghazal's general theme—but rather through an interwoven approach involving both the *maqta* and the verse immediately preceding it; these elements are mutually connected and complementary. Naturally, this may not apply equally to all ghazals. This phenomenon is most evident in the poet’s philosophical ghazals addressing socio-spiritual issues and in verses containing moral exhortations. The poet employs the technique of presenting the central idea and key concluding thought at the end of the ghazal (in the penultimate and final verses) with great artistry. This method is developed to an unparalleled degree in the poet's work, a feature also observed in the verses analyzed above.

The analysis suggests that certain words and images—such as *davr* (era/time), *davron* (age/fortune), *daxr eli* (people of the world), *dahri dun* (the base world), *joh eli* (people of power/status), and *johu mol* (power and wealth)—which in some contexts denote kingship or the prevailing order, are intrinsically linked to interpretations of the figure of the king. Often,

these terms transcend their primary, literal meanings to align with perspectives and ideas concerning the monarch and the nature of kingship.

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2. Alisher Navoi. Complete Works (MAT). 20 volumes. Vol. 6: “Favoyid ul-Kibar” [The Benefits of Old Age], “Fan” Publishing House, Tashkent, 1990.
3. Botirxon Akramov. The Sovereign of the Realm of Eloquence. – Tashkent, “O‘zbekiston” Publishing House, 2016.
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EMPATIYA TUSHUNCHASINING PSIXOLOGIK VA BADIIY TALQINI

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Annotatsiya. *Ushbu maqola empatiya tushunchasining psixologik va adabiyotshunoslik tomondan asosiy xususiyatlarini tahlil qiladi. Empatiya bir insonning boshqa shaxsing hissiyotlari va emotsional holatini tushunish qobiliyatini qanday ifodalashi yoritiladi. Shuningdek, empatiyaning turlari orasidagi o'zaro farqlar, kognitiv va emotsional empatiyaning badiiy asarlarda o'quvchiga qanday yetib borishini ko'rib chiqadi. Bu tadqiqot natijasida empatiya qanday qilib psixologik tushunchadan adabiyotshunoslikdagi terminga aylanishi jarayoni tasvirlab beriladi.*

Kalit so'zlar: *empatiya, kognitiv empatiya, emotsional empatiya, narrativ empatiya, psixologiya, adabiyotshunoslik, badiiy matn, personaj.*

Аннотация. *Данная статья анализирует основные особенности понятия эмпатии с точки зрения психологии и литературоведения. Рассматривается, каким образом выражается способность человека понимать чувства и эмоциональное состояние другого человека. Также раскрываются различия между видами эмпатии и то, каким образом когнитивная и эмоциональная эмпатия проявляются в художественных произведениях и доходят до читателя. В результате данного исследования описывается процесс превращения эмпатии из психологического понятия в термин литературоведения.*

Abstract: *This article explores the term of empathy as an important concept in both psychology and literary studies. It focuses on the meaning of empathy and explores the usage of main types of empathy in literary texts. The article also discusses the role of narrative empathy in helping readers understand the feelings, experiences and different thoughts of characters. The main purpose of the article is explaining empathy as a helpful aspect of literary texts to feel and connect with characters more deeply. The study shows that empathy is crucial concept not only in psychology but also in literature.*

Asosiy qism

Empatiya keng tushuncha bo’lib, uning qo’llanilishi bir insonning boshqa bir shaxsning hissiyotlari va kechinmalarini tushunish qobiliyati bilan bog‘liq hodisadir. Bu tushuncha asosan psixologiyada murakkab hodisa sifatida ishatilsada, adabiyotshunoslikda ham empatiya insonlar o‘rtasidagi munosabatlarni shakllantirish, bir-birini tushunish kabi kommunikativ muloqotda keng qo’llaniladi. Empatiya atamasi nafaqat psixologiya sohasida, balki falsafa, tilshunoslik va adabiyotshunoslik kabi fanlarda ham turli nuqtayi nazarlardan o‘rganiladi.

Psixologiya sohasida empatiya boshqa bir insonning tajribasini tushunish va uning hissiyotlariga munosabat bildirish bilan ifodalanadi. Bunga ko’ra, empatiyani kognitiv va emotsional turlarga bo’linishi mumkin. Kognitiv empatiya boshqa shaxsning fikri, va holatini anglashdan iborat bo’lsa, emotsional empatiya boshqa insonning hissiy va ruhiy holatini tushunib, umga ma’lum darajada hissiy javob qaytarishdan iborat.

Adabiyotshunoslik sohasida empatiya badiiy asarlar va o‘quvchi o‘rtasidagi hissiy bog’liqlikni shakllantirishda muhim hisoblanadi. Badiiy asarni o‘qiyotgan har bir o‘quvchi personajning hayotiy tajribasi, his-tuyg‘ulari va ichki kechinmalarini bilib oladi. Agar asar qahramonining qo‘rquv, qayg‘u yoki quvonchi batafsil tasvirlangansa, o‘quvchi uning holatini yaxshiroq his qilishi va tushunishi mumkin.

Empatiyaning adabiyotshunoslikdagi muhim ko‘rinishlaridan biri “narrative empathy” tushunchasidir. Bu tushuncha badiiy asarning o‘quvchini badiiy personajning tajribasi va hissiy holatiga yaqinlashtirish imkoniyatini bildiradi. Bunday asarlarda narrativ nuqtayi nazar, “focalization”, personaj xarakteristikasi, ichki monolog, dialog va qahramonning ichki kechinmalarini turli usullarda tasvirlashdan iborat. Masalan, personajning harakatlarini faqat tashqi tomondan tasvirlash o‘quvchiga voqeani kuzatish imkonini beradi. Biroq

uning ichki fikrlari, xotiralari va hissiy kechinmalari ham berilsa, o‘quvchi personajning xatti-harakatlari sabablarini chuqurroq anglash imkoniga ega bo‘ladi. Shu sababli narrativ vositalar nafaqat voqealarni yetkazish, balki personaj va o‘quvchi o‘rtasida hissiy hamda kognitiv yaqinlikni shakllantirish vazifasini ham bajaradi.

Shuningdek, narrativ empatiyada tadqiqotida “focalization” alohida ahamiyatga ega. Chunki u voqea kimning nuqtayi nazaridan berilishi o‘quvchining personajni qanday qabul qilishiga ta’sir qilishi mumkin. Bir voqea turli personajlarning nuqtayi nazaridan tasvirlanganda, o‘quvchi bir vaqtning o‘zida bir nechta tajribani ko‘rish imkoniyatiga ega bo‘ladi. Bu esa, ayniqsa, konfliktli vaziyatlarda turli personajlarning motivlarini tushunishga yordam beradi.

Demak, empatiya psixologik tushuncha sifatida insonlararo munosabatlarni tushuntirishga xizmat qilsa, adabiyotshunoslikda u badiiy matn, personaj va o‘quvchi o‘rtasidagi murakkab munosabatlarni tahlil qilish imkonini beradi. Narrative empathy esa ushbu munosabatni narrativ shakl va badiiy tasvir vositalari bilan bog‘laydi. Shu nuqtayi nazardan, zamonaviy Amerika va Yevropa adabiyotida empatiyaning qanday narrativ strategiyalar orqali shakllantirilishini o‘rganish dolzarb tadqiqot yo‘nalishlaridan biri sifatida qaralishi mumkin.

Xulosa qilib aytganda, empatiya ko‘p qatlamli psixologik va badiiy hodisa bo‘lib, uning mazmunini faqat hissiy munosabat bilan cheklab bo‘lmaydi. Kognitiv tushunish, hissiy munosabat va boshqa shaxsning nuqtayi nazarini qabul qilish empatiyaning muhim tarkibiy qismlarini tashkil etadi. Adabiy asarlarda esa narrativ nuqtayi nazar, focalization, personajlashtirish, ichki monolog va boshqa badiiy vositalar o‘quvchining personaj tajribasiga yaqinlashishiga imkon beradi. Shu sababli narrative empathy zamonaviy adabiyotshunoslikda badiiy matn va o‘quvchi o‘rtasidagi munosabatni o‘rganish uchun istiqbolli nazariy tushuncha hisoblanadi.

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НАЦИОНАЛЬНО-СПЕЦИФИЧЕСКОЕ И УНИВЕРСАЛЬНОЕ В ИНТЕРПРЕТАЦИИ ВОСТОЧНЫХ МОТИВОВ В РУССКОЙ И УЗБЕКСКОЙ КЛАССИЧЕСКОЙ ЛИТЕРАТУРЕ

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Аннотация. *В данной работе рассматриваются восточные мотивы как важный художественный феномен в русской литературе XIX века и узбекской классической поэзии. Особое внимание уделяется выявлению универсальных и национально-специфических особенностей их интерпретации в произведениях русских романтиков и узбекских классиков. Анализ показывает, что в русской литературе Восток выступает как экзотическое и контрастное пространство, способствующее раскрытию внутреннего мира героя, тогда как в узбекской поэзии он является органической частью культурного и духовного пространства. В результате сравнительного исследования выявляются общие эстетические ценности и различия в художественном мышлении двух литературных традиций.*

Ключевые слова: *восточные мотивы, сравнительный анализ, художественный образ.*

Национально-специфическое и универсальное в интерпретации восточных мотивов в русской и узбекской классической литературе представляет собой важную проблему сравнительного литературоведения, позволяющую выявить как общие закономерности художественного мышления, так и уникальные особенности национальных культур. Восточные мотивы, будучи значимым элементом художественного текста,

отражают не только эстетические предпочтения авторов, но и глубинные философские, духовные и культурные ценности общества.

Актуальность данного исследования обусловлена необходимостью осмысления механизмов взаимодействия культур в условиях исторического и литературного диалога. Русская литература XIX века, представленная творчеством А.С. Пушкина и М.Ю. Лермонтова, активно обращается к восточной тематике, воспринимая Восток как пространство экзотики, духовного поиска и романтической свободы. В то же время в узбекской классической литературе восточные мотивы являются органической частью национального мировоззрения, отражая традиционные ценности, философию и эстетические идеалы[45].

В русской литературной традиции Восток часто выступает как «иной мир», противопоставленный европейской или русской культуре. Такое восприятие формирует особый художественный подход, основанный на принципе контраста. В произведениях Пушкина, таких как «Бахчисарайский фонтан» и «Кавказский пленник», восточные мотивы используются для создания эмоционально насыщенного пространства, в котором разворачиваются драматические события и внутренние конфликты героев. Восток здесь предстает как символ страсти, свободы и трагической судьбы, а его художественное изображение подчеркивает романтическую направленность произведений.

Лермонтов, развивая традиции романтизма, углубляет психологическое содержание восточных мотивов. В его поэмах «Мцыри» и «Демон» Восток становится не только фоном, но и важным фактором формирования характера героя. Природа Кавказа, ее величие и суровость, отражают внутреннее состояние персонажей, их стремление к свободе и одновременно ощущение одиночества. Восточные мотивы в творчестве

[45] Куронов Д. Сравнительное литературоведение: проблемы и методы. — Ташкент: Университет, 2005.

Лермонтова тесно связаны с философскими вопросами смысла жизни, борьбы и духовного поиска.

В узбекской классической литературе, представленной творчеством Алишера Навои, Бабура и других поэтов, восточные мотивы имеют иную природу[46]. Они не воспринимаются как «чужие» или экзотические, а являются естественной частью культурной среды. Восток здесь выступает как пространство гармонии, красоты и духовного совершенства. В произведениях Навои, особенно в «Хамсе», восточные мотивы реализуются через сложную систему символов и аллегорий, отражающих философские идеи о любви, справедливости, нравственности и человеческом совершенстве.

Особое значение в узбекской поэзии имеет образ сада как символа идеального мира. Этот образ объединяет в себе эстетическое и философское содержание, отражая представления о гармонии человека с природой и обществом. В отличие от русской романтической традиции, где Восток часто противопоставляется родной культуре, в узбекской литературе он является ее неотъемлемой частью, что определяет специфику художественного мышления и интерпретации восточных мотивов.

Сравнительный анализ показывает, что универсальные элементы восточных мотивов проявляются в стремлении к изображению красоты, любви, свободы и духовного поиска. Эти темы являются общими для обеих литературных традиций и отражают базовые человеческие ценности. Однако способы их художественного воплощения существенно различаются. В русской литературе преобладает романтический пафос, драматизм и контрастность, тогда как в узбекской поэзии доминируют гармония, символизм и философская глубина[47].

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[46] Каримов Б. **Сравнительное литературоведение: Восток и Запад**. — Ташкент: Фан, 2020.
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Национально-специфическое проявляется прежде всего в культурных кодах, системе образов и эстетических приоритетах. Русские писатели рассматривают Восток как источник вдохновения и объект художественного осмысления, тогда как узбекские поэты выражают через него собственную культурную идентичность. Это различие определяет особенности восприятия и интерпретации восточных мотивов, а также их роль в художественной структуре произведений.

Таким образом, восточные мотивы в русской и узбекской классической литературе представляют собой сложное и многогранное явление, сочетающее в себе универсальные и национально-специфические элементы. Их сравнительное изучение позволяет глубже понять особенности художественного мышления разных культур, а также выявить общие тенденции развития мировой литературы[48]. Восток в данном контексте выступает как важный культурный и эстетический феномен, объединяющий различные литературные традиции и отражающий общечеловеческие ценности.

В заключение следует отметить, что анализ национально-специфического и универсального в трактовке восточных мотивов открывает новые перспективы для дальнейших исследований в области сравнительного литературоведения. Он способствует более глубокому осмыслению процессов межкультурного взаимодействия и позволяет рассматривать литературу как пространство диалога культур, в котором формируются и развиваются ключевые художественные и философские идеи.

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FUNCTIONAL AND STYLISTIC FEATURES OF ENGLISH LOANWORDS IN UZBEK AND KOREAN AND THEIR IMPACT ON THE LEXICAL SYSTEMS

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Abstract. *This study examines the functional and stylistic features of English loanwords in Uzbek and Korean and their impact on the lexical systems of both languages. It focuses on the use of English-derived vocabulary across different functional domains, including technology, business, education, science, media, sports, and popular culture. Particular attention is given to the ways loanwords acquire new meanings, stylistic functions, and patterns of usage within Uzbek and Korean. The study also highlights similarities and differences in their integration and examines how English loanwords contribute to lexical enrichment, innovation, and ongoing language change.*

Keywords: *English loanwords, Uzbek language, Korean language, functional and stylistic features, lexical system, lexical borrowing, language contact, lexical change, language enrichment.*

Introduction

The growing influence of English has become an important factor in the lexical development of many languages, including Uzbek and Korean. English loanwords are increasingly used in fields such as technology, science, business, education, media, sports, and popular culture. Their widespread use reflects not only globalization and international communication but also changes in the functional and stylistic organization of the recipient languages. The integration of English loanwords into Uzbek and Korean differs in terms of frequency,

semantic development, stylistic use, and functional distribution. While some borrowings retain their original meanings, others undergo semantic expansion, specialization, or modification. Their incorporation contributes to lexical enrichment and the emergence of new terms and expressions. Therefore, this study examines the functional and stylistic features of English loanwords, their contribution to lexical change, and the similarities and differences between Uzbek and Korean.

Functional Distribution of English Loanwords

English loanwords in Uzbek and Korean are widely distributed across various communicative and professional domains. Their frequency is particularly high in areas that are closely connected with international communication, technological development, and globalization. In both languages, English-derived vocabulary is commonly found in information technology, business, education, science, sports, fashion, and mass media.

In Uzbek, terms such as *marketing, biznes, menejer, internet, onlayn,* and *blog* have become increasingly common in public and professional communication. In Korean, English-derived forms such as **인터넷** (*inteonet*, Internet), **마케팅** (*maketing*, marketing), **컴퓨터** (*keompyuteo*, computer), and **스포츠** (*seupocheu*, sports) are widely used. These examples demonstrate that English loanwords often enter the recipient language when they refer to new concepts, technologies, products, or social practices.

Stylistic Features of English Loanwords

English loanwords perform different stylistic functions depending on the communicative context. In formal and professional discourse, they frequently serve as specialized terminology. In academic, technological, and business communication, such vocabulary may provide concise and internationally recognizable expressions.

In informal communication, English loanwords can function as markers of modernity, globalization, and social identity. They are particularly visible in advertising, social media, youth communication, entertainment, and popular culture. In Korean, English-derived expressions are especially prominent in advertising and contemporary popular culture, while in Uzbek their use has expanded rapidly through digital communication and modern media.

The stylistic status of a loanword may also change over time. A word initially perceived as foreign or specialized may gradually become familiar to ordinary speakers and lose its marked foreign character. Consequently, some English loanwords move from specialized or informal usage into general vocabulary.

Semantic Adaptation and Lexical Integration

English loanwords do not always preserve their original meanings after entering Uzbek and Korean. During the process of integration, they may undergo semantic extension, restriction, specialization, or modification. Such changes occur because borrowed words are interpreted within the cultural and communicative environment of the recipient language.

For example, English-derived technological terms may acquire additional meanings as new technologies and practices develop. In Korean, some English-origin forms have developed conventionalized meanings that differ partially from their English equivalents. Similar processes can be observed in Uzbek, where borrowed words may become adapted to local communicative practices and acquire meanings or usage patterns specific to Uzbek.

Lexical integration is also reflected in grammatical behavior. English loanwords may combine with native grammatical elements and participate in the morphological processes of the recipient language. Korean loanwords are generally written in Hangul and can take Korean grammatical particles and verbal or adjectival constructions. Uzbek loanwords can similarly receive

Uzbek grammatical affixes, demonstrating their increasing integration into the native lexical and grammatical system.

Impact on the Lexical Systems of Uzbek and Korean

The growing presence of English loanwords contributes significantly to lexical enrichment in both languages. Borrowing provides new terminology for concepts associated with technological innovation, international business, science, education, and contemporary culture. It also facilitates communication in specialized and internationally connected domains.

However, the influence of English is not limited to the simple addition of new vocabulary. Loanwords may participate in the creation of derivatives, compounds, and new expressions. In this way, borrowed lexical units can become productive elements within the recipient language. At the same time, extensive borrowing may create competition between English-derived terms and existing native or previously borrowed equivalents.

The degree of English influence differs between Uzbek and Korean because of their distinct linguistic structures, language policies, historical experiences, and patterns of international interaction. Korean demonstrates a particularly extensive use of English-derived vocabulary in everyday and media discourse, whereas Uzbek shows increasing lexical influence associated with post-independence internationalization, technological development, and globalization.

Comparative Analysis

The comparison of Uzbek and Korean reveals both common and language-specific tendencies. In both languages, English loanwords are strongly associated with modernity, technological progress, international communication, and global culture. They are particularly productive in rapidly developing lexical fields and among younger generations.

Nevertheless, the mechanisms of integration differ according to the structural characteristics of each language. Korean loanwords are

systematically represented through the Hangul writing system and are adapted to Korean phonological patterns. Uzbek loanwords, meanwhile, are incorporated through Uzbek orthographic, phonological, and morphological structures. Despite these differences, both languages demonstrate that English loanwords can move beyond their original foreign status and become established components of the lexical system.

Thus, English loanwords function as important indicators of contemporary lexical change. Their functional distribution, stylistic variation, semantic adaptation, and morphological integration demonstrate the dynamic interaction between English and the Uzbek and Korean languages.

Conclusion

The analysis demonstrates that English loanwords have become an important component of the lexical systems of Uzbek and Korean. Their functional and stylistic distribution is particularly evident in technology, business, education, media, sports, and popular culture. Through semantic and morphological adaptation, many loanwords have acquired established forms and functions within the recipient languages. Although the patterns of integration differ due to linguistic and sociocultural factors, English loanwords contribute significantly to lexical enrichment, innovation, and ongoing language change in both Uzbek and Korean.

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INGLIZ EPISTOLYAR ADABIYOTINING TARIXIY TARAQQIYOTI VA BADIIY-ESTETIK XUSUSIYATLARI

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Annotatsiya. *Mazkur maqolada ingliz epistolyar adabiyotining---badiiy maktub adabiyotining shakllanishi va tarixiy taraqqiyoti tahlil qilindi. Epistolyar janr (yun.---xat, maktub, noma) xat, noma shaklida yaratilgan turli asarlaridan iboratdir. Ushbu adabiy asarlarda maktublar, yozishmalar syujet yaratish, qahramon xarakterini ochib berish, shaxsiy tajribalarni ifodalash vositasi sifatida foydalaniladi. Maqolada ingliz epistolyar adabiyotining o`rta asrlardagi diniy va siyosiy yozishmalardan boshlab, Uyg`onish davridagi individual axborot--aloqa vositasi sifatidan tortib, XVIII asr epistolyar romanlar shakllanishidan to bugungi kundagi zamonaviy adabiyot vakillarining beqiyos ijod namunalari poydevori ekanligi to`g`risida so`z yuritiladi.*

Kalit so`zlar: *epistolyar janr, maktub, ingliz adabiyoti, Samuel Richardson, hikoya usuli, modernizm, shaxsiyat, ijtimoiy tarmoq, chat.*

Abstract*. This article analyzes the formation and historical development of English epistolary literature, that is, literary works composed in the form of letters. The epistolary genre (from the Greek epistolē—"letter," "missive," or "epistle") encompasses various literary works created in the form of letters and correspondence. In such works, letters and written exchanges serve as important devices for constructing the plot, revealing the characters' personalities, and expressing their personal experiences and inner states. The article examines the development of English epistolary literature from religious and political correspondence in the Middle Ages, through its emergence as a means of individual communication and self-expression during the Renaissance, to the formation of the epistolary novel in the eighteenth century. Particular attention is also given to the ways in which the epistolary tradition has provided a significant foundation for the remarkable literary works of contemporary writers. The study demonstrates that, despite transformations in literary forms and communication technologies, the epistolary mode continues to retain its aesthetic and narrative significance in modern literature.*

Keywords: *epistolary genre, letter, English literature, Samuel Richardson, narrative technique, modernism, identity, social media, chat.*

Kirish. Epistolyar janr badiiy adabiyotning qadimiy va o`ziga xos shakllaridan biri bo`lib, uning asosini maktub va yozishmalar tashkil etadi. Maktublar dastlab kishilar o`rtasida axborot almashinuvi, aloqa vositasi sifatida foydalanilgan bo`lsa, bugungi kunga kelib ijod vakillari tomonidan o`zlarining beqiyos asarlarining asosiga, badiiy jarayonlarni va badiiy qahramon xarakterini ochib beruvchi vositaga aylantirildi. Qahramon kechinmalari, ichki his-tuyg`u va qalb tug`yonlari maktub shakliga ko`chib, asar voqealarini o`quvchi ko`z o`ngida o`zgacha bir shaklda ochib bera boshladi. Asar o`quvchisida voqealarni bilish bilan bir qatorda, qahramon obraziga kirishning yangicha shakli yaraldi. Bu orqali o`quvchi va qahramon o`rtasida o`ziga xos xissiy yaqinlik tuyg`usini paydo qilib, psixologik-ruhiy jihatdan bir-birlariga bog`langan munosabatni yaratdi. Ingliz epistolyar adabiyotining tarixi o`rta asrlardagi diniy, siyosiy va shaxsiy yozishmalarga borib taqaladi. XVIII asrga kelib esa maktub faqatgina aloqa vositasi emas, butun boshli badiiy asar – romanning asosiy shakliga aylandi. Dastlab, Samuel Richardsonning “Klarissa” va “Pamela” romanlari, keyinchalik Jeyn Ostinning “Suzan Xonim” (tax.1793-1794) va Virjiniya Vulfning bir qator romanlari va ijod namunalari, shu bilan bir qatorda bugungi zamonaviy ingliz adabiyotida bir qator ijodkorlarning ijod namunalari ushbu badiiy vosita asosida yaratilganiga guvoh bo`lamiz.

Asosiy qism. Maktublar romanlardan ancha avval paydo bo`lgani hech kimga sir emas. XVI- XVII asrlarda Yevropada maktublar romanlar tarkibida qo`llanila boshlaganligi tabiiy ho edi. Biroq ingliz tilida to`liq xatlardan iborat ilok roman 1684-yilda nashr etilgam Aphra Behn qalamiga mansub deb tashbeh beriluvchi *Love letters between a Nobleman and His sister (“*Zodagon va uning singlisi o`rtasidagi muhabbat maktublari”) romani hisoblanadi. Asar Filandr va Silviya o`rtasidagi muhabbatning maktublar vositasida

ifodalanishiga asoslangan bo`lsa-da, ba`zi olimlar uning real qahramonlar Ford Grey (Lord of Werke) va uning rafiqasining singlisi Ginriyette Berkeley o`rtasidagi ta`qiqlangan munosabatlardan ilhomlanilgan epistolyar asar deb hisoblashadi. Asar 3 ta mustaqil alohida romanlardan iborat. Asar voqealari maktublarga asoslanganligi va o`z davrining siyosiy mojarolarini ham yoritib bergan.

Epistolyar roman rosmana boshlanish va mashhurlikka Samuel Richardsonning ijod orqali erishdi. XVIII asr ingliz adabiyotining yirik vakillaridan biri Samuel Richardson o`zining "Pamela" (1740) va "Klarissa" (1748) romanlari orqali epistolyar roman janriga ulkan hissa qo`shdi. "Pamela" romani deyarli faqat Pamelaning maktublaridan iborat monologik epistolyar roman bo`lsa, "Klarissa" romani qahramon Klarissa va uni ta`qib qilayotgan ayyor va buzuq xulqli Lovelacening ham maktublariga asoslangan dialogik epistolyar roman hisoblanadi. Samuel Richardson ushbu ikki romani orqali "writing to the moment" (ayni lahzada yozish) uslubini mukammallashtirdi va qahramonlar o`y-xayollari, kechinmalari, qilayotgan ish harakatlarini asar o`quvchisi o`qiyotgan ayni lahzada sodir bo`layotgandek ko`rsatib bera oldi.

Keyinchalik Jeyn Ostin "Suzan Xonim" (1794-1795), Bram Stoker "Drakula" (1897), Virjiniya Vulf "Yakobning xonasi" (1922), "Mayoqda" (1927) asarlarining yaralishi epistolyar roman janrida keskin burilishlar yasadi. Ayniqsa, Bram Stoker o`z asarida xatlar bilan bir qatorda kundalik yozuvlar, telegrammalar, gazeta maqolalaridan unumli foydalangan.

Zamonaviiy ingliz epistolyar romanchiligida an`anaviy qog`oz maktublar bilan bir qatorda bugungi kunning zamonaviy raqamli aloqa vositalari: electron pochta, chatlar, ijtimoiy tarmoq yzishmalariga asoslangan. Voqealar tasvirida ularning ishtiroki davr ruhiyatini keng ochib berishda ushbu aloqa vositalarining o`rni juda muhim hisoblanadi. Ana shunday davr vositalaridan foydalanilgan yangicha epistolyar romanlar ham o`quvchilar e`tiboridan chetda qolmayapti. Ular sirasiga ingliz adabiyotining bugungi

kundagi mashhur romanlari qatoriga Sesiliya Ahernning “Sevgi ila, Rosie” romani, Nina Stibbening “Sevgi ila, Nina” romanlarini kiritishimiz mumkin. Xususan, Sesiliya Ahernning “Sevgi ila, Rosie” (2005) romani epistolyar janrning zamonaviy evolyutsiyasi hisoblanadi. Asarning asosiy yutuqlaridan biri an`anaviy maktub janrining zamonaviy texnologik vositalar tiliga yuksak mahorat va muvaffaqiyat bilan ko`chirilganligidir. Roman voqealari qahramonlarning 7 yoshidan 50 yoshigacha bo`lgan qariyb 43 yillik tarixini qamrab olgan. Muallif yuzlab sahifali monologik tasvirlardan qochib, vaqt o`tishini xatlarning qisqarishi, tili va mazmunining o`zgarishi bilan ochib bergan.

Xulosa. Ingliz epistolyar adabiyotining rivojlanish tarixi maktubning oddiy aloqa vositasidan murakkab va samarali adabiy uslubga aylanganini ko‘rsatadi. Uning dastlabki ildizlari o‘rta asrlardagi diniy, siyosiy va shaxsiy yozishmalarga borib taqaladi. Uyg‘onish davrida esa maktub individual ifoda, intellektual muloqot va mualliflik shaxsiyatini yaratish vositasiga aylandi.

XVIII asrda Samuel Richardson ijodi epistolyar roman janrining shakllanishida muhim bosqich bo‘ldi. Pamela va Klarissa kabi asarlar maktub orqali qahramonning ichki dunyosini ochish, turli nuqtayi nazarlarni yaratish va o‘quvchi bilan hissiy yaqinlik o‘rnatish mumkinligini namoyish etdi.

Xulosa qilib aytganda, zamonaviy epistolyar romanlarda an’anaviy maktub shakli elektron pochta, chat va ijtimoiy tarmoq yozishmalari kabi raqamli vositalar bilan uyg‘unlashmoqda. Bu vositalar qahramonlarning ichki kechinmalari, xarakteri va davr ruhiyatini tabiiy va ta’sirchan ifodalashga xizmat qiladi. Sesiliya Ahernning “Sevgi ila, Rosie” romani epistolyar janrning zamonaviy texnologiyalar ta’siridagi muvaffaqiyatli evolyutsiyasini namoyon etadi. Asarda vaqt va qahramonlar hayotidagi o‘zgarishlar yozishmalarning tili, mazmuni va shakli orqali mahorat bilan yoritilgan.

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PUBLIC DIPLOMACY AS AN IMPORTANT DIMENSION OF ENLIGHTENMENT DIPLOMACY IN NEW UZBEKISTAN

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Abstract: *This article analyzes the integration of people-to-people diplomacy in New Uzbekistan with education, spirituality, cultural dialogue, and scholarly cooperation. It examines the role of people-to-people diplomacy in strengthening interethnic harmony, interfaith dialogue, tolerance, and national unity. The article examines the activities of the Republican Center for Spirituality and Enlightenment and the "Ma'rifat" Enlighteners' Society in 2025, including international academic and cultural events, the "Ma'rifat Caravan" project, and educational dialogue platforms as practical mechanisms of people-to-people diplomacy. The study argues that educational diplomacy can be considered a contemporary dimension of people-to-people diplomacy, contributing to the strengthening of international trust and cooperation through knowledge, historical memory, culture, and interpersonal communication.*

Keywords: *New Uzbekistan, people-to-people diplomacy, educational diplomacy, interethnic harmony, interfaith dialogue, tolerance, international cooperation, "Ma'rifat" Enlighteners' Society, "Ma'rifat Caravan".*

Introduction. In the context of the reforms being implemented in New Uzbekistan, people-to-people diplomacy is increasingly emerging as an important strategic dimension for strengthening the country's internal stability and international image. In particular, the principles of interethnic harmony, interfaith dialogue, and national solidarity have been identified as priority areas of state policy and are becoming a fundamental basis for the development of modern society.

In recent years, at the initiative of the country's leadership, a number of major reforms have been implemented with the aim of developing interethnic and interfaith relations, strengthening an atmosphere of tolerance, and enhancing mutual trust among different peoples and religious communities. At the same time, Uzbekistan's positive international image is being further strengthened through the establishment of centers dedicated to Islamic civilization and spiritual heritage, support for academic research, and the development of international cooperation.

The main part. Geographically situated at the crossroads of world civilizations, where the Great Silk Road and the Great Indian Road intersected, Central Asia has historically served not only as a region of economic prosperity but also as a center of centuries-old intercultural and interfaith dialogue.

By the late 3rd millennium BCE and the early 2nd millennium BCE, early forms of statehood and urban culture had emerged in the southern regions of the area, particularly in Margiana and Bactria. This Bronze Age civilization has been recognized as the "Oxus (Amu Darya) Civilization." [1, p. 12]

According to Academician A. Askarov, the historical roots of people-to-people diplomacy in social life can be traced back to the Bronze Age in Central Asia, while in the primary zones of world civilization—such as ancient Egypt, Mesopotamia, the Indus Valley, and the lower reaches of China's Yellow River (Huang He) similar processes emerged even earlier. [2, p. 5]

Fundamental changes in the sphere of interethnic and interfaith relations began in 2016 with the launch, at the initiative of the country's leadership, of large-scale political, legal, cultural, and humanitarian reforms across all areas of public life.

People-to-people diplomacy in New Uzbekistan is being built upon the principles of Islam, religious tolerance, and interethnic harmony.

The measures implemented in Uzbekistan in the sphere of interethnic relations and religious affairs during 2017–2025 have contributed not only to

the country's domestic well-being but also to enhancing its international standing and reputation.

First and foremost, it should be emphasized that Uzbekistan's multiethnic character is perceived not merely as a demographic reality, but as a strategic asset and a major source of spiritual strength. Today, representatives of more than 130 ethnic groups and nationalities belonging to 16 religious confessions live peacefully and harmoniously in the country. Their contribution to the country's overall development has become a distinctive manifestation of social and cultural harmony.

Second, Uzbekistan is promoting the principles of interfaith dialogue at the international level as well. At the initiative of President Shavkat Mirziyoyev, the United Nations General Assembly adopted the resolution "Enlightenment and Religious Tolerance" in 2018. In Uzbekistan, an annual "Tolerance Week" is held, featuring round-table discussions, conferences, interfaith dialogue sessions, and various cultural events.

On September 19, 2023, during the 78th session of the United Nations General Assembly, President Shavkat Mirziyoyev proposed holding an international conference in Uzbekistan in 2024 on the theme "Islam – a Religion of Peace and Goodness," with the aim of providing a deeper understanding of the genuinely humanistic essence of Islam. [3] In accordance with this initiative, an international scientific and practical conference entitled "Islam – a Religion of Peace and Goodness" was held in Uzbekistan in October 2024. [4, p. 2] The conference brought together more than 70 prominent representatives of international organizations, religious figures, muftis, and renowned scholars from 22 countries, including Saudi Arabia, Egypt, Türkiye, Jordan, Oman, Russia, the United States, France, Azerbaijan, Kazakhstan, Kyrgyzstan, Turkmenistan, India, and Pakistan. [5]

Third, new religious and educational centers have been established in Uzbekistan. At the initiative of the President of the Republic of Uzbekistan,

international centers named after the great scholars Imam al-Bukhari, Imam al-Tirmidhi, Imam al-Maturidi, and Abu Muin al-Nasafi were established to preserve and study the rich spiritual heritage of the country's distinguished ancestors. The Islamic Civilization Center was also established in Tashkent.

In terms of their mission and significance, these centers are not limited to academic research. They also contribute to shaping Uzbekistan's positive religious and spiritual image at the global level, promoting intercultural dialogue, and strengthening mutual trust and respect among different peoples. In this respect, they have become important instruments of people-to-people diplomacy.

Fourth, the reforms have contributed to an increase in the number of religious organizations. Today, 2,361 religious organizations representing 16 religious confessions are officially registered in Uzbekistan. Of these, 2,164 are Islamic and 197 are non-Islamic organizations, including 180 Christian organizations, 8 Jewish organizations, and 7 Bahá'í organizations, as well as a Buddhist temple, a Krishna consciousness center, and an interfaith Bible society. [6, p. 5]

Fifth, in the religious sphere, Uzbekistan continues to support freedom of religion while preserving its long-standing traditions of tolerance. Tolerance encompasses all dimensions of human relations, including the social, economic, political, and religious spheres. Therefore, fostering a culture of tolerance within society is of critical importance for ensuring security and internal stability, as well as for strengthening the country's integration into the international community.

The initiative to establish the "Tolerance Park" within the New Uzbekistan complex is also of particular significance. The park is intended to create opportunities for representatives of different ethnic groups and religions to communicate and interact in an environment of mutual respect and understanding.

In 2023, the “Religious Tolerance” badge of honor was established to recognize citizens who have made a significant contribution to strengthening interfaith harmony.

Sixth, Uzbekistan’s bilateral and multilateral cooperation with Muslim-majority countries has been steadily expanding. During the period from 2017 to 2023, President of Uzbekistan Shavkat Mirziyoyev made foreign visits at various levels including state, official, working, and informal visits to 24 countries around the world. During these seven years, he visited Muslim-majority countries on 47 occasions. [7]

Furthermore, 2025 demonstrated the increasing convergence of the international, scientific, and cultural dimensions of Uzbekistan’s enlightenment diplomacy. In 2025, New Uzbekistan’s enlightenment diplomacy was reflected in a range of practical initiatives aimed at expanding international scientific and cultural relations, presenting the intellectual and spiritual heritage of great Uzbek ancestors to the global academic community, and strengthening international dialogue through enlightenment and education. In this process, the activities of the Republican Center for Spirituality and Enlightenment and the “Ma’rifat” Enlightenment Promoters’ Society under its auspices assumed particular importance. [8]

On February 8–9, 2025, the 4th Traditional International Symposium “Alisher Navoi and the Renaissance of the East” was held in Navoi Region to commemorate the 584th anniversary of the birth of Alisher Navoi. The preparation and organization of the event involved cooperation between the Republican Center for Spirituality and Enlightenment and other relevant organizations, while the plenary session of the symposium was held at the Center for Spirituality and Enlightenment in Navoi. Such international academic dialogues not only promote the legacy of Alisher Navoi as a universal spiritual and cultural value, but also serve as an instrument of people-

to-people diplomacy by demonstrating Uzbekistan's intellectual and educational potential on the international stage. [9]

During 2025, efforts were also undertaken to bring the activities of the "Ma'rifat" Enlightenment Promoters' Society to a new level through the establishment of a "Projects Office" aimed at implementing social and educational initiatives using modern technologies and IT platforms. In addition, the organization of international, national, and local conferences within the framework of the "Caravan of Enlightenment" initiative was planned. This approach makes it possible to transform enlightenment activities from a process focused exclusively on domestic audiences into an integral component of international communication through academic and cultural exchanges. [10]

The "Caravan of Enlightenment" project implemented in 2025 was another practical manifestation of this concept. The project covered all 14 administrative regions of Uzbekistan and involved the formation of a national outreach team consisting of 68 scholars, intellectuals, writers, and poets, reaching approximately 80,000 participants. [11] The participation of representatives of such academic and educational institutions as the Center for Islamic Civilization in Uzbekistan and the Imam Termiziy International Research Center in events held in Bukhara and Surkhandarya demonstrates the project's close connection with scientific diplomacy and educational communication. [12]

From this perspective, three principal dimensions can be identified when assessing the activities of the Republican Center for Spirituality and Enlightenment and the "Ma'rifat" Enlightenment Promoters' Society in the context of people-to-people diplomacy. First, promoting Uzbekistan's historical and spiritual heritage within the international academic and cultural space; second, creating platforms for dialogue with foreign scholars, researchers, and representatives of the cultural sphere; and third, shaping Uzbekistan's image as an open, tolerant, and knowledge-oriented country

through educational content and modern communication technologies. Thus, enlightenment diplomacy is emerging as a mechanism that enriches the substance of people-to-people diplomacy by transforming knowledge, culture, historical memory, and human interaction into forms of international trust and social capital.

Conclusion. In New Uzbekistan, people-to-people diplomacy is becoming one of the strategically significant areas for strengthening the country's internal stability and international image. State policies based on the principles of interethnic harmony, interfaith dialogue, and national solidarity not only contribute to social stability but also enhance Uzbekistan's standing and reputation in the international arena.

Scientific and educational centers, cultural dialogue initiatives, interfaith cooperation platforms, and policies promoting tolerance are becoming important instruments for harmonizing the country's rich historical heritage with the requirements of contemporary statehood.

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10. “Ma’rifat karvoni” Buxoroda: O‘zbekiston Milliy axborot agentligi (O‘zA), 2025-yil 31-may. https://uza.uz/oz/posts/marifat-karvoni-buxoroda_725907
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САУДИЯ АРАБИСТОНИ ВА МАРКАЗИЙ ОСИЁ: ДИНИЙ-МАФКУРАВИЙ ТАЬСИР ВА ТАРИХИЙ-МАДАНИЙ АЛОҚАЛАР

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ТДШУ мустақил изланувчиси

Аннотация. *Мақолада Саудия Арабистони ва Марказий Осиё ўртасидаги тарихий-маданий алоқалар, ислом динининг минтақадаги ўрни ва Саудия Арабистонининг диний-геосиёсий таъсири таҳлил қилинади.*

Таянч сўз ва иборалар: *Саудия Арабистони, Марказий Осиё, диний таълим, мафкуравий бўшлиқ.*

Аннотация. *В статье анализируются историко-культурные связи между Саудовской Аравией и Центральной Азией, роль ислама в регионе, а также религиозно-геополитическое влияние Саудовской Аравии.*

Ключевые слова и словосочетания: *Саудовская Аравия, Центральная Азия, религиозное образование, идеологический вакуум.*

Annotation. *The article analyzes the historical and cultural ties between Saudi Arabia and Central Asia, the role of Islam in the region, and Saudi Arabia's religious and geopolitical influence*

Keywords and phrases: *Saudi Arabia, Central Asia, religious education, ideological vacuum.*

Кириш

Ислом динининг Ўрта Осиё ерларига кириб келиши VII асрдан бошланган бўлса-да, минтақанинг тўлиқ исломлашуви 18 асрга қадар давом этди. Адеб Холид таъкидлаганидек, “Аксарият кўчманчилар исломлашув орбитасига X асрдан бошлаб киришган, бироқ исломни қабул қилиш

18-асргача давом этган босқичма-босқич жараён орқали содир бўлган”. Ислом Ўрта Осиёнинг савдо алоқалари яхши ривожланган Бухоро, Самарқанд ва Қўқон каби йирик шаҳарларига бозорлар орқали осонлик

билан кириб келган ва қисқа даврда улар исломий қўрғонларга айлантирилган[49].

Асосий қисм. Ўрта Осиёда ислом динининг ёйилиши бир тарих бўлса, минтақага ваҳҳобийликнинг кириб келиши ва унинг ёйилиши бошқа бир тарихий

шарт-шароитда содир бўлган. Ўрта Осиёга ваҳҳобийликнинг кириб келиши

1912 йилда Сайид Шариф Муҳаммаднинг Фарғона водийсида илк ваҳҳобийлик мактабига асос солиши билан бошланади.[50] Ушбу маълумот асосида айтиш мумкинки, ваҳҳобийлик ҳаракати Марказий Осиёда Биринчи жаҳон урушидан бери мавжуд. Урушдан кейинги даврда ваҳҳобийлик минтақанинг кўплаб давлатларида ҳарбий ва сиёсий тузилмалар учун масъул эди. У Саудия Арабистонининг молиявий кўмаги билан Марказий Осиёда ўзининг сиёсий ва диний фаолиятини кенгайтириш учун макон қидирди.[51] Ҳаракат 1918-1934 йилларда большевикларга қарши анъанавий қўзғолон кўтарган Фарғона водийсида, хусусан, Ўзбекистонда фаолият юритаётган кўплаб исломий оқимларнинг локомотиви бўлган.[52] 1932 йилда Янги Саудия маъмуриятини тан олган биринчи давлат Совет Иттифоқи бўлди. Британия, Франция ва бошқа Европа давлатлари эса унинг ривожланиш йўлини диққат билан кузатиб борди. Қўшма Штатлар ўз муносабатини ўн йил давом этган кузатишлар натижасида шакллантирди. Совет Иттифоқи Ибн Саудни мустақил анти-империалистик куч сифатида кўрди ва унинг янги давлатидан Буюк

[49] Mori, S.; Leonardo T. (2016). Rising Extremism in Central Asia? Stability in the Heartland for a Secure Eurasia, European Institute for Asian Studies, Belgium.
[50] Seyedi Asl, Seyedmohammad. (2022). “Suudi Arabistan’ın Kafkasya ve Orta Asya’da Vahhabilik Politikası”. Asya Araştırmaları Uluslararası Sosyal Bilimler Dergisi. 6 (1), pp. 89-102.
[51] Hedayati S., M; Safari, A. (2018). “The Role of Saudi Arabia in Progression of Violent Fields of Islamic Identity (Case Study: Central Asia)”. Journal of Political Sociology of Islamic World. 5 (11), p. 41.
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Британия ёки Франция назорати остида бўлган Яқин Шарққа сиёсий ва тижорий кириш воситаси сифатида фойдаланишни умид қилди.[53]

Иккинчи жаҳон уруши йилларида мавжуд вазият тақозоси билан Совет Иттифоқи динга нисбатан бағрикенглик кўрсатди. 1943 йилда бош идораси Тошкентда бўлган Ўрта Осиё ва Қозоғистон мусулмонлар идораси тузилди. 1945 йилда айрим фуқаролар оз сонли бўлса-да ҳажга бориш имконига эга бўлди. СССР сиёсати назорат остидаги диний таълимни афзал кўрди. У инқилобдан кейин ёпилган Бухородаги Мир Араб мадрасасини 1945 йил Ўрта Осиё ва Қозоғистон диний муассасаси тасарруфида, баъзи сиёсий сабабларга кўра қайтадан очди, кейинчалик ушбу диний муассаса қошида 1971 йил Тошкент шаҳрида Ислом институти ҳам ўз фаолиятини бошлади. Бироқ, бу муассасалар диний таълим соҳасида жуда паст ва чекланган фаолият кўрсатишга мажбур бўлди.

Ваҳҳобийлик ғояси сўфийликка қарши бўлгани сабабли дастлаб Марказий Осиё халқлари томонидан яхши қаршиланмади. Бироқ, Совет Иттифоқининг қулаши даврида 70 йиллик диний маҳрумликдан сўнг сўфийликдан деярли хабардор бўлмаган янги авлод мусулмонлари ваҳҳобий миссионерларни яхши кутиб олишди. Улар ваҳҳобийларни устоз сифатида кўришди. Ҳақиқатдан ҳам, 80 йилларнинг охиридан бошлаб уларнинг маҳаллий халққа ислом урф-одатларини ўргатиш ва уни қайта жонлантириш билан шуғулланган кузатилади. Бошқа томондан, Совет Иттифоқининг қулаши Саудия Арабистони учун Марказий Осиёда ноёб геостратегик имкониятларни яратди. Саудия Арабистони ислом оламидаги “ўзига хос” позициясидан фойдаланиб, асосан мусулмонлардан иборат бўлган Марказий Осиё давлатларини таъсир доирасига олиш орқали геосиёсий мавқеини мустаҳкамлашни мақсад қилган. Чунки Саудия Арабистони ташқи сиёсат доктринасининг асосий

[53] Mansfield, P. (2011). Ortadoğu Tarihi. Çev., Ümit Hüsrev Yolsal. İstanbul: 272.

аргументи “мусулмон давлатлари ва халқлари тақдири учун жавобгарлик” ҳисобланади.[54]

Совет Иттифоқи парчаланиб кетганидан сўнг, 1991 йилда Мустақил Давлатлар Ҳамдўстлиги ташкил этилиши билан Россия Кавказ ва Марказий Осиёдаги қўшнилари ва бошқа минтақалараро кучлари билан турли сиёсий, хавфсизлик, иқтисодий ва маданий соҳаларда алоқа қилиш имкониятини тиклади. Стратегик жиҳатдан қулай, ер ости бойликлари, хусусан, нефть ва газ захиралари ҳамда Каспий денгизи ва Қора денгиз ўртасидаги муҳим географик жойлашуви туфайли минтақавий ва минтақалараро кучларнинг эътиборини тортадиган минтақага айланди.

Саудия Арабистонининг Марказий Осиё давлатлари билан ўзаро ҳамкорлиги уч даражада амалга оширилди: 1) расмий: Саудия Арабистони ташқи сиёсий ва иқтисодий идоралари (Ташқи ишлар вазирлиги, Ислом ишлари вазирлиги, Ҳаж ва Умра вазирлиги, Тараққиёт жамғармаси ва бошқалар); 2) Саудия Арабистони томонидан молиялаштириладиган халқаро ислом тузилмалари (Жаҳон ислом иттифоқи, ИҲТ, Ислом тараққиёт банки ва бошқалар) орқали; 3) Марказий Осиёдаги ноқонуний диний оқимлар, гуруҳлар ва партияларга турли фондлар, компаниялар ва нодавлат ташкилотлар томонидан норасмий ҳомийлик қилиш йўли билан.[55]

Марказий Осиёдаги исломий радикализмни кенгроқ диний контекстдан ёки минтақанинг умумий маданий муҳитидан ажратиб бўлмайди. Шунинг учун исломий радикализмга қарши курашиш ёки чеклаш бўйича кўрилаётган ҳар қандай чора нафақат исломчиларнинг ўзига таъсири нуқтаи назаридан баҳоланиши керак, балки экстремистлар

[54] Yuldasheva, G. (2017). The Role of Iran and the United States of America in Geopolitics of Central Asia. Riga: Latvian Institute of International Affairs. P.133.
[55] Yuldasheva, G. (2017. P. 134.

кичик озчиликни ташкил этувчи кенгроқ жамиятга уларнинг таъсири нуқтаи назаридан ҳам кўриб чиқилиши керак.[56]

Марказий Осиёнинг юраги Фарғона водийси бўлиб, у ерда Ўзбекистон, Қирғизистон ва Тожикистон чегаралари туташган ва Марказий Осиёнинг

70 миллионлик аҳолисининг йигирма фоизи истиқомат қилади. Ўрта Осиёдаги сўнгги доимий ислом давлати — Қўқон хонлиги Фарғона водийсидаги Қўқон шаҳрида ташкил топган эди. Унга ҳозирги Ўзбекистон, Қирғизистон ва Тожикистоннинг бир қисми кирган. Хонликда ўтроқ ўзбеклар ва тожиклар, кўчманчи қозоқ ва қирғизлар, уйғурлар, форслар, ҳиндлар, турклар, араблар, яҳудийлар, хитойлар ва татарлар биргаликда катта мусулмон жамоаси бўлиб яшаган.[57]

1985 йилда Горбачёв ҳокимият тепасига келганида коммунистик тузумнинг расмий Исломга тоқати энг паст даражада эди. Бутун Ўрта Осиё ҳудудида биргина мадраса Бухорода фаолият кўрсатган бўлиб, унда ҳар йили оз сонли мусулмон руҳонийлари тайёрланар эди. Режим томонидан сайланган Тошкент муфтийси Совет Иттифоқидаги Исломнинг расмий вакили эди. Коммунистик партия матбуоти стандарт мусулмон ой тақвими ва мусулмонлар учун турли тилларда журнал чиқаради. Бироқ, атеистик тарғибот ва диний сабабларга кўра давом этаётган жазолар туфайли бу соҳадаги баъзи чекловлар олиб ташланиши керак эди. Қуръонни чоп этиш ва олиб кириш тақиқлангани сабабли бу борада катта бўшлиқ ва Қуръонга соғинч пайдо бўлди. Саудия Арабистони юз минг Қуръон жўнатиб, бўлажак зиёратчиларнинг харажатларини қоплади. Шунингдек, диний китобларни нашр қилишни ҳам бошлади. 1990 йиллардан бошлаб Марказий Осиё мусулмонларига ўз эътиқодларини якка тартибда амалга оширишга рухсат берилди, аммо

[56] Baran, Z. vd. (2016). Islamic Radicalism in Central Asia and the Caucasus: Implications for the EU. Central Asia-Caucasus Institute & Silk Road Studies Program, Washington. P.10.
[57] Zenn, J. (2013). “On the Eve of 2014: Islamism in Central Asia”. Current Trends in Islamist Ideology. 15, p. 68.

минтақадан ташқаридан келган деб ҳисобланган диний таъсирларга, шунингдек, диннинг ижтимоий ҳаёт ва сиёсатдаги аксарият ифодаларига қаршилик кўрсатилди. Шу нуқтаи назардан, Марказий Осиёдаги исломий ҳаракатлар яширин тарзда ёки минтақа ташқарисида қувғинда бўлганларда пайдо бўлди, ривожланди ва куч тўплади, постсовет минтақавий тартибни исломий тузумга айлантириш ва қайта шакллантириш имкониятларини кутди.[58]

Совет Иттифоқининг парчаланиши Марказий Осиёнинг 5 давлатига нафақат мустақиллик келтирди, шунингдек, у интернационализмга қарши миллатчилик, автократияга қарши демократия, секуляризмга қарши ислом каби масалалар доирасида жамоатчилик онгидаги чалкашликни ҳам очиб берди. Ислом динининг ўзи бугунги кунда Марказий Осиёда ижтимоий-сиёсий жараёнлар ривожланаётган жуда мураккаб фонни яратади.[59]

Ўтган асрнинг 90 йилларидан бошлаб Ўзбекистонда Саудия Арабистони томонидан турли манбалар орқали молиялаштирилади деб ҳисобланадиган бир қанча салафий гуруҳлар яширин тарзда фаолият олиб борган. Улар орасида Ўзбекистон Исломий Ҳаракати, Ҳизб ут-Таҳрир ва унга қарашли бўлимлар, Акромийлар ва Нусра фронти ҳамда “Таблиғи жамоат”, “Лашкари Тайба” сингарилар бўлган. Бу гуруҳларнинг барчаси Ўзбекистоннинг дунёвий демократик ҳукуматини ағдариб, Ислом халифалигини барпо этишга ҳаракат қилган. Ҳизб ут-Таҳрир нисбатан тинч йўлларни қўллаган бўлса, Ўзбекистон Исломий Ҳаракати қуролли воситаларга таянган. Ўзбекистонда бу гуруҳлар террористик жиноий гуруҳлар сифатида кўрилади ва уларнинг фаолияти тақиқланган.[60]

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[58] Zenn, J. (2013). 15, 70.

[59] Olimova, S.; Tolipov, F. (2011). Islamic Revival in Central Asia: The Cases of Uzbekistan and Tajikistan, Center for International Affairs (CIDOB), Barcelona, ASIA P.10.

[60] Mahmoudi, M.; Latifov, J. (2015). “The Role of Islam in Relations between Iran and The Nations of Central Asia”. Studies of International Relations Journal. 9 (29), P. 57.

Фарғона водийсида салафийлик ҳаракатининг мавжудлиги фақат Ўзбекистон билан чекланиб қолмаган, у Қирғизистон ҳукуматида ҳам доимо хавотир уйғотиб келган. Айтиш мумкинки, агар 90 йилларда бу ҳаракатлар Ўзбекистондан туриб қирғизистонликларни жалб қилган бўлса, кейинчалик улар Ўзбекистон куч тузулмаларининг кучли назоратидан қочиб, Қирғистонда жойлашган. 2015 йилгача бўлган ҳисоб-китобларга кўра, Қирғизистон жанубий вилоятлари аҳолисининг 10 фоизга яқини Ўзбекистон Исломий Ҳаракати тарафдорлари бўлишган. Жанубий Қирғизистон ва Тожикистон ўзбеклари, Ўзбекистондаги бошқа ҳамфикрлар билан гуруҳга катта қизиқиш билдиришган.

Бу гуруҳларнинг Саудия Арабистони билан алоқаси борасида аниқ далиллар бўлмаса-да, Саудиядаги нодавлат ташкилотлар радикал исломчиларнинг миссионерлик фаолиятини молиялаштираётгани тез-тез тилга олинган. С.Ҳантернинг қайд этишича, бу ёрдамнинг Саудия Арабистони ёки хусусий манбалар орқали кўрсатилган аниқ эмас. Аниғи шуки, Саудия Арабистони одатда бундай гуруҳларга ёрдам кўрсатиш манбалари сифатида ихтисослаштирилган турли хайрия фондлари, халқаро ислом ташкилотлари ва маданий марказлардан фойдаланади. Саудия Арабистони томонидан қўллаб-қувватланадиган энг нуфузли ёрдам агентликларидан бири 1962 йилда Маккада ташкил этилган Жаҳон Ислом Иттифоқи аъзоси Ал-Игасадир (штаб-квартираси Жиддада жойлашган). Бу ташкилотга кирган кўплаб миссионерлар ваҳҳобийликни ёйиб, Ўрта Осиё ва Шимолий Кавказда ислом давлатини барпо этишга чақирдилар.[61]

Саудияликлар Марказий Осиёдаги иқтисодий муаммолар ва қашшоқликдан хабардор бўлган ҳолда минтақада ўз мафкураларини тарқатди. Ар-Риёд томонидан молиялаштириладиган диний марказлар ва минтақадаги мадрасалар орқали ваҳҳобийлик мафкурасини ёйишга катта

[61] Bedirhan, Y. (2011). “Değişen Orta Asya ve Kafkaslarda Radikal Unsurların Yükselişi”. Erzincan Üniversitesi Sosyal Bilimler Enstitüsü Dergisi. 4 (2), P. 445

миқдорда маблағ сарфланган. Далиллар шуни кўрсатадики, минтақадаги ва Шимолий Кавказдаги фаол ваҳобий радикал гуруҳлар Саудия Арабистони томонидан хусусий ширкатлар орқали молиялаштирилган.[62] Ваҳҳобий саудиялик миссионерлар маълум даъволар ва редуктив ечимлар устида туриб минтақадаги исломнинг йўналишини белгилашга уринган. Исломий ўзига хосликка эга бўлган Марказий Осиёда миссионерларнинг кўп ҳаракатлари сўфийлик исломига хос бўлган нарсаларни йўқ қилишга қаратилган. Масалан, ваҳҳобий миссионерлар Наврўз байрамини қоралаб, бу анъанани ислом меросидан ташқари бутпарастлик амалиёти сифатида рад этишди. Бундан ташқари, кўплаб Саудия миссионерлари ҳанузгача маданий ғайриоддий анъаналарга ҳужум қилмоқдалар ва уларни ҳақиқий ислом билан алмаштиришга ҳаракат қилмоқдалар.[63]

1990 йилда Саудия Арабистони ҳукумати Совет Иттифоқининг мусулмон ўлкаларига юз минг нусха Қуръон юборди. Бир неча миллиондан ортиқроқ нуфусни ташкил қилувчи иттифоқ мусулмонлари учун бу жуда оз сон бўлса-да унинг амалий ва маънавий аҳамиятини юқори баҳолаш мумкин. Маълумки, совет қонунлари муқаддас битикларни, оятлар ва ҳадисларни чоп этиш ёки олиб киришга жиддий чекловлар ва баъзан тақиқ қўйган эди. Натижада, Қуръон ва ҳадис китоблари кимнингдир шахсий мулки сифатида уйда сақланиши ноёб бир ходиса бўлиб қолган эди. Бу вазиятни ҳисобга олган ҳолда, Саудия Арабистони турли мусулмон ташкилотлари диний материалларини рус ва бошқа тилларда нашр этишни молиялаштирган.[64] Динларнинг шахс ва жамиятни мустаҳкамлаш, ижтимоий тузилмани тартибга солиш ва бошқариш, маданий қадриятларни жамиятга ўтказиш функцияларини ҳисобга олиб, бу даврда минтақада юзага келган мафкуравий бўшлиқда минтақа аҳолиси ислом динига кўпироқ юзлана бошлади.

[62] https://pomeps.org/central-asia-and-the-iran-saudi-rivalry
[63] Van Gorder, C. (2008). Muslim- Christian Relations in Central Asia. New York. 89.
[64] Khalid, A. (2007). Islam after Communism: Religion and Politics in Central Asia. California: University of California Press. 121.

Маълумки, ислом Ўрта Осиёда кенг тарқалган дин бўлиб, шўролар даврида у билан юз берган салбий ҳодисаларни тўғрилаш, ижтимоий тузилмани тартибга солишни мавжуд вазиятнинг ўзи тақазо қилаётган эди. Узоқ йиллик совет пропагандасини бир-икки йил ичида ислом мафкураси сиқиб чиқариб ташлаганлигини ҳисобга олиб, ислом динининг халқ орасида катта қудратга эга эканлигини таъкидлаш мумкин. Мустақилликка эришгандан кейин минтақа давлатлари диний таълим ва фаолиятни марказлаштиришга ҳаракат қилган бўлса-да, минтақада диний тузилмалар тез тарқалди. Шу нуқтаи назардан, 1993 йилгача биргина Ўзбекистонда давлат назорати остида бўлмаган 5000 га яқин диний мактаб очилди.[65]

Диний мактаблар, айниқса ташқи кучлар назорати остида қолаётган мактаблар радикаллашувнинг асосий маскани бўлган. Масалан, Саудия Арабистони 1980 йилларда Афғонистондаги совет уруши даврида турли исломий гуруҳлар, мадраса ва масжидларни молиялаштирган, Саудия Арабистонидаги тармоқлар эса кейинчалик вазият бўлиши билан Марказий Осиёдаги диний мактабларни молиялашда давом этган.[66] Маълумотларга кўра, 1993 йил охирида алоҳида-алоҳида мактабларда икки минг ўғил-қиз давлат томонидан тасдиқланган ва текширилган бирор бир стандарт бўлмаган ҳолда, ислом таълимотларини ўқишни бошлаган. Бу сингари мактаблар ижтимоий ва иқтисодий муаммолар ичида яшаётган ўзбекистонликлар учун янада жозибадор кўриниши учун бепул таълим билан бирга, бепул тушлик ва бепул исломий қўлланмаларни тақдим этди. Бундан ташқари, улар маҳаллий қишлоқ масжидларида ўз даъватларини олиб бориш учун жума кунидан ташқари якшанба кунлари ҳам турли эҳсонлар ташкил қилиб кўпроқ одамларни жалб қилган.

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[65] Demirci, L. (2012). “Özbekistan, Kırgızistan ve Tacikistan’ın Kesişimindeki Sorunlu Vadi: Fergana”. Savunma Bilimleri Dergisi. 11 (2), 37.

[66] Tadjbakhsh, S. (2015). “Radicalization in the Heart of Asia Countries: Inputs for Informed Policy Actions”. Islamic Republic of Afghanistan: Regional Cooperation Directorate. 15.

Ўзбекистон дин қўмитаси маълумотларига кўра, 1999 йил август ойининг охирига келиб мамлакат ҳудудида 1700 дан ортиқ диний ташкилотлар рўйхатга олинган. Улардан 1566 таси исломий ташкилотлар, 136 таси бошқа ташкилотлардир. Шу билан бирга, бу даврга келиб биргина Тошкент шаҳрида давлат тасарруфидаги 1200 ўқувчига мўлжалланган тўққизта умумтаълим мактаби ва 750 нафар талаба таҳсил оладиган Тошкент Ислом олий институтида ҳам диний таълим ташкил қилинган. Бундан ташқари, 1999 йил сентябрь ойида ўша даврдаги мамлакат президент Ислом Каримовнинг фармони билан Тошкент ислом университети очилган.[67]

Аслини олганда, Марказий Осиё мамлакатларида, хусусан, Ўзбекистон ва Тожикистонда мусулмон жамоалари ўзларини ваҳҳобий деб айтишни исташмас эди. 1980 йилларнинг охири ва 1990 йилларнинг бошига келиб улар ўзларини ваҳҳобий деб атай бошлади. Бу, одатда, уларнинг раҳбарлари ҳаждан қайтганларидан кейин содир бўлган. Улар Саудия Арабистонида гувоҳ бўлган ижтимоий-иқтисодий фаровонлик, бой диний ҳаёт ва зиёрат пайтида ҳис қилган мусулмон бирдамлик туйғуси ваҳҳобийлик билан боғлиқ эди.[68] Маълумотларга кўра, ўша даврда Тожикистонда қишлоқ аҳолисининг 30-40 фоизи ва шаҳар аҳолисининг 5-10 фоизи салафийлик қоидаларига мунтазам ва жиддий равишда амал қилган ва бу кўрсатгич доимий ўсиб борган. Саудия Арабистони томонидан қўллаб-қувватланган Эко Ислом банки орқали ваҳҳобийликни тарғиб қилувчи масжид имомларига расмий равишда ойлик маош тўлаб борилган.

Салтанат Бердикеэванинг айтишича, СССР ўзининг 70 йиллик фаолияти давомида коммунизм тарғиботига тахминан 7 миллиард доллар сарфлаган бўлса, Саудия Арабистони 1980 йиллардан буён ваҳҳобийлик

[67] Khairi, A. (2001). Central Asia and West Asia: a Comparative Study Central Asias Relations with Saudi Arabia and Turkey since 1991, Jawaharlal Nehru University Phd Thesis, India. 171.
[68] Niyazi, A. (1999). “Islam and Tajikistan’s Human and Ecological Crisis”, Civil Society in Central Asia. Ed., M. Holt Ruffin; Daniel C. Waugh. Seattle: University of Washington Press, 180-198.

мафкурасини тарқатиш учун 90 миллиард доллар сарфлаган.[69] Саудия Арабистони молиячилари диний ташкилотларни қўллаб-қувватлашда тобора кўпроқ иштирок этмоқда. Улар “исломий онг” деб аташ мумкин бўлган барча нарсаларни жонлантиришга ёрдам бериш учун диний маслаҳатчиларни молиялаштиришдан асло чекинмайди. Бу борада Румер шундай дейди: “Араб нефть долларларининг шитирлаши Марказий Осиёда тобора кўпроқ эшитилиб бормоқда”. Саудия миссионерлари 1990 йиллар бошида Фарғона водийсида “Адолат” номли ҳаракат ташкил этиб, нафақат ислом динини ўргатдилар, балки ижтимоий адолатни тарғиб этмаётган маҳаллий ҳукуматларга ҳам қарши тарғибот олиб бордилар. 1992 йил март ойида бу ҳаракат Ўзбекистон ҳукумати томонидан тақиқланган. Ҳаракат етакчилари Тожикистонга қочиб, у ердаги фуқаролар урушида фаол иштирок этган. Бундан ташқари, Саудия диний ташкилотлари Марказий Осиёда фаолият юритаётган ислом ўқитувчиларига, миссионерлар ва Қуръоннинг (ва бошқа диний китобларнинг) ўзбекча ва тожикча таржималари кўп миқдорда нашр этилишига молиявий ёрдам кўрсатди.[70]

Ўзбекистон, Қозоғистон, Озарбайжон, Татаристон ва Чеченистон каби собиқ Иттифоққа борган ваҳҳобийлик тарафдорлари ўз ғояларини ёйиш учун Саудия Арабистони томонидан ажратилган маблағ эвазига маҳаллий аёллар билан никоҳланишга ҳаракат қилган. Ушбу амалиётдан кўзланган мақсад эса аввало ушбу ҳудудлардаги аёлларга ваҳҳобийлик ғояларини таништириш, сўнгра бу аёллардан туғилган болалар орқали ваҳҳобийлик авлодини кўпайтириш бўлган. Шу сабабли, Россия ва собиқ Совет Иттифоқи мамлакатларида яшовчи ваҳҳобийлар сони камида яқин йилларда сезиларли даражада ошиши башорат қилинади.[71] Марказий

[69] Berdikeeva, S. (2020). “Saudi Arabia’s Growing Influence in Central Asia”. Inside Arabia, https://insidearabia.com/saudi-arabias-growing-influence-in-central-asia/ (2021).
[70] Van Gorder, C. (2008). Muslim- Christian Relations in Central Asia. New York: Routledge. 114.
[71] Athari, S. A; Hoseiniler, S. H. (2014). “Saudi Arabia’s Role in the Developments in the Caucasus and Central Asia (Impact its Determine on the Legal Regime of the Caspian Sea)”. Journal of Political and

Осиёдаги “ваҳҳобийлар” ёки “террорчилар” деб номланган бу турли исломий гуруҳларни бирлаштирган нарса пайғамбар даврида мавжуд бўлган “соф” исломга эътиқоддир. Исломчиларнинг фикрича, бу дин соф Исломга қайтишдир. Улар ахлоқий, маданий ва сиёсий таназзулга учраган мусулмон жамиятларини қутқаришнинг ягона йўли ваҳҳобийлик деб тушунтиради ва улар бунга жамиятларни қайта исломлаштириш ва Марказий Осиё ислом давлатларини барпо этиш орқали эришиш мумкин деб ҳисоблайди.

Саудия Арабистони Марказий Осиёдаги энг фундаментал исломий ҳаракатларни қўллаб-қувватлагани учун шуҳрат қозонган. 1991 йилдан кейин Саудия ҳукумати минтақага унчалик қизиқиш билдирмади. Бироқ, ёрдам ташкилотлари ва исломчилар фаолроқ ҳаракат қилишди. Шу нуқтаи назардан, масжид ва мадрасалар қурилиши, ислом адабиёти ва ҳажга ҳомийлик қилиш учун маблағ ажратдилар.

Хулоса

Ваҳҳобийлик ғояси Саудия Арабистони ташқи сиёсатида ҳал қилувчи омил бўлиб, унга турли минтақаларга таъсир ўтказиш имкониятини беради. Саудия Арабистони Марказий Осиё учун стратегик ва геосиёсий истиқболга эга. Риёд бу минтақада ўз стратегияларида ҳар доим бошқа актёрлар билан рақобатда. Унинг сиёсати Эрон, Туркия ва Россия каби геосиёсий ва мафкуравий манфаатларга эга бўлган давлатларнинг бу ердаги сиёсатидан стратегик жиҳатдан фарқ қилади. Қироллик ҳозирда ваҳҳобийлик мафкурасини ривожлантириш орқали Марказий Осиёда ўз таъсири ва қудратини оширишга интилганлиги кузатилган. Бироқ минтақадаги дунёвий хусусиятга эга сиёсий элита унинг минтақада ваҳҳобийликни кенг тарқатиш сиёсатига йўл бермайди.

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