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## **SYNAPSES: INSIGHTS ACROSS THE DISCIPLINES**

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## TIJORAT BANKLARINI KREDIT PORTFELINI BOSHQARISHNI TAKOMILLASHTIRISH YO‘LLARI

To‘xtayeva Bahor Rashid qizi

Bank-moliya akademiyasi 2-kurs magistranti

### Annotatsiya

Ushbu maqolada tijorat banklarining kredit portfelini samarali boshqarish masalalari, ularning iqtisodiyotdagi roli hamda moliyaviy barqarorlikni ta’minlashdagi ahamiyati tahlil qilingan. Shuningdek, xalqaro va milliy amaliyot misolida kredit risklarini kamaytirish, portfelni diversifikatsiya qilish hamda nazorat tizimini takomillashtirish yo‘llari o‘rganilgan. O‘zbekiston bank tizimi transformatsiyasi jarayonida kredit siyosatini optimallashtirish, “yashil kreditlash” konsepsiyasini rivojlantirish va portfel barqarorligini ta’minlashning ilmiy asoslari ishlab chiqilgan. Maqola natijalari tijorat banklarining kredit portfelini samarali boshqarish, risklarni minimallashtirish va iqtisodiy o‘shishni moliyaviy qo‘llab-quvvatlashga qaratilgan ilmiy-amaliy takliflarni o‘z ichiga oladi.

### Kalit so‘zlar:

Tijorat banklari, kredit portfeli, risk, diversifikatsiya, barqarorlik, kredit siyosati, moliyaviy tizim, rentabellik, likvidlik, sun’iy intellekt, big data, Basel III, monitoring, HHI indeksi, defolt, muammoli kreditlar, yashil kreditlash, bank transformatsiyasi, iqtisodiy islohotlar, raqamli texnologiyalar.

### Kirish

So‘nggi yillarda global iqtisodiy beqarorlik, pandemiya va inflyatsiya xavflari kuchaygani sababli tijorat banklari kredit portfeli sifatini oshirish zaruriyati jahon miqyosida dolzarb ahamiyat kasb etmoqda. Kredit portfelining yomonlashuvi nafaqat banklar uchun moliyaviy yo‘qotishlarga, balki tizimli risklarning ortishiga olib keladi. Shu bois rivojlangan mamlakatlar banklari kredit baholash tizimini raqamlashtirish, sun’iy intellekt va “big data” asosida mijozlarning to‘lov qobiliyatini real vaqt rejimida kuzatish orqali portfel sifatini yaxshilashga intilmoqda. Masalan, 2023-yilda JPMorgan Chase banki kreditlarining 98 foizi, Deutsche Bankda esa 94 foizi past riskli deb baholangan.

Xalqaro tadqiqotlar kredit risklarini kamaytirish, portfelni diversifikatsiya qilish va raqamli tahlil mexanizmlarini joriy etish yo‘nalishida olib borilmoqda. Shu bilan birga, rivojlanayotgan mamlakatlarda bu sohada ilmiy yondashuvlar yetarli emas. Kelgusida kredit sifatini oshirish, risklarni prognozlash va sug‘urta mexanizmlarini takomillashtirish, shuningdek, raqamli texnologiyalar asosida qaror qabul qilishni rivojlantirish zarur.

O‘zbekistonda esa bank sektorini transformatsiya qilish, davlat ishtirokidagi banklarni xususiylashtirish va raqamli xizmatlarni kengaytirish jarayonlari kredit portfeli sifati masalasining strategik ahamiyatini oshirmoqda. Ayrim banklarda muammoli kreditlar ulushi ortayotgani, tahlil mexanizmlarining yetarli emasligi va riskli aktivlar salmog‘ining yuqoriligi tizim barqarorligiga xavf tug‘diradi. Shu bois kredit portfeli tarkibi, mijozlarning to‘lov qobiliyati hamda kredit reyting tizimlarini ilmiy o‘rganish, xalqaro metodologiyalarni joriy etish va monitoring samaradorligini oshirish muhim hisoblanadi.

## Adabiyotlar sharxi

Xorijiy ilmiy adabiyotlarda kredit portfelini boshqarish jarayonlari asosan risklarni kamaytirish, portfelni diversifikatsiya qilish va nazorat tizimini takomillashtirishga qaratilgan. Tadqiqotlarda kredit portfeli strukturasi optimallashtirish, risk va daromadlilik o‘rtasidagi muvozanatni ta‘minlash hamda qarz oluvchilarning to‘lov qobiliyatini tahlil qilish muhim yo‘nalish sifatida ko‘riladi.

K. Miyamoto (2022) kredit portfelidagi risklarni baholashda kvant algoritmlarining an‘anaviy modellarga nisbatan yuqori aniqlik berishini ta‘kidlaydi, K. Jakob (2022) esa o‘zgaruvchan defolt ehtimollari sharoitida korrelyatsiya parametrlarini hisoblash modelini ishlab chiqqan. J.A. Castillo va A. Mora-Valencia (2023) kichik va o‘rta biznes kredit portfellarida “axloqiy tavakkalchilik” omilining muhimligini ko‘rsatgan.

L.S. Mbeukam (2024) kredit portfelidagi o‘tish risklarini baholashda moliyaviy derivativlar va sug‘urta vositalaridan foydalanishni taklif etgan. Ozili P.K. (2019) esa muammoli kreditlarning ko‘payishi bank tizimining ishonchligini pasaytirishini aniqlagan.

Ferreira C. va Ofria & Mucciardi (2022) kredit portfeli sifatiga makroiqtisodiy barqarorlik va fiskal siyosat bevosita ta‘sir ko‘rsatishini ta‘kidlab, davlat qarorlarining izchilligi kredit sifatini belgilovchi muhim omil ekanini qayd etgan.

Umuman, xorijiy tadqiqotlar natijalariga ko‘ra, kredit portfelini boshqarishda risklarni kamaytirish, rentabellikni ta‘minlash va bank barqarorligini mustahkamlash uchun integratsiyalashgan tahliliy modellar va zamonaviy texnologiyalarni qo‘llash zarur.

O‘zbekistonlik iqtisodchi olimlar — N. Jumayev, B. Berdiyarov, A. Burxanov, O. Sattarov, Sh. Xannaev, M. Toshboev, Sh. Madrahimov va S. Ergashevlarning tadqiqotlari milliy bank tizimining barqarorligi, likvidlikni boshqarish va kredit portfeli sifatini yaxshilash masalalariga bag‘ishlangan.

N. Jumayev (2020) tijorat banklarida kredit portfelining sektorlar bo‘yicha diversifikatsiyasi risklarni kamaytirishning muhim omili ekanini ta‘kidlagan. B. Berdiyarov (2020) monetar siyosat vositalarining bank likvidligi va kreditlash hajmiga

ta'sirini tahlil qilgan. A. Burxanov (2020) esa kredit portfeli sifati va muammoli kreditlar ulushini bank moliyaviy xavfsizligining asosiy mezonini sifatida baholaydi.

Sh. Xannaev (2021) kredit portfeli samaradorligini aniqlashda bank rentabelligi, aktivlar sifati va kapital yetarliligini birgalikda tahlil qilish zarurligini asoslagan. M. Toshboev (2021) risklarni boshqarish strategiyalarini ishlab chiqishni taklif etgan bo'lsa, Sh. Madrahimov (2020) kredit risklarini oldindan prognozlashda zamonaviy monitoring tizimlarining ahamiyatini ko'rsatgan.

S. Ergashev (2022) esa kredit portfelini diversifikatsiya qilish bank tizimining moliyaviy barqarorligini ta'minlovchi asosiy omil ekanini ilmiy asosda bayon etgan.

Umuman olganda, milliy olimlar tadqiqotlari tijorat banklarida kredit portfeli boshqaruvi murakkab, ko'p bosqichli jarayon bo'lib, uning samaradorligi bankning likvidligi, foydaliligi va barqarorligiga bevosita ta'sir etishini ko'rsatadi. Shu bois, kredit portfelini boshqarishda ichki siyosat, tashqi iqtisodiy omillar va raqamli tahlil texnologiyalarini uyg'un qo'llash zarur.

## Asosiy qism

Bozor iqtisodiyoti sharoitida tijorat banklari moliya tizimining eng faol subyektlaridan biri bo'lib, ularning asosiy faoliyati kreditlash bilan bog'liqdir. Kredit operatsiyalari banklarning eng daromadli, ammo eng xavfli yo'nalishi sanaladi. Ular iqtisodiyotning real sektorini moliyalashtirish, tadbirkorlikni rivojlantirish va aholi farovonligini oshirishda muhim o'rin tutadi. Shu bilan birga, kredit risklari, likvidlik yetishmovchiligi va qaytmas kreditlar bank tizimi barqarorligiga jiddiy tahdid tug'diradi.

Kredit portfeli bank aktivlarining asosiy qismini tashkil etib, uning sifati va diversifikatsiyasi moliyaviy barqarorlikni belgilovchi muhim mezondir. Xalqaro tajribada Markovitsning "portfel nazariyasi", Sharpe'ning "risk-daromad koeffitsienti", Altman Z-score modeli hamda Basel III standartlari kredit riskini baholashning ilmiy asosini tashkil etadi. Bugungi kunda banklarda kredit portfelini tahlil qilish, risklarni aniqlash, diversifikatsiya strategiyasini ishlab chiqish va monitoring tizimini takomillashtirish orqali portfel samaradorligini oshirishga e'tibor kuchaymoqda.

Rivojlanayotgan davlatlarda, jumladan, O'zbekistonda davlat ishtirokidagi banklar iqtisodiyotning strategik yo'nalishlarini moliyalashtirishda yetakchi o'rin tutadi. Biroq, ayrim hollarda bu jarayon iqtisodiy emas, balki ma'muriy yoki siyosiy omillar bilan cheklanib, portfel diversifikatsiyasining buzilishiga olib keladi. Bunday holatda risk darajasi oshadi va kredit sifatiga salbiy ta'sir ko'rsatadi. Shu bois, Herfindahl-Hirschman indeksi (HHI) kabi ko'rsatkichlardan foydalanish orqali portfel konsentratsiyasini nazorat qilish muhimdir.

Moliyaviy axborotlarning yetarli emasligi, raqamlashtirish darajasining pastligi va monitoring tizimlarining rivojlanmaganligi ham kredit portfelini boshqarishda asosiy muammolardan biri sanaladi. Shu sababli, kredit riskini aniqlash, tahlil qilish va boshqarishga mo'ljallangan axborot tizimlarini joriy etish zarur.

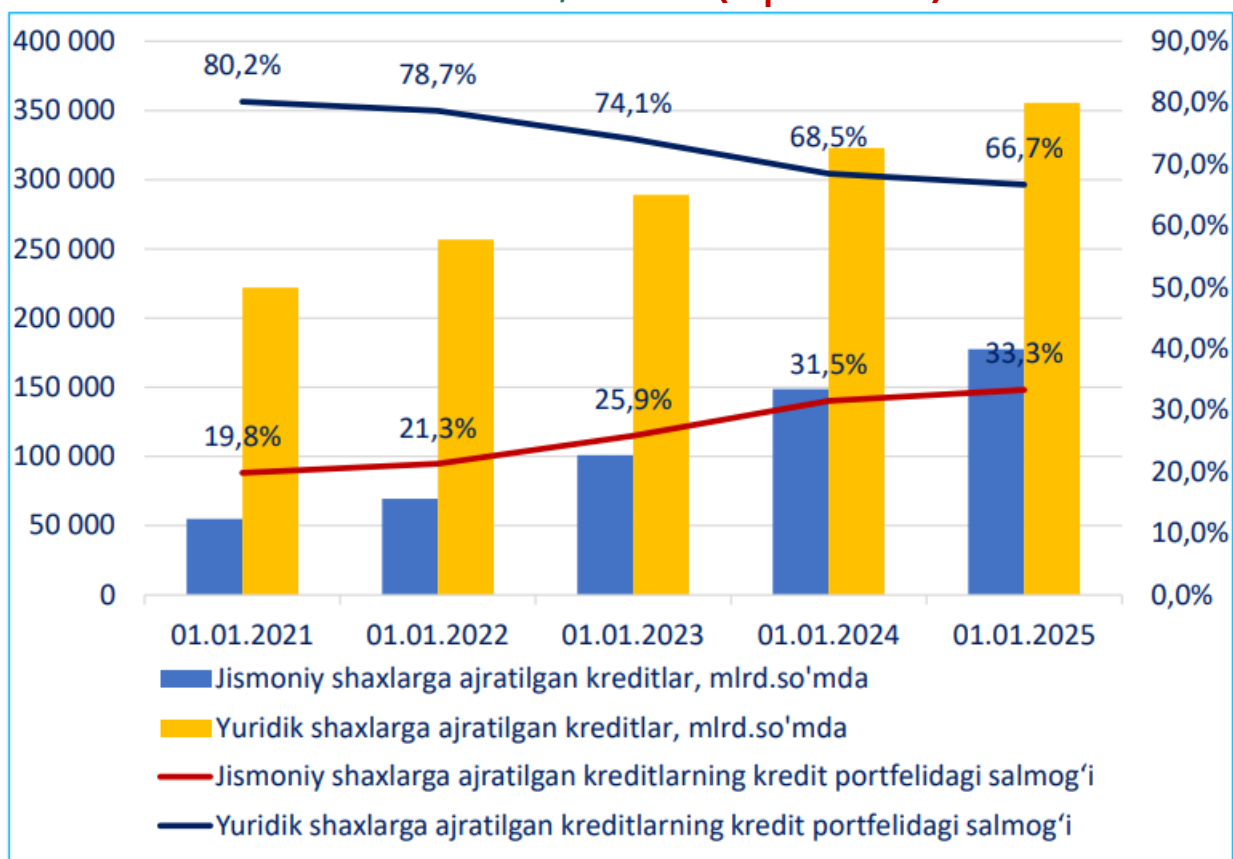
Banklar uchun kredit portfeli samaradorligini oshirish — bu nafaqat foyda olish, balki risklarni minimallashtirish, kapitalni oqilona taqsimlash va likvidlikni ta'minlash vositasidir. So'nggi yillarda "yashil kreditlash" konsepsiyasi ham ahamiyat kasb etib, ekologik va barqaror loyihalarga beriladigan kreditlar bank rentabelligini oshirishi isbotlangan. Shu bois, tijorat banklari uchun kredit portfelini diversifikatsiya qilish, yangi sohalarni moliyalashtirish va raqamli texnologiyalarni joriy etish kredit faoliyati samaradorligini oshirishning muhim omilidir.

1-jadval

## Ilmiy nuqtayi nazardan, kredit portfelining mohiyatini va uning asosiy jihatlari

<b>Aktivlarning iqtisodiy tizimi sifatida</b>	Bank kapitalining real sektordagi aylanmasini, foyda keltiruvchi operatsiyalar hajmini ifodalaydi.
<b>Risk va daromadning o'zaro muvozanatini ta'minlovchi vosita sifatida</b>	Riskni kamaytirgan holda yuqori daromad olish imkonini beruvchi optimal portfelni shakllantirishdir
<b>Strategik boshqaruv ob'ekti sifatida</b>	Bankning kredit siyosatini, kapital yetarliligi darajasini, mijozlar bazasini va uzoq muddatli rivojlanish istiqbollari belgilaydi.

Tijorat banklarining kreditlari mamlakatimiz iqtisodiyotining barqaror rivojlanishini ta'minlashda qanday o'rin tutishini keyingi misolda ko'rib chiqamiz.



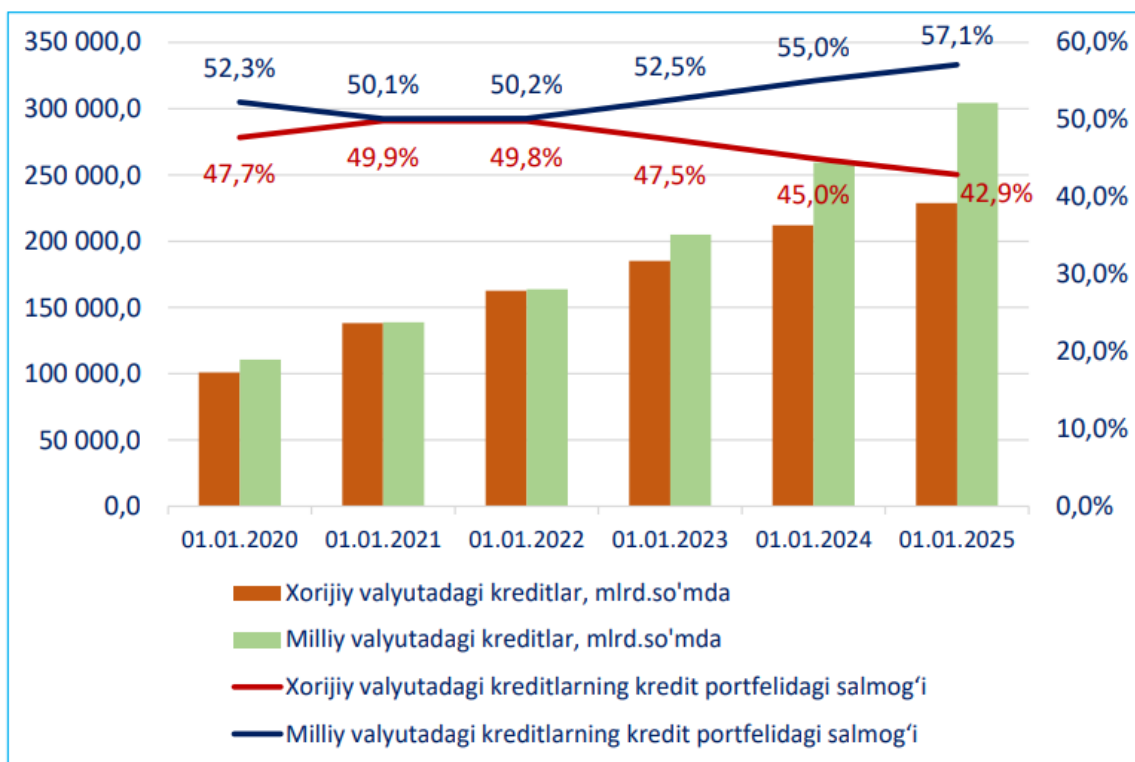
#### 4.2.1-rasm. Tijorat banklar tomonidan ajratilgan kreditlarning subyektlariga ko'ra o'zgarish dinamikasi<sup>1</sup> (mlrd.so'mda)

Yuqoridagi rasm orqali O'zbekiston bank tizimida 2021–2025 yillar davomida jismoniy va yuridik shaxslarga ajratilgan kreditlar hajmi va ulushidagi dinamik o'zgarishlarni tahlil qilamiz. mazkur tendensiyalar bank sektorining diversifikatsiyalashuvi, kredit portfelining ko'p qirrali segmentlarga ajralib borayotgani va risklarni muvozanatlashgan holda boshqarish mexanizmlarining shakllanayotganini ko'rsatadi. Jismoniy shaxslarga ajratilgan kreditlar ulushining ortib borayotgani banklar uchun barqaror daromad manbai hisoblanadi, chunki bu segment, odatda, katta miqdordagi kreditlar emas, balki ko'plab mayda kreditlar orqali portfelni kengaytiradi. Bu esa kredit portfelining xatar darajasini pasaytiradi va bank barqarorligini mustahkamlashga xizmat qiladi. Shu sababli, so'nggi yillarda kuzatilayotgan bu strukturaviy siljishlar moliyaviy tizimda muhim sifat o'zgarishlarini yuzaga keltirib, bank xizmatlarining aholiga yanada yaqinlashishiga olib keldi.

2020 yilda xorijiy valyutadagi kreditlar hajmi 100 947,3 mlrd so'mni tashkil etgan bo'lsa, 2025 yilga kelib bu ko'rsatkich 228 718,0 mlrd so'mga yetgan. Ya'ni 5 yilda xorijiy valyutadagi kreditlar hajmi 2,3 barobarga oshgan. Shu bilan birga, milliy

<sup>1</sup> O'zbekiston Respublikasi Markaziy bankning rasmiy sayti [www.cbu.uz](http://www.cbu.uz) ma'lumotlari asosida muallif ishlanmasi

valyutadagi kreditlar 2020 yildagi 110 633,2 mlrd so‘mdan 2025 yilda 304 403,2 mlrd so‘mga yetgan, bu esa 2,75 barobardan ortiq o‘shishni anglatadi. Mazkur statistik o‘zgarishlar milliy valyutadagi kreditlar hajmining xorijiy valyutadagiga nisbatan tezroq o‘sayotganini ko‘rsatadi.



**4.2.3-rasm. Mamlakatimiz bank tizimida kredit portfelining valyuta birliklariga ko‘ra o‘zgarish dinamikasi<sup>2</sup> (mlrd.so‘mda)**

Ushbu davrda milliy valyutadagi kreditlarning hajm jihatidan ortib borayotgani nafaqat makroiqtisodiy barqarorlik, balki banklar uchun aktivlar sifati va kredit xavflarining kamayishiga ijobiy ta‘sir ko‘rsatadi. Milliy valyutada moliyalashtirishning kengayishi bilan banklar kredit siyosatini yanada moslashuvchan yurita boshladi, bu esa, o‘z navbatida, kredit oluvchilar soni va kreditlash segmentlarining diversifikatsiyalashuviga olib keldi. Xorijiy valyutadagi kreditlarning nisbatan pasayib borayotgan salmog‘i esa tashqi qarzlilikka bog‘liqlikning kamayib borayotganini bildiradi. Bu jarayonlar, o‘z navbatida, mamlakat moliyaviy tizimining ichki manbalar hisobidan rivojlanayotganini anglatadi.

## Xulosa

Tijorat banklarining kredit portfelini boshqarish bugungi kunda moliya tizimi barqarorligini ta‘minlashda eng muhim omillardan biridir. O‘zbekiston iqtisodiyoti

<sup>2</sup> O‘zbekiston Respublikasi Markaziy bankning rasmiy sayti [www.cbu.uz](http://www.cbu.uz) ma‘lumotlari asosida muallif ishlanmasi

uchun ushbu yoʻnalish nafaqat bank sektorining, balki butun iqtisodiy tizimning rivojlanish barqarorligini belgilaydi. Muallifning tadqiqotidan kelib chiqib, bir nechta asosiy ilmiy va amaliy xulosalarni ajratish mumkin.

Birinchi, kredit portfeli bank aktivlarining asosiy qismini tashkil etadi va ularning sifati bevosita bankning moliyaviy barqarorligi, likvidligi hamda daromadlilikini belgilab beradi. Kredit portfelining samaradorligini oshirish uchun tijorat banklari risklarni aniqlash, tahlil qilish va diversifikatsiya qilishning zamonaviy mexanizmlarini qoʻllashi zarur. Ayniqsa, portfelni optimallashtirishda Markovits, Sharpe, Altman modellari va Basel III talablariga asoslanish bank amaliyoti uchun ilmiy asos boʻlib xizmat qiladi.

Ikkinchi, Oʻzbekiston bank tizimi transformatsiya jarayonida boʻlib, bu davrda kredit portfelini raqamli asosda boshqarish, sunʼiy intellekt texnologiyalaridan foydalanish hamda risklarni oldindan prognozlash imkoniyatlarini kengaytirish muhim ahamiyat kasb etadi. Maqolada qayd etilganidek, “big data” tahlili, kredit reyting tizimlari va raqamli monitoring orqali banklar qarz oluvchilarning toʻlov qobiliyatini real vaqt rejimida aniqlay oladi. Bu esa, kredit sifatini oshirish va muammoli kreditlar ulushini kamaytirishga xizmat qiladi.

Uchinchi, davlat ishtirokidagi banklar uchun portfel konsentratsiyasining yuqoriligi va maʼmuriy qarorlarning ustuvorligi kredit risklarining ortishiga sabab boʻlmoqda. Shu bois, portfel tuzilmasini diversifikatsiya qilish, Herfindahl–Hirschman indeksi (HHI) orqali risk darajasini aniqlash va kredit siyosatini bozor tamoyillariga moslashtirish zarur. Bu nafaqat barqarorlikni, balki raqobatbardoshlikni ham oshiradi.

Toʻrtinchi, maqolada Oʻzbekiston banklarida kredit portfelining milliy va xorijiy valyutadagi hajmlari oʻrtasidagi oʻzgarishlar asosli tahlil qilingan. Milliy valyutadagi kreditlarning oʻsishi ichki moliya manbalarining kuchayganini, tashqi qarzlilik darajasining esa kamayganini bildiradi. Bu esa iqtisodiyotda mustaqil va barqaror moliyalashtirish tizimi shakllanayotganini koʻrsatadi. Shu jihatdan, milliy valyutadagi kreditlar hajmini kengaytirish strategik yoʻnalish sifatida koʻriladi.

Beshinchi, tijorat banklarining kredit siyosatida “yashil kreditlash” konsepsiyasining joriy etilishi bank faoliyatini ekologik va barqaror rivojlanish tamoyillariga yaqinlashtirmoqda. Bu nafaqat iqtisodiy foyda, balki ijtimoiy masʼuliyatni ham oshiradi. Yashil kreditlar qaytarilish darajasi yuqori boʻlgani sababli, ular banklar uchun xavfsiz aktivlar sifatida eʼtirof etiladi.

Oltinchi, maqolada kredit portfeli sifatini oshirish uchun raqamli transformatsiya jarayonlarini jadallashtirish zarurligi alohida taʼkidlangan. Raqamlashtirish kredit jarayonlarining shaffofligini oshiradi, inson omilini kamaytiradi hamda kredit tahlili va monitoringini avtomatlashtirish imkonini beradi. Bu jarayonlar

O‘zbekiston Respublikasi Prezidentining PF–60, PF–5992 va PQ–162-sonli qarorlarida belgilangan ustuvor yo‘nalishlar bilan hamohangdir.

Yettinchidan, maqoladagi tahlillar shuni ko‘rsatadiki, kredit portfelini boshqarishda faqat risklarni kamaytirish emas, balki rentabellikni saqlash ham muhim. Shu maqsadda banklar optimal risk–daromad nisbatini ta‘minlaydigan portfel tuzilmasini shakllantirishlari lozim. Bu borada risklarni baholashning yangi modellari — Value-at-Risk (VaR), stress-test va kredit reyting tizimlaridan foydalanish taklif etiladi.

Sakkizinchidan, muallifning tahlillari shuni ko‘rsatadiki, tijorat banklarida kredit portfeli samaradorligini oshirish uchun malakali kadrlar, ilg‘or tahlil dasturlari va avtomatlashtirilgan monitoring tizimlari zarur. Bu tizimlar yordamida banklar kredit resurslarining real sektor samaradorligiga ta‘sirini aniqlay oladilar.

To‘qqizinchidan, maqolada keltirilgan statistika tahlillari — kredit portfeli tarkibining subyektlar, valyuta birliklari va risk darajalari bo‘yicha o‘zgarishi — bank tizimida ijobiy tendensiyalar mavjudligini ko‘rsatadi. Ayniqsa, jismoniy shaxslar segmentining o‘sishi, banklar uchun barqaror daromad manbaini yaratmoqda va kredit risklarining pasayishiga xizmat qilmoqda.

Xulosa o‘rnida ta‘kidlash joizki, tijorat banklarining kredit portfelini boshqarish samaradorligini oshirish O‘zbekiston bank tizimining transformatsion jarayonlarida hal qiluvchi o‘rin tutadi. Kredit portfelini diversifikatsiya qilish, raqamli texnologiyalarni keng joriy etish, risklarni baholashning xalqaro standartlarini qo‘llash va inson omilini kamaytirish orqali banklar moliyaviy barqarorlik, shaffoflik va ishonchlilikka erishadi. Shuningdek, ilmiy asoslangan yondashuvlar asosida ishlab chiqilgan kredit siyosati iqtisodiy o‘shishni qo‘llab-quvvatlaydi, real sektorni moliyalashtirishni kengaytiradi hamda milliy bank tizimining global raqobatbardoshligini oshiradi.

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## Abstract

This article examines the correlation between intertextuality and conceptual integration theory (blending theory), arguing that intertextuality should be understood not only as a structural dialogue between texts but also as a cognitive mechanism that governs meaning construction and interpretation. Drawing upon the works of M. Bakhtin, J. Kristeva, G. Fauconnier, and M. Turner, the study explores how readers engage in mental-space construction, cross-space mapping, and conceptual blending when encountering intertextual references. Examples from English and Russian literature illustrate how conceptual integration generates emergent meanings and enriches textual interpretation. The article concludes that intertextuality is fundamentally grounded in cognitive processes and that conceptual blending provides a powerful framework for analyzing the dynamics of meaning-making in literary discourse.

**Keywords:** intertextuality, conceptual integration, mental spaces, blending theory, cognitive linguistics, literary semantics, emergent meaning.

## 1. Introduction

Intertextuality has long been recognized as a central category in literary theory. Since the pioneering works of Julia Kristeva and Roland Barthes, it has been interpreted as the presence of other texts within a given text, forming a dialogic network of citations, allusions, reminiscences, and cultural codes. However, the rapid development of cognitive linguistics in the late twentieth and early twenty-first centuries has opened new pathways for rethinking intertextuality from a cognitive-semantic perspective.

The theory of conceptual integration (Fauconnier & Turner, 2002), also known as blending theory, offers a rich explanatory model for understanding how readers combine information from multiple conceptual domains when interpreting intertextual elements in literary texts. Intertextuality, therefore, should not be viewed merely as textual coexistence but as a process driven by cognitive mechanisms of mapping, projection, and integration.

The aim of this article is to demonstrate that intertextuality is essentially a product of conceptual blending and that the blending process serves as the foundation for the creation of new meanings in literary communication.

## 2. Intertextuality: Definitions and Theoretical Approaches

### 2.1. Classical Perspectives on Intertextuality

Early definitions of intertextuality derive from structuralist and poststructuralist paradigms. Kristeva (1980) describes every text as a “mosaic of quotations,” echoing and transforming previous texts. Bakhtin (1975) conceptualizes the phenomenon through dialogism—the idea that each utterance is connected to prior and future discourses. Genette (1997) later proposed a taxonomy of transtextual relations, including intertextuality, hypertextuality, and metatextuality.

In these perspectives, intertextuality is largely a textual-structural concept, focusing on observable relations between textual entities.

### 2.2. Cognitive Approaches to Intertextuality

Modern cognitive linguistics shifts the focus to how readers mentally reconstruct and integrate these relations. Researchers such as E. Kubryakova, E. Semino, W. Werner, and others argue that intertextuality engages cognitive mechanisms such as conceptual frames, schemas, and mental models.

In other words, intertextuality exists not only in the text but also in the mind of the reader, who activates background knowledge to interpret intertextual cues.

## 3. Conceptual Integration Theory: Key Principles

### 3.1. Mental Spaces

Fauconnier (1994) defines mental spaces as small conceptual packets constructed dynamically in thought and discourse.

They include contextual knowledge, situational elements, and conceptual structures relevant to interpretation.

### 3.2. Cross-Space Mapping

Conceptual integration relies on establishing correspondences between elements of different mental spaces. These mappings identify relationships between source and target spaces—for example, between a literary character and a mythological figure referenced in an allusion.

### 3.3. The Blended Space

The blended space is an integrated conceptual structure that contains emergent features not found directly in any of the input spaces (Fauconnier & Turner, 2002). This emergent meaning is crucial for interpreting metaphor, allegory, and intertextual references.

### 3.4. Emergent Structure

The blending process produces a new conceptual structure that cannot be reduced to the sum of its parts. This is particularly important for literary interpretation, where symbolic and associative meanings dominate.

## 4. Intertextuality as Conceptual Blending

### 4.1. Cognitive Nature of Intertextual Connections

Intertextuality functions through the integration of at least two mental spaces:

1. the current textual space,
2. the intertextual (referenced) space.

The reader constructs a blended space where elements from both inputs interact, producing an enriched interpretation.

Example

“He was a modern Don Quixote.”

Here the reader blends:

- the character of Don Quixote (idealism, naivety, romantic struggle),
- the modern context of the protagonist,
- the cultural model of “quixotism.”

The blended space produces the emergent meaning: a dreamer fighting unrealistic battles in a contemporary world.

### 4.2. Allusion as a Trigger for Cognitive Integration

Allusions activate background knowledge and invite the reader to map elements between the textual situation and a known text or cultural model.

Example:

“She carried her cross with silent dignity.”

This invokes:

- Biblical conceptual space (the burden of sacrifice),
- the protagonist's personal suffering,
- cultural models of endurance.

### 4.3. Quotation and Hypertextuality

A direct quotation not only refers to a source but also triggers a blending process. The quoted material interacts with the surrounding text, generating new implications and reinterpretations.

Example:

Nabokov's reference to "the shadow of Hamlet's father" creates a conceptual blend involving:

- Shakespeare's mythological plot,
- European cultural memory,
- philosophical reflections on doubt and legacy.

### 4.4. Reminiscence as Compression of Meaning

Reminiscence relies on associative activation rather than explicit reference. The implicit nature of reminiscence intensifies cognitive effort, prompting the reader to reconstruct the missing intertextual links.

## 5. Conceptual Integration in Literary Practice: Case Studies

### 5.1. English Literature

James Joyce's *Ulysses* is a paradigmatic example of monumental blending. The entire novel is an intertextual blend of:

- Homer's *Odyssey*,
- Dublin of 1904,
- Joyce's autobiographical and cultural codes.

The emergent blended space frames Leopold Bloom as a modern *Odysseus*, creating a rich interpretive network.

### 5.2. Russian Literature

Mikhail Bulgakov's *The Master and Margarita* blends:

- Biblical narratives,
- Soviet Moscow,
- satirical grotesque,
- philosophical motifs.

The reader constructs a multi-layered blended space where morality, power, truth, and artistic freedom are intertwined.

### 5.3. Shakespeare in Modern Adaptations

Modern reinterpretations of Shakespeare often rely on blending. For example, the frequent re-imagining of Hamlet in contemporary cinema blends:

- Shakespearean tragic structure,
- modern existential dilemmas,
- psychological discourse.

This layered blending creates new meanings while preserving the archetypal structure.

## 6. Cognitive Mechanisms in Reader Interpretation

### 6.1. Four-Space Model

Fauconnier & Turner's model distinguishes:

1. Input Space 1 – the current narrative;
2. Input Space 2 – the intertextual source;
3. Generic Space – shared cultural frames;
4. Blended Space – new emergent meanings.

### 6.2. Cognitive Resonance

Intertextuality gains communicative power when the reader's background knowledge resonates with the intertextual cue, creating emotional and intellectual engagement.

### 6.3. Emergent Meaning

The interpretive richness of intertextuality lies in emergent meaning—conceptual qualities produced exclusively in the blend and not contained in the original texts.

## 7. Conclusion

Intertextuality, traditionally viewed as a structural relationship between texts, must also be interpreted through the lens of cognitive linguistics. Conceptual integration theory provides a comprehensive explanatory model for how readers perceive, process, and interpret intertextual references.

Key conclusions of the study:

- Intertextuality relies on mental-space construction and conceptual blending.
- Cognitive mechanisms play a central role in generating new meanings.
- Emergent structures formed through blending deepen the semantic and emotional complexity of literary texts.
- Conceptual integration explains how readers participate in meaning-making, transforming intertextual connections into dynamic interpretive experiences.

Thus, conceptual integration is not simply an auxiliary framework but a fundamental theoretical foundation for understanding intertextuality.

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## ANNOTATSIYA

Jahon xo‘jaligida kechayotgan raqamli transformatsiya jarayonlari qishloq xo‘jaligi sohasining ham tubdan yangilanishini taqozo etmoqda. Agrar sektorda raqamli texnologiyalardan foydalanish ishlab chiqarish jarayonlarini avtomatlashtirish, resurslardan samarali foydalanish, xarajatlarni qisqartirish va mahsuldorlikni oshirish imkonini beradi. Ushbu tadqiqotda qishloq xo‘jaligida dronlar, GPS-monitoring, aqlli sug‘orish tizimlari, raqamli agroxaritalash, onlayn agroservislar va sun‘iy intellekt asosidagi boshqaruv tizimlarining afzalliklari tahlil qilingan. Shuningdek, O‘zbekistonda agrar sohani raqamlashtirish bo‘yicha olib borilayotgan islohotlar, ularning amaliy natijalari va istiqboldagi vazifalar ko‘rib chiqilgan. Natijalar shuni ko‘rsatadiki, raqamli texnologiyalarni keng tatbiq etish qishloq xo‘jaligini samarali boshqarish, oziq-ovqat xavfsizligini ta‘minlash hamda iqtisodiy barqarorlikka erishishda muhim strategik omil hisoblanadi.

**KALIT SO‘ZLAR** raqamli iqtisodiyot, agrar sektor, smart-agrotexnologiya, avtomatlashtirish, oziq-ovqat xavfsizligi, resurslardan samarali foydalanish, agroinnovatsiya.

## Kirish

Jahon iqtisodiyotining tez sur‘atlarda rivojlanib borishi va ishlab chiqarish jarayonlariga axborot-kommunikatsiya texnologiyalarining keng kirib kelishi natijasida agrar sohaga ham raqamli yechimlarni joriy etish ehtiyoji kuchaydi. Bugungi globallashtirish sharoitida iqtisodiy tizimlarning integratsiyalashuvi barcha mamlakatlarni xalqaro bozordagi o‘zgarishlarga moslashish, raqobatbardoshlikni ta‘minlash va global iqtisodiy qonuniyatlar bilan uyg‘un holda faoliyat yuritishga majbur qilmoqda.

Raqamli iqtisodiyot mohiyatini aniqlash uchun, avvalo uning tarkibiy mazmuni va funksional jihatlarni ko‘rib chiqish lozim. Iqtisodiyotning raqamlashtirilishi — bu ishlab chiqarish, xizmat ko‘rsatish, boshqaruv va xo‘jalik yuritish jarayonlarida kompyuter texnologiyalari, internet platformalari, axborot tizimlari va sun‘iy

intellektdan kompleks foydalanish bo‘lib, u iqtisodiy jarayonlarni avtomatlashtirish, tezkor boshqaruv va shaffoflikni ta‘minlaydi.

O‘zbekistonda ham iqtisodiyotni raqamlashtirish yo‘nalishiga davlat darajasida katta ahamiyat qaratilmoqda. Xususan, O‘zbekiston Respublikasi Prezidentining 2024-yil 1-fevraldagi “Raqamli texnologiyalar xalqaro markazini tashkil etish bo‘yicha birinchi navbatdagi chora-tadbirlar to‘g‘risida”gi PF-25-sonli Farmoni va 2020-yilning “Ilm, ma‘rifat va raqamli iqtisodiyotni rivojlantirish yili” deb e‘lon qilinishi bu boradagi siyosatning uzviy davomiyligini ko‘rsatadi. Davlat rahbari tomonidan: “Yurtimizda ilm-fanni yuksaltirish, yosh avlodni zamonaviy bilim va texnologiyalar bilan qurollantirish, raqobatbardosh iqtisodiyotni shakllantirish bugungi kunning dolzarb vazifasidir”, — deb ta‘kidlanishi, raqamli savodxonlik va axborot texnologiyalarini joriy etishning ustuvor yo‘nalish ekanini yanada yaqqol ifodalaydi.

Prezidentimizning raqamli iqtisodiyot borasida bildirgan fikrlari nafaqat sanoat korxonalarini, balki agrar ishlab chiqarishni ham raqamlashtirish vazifasini qo‘yadi.

Fikrimizcha, har sohani rivojlanishida uning institutsional asoslari muhim ahamiyat kasb etadi. Shu boisdan ham, milliy iqtisodiyotimizning raqamli iqtisodiyotga o‘tishidagi islohotlar so‘nggi bir necha yillardan buyon mustahkam normativ-huquqiy poydevor zamini yaratib kelinmoqda, jumladan, 2018 yil 3 iyuldagi “O‘zbekiston Respublikasida raqamli iqtisodiyotni rivojlantirish chora-tadbirlari to‘g‘risida”gi O‘zbekiston Respublikasi Prezidentining PQ-3832-sonli qarori<sup>1</sup>, 2018 yil 2 sentabrdagi «Raqamli ishonch» raqamli iqtisodiyotni rivojlantirishni qo‘llab-quvvatlash jamg‘armasini tashkil etish to‘g‘risida”gi<sup>2</sup> O‘zbekiston Respublikasi Prezidentining PQ-3927-sonli qarori, 2018 yil 21 noyabrdagi “Raqamli iqtisodiyotni rivojlantirish maqsadida raqamli infratuzilmani yanada modernizatsiya qilish chora-tadbirlari to‘g‘risida”gi<sup>3</sup> O‘zbekiston Respublikasi Prezidentining PQ-4022-sonli qarorlarida o‘z ifodasini topgan.

Aslida, iqtisodiyotning raqamlashtirish barcha sohani teng qamrab oldi, chunki bir iqtisodiyotning barcha tarmoqlari bir biri bilan chambarchas bog‘liqdir. Ayrim soha va tarmoqlarda yangi ish o‘rinlarini yaratilishi yoki qisqarishi, albatta iqtisodiyotning boshqa tarmoqlariga keng imkoniyatlarning yaratilishi bilan bog‘liq bo‘ladi. Shu jumladan, bunday o‘zgarishlar qishloq xo‘jaligiga ham o‘z ta‘sirini ko‘rsatishi aniq.

Raqamli iqtisodiyotda raqamli boshqarish tizimiga o‘tish yo‘lida qishloq xo‘jaligidagi rejalashtirish, statistik ma‘lumotlar bazasi, maqbul agrotexnikaviy yondashuv masalalari, investitsion loyihalarga talab va taklif bazasi, innovatsion g‘oyalar bazasini bir muayyan qismga joylashtirish muhim omilga aylanmoqda.

<sup>1</sup> <https://lex.uz/docs/3806053>

<sup>2</sup> <https://lex.uz/docs/3891629>

<sup>3</sup> <https://lex.uz/docs/4071219>

1-rasmdan ko‘rishimiz mumkinki, agrar sohada raqamli texnologiyalarni qo‘llash tashkiliy jihatdn 4 ta tarmoqqa, huquqiy, innovatsion, infratuzilmaviy va kadrlar tayyorlash jarayonlariga bevosita ta‘sir qiladi.

Fikrimizcha, dastlab qishloq xo‘jaligi yo‘nalishi bo‘yicha quyidagi yo‘nalishlarda raqamli texnologiyalarni qo‘llash maqsadga muvofiqdir:

-yer maydonini (qishloq xo‘jaligida foydalaniladigan yer maydonlarining tarkibiy tuzilmasi bo‘yicha, yer-suv resurslarini sifati, xududlar kesimida kishloq xo‘jaligida foydalaniladigan yer maydonlarining samaradorligi, kadastr va b.) va xosildorlikni rejalashtirish (kartografiya, xosildorlikni dasturlash, ekin turlari va xududlar kesimida va b);

- viloyat, tumandagi fermer va dehqon xo‘jaliklari, qishloq xo‘jaligiga xizmat ko‘rsatuvchi tashkilotlar va boshqalar bo‘yicha statistik ma‘lumotlar bazasini shakllantirish;

- hududlar, qishloq xo‘jaligi va boshqa sharoitlarni hisobga olgan holda investitsiya jarayonlarini qiyosiy, dinamik, tarkibiy va boshqa tahlil qilish uchun ma‘lumotnomalarni (iqlim va geografik sharoitlar, demografiya, ekologiya va boshqalar) o‘z ichiga olgan hududlarning investitsiya pasportlarini shakllantirish) va b.;

- mintaqadagi innovatsiya jarayonlarini (innovatsiya darajasi, innovatsiya muhiti, innovatsiya dasturlari, loyihalarni boshqarish va boshqalar) kuzatish uchun, mintaqaning innovatsiyaviy jozibadorligini baholash uchun indikatorlar tizimi shakllantiriladi va b.;

- instrumental, axborot va dasturiy-texnologik qo‘llab-quvvatlashni (analitik materiallarning samaradorligi va sifatini oshiradi), viloyat rahbarlari va mutaxassislarining ekspert-tahliliy va boshqaruv faoliyatini, investitsiya va innovatsiya loyihalarini amalga oshirishning turli bosqichlarida konsalting xizmatlarini rivojlantirishni to‘liq qo‘llab-quvvatlashga qadar: biznesni tayyorlashdan - loyihaning haqiqiy natijalarini baholashdan oldin rejalar, texnik-iqtisodiy asoslar va investitsiya memorandumlarini tayyorlash kabilardir.

Shu bilan birga, respublikamizning barcha hududlarida o‘zaro axborot almashish tizimini joriy qilish orqali agrar sohada yagona elektron tarmoq shakllatirish mumkin. Bunda, barcha qishloq xo‘jaliigi ishlab chiqaruvchilari o‘rtasida nafaqat axborot almashishi imkoni, balki sohada ishlab chiqarishni to‘g‘ri tashkil qilishda ham muhim ahamiyat kasb etadi. Natijada, fermer va dehqon xo‘jaliklari amaliyotdagi yangiliklar bilan o‘rtoqlashish, imkoniyatlar va mavjud muammolarni yechimini topishga erishish, bir so‘z bilan aytganda kovorking (coworking)ni yo‘lga qo‘yilishi mumkin.

Shu bilan birga, 2030 yilga qadar “Raqamli O‘zbekiston” konsepsiyasini ishlab chiqish yuzasidan ham chora-tadbirlarni amalga oshirish belgilangan, shu jumladan

O‘zbekistonning axborot kommunikatsiya texnologiyalari infratuzilmasi keng miqyosda butun mamlakat bo‘ylab telekommunikatsiya tarmoqlarini modernizatsiya qilish loyihalarini amalga oshirish orqali joriy qilindi, bular qatoriga quyidagilar kiradi.

**Ilmiy adabiyotlarni tahlilini ko‘rsatishicha, raqamli transformatsiya davri deb bir turdagi iqtisodiy tizimning boshqa turga to‘liq o‘tishi tushuniladi, lekin bugungi kunda quyidagi metodologik qoidalar yetishmasligini kuzatish mumkin:**

**-raqamli iqtisodiyotning standartlari va vositalari bugungi kunda tarmoqda xo‘jalik sub’ektlari uchun mavjud emas;**

**-qishloq xo‘jaligida raqamli transformatsiyani amalga oshirishning samarali mexanizmlari va vositalari davlat va tarmoqni boshqarish tizimida yetarli darajada ishlab chiqilmagan;**

**-tarmoqda tizimli o‘zgarishlarni amalga oshirish uchun moliyaviy resurslarning kamligi va tarmoqning investitsion jozibadorligi darajasining kamligi;**

**-yuqori hajmli kapital bilan ajralib turadigan raqamli texnologiyalarning iqtisodiy ta’siri yetarlicha tez emasligi,**

**-qishloq xo‘jaligi sohasida raqamli texnologiyalardan foydalanish uchun institutsional shart-sharoitlarning yetarli yemasligi;**

**-moslashuv davrida raqamli iqtisodiyot talablariga javob beradigan kadrlarni tayyorlash uchun modernizatsiyalash jarayonlarini ilmiy-ma’rifiy qo‘llab-quvvatlashning samarali tizimini shakllantirish zarur;**

**-texnika va texnologiyalar ta’minotini xorijiy mamlakatlar bilan bog‘liqligi, o‘z ichki imkoniyatlar asosida amalda amalga oshirishlik qiyinligi.**

Umuman agrosanoat majmuasi va uning asosiy tarkibiy qismi - qishloq xo‘jaligi Respublikamiz iqtisodiyotining mamlakatimiz oziq-ovqat xavfsizligini shakllantiruvchi tarmoqlaridan biridir.

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**Abstract.** Middle English, spoken approximately between 1150 and 1500, represents a transitional stage in the development of the English language between Old English and Modern English. This period was marked by significant social, political, and cultural changes, including the Norman Conquest, which introduced French and Latin influences into English. The main characteristics of Middle English include simplified grammar, expanded vocabulary through borrowing, regional variations in pronunciation, and evolving writing and spelling conventions. Literary works of this period, such as Geoffrey Chaucer's *The Canterbury Tales*, reflect the richness and diversity of the language. Studying Middle English provides valuable insights into the linguistic, cultural, and historical development of English.

**Key words:** Middle English, Old English, language evolution, French influence, grammar simplification, vocabulary expansion, pronunciation, orthography, literature

## **Introduction**

Middle English, spoken approximately between 1150 and 1500, represents a transitional stage between Old English and Modern English. This period coincided with major social and political changes in England, including the Norman Conquest of 1066, which brought a strong French influence. Middle English is important because it reflects the evolution of pronunciation, vocabulary, grammar, and writing systems in English.

## **Discussion**

**Vowels:** Long and short vowels were still distinct, but pronunciation varied by region. The reduction or loss of certain final vowels began during this period.

**Consonants:** Some consonant clusters were simplified, and French loanwords introduced new sounds. **Regional variation:** Different areas of England pronounced words differently, leading to diverse dialects.[1] **Vocabulary** Middle English vocabulary expanded significantly due to foreign influences: **French:** The Norman Conquest led to the adoption of many French words, especially in law, government, and culture. Words like court, justice, royal, and parliament entered English. **Latin:** Latin contributed words related to religion, learning, and science. **Old English inheritance:** Native words continued to be used for daily life, agriculture, and nature. This mixture enriched the

lexicon and created stylistic variety.[2] Grammar: Middle English grammar was simpler than Old English: Nouns. The system of grammatical gender and case endings largely disappeared. Plurals mostly used the -s ending. Verbs: Verb conjugations simplified, with fewer endings to indicate tense and person. Auxiliary verbs (have, do, be) became more important. Word order: Due to reduced inflections, word order became more fixed, typically following a Subject-Verb-Object pattern. Articles: Definite (the) and indefinite (a, an) articles became more important in sentences. Writing and Orthography spelling in Middle English was not standardized: words could be spelled differently depending on region, scribe, or dialect. Manuscripts show significant regional variations in vowels, consonants, and word endings. The invention of the printing press in 1476 by William Caxton began the process of standardizing spelling. Literary Significance Middle English was the language of important literary works.[3]

Geoffrey Chaucer's *The Canterbury Tales* is the most famous example, reflecting regional dialects, French influence, and a rich vocabulary. Religious texts, legal documents, and chronicles demonstrate the practical use of Middle English in everyday and official contexts.[4]

## Conclusion

Middle English marks a vital stage in the history of the English language. Its features include simplified grammar, expanded vocabulary influenced by French and Latin, regional phonetic variations, and evolving spelling conventions. The language of this period provides insight into medieval English society and serves as a foundation for the development of Modern English.

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**Annotatsiya:** Ushbu maqolada raqamli ta'lim jarayonida sun'iy intellekt (SI) texnologiyalarining o'rni, ularning o'quv jarayonini individuallashtirish, baholash tizimini avtomatlashtirish hamda o'qituvchi va talaba o'rtasidagi muloqotni samarali tashkil etishdagi ahamiyati ilmiy tahlil qilinadi. Shuningdek, SI texnologiyalari yordamida ta'lim sifatini oshirish yo'llari, mavjud muammolar va ularning yechimlari yoritiladi. Tadqiqot natijalari sun'iy intellekt asosidagi ta'lim tizimlari ta'lim jarayonining interaktivligi va samaradorligini oshirishini ko'rsatadi va raqamli ta'lim tizimining bugungi kundagi zamonaviy tendensiyalari, innovatsion texnologiyalarni o'quv jarayoniga tatbiq etishning samarali yo'llari hamda ta'lim-tarbiya jarayonining sifatini oshirishdagi o'rni ilmiy tahlil qilinadi.

**Kalit so'zlar:** raqamli ta'lim, sun'iy intellekt, innovatsion texnologiyalar, ta'lim sifati, raqamli kompetensiya, masofaviy ta'lim, ta'lim platformalari, raqamli pedagogika, avtomatlashtirish, raqamli transformatsiya.

## РОЛЬ СОВРЕМЕННЫХ ТЕХНОЛОГИЙ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В ПОВЫШЕНИИ КАЧЕСТВА ОБРАЗОВАНИЯ В ЦИФРОВОМ ОБУЧЕНИИ

**Аннотация:** В данной статье научно анализируется роль технологий искусственного интеллекта (ИИ) в процессе цифрового образования, их значение в индивидуализации учебного процесса, автоматизации системы оценивания, а также в эффективной организации взаимодействия между преподавателем и студентом. Кроме того, рассматриваются пути повышения качества образования с помощью технологий ИИ, существующие проблемы и их решения. Результаты исследования показывают, что образовательные системы, основанные на искусственном интеллекте, повышают интерактивность и эффективность учебного процесса. Также в статье анализируются современные тенденции цифрового образования, эффективные пути внедрения инновационных

технологий в учебный процесс и их роль в повышении качества учебно-воспитательного процесса.

**Ключевые слова:** цифровое образование, искусственный интеллект, инновационные технологии, качество образования, цифровая компетенция, дистанционное обучение, образовательные платформы, цифровая педагогика, автоматизация, цифровая трансформация.

## THE ROLE OF MODERN ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN IMPROVING THE QUALITY OF EDUCATION IN DIGITAL LEARNING

**Annotation:** This article provides a scientific analysis of the role of artificial intelligence (AI) technologies in the digital education process, their significance in individualizing learning, automating the assessment system, and effectively organizing interaction between teachers and students. In addition, it examines the ways of improving education quality through AI technologies, existing problems, and possible solutions. The research results show that AI-based educational systems enhance the interactivity and efficiency of the learning process. The article also analyzes modern trends in digital education, effective methods of integrating innovative technologies into the learning process, and their role in improving the quality of the educational and upbringing process.

**Keywords:** digital education, artificial intelligence, innovative technologies, quality of education, digital competence, distance learning, educational platforms, digital pedagogy, automation, digital transformation.

So‘nggi yillarda raqamli transformatsiya jarayonlari butun dunyo ta’lim tizimiga chuqur kirib keldi. Bu jarayonda **sun’iy intellekt texnologiyalari (SI)** ta’lim sifatini oshirish, o‘quv jarayonini individuallashtirish va samaradorlikni ta’minlashda muhim o‘rin tutmoqda. Bugungi o‘quvchilar raqamli dunyoda ulg‘ayishdi. Shuning uchun ham kundalik hayotlarida va o‘qishlarida gadjetlardan foydalanishni yoqtiradilar. Hozirgi kunda o‘quv jarayonini moslashtiradigan ko‘plab "aqlli" elektron darsliklar va noutbuklar mavjud - har bir talaba o‘zining bilim darajasiga mos keladigan topshiriq va mavzular bilan ishlaganda undan foydalanmoqda. Talaba ma'lum bir mavzuni o'zlashtirar ekan, raqamli darsliklar unga o'rganish va mustahkamlash uchun yangi vazifalarni ochadi yoki joriy mavzu doirasidagi vazifalarning murakkabligini oshiradi. Ta'lim tizimida raqamli texnologiyalarni rivojlantirish sabablari orasida ko'plab tadqiqotchilar sinfdagi yuklamaning kamayishi va mustaqil ishlar ulushining

ko'payishini ta'kidlashadi. Shu bois ham ta'lim sifatini saqlab qolish va yaxshilash maqsadida o'quvchilarning bilim olishidagi kamchiliklarni o'z vaqtida bartaraf etish uchun o'qituvchi yoki talabaning o'zaro hamkorligini ta'minlovchi raqamli ta'lim texnologiyalari faol joriy etilmoqda. Hozirgi globallashuv davrida ta'lim sohasida raqamli texnologiyalarni qo'llash dolzarb masalaga aylandi. Raqamli ta'lim mamlakatimizda nafaqat o'quv jarayonini modernizatsiya qilish, balki bilim olish jarayonini yangi bosqichga olib chiqish imkonini belgilamoqda. XXI asrda ta'lim jarayoni raqamli texnologiyalar bilan chambarchas bog'lanib ketdi. Globallashuv va axborotlashtirish davrida raqamli ta'lim har bir mamlakatning ta'lim siyosatida ustuvor yo'nalishlardan biriga aylanib bormoqda. O'zbekiston Respublikasida ham "Raqamli O'zbekiston – 2030" strategiyasi doirasida ta'lim tizimining barcha bo'g'inlariga raqamli texnologiyalarni joriy etish bo'yicha keng ko'lamli islohotlar amalga oshirilmoqda va ta'lim tizimini raqamlashtirish davlat siyosatining ustuvor yo'nalishlaridan biri sifatida belgilangan [1]. Raqamli texnologiyalar va ularning rivojlanish tarixi shundan iboratki, raqamli texnologiyalar - bu ma'lumotlarni raqamli (ya'ni, 0 va 1) shaklida saqlash, uzatish va qayta ishlash jarayonlariga asoslangan texnologiyalarni ifodalaydi. Raqamli inqilobning bosqichlari elektron hisoblash mashinalarining paydo bo'lishi, internetning tarqalishi, bulutli texnologiyalar va katta ma'lumot (Big Data) sohalarining rivojlanishi bilan bog'liq. Har bir yangi bosqich o'zining yangi imkoniyatlarini taqdim etdi va global miqyosda iqtisodiy, ijtimoiy va madaniy o'zgarishlarga olib keldi.

1980-1990-yillarda kompyuterlarning rivojlanishi va internetning keng tarqalishi raqamli texnologiyalarning kundalik hayotga kirib kelishiga sabab bo'ldi. 2000-yillardan boshlab, mobil telefonlar, smartfonlar va tarmoqlar orasidagi bog'lanish yanada kuchayib, yangi platformalar va xizmatlar paydo bo'ldi. Bugungi kunda raqamli texnologiyalar, ayniqsa bulutli hisoblash, IoT (Internet of Things), va blokcheyn kabi texnologiyalar jamiyatni yanada tezkor, samarali va interaktiv qilish imkonini bermoqda. Sun'iy intellektning asoslari va rivojlanishi esa Sun'iy intellekt (SI) — bu kompyuterlar va tizimlarning inson kabi fikrlash, qarorlar qabul qilish va o'rganish qobiliyatini simulyatsiya qilishga qaratilgan soha bo'lib xizmat qildi. SI dastlab 1950-yillarda Alan Turing va boshqa olimlar tomonidan rivojlantirildi. Turingning "Turing testi" inson va mashina o'rtasidagi farqni aniqlashga qaratilgan konsepsiya SI rivojiga katta ta'sir ko'rsatdi. Bugungi kunda SI texnologiyalari necha yillar davomida kutilgan yuksak bosqichga yetdi. Mashinani o'rganish (Machine Learning), chuqur o'rganish (Deep Learning), tabiiy tilni qayta ishlash (Natural Language Processing) va tasvirni tanib olish (Image Recognition) kabi usullar bilan sun'iy intellekt turli sohalarda faol

qo‘llanilmoqda. Ularning yordamida kompaniyalar va tashkilotlar ma‘lumotlarni tezda tahlil qilib, aniq prognozlar berishlari, shuningdek, muammolarni samarali hal qilishlari mumkin bo‘ldi. Raqamli ta‘lim – bu zamonaviy axborot-kommunikatsiya texnologiyalari, internet resurslari, sun‘iy intellekt va onlayn platformalardan foydalangan holda ta‘lim jarayonini tashkil etish tizimidir. U an‘anaviy o‘qitish shaklidan farqli ravishda o‘quvchi faoliyatini mustaqil, interaktiv va moslashuvchan shaklda amalga oshirishga yo‘naltiriladi. Raqamli ta‘limning asosiy maqsadi – bilim olishda tezkorlik, ochiqlik, shaxsga yo‘naltirilganlik tamoyillarini ta‘minlashdan iboratdir. Sun‘iy intellekt elementlariga foydalanuvchilar juda ko‘p murojaat etishadi. Bugungi kunda ta‘lim jarayonida SI texnologiyalarini qo‘llash nafaqat bilimlarni avtomatik tarzda nazorat qilishni, balki o‘quvchilarning individual qobiliyat va ehtiyojlariga mos ta‘lim dasturlarini shakllantirish imkonini bermoqda [2].

Misol tariqasida hozirgi kundalik turmushimizda tez-tez ishlatiladigan SI texnologiyalari siz qidirib topmoqchi bo‘lgan yangiliklarni raqamli tavsiflarni yig‘ib olgan robot, sizga ma‘qul kontentni qidiruvni boshlashingiz bilan siz hohlagan ma‘lumotni sizga tavsiya qila oladi. **Raqamli ta‘lim va Sun‘iy intellekt texnologiyalarining zamonaviy tendensiyalari** sifatida bugungi kunda quyidagilarni ko‘rsatish mumkin. **Sun‘iy intellekt asosidagi o‘qitish tizimlari** – individual ta‘lim traektoriyalarini yaratish imkonini beradi [3]. **Masofaviy va gibrid ta‘lim shakllari** – pandemiya davrida keng qo‘llanilib, hozirda ham dolzarbligini saqlab qolmoqda. **Bulutli texnologiyalar va LMS tizimlari** (Learning Management System) – masalan, *Moodle, Google Classroom, Coursera* kabi platformalar o‘quv jarayonini raqamlashtirish imkonini beradi. **Ochiq ta‘lim resurslari (OER) va onlayn kurslar** – o‘quvchilarga bepul va erkin bilim olish sharoitini yaratadi. **Sun‘iy intellekt texnologiyalarining ta‘limdagi o‘rni shundan iboratki**, Sun‘iy intellekt texnologiyalari — bu o‘quv jarayonini tahlil qilish, prognozlash va avtomatlashtirishga yo‘naltirilgan intellektual tizimlardir. Ular o‘quvchilarning o‘zlashtirish darajasini real vaqt rejimida aniqlab, ularga mos o‘quv materiallarini taklif qiladi. **Raqamli ta‘lim va Sun‘iy intellekt texnologiyalarining afzalliklari** raqamli texnologiyalar ta‘lim sifatini oshirishda quyidagi afzalliklarni beradi. U o‘quvchilarda **mustaqil ta‘lim olish va axborot izlash kompetensiyasi** shakllanadi va ta‘lim jarayonini **interaktiv, ko‘rgazmali va moslashuvchanligini oshiradi**. Har bir talaba o‘z **shaxsiy o‘qish tezligi** va qiziqishlariga qarab bilim oladi [4]. **Resurslardan samarali foydalanish** – darsliklar, video-ma‘ruzalar, virtual laboratoriyalar orqali **ta‘lim sifatini oshirishda Suniy intellekt texnologiyalarining ahamiyati va asosiy ustunliklari** quyidagilardan iboratdir, **Individuallashtirilgan ta‘limda** har bir o‘quvchining o‘zlashtirish darajasi

asosida materiallar tanlanadi. **Baholash tizimining avtomatlashtirilishi** test natijalarini avtomatik tahlil qilish, xatolarni aniqlash va tavsiyalar berish imkonini yaratadi.

**Vaqt va resurslarni tejash esa** o'qituvchilarni SI yordamida tahlil va baholash jarayonini tezroq amalga oshirishda yordam beradi. **Motivatsiyani oshirish** esa Interaktiv AI tizimlari o'quvchilarni faol ishtirok etishga undaydi. **Sun'iy intellekt asosidagi ta'lim tizimlarining amaliy qo'llanilishi** dunyo amaliyotida sun'iy intellektga asoslangan ta'lim platformalari keng qo'llanilmoqda, **Coursera, Duolingo, EdX, Khan Academy** kabi platformalar o'quvchining o'rganish tezligiga mos tarzda tavsiyalar beradi. O'zbekistonda ham **“ZiyoNET”, “EduMarket”** kabi tizimlar raqamli kontentni kengaytirish yo'lida ishlamoqda. Ayrim oliy o'quv yurtlarida sun'iy intellekt yordamida **talabalar reytingini avtomatik tahlil qilish** va **o'qituvchi faoliyatini monitoring qilish** tizimlari yo'lga qo'yilmoqda. **Ta'lim-tarbiya jarayoniga ham Sun'iy intellekt va raqamli texnologiyalarni tatbiq etish yo'llari** ta'limni samarali joriy etish uchun quyidagicha ahamiyat kasb etmoqda:

1. **O'qituvchilarning raqamli kompetensiyasini oshirish** — zamonaviy pedagogik texnologiyalar, onlayn vositalar va sun'iy intellekt tizimlaridan foydalanish bo'yicha muntazam treninglar o'tkazish;
2. **Ta'lim muassasalarini texnik jihozlash** — yuqori tezlikdagi internet, zamonaviy kompyuterlar, interaktiv doskalar bilan ta'minlash;
3. **Mahalliy ta'lim platformalarini rivojlantirish** — *EduMarket, ZiyoNET, Kundalik.uz* kabi tizimlar asosida milliy raqamli infratuzilmani kengaytirish;
4. **Raqamli tarbiya tamoyillarini joriy etish** — internet madaniyati, axborot xavfsizligi, tanqidiy fikrlash va axloqiy qadriyatlarni shakllantirish.

Hozirgi kunda rivojlangan davlatlarda ham raqamli texnologiyalar va sun'iy **intellekt** texnologiyalarining roli keskin ortib bormoqda. Ular ta'lim sifatini oshishida katta yordam bermoqda. Bundan tashqari **raqamli ta'lim va Sun'iy intellekt texnologiyalarini** raqamli ta'limda joriy etishda quyidagi muammolar ham mavjud. Ular texnik infratuzilmaning yetarli darajada rivojlanmaganligi, o'qituvchilarning raqamli kompetensiyalarining pastligi, SI tizimlarining o'zbek tilida yetarlicha qo'llab-quvvatlanmasligi, o'qituvchilar orasida **raqamli savodxonlik darajasining yetarli emasligi**, ayrim hududlarda **internet infratuzilmasining sustligi**, **pedagogik jarayonning insoniy omildan uzoqlashish xavfi** — ya'ni texnologiyalar o'qituvchining jonli muloqotini to'liq almashtira olmaydi [5]. **Taklif va tavsiyalar shundan iboratki**, o'qituvchilarni sun'iy intellekt vositalaridan foydalanishga o'rgatish

bo'yicha maxsus kurslar tashkil etish, milliy AI platformalarini yaratish va ta'limda sun'iy intellektdan foydalanishning huquqiy-me'yoriy bazasini mustahkamlash lozim.

Xulosa o'rnida shuni aytishimiz mumkinki, Sun'iy intellekt texnologiyalari raqamli ta'lim tizimini sifat jihatidan yangi bosqichga olib chiqmoqda. U o'qituvchi faoliyatini yengillashtiradi, o'quvchilar uchun samarali, interaktiv va individuallashtirilgan o'rganish muhitini yaratadi. Kelajakda O'zbekiston ta'lim tizimida sun'iy intellektning keng qo'llanilishi ta'lim sifatini oshirish, innovatsion pedagogik yondashuvlarni rivojlantirish hamda raqamli kompetensiyalarga ega avlodni tarbiyalashda muhim omil bo'lib xizmat qiladi. Raqamli ta'lim va Sun'iy intellekt texnologiyalari zamonaviy jamiyatda inson kapitalini rivojlantirishning eng muhim vositalaridan biri hisoblanadi. U nafaqat o'qitish jarayonini soddalashtiradi, balki ta'limni interaktiv, qiziqarli va ijodiy shaklga keltiradi. O'zbekiston ta'lim tizimida raqamli ta'limni yanada takomillashtirish, mahalliy platformalarni rivojlantirish va raqamli pedagogikani ilmiy asosda yo'lga qo'yishda istiqboldagi asosiy vazifalaridan biri hisoblanadi.

Shuning uchun ham raqamli ta'lim bugungi kunda nafaqat texnik vosita, balki yangi pedagogik falsafa sifatida shakllanmoqda. Raqamli texnologiyalarni ta'lim-tarbiya jarayoniga to'g'ri tatbiq etish orqali shaxsning ijodiy, tanqidiy va axborot madaniyatini rivojlantirish mumkin. Shuningdek, raqamli ta'limni milliy qadriyatlar va insonparvarlik tamoyillari bilan uyg'unlashtirish zamonaviy o'zbek ta'limining ustuvor yo'nalishlaridan biri bo'lib xizmat qiladi. Raqamli texnologiyalar va Sun'iy intellektning rivojlanishi nafaqat ilmiy va texnologik sohalarda, balki kundalik hayotning barcha jabhalarida ham chuqur o'zgarishlarga olib kelmoqda. Ular biznesni yanada samarali qilish, tibbiyot va ta'limni rivojlantirish, jamiyatdagi kommunikatsiyalarni yaxshilash kabi ko'plab ijobiy o'zgarishlarni amalga oshirmoqda. Biroq, bu texnologiyalarni to'g'ri va ehtiyotkorlik bilan qo'llash hamda ularning salbiy ta'sirlarini kamaytirish dolzarb masala sifatida qolmoqda.

Kelajakda bu texnologiyalar o'zining yangi imkoniyatlarini taqdim etib, insoniyatning yanada rivojlanishiga xizmat qilishi kutilmoqda.

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## "ANALYSIS OF CASES OF ECHINOCOCCOSIS FROM 2013 TO 2023 (USING THE EXAMPLE OF SAMARKAND REGION)"

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**Abstract:** Parasitic diseases are found in almost every country. A third of the planet's population is infected with parasitic pathogens. Every year, more than 100 million people worldwide become infected with these parasitic diseases. In various outbreaks, infection rates range from 22% to 96%. In recent years, the number of patients with helminthic diseases has increased among children (enterobiasis, hymenolepiasis) and adults (ascariasis, echinococcosis, opisthorchiasis, trichinosis, etc.), so this problem remains relevant.

**Key words:** parasitic diseases, echinococcosis, incidence rate by region, morbidity.

**«АНАЛИЗ СЛУЧАЕВ ЭХИНОКОККОЗА ЗА ПЕРИОД С 2013 ПО 2023  
ГОДЫ (НА ПРИМЕРЕ САМАРКАНДСКОЙ ОБЛАСТИ)»**

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**Аннотация:** Паразитарные заболевания встречаются почти во всех странах. Треть населения нашей планеты заражена возбудителями паразитарных болезней. Каждый год более 100 миллионов человек в мире заболевают этими паразитозами. В различных очагах уровень заражения достигает от 22 до 96 %.

В последние годы увеличивается число больных глистной болезнью среди детей (энтеробиоз, гименолепидоз) и взрослых (аскаридоз, эхинококкоз, описторхоз, трихинеллез и др.), поэтому данная проблема остается актуальной.

**Ключевые слова:** паразитарных болезней, эхинококкоз, коэффициент заболеваемости по регионам, заболеваемость.

**Relevance of the topic:** Currently, according to the World Health Organization, about 50 million people die annually in the world from various diseases, of which 16 million are infectious and parasitic diseases.

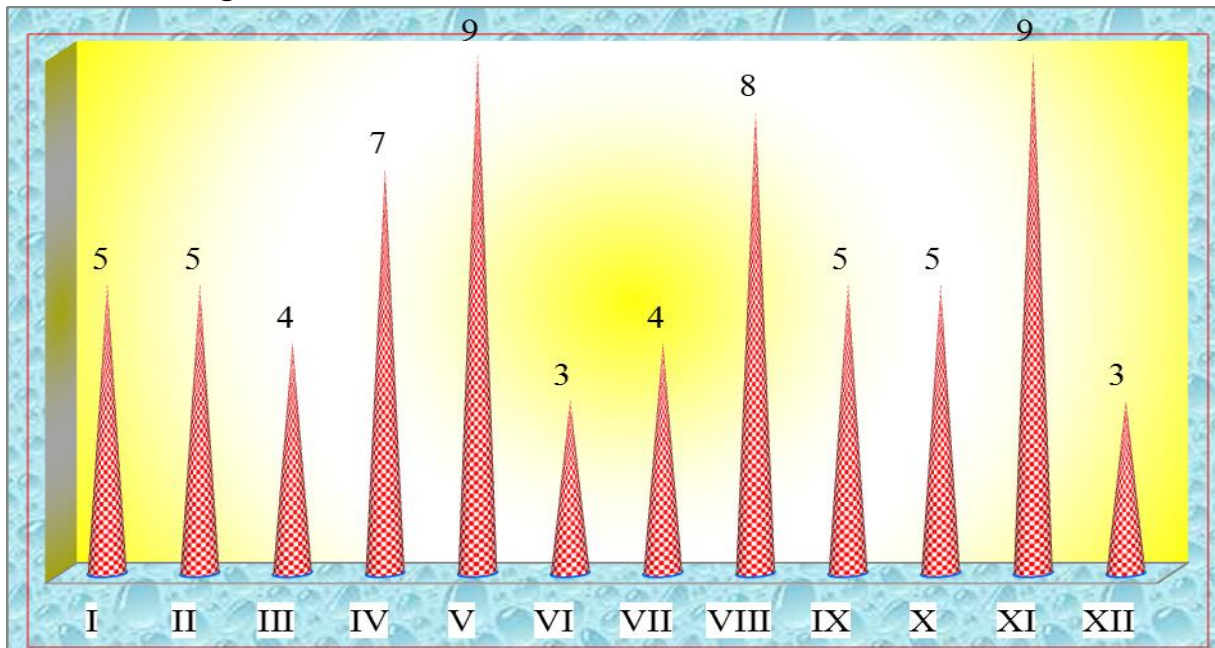
Echinococcosis remains a widespread disease in Uzbekistan, as in many other regions. This disease, which affects 20-50% of small and large horned animals, causes significant economic damage to agriculture. However, the most important thing is that echinococcosis poses a serious threat to humans, especially to the liver and lungs. More than 1,500 surgical operations for echinococcosis are performed annually in Uzbekistan. The incidence rate among those applying to surgical departments is 4-9 people per year. Severe forms of the disease account for 25-40%. Echinococcosis affects the liver and lungs in 80% of cases, and in rare cases other organs. The mortality rate from this disease is 2-5%, and the frequency of complications after surgery.

According to official data, the incidence of echinococcosis in Uzbekistan reaches 6%. This means that among every 100,000 people living in the country, 4-9 people suffer from echinococcosis. In 2000, 1,435 cases of this helminthiasis were registered in the republic. The urgency of the disease is explained by incorrect treatment tactics, difficulties in diagnosis and the occurrence of serious complications. The prevalence of echinococcosis among common infectious diseases in the world ranges from 0.05% to

1.5%. This indicator depends on geographical and climatic zones, as well as on sanitary services and the level of culture of the population.

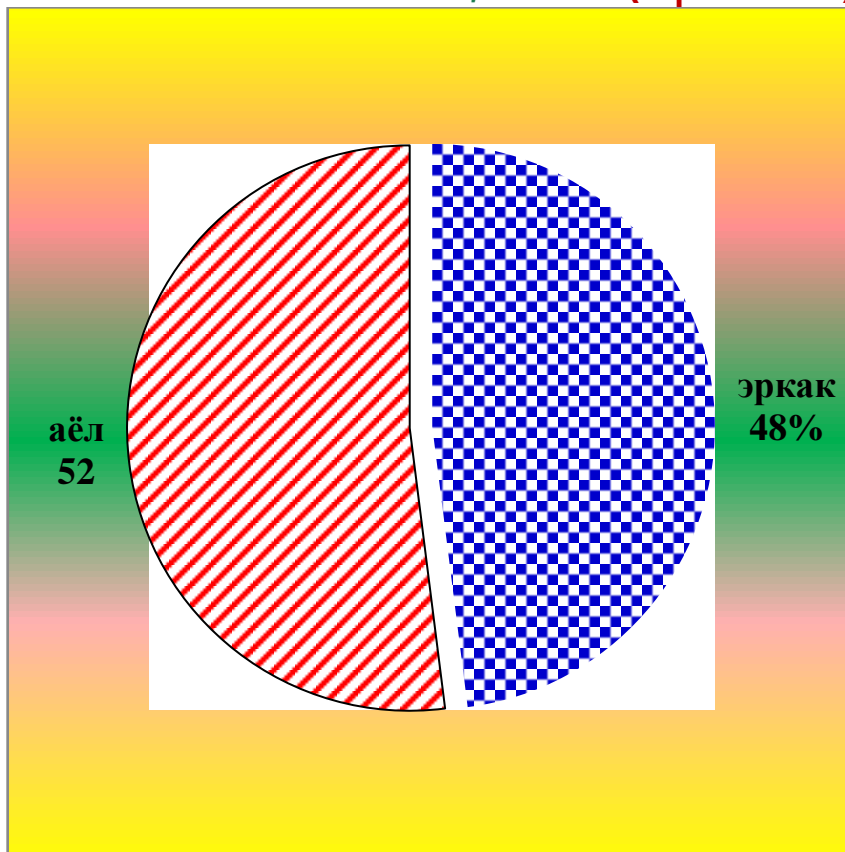
**Objective:** To determine the distribution of morbidity by region using the example of the Samarkand region, analyzing cases of the disease in cities and districts. Based on these data, identify the factors contributing to the disease and improve epidemiological control. Improving the system of epidemiological control and prevention of echinococcosis should help reduce the incidence.

**The results of the study:** In the initial year of analysis - 2012 - the intensive incidence of echinococcosis was 2.3 per 100,000 population, which is the highest indicator for the analyzed period. In subsequent years, there was a downward trend, and by 2022 the incidence rate decreased to 0.4. To determine the distribution of morbidity by region in the period from 2015 to 2022, the disease situation in cities and districts of the region was analyzed (Table 3.3). An analysis of the incidence of echinococcosis in cities and districts of the Samarkand region in 2015-2022 shows that the incidence is not evenly distributed across all regions. In order to identify the seasonality of the incidence of echinococcosis, a monthly analysis of patients was carried out, the results of which are shown in Figure 1.



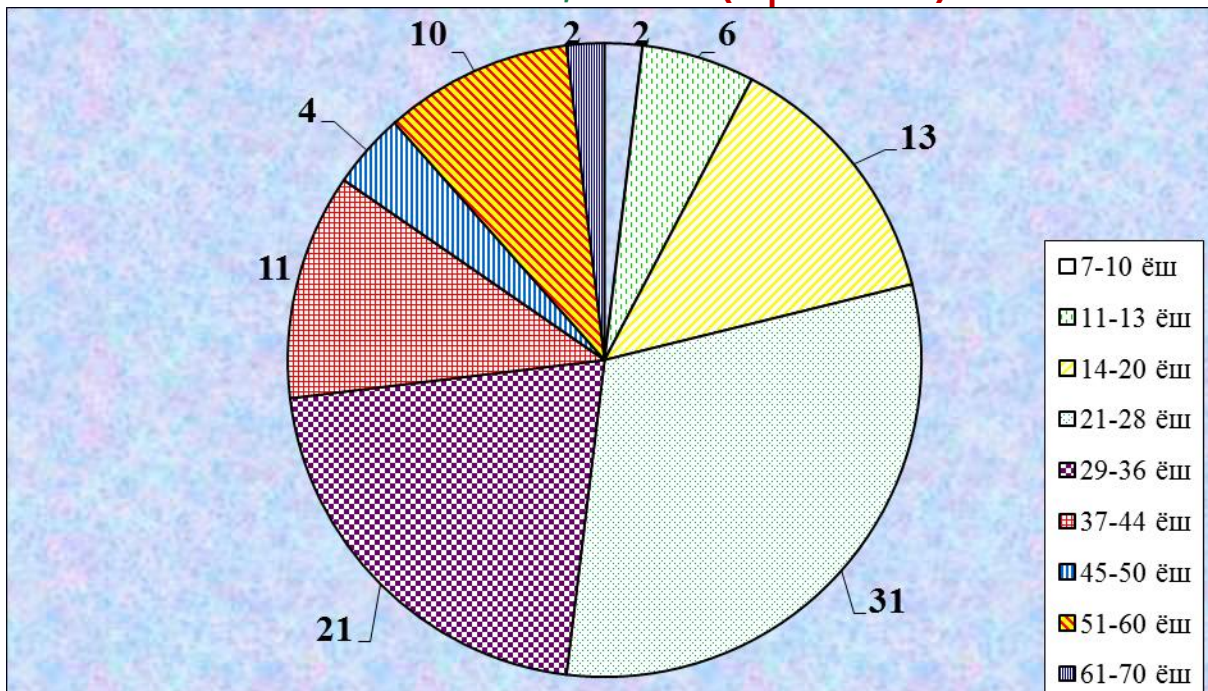
**Figure 1. Distribution of cases by month in the Samarkand region**

During the conducted research, it became clear that when we analyzed the monthly cases of patients with echinococcosis in the Samarkand region (Fig. 1), more cases were identified in May, August, and November, while the number of patients in the other months remained almost the same. From this, we can conclude that the spread of the disease may occur regardless of the season.



**Figure 2. Distribution of cases between men and women in the Samarkand region**

When preventing infection with exinococcosis and developing preventive measures, it is very important to determine the degree of prevalence of the disease among various population groups. The results of the 2022 analysis of the incidence of men and women in the Samarkand region show that (Fig. 2) in the Samarkand region, exinococcosis does not matter much for men (48%) and women (52%), the incidence is evenly distributed. This indicates that gender does not matter when the disease spreads..



**Figure 3. Age distribution of pathogens of exinococcosis**

Based on the research, when analyzing the morbidity rates among youth in the Samarkand region, it was found that the incidence was 14% among 15-20 year olds, 31% among 20-28 year olds, 20% among 30-36 year olds, and 101% among 38-44 year olds. From this, we can conclude that the disease is most frequently recorded primarily among the working-age adolescents and older individuals (Figure 3). 7842 people were examined in the republic as part of a mass medical examination, which was attended by surgeons, therapists and radiologists. Mobile fluorography and ultrasound devices were used during the inspection. Among the surveyed, 60.4% are women, 39.4% are men. Among the tested 158 people (2%) had contact with animals. As a result of the examination, echinococcosis was detected in 49 people, of whom 43 (88%) developed it in the liver, and 6 (12%) — in the lungs. Single cysts were detected in 43 people (88%), while 6 people (12%) had two or more cysts. Distribution of the incidence of echinococcosis.

**Conclusion:** During the conducted research, it became clear that the weakening of epidemiological and veterinary control, as well as the population's lack of awareness about the consequences of these diseases, in many respects, contributes to the increase in cases of illness.

The above information indicates the necessity to study the modern epidemiological characteristics of echinococcosis, improve the effectiveness of diagnosing this disease, and enhance the inspection systems. In order to determine the connection between

disturbances in electrolyte and enzyme metabolism and relapse cases of pathological processes in patients suffering from echinococcosis, it is necessary to conduct biochemical studies on the blood of patients with echinococcosis and to develop a serological diagnostic algorithm and rapid methods to improve the serological diagnosis of echinococcosis.

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**Аннотация:** В настоящее время одной из важнейших задач является улучшение состояния здоровья различных слоёв населения и профилактика заболеваний, связанных с питанием. Нарушение нутритивного статуса становится причиной заболеваний желудочно-кишечного тракта, дефицита йода и железа, остеопороза, избыточного веса, ожирения и сахарного диабета, что наносит серьёзный вред здоровью людей. Связь подобных заболеваний с нарушением микронутриентного статуса широко освещена в работах различных исследователей, и в этом направлении ведутся масштабные исследования.

**Ключевые слова:** анемия, характеристика питания, железо, хронические инфекции.

**Abstract:** Currently, one of the most important tasks is to improve the health status of various population groups and to prevent nutrition-related diseases. Nutritional status disorders cause gastrointestinal diseases, iodine and iron deficiencies, osteoporosis, overweight, obesity, and diabetes mellitus, which seriously harm people's health. The connection between such diseases and micronutrient status disorders is widely covered in the works of various researchers, and large-scale studies are being conducted in this area.

**Keywords:** anemia, dietary characteristics, iron, chronic infections.

**Актуальность темы:** Анемия — это патологическое состояние, которое поддаётся лечению и требует своевременной диагностики. Правильная постановка диагноза, включая проведение различных лабораторных исследований, позволяет своевременно выявить данную патологию и выбрать соответствующий метод лечения.

Согласно данным Всемирной организации здравоохранения (ВОЗ), дефицитом железа страдает более 30% населения планеты, при этом большинство из них — женщины и дети. Распространённость анемии во многом зависит от уровня жизни населения, характера питания, качества и доступности медицинской помощи. По тем же данным, латентный дефицит железа (ЛДЖ) выявляется у 3,6 млрд человек, а железодефицитная анемия (ЖДА) - у 1,8 млрд человек.

Исследования таджикских учёных (Г.М. Саибмурадова и соавт., 2017) показали, что основными этиологическими факторами развития ЖДА у детей являются: гельминтозы (76,6%), неполноценное питание (60%) и физиологические изменения, связанные с половым созреванием у девочек-подростков (71,4%).

**Цель:** Разработка и внедрение в практику гигиенических рекомендаций, направленных на профилактику анемии и дефицита железа среди молодёжи и школьников.

**Материалы исследования:** В качестве материала использовались данные о суточном рационе питания школьников и молодёжи, показателях их физического развития, гематологических параметрах, уровне заболеваемости, состоянии здоровья и антропометрических данных учащихся образовательных учреждений.

**Результаты исследования:** Наибольший риск развития ЖДА наблюдается у младенцев, детей раннего возраста, подростков, женщин репродуктивного возраста, беременных и кормящих женщин.

Анализ последних лет показал, что примерно 1,6 миллиарда человек (примерно четверть населения планеты) страдают от анемии, при этом наиболее высокая распространённость наблюдается среди детей дошкольного возраста и женщин детородного возраста.

Согласно эпидемиологическим данным, в России латентный дефицит железа выявляется у 7,9–31% населения. В разных социальных и этнических группах распространённость ЛДЖ среди дошкольников варьирует от 2 до 6%, а среди девочек-подростков - от 8 до 20%.

Если рассматривать данные исследований за период с 1990 по 2011 годы, охватывающих 185 стран (всего 312 исследований), становится очевидно, что тяжёлые формы анемии среди детей и женщин репродуктивного возраста сохраняются. Около 800 миллионов детей, подростков и женщин страдают от анемии, при этом на страны Африки приходится около 60%, а на страны Юго-Восточной Азии — около 40% от общего числа заболевших.

Основными причинами развития ЛДЖ у детей и подростков являются несбалансированное питание, хронические кровопотери и повышенная потребность железе в период активного роста.

Также следует отметить, что избыточное потребление молочных продуктов и недостаток овощей и бахчевых культур в рационе также способствуют повышенному риску железодефицита. В Испании было проведено перекрёстное популяционное исследование среди 951 ребёнка в возрасте от 1 до 11 лет. По его результатам у 7,7% детей был выявлен диетический дефицит железа, а у 0,9% - железодефицитная анемия.

**Вывод:** Для выявления основных причин развития ЛДЖ среди детей и подростков необходимо внедрение эффективной системы диагностики и раннего выявления заболеваний. Для этого требуется применение биохимических критериев диагностики ЖДА, разработанных экспертами ВОЗ, забор венозной крови и финансовое обеспечение соответствующих мероприятий.

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## EVALUATING THE MECHANISM OF THE EFFECTS OF PESTICIDES ON THE HUMAN BODY

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**Abstract:** About 30% of the world's employed population consists of agricultural workers, who also have to work with toxic chemical substances such as pesticides. The use of pesticides helps prevent large-scale crop losses. According to the World Health Organization, annually between 550,000 and 2 million people suffer from the side effects of pesticide exposure. Approximately 40,000 of them die from the consequences of these exposures. Assessing the impact of pesticides used in agriculture on public health is one of the main challenges not only for humans and the environment but also for healthcare workers.

**Keywords:** Side effects of pesticides, poisoning, agriculture, mechanism of action, metabolic changes.

**Аннотация:** Около 30% занятого населения мира составляют работники сельского хозяйства, и им также приходится работать с токсичными химическими веществами, такими как пестициды. Использование пестицидов помогает предотвратить потерю урожая в больших количествах. По данным Всемирной организации здравоохранения, ежегодно от побочного воздействия пестицидов страдают от 550 тысяч до 2 миллионов человек. Около 40 тысяч из них умирают от последствий этих воздействий. Оценка влияния применяемых в сельском хозяйстве пестицидов на здоровье населения является одной из основных проблем не только для человека и окружающей среды, но и для работников системы здравоохранения.

**Ключевые слова:** Побочные эффекты пестицидов, отравление, сельское хозяйство, механизм воздействия, метаболические изменения.

**Relevance of the topic:** It should be noted that in international treaties aimed at banning or restricting the persistent production and use of organic pollutants, the toxicity of pesticides depends on their purpose and other factors. Worldwide, more than 1,000 types of pesticides are used to protect food products from damage or destruction by pests. Each pesticide has its own specific characteristics and toxicological properties. According to forecasts by the United Nations Department of Economic and Social Affairs, the world population is expected to reach 9.7 billion by 2050, which is more than 30% higher than the figure in 2017. Almost all of this demographic growth will occur in developing countries. According to calculations by the Food and Agriculture Organization of the United Nations (FAO), with such population growth in developing countries, food production will need to increase by 80%, which will be achieved through higher yields and multiple cropping on the same land area, while expansion of land for food production will only account for about 20% of the growth. In this regard, the use of pesticides helps to prevent significant crop losses.

**Objective:** To study the mechanism of pesticide effects on the body, the quantitative levels of harmful chemical and physical factors at main workplaces, as well as to assess their impact on the health of individuals working with pesticides.

**Research Materials:** To assess the mechanism of pesticide effects, as well as to develop pathogenetic prevention and treatment measures, blood, serum, bile, urine, and laboratory animals were used.

**Research Results:** N. E. Krishcheva, based on scientific observations of toxic effects during acute intoxication with bancol insecticide in 300 experimental animals, proved the selective accumulation of the substance in the liver, stomach, and intestines of warm-blooded animals.

M. V. Koroleva, analyzing 410 medical documents and 360 clinical cases, concluded that the development of toxic liver damage is accompanied by the balance between regulatory and cytotoxic subpopulations of T-lymphocytes. Specifically, CD4 changed by 17.9%, 19.7%, and 18.8%; CD16 by 34.0%, 38.9%, and 32.2%; in toxic hepatitis, the decrease of CD3 was 14.9%, immunoregulatory index was 41.1%, 40.1%, and 39.3%; CD8 increased by 39.7%, 33.9%, and 34.5%; alcoholic hepatitis showed an increase of 14.8%, drug-induced hepatitis 13.4%. The cytokine synthesis index

increased correspondingly: IL-4 by 15.9, 9.2, and 2.6 times; IL-6 by 11.3, 6.2, and 2.6 times; and TNF- $\alpha$  by 11.38, 4.9, and 3.1 times.

T. B. Sherbakov, during the development of the applied model, observed strong accumulation (accumulation index 2.55) when 0.5 LD50 dose was administered intragastrically three times, resulting in stable neuropathy due to inhibition of cholinesterase activity in the brain, liver, and blood for 21 days, emphasizing that this is one of the main visual signs of intoxication. Most scientists working in this area, based on their scientific research, believe that pesticide concentration at a natural level (mixture 1) does not cause changes in the biochemical indicators of fish. However, high pesticide concentration (mixture 2) leads to increased lipid peroxidation (LPO) and weakening of protective and detoxification mechanisms of the body, as they have also noted.

It should be emphasized that only morphological changes cannot fully explain the pathogenesis of toxic liver damage. These changes are based on metabolic processes and their shifts, which ultimately lead to disruption of morphological and structural changes in hepatocytes.

According to the conducted research, the progression of liver damage to a chronic stage may depend on two main factors: first, the toxicity strength and the extent of spread during the acute stage; second, the organism's reactivity and the liver's ability to regenerate.

Currently, various biologically active substances are used to prevent and treat poisoning with harmful chemicals, which do not cause harm to the body over a long period.

**Conclusion:** The use of pesticides in the production of food products, both for domestic consumption and for export, must be carried out in accordance with the principles of good agricultural practice, regardless of the country's economic situation. Farmers should minimize the amount of pesticides used to protect crops. In cooperation with WHO and FAO, it is necessary to assess the health risks both from direct exposure to pesticides and from their presence in residual concentrations in food products, as well as to develop recommendations for protective measures against these effects. In some cases, the possibility of producing food without the use of pesticides should be widely promoted.

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## ESTIMATES OF CONSUMPTION OF CONFECTIONERY PRODUCTS IN THE AVERAGE DAILY DIETS OF THE POPULATION IN THE WINTER-SPRING SEASON

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(Based on the example of the Samarkand region, the city of Tashkent and medical college students)

**Abstract:** At present, there is no doubt about the principle that nutrition should support physical, mental, and social well-being, contribute to disease prevention, and help improve the health and quality of life of people, including those suffering from various illnesses. Naturally, functional foods are valuable only if they are part of a balanced diet.

**Keywords:** nutrition, disease prevention, products, confectionery.

## ОЦЕНКА ПОТРЕБЛЕНИЯ КОНДИТЕРСКИХ ИЗДЕЛИЙ В СОСТАВЕ СРЕДНЕСУТОЧНОГО РАЦИОНА НАСЕЛЕНИЯ В ЗИМНЕ-ВЕСЕННИЙ ПЕРИОД

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**Аннотация:** На данный момент не вызывает сомнения постулат о том, что питание должно поддерживать состояние физического, психического и социального благополучия и способствовать профилактике заболеваний, а также способствовать улучшению здоровья и качества жизни людей, в том числе страдающих от различных заболеваний. Естественно, что функциональные продукты имеют ценность только в том случае, если они являются частью сбалансированной диеты.

**Ключевые слова:** питание, профилактика заболеваний, продукты, кондитерские изделия.

**Relevance of the topic:** The production and use of confectionery products in the world is carried out for the purpose of hygienic justification, a series of scientific studies using the international HACCP system.

By changing the content and ratio of certain food components supplied with functional foods, it is possible to regulate many metabolic processes occurring in organs and tissues through direct or indirect effects on cellular and nuclear receptors, hormonal-enzyme systems, processes of absorption and excretion, thereby catalyzing or inhibiting the corresponding metabolic processes, the microbial population of the gastrointestinal tract, which should lead to a positive modification of the physiological functions of the body, reducing the effect of damaging factors, restoring the balance between the environment and the internal environment of the body, reducing the manifestation of symptoms of maladjustment.

Modern nutritionists have many effective ways to restore physical disability and mental activity. These include an appropriate diet and balanced nutrition in general. From a scientific point of view, it is necessary to adhere to healthy eating rules. At the same time, nutritionists note the special role of confectionery products, both from the point of view of the principles of healthy nutrition and food safety.

Based on these objectives, it is advisable to conduct research on the hygienic justification of the international HACCP system for the production and use of confectionery products.

**Purpose of the work:** Assess the actual consumption of various types of confectionery products in different regions of the Republic among the urban and rural population by season. Analysis of the nutritional and biological value of the main types of confectionery products produced by industrial and artisanal methods and development of risk assessment criteria at control critical points in the production and sale of confectionery products according to microbiological, chemical, sanitary-hygienic and radiological indicators.

**Results obtained:** Before conducting the research, explanatory work was carried out among the respondents about the need to take into account all consumed products, including street food.

Confectionery products are multi-component food products, ready-to-eat, having a certain specified form, obtained as a result of technological processing of the main types of raw materials - sugar and (or) flour, and (or) fats, and (or) cocoa products, with the addition or without added food ingredients, food additives or flavorings.

Depending on the ingredients used, all types of confectionery products are divided into three main groups: flour, sugar and chocolate.

Actual nutrition was studied by the method of frequency and 24-hour recall, recommended by WHO for epidemiological studies [60,61] with adaptation for Uzbekistan of questionnaires developed by us and approved by the Ministry of Health [62] in 140 households of Tashkent, Samarkand region, 210 student volunteers of the medical college Tashkent.

## Assessment of food consumption in the average daily diets of the adult population in the studied regions, in the winter-spring season, g/day, M±m

Table 1.

Product Name	Samarkand region		Tashkent	College students in Tashkent	Rational norms	P
	city	village				
Legumes	15,0±0,3	18, 0±0,7	10, 0±0,3	5,0±0,2	15,0	<0,01
Wheat flour	60,0±2,5	68,0±3,3	60,0±1,4	40,0±1,6	20,0	<0,01
Rice	60,0±2,8	70,0±2,9	42,8±1,6	34,0±1,6	50,0	<0,01
Cereals (without rice)	9,1±1,3	7,2±150	12,4±1,4	10,0±1,1	20,0	<0,01

Wheat bread	375,0±16,0	450,0±17,5	324,2±14,6	225,0±13,6	250,0	<0,01
Rye bread	15,5±1,2	12,2±1,1	45,2±1,5	33,2±1,2	80,0	<0,01
Bread made from other grains	50,4±1,5	20,0±1,1	35,0±1,5	23,2±1,2	absent	
Pasta	40,0±4,1	42,0±2,0	44,4±1,2	43,0±1,0	30,0	<0,01
Potato	120,0±9,5	132,0±9,8	165,0±7,2	143,0±1,6	200,0	<0,01
Cabbage	32,0±1,3	44,0±1,7	54,2±1,6	23,2±1,1	50,0	<0,01
cucumbers	5,5±0,5	6,8±0,8	12,2±1,1	5,0±0,6	50,0	<0,01
Tomatoes	6,5±0,8	13,0±1,5	14,2±1,3	3,5±0,6	50,0	<0,01
Beet	3,0±0,3	4,0±0,8	6,5±0,7	2,5±0,2	30,0	<0,01
Carrot	22,5±1,8	25,0±1,5	24,2±1,4	63,0±1,6	50,0	<0,01
Onion	14,4±1,1	16,0±1,2	18,5±1,1	12,0±1,0	40,0	<0,01
Other vegetables	5,5±0,5	8,0±0,8	12,2±1,1	4,0±0,6	60,0	<0,01
Total vegetables	89,4±2,2	116,8±3,8	240,3±5,5	113,2±3,6	200,0	<0,01
Melons	12,0±1,1	14,0±1,2	34,2±1,5	23,0±1,2	50,0	<0,01
Pumpkin	20,0±1,2	23,0±1,3	14,2±1,0	6,0±1,0	30,0	<0,01
Fresh fruits and berries	25±1,2	20,0±1,8	54,2±1,4	33,0±1,2	250,0	<0,01
dried	10,0±0,5	16,0±0,8	4,2±0,4	6,0±0,6	20,0	<0,01
Fresh grapes	15,5±1,0	45,0±1,8	20,0±1,3	12,0±1,0	30,0	<0,01
Citrus	2,5±0,5	3,0±0,8	5,2±0,4	5,0±0,6	15,0	<0,01
Beef	30,0±1,5	32,0±1,0	34,2±1,3	23,0±1,6	60,0	<0,01
Mutton	52,0±1,4	33,0±1,0	24,2±1,4	21,0±1,2	30,0	<0,01

Rabbit meat	1,5±0,5	6,0±0,8	2,2±0,4	000	25,0	<0,01
offal	11,5±0,5	8,0±0,8	12,2±0,4	6,1±0,4	absent	
Bird house.	45,1±1,2	53,0±1,3	44,4±1,5	33,0±1,2	70,0	<0,01
Fresh fish	31,0±0,5	24,0±0,7	20,0±1,4	5,0±0,6	35,0	<0,01
Fish products	16,0±0,5	6,0±0,6	22,0±1,5	4,0±0,4	30,0	<0,01
Whole milk	80,0±1,4	76,0±2,2	120,0±1,5	63,0±1,3	400,0	<0,01
Sour cream, cream	4,6±0,4	8,0±1,1	12,4±1,2	8,5±0,6	15,0	<0,01
Animal oil	5,0±0,5	7,4±0,8	7,0±0,6	6,0±0,5	30,0	<0,01
Cottage cheese	14,5±1,1	15,0±1,0	20,1±1,1	13,0±1,0	30,0	<0,01
Cheese, feta cheese	4,0±0,4	5,6±0,7	12,4±1,2	7,6±0,6	20,0	<0,01
Eggs (pieces)	0,5±0,1	0,6±0,08	0,5±0,04	0,5±0,06	1,0	<0,01
Sugar	25,0±0,4	20,0±0,8	33,0±1,6	10,0±1,0	30,0	<0,01
chocolate	2,0±0,05	1,0±0,07	4,0±0,4	5,0±0,5	absent	
Caramel candy	1,5±0,4	2,0±0,06	5,0±0,4	2,0±0,06	absent	
iris	1,0±0,05	2,0±0,08	2,0±0,4	2,0±0,6	absent	
dragee	1,5±0,05	1,2±0,07	2,0±0,4	2,0±0,06	absent	
Oriental sweets (category includes: halva, Turkish delight)	2,5±0,05	2,0±0,07	2,5±0,4	2,0±0,06	absent	
marmalade	2,0±0,04	1,5±0,07	2,8±0,4	2,0±0,06	absent	
navat	21,0±0,4	32,0±0,6	33,0±1,0	5,0±0,4	absent	

Flour confectionery products (cakes, pastries)	20,0±0,5	25,0±0,5	10,0±0,6	20,0±0,6	absent	
Sugar with confectionery count	62,0±1,5	68,0±1,7	83,0±2,0	23,7±1,2	30,0	<0,01
Honey	12,0±0,3	8,8±0,2	5,0±0,4	2,0±0,2	20,0	<0,01
Margarine	10,0±0,5	9,0±0,7	12,0±1,2	4,0±0,6	5,0	<0,01
Vegetable oil	38,0±2,0	42,0±3,0	33,0±2,4	25,0±1,6	25,0	<0,01
Iodine salt.	8,5±1,5	10,0±1,7	8,8±1,4	8,0±1,6	5,0	<0,01
tea	4,4±0,5	5,0±0,5	6,0±0,6	4,0±0,5	2,0	<0,01
coffee	1,5±0,05	1,0±0,07	1,5±0,04	2,0±0,06	2,0	≥0,01
Tomato paste	1,0±0,5	1,2±0,6	2,0±0,4	2,0±0,3	3,0	≥0,01
Spices	1,5±0,05	2,0±0,07	2,0±0,04	2,0±0,06	2,0	≥0,01
Calorie kcal.	2860,4±15	3172,5±16,8	2841,1±14	2013,70±16,0	3104,4	<0,01
Squirrels	107,9±8,5	106,1±6,6	105,7±7,4	67,8±5,0	118	<0,01
Fats	88,9±5,5	92,1±8,7	95,4±7,5	71,9±5,6	119,5	<0,01
Carbohydrates	439,1±12,8	592,0±16,7	432,1±14,2	360,7±11,6	561,2	<0,01
Ratios B:F:U	1:0,9:4,3	1:0,9:4,9	1:0,9:4,3	1:1,1:5	1:1:4	

In the winter-spring season, sugar consumption increases slightly, and in Samarkand it is  $25.0 \pm 0.4$ , in Tashkent  $33.0 \pm 1.6$  g per day or in terms of confectionery products  $62.0 \pm 1.5$  g per day or 22.6 kg per year in Samarkand and  $83.0 \pm 2.0$  grams per day, or 30.2 kg per year in Tashkent.

According to the research results, for the first time in Uzbekistan, data were obtained characterizing the consumption of confectionery products by type of product. Sugar consumption, excluding confectionery products, in Samarkand in the summer-autumn season was  $24.0 \pm 0.5$  grams per day, or 9.2 kg per year. Converting confectionery products to sugar or 17.3 kg per year. In Tashkent in the summer-autumn season, sugar consumption was  $28.0 \pm 0.6$  g per day, or 10.2 kg per year. With the conversion of confectionery products  $66.0 \pm 1.5$  g/day or 24 kg per year.

**Conclusion:** As a result of the study, it was found that at a low level of adherence to the principles of rational nutrition, the energy intensity of carbohydrates in the average daily diets in the studied objects is high, while the energy intensity of proteins is low. This provision indicates the need to develop measures to ensure the safety of confectionery products according to a modern system from “farm to dastarkhan”.

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## Annotatsiya

Ushbu maqola sun'iy intellektni yuridik sohada qo'llashning etik tomonlari, hamda SI dan foydalanishning ijobiy va salbiy jihatlari masalasiga qaratilgan bo'lib, uning asosiy maqsadi SI ni huquq sohasida to'g'ri qo'llashni targ'ib qilish va undan foydalanishda me'yor talablarni aniqlashtirish, shuningdek, SI elementlari asosida ishlovchi tizimlarning foydalari va kamchiliklarini muhokama qilishdan iborat. Ushbu maqolani yozishda xalqaro qonunchilik manbalari, maqolalar, adabiyotlar o'rganildi va sifatli tahlil yondashuvidan foydalanildi. Turli xil SI lar va SI elementlari asosida ishlovchi tizimlar tahlil qilindi. Ulardan yuridik sohada foydalanishdagi ustunliklar va kamchiliklar muhokama qilindi.

**Kalit so'zlar:** sun'iy intellekt, huquq, yuridik soha, qonun, etik jihatlar, LexisNexis, lex.uz, chat-bot, etik nazorat.

Sun'iy intellekt – bu insonning fikrlash, o'rganish va qaror qabul qilish jarayonlarini kompyuterlar va dasturlar orqali taqlid qiluvchi texnologiyalardir. U katta hajmdagi ma'lumotlardan foydalanadi, o'z-o'zini rivojlantirib takomillashtiradi va ko'pincha insondan ko'ra tezroq ishlaydi, aniq ma'lumotlar beradi. Smartfonlarimizda Google Assistant, Siri, Bixby, Gemini, kabi sun'iy intellekt algoritmlaridan foydalangan holda bizning savol va buyruqlarimizga javob beradigan raqamli yordamchilarni ko'ramiz va foydalanamiz. Masalan, Google Assistantdan „Bugun havo qanday“ deb so'rasangiz u tezda aniq va to'g'ri javobni beradi yoki telefonlarimizdagi ChatGPT har qanday savol va jumboqlarga fan va ishonchli manbalar asosida ma'lumotlarni taqdim etadi. SI lar ko'plab sohalarda keng foydalaniladi, masalan, tibbiyot, iqtisod, bank, ta'lim, huquq va raqamli texnologiyalar. Albatta, undan foydalanishning belgilangan tartibi va doirasi, umuman olganda, foydalanish etikasi mavjud. Mazkur esseda yuridik sohadagi SI lar va onlayn platformalardan foydalanishning etik jihatlari haqida muhokama qilamiz.

Dastlab, sun'iy intellekt tushunchasining qanday paydo bo'lganligi va qachon huquq sohasiga kirib kelganligi haqidagi ma'lumotlarni ko'rib chiqamiz. SI ni ilmiy yo'nalish

sifatida rivojlantirish faqat EHM yaratilganidan keyin mumkin bo'lgan. Bu XX asrda sodir bo'lgan. Bu vaqtda Norbert Viner yangi fan kibernetika bo'yicha o'zining asosiy ishlarini yaratadi. Sun'iy intellekt tushunchasi ilk bor 1956-yilda Dartmut konferensiyasida John McCarthy tomonidan ilmiy atama sifatida kiritilgan. Avval nazariy bo'lgan bu SI, keyinchalik dasturlash, matematika va nevrologiya sohalarida rivojlanishlar bilan kuchaydi. 1997-yilda IBM ning Deep Blue superkompyuteri shaxmat bo'yicha jahon chempioni Garri Kasparovni mag'lub etishi SI tarixidagi muhim burilish nuqtasiga aylandi. Hozirda esa turli amallarni bajarishga mo'ljallangan algoritm hamda dasturiy tizimlar bilan takomillashtirilgan SI inson ongi bajarishi mumkin bo'lgan bir qancha vazifalarning uddasidan chiqq oladi. Huquq sohasida SI ning amaliy qo'llanishi dastlab juda cheklangan edi, faqat bir necha kompaniyalar yuridik maqsadlar uchun maxsus SI dasturlarini ishlab chiqargan. Ularning funksiyalari asosan e-discovery (elektron dalillarni topish, shartnoma tahlili) va "due diligence" (yuridik tekshiruv) bilan chegaralangan edi. SI huquq sohasiga "Expert systems" orqali kirgan. XIX asrning 70-yillarida kompyuter bo'yicha Stanford universiteti professori Edward Feigenbaum "Expert Systems" ni kashf etdi. Xuddi shu davr oxirida Donald Waterman "Expert Systems" konsepsiyasini huquqiy masalada qo'llashni taklif qilgan. Vaqt o'tib bu tizimlar prognozlash, kasalliklarni diagnozlash va hukm chiqarish jarayonida samarali ekanligi ko'rina boshladi. Bu iqtisod, mexanika injeneringi, telekommunikatsiyalar, sog'liqni saqlash, qishloq xo'jaligi, transport, mijozlarga xizmat ko'rsatish va huquq sohasida katta ahamiyat kasb etdi. "AI yoki kompyuter ilmi (qoidalarga asoslangan ya'ni algoritmik fan sifatida ta'riflanishi mumkin) huquqqa (yoki qoidalarga asoslangan huquq nuqtayi nazariga) duch kelganida, qonunni kompyuterlashtirishga intilish paydo bo'ladi: ya'ni biz shunchaki huquqiy qoidalarni olib, ularning qoidalar majmuasi (bilim bazasiga) kiritamiz va deduktiv strategiya (qoida talqinchisi) bilan talqin qilamiz. Aslida, bu kompyuter ilmi AI va huquq sohasining hozirgi va asosiy yo'nalishidir"<sup>1</sup>

Ayni vaqtda dunyoda yuridik sohada foydalaniladigan SI lar soni ko'p. Masalan, LexMachina, Kira Systems, LawGeex, LexisNexis va boshqalar. O'zbekistonda ham Lex AI, Yoqla AI, Tuzuk AI kabi huquqiy soha uchun maxsus yaratilgan SI lar mavjud, biroq ular soni ko'p emas. Bundan tashqari SI elementlari asosida ishlaydigan Lex.uz, yurxizmat.uz, E-sud kabi platformalar ham mavjud. Ulardan yuristlar, talabalar va oddiy fuqarolar ham keng foydalanadi.

<sup>1</sup> Leith P. The application of AI to law //AI & SOCIETY. – 1988. – T. 2. – №. 1. – C. 31-46

Metodlar. Ushbu maqolada SI lar va ularning vazifalari hamda ulardan yuridik sohada foydalanishning etik jihatlari, foydalanish bilan bog‘liq muammolar va yutuqlar tahlil qilindi. Bunda ilmiy-amaliy, tahliliy va qiyosiy metodlar qo‘llanilgan.

## Tadqiqot natijalari.

KiraSystems. Bu SI 2011-yilda Kanadaning Toronto shahrida tashkil etilgan. Manbalarga ko‘ra KiraSystems 50 dan ortiq mamlakatlarda ishlatilmoqda va kattaroq huquqiy firmalar, maslahat firmalari hamda korporatsiyalar tomonidan qo‘llanilmoqda. Kira Systems korxonalarga o‘z shartnomalaridagi tegishli ma‘lumotlarni aniqlashga yordam beradi. U shartnoma matnlarini izlash va tahlil qilishda yuqori samaradorlik ko‘rsatadigan kuchli dastur. “PwC tomonidan 2022-yilda Kira Systems bo‘yicha keys tahlili o‘tkazildi va u Kira Systemsdan foydalanish 500ta tashkilot uchun shartnomalarni ko‘rib chiqish vaqtini taxminan 60%ga qisqartirganini ko‘rsatdi. Shuningdek, u aniqlikni 30%ga oshirdi. U yetti kundan kamroq vaqt ichida 50000ta shartnomani ko‘rib chiqdi. Qo‘lda bajarilganda bu kabi vazifalar odatda haftalar va oylarni olardi”<sup>2</sup>

LexisNexis. LexisNexis – bu yuridik, biznes, davlat va akademik sohalarida ishlaydigan mutaxassislar uchun mo‘ljallangan axborot-tahliliy platforma. LexisNexis huquqiy ma‘lumot bazalari, qidiruv va tahlil vositalari, sun‘iy intellekt texnologiyalarini o‘zida jamlaydi. U 100 dan ortiq mamlakatlardagi qonuniy manbalar va yangiliklarni o‘z ichiga oladi. Tizim ichidagi Lexis Practical Guidance amaliy huquqiy tavsiyalar beruvchi xizmatni taklif etadi. LexisNexis yuridik tahlil va tadqiqot sohasidagi eng ilg‘or platformalardan biri hisoblanadi. U inson huquqlari buzilmasligini kafolatlaydi. “Birlashgan millatlar tashkilotining Global kelishuvi ishtirokchisi sifatida LexisNexis inson huquqlarini hurmat qilishga va inson huquqlari buzilishida ishtirok etmaslikka ochiqchasiga sodiqlik bildirgan.”<sup>3</sup>

LexAI. Sun‘iy intellekt yordamida huquqiy masalalarga tezkor javob beruvchi chat-bot. Ushbu platformada huquqiy masalalarga javob topishga ko‘maklashadigan yordamchi chat-bot, hujjatlarni huquqshunos ishtirokisiz konstruktor asosida mustaqil tayyorlash, ekspertiza qilib berish, berilgan keyslarga huquqiy amaliyotni tahlil etish asosida javob berishga mo‘ljallangan xizmatlar jamlangan. Ushbu platforma loyiha holatida va to‘liq ishga tushmagan. U quyidagi xizmatlarni amalga oshirishi kutilmoqda:

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<sup>2</sup> Emejuo C. C. et al. The impact of Artificial Intelligence on legal practice: enhancing legal research, contract analysis, and predictive justice. – 2024.

<sup>3</sup> Lui Y. LexisNexis and ICE: An Examination of LexisNexis’s Human Rights Responsibilities //NYUJ INT’L L. & POL. – 2022. – T. 54. – C. 70, 82.

- huquqiy savollarga 24/7 rejimida javob beradi;
- javob manbasida tegishli hujjatning giper havolasini beradi;
- ovozli savol berish va ovozli javob olish mumkin;
- chat-bot o‘zini o‘zi o‘qitish orqali takomillashib boradi;
- so‘rovlar tarixini tasdiqlaydi;
- yangi qonunchilik hujjatlari bilan muntazam yangilanadi
- istalgan aloqa qurilmalari orqali foydalanish imkoniyati mavjud.

Tuzuk AI. Yuridik firmalar va huquqshunos mutaxassislar uchun SI asosida ishlaydigan yuridik platforma. U AI chat, hujjat tuzuvchi va tahlil hamda yuridik hujjatlar uchun aqlli SI qidiruvini taklif etadi. Bu xizmatlarning barchasi bitta platformaga joylangan. Keling, endi SI elementlari asosida ishlaydigan huquqiy platformalarni ko‘rib chiqamiz.

E-sud – bu elektron sud tizimi, ya’ni sud ishlarini raqamli shaklda yuritish va boshqarish imkoniyatini beruvchi onlayn platformadir. “O‘zbekistonning E-sud tizimi fuqarolik ishlari bo‘yicha sudlarga murojaat qilish, sud hujjatlarini elektron shaklda taqdim etish va sud qarorlarini olish imkonini beradi.”<sup>4</sup> Jahonning bir qancha davlatlarida sud tizimida SI dan foydalanish allaqachon boshlab yuborilgan. Masalan, Xitoyda uncha murakkab bo‘lmagan ishlar va kam qiymatli shartnomaviy nizolarni hal qilishda “sun’iy intellekt sudyalari” yordamidan foydalanilmoqda. Albatta SI dan sud ishlarida foydalanishning alohida xususiyatlari bor. “P.M. Morxat sun’iy intellektdan sud jarayonlarida foydalanishning o‘ziga xos jihatlarini sanab o‘tgan:

Normativ-huquqiy hujjatlar iyerarxiyasini aniqlash maqsadida o‘zaro solishtirish;

Chet el elementi ishtirokidagi sud jarayonlarida sinxron professional huquqiy tarjimalarni amalga oshirish;

Avtomatik ravishda huquqiy hujjatlarni tasniflash, shakllantirish va hujjatlashtirish.

Taraflarning buzilgan huquqlarini aniqlashda sudyaga yordam berish;

Operativ ekspert bahosi zarur bo‘lganda, sun’iy intellektdan foydalangan holda huquqiy qarorlar qabul qilish;

Yangi ochilgan holatlar bo‘yicha ishlarni kompleks tekshirish;

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<sup>4</sup> Yusupova S. RAQAMLI JINOYATLAR TERGOVIDA ELEKTRON ODIL SUDLOV TIZIMINING XALQARO INTEGRATSIYASI //Международный журнал научных исследователей. – 2025. – Т. 11. – №. 1. – С. 565-572.

Sudyalarni maxsus ro‘yxat bo‘yicha tanlash;

Sud xatoliklarini tekshirish va boshqalar.<sup>5</sup>

Bundan tashqari O‘zbekistonda kichik biznes va kam ta‘minlangan aholiga huquqiy maslahat berish, ularning taklif va tashabbuslarini qabul qilish qilishning yangi tizimini joriy etish, advokatlar ishtirokisiz huquqiy hujjatlarni tayyorlash imkoniyatini yaratish maqsadida [www.yurxizmat.uz](http://www.yurxizmat.uz) —o‘z-o‘ziga yuridik xizmat ko‘rsatish tizimi joriy qilingan. Bu aholiga huquqiy hujjatlarni o‘zlari yozishi va to‘ldirishi uchun sharoit yaratadi.

Tadqiqot natijalari tahlili.

Bir qancha SI lar va SI elementari asosida ishlaydigan platformalar haqida tanishib chiqdik. Endi ulardan foydalanishning ijobiy va salbiy jihatlari hamda huquq sohasida SI ni qo‘llashning etik xususiyatlarini atroflicha tahlil qilamiz. Biz insonlar SI ni ko‘plab sohalarda foydalanyapmizmi, demak, uning foyda va kamchiliklarini bilishimiz kerak. Aynan uning ijobiy va salbiy xususiyatlarini bilish bizga SI dan to‘g‘ri foydalanishga imjoniyyat yaratadi. SI ning huquq sohasidagi pozitiv va foydali jihatlari ko‘lami keng. Ular hujjatlarni tahlil qilishni tezlashtirdi va avtomatlashtirishga xizmat qildi, (Kira Systems, Luminance) qonun va hujjatlar qidiruvi birmuncha osonlashdi, (LexisNexis) inson tomonidan yo‘l qo‘yilishi mumkin bo‘lgan huquqiy xatoliklar kamaydi. Shuningdek yuridik sohada SI foydalanish natijasida korrupsiya holatlarini qisqaradi va vaqt tejaladi, huquqiy xizmatlar raqamlashtirilib, huquqiy tizim zamonaviylashadi. SI boshqa sohalarda yaxshi natijalar berayotganini ko‘rishimiz mumkin. “Sun’iy intellekt yoki AI nomi bilan mashhur bo‘lgan texnologiya—ma’lum elektron ma’lumotlar asosida ishlarni avtomatik ravishda amalga oshira oladigan sun’iy intellekt texnologiyasidir. AI texnologiyasi Indoneziyadagi turli ish sohalarida, masalan, sog‘liqni saqlash, elektron tijorat, sanoat va boshqalarda keng qo‘llanilmoqda. AI ning elektron ma’lumotlar asosida turli ishlarni avtomatik bajarish qobiliyati, albatta, biror bir sektor faoliyatida innovatsion, samarali yechimlar va yaxshi xizmat ko‘rsatishga turtki bo‘ladi”<sup>6</sup> Biroq, ijobiy ta’sirga erishish uchun SI yechimlari etik tamoyillarga amal qilishi kerak. Yevropa Komissiyasi va OECD innovatsion va ishonchli SI ni rivojlantirish bo‘yicha yo‘riqnomalar tayyorlagan. Tegishli tamoyillar “Montreal Declaration for Responsible AI” va Toronto

<sup>5</sup> Morhat P.M. Vozmojnosti,osobennosti i usloviya primeneniya iskusstvennogo intellekts v yuridicheskoy praktike. Administrator suda. 2018.2. pp

<sup>6</sup> Zahra Y. Regulating AI in Legal Practice: Challenges and Opportunities //Journal of Computer Science Application and Engineering (JOSAPEN). – 2025. – T. 3. – №. 1. – C. 10-15.

|Deklaratsiyasida belgilangan. Yevropa Komissiyasi SI ning kutilmagan zararining oldini olish uchun uning qonuniy, etik va mustahkam bo‘lishi kerakligini ta’kidlagan.<sup>7</sup>

SI faqat o‘zida mavjud ma’lumot bilan ishlaganligi sababli ba’zan algoritmik noto‘g‘ri qarorlar qabul qilishi va adolatsizlikka yo‘l qo‘yishi mumkin. SI intellekt ham kamchiliklarga qo‘yadimi? Undan huquq sohasida foydalanish to‘liq to‘g‘ri qarormi? Bu savollarga javob berish uchun SI ning salbiy va kuchsiz tomonlarini ko‘rib chiqamiz. Xuddi mana shu kamchiliklar yuristlarni va yuridik xizmatlardan foydalanish maqsadida SI ga murojaat qilayotgan fuqarolarni yuridik sohada ulardan foydalanishning etik jihatlarini ko‘rib chiqishga undaydi. Keling dastlab buning kamchiliklarini muhokama qilsak,

SI yuristlar uchun ish o‘rinlarini kamaytirishi mumkin.

Inson omilining yetishmasligi. Chunki huquq faqat statistik yoki mantiqiy tahlilga asoslanmaydi, ishlarda yuristlardan axloqiy, mulohaza, vijdon, simpatiya hamda vaziyatning noyob insoniy tomonlarini tushunish talab qilinadi. “Angliyalik essechi Charles Lamb mashhur ravishda shunday yozgan: “Ikki tomonni ham yoqlay olmaslik— bu advokat emas” Bu ko‘p jihatdan SI va huquq dasturlari uchun. Sudda ishonarli ishni yaratish uchun faqat bir tomonni yoqlash yoki yomonrog‘i, shunchaki bir tomon uchun fikr bildirish yetarli emas. Ishonchli himoyani yaratish uchun kishi o‘z tomoni uchun sabablarni keltira olishi, shuningdek, boshqa tomonning dalillarini oldindan ko‘ra bilishi va rad etishi kerak.”<sup>8</sup>

Etik javobgarlik. “AI dan foydalanish biz hali ham tushunishga harakat qilayotgan yangi etik savollarni keltirib chiqaradi. AI jiddiy xato qilganda kim javobgar? AI dasturi bilan bo‘lishilganda mijozning imtiyozli ma’lumotlari qanday himoyalangani? Foydalanuvchilar AI bilan bo‘lishayotgan ma’lumotlari chinakam himoyalanganligini qanday bilishadi?”<sup>9</sup> SI chiqargan qaror noto‘g‘ri bo‘lsa kim javobgar bo‘lishi masalasi. “Amaliyotchi huquqshunoslar ABA Professional xulq-atvor model qoidalarining 1.1-qoidasi “huquqshunos mijozga malakali vakillikni ta’minlashi shart” ekanligi va bu majburiyat “vakillik uchun oqilona zarur bo‘lgan huquqiy bilim, mahorat, puxtalik va tayyorgarlikni talab qilishini” bilishadi. 40 dan ortiq shtatlar 1.1-qoidaga 8-izohni qabul qilgan, unda shunday deyilgan:”zarur bilim va ko‘nikmalarni saqlab qolish uchun advokat qonun va uning amaliyotdagi o‘zgarishlaridan, shu jumladan texnologiyalar bilan

<sup>7</sup> Siau K., Wang W. Artificial intelligence (AI) ethics: ethics of AI and ethical AI //Journal of Database Management (JDM). – 2020. – T. 31. – №. 2. – C. 74-87

<sup>8</sup> Atkinson K., Bench-Capon T., Bollegala D. Explanation in AI and law: Past, present and future //Artificial Intelligence. – 2020. – T. 289. – C. 103387.

<sup>9</sup> Esfandi G. The potential and drawbacks of using artificial intelligence in the legal field //Plaintiffmagazine. com. – 2023.

bog‘liq foyda va xatarlardan xabardor bo‘lib turishi kerak.”<sup>10</sup> Masalan, mijozlar huquqiy vakillik maqsadlarini tanlaydilar va advokatlar ushbu maqsadlarga erishish strategiyasini tanlaydi — ammo advokatlar Model Rules bo‘yicha o‘z mijozining maqsadlariga erishish uchun tanlagan vositalari haqida mijoz bilan maslahatlashish kerak. Bu shuni anglatadiki, agar sun‘iy intellect vositasi yuridik hujjatlarni yozayotgan bo‘lsa, mijozga bu haqda xabar berilishi va unga e‘tiroz bildirish imkoniyati berilishi kerak. Ana shunda javobgarlik masalasi katta muammoga aylanmaydi.

Maxfiy ma‘lumotlarni himoyalash qiyin bo‘lishi mumkin. “AI dan foydalanish ko‘pincha mijozning hujjatlarini va ma‘lumotlarini bulutga yoki serverga joylashni talab qiladi. Maxfiy yuridik ma‘lumotlarni AI tizimlarida saqlash ma‘lumotlar xavfsizligi va maxfiyligi borasida xavotirlarni keltirib chiqaradi. Agar platformaning xavfsizligi choralari buzilsa, bu mijozning maxfiyligiga potensial xavf tug‘dirishi mumkin.”<sup>11</sup> Bunda SI tizimlarida ma‘lumotlarning saqlanishi va qayta ishlanishi kiberhujumlar va axborotning sizib chiqishi xavfini oshiradi.

Yetarli darajada tartibga solinmasligi. Bugungi kunda yuridik sohada SI dan foydalanishni boshqarish bilan bog‘liq talab va qoidalarni belgilovchi aniq standartlashtirilgan normalar mavjud emas. Darhaqiqat, huquqiy ishlarda, masalan, sudlarda yoki tergov, so‘roq qilish jarayonida advokat, sudya va tergovchilardan ba‘zida ishga psixologik nuqtayi nazardan yondashish talab qilinadigan holatlar bo‘ladi. Buni rad etib bo‘lmaydi, chunki jinoyatlarni ochish, jinoyatchini aniqlash, jinoyatchining aybini bo‘yniga qo‘yib, buni tan oldirishga faqatgina qonunlar, normalar, tartib-qoida va javobgarlikni qo‘llab erishish imkonsiz. SI ning ishlashi esa inson manfaatlarini buzmasligi kerak. “Hozircha AI xulqini tartibga soluvchi eng mashhur me‘yoriy tizim bu Isaac Asimov tomonidan 1950-yillarda ilgari surilgan Robotatexnikaning Uchta Qonuni hisoblanadi.

1. Birinchi qonun. Robot insonni jarohatlamasligi va harakatsizligi sababli inson zarar ko‘rishiga yo‘l qo‘ymasligi kerak.
2. Ikkinchi qonun. Robot inson bergan buyruqlarni bajarishi shart, agar bu buyruqlar birinchi qonunga zid bo‘lmasa.
3. Uchinchi qonun. Robot o‘z mavjudligini himoya qilishi kerak, lekin bu himoya birinchi va ikkinchi qonun bilan ziddiyatga tushmasligi lozim... Bu ayniqsa ongga ega AI tizimlari uchun muhimdir: bunday tizimlar insonlarga zarar yetkazmasligi, shuningdek

<sup>10</sup> Duplantier T. *AI and ethical concerns for legal practitioners* [Elektron resurs]. – LexisNexis Thought Leadership, 2024. – [https://www.lexisnexis.com/community/insights/legal/b/thought-leadership/posts/ai-and-ethical-concerns-for-legal-practitioners?utm\\_source=chatgpt.com](https://www.lexisnexis.com/community/insights/legal/b/thought-leadership/posts/ai-and-ethical-concerns-for-legal-practitioners?utm_source=chatgpt.com)

<sup>11</sup> Esfandi G. The potential and drawbacks of using artificial intelligence in the legal field //Plaintiffmagazine. com. – 2023.

boshqa intellektual tizimlarga ham zarar keltirmasligi lozim. Shu sababli, robotatexnikaning uch qonunini kengaytirish va SI lar o'rtasidagi o'zaro ta'sirni ham hisobga olish kerak.”<sup>12</sup>

## Xulosa.

Bu kamchiliklar SI ni huquqiy sohada joriy etishda ehtiyotkorlik, etik nazorat va qat'iy qonuniy tartibga solish zarurligini ko'rsatadi. . “SI advokatlar uchun o'z amaliyotlarini soddalashtirish, mijozlarning pulini tejash va yuqori sifatli vakillikni ta'minlash uchun ajoyib imkoniyatdir. Shu bilan birga, u etik xatarlar bilan to'la. Shu sababli, advokatlar SI ga vazifalarni ishonib topshirishda ehtiyotkor bo'lishlari va agar shunday qilsalar, uning ishini sinchiklab tekshirishlari kerak. Professional mas'uliyat qoidalari advokatlardan texnologiyasidan voz kechishni talab qilmaydi — aslida, qoidalar ba'zida ulardan foydalanishni rag'batlantiradi.”<sup>13</sup>

Jamiyatda aholi ham SI dan yuridik xizmatlar olish uchun yoki boshqa huquqiy kontekstlarda foydalanayotganda etikani saqlashi va belgilangan tartibga rioya qilishi kerak. Fuqarolar tomonidan huquqiy sferadagi SI lardan foydalanilayotganda ularning aniq bir maqsadi bo'lishi zarur, hukumat bu kabi rasmiy tUSDagi va davlatning xizmatlari va yuridik ma'lumotlar bilan ishlovchi SI lar faoliyatini nazorat qilishi va undan bemaqsad, ko'rko'rona foydalanishni cheklashi kerak. Bundan tashqari, yurist va advokatlar ish faoliyati jarayonida shaxsiy mulohaza va insoniy fikrlashni talab qiladigan hollarda SI ga tayanib qolishni oldini olishi va boshqa vaziyatlarda esa ular bilan ishlash bo'yicha yetarli bilim, malaka va ko'nikmalarga ega bo'lishi lozim. Agarda huquqiy sohada SI lardan to'g'ri foydalanilsa va jarayon to'g'ri boshqarilsa bu— sohani rivojlantiradi, aksincha, noto'g'ri boshqarilsa va loqaydlik bilan qaralsa bu fuqarolarga ham yuristlarga ham noqulayliklar tug'diradi, mamlakatda huquqiy bo'shliqlar paydo bo'ladi, hatto inson huquqlari buzilishi holatini ham keltirib chiqaradi.

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## ABSTRACT

The Early New English period (approximately 1500–1700) was marked by significant expansion and enrichment of the English vocabulary. During this era, English absorbed a large number of borrowings from Latin, Greek, French, Italian, Spanish, and Dutch, reflecting the influence of the Renaissance, trade, exploration, and cultural exchange. At the same time, native word-formation processes such as compounding, prefixation, suffixation, and conversion contributed to the creation of new terms. Semantic changes in existing words further enhanced the expressive power of the language. The printing press and literary figures like Shakespeare played a crucial role in standardizing and popularizing new vocabulary. Overall, the vocabulary of Early New English laid the foundation for the modern English lexicon, making it richer, more flexible, and capable of expressing complex ideas in literature, science, and everyday life.

**Key words:** *Early New English, vocabulary, borrowing, word formation, semantic change, Renaissance, printing press, standardization.*

### Introduction

The period of Early New English (1500–1700) was crucial for the development of the English lexicon. During this era, the language expanded both quantitatively and qualitatively. The Renaissance, Reformation, exploration, and trade introduced new concepts, ideas, and objects that required new words. Borrowings from Latin, Greek, French, Italian, Spanish, and Dutch enriched the language, while native processes such as compounding and affixation created new English words. The printing press and rising literacy facilitated the dissemination and standardization of vocabulary across England, shaping the language into a more uniform and expressive system.

### Discussion

The vocabulary of English expanded greatly during the early modern period. Writers were well aware of this and argued about it. Some were in favour of loanwords to express new concepts, especially from Latin. Others advocated the use of existing

English words, or new compounds of them, for this purpose. Others advocated the revival of obsolete words and the adoption of regional dialect.

The Early New English vocabulary underwent major changes due to several interconnected factors:

## Borrowings

Latin and Greek: Scholars and writers introduced scientific, philosophical, and literary terms such as education, philosophy, atmosphere, and democracy.

French: Words related to art, government, and lifestyle, like bureau, fashion, and courage, entered English.

Italian, Spanish, Dutch: Maritime trade, exploration, and cultural contact introduced opera, volcano, guitar, tobacco, chocolate, yacht into the lexicon.

## Native Word Formation

English continued to generate words internally using:

Compounding: bookcase, highway, moonlight

Prefixation and Suffixation: friendship, desirable, reread, unkind.

Conversion: nouns into verbs or adjectives (bottle → to bottle, email → to email [later periods]).

## Semantic Change

Many older English words changed meaning:

silly → “foolish” (from “happy”)

meat → “flesh of animals” (from “food”)

knight → “nobleman” (from “servant”)

## Influence of Printing and Literature

The printing press accelerated the spread of new words, while writers like Shakespeare, Spenser, and Milton popularized and experimented with vocabulary. Shakespeare alone introduced hundreds of words such as assassination, lonely, majestic, and gloomy, leaving a lasting impact on the lexicon.

## Social and Cultural Factors

The Renaissance and Reformation, along with England's overseas trade and exploration, created a need for new terms to describe religion, politics, science, and foreign objects (salvation, preacher, potato, tomato, cargo). This global exposure expanded English vocabulary far beyond its previous limits.

## Literary Influence

Writers like William Shakespeare, Edmund Spenser, and John Milton contributed significantly to vocabulary expansion. Shakespeare alone introduced hundreds of new words and expressions into the language.

The Renaissance, Reformation, overseas exploration, and trade all created a need for new words to describe new ideas, religious concepts, foods, and technologies. This period made English more expressive, flexible, and suitable for literature, science, and everyday communication.

## Conclusion

The Early New English period was a critical stage in the development of the English lexicon. The vocabulary expanded significantly through borrowings from Latin, Greek, French, Italian, Spanish, and Dutch, while native word-formation processes such as compounding, prefixation, and suffixation produced many new English terms. Early New English vocabulary laid the foundation for Modern English, creating a language that is flexible, expressive, and capable of adapting to new ideas and influences. The period demonstrates how historical, cultural, and social forces can directly shape the growth and development of a language.

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## THE CRIMINOLOGICAL CHARACTERISTICS OF ORGANIZED CRIME AND MEASURES FOR ITS PREVENTION

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### Аннотация

В данной статье рассматриваются криминологические характеристики организованной преступности и предлагаются стратегические меры по её предупреждению в современном обществе. Рассматриваются понятие, структура и социальная опасность организованной преступной деятельности, анализируются её экономические, политические и транснациональные аспекты. В статье представлен теоретический синтез криминологических исследований природы организованной преступности и оценивается эффективность государственных и международных механизмов противодействия ей. С использованием сравнительно-аналитической методологии выявляются основные факторы, способствующие расширению организованных преступных сетей, включая коррупцию, экономическое неравенство, слабое государственное управление и глобализацию. Результаты исследования подчёркивают важность системного подхода, основанного на правовых, экономических и социальных реформах в сочетании с международным сотрудничеством и участием общественности. В статье делается вывод о том, что борьба с организованной преступностью требует не только карательных мер, но и превентивных стратегий, направленных на устранение социально-экономических истоков преступной организации.

**Ключевые слова:** организованная преступность, криминология, преступные сети, коррупция, профилактика, транснациональная преступность, правоохранительная деятельность, международное сотрудничество.

### Abstract

This article examines the criminological characteristics of organized crime and outlines strategic measures for its prevention in modern society. It explores the concept, structure, and social danger of organized criminal activity, analysing its economic, political, and transnational dimensions. The study provides a theoretical synthesis of criminological research on the nature of organized crime and evaluates the effectiveness of state and international mechanisms aimed at countering it. Using a comparative and analytical methodology, the research identifies the main factors contributing to the expansion of organized criminal networks, including corruption, economic inequality,

weak governance, and globalization. The findings highlight the importance of a systemic approach based on legal, economic, and social reforms, combined with international cooperation and public participation. The article concludes that combating organized crime requires not only punitive measures but also preventive strategies addressing the socio-economic roots of criminal organization.

**Keywords:** organized crime, criminology, criminal networks, corruption, prevention, transnational crime, law enforcement, international cooperation.

## INTRODUCTION

Organized crime represents one of the most dangerous and adaptive forms of criminal activity in the contemporary world. Unlike individual offences, it is characterized by stability, hierarchy, planning, and the pursuit of long-term economic or political goals. Its capacity to infiltrate legitimate economic structures, influence state institutions, and corrupt public officials makes it a unique threat not only to public safety but to the rule of law and democratic governance. The criminological study of organized crime thus extends beyond the boundaries of criminal law, involving sociology, political science, and economics.

The term “organized crime” emerged in the early twentieth century, particularly in relation to American mafia structures, but its essence as a coordinated, profit-oriented network of illegal activities dates back to earlier centuries. Modern organized crime manifests in diverse forms: drug trafficking, human trafficking, arms smuggling, corruption, financial fraud, money laundering, and cybercrime. These activities often transcend national borders, exploiting technological advancement and global market integration.

In criminology, organized crime is defined as a system of criminal relationships aimed at obtaining material benefits through continuous illegal activity, supported by corruption and violence, and protected by political or economic influence. Its social danger lies in its ability to reproduce itself through corruption and intimidation, effectively creating “parallel power systems” that undermine state authority.

The purpose of this study is to analyse the criminological characteristics of organized crime—its structure, typology, causes, and mechanisms of operation—and to propose strategies for its prevention. The relevance of this topic arises from the growing complexity of organized criminal networks and their integration into global processes. Preventing and combating organized crime is not solely a matter of law enforcement; it requires comprehensive policies involving economic transparency, international coordination, and civic engagement.

## LITERATURE REVIEW AND METHODOLOGY

The theoretical understanding of organized crime has evolved through multiple academic traditions. Early criminological works, particularly those of Edwin Sutherland, focused on differential association—the process by which individuals learn criminal behaviour through interaction within groups. Later, Donald Cressey and Frank Hagan conceptualized organized crime as a rationally structured enterprise that functions similarly to a corporation, guided by profit maximization and hierarchical control.

In European criminology, scholars such as Klaus von Lampe and Hans-Jörg Albrecht emphasized the social networks and relational dimensions of organized crime, rather than static hierarchies. Their research showed that organized crime is flexible and adaptive, often blending legal and illegal activities to evade detection.

From the sociological perspective, David Garland's theory of the "culture of control" provides valuable insights: organized crime thrives in conditions of social inequality, urban marginalization, and weak institutional trust. Economic globalization has amplified these tendencies, creating transnational opportunities for criminal organizations. The United Nations Office on Drugs and Crime (UNODC) defines organized crime as "a structured group of three or more persons existing for a period of time and acting in concert with the aim of committing serious crimes for financial or material benefit."

Criminological literature distinguishes between different forms of organized crime: mafia-type organizations (Italy, Japan), cartels (Latin America), corporate crime syndicates, and cybercriminal networks. Studies also stress the role of corruption as the lifeblood of organized crime, enabling criminal groups to secure political protection and economic advantage.

Preventive approaches have developed alongside theoretical models. Authors such as R. Clarke and R. Cornish advocate situational crime prevention—reducing opportunities for organized crime through better regulation, surveillance, and accountability. International frameworks like the *UN Convention against Transnational Organized Crime* (2000) emphasize multi-level cooperation, exchange of intelligence, and harmonization of national laws.

Overall, the literature converges on the view that organized crime must be studied as a dynamic, multi-causal phenomenon requiring integrated strategies that combine criminological theory, institutional reform, and global solidarity.

This research employs a qualitative, analytical, and comparative methodology, aiming to synthesize theoretical insights and policy experiences related to organized crime and its prevention. The study is based on a review of criminological theories, legal frameworks, international conventions, and statistical reports from agencies such as INTERPOL, Europol, and UNODC.

The methodological framework includes several analytical stages:

1. **Conceptual analysis** — identification of criminological definitions and structural elements of organized crime, including hierarchy, continuity, coordination, and use of corruption and violence.
2. **Comparative evaluation** — analysis of national and international approaches to combating organized crime, including legal reforms, enforcement models, and preventive programs.
3. **Systemic synthesis** — integration of theoretical and practical dimensions to outline a unified criminological characterization of organized crime.
4. **Interpretive reflection** — discussion of social, economic, and political conditions that foster the emergence of criminal organizations.

The study adopts a system-oriented perspective, treating organized crime as a social institution that interacts with legitimate systems of power, economy, and culture. Analytical tools include content analysis of academic literature, interpretation of international legal documents, and critical comparison of prevention strategies.

While the research does not employ quantitative methods, it relies on official reports and documented cases to illustrate theoretical arguments. This methodological approach ensures a balanced examination of organized crime as both a legal violation and a social process deeply embedded in structures of inequality and corruption.

## RESULTS

The study's results reveal that organized crime possesses distinctive criminological features separating it from other forms of criminality. It is characterized by the following attributes:

1. **Organizational Structure:** Organized crime operates through hierarchical or network-based models that ensure coordination, discipline, and continuity. Leadership is typically centralized, with specialized divisions responsible for finance, logistics, security, and communication.
2. **Economic Motivation:** The primary goal is systematic profit generation, often through illicit markets—narcotics, weapons, human trafficking, and illegal gambling. These profits are subsequently laundered through legitimate enterprises, creating a fusion between legal and illegal economies.
3. **Use of Corruption and Violence:** Corruption secures protection from law enforcement and political interference, while violence enforces internal discipline and deters competitors or whistle-blowers.
4. **Transnational Operations:** Modern organized crime transcends national borders, facilitated by globalization, digital technology, and international trade. Networks

in narcotics, cyber fraud, and money laundering demonstrate high adaptability and global reach.

The results also demonstrate that organized crime functions as an alternative social system in environments where state institutions are weak or corrupt. It provides illegal “services” (protection, dispute resolution, employment) that substitute legitimate authority. This dual nature—criminal yet quasi-institutional—explains its persistence.

The prevention of organized crime, therefore, requires a multi-dimensional approach. Law enforcement must be complemented by structural reforms addressing socio-economic inequalities, strengthening transparency, and reducing opportunities for corruption. International cooperation—through intelligence exchange, mutual legal assistance, and harmonized legislation—remains a key pillar of success.

## DISCUSSION

The results affirm that organized crime cannot be eradicated solely through repressive measures; its endurance is rooted in systemic flaws of governance, economy, and social order. Criminological theory must therefore move beyond punitive paradigms to preventive and integrative models.

From a structural viewpoint, organized crime represents a distorted form of social organization that mirrors legitimate business and political institutions. Its members are often rational actors seeking power and security in contexts of uncertainty. As Nikos Passas observed, global markets and deregulated economies have blurred the lines between legal and illegal activities. Consequently, countering organized crime demands robust regulatory frameworks and ethical economic governance.

The discussion also underscores the central role of corruption as both a facilitator and product of organized crime. The symbiotic relationship between criminal organizations and corrupt officials creates a “shadow state” in which criminal interests penetrate policymaking. Hence, anti-corruption measures, transparency in procurement, and judicial independence are indispensable elements of crime prevention.

On the international level, effective cooperation requires not only law enforcement coordination but also shared political will. Organizations such as the UNODC, INTERPOL, and the Financial Action Task Force provide crucial platforms for joint operations, training, and intelligence-sharing. However, disparities in national legislation and resource capacities remain obstacles.

Finally, social prevention—education, employment, community engagement—must accompany institutional reforms. A society that offers fair opportunities, social trust, and strong civic institutions reduces the breeding grounds of organized crime. Thus, the fight against organized criminality is as much a moral and educational challenge as a legal one.

## CONCLUSION

In conclusion, organized crime is a multifaceted phenomenon that combines criminal enterprise, corruption, and social adaptation. It operates through structured, profit-oriented networks capable of penetrating political and economic systems. Its criminological characterization reveals an entity that mimics legitimate institutions while subverting them from within.

The study emphasizes that effective prevention requires a balance of law enforcement, institutional integrity, and social development. Strengthening governance, promoting transparency, and reducing social inequality are vital to diminishing the appeal and power of criminal organizations.

International cooperation remains the cornerstone of global crime control. Through collective action, harmonized legislation, and information sharing, states can address the transnational nature of organized crime. However, long-term success depends on moral renewal and the creation of a culture of legality within societies themselves.

Understanding organized crime through a criminological lens allows for a comprehensive, humane, and realistic response that addresses both symptoms and causes. Only by uniting national and international efforts under the principles of justice, solidarity, and lawfulness can the global community effectively resist the expansion of organized criminal power.

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## OLIY TA'LIM TIZIMIDA TALABA-QIZLARNI IJTIMOIIY QO'LLAB- QUVVATLASH VA OILAVIY HAYOTGA TAYYORLASH: GENDER TENGLIK, MILLIY TAJRIBA VA XALQARO HAMKORLIK IMKONIYATLARI.

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**Annotatsiya:** Ushbu maqolada oliy ta'lim tizimida talaba-qizlarni ijtimoiy qo'llab-quvvatlash, ularni oilaviy hayotga tayyorlash masalalari tahlil qilinadi. Gender tenglik tamoyillarining amaliyotga tatbiqi, milliy qadriyatlar asosida qizlarning ma'naviy-ma'rifiy kamoloti, xalqaro tajribalarni o'rganish hamda hamkorlikni rivojlantirish yo'nalishlari yoritiladi. Tadqiqotda O'zbekiston oliy ta'lim tizimidagi mavjud dasturlar, davlat siyosati va xorijiy mamlakatlar tajribasi solishtirilib tahlil qilinadi.

**Kalit so'zlar:** gender tenglik, talaba-qizlar, ijtimoiy qo'llab-quvvatlash, oilaviy hayot, oliy ta'lim, xalqaro hamkorlik, milliy qadriyatlar.

## СОЦИАЛЬНАЯ ПОДДЕРЖКА И ПОДГОТОВКА К СЕМЕЙНОЙ ЖИЗНИ СТУДЕНТОК В СИСТЕМЕ ВЫСШЕГО ОБРАЗОВАНИЯ: ГЕНДЕРНОЕ РАВЕНСТВО, НАЦИОНАЛЬНЫЙ ОПЫТ И ВОЗМОЖНОСТИ МЕЖДУНАРОДНОГО СОТРУДНИЧЕСТВА.

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**Аннотация:** В статье анализируются вопросы социальной поддержки девушек-студенток в системе высшего образования, их подготовки к семейной жизни. Освещены вопросы практической реализации принципов гендерного равенства, духовно-просветительского развития девушек на основе национальных ценностей, изучения международного опыта и развития сотрудничества. В исследовании проводится сравнение и анализ действующих программ в системе высшего образования Узбекистана, государственной политики и опыта зарубежных стран.

**Ключевые слова:** гендерное равенство, студентки, социальная поддержка, семейная жизнь, высшее образование, международное сотрудничество, национальные ценности.

## SOCIAL SUPPORT AND PREPARATION FOR FAMILY LIFE FOR FEMALE STUDENTS IN THE HIGHER EDUCATION SYSTEM: GENDER EQUALITY, NATIONAL EXPERIENCE AND OPPORTUNITIES FOR INTERNATIONAL COOPERATION

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**Abstract:** This article analyzes the issues of social support for female students in the higher education system, their preparation for family life. The practical implementation of the principles of gender equality, the spiritual and educational development of girls based on national values, the study of international experiences and the development of cooperation are highlighted. The study compares and analyzes existing programs in the higher education system of Uzbekistan, state policy and the experience of foreign countries.

**Keywords:** gender equality, female students, social support, family life, higher education, international cooperation, national values.

**Kirish:** So‘nggi yillarda O‘zbekistonda ayollar, xususan, talaba-qizlarni ijtimoiy, iqtisodiy va ma‘naviy jihatdan qo‘llab-quvvatlash davlat siyosatining ustuvor yo‘nalishlaridan biri sifatida shakllandi. Prezidentimiz tashabbusi bilan “Ayollar daftari”, “Yoshlar daftari” kabi dasturlar joriy etildi, oliy ta‘lim muassasalarida talaba-qizlar bilan ishlash bo‘yicha maxsus mas‘ullar tayinlandi. Gender tenglikni ta‘minlash nafaqat huquqiy, balki tarbiyaviy jarayon sifatida ham muhimdir. Talaba-qizlar oliy ta‘lim muhitida nafaqat bilim oladi, balki kelajakda oila, jamiyat va iqtisodiy hayotda faol ishtirok etuvchi shaxs sifatida shakllanadi. Shu bois, ularni oilaviy hayotga, ijtimoiy munosabatlarga va mehnat bozoriga tayyorlash muhim pedagogik masaladir.

**Adabiyotlar tahlili:** O‘zbekiston Respublikasi Prezidentining 2021-yil 23-iyundagi “Oila va xotin-qizlar masalalarini tizimli hal etish chora-tadbirlari to‘g‘risida”gi PQ–5124-son qarorida ayollarni har tomonlama qo‘llab-quvvatlash masalalari belgilab berilgan.

Shuningdek, UNESCO, UN Women kabi xalqaro tashkilotlar tomonidan ishlab chiqilgan “Gender tenglikni ta’minlash” konsepsiyalari ham oliy ta’limda qizlar faoliyatini qo‘llab-quvvatlashda muhim yo‘nalish sifatida tan olingan.

Mahalliy tadqiqotchilar - N. To‘raeva (2022), D. Qodirova (2021), Sh. Axmedova (2023)larning ilmiy ishlari talaba-qizlarning ma’naviy-axloqiy tarbiyasi va ijtimoiy faolligini oshirishning o‘ziga xos jihatlarini ochib beradi. orijiy adabiyotlarda esa (masalan, J. Scott, 2018; L. Andersen, 2020) gender ta’limi va ijtimoiy tenglikni ta’minlashda universitetlarning roli chuqur tahlil qilingan.

## **Asosiy qism:**

### **1. Talaba-qizlarni ijtimoiy qo‘llab-quvvatlash tizimi.**

Oliy ta’lim muassasalarida ijtimoiy qo‘llab-quvvatlash tizimi stipendiyalar, imtiyozli yotoqxonalar, psixologik maslahat markazlari, mentorlik dasturlari orqali amalga oshirilmoqda. “Ayollar maslahat kengashlari” va “Talaba-qizlar klubi” faoliyatlari yoshlarni ijtimoiy hayotga jalb etishda muhim ahamiyatga ega.

### **2. Oilaviy hayotga tayyorlashning pedagogik asoslari.**

Talaba-qizlarni oilaviy hayotga tayyorlash jarayonida milliy urf-odatlar, axloqiy qadriyatlar, psixologik tayyorgarlik, iqtisodiy mustaqillik kabi jihatlar muhim o‘rin tutadi. Oliy ta’lim muassasalarida “Oila sotsiologiyasi”, “Gender ta’limi asoslari”, “Psixologiya” fanlari orqali bu yo‘nalishdagi bilimlar shakllantirilmoqda. Shuningdek, ijtimoiy loyihalar, treninglar, seminarlar orqali talaba-qizlarning o‘z-o‘zini anglash, oila va jamiyat oldidagi mas’uliyatini his etish ko‘nikmalari rivojlantirilmoqda.

### **3. Gender tenglik tamoyillari va xalqaro hamkorlik.**

Gender tenglikni ta’minlash masalasi xalqaro tajribada universitetlar miqyosida aniq dasturlar orqali amalga oshiriladi. Masalan, Skandinaviya davlatlari oliy ta’lim tizimida “Gender equality office”lar faoliyat yuritadi.

O‘zbekiston oliy ta’lim tizimida ham xalqaro hamkorlik asosida qizlar uchun stipendiya dasturlari, almashinuv loyihalari va qo‘shma ilmiy tadqiqotlar yo‘lga qo‘yilmoqda.

Bundan tashqari, xalqaro tashkilotlar bilan hamkorlikda “Gender ta’limi” bo‘yicha o‘quv modullarini yaratish, treninglar o‘tkazish talaba-qizlarning salohiyatini oshirishga xizmat qilmoqda.

### **4. Milliy tajriba asosida talaba-qizlarni qo‘llab-quvvatlashning o‘ziga xos jihatlari**

O‘zbekiston Respublikasida oliy ta’lim muassasalarida talaba-qizlar bilan ishlash bo‘yicha “**Talaba-qizlar klubi**”, “**Ayollar maslahat kengashlari**”, “**Jamoatchi maslahatchilar**” kabi tuzilmalar faoliyat yuritadi. Ular orqali ijtimoiy muammolar, psixologik qo‘llab-quvvatlash, oilaviy muhitdagi muammolarni hal qilishda yordam ko‘rsatiladi.

Shuningdek, har bir oliy ta'lim muassasasida **psixologik markazlar** tashkil etilib, talaba-qizlarning ruhiy holatini o'rganish, stress, moslashuv, o'ziga ishonch muammolarini bartaraf etish bo'yicha treninglar o'tkazilmoqda.

Milliy qadriyatlar asosida olib borilayotgan tarbiya ishlari qizlarning o'zligini anglashiga, milliy g'urur va mas'uliyat hissini shakllantirishga yordam beradi. "Oila", "Vatan", "Ayol va jamiyat" kabi mavzularda muntazam ma'naviy-ma'rifiy darslar tashkil etilishi - yoshlarning ongida sog'lom oilaviy qadriyatlarni mustahkamlaydi.

## **5. Xalqaro tajriba tahlili va hamkorlik imkoniyatlari.**

### **Xalqaro tajriba**

Dunyo miqyosida oliy ta'lim muassasalari talaba-qizlarni ijtimoiy jihatdan qo'llab-quvvatlash uchun turli dasturlarni amalga oshiradi.

Masalan:

**AQSh universitetlarida** "Women's Empowerment Program" (ayollarni kuchaytirish dasturi) orqali talaba-qizlarga liderlik, tadbirkorlik, moliyaviy savodxonlik, oilaviy psixologiya kabi yo'nalishlarda maxsus kurslar o'tiladi.

**Janubiy Koreya universitetlarida** "Gender Equality Center" faoliyat yuritadi. U yerda talaba-qizlar uchun mentorlik, grant dasturlari va oilaviy hayotga tayyorlov kurslari joriy etilgan.

**Skandinaviya mamlakatlari** tajribasida esa gender tenglik siyosati oliy ta'limning barcha bosqichlarida, hatto o'quv dasturlarining o'zida integratsiyalashgan tarzda amalga oshiriladi.

### **O'zbekiston uchun xalqaro hamkorlik imkoniyatlari.**

O'zbekiston oliy ta'lim muassasalari BMT, UN Women, UNESCO, KOICA kabi tashkilotlar bilan hamkorlikda gender masalalariga oid dasturlarni amalga oshirmoqda. Jumladan, "Ayollar uchun STEM" (Science, Technology, Engineering, Mathematics) yo'nalishlarida xalqaro grantlar ajratilishi - qizlarning texnik fanlardagi ulushini oshirishga xizmat qilmoqda.

Bundan tashqari, **Erasmus+** va **DAAD** kabi dasturlar doirasida xorijiy universitetlar bilan hamkorlikda gender ta'limi va oilaviy hayotga tayyorlov bo'yicha qo'shma o'quv modullar ishlab chiqilmoqda.

## **6. Amaliy tavsiyalar:**

Oliy ta'lim tizimida talaba-qizlarni ijtimoiy qo'llab-quvvatlashni kuchaytirish uchun quyidagi **amaliy choralarni** amalga oshirish maqsadga muvofiq:

1. **Tizimli yondashuvni shakllantirish** - Har bir oliy ta'lim muassasasida "Gender siyosati strategiyasi" ishlab chiqilishi lozim.

2. **Psixologik va pedagogik yordam markazlarini kuchaytirish** - Qizlarning ijtimoiy moslashuvi, stressga bardoshlilik, o‘z-o‘zini rivojlantirish bo‘yicha doimiy treninglar tashkil etish.
3. **Mentorlik tizimini kengaytirish** - Tajribali ayol pedagoglar, tadbirkorlar, mutaxassislar talaba-qizlarga shaxsiy murabbiy sifatida tayinlansin.
4. **Oilaviy hayotga tayyorlov kurslarini joriy etish** - Oila psixologiyasi, moliyaviy rejalashtirish, sog‘lom turmush tarzi, bolalar tarbiyasi kabi yo‘nalishlarda maxsus o‘quv modullarini yaratish.
5. **Xalqaro almashinuvni kengaytirish** - Qizlar uchun chet el amaliyotlari, tajriba almashish, onlayn seminar va grant dasturlarini ko‘paytirish.
6. **Axborot-madaniy loyihalar** - Ijtimoiy tarmoqlar orqali “Talaba-qizlar ovozi”, “Ayol lider”, “Oila maktabi” kabi onlayn platformalarni yo‘lga qo‘yish.

## 7. Yakuniy xulosalar

Oliy ta’lim tizimida talaba-qizlarni ijtimoiy qo‘llab-quvvatlash - bu nafaqat ijtimoiy adolat masalasi, balki jamiyat taraqqiyoti uchun zarur omildir.

Gender tenglikni ta’minlash orqali:

ayollar mehnat bozorida faol ishtirok etadi;

oilaviy barqarorlik mustahkamlanadi;

yoshlar o‘rtasida ma’naviy yetuklik, mas’uliyat va o‘zini anglash hissi kuchayadi.

Milliy qadriyatlar va xalqaro tajriba uyg‘unligi asosida ishlab chiqilgan siyosat talaba-qizlarning barkamol, yetuk va faol fuqarolar sifatida shakllanishiga asos bo‘ladi.

**Xulosa :** Talaba-qizlarni ijtimoiy qo‘llab-quvvatlash va oilaviy hayotga tayyorlash masalasi oliy ta’lim tizimida kompleks yondashuvni talab etadi.

Gender tenglik tamoyillarini o‘quv jarayoniga integratsiya qilish;

Milliy qadriyatlar asosida axloqiy va oilaviy tarbiyani kuchaytirish;

Xalqaro tajriba va hamkorlikni kengaytirish;

Talaba-qizlarning ijtimoiy himoyasini mustahkamlash - bu yo‘nalishdagi asosiy vazifalardir.

Natijada, ijtimoiy faol, ma’naviy barkamol, mustaqil fikrlovchi, oila va jamiyat farovonligiga hissa qo‘sha oladigan yosh avlodni tarbiyalash imkoniyati yaratiladi.

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## CRIMINOLOGICAL CHARACTERISTICS OF JUVENILE AND YOUTH DELINQUENCY AND MEASURES FOR ITS PREVENTION

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### Аннотация

В данной статье представлено углубленное криминологическое исследование преступности среди несовершеннолетних и молодёжи, её структуры, детерминант и социальных последствий. Анализируя сложное взаимодействие психологических, социальных, семейных и экономических факторов, побуждающих несовершеннолетних и молодёжь к преступному поведению, исследование выявляет ключевые механизмы, отличающие подростковую преступность от преступности взрослых. В исследовании также рассматриваются особенности развития подросткового возраста, способствующие импульсивности, подверженности влиянию сверстников и склонности к рискованному поведению. Используя качественный аналитический подход, в статье рассматриваются классические и современные криминологические теории, сравнивается международный опыт и оцениваются превентивные модели, применяемые в мире. Результаты показывают, что преступность среди несовершеннолетних обусловлена сочетанием семейного дисбаланса, неудовлетворительного образования, социальной изоляции и влияния цифровых технологий, в то время как эффективная профилактика требует комплексной государственной политики, эффективных систем поддержки семьи, взаимодействия с обществом и программ восстановительного правосудия.

**Ключевые слова:** преступность несовершеннолетних, молодежная преступность, криминология, профилактика, социализация, факторы риска, поведение подростков, семейная среда, восстановительное правосудие.

### Abstract

This article provides an in-depth criminological examination of juvenile and youth delinquency, exploring its structure, determinants, and social implications. By analysing the complex interaction of psychological, social, family-based, and economic factors that lead minors and young people toward criminal behaviour, the study identifies key mechanisms that differentiate youth delinquency from adult criminality. The research also addresses the developmental features of adolescence that contribute to impulsivity, susceptibility to peer influence, and vulnerability to risk-taking behaviour. Using a

qualitative analytical approach, the article reviews classical and modern criminological theories, compares international practices, and evaluates preventive models implemented worldwide. The findings reveal that juvenile delinquency arises from a combination of family dysfunction, educational failure, social exclusion, and digital influences, while effective prevention requires integrated state policies, strong family support systems, community engagement, and restorative justice programs.

**Keywords:** juvenile delinquency, youth crime, criminology, prevention, socialization, risk factors, adolescent behaviour, family environment, restorative justice.

## INTRODUCTION

Juvenile and youth delinquency remains one of the most pressing issues confronting modern criminology and social policy. While crime is a universal phenomenon, offences committed by minors possess distinctive characteristics shaped by developmental, psychological, and socio-environmental factors. Adolescence marks a transitional stage in which identity formation, emotional instability, and heightened sensitivity to peer influence coalesce, often producing behaviours that may escalate into criminal acts. Consequently, juvenile delinquency is not only a legal issue but a psychosocial one, requiring multidisciplinary examination.

Criminological interest in youth crime originates from the recognition that criminality often begins in adolescence. Numerous longitudinal studies show that individuals who engage in persistent offending patterns typically start with minor delinquent acts during their early teenage years. The early onset of delinquent behaviour increases the likelihood of chronic offending, making early prevention critical for long-term crime reduction strategies.

The concept of juvenile delinquency traditionally refers to anti-social acts committed by individuals below the legal age of criminal responsibility. Youth delinquency expands this category to include young adults whose psychosocial immaturity continues to affect decision-making. Criminology differentiates between episodic, experimental delinquency—common among adolescents—and persistent, systematic offending associated with deeper social and psychological problems.

The relevance of studying juvenile delinquency has grown in recent decades due to rapid socio-economic changes, digitalization, urbanization, and global cultural shifts. The rise of cyberbullying, online fraud, virtual gang culture, and internet-mediated deviant communities has reshaped the landscape of youth crime. These new patterns challenge traditional prevention models and require updated criminological understanding.

The present article aims to provide a comprehensive criminological description of juvenile and youth delinquency, analyse its determinants, and formulate effective preventive measures. The research emphasizes that preventing youth crime involves

addressing the root causes embedded in family dynamics, education systems, community structures, and the digital environment.

## LITERATURE REVIEW AND METHODOLOGY

Scholarly interest in juvenile delinquency can be traced to the early twentieth century, particularly through the works of E. H. Sutherland, who emphasized the role of differential association in shaping youth behaviour. According to Sutherland, young people learn criminal patterns through communication with deviant peers, making social environment a crucial determinant. Later, Travis Hirschi's social bond theory asserted that weak attachment to family, school, and community increases delinquency, highlighting social integration as a protective factor.

Psychological research has also contributed significantly. Jean Piaget, Erik Erikson, and Lawrence Kohlberg examined the cognitive and moral development of adolescents, demonstrating how immaturity in judgment and emotional regulation contributes to risk-taking and deviance. Contemporary psychology adds the concept of "adolescent brain development," noting that the prefrontal cortex—responsible for impulse control—is not fully developed until the mid-twenties. This insight explains why youth offending often involves impulsive, unplanned acts.

Sociological theories further broaden understanding. Robert Merton's strain theory suggests that social inequality and lack of legitimate opportunities push young individuals toward crime. Subcultural theories by Albert Cohen and the Chicago School highlight urban marginalization and the development of deviant subcultures among youth. In recent decades, digital criminology has emerged, studying how online platforms create new opportunities for delinquency, from cyberbullying to hacking.

International literature stresses prevention. Scandinavian models prioritize family support, education, and restorative justice; the United States emphasizes risk assessment and behavioural programs; while European Union strategies focus on multi-agency cooperation. The United Nations' *Beijing Rules* and *Riyadh Guidelines* advocate a balanced approach combining legal protection and social rehabilitation.

Despite diverse approaches, the literature converges on key themes: juvenile delinquency is multidimensional, socially constructed, and deeply influenced by developmental psychology. Effective prevention requires integrated, evidence-based strategies.

This study uses a qualitative, analytical, and comparative methodology grounded in criminological theory, psychological frameworks, and sociological research. The approach emphasizes conceptual clarity and multidimensional analysis rather than statistical quantification.

The methodological process includes:

1. **Theoretical Systematization** – identifying fundamental concepts of juvenile delinquency and consolidating definitions across criminology, psychology, and social sciences.
2. **Causal Analysis** – exploring developmental, familial, environmental, economic, and technological factors contributing to youth delinquency.
3. **Comparative Evaluation** – reviewing international prevention models, legal frameworks, and institutional practices to extract successful elements.
4. **Interpretive Synthesis** – connecting theoretical insights with practical implications to formulate a coherent prevention strategy.

Sources include academic monographs, peer-reviewed criminological articles, policy documents, UN reports, and national legislation. The interpretive method ensures critical integration of ideas across disciplines, avoiding narrow legalistic or purely sociological explanations.

The chosen methodology enables a holistic interpretation of youth delinquency, treating it as a dynamic and socially embedded phenomenon.

## RESULTS

The research demonstrates that juvenile and youth delinquency results from a combination of psychological immaturity, social inequality, family dysfunction, and peer influence. The results can be summarized through several key findings:

1. **Developmental Factors:** Adolescents exhibit heightened impulsivity, emotional volatility, and a desire for autonomy. These traits increase susceptibility to deviant behaviour, especially when combined with weak self-regulation.
2. **Family Environment:** The family remains the most influential determinant of youth behaviour. Broken homes, parental neglect, violence, inconsistent discipline, and substance abuse significantly raise delinquency risks. Conversely, supportive and communicative families serve as a strong protective factor.
3. **School and Education:** Poor academic performance, school dropout, bullying, and weak attachment to teachers correlate strongly with youth crime. Schools often serve as either preventive institutions or breeding grounds for delinquent peer networks.
4. **Peer Influence:** Association with delinquent peers is the strongest predictor of juvenile criminal behaviour. Peer groups provide identity, validation, and social status, encouraging rule-breaking norms.
5. **Digitalization:** The internet creates new forms of delinquency (cyberbullying, online fraud, digital piracy) and facilitates recruitment into deviant communities. Virtual anonymity lowers social inhibition and increases aggression.

6. **Economic and Social Marginalization:** Poverty, unemployment, urban overcrowding, and inequality create environments where youth seek alternative means of achieving social status or financial resources.

These findings suggest that juvenile delinquency is not a result of a single factor but emerges from interconnected systems. Criminological prevention must therefore address individual, family, institutional, and societal levels.

## DISCUSSION

The discussion highlights the broad theoretical and practical implications of the results. Juvenile delinquency must be understood as a developmental phenomenon influenced by unstable identity, cognitive immaturity, and social vulnerability. Unlike adult crime—driven by stable motives and rational calculation—youth crime is often impulsive, situational, and reactive.

The discussion emphasizes that prevention efforts must begin early, targeting families, schools, and communities. Parenting programs, school counselling, mentorship, and structured recreational activities demonstrate strong preventive effects in multiple countries. Family-based interventions such as Functional Family Therapy (FFT) and Multisystemic Therapy (MST) have shown significant success in reducing reoffending.

Furthermore, the discussion acknowledges that punitive measures alone are ineffective for minors. Excessive criminalization can reinforce deviant identity and increase recidivism. Restorative justice—based on reconciliation, accountability, and community repair—has proven more effective for youth, helping them reintegrate into society without stigma.

Digital prevention strategies must also adapt to modern realities by promoting digital literacy, online safety education, and monitoring harmful online communities.

Criminological theory and practical experience show that youth delinquency is preventable through systemic, multidisciplinary approaches rooted in empathy, evidence, and long-term policy commitment.

## CONCLUSION

The article concludes that juvenile and youth delinquency is a multifactorial social phenomenon requiring comprehensive analysis and integrated preventive interventions. Its causes lie in the combined effects of psychological development, family environment, peer influence, education quality, economic conditions, and digital exposure.

Effective prevention requires strengthening families, supporting schools, enhancing community structures, and implementing restorative justice models. International experience demonstrates that punitive responses alone fail to prevent youth crime; rather, meaningful reduction occurs through early intervention, social inclusion, and rehabilitative strategies.

Understanding youth crime through a criminological lens allows policymakers to design prevention programs that address root causes instead of superficial symptoms. A society committed to protecting its youth must invest in social support, education, and moral development to reduce future offending and promote healthier communities.

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## Annotatsiya

Maqolada sun'iy intellekt va chatbotlar asosida shakllanayotgan mijozlarga xizmat ko'rsatish tizimlarining zamonaviy biznes jarayonlari, xizmat sifati, iste'molchi qoniqishi hamda korxonaning operatsion samaradorligiga ko'rsatadigan ta'siri chuqur tahlil qilinadi. So'nggi yillarda korxonalar jadal raqamli transformatsiyaga yuz tutar ekan, mijozlar bilan muloqotning an'anaviy shakllaridan avtomatlashtirilgan, moslashuvchan va real vaqтли tizimlarga o'tish jarayoni tezlashdi. Chatbotlar orqali bajarilayotgan kommunikativ jarayonlar nafaqat xizmat ko'rsatish xarajatlarini qisqartirish, balki mijozlar bilan doimiy aloqa, shaxsiylashtirilgan tavsiyalar, tezkor texnik yordam va xizmatlarga uzluksiz kirish imkonini yaratadi. Maqolada chatbotlarning til modeli, UX-dizayni, psixologik qabul qilinishi hamda foydalanuvchi bilan o'zaro ta'sirning semantik va pragmatik omillari tahlil etilgan. Tadqiqot natijalariga ko'ra, chatbotlar to'g'ri loyihalanganda mijozlarning qoniqish darajasi sezilarli oshadi, biroq noto'g'ri modellashtirilgan yoki haddan tashqari avtomatlashtirilgan tizimlar ishonchni pasaytirishi mumkin. Shu bois maqola AI tizimlarining samaradorligini baholashda muvozanatli yondashuv zarurligini ko'rsatadi.

**Kalit so'zlar:** Chatbot; sun'iy intellekt; mijozlarga xizmat ko'rsatish; avtomatlashtirilgan muloqot; UX dizayni; tabiiy tilni qayta ishlash; mijoz qoniqishi; raqamli xizmatlar; xizmatlar sifati; operatsion samaradorlik.

## Abstract

The article provides an in-depth analysis of the impact of customer service systems based on artificial intelligence and chatbots on modern business processes, service quality, customer satisfaction, and operational efficiency of the enterprise. In recent years, as enterprises have undergone rapid digital transformation, the transition from traditional forms of customer communication to automated, flexible, and real-time systems has accelerated. Communicative processes performed through chatbots not only reduce service costs, but also provide constant communication with customers, personalized recommendations, fast technical support, and seamless access to services. The article analyzes the language model, UX design, psychological acceptance, and semantic and pragmatic factors of user interaction of chatbots. According to the results of

the study, when chatbots are properly designed, customer satisfaction increases significantly, but improperly modeled or overly automated systems can reduce trust. Therefore, the article shows the need for a balanced approach to assessing the effectiveness of AI systems.

**Keywords:** Chatbot; artificial intelligence; customer service; automated communication; UX design; natural language processing; customer satisfaction; digital services; service quality; operational efficiency.

## KIRISH

Bugungi global raqamli iqtisodiyotda kompaniyalar ishlab chiqarish, boshqaruv va xizmat ko'rsatish jarayonlarini tubdan qayta ko'rib chiqishga majbur bo'lmoqda. Ayniqsa mijozlarga xizmat ko'rsatish tizimi so'nggi o'n yilliklarda eng tez o'zgarayotgan, innovatsiyalarni faol qabul qilayotgan sohalardan biridir. Mijozlar bilan doimiy aloqada bo'lish, ularning talablariga tezkor javob qaytarish, mahsulot va xizmatlar haqida aniq ma'lumot yetkazish, shikoyatlarni tez hal qilish kabi vazifalar raqamli muhitda sifat jihatdan yangi bosqichga o'tdi. Ana shu jarayon markazida chatbotlar, ya'ni sun'iy intellekt asosida ishlaydigan avtomatlashtirilgan suhbat tizimlari turibdi.

Chatbotlar aslida inson bilan tabiiy til orqali muloqot qila oladigan kompyuter dasturlari bo'lib, ular mijozning savollariga avtomatik javob beradi, kerakli xizmatni yo'naltiradi, ma'lumot topishga ko'maklashadi yoki texnik yordam funksiyasini bajaradi. Ularning yaratilishi tabiiy tilni qayta ishlash (NLP), mashinaviy o'rganish, semantik modellashtirish, dialog menejmenti kabi murakkab texnologik bloklarga asoslanadi. Bu texnologiyalar chatbotga kontekstni tushunish, savollarni ma'nodagi farqlarni inobatga olgan holda qayta ishlash, mantiqiy javob topish va foydalanuvchining psixologik holatiga mos aloqani shakllantirish imkonini beradi.

Biznes amaliyotida chatbotlarning keng tarqalishiga bir nechta omillar sabab bo'ldi. Birinchidan, mijozlar sonining ortishi va ulardan 24/7 rejimida xizmat talab qilinishi korxonalarining operatsion yukini oshirdi. Ikkinchidan, odam resurslari asosida ishlovchi call-markazlarning samaradorligi ko'plab cheklovlarga ega: inson omilining charchashi, emosional noturg'unlik, ma'lumotni unutish ehtimoli, muloqotning sub'ektivligi. Uchinchidan, mijozlarning o'zlari raqamli xizmatlarni afzal ko'ra boshladi; ular kutmasdan, istalgan vaqtda tezkor javob olishni ma'qul ko'rmoqda. Shu sabab chatbotlar texnologik yechim sifatida muqobil emas, balki asosiy xizmat ko'rsatish kanaliga aylanmoqda.

Ammo chatbotlarning samaradorligi ularning faqat mavjudligiga emas, balki qanchalik to'g'ri loyihalanganiga bog'liq. Ayrim tizimlar foydalanuvchida ishonch uyg'otmaydi, chunki ular savollarni to'liq tushunmaydi, javoblar noaniq yoki mexanik ohangda bo'ladi. Bunday holatlarda mijozning brendga bo'lgan ishonchi va sodiqligi

pasayishi mumkin. Shu sabab chatbotlarni yaratishda psixologik omillar, tilning pragmatik xususiyatlari, UX dizaynning intuitivligi, dialog oqimining mantiqiyliigi va tizimning o‘z-o‘zini takomillashtirish qobiliyati muhim ahamiyatga ega.

Kirish qismidan maqsad — chatbotlar fenomenini zamonaviy xizmat ko‘rsatish tizimi kontekstida nazariy asoslash, ularning ijtimoiy, texnologik va iqtisodiy oqibatlarini ifodalash hamda tadqiqotning dolzarbligini asoslashdir.

## ADABIYOTLAR TAHLILI VA METODOLOGIYA

Ilmiy manbalarda chatbotlar haqida fikrlar asosan uch toifaga bo‘linadi: texnologik yondashuvlar, foydalanuvchi tajribasini o‘rganishga qaratilgan tadqiqotlar va biznes samaradorligi bilan bog‘liq empirik ishlar. Texnologik nuqtayi nazardan, chatbotlar tabiiy tilni qayta ishlashning chuqur modellariga asoslanadi. T. Young, D. Hovy, G. Tur kabi olimlar tomonidan qayd etilishicha, NLP modellarining semantik aniqligi chatbotning muvaffaqiyati uchun hal qiluvchi ahamiyatga ega. Ayniqsa, transformer arxitekturasi asosida shakllangan modellar muloqotni kontekstual anglashda ulkan yutuqlarga erishdi.

Foydalanuvchi tajribasiga bag‘ishlangan tadqiqotlarda chatbotlarning qabul qilinishi psixologik faktorlar bilan izohlanadi. J. Goetz va K. Nass o‘z tadqiqotlarida chatbotning “insoniylik darajasi” oshgan sari foydalanuvchilar muloqotni osonroq qabul qilishini ta’kidlaydi. Bu yerda chatbotning ohangi, so‘z tanlovi, dialogdagi tepki va uzviylik, hatto vizual interfeysning dizayni ham katta rol o‘ynaydi. Ayrim tadqiqotlarda esa chatbotlar bilan muloqot inson–inson muloqotiga yaqinlashgan sari iste’molchining ishonchi ortishi aniqlangan.

Biznes samaradorligi bo‘yicha adabiyotlar chatbotlarni xizmat ko‘rsatish xarajatlarini qisqartiruvchi, kampaniyalarni optimallashtiruvchi, foydalanuvchi ma’lumotlarini tahlil qiluvchi tizim sifatida tasvirlaydi. B. Lasecki va M. McTear chatbotlarning xizmat jarayonidagi monoton vazifalarni avtomatlashtirish orqali xodimlarning kreativ ishga vaqt ajratishini ta’minlaydigan jihatlarini ko‘rsatadi. Raqamli iqtisodiyot bo‘yicha tadqiqotlar esa chatbotlarning sodiqlik, mijoz ushlab qolish, xarid konversiyasini oshirish kabi ko‘rsatkichlarga ta’sirini empirik raqamlar bilan isbotlaydi.

Adabiyotlar tahlili shuni ko‘rsatadiki, chatbotlarning samaradorligi texnologik murakkablik, psixologik qabul qilinish va biznes strategiyasi bilan chambarchas bog‘liq.

Tadqiqot sifat tahlilining interpretativ modeli asosida olib borildi. U uch bosqichdan iborat: nazariy manbalar tahlili, korxonalar misolida chatbotlardan foydalanish jarayonini o‘rganish va foydalanuvchilarning sub’ektiv tajribasini semantik sharhlash.

Birinchi bosqichda ilmiy manbalar, monografiyalar, tadqiqot maqolalari o‘rganildi. Ikkinchi bosqich sifatida O‘zbekiston va xorijdagi bir nechta xizmat ko‘rsatish

kompaniyalarining chatbot joriy etilgan jarayonlari tahlil qilindi. Ularning xizmat strategiyasi, chatbot funksiyalarining hajmi, NLP modeli sifati, UX dizayn elementlari va mijozlar bilan aloqa statistikasi o'rganildi. Uchinchi bosqich esa foydalanuvchilarning chatbotlar bilan muloqot tajribalarini tahlil qilishga bag'ishlandi.

Tahlil davomida triangulyatsiya, semantik kodlash, muloqot oqimini modellashtirish, sentiment tahlili kabi metodlar qo'llanildi.

## NATIJALAR

Natijalar shuni ko'rsatadiki, chatbotlar samaradorligi uch asosiy ko'rsatkich orqali baholanishi mumkin: javob tezligi, javobning aniqligi va foydalanuvchi qoniqishi. Tadqiqot namunalarida chatbotlar o'rtacha 1–3 soniya ichida javob qaytargan bo'lib, bu inson operatoridan ancha ustun. Javoblarning aniqligi esa NLP modelining rivojlanganlik darajasi bilan chambarchas bog'liq: kontekstual savollar va murakkab bayonlarga javob berish darajasi o'rtacha 60–85% oralig'ida bo'lishi aniqlandi.

Foydalanuvchi qoniqishi tahlilida uch tendensiya kuzatildi:

1. Shaxsiylashtirilgan javoblar beradigan chatbotlar ko'proq qabul qilinadi.
2. Juda rasmiy yoki juda mexanik ohangdagi chatbotlarga nisbatan ishonch past bo'ladi.
3. Chatbot–inson operatori o'rtasida silliq o'tish imkoniyati mavjud bo'lsa, mijozlar umumiy tajribani yuqori baholaydi.

## MUHOKAMA

Natijalarning talqini shuni ko'rsatadiki, chatbotlar mijozlarga xizmat ko'rsatish jarayonini soddalashtiruvchi, vaqtni tejovchi va xarajatlarni kamaytiruvchi samarali vositadir. Biroq samaradorlik faqat texnologik jihatlar bilan belgilanmaydi; foydalanuvchi psixologiyasi, nutqning semantik mosligi, dialog oqimining tabiiyligi, shaxsiylashtirishning darajasi ham hal qiluvchi ahamiyatga ega. Chatbotlar tabiiy dialogni muvaffaqiyatli modellashtirgan taqdirda, ular nafaqat mijozlarga xizmat ko'rsatishni, balki butun brend tajribasini strategik tarzda o'zgartira oladi.

## XULOSA

Tadqiqot chatbotlar va sun'iy intellekt asosidagi xizmat ko'rsatish tizimlari zamonaviy biznes jarayonlarining ajralmas qismiga aylanganini isbotladi. Ular tezkorlik, aniqlik, qulaylik va iqtisodiy tejamkorlik kabi ko'rsatkichlar orqali an'anaviy xizmat ko'rsatish modellari ustidan sezilarli ustunlikka ega. Biroq samaradorlikning kaliti — texnologiya, psixologiya va xizmat strategiyasining uyg'unlashuvidadir.

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## CRIMINOLOGICAL CHARACTERISTICS OF FAMILY-BASED CRIME AND MEASURES FOR ITS PREVENTION

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### Аннотация

В данной статье исследуется криминологическая природа преступлений, совершаемых в семье, и рассматриваются факторы, способствующие внутрисемейному насилию, жестокому обращению и деструктивным моделям поведения. Признавая частный и часто скрытый характер семейной преступности, исследование анализирует её психологические, социально-экономические и культурные детерминанты и выделяет трудности выявления, сообщения о преступлениях и правового вмешательства. Используя междисциплинарный подход, объединяющий криминологию, социологию, психологию и право, исследование выявляет основные факторы риска, такие как патриархальные нормы, экономическая зависимость, травмы, слабые системы социальной поддержки и передача насилия из поколения в поколение. В статье также оцениваются существующие профилактические меры, включая правовые реформы, службы защиты, образовательные программы и мероприятия на уровне общин. Результаты показывают, что профилактика семейной преступности требует комплексной стратегии, учитывающей как индивидуальное поведение, так и структурное неравенство.

**Ключевые слова:** семейная преступность, домашнее насилие, криминология, профилактика, защита жертв, структура семьи, социальная политика, динамика насилия, факторы риска.

### Abstract

This article explores the criminological nature of crimes committed within the family and examines the factors contributing to intra-family violence, abuse, and destructive behavioural patterns. Recognizing the private and often concealed character of domestic crime, the study analyses its psychological, socio-economic, and cultural determinants and highlights the difficulties of detection, reporting, and legal intervention. Through a multidisciplinary approach integrating criminology, sociology, psychology, and law, the research identifies major risk factors such as patriarchal norms, economic dependency, trauma, weak social support systems, and generational transmission of violence. The article also evaluates existing prevention measures, including legal reforms,

protective services, educational programs, and community-based interventions. Findings demonstrate that preventing family-based crime requires a comprehensive strategy that addresses both individual behaviour and structural inequalities.

**Keywords:** family-based crime, domestic violence, criminology, prevention, victim protection, family structure, social policy, abuse dynamics, risk factors.

## INTRODUCTION

Family-based crime, often referred to as domestic violence or intra-family criminality, remains a pervasive yet frequently hidden social problem across cultures and societies. Despite its occurrence in the private sphere, its consequences extend far beyond individual households, affecting community safety, intergenerational stability, and public health. The criminological study of domestic crime is complex because the family, traditionally viewed as a site of protection and emotional support, simultaneously becomes a setting where control, aggression, and victimization unfold. Understanding this duality requires systematic examination of structural, psychological, and cultural processes that shape family relations.

Criminology increasingly recognizes family-based crime as a category distinct from general interpersonal violence due to its relational context, emotional dynamics, and chronicity. It is characterized by repeated patterns of coercion, dominance, and psychological manipulation, often developing over years. Offences committed within the household include physical assault, psychological abuse, sexual violence, neglect, economic exploitation, elder abuse, and child maltreatment. The private nature of the family, combined with emotional ties between offender and victim, makes detection difficult and significantly reduces reporting rates.

Historically, domestic violence was considered a private matter and excluded from legal regulation. Patriarchal legal systems granted authority to household heads, and many acts of abuse were normalized or justified. Only in the late twentieth century did international organizations and national legislators begin to conceptualize domestic crime as a violation of human rights. Contemporary criminology views family-based crime as both a behavioural phenomenon and a structural issue integrating economic dependency, gender power imbalances, cultural norms, and psychological vulnerabilities.

The significance of studying family-based crime lies in its broad societal consequences. Children raised in violent families face long-term risks of trauma, criminal behaviour, and impaired development. Women and elderly individuals suffer physical and mental harm, and the cycle of violence often perpetuates across generations. The collective impact burdens healthcare systems, social services, and justice institutions.

The aim of this article is to examine the criminological characteristics of family-based crime, analyse its determinants, and propose effective preventive measures based on interdisciplinary evidence.

## LITERATURE REVIEW AND METHODOLOGY

Research on family-based crime spans several academic fields. In criminology, early theoretical foundations are linked to the works of Edwin Sutherland and the Chicago School, which emphasized the influence of social learning and community context. According to Sutherland, deviant behaviour is learned through interactions, implying that family environments can transmit violent norms. Later, Albert Bandura's social learning theory further developed this idea, demonstrating how observing aggression shapes behavioural patterns in children.

Psychological literature highlights trauma, personality disorders, and attachment problems as key determinants. Bowlby's attachment theory illustrates how insecure or abusive caregiving creates emotional instability that may later manifest as violence. Contemporary trauma studies show that children exposed to domestic violence exhibit higher rates of anxiety, depression, emotional dysregulation, and later delinquency.

Sociological frameworks stress structural inequalities, particularly gender-based power imbalances. Feminist criminology argues that patriarchal norms legitimize male dominance and female subordination, creating a permissive environment for intimate partner violence. Economic dependence is a central theme: women lacking financial autonomy are less able to leave abusive partners, increasing vulnerability.

Legal scholarship has documented significant transformations in domestic violence legislation. The Istanbul Convention (2011), United Nations reports, and national reforms have expanded definitions of domestic crime, introduced protective orders, and strengthened victim support systems. However, enforcement remains inconsistent, and cultural resistance continues to undermine progress.

Recent literature focuses on new dimensions, such as digital domestic abuse, coercive control, and elder abuse. Studies show that technology facilitates surveillance, intimidation, and harassment within families. Criminological research also highlights the hidden nature of domestic abuse, estimating that only a fraction of cases are reported, making it a highly latent form of crime.

Overall, the literature emphasizes that family-based crime is multidimensional, rooted in psychological vulnerability, socio-economic stress, cultural norms, and structural inequalities. Its prevention requires equally multidimensional strategies.

This study adopts a qualitative and analytical methodology, integrating theoretical frameworks from criminology, psychology, sociology, and law. The approach emphasizes conceptual depth and interdisciplinary synthesis rather than statistical measurement.

The methodological stages include:

1. **Conceptual Clarification** — defining family-based crime and distinguishing it from general interpersonal violence by focusing on relational dynamics, emotional ties, and power imbalances.
2. **Causal Examination** — analysing psychological, socio-economic, cultural, and structural determinants, drawing from established theories and empirical studies.
3. **Comparative Analysis** — reviewing prevention strategies across different countries, including legislative reforms, protective services, community interventions, and international standards.
4. **Interpretive Synthesis** — integrating findings into a coherent criminological model that accounts for individual behaviour, structural conditions, and cultural influences.

Data sources include academic monographs, peer-reviewed journals, UN and WHO reports, and international conventions. The interpretive method ensures a comprehensive view of family-based crime as a dynamic phenomenon shaped by social norms, economic conditions, and psychological factors.

The limitation of this methodology is the absence of original empirical data; however, existing research provides a sufficiently rich foundation for conceptual analysis and policy recommendations.

## RESULTS

The analysis reveals several defining criminological characteristics of family-based crime:

**1. Emotional and Relational Context.** Family crimes occur within intimate relationships characterized by emotional dependency, shared history, and asymmetrical power. These conditions create a cycle of control, fear, and guilt that inhibits victims from reporting.

**2. Chronicity and Escalation.** Domestic crimes often begin with minor incidents and escalate over time. Violence becomes normalized within the household, reinforcing behavioural cycles.

**3. Latent Nature.** Family-based crime is significantly underreported due to psychological dependency, fear of retaliation, shame, economic constraints, and cultural taboos. Latency undermines accurate criminological assessment and obstructs timely intervention.

**4. Intergenerational Transmission.** Children exposed to violence in the home experience long-term developmental harm and are more likely to become perpetrators or victims in adulthood. This contributes to the perpetuation of violent family structures.

**5. Gendered Patterns.** Statistical and empirical findings show that women disproportionately experience domestic violence, while men more often occupy the role of offenders. However, elderly and child victims are also substantial groups.

**6. Multidimensional Determinants.** Psychological disorders, substance abuse, economic stress, unemployment, cultural norms, and low social support all contribute to family-based criminality. No single factor explains the phenomenon in isolation.

These findings indicate that domestic crime is not a spontaneous event but a patterned behavioural process embedded in social and cultural structures.

## DISCUSSION

The discussion situates the results within broader criminological debates. Domestic crime is best understood as a systemic phenomenon shaped by intertwined individual, relational, and structural influences. Prevention efforts must therefore extend beyond traditional punitive measures.

One major implication is the need for early intervention. Strengthening parental education, stress management, and conflict resolution skills can reduce the risk of violence. Schools and community programs play a critical role in identifying at-risk families and providing support.

The gendered dimension of domestic violence requires targeted policies promoting gender equality, economic empowerment, and legal protection for vulnerable individuals. Criminological evidence shows that societies with higher levels of gender equality report lower rates of intimate partner violence.

Another central theme is the role of social services. Effective prevention requires coordinated action between police, medical professionals, psychologists, and community organizations. Multidisciplinary response teams have proven effective in countries like Canada, the Netherlands, and Sweden.

Additionally, legal reforms must focus on both protection and accountability. Protective orders, mandatory reporting for severe cases, and penalties for coercive control enhance safety; however, they must be enforced consistently to achieve real impact.

Finally, prevention must address cultural norms. Public education campaigns that challenge attitudes tolerating violence, promote healthy relationships, and encourage help-seeking behaviour are essential to long-term change.

## CONCLUSION

The study concludes that family-based crime is a multifaceted and deeply rooted phenomenon requiring comprehensive criminological understanding and intersectoral preventive strategies. Its determinants include psychological instability, socio-economic stress, cultural norms supporting dominance, and weak institutional responses.

Preventing domestic crime requires a combination of legal protection, social support, psychological services, economic empowerment, and community engagement. Long-term solutions depend on transforming cultural norms, strengthening families, and building social environments that promote equality, respect, and emotional well-being.

Understanding family-based crime through a criminological lens allows policymakers, practitioners, and communities to develop interventions that address both immediate protection needs and long-term structural reforms.

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ҚУРОЛДАН АМАЛИЙ ЎҚ ОТИШДА ЗУРИҚИШ МАШҚЛАРИНИНГ  
БАЗИ-БИР ЖИХАТЛАРИ

SOME ASPECTS OF STRENGTH TRAINING IN PRACTICAL  
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**Аннотация.** В статье раскрывается сущность проблемы некоторых аспектов силовой подготовки в практической стрельбе из ружья и карабина. Характеризуются методы развития силы стрелков из ружья и карабина.

**Ключевые слова.** Практическая стрельба из ружья и карабина, выполнение прицельного выстрела, сила, мышечный аппарат.

**Аннотация:** Ушбу мақолада ўқ отар қуроллардан амалий отишда зуриқтириш машқларининг айрим жихатларининг мохияти ўрганилади. Шунингдек ўқ отар қуроллардан отишда кучни ривожлантириш усулларини тавсифлайди.

**Калит сўзлар:** Қуролдан амалий отиш, мақсадли ўқ ўзиш, куч, мушак тизими.

**Annotation:** This article explores the essence of certain aspects of strength training in practical firearms shooting. It also describes methods for developing strength in firearms shooting.

**Key words:** Practical shooting from a carbine, performing an aimed shot, strength, muscular system.

**Введение.** В теории физического воспитания принято разделять силовые способности человека на три группы:

- собственно-силовые,
- скоростно-силовые способности,
- силовую выносливость [5, 10].

Проявление всех этих видов силовых способностей имеет место в практической стрельбе из ружья и карабина. Первую группу характеризует ряд НЕКОТОРЫЕ АСПЕКТЫ СИЛОВОЙ ПОДГОТОВКИ В ПРАКТИЧЕСКОЙ СТРЕЛЬБЕ ИЗ РУЖЬЯ И КАРАБИНА двигательных действий по удержанию оружия при выполнении прицельного выстрела, при перезарядке, при смене стрелковой позиции. Ко второй группе относятся действия, связанные с высокой скоростью выполнения двигательных действий (подъем оружия для выполнения прицельного выстрела, собственно перезарядка оружия, смена стрелковой позиции и т.д.). К третьей группе, требующей проявления силовой выносливости можно отнести непосредственно прохождение стрелковых упражнений [6, 7, 8].

Практическая стрельба из ружья и карабина на соревнованиях связана со значительными статическими нагрузками. Во время матча стрелку-спортсмену приходится выполнять до 150 и более прицельных выстрелов. Необходимость удерживать при выполнении прицельного выстрела и при перезарядке оружие массой от 3,5 до 5,5 кг, противодействовать отдаче оружия, а так же перемещаться с ним требует от спортсмена значительного расходования энергии. При этом происходит значительная статическая работа мышечного аппарата спортсмена-стрелка, вызываемая суммарным длительным удержанием оружия на весу, так как при имеющемся многообразии положений для выполнения прицельного выстрела в практической стрельбе из ружья и карабина, доминирующим все же является удержание оружия без опоры о какие-либо предметы, то есть только усилием мышц [6, 7, 8].

Из этого следует, что на современном этапе своего развития практическая стрельба из ружья и карабина связана со значительными напряжениями. Особенно возрастает статическая нагрузка на мышечный аппарат спортсмена стрелка, вызываемая суммарным удержанием оружия на весу, в том числе и при выполнении прицельного выстрела.

**Цель исследования** – разработать физические упражнения для развития силы стрелков-спортсменов в практической стрельбе из ружья и карабина и выявить зависимость уровня спортивных результатов в практической стрельбе из ружья и карабина от уровня развития силовых способностей стрелка-спортсмена.

**Гипотеза исследования.** Выполнение стрелковых упражнений в практической стрельбе из ружья и карабина требует от стрелка-спортсмена высокого уровня развития силовой выносливости. Можно предположить, что чем больше физическая сила стрелка-спортсмена, тем легче удерживать ему оружие и тем более высоких результатов он может достичь, то есть что спортивные достижения находятся в прямой зависимости от уровня развития его силовых способностей.

Известно, что под влиянием длительных и систематических нагрузок мышечно-связочный аппарат человека претерпевает приспособительные изменения, позволяющие легче преодолевать вес оружия и его отдачу. Однако, перенапряжение в результате недостаточного развития суставного аппарата может привести к серьезным травмам. Следовательно, развитие мышц туловища и конечностей, определенный уровень силовой подготовленности являются предпосылкой не только высоких спортивных результатов в практической стрельбе из ружья и карабина, но и фактором, определяющим сохранение здоровья [2, 3, 4, 5].

Разработанная методика силовой подготовки стрелков-спортсменов в практической стрельбе из ружья и карабина, основанная на научно обоснованном рациональном соотношении общей и специальной силовой подготовки позволит повысить эффективность учебно-тренировочного процесса и качество соревновательной деятельности.

**Методика.** В тренировочном процессе стрелков-спортсменов в практической стрельбе из ружья и карабина для развития силы следует применять: упражнения с отягощениями, упражнениями с преодолением собственного веса, а так же изометрические упражнения. Следует подчеркнуть, что развитие силы особо эффективно лишь в том случае, когда в тренировочном процессе используются не только изометрические упражнения, но и упражнения с отягощениями. Применение различных средств, с целью увеличения сопротивления различных движений тела или отдельных его звеньев стимулирует активную деятельность мышц и обуславливает развитие силы [1, 2, 9, 11, 12].

Для развития силы с помощью упражнений с отягощениями целесообразно применять несколько методов, выбор которых зависит от возраста, пола, подготовки стрелка-спортсмена [1, 2, 3, 4, 9, 11, 12].

1. Тренировка с околопредельным и предельным отягощением с целью быстрого развития абсолютной силы (штанга, гантели). Тренировочный вес в первом подходе – 60–70% от максимального. При каждом последующем подходе вес отягощения увеличивается на 2–5 кг и постепенно доводится до 90–100% от максимального. С каждым весом рекомендуется выполнять 4–5 различных упражнений по два–три повторения в каждом из них. По мере увеличения веса количество повторений в каждом подходе уменьшается до одного-двух. Перерыв между подходами составляет две–три минуты. Метод следует применять в подготовительном периоде, в ограниченном объеме, не чаще трех-четырех раз в месяц, с целью дополнительного стимулирования процесса развития силы, а также с контроля за уровнем ее развития.

2. Тренировка с отягощением среднего веса. В каждом упражнении за основу целесообразно брать такой тренировочный вес, с которым спортсмен может выполнить 10–12 повторений. Для занятий необходимо подобрать 4–8 упражнений, каждое из которых выполняется 3–4 раза подряд с перерывом между подходами 1,5–2 минуты. Темп выполнения средний. С возрастанием силы спортсмена необходимо постепенно увеличивать вес в каждом упражнении. Этот метод наряду с увеличением силы и силовой выносливости вызывает быстрый и значительный прирост мышечной массы, что создает хорошую базу для всех силовых упражнений.

3. Тренировка с малыми весами до предельного утомления. Упражнения выполняются со сравнительно малыми отягощениями – от 25 до 60% от максимального. В каждом подходе выполняется большое количество повторений до появления большого или предельного утомления. Затем после короткого отдыха (1–2 минуты) выполняются следующие упражнения. Темп 60 движений в минуту. Для одного учебно-тренировочного занятия следует подбирать 6–8 упражнений, имеющих разностороннюю направленность. Все упражнения последовательно повторяются в одном учебно-тренировочном занятии 2–3 раза. Этот метод можно рекомендовать для быстрого развития силовой выносливости.

4. Изометрическая тренировка. Разработанная в последние годы система изометрических упражнений, называемых иногда статическими упражнениями, должна представлять большой интерес, так как было указано выше, физическая нагрузка стрелков из ружья и карабина часто имеет статический характер.

Примером таких упражнений может служить «выжимание» неподвижно закрепленной штанги, «нажим» на стену и т.п. В изометрическую тренировку целесообразно включить 5–7 различных упражнений. В каждом упражнении спортсмен выполняет от 5 до 20 максимальных (или близких к максимальным) напряжений, длительностью 6–10 секунд каждое. Паузы между напряжениями составляют 5–20 секунд. Данный метод имеет ряд ценных преимуществ. Во-первых, введение статических упражнений позволяет в два-три раза сократить время, затрачиваемое на силовую тренировку; во-вторых, упражнения этого типа не требуют сложного инвентаря и могут выполняться в любой обстановке; в-третьих, параллельно с развитием силы и силовой выносливости изометрические упражнения позволяют влиять спортивную технику стрелка. При всех преимуществах изометрические упражнения, разумеется, не могут заменить обычных, динамических упражнений, а должны их лишь дополнить.

5. Метод повторных усилий. Физиологический эффект этого метода, как и предыдущего, состоит в том, что спортсмен проявляет значительные мышечные напряжения, однако, предел усилий в данном случае определяется не величиной отягощения, а числом повторений. В этом случае проявление и развитие силы в зависимости от числа повторений будет различным. Так, использование значительных отягощений при большом числе повторений (5–10) вызывает развитие абсолютной мышечной силы. В том случае, если в учебно-тренировочном занятии применяются незначительные отягощения и большое число повторений (15 и более), преимущественно развивается силовая выносливость. Для умеренного развития силы и силовой выносливости стрелку из ружья и карабина целесообразно выполнять общеразвивающие упражнения с отягощениями, с применением метода повторных усилий. Число повторений в упражнении – 10–15, число подходов – 2–3. В качестве отягощений можно использовать не только гантели или штангу, их вполне могут заменить упражнения с пружинным или резиновым эспандером.

Ниже приводится характеристика и техника выполнения основных силовых упражнений, которые целесообразно применять для развития силы стрелков из ружья и карабина.

**Жим штанги на горизонтальной скамье.** Это упражнение развивает в основном грудные, дельтавидные мышцы и трицепсы. Необходимый инвентарь – горизонтальная скамья высотой 40 см и стойки для штанги. Лежа спиной на горизонтальной скамье, взять гриф штанги ладонями наружу непосредственно над грудью. Медленно опустить штангу до касания середины груди и после небольшой задержки на груди (1–2 сек) так же не спеша выжать штангу в исходное положение.

Перед опусканием штанги выполнить полувдох и с задержкой дыхания выполнить упражнение, выдохнув на завершающем пути подъема штанги. Следующие и последующие повторения выполнять с таким же дыхательным ритмом. Во время выполнения жима штанги от груди необходимо следить за тем, чтобы туловище и таз не отрывались от скамьи.

**Жим штанги на наклонной доске (под углом 30–45°).** Данное упражнение способствует развитию мышц верхней части груди, передней части дельтовидной мышцы и трицепса. Необходимый инвентарь – специальная регулируемая скамья, стойки для штанги. Лежа на скамье под углом, взять штангу со стоек ладонями наружу. Выполнить короткий вдох, опустить штангу на грудь и без паузы выполнить ее подъем.

**Жим штанги, сидя на скамье.** Это упражнение развивает мышцы верхней части туловища: дельтавидные, трапециевидные, трицепсы, мышцы верхней части груди и некоторые мышцы спины, а также брюшного пресса. Взять штангу со стоек ладонями вверх, средним хватом (целесообразно через одно-два учебно-тренировочных занятия менять хват на широкий или узкий), выжать ее от груди, а затем медленно опустить штангу за голову до касания основания шеи и выжать ее до полного выпрямления рук в локтевых суставах.

**Разведение рук с гантелями в стороны, лежа на горизонтальной скамье.** Выполнение этого упражнения позволяет значительно развить грудные и дельтавидные мышцы. Лежа на спиной на горизонтальной скамье, выжать гантели до полного выпрямления рук в локтевых суставах, а затем развести опуская вниз и в стороны, чтобы почувствовать растяжение в грудной области. Руки опустить значительно ниже уровня тела. При опускании гантелей выполнять вдох и выдох при возвращении их в исходное положение по прежней траектории. Выпрямление рук в локтевых суставах со штангой лежа на горизонтальной скамье. Упражнение направлено на развитие трицепсов. Лежа на горизонтальной скамье и удерживая штангу над головой на выпрямленных руках хватом уже среднего. Зафиксировать неподвижно верхний плечевой пояс, согнуть локти и опустить штангу в исходное положение. Повторить это упражнение несколько раз. При опускании штанги – вдох, при поднимании – выдох.

**Подъем рук с гантелями через стороны стоя.** Данное упражнение направлено на развитие наружных и боковых головок дельтавидных мышц. Принять исходное положение стоя, ноги на ширине плеч, руки в локтях немного согнуты. Одновременно поднимать гантели в стороны до горизонтального положения, медленно опуская в исходное положение. При поднимании гантелей

рекомендуется проворачивать кисти так, чтобы мизинец в верхней точке оказался выше большого пальца. При опускании выполнить эту процедуру в обратном порядке.

**Сгибание рук со штангой стоя.** Это упражнение наиболее эффективно для тренировки бицепсов и оказывает тренирующее воздействие на мышцы предплечья. Взять гриф штанги ладонями наружу вперед, руки на ширине плеч, стать прямо. Для облегчения выполнения упражнения плечевые части рук прижать к боковым частям туловища. Перед началом движения руки выпрямить и несколько расслабить в локтевых суставах, гриф штанги располагается на уровне бедер. За счет напряжения мышц предплечья медленно согнуть руки и переместить штангу по дуге от бедер до подбородка. Если во время выполнения этого упражнения оторвать боковые части плеч от туловища, то нагрузка значительно возрастет. Раскачивание тела и сгибание туловища как вперед, так и назад намного снижает эффективность данного упражнения.

**Опускание согнутых рук со штангой за головой лежа на скамье.** Упражнение для развития мышц груди, трицепсов, зубчатых мышц и мышц верхней части спины, особенно широчайшей. Лечь на скамью так, чтобы голова свисала за ее край. Расположить штангу на полу под головой. Взять гриф штанги несколько уже ширины плеч. Поднять медленно штангу над головой согнутыми в локтях руками, а также медленно возвратить ее вниз.

**Поднимание рук через стороны в наклоне.** Упражнение развивает тыльную часть головки дельтавидной мышцы, а так же мышцы верхней части спины. Для его выполнения надо взять в руки гантели, наклонить туловище параллельно полу и слегка, согнуть ноги в коленных суставах, спину прогнуть в пояснице. Одновременно поднять гантели в стороны-вверх до максимально возможной точки, а затем медленно опустить в исходное положение.

**Сгибание рук с гантелью с опорой локтем в бедро.** Это упражнение направлено на тренировку верхней части рук, особенно бицепсов. Сидя или стоя в наклоне, опереться локтем во внутреннюю поверхность бедра. Медленно согнуть в локте по направлению к груди, удерживая плечевую часть неподвижно у внутренней поверхности бедра. Не рекомендуется при выполнении упражнения сгибать руку в запястье, так как благодаря мышцам предплечья облегчается выполнение данного задания.

**Выпрямление руки в локте назад в наклоне.** Упражнение тренирует трицепсы. Для его выполнения необходимо наклониться над скамьей, опершись на

нее одной рукой. В другую руку взять гантель, удерживая локоть одной рукой. В другую руку взять гантель, удерживая локоть повыше, но в неподвижном положении, выпрямить руку в локте, отвести гантель назад и сильно вверх.

**Подъем штанги вперед в прямых руках.** Упражнение направлено на развитие верхней части груди и фронтальной части дельтовидных мышц. Для выполнения этого упражнения надо занять исходное положение стоя, держа штангу (или гантели) в опущенных руках. Незначительно согнув руки в локтях, поднять груз до уровня глаз, медленно опустить в исходное положение. Можно выполнять это упражнение с гантелями попеременно – вначале одной рукой, а потом другой.

**Попеременное сгибание рук с гантелями сидя.** Упражнение тренирует мышцы, сгибающие руку, особенно бицепсы. Сесть на край скамьи, держа гантели в обеих руках. Вначале согнуть одну руку (например, правую) и медленно поднять к плечу, затем медленно ее опустить, поднять другую (левую) руку и так выполнить это движение несколько раз подряд. Приседание со штангой на плечах. Это упражнение является одним из основных в тренировке мышц ног, так как во время приседания в работу включается большинство главных мышечных групп. Но в основном во время приседания тренируется передняя поверхность бедра, тазовые и ягодичные мышцы, мышцы нижней части спины. Это упражнение развивает так же мышцы живота, верхней части спины, голени и плеч. Снять штангу со стоек, встать прямо, штанга на плечах, спина прямая, хват рук на ширине плеч, ноги расставлены на ширине плеч, носки слегка развернуты, мышцы спины напряжены в пояснице, которая слегка прогнута. Медленно согнуть ноги в коленях и опустить штангу до полного седа. Как только бедро пройдет прямую линию, параллельную полу, медленно встать, удерживая ступни ног, удерживая ступни всей плоскостью на полу.

**Выпрямление ног с подвешенным грузом сидя.** Это упражнение развивает четырехглавую мышцу бедра и для его выполнения надо сесть на высокую скамейку, чтобы можно было свесить ноги с подвешенным на голеностопа грузом. Удерживая бедра в неподвижном положении, надо медленно одновременно или попеременно поднять голень до полного выпрямления ноги, затем также медленно опустить. Вес отягощения подбирается с таким расчетом, чтобы занимающиеся могли выполнить упражнение, например, 4–6 раз в одном подходе.

**Подъем на носки со штангой на плечах.** Упражнение способствует развитию икроножной и камбаловидной мышц голени. Взять штангу на плечи со стоек, встать носками ступней на доску высотой 5–10 см, ноги расположены на ширине плеч, носки параллельны, постараться как можно ниже опустить пятки, не

стибая ноги в коленях, затем подняться на носках как можно выше. Вернуться в исходное положение и повторить упражнение необходимое количество раз.

**Подъем штанги к животу в наклонном положении туловища.** Упражнение развивает мышцы верхней части спины (удерживая спину в статической позе), трапециевидные, ромбовидные, выпрямители позвоночника, тыльной стороны дельтовидных мышц, бицепсы и мышцы предплечья. Исходное положение: ноги на ширине плеч, носки слегка развернуты в стороны, туловище наклонено вперед, спина прогнута в пояснице, ноги в коленных суставах незначительно согнуты. Взять штангу хватом сверху несколько шире среднего. Удерживая туловище в наклонном положении, поднять штангу силой рук до касания грифом штанги живота. В одном подходе выполняется до 3–4 раз.

**Вывод.** Обобщая имеющийся в настоящее время отечественный и зарубежный опыт, можно сделать вывод о том, что стрелок-спортсмен в практической стрельбе из ружья и карабина должен обладать развитой мышечной системой, особенно рук, плечевого пояса, спины и ног, чтобы выполнять большое количество прицельных выстрелов, не снижая их результативности. Необходимость специальной силовой подготовки стрелков-спортсменов в практической стрельбе из ружья и карабина очевидна. Наиболее эффективно сила развивается в результате тренировочных занятий с отягощениями, причем дозированными, то есть учитывающими возможности того или иного спортсмена. При построении учебно-тренировочных занятий с силовыми упражнениями необходимо помнить, что при этом должна сохраняться специфическая соревновательная техника, а кроме этого, учебно-тренировочные занятия не должны причинять вред здоровью стрелка-спортсмена.

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## CRIMINOLOGICAL CHARACTERISTICS OF VIOLENT CRIME AND MEASURES FOR ITS PREVENTION

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### Аннотация

В данной статье рассматриваются криминологические характеристики насильственных преступлений с акцентом на их структурные особенности, причинно-следственные механизмы, типологию и социально-психологические детерминанты. Насильственные преступления, включающие убийства, нападения, грабежи с применением насилия, сексуальное насилие, пытки и другие формы принудительного причинения вреда, остаются центральной проблемой современной криминологии из-за их непосредственной угрозы человеческой жизни, безопасности и общественному порядку. В исследовании анализируется сложное взаимодействие биологических, психологических, социальных, культурных и экономических факторов, способствующих агрессивному поведению. Используя качественный аналитический подход, статья объединяет классические криминологические теории с современными эмпирическими данными. В исследовании подчеркивается роль импульсивности, травм, злоупотребления психоактивными веществами, норм маскулинности, неравенства и стрессовых факторов окружающей среды в возникновении агрессии. Превентивные стратегии оцениваются с помощью законодательных реформ, работы полиции в обществе, подходов общественного здравоохранения, программ раннего вмешательства и передового международного опыта. Результаты исследования подчеркивают, что профилактика насильственных преступлений требует междисциплинарного подхода, учитывающего индивидуальное поведение, социальное неравенство, институциональный потенциал и культурные особенности отношения к насилию.

**Ключевые слова:** насильственные преступления, криминология, агрессия, убийства, нападения, профилактика, социальный контроль, факторы риска, снижение уровня насилия.

### Abstract

This article examines the criminological characteristics of violent crime, focusing on its structural features, causal mechanisms, typology, and socio-psychological determinants. Violent crime, which includes homicide, assault, robbery with violence,

sexual violence, torture, and other forms of coercive harm, remains a central concern of modern criminology due to its direct threat to human life, safety, and public order. The study analyses the complex interaction of biological, psychological, social, cultural, and economic factors that contribute to violent behaviour. Using a qualitative analytical approach, the article integrates classical criminological theories with contemporary empirical findings. The research highlights the role of impulsivity, trauma, substance abuse, masculinity norms, inequality, and environmental stressors in generating aggression. Preventive strategies are evaluated through legislative reforms, community policing, public health approaches, early intervention programs, and international best practices. The findings underscore that preventing violent crime requires a multidisciplinary approach targeting individual behaviour, social inequalities, institutional capacity, and cultural attitudes toward violence.

**Keywords:** violent crime, criminology, aggression, homicide, assault, prevention, social control, risk factors, violence reduction

## INTRODUCTION

Violent crime represents one of the most dangerous forms of criminal behaviour, posing a direct threat to the physical integrity and psychological well-being of individuals and society. Unlike property crime or economic crime, violent crime involves the intentional use of physical force or coercion to harm another person. This intentional infliction of harm makes violent crime a distinct criminological phenomenon with deep historical, psychological, and social roots. Homicide, assault, armed robbery, rape, and domestic violence are among the most prevalent forms, each carrying unique legal and criminological significance.

The study of violent crime has historically occupied a central place in criminological research. Classical criminologists emphasized rational choice and moral responsibility; however, over time, attention shifted toward examining deeper psychological and social determinants. Modern criminology views violence as a multidimensional construct shaped by personal history, environmental context, and societal culture. Because violence often emerges from interactions between individuals and their social settings, understanding its causes requires an interdisciplinary perspective.

The global rise of urbanization, inequality, social fragmentation, and exposure to trauma has intensified the relevance of studying violent crime. Although many countries have adopted robust legal frameworks, the persistence of violent crime suggests that punitive measures alone are insufficient. Furthermore, violent crime is not evenly distributed across demographic groups or geographic regions; young males,

disadvantaged communities, and individuals exposed to early childhood trauma remain disproportionately represented among both offenders and victims.

Criminological inquiry reveals that violent behaviour often arises not from a single cause but from the accumulation of risk factors, including biological predispositions, childhood abuse, substance use, peer influence, cultural acceptance of aggression, and systemic inequalities. Thus, the prevention of violent crime requires addressing the ecological systems in which individuals develop.

This article aims to provide a comprehensive analysis of the criminological characteristics of violent crime and propose evidence-based measures for its prevention. Through theoretical evaluation and comparative analysis, the study seeks to deepen the understanding of violence as both an individual behavioural response and a structural societal problem.

## LITERATURE REVIEW AND METHODOLOGY

The academic literature on violent crime spans numerous disciplines, including criminology, psychology, sociology, public health, and law. Classical criminological theories—those of Cesare Beccaria and Jeremy Bentham—focused on rationality and deterrence, arguing that violence could be reduced through strict legal sanctions. However, later developments challenged the sufficiency of this approach.

Biological theories, rooted in the works of Cesare Lombroso, attempted to associate violence with inherited traits and physiological abnormalities. Although modern science has discredited strict biological determinism, contemporary research in behavioural genetics and neuroscience shows that certain temperamental features—such as impulsivity, low emotional regulation, and high reactivity—may increase vulnerability to violent behaviour when combined with negative environmental conditions.

Psychological literature emphasizes the role of early trauma. Theories by Freud, Bowlby, and later attachment researchers argue that childhood maltreatment, neglect, and insecure attachment increase aggression, emotional dysregulation, and antisocial behaviour. Cognitive-behavioural models focus on distorted thinking patterns, hostile attribution bias, and low frustration tolerance.

Sociological theories contribute substantially. Robert Merton's strain theory suggests that social inequality and frustration foster aggression. Social disorganization theory links violence to weakened community structures, poor social cohesion, and lack of informal social control. Subcultural theorists argue that certain groups develop norms that legitimize violence as a means of achieving respect or dominance—particularly among marginalized youth.

Routine activity theory provides an environmental perspective: violent crime occurs when a motivated offender encounters a suitable target without capable guardianship. This approach has influenced situational crime prevention strategies.

Recent research highlights the intersection between substance abuse and violent behaviour. Alcohol and drugs reduce inhibition, increase impulsivity, and intensify aggression. Studies also show that domestic violence, gang-related violence, and sexual violence often stem from cultural attitudes supporting male dominance, inequality, and rigid gender norms.

In sum, academic literature agrees that violent crime is a multifactorial phenomenon requiring integrated criminological, psychological, and sociological interpretation.

This research employs a qualitative, analytical, and comparative methodology. Rather than generating new empirical data, the study synthesizes established theories, criminological analyses, official reports, and findings from interdisciplinary research. This approach is appropriate for examining a complex phenomenon such as violent crime, which cannot be explained through a single theoretical lens.

The methodological framework includes:

1. **Theoretical Systematization.** Consolidating major criminological theories describing violent behaviour and identifying common explanatory mechanisms across disciplines.

2. **Causal Mapping.** Analysing individual, relational, community-level, and structural factors contributing to violent crime, including biological predispositions, psychological trauma, family dysfunction, economic inequality, and cultural norms.

3. **Comparative Analysis.** Evaluating prevention models from different countries, including public health-based approaches, community policing, restorative justice, and early intervention programs.

4. **Interpretive Integration.** Synthesizing findings into a holistic criminological model that accounts for the dynamic interaction between individuals and their social environment.

Data sources include peer-reviewed criminological literature, WHO and UNODC reports, national legal frameworks, and contemporary theoretical works. The absence of primary quantitative data is a limitation; however, the depth of existing research allows for valid criminological interpretation.

## RESULTS

The study identifies several core criminological characteristics of violent crime:

**1. Intentional Harm as a Defining Feature.** Violent crime involves deliberate or reckless physical harm, distinguishing it from other offence types. The offender's intent, emotional state, and situational context significantly shape the nature of violence.

**2. Demographic Patterns.** Young males constitute the largest proportion of violent offenders, largely due to biological reactivity, cultural expectations of masculinity, and peer influence. At the same time, women and children disproportionately suffer as victims, especially in domestic settings.

**3. Psychological and Behavioural Profiles.** Violent offenders often show emotional instability, impulsivity, hostile attribution patterns, and histories of trauma. While not all violent offenders exhibit clinical disorders, psychological vulnerabilities increase risk.

**4. Social and Environmental Determinants.** Violent crime is more prevalent in marginalized communities characterized by poverty, social exclusion, unemployment, weak institutions, and poor urban infrastructure. Social disorganization undermines informal control and normalizes aggression.

**5. Cultural Norms Supporting Violence.** In some societies, violence is embedded in cultural practices, honour codes, or gender norms. Such environments legitimize aggression and make prevention more complicated.

**6. Situational and Opportunity Factors.** Routine activities—late-night exposure, alcohol consumption, risky environments—contribute significantly to violent encounters.

**7. Latency and Underreporting.** Certain violent crimes, particularly domestic violence and sexual assault, remain highly latent due to stigma, fear, and mistrust of authorities.

The findings show that violent crime is not random but emerges from identifiable criminogenic patterns.

## DISCUSSION

The discussion situates violent crime within broader criminological debates and highlights implications for prevention. A key insight is that violence cannot be effectively addressed through punitive policies alone. Although deterrence plays a role, violence often arises from irrational emotional reactions, social frustration, and deep-rooted psychological trauma. Therefore, prevention must incorporate public health, education, and community development strategies.

The discussion also emphasizes the need to challenge cultural norms that reinforce violence. Gender-based violence prevention programs, campaigns against honour-based violence, and curricula promoting emotional intelligence can reshape social behaviour.

Furthermore, institutions must strengthen multi-agency collaboration. Police, schools, healthcare systems, and social services need coordinated mechanisms to identify

risk early and intervene before violence escalates. Community policing models have demonstrated success in reducing violent crime by building trust, improving surveillance, and fostering community cohesion.

Effective prevention also requires socioeconomic investment. Reducing inequality, creating employment opportunities, improving neighbourhood infrastructure, and supporting at-risk youth significantly lower violence prevalence.

Ultimately, the discussion highlights that violent crime is both a criminological and societal issue, requiring holistic, long-term strategies grounded in evidence-based practices.

## CONCLUSION

The research concludes that violent crime is a multifaceted phenomenon resulting from the interaction of psychological, social, cultural, and economic factors. Its criminological profile is marked by intentional harm, demographic concentration, emotional instability, social inequality, and cultural reinforcement of aggression. Because violent crime affects the most fundamental human rights—life, bodily integrity, and safety—its prevention must be prioritized across national and international policy frameworks.

Effective prevention requires integrated strategies, including legal reforms, early childhood intervention, mental health support, public education, community policing, and efforts to reduce inequality. Addressing the underlying social environment is essential for long-term violence reduction.

Understanding violent crime through this broader criminological lens provides a foundation for sustainable, humane, and evidence-based prevention policies.

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## SEMANTIC AND STRUCTURAL CHARACTERISTICS OF SYNONYMS AND ANTONYMS IN ENGLISH AND UZBEK

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**ANNOTATION:** This article examines the semantic and structural characteristics of synonyms and antonyms in English and Uzbek, focusing on the similarities and differences in their lexical organization, semantic development, and functional usage in both languages. The study highlights that synonyms and antonyms, while universally recognized semantic relations, demonstrate significant language-specific features shaped by cultural, historical, and linguistic factors. In English, synonymy is characterized by a wide range of stylistic shades, etymological diversity, and functional variability due to extensive borrowing and the coexistence of Germanic, Latin, and French lexical layers. In Uzbek, synonymy is strongly influenced by native Turkic roots, historical Persian–Arabic borrowings, and modern socio-cultural developments, which together create a unique system of semantic parallels. Antonymy in both languages reflects fundamental cognitive oppositions; however, the structural formation of antonymic pairs and their distribution across lexical fields differ considerably. English antonymy demonstrates a balanced representation of gradable, complementary, and converse pairs, while Uzbek displays a stronger reliance on morphological oppositions created through affixation and derivative patterns. Through comparative analysis and contextual examination, the research provides insight into how each language conceptualizes similarity and contrast, revealing broader connections between semantics, cultural worldview, and linguistic identity. The findings contribute to a deeper understanding of cross-linguistic semantics and offer valuable implications for translation studies, lexicography, bilingual education, and contrastive linguistics.

**KEYWORDS:** synonymy, antonymy, semantic relations, structural characteristics, English language, Uzbek language, gradable opposition, complementary opposition, morphological contrast, lexical semantics, cross-linguistic comparison, stylistic variation, cultural factors, linguistic identity.

### INTRODUCTION

The study of semantic relations such as synonymy and antonymy occupies an important place in modern linguistics, as these relationships form the basis of how meaning is organized, expressed, and interpreted in natural languages. Synonyms and

antonyms function as key components of the lexical-semantic system, shaping the logical, cognitive, and communicative structure of language. While these phenomena are universal across languages, their manifestation, development, and usage patterns vary significantly depending on the linguistic structure, historical evolution, and cultural worldview of each speech community. For this reason, a contrastive investigation of English and Uzbek provides valuable insights into how different languages conceptualize similarity and opposition, and how these concepts are encoded within lexical forms. English, characterized by its rich etymological history and heavy lexical borrowing from Germanic, Latin, and French sources, presents a highly diversified synonymic system with multiple stylistic layers and subtle semantic distinctions. Its antonymic system also displays a complex structure, combining native oppositional pairs with derived, metaphorical, and relational contrasts used across various fields of discourse. In contrast, Uzbek, as a Turkic language with strong historical influences from Persian and Arabic, demonstrates a distinct balance between native semantic patterns and borrowed lexical innovations. Morphological mechanisms such as affixation, reduplication, and derivation play a more prominent role in forming oppositional relations, while synonymy often reflects cultural values, traditional concepts, and expressive tendencies characteristic of Uzbek linguistic identity. Understanding these differences is essential not only for linguistic theory but also for practical fields such as translation, bilingual lexicography, language pedagogy, and intercultural communication. Synonymy and antonymy influence stylistic choices, rhetorical strategies, communicative norms, and the interpretation of nuance across languages. A comparative study of English and Uzbek therefore reveals how speakers of each language use similarity and contrast to convey precision, emotion, evaluation, and conceptual categorization. This research seeks to explore the semantic and structural characteristics of synonyms and antonyms in English and Uzbek through a comprehensive theoretical and comparative approach. By analyzing lexical patterns from both languages, examining their contextual behavior, and identifying points of convergence and divergence, the study aims to contribute to a deeper understanding of cross-linguistic semantics. The findings will help illustrate how two typologically different languages construct meaning through similarity and opposition, ultimately broadening perspectives on linguistic diversity and semantic organization.

## MATERIALS AND METHODS

This research is based on a combination of descriptive, comparative, semantic, and corpus-based methods, allowing for a comprehensive examination of the semantic and structural characteristics of synonyms and antonyms in English and Uzbek. The methodological framework was carefully selected to analyze lexical relations from

multiple linguistic perspectives, ensuring both theoretical depth and empirical reliability. The primary materials of the study include lexical units representing synonymy and antonymy in both languages, sourced from authoritative dictionaries, digital corpora, academic publications, and authentic texts. For English, data were obtained from the *Oxford English Dictionary*, *Longman Dictionary of Contemporary English*, *Merriam-Webster Dictionary*, *Roget's Thesaurus*, the *British National Corpus (BNC)*, and the *Corpus of Contemporary American English (COCA)*. For Uzbek, the study relied on the *O'zbek tilining izohli lug'ati*, bilingual English–Uzbek dictionaries, the *Uzbek National Corpus*, and various literary, journalistic, and scholarly sources that provide rich examples of real usage. These materials ensure the accuracy and validity of semantic generalizations made throughout the research.

The descriptive method is applied to define core linguistic concepts related to synonymy and antonymy, classify lexical units, and explain their semantic, stylistic, and structural properties. This method allows the study to present systematic descriptions of different types of synonyms—such as absolute, partial, contextual, and stylistic synonyms—as well as major types of antonyms, including gradable, complementary, and converse oppositions. The comparative method serves as the central analytical tool of the research, enabling the systematic comparison of English and Uzbek synonymic and antonymic systems. Through this approach, the study identifies similarities and differences in lexical formation, semantic development, morphological patterns, and cultural motivations behind the creation of synonymous and antonymous pairs. Comparisons also help reveal how typological characteristics of each language—analytic structure in English and agglutinative structure in Uzbek—shape their semantic relations. Semantic analysis is used to examine internal meaning structures, identify semantic components, and uncover nuances within synonymic sets and antonymic oppositions. This includes analyzing denotational and connotational meanings, stylistic layers, conceptual domains, and emotional coloring, which are crucial for understanding how each language organizes meaning through similarity and contrast. Pragmatic and contextual analysis plays an essential role in investigating how synonyms and antonyms function within natural discourse. This method examines how meaning shifts depending on communicative intentions, social context, style, register, and genre. It also reveals that many synonymic choices in both English and Uzbek are motivated not by semantic equivalence, but by pragmatic appropriateness, politeness strategies, or stylistic expressiveness. Corpus-based analysis provides empirical evidence for frequency patterns, collocational behavior, contextual preferences, and distribution tendencies of synonymic and antonymic units. Large digital corpora allow for objective observation of

how words behave in real language use, supporting theoretical claims with quantitative and qualitative data. Finally, elements of cognitive linguistics are employed to interpret conceptual structures underlying synonymy and antonymy. This includes investigating how speakers of English and Uzbek categorize concepts, conceptualize oppositions, form semantic prototypes, and use metaphorical extensions to create new lexical relations. Taken together, these methods provide a robust and multidimensional research approach, allowing for a thorough exploration of synonymy and antonymy in two typologically different languages. The integration of theoretical analysis with empirical data ensures that the study's conclusions are both linguistically grounded and supported by real usage patterns.

## RESULTS AND DISCUSSION

The findings of the research indicate that the semantic and structural characteristics of synonyms and antonyms in English and Uzbek reveal complex patterns shaped by linguistic typology, cultural background, historical development, and cognitive perception. The comparative analysis of synonymy demonstrates that both languages employ various mechanisms to express semantic proximity, yet the structure, depth, and functional load of synonymic relations differ significantly. In English, synonymy is largely influenced by the language's hybrid etymological composition, where Germanic, Latin, and French lexical layers coexist and interact. This interaction results in a highly diverse synonymic inventory characterized by subtle stylistic distinctions, multi-level connotations, and a broad range of formality. Uzbek, on the other hand, reflects its Turkic roots combined with historical Persian–Arabic influences, forming synonymic groups that often show expressive richness, cultural symbolism, and emotional nuance. The presence of native Turkic words alongside borrowed Persian and Arabic lexemes creates synonymic chains that not only convey semantic similarity but also reflect social attitudes, traditional concepts, and stylistic preferences specific to Uzbek linguistic identity. The study further reveals that synonymy in both languages is predominantly partial rather than absolute. Words that appear synonymous at the denotational level diverge in connotation, stylistic register, or contextual compatibility. For instance, English synonyms such as *freedom*, *liberty*, and *independence* carry different historical associations and contextual shades, while Uzbek synonyms like *go'zal*, *chiroyli*, and *jamoli bor* differ in emotional tone and stylistic usage. These distinctions demonstrate that synonymy is not simply a matter of semantic equivalence but a system of nuanced lexical choices shaped by social, cultural, and pragmatic factors. Consequently, synonymy functions not only as a semantic phenomenon but also as an essential tool for stylistic refinement, rhetorical effect, and communicative appropriateness.

The findings regarding antonymy reveal that oppositional relationships in both English and Uzbek reflect a more stable and cognitively universal structure compared to synonymy. Antonymic pairs tend to preserve their oppositional meaning across contexts, indicating that antonymy is deeply rooted in human cognitive processes and binary categorization. However, the structural formation of antonyms differs across the two languages. English relies extensively on semantic contrast within lexical pairs, producing oppositions such as *hot–cold*, *true–false*, and *buy–sell*, which often reflect gradable, complementary, or converse relations. Uzbek, by contrast, frequently employs morphological strategies to form antonyms, using affixes such as *no-*, *be-*, *ser-*, and *-siz* to create oppositional meaning, as observed in pairs like *tinch–notinch*, *baxtli–baxtsiz*, and *serob–suvsiz*. This demonstrates that the agglutinative structure of Uzbek contributes to a productive and systematic formation of antonymic units, whereas English relies more heavily on lexical opposition within independent word pairs. The research also shows that antonymy in both languages extends beyond simple logical contradiction and often interacts with metaphor, evaluation, and discourse structure. In English texts, antonyms frequently serve rhetorical functions, reinforcing contrast and highlighting opposing ideas in political speeches, academic writing, and literary discourse. Uzbek antonyms similarly play a significant role in proverbs, poetic expressions, and everyday conversation, where contrast is used to intensify meaning, express moral judgments, or convey cultural values. This indicates that antonymy is not only a semantic phenomenon but also a cognitive and communicative device deeply integrated into the expressive system of both languages. Overall, the results demonstrate that the semantic and structural characteristics of synonyms and antonyms in English and Uzbek reflect broader linguistic and cultural patterns. While synonymy reveals expressive diversity and stylistic richness, antonymy provides conceptual clarity and semantic organization. Together, they shape the lexical architecture of both languages and contribute to the development of meaning, discourse formation, and communicative effectiveness.

## Comparative Semantic and Structural Characteristics of Synonyms and Antonyms in English and Uzbek

Analytical criteria	English synonyms	Uzbek synonyms	English antonyms	Uzbek antonyms
<b>1. Semantic nature</b>	Often semantically close but rarely fully identical;	Frequently close in meaning, with culturally influenced	Stable oppositional meanings; rooted in	Strong oppositional meaning; often

Analytical criteria	English synonyms	Uzbek synonyms	English antonyms	Uzbek antonyms
	connotations vary widely.	expressive nuances.	cognitive binary contrasts.	culturally colored.
<b>2. Etymological background</b>	Germanic, Latin, and French layers produce diverse synonym sets.	Turkic roots mixed with Persian–Arabic borrowings enrich synonymy.	Mostly native English pairs or lexical oppositions.	Many antonyms formed through native derivational patterns.
<b>3. Structural formation</b>	Primarily lexical; stylistic layers shape semantic variations.	Structural diversity with descriptive phrases and emotional shades.	Formed through independent lexical pairs (e.g., <i>hot–cold</i> ).	Often formed using affixes <i>no-</i> , <i>be-</i> , <i>ser-</i> , <i>-siz</i> : <i>baxtli–baxtsiz</i> .
<b>4. Morphological mechanisms</b>	Limited morphological synonymy.	Strong reliance on agglutination and derivation.	Morphology plays minor role; lexical contrast prevails.	Morphological oppositions are highly productive.
<b>5. Stylistic value</b>	Reflects formal–neutral–informal layers; highly developed.	Expressive, poetic, and culturally symbolic shades are common.	Widely used in logical, evaluative, and argumentative contexts.	Strong presence in proverbs, poetry, and everyday speech.
<b>6. Contextual dependence</b>	Highly context-sensitive; meanings shift based on discourse.	Very context-dependent; cultural context intensifies meaning.	Less context-dependent; opposition remains stable.	Mostly stable, though poetic usage can broaden meanings.

Analytical criteria	English synonyms	Uzbek synonyms	English antonyms	Uzbek antonyms
<b>7. Functional role in discourse</b>	Enhances stylistic variation, precision, and nuance.	Adds emotional depth, cultural symbolism, and expressiveness.	Builds contrast, emphasis, and logical clarity in argumentation.	Strengthens moral, evaluative, and expressive contrasts.
<b>8. Frequency distribution</b>	High variation across genres; academic, literary, and journalistic styles differ greatly.	Common in oral traditions, literature, and media texts.	Frequent across discourse types; universal cognitive role.	Very frequent in folklore, maxims, and conversational speech.
<b>9. Cognitive motivation</b>	Influenced by metaphor, conceptual blending, and polysemy.	Influenced by tradition, social norms, and cultural worldview.	Reflects conceptual polarity and binary reasoning.	Reflects cultural dichotomies and moral concepts.
<b>10. Lexicographic representation</b>	Detailed synonym sets in thesauri (e.g., Roget's).	Provided through descriptive definitions and synonymic rows.	Clear binary listings in dictionaries.	Often marked by morphological patterns and affixes.

## CONCLUSION

The comparative study of the semantic and structural characteristics of synonyms and antonyms in English and Uzbek demonstrates that these two lexical-semantic relations, while universal in human language, reflect distinct linguistic, cognitive, and cultural patterns within each language system. The analysis shows that synonymy in both languages is far from absolute; rather, it functions as a spectrum of meaning relations shaped by contextual, stylistic, and pragmatic factors. English synonymy is characterized by rich etymological diversity, resulting from the coexistence of Germanic, Latin, and French lexical layers, which creates multiple synonymic options with fine semantic

distinctions and varying stylistic values. In contrast, Uzbek synonymy reflects a unique interaction of Turkic, Persian, and Arabic lexical elements, contributing to expressive depth, emotional nuance, and culturally meaningful lexical variation. Antonymy, on the other hand, displays greater stability and conceptual universality, as oppositional meaning structures are deeply rooted in cognitive categorization. Nevertheless, the research reveals significant structural differences: English antonyms rely mainly on lexical contrasts between independent word pairs, whereas Uzbek antonyms frequently make use of agglutinative morphological mechanisms, forming oppositions through affixation and derivational patterns. These distinctions highlight the typological differences between analytic and agglutinative language structures and show how morphological resources influence semantic organization. The study also illustrates that synonyms and antonyms in both languages fulfill important communicative and stylistic functions. Synonymy enriches the expressive potential of language, allowing speakers to achieve precision, politeness, and stylistic variation. Antonymy strengthens contrast, facilitates logical reasoning, and enhances evaluative and rhetorical expression. Moreover, the cultural worldview embedded within each language shapes how speakers conceptualize similarity and opposition, further influencing the semantic structure of lexical relations. Overall, the findings underscore that the semantic and structural features of synonyms and antonyms in English and Uzbek cannot be understood in isolation but must be examined within the broader linguistic, cultural, and cognitive contexts. This research contributes to the field of contrastive linguistics by offering a detailed analysis of how two typologically different languages organize meaning through similarity and opposition. The results are relevant for translation studies, bilingual lexicography, language teaching, and cross-cultural communication, providing a deeper understanding of how lexical semantics reflects the identity and worldview of each language community.

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## CRIMINOLOGICAL CHARACTERISTICS OF ENVIRONMENTAL CRIME AND MEASURES FOR ITS PREVENTION

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### Аннотация

В данной статье анализируются криминологическая сущность, структура и детерминанты экологической преступности – быстрорастущего явления, угрожающего экологической стабильности, здоровью населения, природным ресурсам и глобальному устойчивому развитию. В исследовании рассматриваются различные формы экологической преступности, включая незаконную вырубку леса, торговлю дикими животными, правонарушения, связанные с загрязнением окружающей среды, незаконный сброс отходов, загрязнение воды и нарушения стандартов экологической безопасности. Используя междисциплинарный подход, исследование синтезирует криминологическую теорию, науку об окружающей среде, правовой анализ и международно-политические рамки для оценки социально-экономических и институциональных факторов экологической преступности. Результаты показывают, что экологическая преступность обусловлена слабостью нормативно-правового регулирования, коррупцией, прибыльностью незаконных экологических рынков, халатностью в промышленности и недостаточной осведомленностью общественности. В статье также предлагаются превентивные стратегии, такие как укрепление экологического управления, расширение участия общественности, продвижение перспектив «зеленой» криминологии и расширение международного сотрудничества.

**Ключевые слова:** экологическая преступность, экологическая преступность, «зеленая» криминология, незаконная эксплуатация ресурсов, охрана окружающей среды, профилактика, экологическая безопасность, устойчивое развитие.

### Abstract

This article analyses the criminological essence, structure, and determinants of environmental crime, a rapidly growing phenomenon that threatens ecological stability, public health, natural resources, and global sustainable development. The study examines different forms of environmental crime, including illegal logging, wildlife trafficking, pollution offences, unlawful waste disposal, water contamination, and violations of environmental safety standards. Using an interdisciplinary approach, the research

synthesizes criminological theory, environmental science, legal analysis, and international policy frameworks to evaluate the socio-economic and institutional drivers of eco-crime. The findings demonstrate that environmental crime is shaped by weak regulatory enforcement, corruption, profitability of illicit ecological markets, industrial negligence, and insufficient public awareness. The article also proposes preventive strategies such as strengthening environmental governance, enhancing public participation, promoting green criminology perspectives, and expanding international cooperation.

**Keywords:** environmental crime, eco-crime, green criminology, illegal resource exploitation, environmental protection, prevention, ecological security, sustainability.

## INTRODUCTION

Environmental crime has emerged as one of the most complex and rapidly expanding areas of modern criminality. Unlike traditional crimes that directly target individuals or property, environmental crime inflicts harm on ecosystems, biodiversity, natural resources, and long-term human health. Its consequences are often cumulative, transboundary, and irreversible. In recent decades, the global community has recognized environmental crime as a significant threat to sustainable development, prompting scholars and policymakers to expand the discipline of green criminology, which studies ecological harm through criminological lenses.

Environmental crime includes a wide range of illegal acts: unlawful deforestation, poaching and wildlife trafficking, pollution of air and water, illegal mining, hazardous waste dumping, falsification of ecological certificates, and violations of environmental safety norms in industry and agriculture. These crimes are committed by individuals, corporations, and organized criminal networks seeking high financial profit from exploiting natural resources. At the same time, environmental crime is distinguished by its latent nature: many offences remain undetected or unreported due to remoteness of crime scenes, technical complexity of environmental monitoring, economic interests of powerful actors, and corruption.

Criminological interest in environmental crime has grown as scholars observe its connection with global economic systems, resource scarcity, climate change, and socio-political instability. Eco-crime often flourishes in contexts where regulatory systems are weak, law enforcement lacks expertise, and environmental policy is underfunded. Developing countries, in particular, face the dual challenge of economic pressures and insufficient environmental governance, making them vulnerable to illegal logging, poaching, and toxic waste dumping by international networks.

Although environmental crime may appear non-violent, its long-term impacts include destruction of ecosystems, endangerment of species, health disorders, food

insecurity, and water scarcity—harms that exceed many conventional crimes. Therefore, studying environmental crime from a criminological perspective requires rethinking the traditional boundaries of social harm, integrating ecological concerns into criminal justice discourse, and acknowledging the moral responsibility of states and societies to protect nature for future generations.

The aim of this article is to examine the criminological characteristics of environmental crime, identify its main causes, and propose effective preventive strategies based on international best practices and scientific evidence.

## LITERATURE REVIEW AND METHODOLOGY

Environmental crime gained academic attention in the late twentieth century with the emergence of green criminology, pioneered by scholars such as Lynch, Stretesky, and South. This field expanded criminology's scope to include ecological harm, environmental justice, and the rights of nature. Traditional criminological theories—rational choice theory, strain theory, social disorganization—were adapted to environmental contexts, demonstrating how economic motives, weak regulation, and social inequality contribute to eco-crime.

Economic criminology emphasizes the profitability of environmental crime. According to UNODC, illegal logging, wildlife trade, and waste trafficking constitute multi-billion-dollar industries, often controlled by transnational criminal groups. Rational choice theorists argue that offenders weigh the high profits of ecological exploitation against the low probability of detection or punishment, making environmental crime attractive.

Sociological literature highlights the role of structural inequality. Poor communities dependent on natural resources become both victims and participants in environmental offences. Indigenous groups often suffer the consequences of pollution, deforestation, and resource depletion caused by corporations or corrupt officials. Environmental injustice theory argues that marginalized communities disproportionately bear ecological harms.

Legal research focuses on the enforcement gap. Scholars note that environmental legislation is often robust on paper but weak in implementation. Inspection agencies lack funds, expertise, or independence; courts lack technical knowledge; and environmental offences rarely result in severe sanctions.

Green criminology introduces the concept of “ecological harm,” emphasizing that many actions damaging the environment may not be formally criminalized but still pose serious threats. This approach argues for expanding the definition of crime to include corporate environmental negligence and state-enabled ecological degradation.

Recent literature stresses the link between environmental crime and organized crime. Interpol and Europol reports highlight cooperation between illegal miners, wildlife traffickers, corrupt officials, and money-laundering networks. Environmental crime now ranks among the world's most profitable illicit markets, after drugs, weapons, and human trafficking.

Taken together, the literature demonstrates that environmental crime is multidimensional, globalized, economically driven, and institutionally underestimated. Its prevention requires interdisciplinary strategies and effective governance.

This study adopts a qualitative analytical methodology grounded in criminological theory, environmental studies, and international legal frameworks. The approach focuses on conceptual clarity, interdisciplinary synthesis, and comparative evaluation rather than empirical quantification.

The methodology includes four stages:

1. **Conceptual and Theoretical Systematization.** Identifying the core criminological elements of environmental crime through analysis of green criminology literature, classical criminological theories, and environmental science.

2. **Causal Analysis.** Examining socio-economic, institutional, psychological, and ecological factors driving eco-crime, including corruption, market demand, regulatory weakness, and scarcity of natural resources.

3. **Comparative Review of International Practices.** Studying preventive models used in the European Union, North America, and Asia, including regulatory frameworks, environmental policing units, digital monitoring, and community-based interventions.

4. **Interpretive Integration.** Synthesizing theory and practice into a unified criminological understanding of environmental crime, generating policy-relevant insights.

Primary sources include UN reports, Interpol analyses, scholarly articles, environmental codes, and global conventions such as CITES, Basel Convention, and Paris Agreement.

This interdisciplinary approach reflects the complex nature of environmental crime, which cannot be understood solely through traditional criminal law.

## RESULTS

The research produced several key findings regarding the criminological characteristics of environmental crime:

1. **High Profitability and Low Detection Risk.** Environmental crime is driven by economic incentives. Illegal logging, wildlife trafficking, and toxic waste dumping yield

high returns while detection rates remain low. Weak enforcement creates favourable conditions for offenders.

**2. Transnational and Organized Nature.** Environmental crimes often involve cross-border networks coordinating extraction, transportation, and distribution of illegal natural resources. These networks rely on corruption, forged documents, and money-laundering systems.

**3. Corporate and State Involvement.** Unlike traditional crimes, environmental offences frequently involve corporations, officials, and institutional actors whose decisions cause large-scale ecological harm. Regulatory capture—where industries influence policymakers—facilitates environmental degradation.

**4. Latency and Hidden Harm.** Environmental crimes often remain invisible due to remote locations, scientific complexity, and delayed effects. Many harms become evident only after years, complicating criminal investigation and proving causation.

**5. Victim Diffusion.** Environmental crime affects communities, ecosystems, and future generations collectively rather than individual victims. This diffused victimization weakens political urgency and public pressure.

**6. Ecological Irreversibility.** Certain environmental harms, such as species extinction or soil contamination, cannot be reversed, making prevention more critical than punishment.

These findings illustrate that environmental crime is structurally distinct from traditional offences and requires specialized criminological responses.

## DISCUSSION

The discussion addresses theoretical and practical implications of the findings. Environmental crime challenges traditional criminological concepts because it often lacks direct interpersonal violence, immediate victims, or clear offender–victim relationships. Yet its long-term harms exceed many violent crimes. Therefore, criminology must broaden its analytical frameworks to incorporate ecological harm and intergenerational justice.

Prevention of environmental crime requires systemic, multi-level strategies. Strengthening legal frameworks is essential but insufficient without effective implementation. Enforcement agencies need proper funding, technical equipment, and training in environmental forensics. Establishing specialized environmental police and prosecution units has proven effective in several countries.

Combating corruption is a cornerstone of prevention. Many eco-crimes succeed due to bribery of inspectors, police officers, customs officials, and local administrators. Anti-corruption measures, transparent permitting processes, and digital monitoring can reduce opportunities for illegal exploitation.

At the community level, increasing environmental awareness and involving local populations in monitoring forests, water bodies, and wildlife habitats enhance informal control. Indigenous communities often possess valuable ecological knowledge and can act as protectors of natural resources.

International cooperation is vital due to the transboundary nature of eco-crime. Sharing intelligence, harmonizing sanctions, strengthening border control, and implementing global conventions contribute to effective suppression of illegal ecological markets.

Ultimately, preventing environmental crime requires integrating criminology with environmental ethics, sustainability policy, and social justice. Violence against nature must be recognized as violence against humanity.

## CONCLUSION

The study concludes that environmental crime is a multidimensional and growing threat that demands urgent criminological and political attention. Its causes lie in economic incentives, regulatory weaknesses, corruption, global market demand, and inadequate public awareness. Environmental crime differs from traditional offences due to its transnationality, hidden nature, corporate involvement, and long-term ecological consequences.

Effective prevention requires comprehensive strategies: strengthening environmental governance, improving legal enforcement, combating corruption, promoting public environmental literacy, empowering local communities, and deepening international cooperation.

Understanding environmental crime through a criminological lens allows policymakers to develop more just, sustainable, and scientifically informed approaches to ecological protection. Safeguarding the environment is not only a legal responsibility but a moral imperative for ensuring global security and preserving life on Earth.

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## ANNOTATSIYA

Meningokokk kasalligi — *Neisseria meningitidis* tomonidan chaqiriladigan og‘ir bakterial infeksiya bo‘lib, menenjit va sepsisga olib kelishi mumkin. Meningokokk infeksiyasini erta aniqlash kasallikning og‘ir asoratlarini oldini olishda muhim ahamiyatga ega. Diagnostika usullari orasida klinik ko‘rik, umumiy qon tahlili, orqa miya suyuqligini (likvor) tekshirish, mikroskopiya, bakteriologik ekish (kultura), lateks-aglutinatsiya testi, PCR va serologik testlar mavjud. Zamonaviy molekulyar metodlar xususan, polimeraz zanjir reaksiyasi (PCR) meningokokkni tez va aniq aniqlash imkonini beradi. To‘g‘ri diagnostika kasallikni o‘z vaqtida davolash va epidemiologik nazoratni ta‘minlashga yordam beradi.

**Kalit so‘zlar:** meningokokk, diagnostika, menenjit, likvor, bakteriologiya, PCR, mikroskopiya, sepsis, *Neisseria meningitidis*

## АННОТАЦИЯ

Менингококковая инфекция — это тяжёлое бактериальное заболевание, вызываемое *Neisseria meningitidis*, которое может приводить к менингиту и сепсису. Ранняя диагностика играет ключевую роль в предотвращении осложнений. Основные методы диагностики включают клинический осмотр, общий анализ крови, исследование спинномозговой жидкости, микроскопию, бактериологический посев, латекс-агглютинационный тест, ПЦР и серологические исследования. Современные молекулярные методы, особенно полимеразная цепная реакция (ПЦР), позволяют быстро и точно выявить возбудителя. Корректная диагностика обеспечивает своевременное лечение и эффективный эпидемиологический контроль.

**Ключевые слова:** менингококк, диагностика, менингит, ликвор, бактериология, ПЦР, микроскопия, сепсис, *Neisseria meningitidis*

## ANNOTATION

Meningococcal disease is a severe bacterial infection caused by *Neisseria meningitidis*, capable of leading to meningitis and sepsis. Early diagnosis is essential to prevent life-threatening complications. Diagnostic methods include clinical examination, complete blood count, cerebrospinal fluid (CSF) analysis, microscopy, bacterial culture, latex agglutination test, PCR, and serological testing. Modern molecular techniques, especially polymerase chain reaction (PCR), allow rapid and accurate identification of the pathogen. Proper diagnostic evaluation ensures timely treatment and effective epidemiological control.

**Keywords:** meningococcus, diagnosis, meningitis, CSF, bacteriology, PCR, microscopy, sepsis, *Neisseria meningitidis*. Quyida “**Meningokokk kasalligining diagnostika tekshiruv usullari**” mavzusiga **kirish qismi** tayyorlandi:

## KIRISH

Meningokokk kasalligi — odam uchun eng xavfli va tez kechuvchi infeksiyon kasalliklardan biri bo‘lib, *Neisseria meningitidis* bakteriyasi tomonidan chaqiriladi. Ushbu infeksiya asosan menenjit, meningoenfalit va og‘ir sepsis (meningokokkemiya) kabi hayot uchun xavfli holatlar bilan kechadi. Kasallikning keskin boshlanishi, bir necha soat ichida og‘ir asoratlarni rivojlanishi va yuqori o‘lim darajasi sababli uning erta aniqlanishi alohida ahamiyatga ega.

Meningokokk infeksiyasining klinik belgilari ko‘pincha nonspecific — bosh og‘rig‘i, isitma, qusish, umumiy holsizlik kabi holatlar bilan boshlangani uchun laborator diagnostika kasallikni tasdiqlashning asosiy vositasi hisoblanadi. Shuning uchun zamonaviy tibbiyotda tezkor, aniq va ishonchli diagnostika metodlari — mikroskopiya, bakteriologik ekish, serologik tahlillar va molekulyar usullar (PCR) keng qo‘llaniladi. Ayniqsa, erta tashxis qo‘yish epidemiologik nazorat, bemorga o‘z vaqtida shoshilinch yordam ko‘rsatish va og‘ir oqibatlarini kamaytirishda muhim rol o‘ynaydi.

Shu bois meningokokk kasalligini aniqlash bo‘yicha diagnostika tekshiruv usullarini o‘rganish kasallik profilaktikasi, davolash samaradorligini oshirish va aholining sog‘lig‘ini muhofaza qilishda katta ilmiy va amaliy ahamiyatga ega.

### **Enzimatik faoliyati (Fermentativ faoliyati)**

***Neisseria meningitidis*** bir qator fermentlarga ega bo‘lib, ular bakteriyaning yashashi, ko‘payishi va patogenligini ta‘minlaydi:

## Asosiy enzimlari va funksiyalari:

- **Oksidaza pozitif**
  - Tsitoxrom oksidaza fermenti mavjud, bu uning asosiy diagnostik belgisidir.
- **Katalaza pozitif**
  - Katalaza fermenti vodorod periksidni parchalaydi, bakteriyani oksidativ zarardan himoya qiladi.
- **Proteazalar (IgA-proteaza)**
  - Burun-halqum shilliq qavatidagi **IgA antitanalarini parchalaydi**, bu bakteriyaga mahalliy immunitetdan qochishga yordam beradi.
- **Laktaza, maltaza, glyukoza parchalaydi**
  - Shakarlarni oksidlaydi, energiya manbai sifatida foydalanadi.
- **Endotoksin (LPS)**
  - Kuchli toksik ta'sir ko'rsatadi, sepsis va shok rivojlanishida asosiy rol o'ynaydi.

## Struktural vazifalari

Meningokokkning tuzilishi uning patogenlik xususiyatlarini belgilaydi.

## Asosiy struktural komponentlari:

### Kapsula

- Polisaxtaridli strukturaga ega.
- Bakteriyani fagotsitozdan himoya qiladi.
- Serogrupplarni (A, B, C, W135, Y) belgilaydi.
- Eng muhim virulentlik omili.

### Tashqi membrana (LPS – endotoksin)

- Kuchli yallig'lanish reaksiyasini chaqiradi.
- Sepsis, disseminatsiyalangan intravaskulyar koagulyatsiya (DIK)ga sabab bo'ladi.

### Pililar (fimbriyalar)

- Epiteliya hujayralariga yopishishni ta'minlaydi.
- Kolonizatsiya uchun juda muhim.

## **IgA-proteaza**

- Sekretor immunoglobulin A ni parchalaydi.
- Burun-halqum shilliq qavati orqali kirib borishni osonlashtiradi.

## **Porinlar**

- Hujayra devoridagi oqsillar bo‘lib, antigen xususiyatiga ega.
- Ba’zi turlari immunitetdan yashirishga yordam beradi.

## **Immun tizimdagi o‘rni va ta’siri**

### **Immun tizimning javobi:**

- Organizmga kirganda, meningokokk **tug‘ma immunitetni** faollashtiradi:
  - Neutrofillar
  - Makrofaglar
  - Komplement tizimi
- **Komplement tizimida tug‘ma nuqsoni bo‘lgan** bemorlar (C5–C9) meningokokkga juda sezgir.

### **Immun tizimdan qochish mexanizmlari:**

- **Kapsula fagotsitozga qarshi turadi.**
- **IgA-proteaza shilliq qavat immunitetini zaiflashtiradi.**
- Antigenlar tez o‘zgaradi (variation), antitanalarning samaradorligini kamaytiradi.

### **Endotoksin (LPS)ning immunologik ta’siri:**

- Kuchli yallig‘lanish sitokinlari ajraladi (IL-1, TNF-alfa).
- Qon tomirlarning kengayishi, qon bosimining tushishi.
- Septik shok va koagulatsiya buzilishi.

### **Meningit paytida immun javob:**

- Likvorda leykotsitlar ko‘payadi.
- Suyuq miya pardalarida yallig‘lanish kuchayadi.
- Oqibatda bosh miya shishishi rivojlanadi.

## Transporti:

Meningokokk infeksiyasi organizmga kirgach, bir necha bosqichda “transport” jarayonlaridan o‘tadi:

### Nazofaringeal epiteliyda transport

- Bakteriya **pililar yordamida** shilliq qavatga yopishadi.
- IgA-proteaza fermenti orqali shilliq membranani yorib o‘tadi.

### Qonga o‘tish (gematogen transport)

- Kapsulasi tufayli fagotsitozdan qochib, qonga o‘tadi.
- Qon orqali butun tana bo‘ylab tarqaladi → **meningokokkemiya (sepsis)**.

### Miya pardalariga transport

- Qon-miya to‘sig‘idan o‘tib, orqa miya suyuqligiga (likvor) kiradi.
- Natijada **meningit** rivojlanadi.

### Endotoksin transporti

- LPS qonga tarqalib, butun tanada yallig‘lanish reaksiyasini kuchaytiradi.
- Tomirlarning kengayishi → shok, DİK.

### Yetishmovchiligi

Meningokokkda **yetishmovchilik** organizmda emas, balki odamda ba’zi tizimlarning yetishmovchiligi infeksiyani og‘irlashtiradi:

### Organizmning yetishmovchiligi sabab bo‘ladigan holatlar:

#### Komplement tizimi yetishmovchiligi (C5–C9)

- Meningokokk infeksiyasiga juda yuqori sezuvchanlik.

#### Immunoglobulin A yetishmovchiligi

- Burun-halqum himoyasi pasayadi.

#### Oqsil, vitamin, minerallar yetishmovchiligi

- Organizmning immun javobi susayadi.

**Gipovolemiya, elektrolitlar yetishmovchiligi** sepsisda tez rivojlanadi.

## Ortiqchaligi

Meningokokk infeksiyasida “ortiqchalik” tushunchasi asosan **ortiqcha immun javob yoki toksinning ko‘payishi** bilan bog‘liq:

## Ortiqcha jarayonlar:

- **Endotoksin (LPS)ning ortiqcha chiqarilishi** → shok, DİK.
- **Sitokinlarning ortiqcha ajralishi** (IL-1, TNF- $\alpha$ ) → yallig‘lanish bo‘roni.
- **Yallig‘lanish hujayralari ortiqcha to‘planishi** → miya shishi.

## Parenteral oziqlantirish

O‘ta og‘ir meningokokk sepsis yoki meningitda bemor:

- yuta olmaydi,
- hushsiz,
- qusish,
- og‘izdan ovqatlanish xavfli bo‘ladi.

Shunda **parenteral oziqlantirish** qo‘llaniladi:

## Ma‘nosi:

Oziqa moddalarini tomir orqali yuborish (aminokislotalar, glyukoza, lipid emulsiyalari).

## Qachon kerak?

- Og‘ir sepsis
- Miya shishi bilan kechadigan meningit
- Yutish refleksi buzilganda
- Surunkali kasalliklar fonida holsizlangan bemorlarda

## Foydasi:

- Gomeostazni saqlaydi
- Immun tizimni qo‘llab-quvvatlaydi
- Kasallikdan so‘ng tiklanishni tezlashtiradi

## Surunkali kasalliklarda

Quyidagi surunkali kasalliklar meningokokk infeksiyasini og'irlashtiradi:

## Surunkali kasalliklar ta'siri:

- **Surunkali bronxit, astma** – nafas yo'llari himoyasi pasayadi.
- **Qandli diabet** – immun tizimi past, infeksiya og'ir kechadi.
- **Oziqlanish yetishmovchiligi** – antitanalar kam hosil bo'ladi.
- **Asosiy belgilar (Klinik alomatlar)**
- **Meningokokk infeksiyasi juda tez rivojlanadi va alomatlari bir necha soat ichida paydo bo'lishi mumkin.**
- **Umumiy belgilari:**
- **To'satdan ko'tariladigan yuqori isitma (39–40°C)**
- **Qattiq bosh og'rig'i**
- **Qusish va ko'ngil aynish**
- **Holsizlik, hushyorlik pasayishi**
- **Bo'g'im va mushak og'rig'i**
- **Meningit belgilari:**
- **Boshni orqaga tashlab turish**
- **Bo'yin qattiqligi (tortikollis)**
- **Yorug'likdan qo'rqish (fotofobiya)**
- **Tushuncha buzilishi, talvasalar**
- **\*Sepsis (meningokokkemiya) belgilari:**
- **Tana bo'ylab gemorragik toshmalar – bosilganda yo'qolmaydi (eng xavfli belgi)**
- **Qon bosimining tushishi**
- **Sovuq ter, ko'karishlar**
- **Nafas buzilishi**
- **Shok**
- **Bolalarda alohida belgilar:**

- Qattiq yig'lash, ovqat yemay qolish
- Bosh fontaneli qattiqlashishi yoki shishishi
- Tirishishlar
- Kasallik shakllari (Klinik ko'rinishlari)
- Meningokokk infeksiyasi bir necha ko'rinishda kechadi:
- Meningokokk nazofaringiti
- Yengil shakl
- Burun bitishi, tumov
- Tomoq qichishi, yengil isitma
- Meningit
- Miya pardalarining yallig'lanishi
- Og'ir, lekin vaqtida davolansa tuzaladi
- Meningokokkemiya (sepsis)
- Qonda bakteriya ko'payishi
- Tez o'lim xavfi
- Gemorragik toshmalar
- Meningoencefalit
- Miya to'qimasining yallig'lanishi
- Ong buzilishi, talvasalar kuchli
- Aralash shakl – meningit + sepsis
- Eng xavfli ko'rinishi
- Tez shok va koma

## Davolash

- Meningokokk infeksiyasi shoshilinch davolashni talab qiladi, chunki bir necha soat ichida og'ir oqibatga olib kelishi mumkin.
- Antibiotiklar

- 3-avlod sefalosporinlar (seftriakson, sefotaksim) — asosiy dori
- Penitsillin G yoki ampisillin (sezgir bo'lsa)
- Og'ir sepsisda — karbapenemlar
- Shok va toksik ta'sirga qarshi terapiya
- Tomir orqali suyuqliklar
- Vazopressorlar (noradrenalin)
- Kislorod terapiyasi
- Miya shishini kamaytirish
- Mannitol
- GKS (deksametazon) — meningitda qo'llaniladi
- Simptomatik davolash
- Isitmani tushiruvchilar
- Og'riq qoldiruvchilar
- Qon ivishini normallashtirish (DIKda)
- Parenteral oziqlantirish
- Og'ir holatlarda tomir orqali oziqa beriladi.
- Kontaktlarni profilaktikasi
- Bemor bilan aloqada bo'lganlarga:
- Rifampitsin
- Siprofloksasin
- Seftriakson (yoki sefotaksim)

## Oqibatlari

- Davolash kechiktirilsa, meningokokk infeksiyasi og'ir asoratlarni qoldiradi.
- Miya bilan bog'liq oqibatlar:
- Eshitish qobiliyatining pasayishi yoki karlik
- Epilepsiya

- Miyada chandiqlar — intellektual sustlik
- Ko‘rish qobiliyati pasayishi
- Miya shishi natijasida falajlar
- Sepsis oqibatlari:
- DİK (qon ivishining buzilishi)
- To‘qima nekrozi → oyoq-qo‘l amputatsiyasi zarur bo‘lishi mumkin
- Septik shok
- Buyrak yetishmovchiligi
- Yurak yetishmovchiligi

## O‘lim xavfi

- Davolash kech boshlangan hollarda o‘lim 50–70 %gacha yetishi mumkin.

## Bolalarda asoratlar:

- Aqliy sustlik
- Rivojlanishdan orqada qolish
- Nevrologik muammolar
- Otoimmün kasalliklar – umumiy immunitet pasayadi.
- Yurak yetishmovchiligi – sepsis og‘ir oqibatlarga olib keladi.
- Böyrak yetishmovchiligi – toksinlar sekin chiqariladi.

## Immun tizimini mustahkamlash

Meningokokk infeksiyasiga qarshi eng muhim himoya – **kuchli immunitet**.

## Mustahkamlash yo‘llari:

### Vaksinatsiya

Eng samarali usul. Serogrupplarga qarshi vaksinalar mavjud (A, C, W135, Y, B).

### Oqsilli ovqatlanish

Immunoglobulin va komplement tizimi sintezi uchun zarur.

### Vitamin va minerallar

- **Vitamin C, D, A** – immun javobni kuchaytiradi.
- **Rux, temir, selen** – antitanalar ishlab chiqarilishida muhim.

## Gigiyena

Tomchilab yuqadigan infeksiya bo'lgani uchun hal qiluvchi ahamiyatga ega.

## Stressni kamaytirish

Stress immunitetni 40%gacha pasaytiradi.

## Surunkali kasalliklarni nazorat qilish

Ularning yomonlashuvi immunitetni pasaytiradi.

## XULOSA

Meningokokk kasalligi — tez rivojlanuvchi, og'ir kechadigan va hayot uchun katta xavf tug'diruvchi infeksiyon kasallik bo'lib, uning asosiy xavfi qisqa vaqt ichida meningit yoki sepsisga olib kelishidir. Kasallikning dastlabki belgilari ko'pincha nonspecific bo'lgani sababli erta tashxis qo'yish uchun laborator va instrumental tekshiruvlar hal qiluvchi ahamiyatga ega. Mikroskopiya, bakteriologik ekish, PCR, serologik testlar va likvor tahlili kasallikni aniqlashda eng ishonchli usullar hisoblanadi.

Vaqtida qo'yilgan diagnostika bemorga to'g'ri va samarali davolashni boshlashga imkon beradi. Antibiotikoterapiya, infuzion yordam, intoksikatsiyaga qarshi chora-tadbirlar hamda og'ir holatlarda reanimatsion qo'llab-quvvatlash bemor hayotini saqlab qolishda muhimdir. Kech tashxis yoki davolashning kechikishi o'limga, miya shishi, eshitish buzilishi, nevrologik nuqsonlar va amputatsiyalar kabi jiddiy oqibatlarga olib kelishi mumkin.

Profilaktik choralar, xususan, vaksinalar bilan emlash, gigiyena qoidalariga rioya qilish va kasallik aniqlangan holatlarda kontakt shaxslarni o'z vaqtida himoya qilish infeksiyaning tarqalishini oldini olishda eng samarali yo'ldir. Meningokokk kasalligini chuqur o'rganish, diagnostika usullarini takomillashtirish va aholining ogohligini oshirish bu kasallikdan kelib chiqadigan xavfni sezilarli darajada kamaytirishga yordam beradi.

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## INVESTIGATION EXPERIMENT, IDENTIFICATION DISPLAY, EAVESDROPPING TACTICS FOR ADJUSTMENTS MADE VIA TELEPHONE AND OTHER DEVICES

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### Аннотация

В данной статье рассматриваются тактические основы трёх сложных следственных процедур: следственного эксперимента, предъявления для опознания и контроля аудиозаписей, передаваемых по телефонам и другим средствам связи. Хотя эти действия относятся к разным процессуальным категориям, они методологически пересекаются, выступая инструментами проверки фактических предположений, выяснения поведения и получения доказательств в формах, недоступных для обычного допроса. В статье анализируются когнитивные, оперативные и правовые принципы, лежащие в основе этих процедур, и утверждается, что их доказательственная ценность зависит от научной подготовки, строгой процессуальной точности и методологической последовательности. С помощью сравнительного доктринального анализа, интерпретации на основе конкретных случаев и поведенческого моделирования в исследовании реконструируется практическое применение следователями этих тактик для разрешения неопределённостей, проверки гипотез и выявления обмана. Результаты исследования подчёркивают важность междисциплинарного подхода, сочетающего психологию, коммуникационную науку, криминалистические эксперименты и цифровое наблюдение, для обеспечения достоверности этих следственных действий.

**Ключевые слова:** следственный эксперимент, процедура опознания, тактика опознания, аудионаблюдение, перехват переговоров, криминалистическая методика, проверка доказательств, расследование преступлений, принятие тактических решений, поведенческий анализ.

### Abstract

This article examines the tactical foundations of three complex investigative procedures: the investigative experiment, identification parade and presentation for recognition, and the monitoring of audio communication transmitted through telephones and other communication devices. Although these actions belong to different procedural

categories, they intersect methodologically as instruments for verifying factual assumptions, clarifying behaviors, and obtaining evidence in forms inaccessible through ordinary questioning. The article analyzes the cognitive, operational, and legal principles underlying these procedures and argues that their evidentiary value depends on scientific preparation, strict procedural fidelity, and methodological coherence. Through comparative doctrinal analysis, case-based interpretation, and behavioral modeling, the study reconstructs how investigators practically employ these tactics to resolve uncertainties, test hypotheses, and detect deception. The findings highlight the importance of interdisciplinary thinking—combining psychology, communication science, forensic experimentation, and digital surveillance—in ensuring the validity of these investigative actions.

**Keywords:** investigative experiment, identification procedure, recognition tactics, audio surveillance, communication interception, forensic methodology, evidentiary verification, criminal investigation, tactical decision-making, behavioral analysis.

## INTRODUCTION

Modern criminal investigations increasingly rely on sophisticated procedural mechanisms that extend beyond traditional interrogation and crime scene examination. Among these mechanisms, the investigative experiment, identification for recognition, and the surveillance of telecommunications represent some of the most tactically sensitive yet methodologically indispensable forms of evidentiary inquiry. Their emergence in contemporary investigative practice reflects the growing need for reliable, objective, and scientifically grounded methods to resolve factual ambiguities that cannot be clarified by verbal testimony alone. These procedures address different facets of investigative reasoning: the investigative experiment tests the feasibility of hypothesized events; identification for recognition uses human perceptual memory to confirm or refute personal involvement; and audio monitoring accesses concealed communicative behavior that frequently serves as a gateway to conspiratorial activity.

The investigative experiment, from a methodological standpoint, operates as a test of physical and behavioral hypotheses. It allows the investigator to reconstruct conditions under which an event allegedly occurred, assessing whether a witness could truly have observed something from a given position, whether a suspect could have performed a particular action within a stated timeframe, or whether environmental conditions support or contradict testimonial claims. What distinguishes the investigative experiment from mere demonstration is its evidentiary capacity: it serves as an empirical test of narrative plausibility. The integrity of the experiment requires strict adherence to procedural safeguards, including replicating conditions as faithfully as possible and documenting outcomes in a manner that preserves their forensic value.

The identification procedure—for recognition—addresses a different epistemic need. Human perception is fallible, yet it remains a powerful diagnostic tool when used correctly. The presentation of persons, objects, photographs, or voices seeks to determine whether a witness can reliably associate a sensory impression with a specific individual or item encountered during the criminal event. The tactical challenge lies in minimizing suggestive influence, ensuring that the procedure does not steer the witness toward a desired choice, and preserving the independence of perception. The investigator must balance psychological insight with procedural restraint, guiding the witness without contaminating memory.

Electronic monitoring of conversations introduces an entirely separate dimension. Modern communication devices—telephones, messaging applications, encrypted platforms—constitute central channels through which offenders coordinate actions, instruct associates, or discuss the aftermath of criminal events. Monitoring such communication, when authorized by statutory procedures, provides investigators with real-time insight into behavioral patterns, motives, operational plans, and attempts to destroy evidence. These audio data, however, must be interpreted cautiously. The investigator must understand linguistic nuance, contextual subtext, and patterns of deception embedded in speech.

Together, these three investigative actions form a conceptual triad that strengthens the validity of evidentiary reconstruction. They refine hypotheses, expose contradictions, and provide independent verification of testimonial and material evidence. This article seeks to integrate their tactical foundations into a coherent methodological framework, demonstrating how their correct application enhances investigational integrity and judicial reliability.

## LITERATURE REVIEW AND METHODOLOGY

Scientific literature on investigative experiments identifies them as empirical tools that test the physical possibility or impossibility of alleged events. Classical authors such as Gross and Beneke emphasized that the legitimacy of investigative experiments hinges on methodological neutrality and strict replication of conditions. Later contributions by Belkin and Yablokov extended these classical principles to include cognitive factors, showing that experiments often expose limitations of memory or perception in witnesses whose earlier statements contradict physical reality.

Research on identification procedures has evolved significantly over the past fifty years. Early forensic literature considered recognition mainly as a procedural formality, but psychological research—particularly the work of Loftus, Wells, and Fisher—has transformed the field. These scholars demonstrated that recognition accuracy depends on stress levels, lighting conditions, duration of exposure, and the structure of identification

lineups. Many errors stem from suggestive procedures, reinforcing the necessity of tactical neutrality. European forensic methodology, especially German and Scandinavian schools, emphasizes that identification must be conducted with a scientifically informed understanding of perceptual psychology.

Audio surveillance and monitoring of communication devices gained scholarly attention with technological developments in the late twentieth and early twenty-first centuries. Forensic communication experts such as Hollien, Rose, and Jessen have shown that voice patterns reveal stable markers useful in identifying speakers, emotional states, or deception cues. Criminological research highlights that telecommunication monitoring prevents evidence destruction, exposes hidden conspiratorial frameworks, and provides insight into organized criminal structures. Legal scholars have simultaneously explored the ethical and procedural dimensions, emphasizing proportionality, judicial oversight, and necessity as guiding principles.

Modern literature increasingly addresses the interconnection between these investigative procedures. Some authors argue that investigative experiments often reveal inconsistencies that later support identification procedures or guide electronic surveillance strategies. Conversely, telecommunications monitoring provides contextual clues that inform the hypothesis tested during experiments. Cross-disciplinary studies reveal that recognition procedures are strengthened when combined with environmental verification or experimental reenactments.

Methodological critiques appear throughout the literature. Authors warn that poorly designed experiments risk misleading investigators; suggestive identification corrupts witness perception; and electronic monitoring, if misinterpreted linguistically or contextually, leads to erroneous conclusions. Many scholars therefore call for a unified methodological approach that situates these actions within a coherent evidentiary system.

The study employs an interdisciplinary methodology combining doctrinal legal analysis, forensic modeling, case-based reconstruction, psycholinguistic analysis, and situational risk assessment. The doctrinal component outlines the legal framework governing the authorization, conduct, and admissibility of investigative experiments, identification procedures, and communication monitoring. This ensures that tactical conclusions remain anchored in procedural law, as deviations may undermine evidentiary value regardless of tactical sophistication.

Forensic modeling constitutes a central methodological dimension. For investigative experiments, modeling includes reproducing physical conditions, calculating temporal constraints, and assessing the feasibility of alleged behaviors. This modeling draws on physics, biomechanics, environmental analysis, and observational psychology. For identification procedures, modeling incorporates perceptual variables—

lighting, angles of sight, distance, memory decay patterns—and seeks to quantify their likely influence on recognition accuracy. For communication monitoring, modeling addresses linguistic markers, emotional prosody, semantic context, and patterns of evasion or indirect reference commonly used in criminal communication.

Case-based reconstruction enhances the empirical grounding of the methodology. By examining documented investigations involving reenactments, recognition lineups, and phone surveillance, the study identifies recurrent tactical patterns and common pitfalls. Particular focus is placed on cases where investigative experiments either validated or contradicted witness testimony, or where recognition procedures were invalidated due to suggestive arrangement, or where telecommunications monitoring revealed concealed planning.

Psycholinguistic analysis plays a major role in understanding intercepted communication. Conversations extracted from surveillance operations often contain coded language, incomplete references, or emotional cues. Interpreting these requires an understanding of linguistic pragmatics, discourse structure, conversational implicature, and deception theory.

The methodology also incorporates a probabilistic risk assessment model. Each investigative action carries risks: experiments may reconstrue environments inaccurately; recognition procedures may distort perception; communication monitoring may over-interpret ambiguous linguistic signals. The risk model evaluates these factors in light of reliability, legal admissibility, and tactical necessity.

## RESULTS

The study produced several key findings concerning the tactical application and evidentiary reliability of investigative experiments, identification procedures, and telecommunications monitoring. First, investigative experiments emerged as a powerful tool for discrediting false narratives. Experiments conducted under properly controlled conditions frequently revealed inconsistencies in witness statements about visibility, distance, timing, or physical capability. The results show that reenactments significantly increased the accuracy of investigative conclusions, especially in cases involving spatial disputes, alleged alibis, or questions of sensory perception.

Second, identification procedures performed with procedural rigor demonstrated high evidentiary reliability. Witnesses exposed to non-suggestive recognition formats displayed markedly higher accuracy. The study confirms the tactical value of presenting individuals, photographs, or voices in carefully constructed lineups: neutrality in arrangement sharply reduced the risk of false recognition. It was also found that the sequencing of identification following an investigative experiment often strengthened witness confidence by refreshing contextual memory.

Third, telecommunications monitoring provided investigators with real-time behavioral insight unavailable through any other method. Intercepted calls frequently revealed relationships among suspects, attempts to coordinate narratives, and efforts to conceal evidence. The study showed that psychological patterns in speech—hesitation, lexical choices, indirect requests, coded references—proved critical in interpreting intent. These recordings also informed the design of investigative experiments and identification procedures: for example, calls indicating a suspect’s mobility patterns guided reenactments, while references to accomplices influenced recognition efforts.

The results further demonstrate that integrating these actions in a unified tactical framework significantly enhances investigative coherence. Experiments revealed factual boundaries; identification procedures validated perceptual claims; communication monitoring provided behavioral and motivational context. When used sequentially and strategically, these actions reduced investigative uncertainty and increased evidentiary robustness.

## DISCUSSION

The findings illustrate that these investigative actions—although distinct in procedural form—function collectively as complementary epistemological tools. The investigative experiment tests the physical world; identification procedures test perceptual memory; communication surveillance tests behavioral authenticity. Together, they create a three-dimensional evidentiary matrix that strengthens investigative reasoning and judicial reliability.

One of the central insights concerns the cognitive nature of investigative truth. Experiments reveal that witnesses often recall events inaccurately not because of deception but due to cognitive distortion. Recognition procedures counterbalance these distortions by reactivating perceptual traces. Communication monitoring adds a further layer: offenders often reveal subconscious behavior patterns in speech that betray hidden motives or criminal relationships.

The discussion also highlights the ethical and legal complexities accompanying these actions. Investigative experiments risk becoming demonstrative rather than empirical if conditions are not accurately reproduced; recognition procedures risk suggestion; communication monitoring risks exceeding authorized boundaries. The investigator must therefore balance tactical objectives with procedural legitimacy.

Another theme concerns interdisciplinary skill. Conducting experiments requires spatial reasoning and scientific literacy; recognition procedures require psychological insight; audio surveillance demands linguistic competence. The evolution of crime—especially technologically mediated crime—requires investigators to integrate these competencies into a unified tactical mindset.

Finally, the discussion emphasizes that misapplication of these actions can produce severe investigative errors. Over-interpreting ambiguous speech, conducting biased lineups, or performing poorly constructed experiments may create false narratives. Methodological discipline is therefore essential.

## CONCLUSION

The study concludes that the investigative experiment, identification procedure, and telecommunications monitoring form a cohesive, mutually reinforcing strategic system within modern criminal investigation. Each contributes a unique evidentiary perspective: the experiment reconstructs physical possibility; recognition establishes perceptual authenticity; surveillance captures behavioral truth. Their coordinated application significantly enhances the accuracy, coherence, and judicial reliability of investigative findings.

The conclusion underscores that their value depends on scientific rigor, procedural adherence, and interdisciplinary competence. Experiments must replicate conditions with precision; identification must avoid suggestive influence; communication monitoring must be legally justified and analytically sound. Taken together, these actions enable investigators to transform fragmented traces, conflicting statements, and concealed communication into a coherent evidentiary narrative.

To sustain these benefits, the article recommends strengthening training programs in forensic experimentation, perceptual psychology, and forensic linguistics; increasing cooperation between investigators and technical specialists; and updating procedural guidelines to reflect advances in digital communication and behavioral science. As crime evolves, so must investigative tactics. The triad discussed herein—properly applied—ensures that investigations pursue truth through scientifically grounded and ethically legitimate means.

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## ANNOTATSIYA

Ushbu maqolada fermer xo‘jaliklari misolida tadbirkorlik subyektlarini barqaror iqtisodiy rivojlantirish masalalari ilmiy tahlil qilinadi. Agrar sektor mamlakat iqtisodiyotining strategik bo‘g‘ini sifatida nafaqat oziq-ovqat xavfsizligini ta‘minlaydi, balki hududiy ijtimoiy-iqtisodiy barqarorlikni mustahkamlashda ham muhim rol o‘ynaydi. Tadqiqotda fermer xo‘jaliklarining ishlab chiqarish salohiyatini oshirish, resurslardan samarali foydalanish, innovatsion agrotexnologiyalarni joriy etish, moliyaviy qo‘llab-quvvatlash mexanizmlari, bozor infratuzilmasi, logistika tizimi va eksport imkoniyatlarining kengayishi kabi omillar o‘rganilgan. Shuningdek, suv tanqisligi, yerlarning degradatsiyasi, kreditlashdagi cheklovlar va raqobatbardoshlikni oshirish bilan bog‘liq muammolar ham tahlil qilingan. Maqola fermer xo‘jaliklarining barqaror rivojlanishi uchun zarur strategik yo‘nalishlar va takomillashtirish mexanizmlarini taklif etadi.

## АННОТАЦИЯ

В данной статье представлен научный анализ перспектив устойчивого экономического развития субъектов предпринимательства на примере фермерских хозяйств. Agrarный сектор как стратегическое звено национальной экономики играет важную роль не только в обеспечении продовольственной безопасности, но и в укреплении социально-экономической стабильности регионов. В исследовании рассматриваются факторы, влияющие на устойчивое развитие фермерских хозяйств: эффективное использование ресурсов, внедрение инновационных агротехнологий, совершенствование финансовых механизмов поддержки, развитие рыночной инфраструктуры, логистических систем и экспортного потенциала. Также проанализированы такие проблемы, как дефицит воды, деградация земель, ограничения кредитования и вопросы повышения конкурентоспособности. В статье предложены стратегические направления и механизмы, обеспечивающие устойчивое развитие фермерских хозяйств и повышение их экономической устойчивости.

## ANNOTATION

This article provides a scientific analysis of the prospects for the sustainable economic development of entrepreneurial entities, focusing on the case of farming enterprises. As a strategic component of the national economy, the agricultural sector plays a crucial role not only in ensuring food security but also in strengthening regional socio-economic stability. The study examines key factors influencing the sustainable development of farms, including efficient resource utilization, the adoption of innovative agrotechnologies, improved financial support mechanisms, market infrastructure development, logistics, and the expansion of export capacities. Challenges such as water scarcity, land degradation, limited access to credit, and issues related to competitiveness are also discussed. The article proposes strategic directions and mechanisms aimed at enhancing the sustainable development of farming enterprises and increasing their economic resilience.

**Kalit so‘zlar:** Fermer xo‘jaliklari; barqaror rivojlanish; iqtisodiy samaradorlik; agrotexnologiyalar; resurslardan samarali foydalanish; bozor infratuzilmasi; innovatsion yondashuvlar; qishloq xo‘jaligi siyosati; moliyaviy qo‘llab-quvvatlash; eksport salohiyati.

**Ключевые слова:** Фермерские хозяйства; устойчивое развитие; экономическая эффективность; агротехнологии; эффективное использование ресурсов; рыночная инфраструктура; инновационные подходы; аграрная политика; финансовая поддержка; экспортный потенциал.

**Keywords:** Farming enterprises; sustainable development; economic efficiency; agrotechnologies; efficient resource management; market infrastructure; innovative approaches; agricultural policy; financial support mechanisms; export potential.

Fermer xo‘jaliklari zamonaviy iqtisodiyotda tadbirkorlik subyektlarining eng muhim va barqaror ishlab chiqarish bo‘g‘ini hisoblanadi. Ular qishloq xo‘jaligi mahsulotlarini yetishtirish, qayta ishlash, ichki va tashqi bozorlarga yetkazib berish jarayonida hal qiluvchi rol o‘ynab, mamlakat oziq-ovqat xavfsizligini ta‘minlash va agrar sektorning raqobatbardoshligini oshirishga xizmat qiladi. So‘nggi yillarda iqtisodiy islohotlar jarayonida fermer xo‘jaliklari nafaqat ishlab chiqarish subyekti, balki mahalliy iqtisodiyotni rivojlantiruvchi hududiy iqtisodiy tizimlar sifatida ko‘rilmoqda. Ularning faoliyati qishloq aholisi bandligini ta‘minlash, ijtimoiy infratuzilmani rivojlantirish, resurslardan oqilona foydalanish, ekologik muvozanatni saqlash kabi funksiyalarni o‘z ichiga olgan kompleks tizimni tashkil etadi.

Fermer xo‘jaliklarining barqaror iqtisodiy rivojlanishi birinchi navbatda resurslardan samarali foydalanishga bog‘liq. Yer va suv resurslaridan oqilona foydalanish, agrotexnik talablarning to‘g‘ri bajarilishi, ilm-fan va innovatsiyalarga

asoslangan texnologiyalarning joriy etilishi hosildorlikni barqaror oshirishning asosiy omilidir. Ayniqsa, suv taqchilligi global iqlim o'zgarishlari fonida keskinlashayotgan bir paytda tomchilatib sug'orish, yerlarni lazer tekislagichdan foydalanib tayyorlash, tuproq strukturasi va oziqlanish balansini yaxshilovchi biologik va mineral o'g'itlar qo'llash kabi texnologiyalar fermer xo'jaliklarining iqtisodiy samaradorligini oshiradi.

Moliya resurslariga kirish imkoniyatining kengayishi ham barqaror rivojlanishning asosiy sharti hisoblanadi. Davlat tomonidan ko'rsatilayotgan imtiyozli kreditlar, subsidiyalar, sug'urta tizimlari, leasing asosidagi texnika xaridlari fermer xo'jaliklarining investitsion faolligini oshiradi. Shu bilan birga, xalqaro moliya institutlarining grant dasturlari, qishloq xo'jaligini rivojlantirish bo'yicha klasterlash siyosati, bozor infratuzilmasini rivojlantirishga qaratilgan loyihalar fermer xo'jaliklari uchun qo'shimcha imkoniyatlar yaratmoqda.

Barqaror rivojlanishning muhim jihatlaridan yana biri – raqamli texnologiyalarni amaliyotga joriy etishdir. Agrotexnik jarayonlarning monitoringi uchun dronlardan foydalanish, GPS nazorat tizimlari, agrodiagnostika platformalari, elektron kontraktatsiya, elektron savdo maydonchalari, agroxaritalar, “Smart Farming” texnologiyalari fermer xo'jaliklarida boshqaruvni aniq, shaffof va samarador qiladi. Raqamli texnologiyalar qo'llanilishi nafaqat ishlab chiqarish jarayonlarini optimallashtiradi, balki bozor talabini prognozlash, xarajatlarni boshqarish va mahsulotni sertifikatlashda ham ahamiyatli bo'ladi.

Fermer xo'jaliklarining bozor infratuzilmasi bilan integratsiyalashgan holda faoliyat yuritishi ham muhim omil hisoblanadi. Mahsulotlarni saqlash, qayta ishlash, logistika markazlariga yetkazib berish tizimi, sovutkichli omborxonalar mavjudligi mahsulot sifatining saqlanishiga, isrofning kamayishiga, bozor narxining barqarorligiga bevosita ta'sir ko'rsatadi. Eksport salohiyatining oshishi uchun xalqaro standartlar – ISO, HACCP, GlobalG.A.P., organik sertifikat tizimlari – joriy etilishi fermer xo'jaliklarining raqobatbardoshligini kuchaytiradi.

Biroq fermer xo'jaliklarining barqaror rivojlanishiga to'sqinlik qiluvchi bir qator muammolar mavjud: suv taqchilligi, tuproq degradatsiyasi, sho'rlanish darajasining ortishi, kredit resurslariga kirishdagi qiyinchiliklar, kadrlar salohiyatining yetarli emasligi, logistika xarajatlarining yuqoriligi, eksport jarayonlaridagi byurokratik cheklovlar va bozor narxlarining tebranishi shular jumlasidandir. Ushbu muammolarni hal etish uchun agrar siyosatni modernizatsiya qilish, ilmiy-tadqiqot institutlari faoliyatini kuchaytirish, agroservis xizmatlarini rivojlantirish, innovatsion ekotizimni yaratish dolzarb hisoblanadi.

Umuman olganda, fermer xo'jaliklari mamlakat iqtisodiyotining strategik resursi bo'lib, ularni barqaror rivojlantirish iqtisodiy o'sish, oziq-ovqat xavfsizligi, eksport

salohiyati, ijtimoiy barqarorlik va ekologik muvozanatning muhim omili sifatida qaraladi. Barqaror rivojlanish istiqbollari esa davlat siyosati, bozor infratuzilmasi, ilmiy-texnika taraqqiyoti, resurslardan samarali foydalanish hamda raqamli transformatsiya jarayonlarining uyg'unlashuvi orqali shakllanadi.

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## GENERAL RULES OF FORENSIC METHODOLOGY FOR INVESTIGATING CRIMES. INVESTIGATION OF CRIMES OF MURDER, DEFAMATION AND HUMAN TRAFFICKING

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### Аннотация

В статье рассматриваются общие принципы криминалистической методологии при расследовании преступлений, в частности убийств, изнасилований и торговли людьми. Эти категории относятся к наиболее социально опасным преступлениям и требуют применения следственных стратегий, сочетающих юридическую точность, криминалистику, поведенческую психологию и подходы, ориентированные на жертву. В исследовании излагаются эпистемологические и организационные основы криминалистической методологии, подчёркивая необходимость систематического сбора доказательств, реконструкции ситуации, междисциплинарного сотрудничества и применения научно обоснованных следственных тактик. С помощью доктринального анализа, сравнительной оценки дел и методологического моделирования в исследовании выявляются закономерности в структуре следственных действий и рассматривается, как следственная методология адаптируется к специфическим причинно-следственным, психологическим и криминогенным особенностям каждого вида преступлений. Результаты показывают, что высокое качество расследования зависит от способности сочетать традиционные криминалистические методы с новыми научными инструментами и подходами, учитывающими травматизм, обеспечивая как доказательственную надёжность, так и уважение прав человека.

**Ключевые слова:** методология судебной экспертизы, расследование убийств, расследование изнасилований, расследование торговли людьми, криминалистическая тактика, реконструкция доказательств, психология жертвы, стратегия расследования, судебная экспертиза, процессуальный анализ.

### Abstract

The article examines the general principles of forensic methodology in the investigation of crimes, focusing on homicide, rape, and human trafficking. These categories represent some of the most socially dangerous offenses, requiring investigative

strategies that integrate legal precision, forensic science, behavioral psychology, and victim-centered approaches. The study outlines the epistemological and organizational foundations of criminalistic methodology, emphasizing the need for systematic evidence collection, situational reconstruction, interdisciplinary cooperation, and the application of scientifically grounded investigative tactics. Through doctrinal analysis, comparative case evaluation, and methodological modeling, the research identifies patterns in the structure of investigative actions and highlights how investigative methodology adapts to the specific causal, psychological, and criminogenic characteristics of each crime type. The findings demonstrate that high-quality investigation depends on the ability to combine traditional forensic techniques with emerging scientific tools and trauma-informed approaches, ensuring both evidentiary reliability and respect for human rights.

**Keywords:** forensic methodology, homicide investigation, rape investigation, human trafficking investigation, criminalistic tactics, evidence reconstruction, victim psychology, investigative strategy, forensic science, procedural analysis.

## INTRODUCTION

The investigation of serious crimes such as homicide, rape, and human trafficking presents some of the most complex challenges within the domain of modern forensic methodology. These crimes are characterized by profound social harm, psychological trauma, high levels of concealment, and frequently sophisticated offender behavior. Consequently, investigative methodology must address not only the procedural requirements of criminal justice systems but also the scientific, psychological, and situational dynamics that shape evidentiary formation. The general principles of criminalistic methodology establish a conceptual frame for structuring investigative actions, facilitating evidentiary interpretation, and ensuring that investigative outcomes rest upon scientifically grounded reasoning.

Homicide investigations revolve around reconstructing violent interactions whose material traces must be interpreted within a precise temporal and spatial framework. The investigator must determine cause of death, mechanism of injury, offender behavior, victim resistance, and the environmental context in which violence occurred. These tasks require the combination of traditional trace analysis, forensic pathology, bloodstain pattern interpretation, ballistics, digital forensics, and behavioral assessment. The methodological challenge lies in synthesizing these diverse evidentiary strands into a coherent reconstruction.

Rape investigations impose a different, though equally demanding, methodological burden. The deeply personal nature of sexual violence introduces significant psychological factors affecting both victims and suspects. Trauma affects memory, emotional expression, and the ability to recount events chronologically. The investigator

must therefore employ a trauma-informed approach that avoids re-traumatization while still collecting information essential for evidentiary reconstruction. Biological trace examination, digital communication analysis, medical documentation, and behavioral indicators are central components, but their interpretation must be cognizant of psychological variability.

Human trafficking investigations necessitate perhaps the broadest methodological approach of all three categories. Trafficking networks often involve multiple jurisdictions, sophisticated concealment strategies, false documentation, digital coordination, and economic exploitation. Victims frequently experience prolonged coercion, manipulation, and fear of retaliation, which affects their willingness to cooperate. Investigators must integrate financial forensics, communication surveillance, victim protection protocols, and international cooperation mechanisms, while navigating complex socio-legal dynamics such as migration status, cultural barriers, or criminal coercion.

The methodological principles that apply to all three crime categories include systematic planning, hypothesis-driven investigation, detailed documentation, multi-source verification, cognitive neutrality, and interdisciplinary collaboration. Although these principles may appear abstract, they manifest concretely in investigative processes: determining investigative priorities, sequencing actions, selecting analytical methods, evaluating contradictions, and adapting approaches as new information emerges. This article examines how these general principles operate across the three crime types, and how their tactical application must be adapted to the criminological and psychological characteristics of each offense.

## LITERATURE REVIEW AND METHODOLOGY

Forensic methodology has undergone significant transformation over the past century. Early theorists such as Gross and Locard emphasized observation, classification, and logical deduction as cornerstones of criminal investigation. Their work established the idea that every criminal action leaves material traces, which can be interpreted scientifically. Later literature expanded these foundations, incorporating psychological, sociological, and technological perspectives.

Homicide investigation literature increasingly integrates behavioral science with forensic pathology and trace interpretation. Scholars such as Turvey, Rossmo, and Keppel demonstrate that offender profiling, geographic analysis, and victimology provide essential context for interpreting physical evidence. Research consistently highlights that homicide investigations benefit from early crime scene control, rapid forensic processing, and attention to behavioral indicators such as staging or modus operandi. Contemporary

contributions stress the importance of integrating digital evidence—communications, GPS data, surveillance footage—into homicide reconstruction.

In contrast, literature on sexual violence focuses heavily on psychological and medical dimensions. Psychological research shows that trauma significantly affects memory recall, causing fragmentation, delayed reporting, or inconsistent descriptions. This has led scholars such as Campbell, Herman, and Fisher to advocate trauma-informed interviewing techniques grounded in neurobiological understanding. Forensic medical literature emphasizes proper collection of biological traces, while criminological studies stress the role of power dynamics, coercion, and offender strategies aimed at destroying evidence.

Human trafficking research represents a multidisciplinary field connecting criminology, migration studies, social psychology, and international law. Authors such as Shelley, Kara, and Gallagher highlight that trafficking structures function like illicit business enterprises. Literature emphasizes victim vulnerability, coercion tactics, financial flows, and the role of digital platforms in recruitment and exploitation. Investigative methodology literature stresses the need for coordinated institutional responses, proactive intelligence gathering, and collaboration between law enforcement, NGOs, and international organizations.

Across all fields, scholars highlight structural investigative challenges: inconsistent application of forensic methods, lack of coordination among agencies, insufficient understanding of trauma, over-reliance on confessions, and failure to contextualize evidence. High-quality investigations, according to prevailing literature, require harmonizing legal procedures, scientific analysis, and human-centered approaches.

The present study employs a multilayered methodological framework integrating doctrinal legal analysis, forensic interpretation, behavioral modeling, and comparative case evaluation. The doctrinal component examines statutory requirements that regulate investigative actions in homicide, rape, and trafficking cases. These legal norms define procedural limitations, admissibility conditions, and mandatory investigative steps, ensuring that tactical recommendations respect due process.

Forensic interpretation provides a scientific lens for understanding evidence formation. This includes analyzing bloodstain patterns, injury mechanisms, biological trace persistence, digital signature extraction, and financial transaction patterns. Each of these evidentiary categories requires methodological precision: for example, homicide investigations rely on interpreting dynamic trace patterns, whereas trafficking investigations emphasize longitudinal data patterns such as movement records, financial flows, and communication metadata.

Behavioral modeling draws from psychology, criminology, and victimology. This portion of the methodology examines offender behavior patterns (e.g., staging in homicide, grooming in sexual violence, manipulation in trafficking), victim responses (trauma, fear, dissociation), and contextual influences (environmental stressors, coercive control). Modeling these behaviors allows investigators to anticipate where evidence may be found, how testimony may fluctuate, and how investigative strategies should be adapted.

Comparative case evaluation ensures empirical grounding. The study surveys a cross-section of homicide, sexual violence, and trafficking cases from multiple jurisdictions. This approach identifies recurring methodological patterns, structural errors, and successful investigative strategies. Special attention is given to cases where methodological failures—such as premature reliance on confessions or inadequate trauma-sensitive interviewing—resulted in wrongful convictions or investigative stagnation.

Finally, the methodology employs a triangulation model for evidentiary evaluation. Triangulation involves comparing testimonial evidence, material traces, and digital or documentary data. This model reduces the risk of cognitive bias, reinforces evidentiary certainty, and ensures that conclusions rest on multi-source verification.

## RESULTS

The results reveal that homicide, rape, and human trafficking investigations share foundational methodological similarities but require nuanced tactical adaptations. In homicide investigations, physical evidence proved the most reliable foundation for reconstruction. The study found that early crime scene preservation significantly increased evidentiary reliability, reducing contamination and ensuring accurate interpretation of dynamic traces. Cases with properly documented bloodstain patterns, injury trajectories, and body positioning yielded reconstructions consistent with medical findings and behavioral indicators.

Rape investigations demonstrated a different evidentiary structure. The results show that victim testimony—while often fragmented due to trauma—provided critical contextual detail when obtained through trauma-informed interviewing. Biological traces supported but did not replace narrative reconstruction. Digital data—messages, calls, social media—proved crucial for establishing timelines, consent disputes, or coercive patterns. Investigations that integrated medical examination, psychological sensitivity, and digital evidence achieved significantly higher clarity.

Human trafficking investigations revealed the most complex evidentiary networks. The results underscore the importance of financial analysis, communication monitoring, and victim-centered approaches. Investigations that relied solely on victim statements

were less effective, since victims often feared retaliation or suffered coercive control. When investigators incorporated digital analysis, travel patterns, recruitment methods, and financial transactions, they successfully reconstructed trafficking structures even when victims were initially reluctant.

Across all crime types, the results indicate that the most reliable investigations were those employing triangulated evidence: physical traces, digital data, and testimony analyzed in relation to each other. Investigations that relied excessively on a single evidence type—especially on confessions—showed greater risk of error.

## DISCUSSION

The findings highlight that while homicide, sexual violence, and human trafficking differ in criminological nature, their investigations rely on similar methodological foundations grounded in forensic science, behavioral reasoning, and structured evidentiary verification. One central insight is that investigative methodology must be adaptable. Homicide investigations are driven by physical reality, requiring spatial reasoning and scientific inference. Rape investigations must navigate psychological trauma and social stigma, requiring sensitivity and interdisciplinary analysis. Human trafficking investigations necessitate organizational intelligence, transnational cooperation, and long-term evidence mapping.

Another major theme concerns cognitive bias. The discussion emphasizes that investigators often form early hypotheses influenced by initial impressions or cultural assumptions—such as distrust of victims or stereotyping of suspects. Effective methodology must therefore counteract cognitive bias by embedding mechanisms for continuous hypothesis testing and triangulation of evidence.

The discussion also identifies systemic weaknesses. Fragmented institutional coordination, insufficient forensic resources, and inadequate training in trauma-informed interviewing reduce investigative quality. Human trafficking investigations particularly suffer from insufficient cross-border communication and limited expertise in financial analysis or digital forensics.

At the same time, the discussion underscores the potential of emerging technologies. Advances in DNA analytics, digital forensics, AI-assisted trace analysis, and communication mapping significantly increase the precision of investigations. However, such tools must be integrated ethically and judiciously, avoiding over-interpretation or privacy violations.

Ultimately, the discussion argues that methodological excellence in investigating these crimes requires balancing scientific rigor with humane practice. Victim-centered approaches enhance not only ethical standards but also investigative efficacy, as victims who feel supported provide more reliable accounts.

## CONCLUSION

The study concludes that the general principles of forensic investigation constitute a unified methodological system that underpins effective examination of homicide, rape, and human trafficking. These principles—systematic planning, scientific analysis, behavioral understanding, multi-source verification, and ethical sensitivity—provide the structural foundation upon which investigative actions rest.

Homicide investigations benefit from robust crime scene analysis, integration of forensic pathology, and behavioral assessment. Rape investigations rely on trauma-informed interviewing, meticulous biological evidence handling, and contextual digital analysis. Human trafficking investigations require long-term intelligence gathering, victim protection mechanisms, and interagency coordination. Each crime category thus demands a distinct tactical configuration grounded in the same overarching methodological logic.

To improve investigative outcomes, the article recommends strengthening interdisciplinary training, expanding forensic resources, improving international cooperation for trafficking cases, and implementing widespread trauma-informed practices in sexual violence investigations. It also emphasizes that investigators must remain aware of cognitive biases and adopt evidence-based reasoning throughout all stages of investigation.

In essence, high-quality investigation of these crimes depends not merely on procedural compliance but on the integration of scientific rigor, human-centered understanding, and strategic foresight. The methodological principles outlined herein serve as a foundation for advancing investigative practice in a manner consistent with justice, reliability, and scientific integrity.

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## LINGUISTIC AND CULTURAL SPECIFICITY OF ENGLISH AND UZBEK TOPONYMS

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**Annotation:** This article examines the linguistic and cultural specificity of English and Uzbek toponyms through a comparative perspective. The study highlights the historical, geographical, and sociolinguistic factors that have shaped place-names in both languages, revealing how toponyms reflect national identity, cultural memory, and worldview. Special attention is given to the semantic layers of toponyms, their etymological origins, phonetic and morphological structures, and the symbolic meanings embedded within them. By comparing English and Uzbek naming principles, the research identifies common patterns as well as distinctive cultural features that influence the formation and interpretation of geographic names. The findings contribute to a deeper understanding of cross-cultural linguistics, onomastics, translation studies, and intercultural communication, emphasizing the role of toponyms as carriers of cultural heritage.

**Keywords:** Toponymy, English toponyms, Uzbek toponyms, cultural semantics, linguistic specificity, geographic names, onomastics, etymology, intercultural communication.

### Introduction

Toponyms, or geographical names, represent one of the most ancient layers of human language, serving not only as practical markers of space but also as profound carriers of cultural memory, historical experience, and national identity. As linguistic signs deeply rooted in the collective consciousness of a people, toponyms provide invaluable insights into the worldview, social evolution, and cultural interactions of different communities. In this regard, the study of English and Uzbek toponyms constitutes a significant field of comparative linguistics, offering opportunities to explore how differing historical trajectories, cultural environments, and linguistic systems shape the formation and development of place-names. In the English language, toponyms have emerged from a wide range of linguistic sources, including Celtic, Latin, Anglo-Saxon, Norse, and Norman French influences. Each historical layer has left its imprint on the linguistic landscape of Great Britain, illustrating a long and dynamic history of migration, conquest, and cultural integration. Consequently, English toponyms often contain

complex etymologies and semantic nuances reflecting social structure, natural features, ownership, and mythological or religious beliefs. For example, elements such as *-ton*, *-ham*, *-chester*, or *-ford* encapsulate centuries of linguistic development and historical transformation. Uzbek toponyms, in contrast, are shaped by the cultural richness of Central Asia, with roots in Turkic, Persian, Arabic, and, in certain regions, Russian linguistic traditions. They reflect nomadic and sedentary lifestyles, geographical conditions of oasis civilization, ethnographic patterns, and centuries-old cultural exchanges along the Silk Road. Uzbek place-names often describe natural landscapes, tribal affiliations, historical figures, or social institutions, thereby preserving unique aspects of regional identity and traditional worldview. Elements such as *qishloq*, *tepa*, *qo'rg'on*, *obod*, or *soy* demonstrate the deep interconnection between linguistic expression, environment, and cultural heritage.

Comparing English and Uzbek toponyms thus enables researchers to identify how different civilizations conceptualize space and encode their cultural experiences through naming practices. Such a comparative approach reveals both universal principles of toponymic formation—such as the tendency to reflect natural features or human activities—and culturally specific tendencies shaped by geography, religion, social organization, and historical memory. Moreover, the study of toponyms contributes to the fields of anthropological linguistics, translation studies, and intercultural communication by showing how geographical names serve as semiotic bridges between language and cultural identity. In an era of globalization, the importance of toponymic research grows as geographical names increasingly appear in international discourse, cartography, tourism, diplomacy, and digital environments. Understanding the linguistic and cultural dimensions of English and Uzbek toponyms not only enriches scholarly knowledge but also promotes intercultural understanding, accurate translation practices, and preservation of intangible cultural heritage. Therefore, this study seeks to explore the linguistic structure, semantic characteristics, and cultural symbolism of English and Uzbek toponyms, highlighting the shared human impulse to name space and the unique ways in which each culture inscribes meaning onto its geographical landscape.

## Materials and methods

The research is based on a qualitative and comparative linguistic methodology aimed at identifying the structural, semantic, and cultural characteristics of English and Uzbek toponyms. The material for the study includes a corpus of widely used place-names selected from authoritative cartographic sources, historical records, etymological dictionaries, and academic works on toponymy and cultural linguistics. English toponyms

were drawn from various regions of the United Kingdom to reflect the linguistic diversity shaped by Celtic, Anglo-Saxon, Norse, and Norman French influences. Uzbek toponyms were taken from major regions of Uzbekistan, including historical cities, rural settlements, hydronyms, and oronyms that represent the cultural and geographical diversity of the country. The methodological approach relies on comparative analysis, which allows for the systematic examination of naming principles, semantic features, and cultural symbolism across the two languages. Etymological analysis is applied to uncover the historical origins of the toponyms and to trace the linguistic layers that contributed to their formation. This method makes it possible to identify the influence of various ethnic groups, migration waves, and socio-political developments on geographic naming traditions. A structural-linguistic analysis is used to examine the phonetic, morphological, and lexical features of the selected toponyms. Through this approach, recurring patterns, word-forming elements, and structural models are identified, providing insight into the linguistic mechanisms underlying toponymic formation in both languages. Special attention is given to toponymic formants such as *-ton*, *-ham*, *-ford*, and *-burgh* in English, as well as *-tepa*, *-obod*, *-soy*, and *-qishloq* in Uzbek, in order to highlight their semantic roles and cultural significance.

The study also employs elements of linguocultural analysis to understand the symbolic and cultural meanings embedded within toponyms. This makes it possible to explore how geographical names encode information about local history, tribal identity, religious beliefs, traditional livelihoods, and environmental perception. In addition, contextual analysis is used to interpret the socio-historical background of the selected toponyms, ensuring that the research captures not only linguistic patterns but also the cultural worldview associated with them. By integrating these approaches, the methodology provides a comprehensive framework for analyzing both the linguistic structure and cultural essence of English and Uzbek toponyms. The combination of comparative, etymological, and linguocultural methods ensures the depth and reliability of the findings, contributing to a holistic understanding of the role of geographical names in reflecting the identity and historical memory of each linguistic community.

## COMPARATIVE LINGUISTIC AND CULTURAL CHARACTERISTICS OF ENGLISH AND UZBEK TOPONYMS

Category	English toponyms	Uzbek toponyms
<b>Etymological origins</b>	Derived from Celtic, Latin, Anglo-Saxon, Norse, and Norman French layers, creating	Formed mainly from Turkic, Persian, and Arabic roots, reflecting the cultural synthesis of

	a highly stratified linguistic landscape.	Central Asia and the Silk Road civilization.
<b>Dominant naming principles</b>	Frequently based on settlement types, ownership, agricultural activities, and administrative functions (e.g., <i>-ton</i> , <i>-ham</i> , <i>-chester</i> ).	Commonly connected to natural features, tribal identities, and traditional livelihoods (e.g., <i>-tepa</i> , <i>-soy</i> , <i>-qishloq</i> , <i>-obod</i> ).
<b>Semantic motivation</b>	Emphasizes historical figures, territorial possession, and socio-political structures such as forts, estates, and manors.	Highlights geographical relief, water sources, pastoral activities, and symbolic cultural meanings tied to nature and community.
<b>Cultural symbolism</b>	Represents traces of ancient civilizations and reflects long-term linguistic contact and cultural integration across Europe.	Encodes nomadic and oasis civilization values, preserving ethnocultural identity and local ecological perception.
<b>Structural features</b>	Often contains multi-layered morphological elements inherited from different historical periods.	Characterized by descriptive, often transparent morphological structure directly referencing physical or cultural reality.
<b>Relationship to geography</b>	Many names reflect historical states rather than current geographical conditions due to linguistic conservatism.	Names often maintain a strong link to present-day landscape and local identity.
<b>Examples</b>	<i>Manchester</i> (from <i>castra</i> — “camp”), <i>Oxford</i> (“oxen crossing”), <i>Brighton</i> (“settlement by the bright meadow”).	<i>Chortoq</i> (“four arches”), <i>Nurota</i> (“father of light”), <i>G‘uzor</i> (“winter pasture”), <i>Qiziltepa</i> (“red hill”).

## Results and discussion

The comparative analysis of English and Uzbek toponyms reveals several significant linguistic and cultural patterns that illustrate how each community conceptualizes and names geographic space. The results demonstrate that although both languages employ universal principles of geographical naming, such as referencing natural landscapes, human settlements, and historical figures, the cultural and historical layers embedded in these names differ markedly due to the distinct civilizational

trajectories of the two nations. One of the most prominent findings concerns the etymological diversity of English toponyms. The influence of Celtic, Roman, Anglo-Saxon, Norse, and Norman French linguistic layers creates a complex toponymic mosaic in which multiple historical epochs coexist. These layers manifest through formants such as *-chester* (derived from Latin *castra*), *-by* and *-thorpe* (from Old Norse), and *-ham* and *-ton* (from Old English). Such elements reflect the history of migration, conquest, and cultural integration in the British Isles, highlighting the multilingual heritage that shaped the English linguistic landscape. The presence of overlapping semantic layers in many English toponyms demonstrates the dynamic interaction between different cultural groups over centuries. In contrast, Uzbek toponyms show a strong connection to the natural environment, traditional ways of life, and socio-cultural identity shaped by Turkic and Persian heritage. Many place-names are motivated by geographical features such as hills, rivers, deserts, and valleys, as seen in components like *tepa*, *soy*, *qum*, and *cho'l*. Additionally, Uzbek toponyms often incorporate elements reflecting social structure, tribal affiliations, or historical figures, including *qishloq*, *obod*, *el*, and *bek*. These naming practices reveal the deep-rooted influence of nomadic and oasis civilizations, as well as the historical importance of clan identity and local leadership. Unlike English toponyms, which frequently preserve traces of foreign linguistic contact, Uzbek place-names tend to emphasize localized meanings connected to nature, community, and livelihood.

The semantic analysis shows that English toponyms commonly reflect ownership, settlement patterns, and administrative functions, whereas Uzbek toponyms frequently encode environmental imagery and socio-cultural symbolism. For instance, English names such as *Oxford* (“oxen crossing”) and *Nottingham* (“home of Snot’s people”) emphasize economic activity or ancestral lineage. Meanwhile, Uzbek names such as *G‘uzor* (“winter pasture”), *Nurota* (“father of light”), or *Chortoq* (“four arches”) embody cultural metaphors, environmental characteristics, and traditional architectural features. This difference illustrates how each linguistic community integrates its worldview into the naming process. Culturally, the findings indicate that English toponyms act as markers of historical memory, often preserving ancient forms and meanings long after their original contexts have disappeared. Uzbek toponyms, however, show a closer relationship between name and present-day geographical reality, with many names directly describing physical features or cultural practices that remain relevant to the local population. This contrast reveals how linguistic conservatism and linguistic continuity function differently in the two cultures. The discussion also highlights the implications of these findings for translation studies and intercultural communication. Translating toponyms requires not only linguistic accuracy but also an understanding of the cultural and historical context.

Since many English and Uzbek toponyms contain symbolic or etymological layers that are not immediately visible, literal translation may result in semantic loss or distortion. A culturally informed approach helps maintain the integrity of geographical names as carriers of cultural identity. Overall, the study demonstrates that English and Uzbek toponyms, while formed according to shared universal principles, diverge significantly in their semantic motivation, cultural symbolism, and historical development. These differences reflect broader distinctions in social structure, historical experience, environmental perception, and linguistic evolution. The results confirm that toponymy represents an important field for understanding how language encodes cultural heritage, shaping not only the linguistic landscape but also the cultural identity of a society.

## Conclusion

The comparative study of English and Uzbek toponyms demonstrates that geographical names serve as key linguistic markers reflecting the cultural identity, historical memory, and worldview of their respective communities. Although both languages employ universal naming principles motivated by natural features, settlement types, and social realities, the semantic depth and cultural symbolism embedded in their toponyms reveal distinctively different civilizational developments. English place-names embody a multilayered linguistic heritage shaped by centuries of migration, conquest, and intercultural interaction. The coexistence of Celtic, Latin, Anglo-Saxon, Norse, and Norman French influences demonstrates the dynamic historical processes that have shaped the British Isles. Uzbek toponyms, on the other hand, reflect a strong connection to the natural environment, ethnocultural identity, and traditional socio-economic structures deeply rooted in Turkic and Persian heritage. Their semantic patterns emphasize geographical features, communal life, and symbolic representations of cultural values, illustrating how the Central Asian landscape and nomadic-oasis civilization shaped local naming traditions. The findings of this research highlight the importance of integrating linguistic, historical, and cultural perspectives in toponymic studies. Understanding the cultural semantics and etymological origins of toponyms enriches the fields of translation studies, intercultural communication, and linguistic anthropology. Moreover, the study underscores the need for preserving toponymic heritage, as geographical names constitute an essential component of intangible cultural memory passed down through generations. Ultimately, the comparative analysis of English and Uzbek toponyms deepens our understanding of how languages encode human experience and how cultural worldviews are inscribed onto the geographic landscape.

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## Аннотация

В статье рассматривается криминалистическая методология расследования преступлений, связанных с незаконным присвоением чужого имущества, в частности, краж, грабежей и грабежей при отягчающих обстоятельствах. Эти преступления, несмотря на принадлежность к одной категории, связанной с экономическими и имущественными правонарушениями, существенно различаются по механизмам, поведению преступника, реакции потерпевшего, структуре доказательств и сложностям расследования. Исследование объединяет доктринальный анализ, криминалистику, криминологическую теорию и поведенческое наблюдение для разработки комплексной методологической основы расследования этих преступлений. Подчеркивается важность реконструкции ситуации, интерпретации следов, тактического интервьюирования, цифровой криминалистики и профилирования преступника. Результаты исследования свидетельствуют о том, что эффективность расследования зависит от способности следователя синтезировать физические, цифровые, свидетельские и поведенческие доказательства в целостную аналитическую модель. В статье делается вывод о том, что современная следственная практика должна основываться на научном обосновании, процессуальной строгости и адаптивной методологии для обеспечения достоверности доказательств и предотвращения следственных ошибок.

**Ключевые слова:** расследование краж, расследование грабежей, тяжкие грабежи, криминалистическая методология, имущественные преступления, доказательственная реконструкция, криминалистическая тактика, поведение преступника, ситуационный анализ, следственная стратегия.

## Abstract

The article examines the forensic methodology of investigating crimes involving the unlawful appropriation of another's property—specifically theft, robbery, and aggravated robbery. These offenses, despite belonging to the same economic-proprietary category, differ substantially in their mechanisms, offender behavior, victim response,

evidentiary structure, and investigative challenges. The study integrates doctrinal analysis, forensic science, criminological theory, and behavioral observation to develop a comprehensive methodological framework for the investigation of these crimes. It highlights the importance of situational reconstruction, trace interpretation, tactical interviewing, digital forensics, and offender profiling. The findings suggest that effective investigation depends on the investigator's ability to synthesize physical, digital, testimonial, and behavioral evidence into a coherent analytical model. The article concludes that modern investigative practice must be grounded in scientific reasoning, procedural rigor, and adaptive methodology to ensure evidentiary reliability and prevent investigative errors.

**Keywords:** theft investigation, robbery investigation, aggravated robbery, forensic methodology, property crime, evidentiary reconstruction, criminalistic tactics, offender behavior, situational analysis, investigative strategy.

## INTRODUCTION

Crimes involving the unlawful taking of another's property—whether through secret removal, open force, or violent assault—occupy a prominent place within criminal jurisprudence and forensic methodology. Theft, robbery, and aggravated robbery represent escalating degrees of harm and social danger, reflecting differences in offender intent, situational dynamics, victim interaction, and evidentiary manifestation. Investigating these crimes requires more than procedural compliance; it demands a nuanced understanding of how offenders act within specific environments, how victims respond under stress, and how traces of criminal behavior form and persist.

Theft, characterized by the covert taking of property, typically unfolds in the absence of direct confrontation. Its investigative complexity lies in the subtlety of trace formation: offenders often act when witnesses are absent, leaving behind minimal physical evidence. The investigator must reconstruct the offender's path using micro-traces, digital footprints, tool marks, and environmental cues. The methodological challenge lies in identifying access methods, determining offender familiarity with the environment, and analyzing removal mechanisms.

Robbery introduces an open, confrontational element: the offender applies force or threat to obtain property. The presence of psychological influence and situational stress alters the evidentiary landscape. Victim accounts may contain distortions shaped by fear; physical injuries and dynamic trace patterns emerge; and offender behavior often includes hurried movements or discarded objects. Investigators must carefully balance testimonial accounts with objective material traces, avoiding over-reliance on traumatized perceptions.

Aggravated robbery—or violent assault with the intent to steal—represents the most severe form, combining property appropriation with potentially lethal violence. Such crimes generate complex patterns of physical evidence (bloodstains, weapon traces, damage to clothing), digital traces (communication prior to the attack), and psychological evidence (victim trauma, offender aggression). Their investigation requires integrated forensic science, tactical fieldwork, and sometimes behavioral analysis to identify predictable patterns of violent offender conduct.

Across all three crime categories, the general principles of forensic methodology serve as the foundation for investigative work: systematic planning, hypothesis testing, rigorous documentation, trace preservation, interdisciplinary cooperation, and multi-source verification. Investigators must anticipate offender strategies, evaluate their level of preparation, and consider environmental factors influencing both victim vulnerability and offender escape routes.

This article aims to articulate how the general principles of criminalistic methodology operate in the investigation of theft, robbery, and aggravated robbery, and how these principles must be adapted to the criminological and psychological characteristics inherent to each offense. Through interdisciplinary analysis and methodological synthesis, the study outlines a robust framework for addressing evidentiary challenges and enhancing investigative accuracy.

## LITERATURE REVIEW AND METHODOLOGY

The forensic and criminological literature on property crimes reveals a long intellectual history. Early European and Russian forensic theorists—including Locard, Gross, and Belkin—identified trace formation as the primary mechanism for reconstructing property crime events. Their conceptualization of “every contact leaves a trace” remains foundational in examining tool marks, entry methods, and trace transfer during theft or robbery.

Modern scholarship builds on these classical insights by incorporating criminal psychology, environmental criminology, and digital forensics. Studies on theft emphasize the importance of offender typologies: opportunistic thieves, professional burglars, and situational offenders demonstrate distinct behavioral patterns. Research consistently shows that professional offenders leave fewer traces, rely on pre-planned access routes, and use tools designed to minimize noise and trace formation.

Robbery literature emphasizes the interaction between offender and victim. Scholars such as Wright and Decker explore the psychology of street robbers, uncovering patterns in target selection, weapon display, and threat escalation. Behavioral science research indicates that victims under stress exhibit perceptual narrowing, affecting their

recall of offender appearance and environmental detail. This has methodological implications for interviewing techniques and lineup procedures.

Aggravated robbery studies intersect with violence research. Forensic pathology literature highlights the significance of injury analysis in reconstructing violent encounters. Behavioral criminologists examine offender aggression, impulsivity, and the role of substance use. Studies in environmental criminology stress that aggravated robberies often occur in transitional spaces—parking lots, stairwells, isolated streets—where offenders exploit limited visibility and victim isolation.

Digital forensics literature has grown substantially in recent years, emphasizing how property crimes increasingly involve electronic communication, surveillance footage, mobile phone metadata, and electronic payment systems. These sources often allow investigators to map offender movements, identify associates, and reconstruct sequences of events independent of testimonial evidence.

The literature also highlights challenges: victims may misidentify offenders; investigators may misinterpret trace significance; cognitive biases may distort investigative judgment; and institutional fragmentation may impede evidence integration. Scholars advocate for multi-source verification, standardized investigative protocols, and cross-disciplinary training to mitigate these challenges.

The methodology of the present study integrates doctrinal legal analysis, forensic reconstruction, behavioral modeling, and comparative case-based evaluation. The doctrinal component examines legal norms defining theft, robbery, and aggravated robbery, as well as procedural regulations governing investigative actions. These statutes establish boundaries within which forensic methodology must operate, shaping investigative tactics related to search, seizure, confrontation, identification, and digital evidence acquisition.

Forensic reconstruction constitutes the scientific core of the methodology. This includes analyzing tool marks, footwear impressions, micro-traces, digital metadata, bloodstain patterns, damage to property, and environmental indicators. Analytical techniques such as trace comparison, situational modeling, and digital trajectory mapping are used to reconstruct offender movements and victim interactions.

Behavioral modeling draws from criminology and psychology to understand offender decision-making. Theft offenders often exhibit rational planning, selecting targets with minimal guardianship; robbers typically balance risk with immediacy of gain; violent robbers may demonstrate impulsivity, dominance-seeking behavior, or substance-induced aggression. Modeling these patterns allows investigators to anticipate offender behavior, refine hypotheses, and predict locations of evidence.

Comparative case evaluation provides empirical grounding. The study examines resolved cases of theft, robbery, and aggravated robbery across different jurisdictions, identifying common methodological errors and successful practices. The analysis includes early investigative decisions, the role of digital evidence, the sequencing of tactical actions, and the handling of victim testimony.

The methodology also employs an evidentiary triangulation model. This model evaluates data across three domains: (1) physical evidence, (2) digital data, and (3) testimonial accounts. Triangulation reduces cognitive bias and strengthens evidentiary conclusions, especially in crimes where witness accounts may be distorted by stress or fear.

## RESULTS

The study yielded several significant findings related to the investigation of theft, robbery, and aggravated robbery. In theft investigations, the results demonstrate that early scene preservation and detailed micro-trace analysis significantly increase investigative success. Offenders often leave unnoticed traces—partial footprints, tool marks, glove fiber, displaced dust patterns—that, if properly interpreted, reveal method of entry, offender skill level, and movement within the environment. Digital evidence such as phone location data, surveillance footage, and access card logs proved crucial in establishing offender timelines.

Robbery investigations produced a different evidentiary structure. The study found that victim testimony, although influenced by stress, contained reliable core details when elicited through structured interviewing techniques. Physical traces—weapon marks, dropped items, injury analysis—provided objective anchors for evaluating victim recollection. Investigations that integrated behavioral cues from victims and offenders successfully reconstructed situational dynamics such as threat escalation, resistance, and offender panic.

Aggravated robbery investigations revealed the richest evidentiary landscape, combining physical violence indicators with digital and testimonial data. Bloodstain pattern analysis, weapon trajectory assessment, and medical documentation contributed significantly to reconstructing violent encounters. Digital data—communications among offenders, GPS movement, online searches—revealed planning and post-offense coordination. The study found that interdisciplinary cooperation between forensic pathologists, digital analysts, and investigators accelerated case resolution.

Across all crime types, investigations that employed triangulation—cross-verifying digital, physical, and testimonial evidence—produced the most reliable outcomes. Cases relying excessively on a single evidence type (e.g., victim testimony alone) were more

prone to error. The results emphasize the importance of integrating diverse evidentiary sources.

## DISCUSSION

The findings suggest that although theft, robbery, and aggravated robbery differ in severity and criminogenic context, their investigations rely on unified methodological principles rooted in forensic science, behavioral reasoning, and systematic evidentiary evaluation. Theft requires an emphasis on subtle trace interpretation and offender access patterns. Robbery demands sensitivity to victim psychology and situational dynamics. Aggravated robbery calls for comprehensive reconstruction of violent interactions. Yet all three require careful avoidance of cognitive bias, adherence to procedural integrity, and reliance on empirical evidence.

The discussion highlights that investigator intuition must be supplemented—not replaced—by scientific reasoning. Over-reliance on victim impressions, premature suspect targeting, or misinterpretation of trace significance undermines investigative accuracy. The iterative nature of forensic methodology requires investigators to continually refine hypotheses as new information emerges.

The findings also reveal institutional challenges: inadequate digital forensic capability, insufficient scene processing expertise, and limited cross-agency communication. These constraints impede the integration of diverse evidentiary streams. Strengthening institutional frameworks, improving forensic resources, and providing advanced training in behavioral and digital analysis are essential for improving investigative outcomes.

Finally, the discussion underscores the ethical dimension: investigations must balance efficiency with respect for procedural rights and evidentiary reliability. Errors in these crime categories often have profound consequences—wrongful convictions or failure to apprehend dangerous offenders. Thus, methodological rigor is not merely an academic ideal but a practical necessity for justice.

## CONCLUSION

The study concludes that investigating theft, robbery, and aggravated robbery requires a coherent methodological system grounded in forensic science, legal reasoning, behavioral analysis, and procedural integrity. Theft investigations demand precision in micro-trace analysis and environmental reconstruction. Robbery investigations rely on understanding victim-offender dynamics and integrating subjective accounts with objective evidence. Aggravated robbery investigations require the highest level of forensic integration, combining medical evidence, behavioral assessment, and digital reconstruction.

The general principles of forensic methodology—systematic planning, scientific analysis, multi-source verification, cognitive neutrality, and meticulous documentation—form a universal framework applicable across these crime categories. Their strength lies in adaptability: investigators can tailor specific tactics to the criminological characteristics of each offense while maintaining methodological consistency.

The conclusion emphasizes that modern investigative environments require interdisciplinary cooperation and advanced analytical capacity. Strengthening digital forensics, expanding behavioral training, and improving institutional coordination will enhance investigative accuracy. Ultimately, the proper application of forensic methodology ensures that property crimes are investigated efficiently, ethically, and scientifically—fulfilling the justice system’s mandate to protect both individual rights and public safety.

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**Annotatsiya:** Tezis pediatrik periodontit kasalligi bolalar orasida tarqalishi, rivojlanish omillari va davolash samaradorligini tahlil qilishga qaratilgan. Ishda og'iz gigiyenasi, genetik moyillik, ijtimoiy-iqtisodiy sharoitlar va tizimli sog'liq holatlarining kasallik rivojlanishiga ta'siri o'rganiladi. Tezisda davolash va profilaktik choralarning natijasi ham baholanadi, shu jumladan, maktab va jamoat darajasidagi ma'rifiy kampaniyalar va shaxsiy gigiyena vositalarining samaradorligi ko'rib chiqiladi. Natijalar pediatrik periodontitning oldini olish va davolash strategiyalarini ishlab chiqishda amaliy tavsiyalar beradi hamda bolalar og'iz bo'shlig'i salomatligini mustahkamlashga xizmat qiladi.

**Kalit so'zlar:** Pediatrik periodontit, bolalar stomatologiyasi, og'iz gigiyenasi, davolash samaradorligi, kasallik tarqalishi, profilaktik tadbirlar, periodont to'qimalari, surunkali yallig'lanish.

## KIRISH

Pediatrik periodontit bolalar stomatologiyasida keng tarqalgan va jiddiy ijtimoiy-sog'liq muammosi bo'lgan kasalliklardan biridir. U og'iz bo'shlig'i sog'lig'iga salbiy ta'sir ko'rsatib, tishlarning patologik harakatlanishi, periodont to'qimalarining shikastlanishi va immun tizimining zaiflashishiga olib keladi. Ilmiy tadqiqotlar shuni ko'rsatadiki, bolalar orasida periodontitning tez tarqalishi asosan og'iz gigiyenasi yetarli bo'lmagan, genetik moyillik, ekologik sharoitlar, noto'g'ri ovqatlanish va infeksiyon omillar bilan bog'liq. Bundan tashqari, bolalarda kasallik erta aniqlanmasa, u nafaqat og'iz bo'shlig'i salomatligiga, balki umumiy sog'liqqa ham salbiy ta'sir qiladi, masalan, surunkali yallig'lanish va immun funksiyasining pasayishiga olib keladi.

## Kasallanish tezligi

Pediatrik periodontitning rivojlanishi bir necha omillarga bogʻliq. Avvalo, ogʻiz gigiyenasi yetarli boʻlmasligi, masalan, bolalarda muntazam tish yuvilmasligi yoki profilaktik stomatologik koʻriklarning cheklanganligi, periodont patogen bakteriyalarining<sup>1</sup> toʻplanishiga va yalligʻlanish jarayonining boshlanishiga olib keladi. Gingivit, yalligʻlanishning dastlabki shakli, bolalar orasida keng tarqalgan; Guangdong provinsiyasida oʻtkazilgan tadqiqotda 12–15 yoshdagi bolalarda uning tarqalishi taxminan 29,6% ekanligi aniqlangan, bunda ogʻiz gigiyenasi va plaq miqdori muhim omil sifatida korrelyatsiyalangan.

Ijtimoiy-iqtisodiy sharoitlar ham periodontit xavfini oshiradi: kam taʼlim olgan otalar bolalarining ogʻiz salomatligiga yetarli eʼtibor bermasligi ehtimoli yuqoriroq boʻladi. Genetik moyillik ham kasallik xavfini kuchaytiradi; oilada periodontit mavjud boʻlsa, bolalarda *Aggregatibacter actinomycetemcomitans* va *Prevotella intermedia* bakteriyalari bilan yuqumli boʻlish ehtimoli oshadi. Shuningdek, tizimli kasalliklar yoki immun tizimining buzilishi, masalan, ovqatlanish yetishmovchiligi yoki metabolik kasalliklar, bolalarda yalligʻlanishni kuchaytiruvchi omil boʻla oladi. NCBI Bookshelf maʼlumotlariga koʻra, baʼzi tugʻma yoki surunkali holatlar masalan, immunitet disfunksiyalari, genetik kasalliklar yoki oziqlanish muammolari bolalarda periodont kasalligiga moyillikni oshiradi. Shunday qilib, pediatrik periodontit tarqalishi bu murakkab va koʻp omilli jarayon boʻlib, unda ogʻiz gigiyenasi, ijtimoiy-iqtisodiy omillar, genetik moyillik va umumiy sogʻliq sharoitlari birgalikda rol oʻynaydi. Bu omillarning kombinatsiyasi bolalar orasida periodont kasalliklarining yuqori xavfini va profilaktika hamda nazoratning zarurligini koʻrsatadi.

## Davolash usullari

Pediatrik periodontit bolalarning ogʻiz boʻshligʻi sogʻligʻiga salbiy taʼsir koʻrsatadi, ammo uning oldini olish boʻyicha xalqaro miqyosda samarali chora-tadbirlar mavjud. Global Periodontal Health Project (GPHP) doirasida FDI World Dental Federation parodont kasalliklarini oldini olish va ogʻiz gigiyenasini targʻib qilish loyihalarini amalga oshiradi, jumladan, jamoatchilik ongini oshirish va kasallik xavfini baholash vositalarini ishlab chiqish. Xalqaro Pediatrik Stomatologiya Assotsiatsiyasi (IAPD) bolalar stomatologiyasida profilaktik va davolash tavsiyalarini beradi hamda milliy tizimlarda eng yaxshi amaliyot modellarini joriy qilishga yordam beradi. Jahon Ogʻiz Salomatligi Kuni<sup>2</sup> (World Oral Health Day) doirasida maktablarda stomatologik

<sup>1</sup> Nibali L, Donos N. "Microbiological aspects of aggressive periodontitis in children and adolescents." *Periodontology* 2000, 2010; 53: 27–48

<sup>2</sup> Arul Pari 1, Paavai Ilango 2, Venkat Subbareddy 3, Vineela Katamarthy 4, Harinath Parthasarthy 5. Gingival Diseases in Childhood – A Review. *Journal of Clinical and Diagnostic Research*. 2014 Oct, Vol-8(10): ZE01-ZE04. DOI: 10.7860/JCDR/2014/9004.4957

ko'riklar, gigiyena darslari va og'iz gigiyenasini targ'ib qiluvchi tadbirlar tashkil qilinadi, bu kasallikning oldini olishga xizmat qiladi. Shuningdek, bolalar uchun mo'ljallangan tish cho'tka, tish pastasi va og'iz chayqovchi vositalardan muntazam foydalanish xavfni kamaytiradi. Erta diagnostika va profilaktik monitoring kasallik bosqichini nazorat qilish, tish va periodont to'qimalarini saqlash hamda yallig'lanishni kamaytirishga yordam beradi. Sog'liqni saqlash siyosatida parodont salomatligini umumiy tizim bilan integratsiyalash profilaktik va davolash choralarning samaradorligini oshiradi. Xalqaro tajribalar shuni ko'rsatadiki, maktab va jamoat darajasida ma'rifiy kampaniyalarni davolash va monitoring bilan uyg'unlashtirish bolalar orasida periodont kasalliklarining tarqalishini sezilarli darajada kamaytiradi.

## Natija va xulosa

Pediatrik periodontit bo'yicha xalqaro tajribalar va profilaktik tadbirlar tahlili ijobiy natijalarni ko'rsatadi. Maktab va jamoat darajasida og'iz gigiyenasi bo'yicha ma'rifiy kampaniyalar, stomatologik ko'riklar va profilaktik monitoring<sup>3</sup> bolalar orasida periodont kasalliklarining tarqalishini sezilarli darajada kamaytiradi. Shaxsiy gigiyena vositalaridan, masalan, bolalar uchun mo'ljallangan tish cho'tka, tish pastasi va og'iz chayqovchi vositalardan muntazam foydalanish xavfni pasaytiradi va periodont to'qimalarini saqlashga yordam beradi. Xalqaro tajribalar shuni ko'rsatadiki, parodont salomatligini umumiy sog'liqni saqlash tizimi bilan integratsiyalash, erta diagnostika va davolashni joriy etish kasallikning surunkali shaklga o'tishini oldini oladi. Profilaktik tadbirlar va ma'rifiy kampaniyalar pediatrik periodontit kasallanishini 15–30 % ga kamaytirishi, erta tashxis va monitoring davolash samaradorligini 20–25 % ga oshirishi mumkin. Shu bilan birga, bolalar va ota-onalarda og'iz salomatligi bo'yicha bilim va qiziqish oshadi, bu uzoq muddatda surunkali periodont kasalliklarini kamaytirishga yordam beradi. Umuman olganda, davolash va profilaktik choralarni uyg'unlashtirish bolalar orasida kasallik xavfini pasaytiradi, ularning og'iz bo'shlig'i salomatligini mustahkamlaydi va sog'lom tish hamda periodont to'qimalarini saqlashga imkon yaratadi.

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## INVESTIGATING ARSON AND CRIMINAL VIOLATIONS OF FIRE SAFETY REGULATIONS

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### Аннотация

В данной статье рассматривается криминалистическая методология расследования поджогов и уголовных нарушений правил пожарной безопасности. Эти правонарушения представляют собой сложную категорию преступного поведения, сочетающую в себе элементы технических знаний, преднамеренного сокрытия и разрушительного умысла. В исследовании анализируются принципы, лежащие в основе реконструкции причин пожара, идентификации источников возгорания и дифференциации случайных и преднамеренных пожаров. Также оцениваются следственные подходы к установлению виновности в случаях небрежного или преднамеренного несоблюдения правил пожарной безопасности. Исследование объединяет доктринальный анализ, науку о динамике пожаров, криминалистическую экспертизу и поведенческую криминологию для создания комплексной методологической базы. Результаты подчеркивают важность интеграции анализа материальных следов, цифровых доказательств, опроса свидетелей и оценки окружающей среды. В исследовании делается вывод о том, что эффективность расследования зависит от научной строгости, междисциплинарного взаимодействия и системного подхода к оценке доказательств.

**Ключевые слова:** расследование поджогов, нарушение пожарной безопасности, судебно-пожарная экспертиза, идентификация источника возгорания, динамика пожара, преступная халатность, реконструкция места пожара, судебно-техническая экспертиза, следственная методика, доказательственная триангуляция.

### Abstract

This article examines the forensic methodology of investigating arson and the criminal violation of fire safety regulations. These offenses represent a highly complex category of criminal behavior, combining elements of technical knowledge, deliberate concealment, and destructive intent. The study analyzes the principles underlying the reconstruction of fire origins, the identification of ignition sources, and the differentiation between accidental and intentional fires. It also assesses investigative approaches for

determining culpability in cases involving the negligent or deliberate disregard of fire safety regulations. The research incorporates doctrinal analysis, fire dynamics science, forensic engineering, and behavioral criminology to produce a comprehensive methodological framework. The findings highlight the importance of integrating material trace analysis, digital evidence, witness interviewing, and environmental assessment. The study concludes that effective investigation depends on scientific rigor, interdisciplinary collaboration, and a systematic approach to evidentiary evaluation.

**Keywords:** arson investigation, fire safety violation, forensic fire analysis, ignition source identification, fire dynamics, criminal negligence, fire scene reconstruction, forensic engineering, investigative methodology, evidentiary triangulation.

## INTRODUCTION

Arson and criminal violations of fire safety regulations constitute a distinct and particularly challenging domain of forensic investigation. Unlike conventional offenses that typically leave behind clear traces of offender activity, fire-related crimes frequently involve conditions of extreme destruction, environmental instability, and rapid degradation of material evidence. Flames, smoke, and extinguishing agents alter the physical landscape of the crime scene, complicating the investigator's task of identifying the original cause, the ignition source, and the human behavior that preceded the fire. These complexities require investigative methodology that blends scientific knowledge of fire dynamics, engineering principles, and criminological insight into offender behavior.

Arson, in its deliberate form, often reflects premeditated planning. Offenders may use accelerants to intensify combustion, manipulate ventilation patterns, or remove potential witnesses. They may also employ sophisticated concealment strategies, such as staging an accidental cause or using time-delayed ignition devices. The forensic investigator must be capable of identifying subtle chemical residues, burn patterns, structural collapse indicators, and material transformation processes. Fire, as a destructive force, erases much but also creates distinctive patterns—such as V-shaped burn marks, charring gradients, spalling, and melt deformation—that allow trained specialists to reconstruct its origin and path.

Criminal violations of fire safety regulations present a different, though related, investigative profile. These offenses often arise from gross negligence, disregard for safety protocols, illegal alterations to buildings, failure to maintain fire-prevention equipment, or willful non-compliance with industrial safety standards. Such cases typically require determining whether the offender's conduct created foreseeable risk, whether required safety measures were ignored, and whether the resulting fire—or the

risk thereof—can be causally linked to the violation. This involves documentary analysis, expert evaluation of compliance, and examination of organizational behavior.

A forensic investigation into fire-related crimes must adhere to general principles of criminalistic methodology: systematic planning, hypothesis development, multi-source verification, detailed documentation, and cognitive neutrality. However, the volatile and destructive nature of fire requires additional specialized practices: thermal pattern interpretation, chemical analysis of accelerants, electrical system evaluation, computational modeling of fire dynamics, and environmental assessment of ventilation and fuel load.

This article aims to develop a scientifically grounded and methodologically coherent framework for investigating arson and criminal violations of fire safety rules. Drawing from forensic engineering, fire science, legal doctrine, and criminological research, the study illuminates how investigators can overcome evidentiary challenges, differentiate between accidental and intentional fire causes, and establish criminal culpability through structured reasoning and interdisciplinary cooperation.

## LITERATURE REVIEW AND METHODOLOG

The literature on arson investigation spans forensic science, engineering, legal doctrine, and criminology. Early foundational work by DeHaan established many of the methodological principles used today, particularly the idea that fire behavior follows predictable physical laws and can be reconstructed using burn pattern interpretation. Subsequent editions expanded on the chemistry of combustion, ignition mechanisms, and error sources in fire scene interpretation. Later research in forensic engineering reinforced the importance of understanding fire growth, heat transfer, ventilation effects, and structural response to thermal stress.

Modern fire investigation literature also emphasizes the risks of cognitive bias, particularly the investigator's tendency to prematurely classify a fire as intentional or accidental. Technical guides developed by organizations such as the National Fire Protection Association (NFPA) articulate strict protocols for fire scene examination, emphasizing hypothesis testing, scientific validation, and avoidance of subjective assumptions.

Criminological research explores arsonist typologies, including financial-motivated offenders, revenge-driven actors, thrill-seekers, and individuals with psychological disorders. These typologies aid investigators in interpreting behavioral indicators such as ignition timing, accelerant choice, and scene staging. Studies in psychology highlight that arsonists often exhibit impulsivity, grievance orientation, or manipulation strategies that reflect broader behavioral patterns.

Legal literature examines liability for fire safety violations, focusing on the degree of negligence required for criminal responsibility. Scholars analyze cases where organizational actors—such as factory owners, landlords, construction supervisors—ignored mandatory fire safety regulations, resulting in large-scale casualties. These studies underscore the importance of documentary evidence, expert testimony, and regulatory analysis in establishing culpability.

Interdisciplinary research has increasingly focused on digital evidence in fire investigations. Surveillance footage, communication records, electronic access systems, and metadata from smart devices have become essential for determining offender presence, ignition timing, and deliberate manipulation of equipment. Computational modeling has also emerged as a valuable tool for testing hypotheses about fire behavior under controlled parameters.

The literature collectively emphasizes the need for a scientific, systematic, and unbiased methodological approach. Investigators must integrate engineering knowledge, forensic chemistry, environmental analysis, behavioral interpretation, and legal understanding to produce reliable conclusions.

The methodological framework employed in this study integrates scientific analysis, forensic reconstruction, documentary examination, and behavioral assessment. The first component involves doctrinal analysis of statutory provisions regulating arson and fire safety violations. These legal norms determine culpability thresholds, evidentiary requirements, and procedural constraints. Understanding these rules is essential for ensuring investigative actions remain legally compliant.

The second methodological component is forensic fire reconstruction. Investigators analyze charring depth, flame plume behavior, ventilation flow, burn pattern symmetry, structural collapse indicators, and material decomposition. They use techniques such as chemical testing for accelerants, electrical system evaluation, residue chromatography, and analysis of soot deposition. The goal is to identify the point of origin and ignition mechanism. Investigators also consider the influence of external factors such as wind, ventilation openings, and fuel distribution.

The third methodological strand involves digital and documentary analysis. Investigators examine surveillance systems, phone metadata, maintenance logs, safety compliance records, and communications that may reflect motive, prior threats, insurance fraud planning, or deliberate regulatory violations. Digital data often provide temporal precision unavailable through physical traces.

The fourth methodological element is behavioral modeling. Investigators construct profiles of potential offenders based on motive, opportunity, and access to ignition tools or hazardous environments. They assess behavioral indicators such as attempts to mislead

investigators, suspicious presence near the site prior to ignition, or inconsistencies in witness accounts. Behavioral patterns help distinguish between accidental negligence and deliberate wrongdoing.

The study employs evidentiary triangulation, comparing physical traces, digital data, and behavioral indicators to identify consistent patterns. Comparative case evaluation is also used to analyze recurring investigative challenges and effective practices across previous arson and fire violation cases.

## RESULTS

The study's findings reveal several important patterns in the investigation of arson and fire safety violations. First, accurate identification of the fire's point of origin significantly increases the probability of correctly determining ignition mechanism and offender involvement. Cases where investigators promptly secured the scene and prioritized physical reconstruction yielded the most reliable outcomes. Conversely, delayed scene access often resulted in trace destruction, misinterpretation of burn patterns, and reduced investigative clarity.

Chemical analysis proved critical in identifying accelerants. Gas chromatography revealed that many deliberate fires involved mixtures of gasoline, kerosene, or industrial solvents. The presence of irregular burn patterns, low-level charring, and deep V-shaped patterns correlated strongly with intentional ignition. Electrical evaluations determined that many alleged "electrical fires" were in fact staged to disguise deliberate ignition; investigators identified manipulated wiring, tampered breakers, and non-standard cable connections.

In cases involving fire safety violations, documentary inconsistencies played a decisive role. Investigators found falsified inspection logs, expired safety equipment, illegal structural modifications, and deliberate disabling of alarm systems. Digital evidence—emails, messages, and digital maintenance records—helped establish timelines, motives, and supervisory negligence. In several cases, digital location data contradicted claims made by suspects who denied presence at the site prior to the fire.

Behavioral analysis identified recurring offender patterns. Arsonists motivated by insurance fraud often exhibited pre-fire financial distress, abnormal increases in insurance coverage, or suspicious removal of valuables shortly before ignition. Revenge-driven offenders displayed prior confrontations, threatening communications, or behavioral escalation. Negligent actors frequently demonstrated prior disregard for safety rules, inadequate training practices, or cost-saving measures at the expense of compliance.

Cases that integrated physical, digital, and behavioral evidence were resolved more accurately than those relying on a single evidentiary stream. Triangulation reduced

uncertainty and allowed investigators to differentiate intentional acts from accidental causes.

## DISCUSSION

The findings underscore the importance of scientific rigor in fire investigations. Unlike most crime scenes, fire alters or destroys much of the evidence that could identify an offender. The investigator must therefore rely heavily on the physical laws of fire behavior to interpret remaining traces. This places significant responsibility on the investigator's technical expertise; misinterpretation of burn patterns can lead to false conclusions, wrongful accusations, or missed culpability.

The discussion highlights the role of digital evidence, which has become increasingly central in modern fire investigations. Surveillance footage often reveals ignition timing, suspect movements, or environmental conditions at the moment of ignition. Phone metadata establishes communication patterns or presence near the scene. Digital maintenance records frequently contradict falsified paper documentation in safety violation cases.

Another theme concerns the difficulty of distinguishing intentional fires from accidental ones. Accidental fires may produce burn patterns similar to deliberate ignition, particularly in environments with heavy fuel loads or structural vulnerabilities. Investigators must therefore avoid cognitive bias, ensure that hypotheses remain open to alternative explanations, and rely on cross-disciplinary expertise.

The discussion further emphasizes that fire safety violation cases involve systemic and organizational dimensions, unlike individual arson cases. These investigations often reveal cultures of negligence, cost-cutting practices, and inadequate regulatory enforcement. Understanding organizational behavior becomes essential in identifying responsible actors and proving criminal negligence.

Ultimately, the discussion argues that investigators must possess not only technical expertise but also a broad understanding of human behavior, organizational patterns, and digital environments. Successful investigation requires interdisciplinary collaboration—combining fire science, engineering, law, and criminology.

## CONCLUSION

The study concludes that arson and criminal fire safety violations demand a sophisticated, scientifically grounded investigative methodology. The destructive nature of fire necessitates rapid scene preservation, precise trace interpretation, and careful integration of physical, digital, and behavioral evidence. Effective investigations depend on the investigator's ability to distinguish natural fire patterns from those created by intentional human action, identify accelerants, and expose attempts to stage or conceal the true cause.

Fire safety violation investigations require a broader analysis of organizational behavior and documentation. Investigators must establish causal links between regulatory non-compliance and fire risk, determine foreseeability of harm, and assess supervisory negligence. Documentary evidence and digital systems are often decisive in demonstrating repeated lapses in safety obligations.

Overall, the general principles of forensic methodology—systematic planning, scientific reasoning, multi-source verification, and cognitive neutrality—form a robust framework for investigating these crimes. Their correct application reduces investigative errors, enhances evidentiary reliability, and ensures that legally sound conclusions are reached.

The conclusion recommends strengthening fire investigation training, improving laboratory capabilities for accelerant detection, expanding digital forensic competencies, and enhancing interdisciplinary coordination. As technological and architectural environments evolve, investigative methodology must adapt to new fire risks, new methods of concealment, and increasingly complex regulatory systems.

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**Abstract:** This article discusses the physicochemical properties of metanogel materials, their application areas, and scientific significance. Metanogel is a material with high heat resistance, stability under low pressure, and the ability to absorb methane gas, making it a promising solution for safe and efficient energy storage in industrial and transportation sectors. The research results demonstrate the environmental safety and economic efficiency of metanogel materials, highlighting their potential for large-scale industrial applications.

**Keywords:** Metanogel, gas storage, heat resistance, environmental safety, industrial materials, methane absorption, innovative materials.

**Introduction:** Metanogel materials have recently gained significant attention in science and industry. Their unique properties make them highly effective in bioengineering, medicine, energy, and environmental problem-solving. This article discusses the latest research on metanogels and their practical significance. Metanogel materials are continuously being improved through scientific research. Their development stages are as follows: **First stage:** Studying the fundamental polymer structures and understanding their molecular bonding mechanisms. **Second stage:** Optimizing their physical and chemical properties, enhancing elasticity and strength. **Third stage:** Conducting research aimed at their application in biotechnology and pharmaceuticals. **Fourth stage:** Expanding their industrial applications and adapting them to environmental conditions. Current research on metanogels is focused on the following key areas: **Nano-scale modifications:** Improving the physical and chemical properties of metanogels by altering their nanostructure. **Biocompatibility:** Developing metanogels that are well-compatible with the human body and possess bioinert characteristics. **Smart materials:** Designing metanogels that respond to temperature, pressure, or pH levels.

### **Practical Significance**

High-pressure gases stored in cylinders can pose significant risks to human health, the environment, and technological equipment. To reduce these hazards and maintain system stability, pressure-reducing agents-particularly methanogels based on chemical

compounds-are utilized. Methanogels are distinguished by their molecular structure, physicochemical stability, and thermodynamic properties. These materials enable a gradual and controlled reduction of pressure in high-pressure gas environments. Owing to such functional capabilities, methanogels have become a central focus of scientific research in recent years.

Synthesizing methanogels under laboratory conditions, studying their structural characteristics, and determining their practical application potential constitute important scientific objectives. Investigating their structure, evaluating thermal stability, and understanding the mechanism of pressure reduction make it possible to develop not only theoretical but also practical approaches. The application of methanogels contributes to improving pressure regulators, creating new generations of safe gas-cylinder systems, and enhancing the reliability of technological processes.

Metanogels, based on modern scientific advancements, are widely applied in the following fields: **Medicine:** Used in wound healing materials, artificial organs, and biological prostheses. **Pharmaceuticals:** Ensuring the prolonged and balanced release of drugs. **Ecology:** Used as absorbent filters in water purification systems to remove pollutants. **Industry and energy:** Employed in supercapacitors, batteries, and ion-exchange membranes.

## Conclusion

Metanogels are advanced materials that are driving revolutionary changes in various scientific fields. Due to their biocompatibility, chemical stability, and unique physical properties, significant advancements in pharmaceuticals, ecology, medicine, and energy are expected in the future. Therefore, research on these materials is progressing at an accelerated pace. Studying the fundamental polymer structures and understanding their molecular bonding mechanisms. The research results demonstrate the environmental safety and economic efficiency of metanogel materials, highlighting their potential for large-scale industrial applications.

Metanogels represent a class of advanced materials that are driving transformative developments across multiple scientific fields. Owing to their biological compatibility, chemical stability, and distinctive physical properties, these materials are expected to contribute significantly to future advancements in pharmaceuticals, environmental science, medicine, and energy technologies. Consequently, research efforts devoted to methanogels are rapidly increasing.

As highly functional materials, methanogels play an essential role in the progress of modern science. Their unique physicochemical characteristics enable broad applicability, which in turn stimulates further scientific inquiry and technological

innovation. Thus, methanogels are becoming increasingly important in the creation of new technologies and in addressing complex environmental challenges.

From a research standpoint, methanogels offer substantial potential. They are opening new directions in nanomaterials, biomimetic systems, and advanced medical technologies. Moreover, the development of artificial tissues and biocompatible materials based on methanogels holds considerable scientific and practical value, reinforcing their significance in cutting-edge research and applied science.

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## METANOSEL MATERIALLARNING FIZIK-KIMYOVIY XUSUSIYATLARI, ULARNING AMALIY QO‘LLANILISH SOHASI VA ILMIY AHAMIYATI

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**Annotatsiya:** Mazkur maqolada metanogel materiallarining fizik-kimyoviy xususiyatlari, ularning qo‘llanilish sohalari va ilmiy ahamiyati haqida so‘z yuritiladi. Metanogel yuqori issiqlikka bardoshli, past bosim ostida barqaror va metan gazini yutish qobiliyatiga ega material bo‘lib, sanoat va transport sohaslarida xavfsiz hamda samarali energiya saqlash uchun innovatsion yechim hisoblanadi. Tadqiqot natijalari metanogel materialining ekologik xavfsizligi va iqtisodiy samaradorligini ko‘rsatib, uning sanoat miqyosida qo‘llanilish imkoniyatlarini ochib beradi.

**Kalit so‘zlar:** Metanogel, gaz saqlash, issiqlikka chidamlilik, ekologik xavfsizlik, sanoat materiallari, metan yutish, innovatsion materiallar.

**Kirish:** Metanogel materiallari zamonaviy ilm-fanning muhim yo‘nalishlaridan biri bo‘lib, ular yuqori darajadagi g‘ovaklik xususiyatlari va termik barqarorligi bilan ajralib turadi. Ushbu maqolada metanogel materiallarning tuzilishi, fizik-kimyoviy xususiyatlari, qo‘llanilish sohalari hamda ilmiy ahamiyati haqida batafsil ma‘lumot beriladi. Metanogellar o‘zaro bog‘langan nanozarrachalardan tashkil topgan uch o‘lchamli polimer tuzilmalardir. Ularning asosiy tarkibiy qismi yuqori gidrofilik xususiyatga ega bo‘lib, suyuqlikni katta miqdorda yutish va saqlash qobiliyatiga ega.

Sanoat va laboratoriya sharoitlarida gaz ballonlardan foydalanish jarayonida ularning ichidagi bosimni boshqarish muhim ahamiyat kasb etadi. Gaz ballonlar ichidagi bosim ko‘pincha juda yuqori bo‘ladi, bu esa uni bevosita foydalanish uchun xavfli holga keltiradi. Shu bois, bosimni kamaytirish texnologiyalari, xususan, metanogellar yordamida bosimni nazorat qilish dolzarb masala hisoblanadi. Ushbu bobda gaz ballonlarda bosimni kamaytirishning umumiy tamoyillari, amalda qo‘llaniladigan metodlar va metanogellarning roli to‘g‘risida batafsil ilmiy-nazariy tahlil keltiriladi <sup>[1]</sup>.

Gaz ballonlarda bosimni kamaytirish texnologiyasi - bu yuqori bosimdagi gaz oqimini past bosimda doimiy va xavfsiz yetkazib berishni ta‘minlaydigan texnologik tizimdir. Bunday tizimlar ko‘pincha bosim pasaytirgich qurilmalari yordamida amalga oshiriladi. Bosim pasaytirgichlar (reduktorlar) - bu gazning bosimini kerakli darajagacha tushirib, uni barqaror saqlab turuvchi asboblardir. Ular ikki asosiy qismlardan iborat:

yuqori bosim zonasini qabul qiluvchi kameralar va chiqish bosimini boshqaruvchi qurilmalar.

Bunda foydalaniladigan materiallarning sifati, strukturaviy mustahkamligi, kimyoviy chidamliligi va issiqlik bardoshliligi alohida ahamiyat kasb etadi. Chunki gaz ballonlarda bosim odatda 150-200 atmosferagacha bo'ladi va bunday bosimni xavfsiz pasaytirish uchun ishlatiladigan qurilmalar yuqori texnik talabga javob berishi kerak.

Metanogel materiallar quyidagi xususiyatlari bilan ajralib turadi:

**Yuqori elastiklik**-tashqi ta'sirlarga bardoshli va deformatsiyaga uchraganda o'z shaklini tiklash xususiyatiga ega. **Kimyoviy barqarorlik**-turli muhitlarda o'z tarkibini saqlab qoladi. **Biologik moslashuvchanlik**-tirik organizmlar bilan yaxshi moslashadi va zararli ta'sir ko'rsatmaydi. **Superabsorbsiya**-suyuqlikni o'ziga singdirish va ushlab turish qobiliyati yuqori.

### Metanogel materiallarning qo'llanilish sohasi:

Metanogel materiallar keng qamrovli sohalarda foydalaniladi. Ularning ba'zi muhim qo'llanilish yo'nalishlari quyidagilardir:

1. **Gaz ballonlar bosimini kamaytirish, atrof-muhit muhofazasi**, ifloslangan suvlarni tozalash, chiqindilarni zararsizlantirish va filtratsiya tizimlarida qo'llaniladi.
2. **Farmatsevtika** sohasida ham keng qo'llash imkonini beradi.
3. **Elektronika va energetika**, ion almashinuvchi membranalar, super kondensatorlar va elastik akkumulyatorlarda foydalaniladi.

Yuqori bosimli gazlar bilan ishlashda eng asosiy va dolzarb masalalardan biri bu - bosimni boshqarish va uni zarur darajada ushlab turishdir. Sanoat, laboratoriya hamda energetika sohaslarida gaz bosimini boshqarish nafaqat jarayonlarning xavfsiz va samarali kechishini ta'minlaydi, balki resurslardan oqilona foydalanish, uskunalarining uzoq muddat xizmat qilishi va inson salomatligi uchun ham katta ahamiyatga ega. Ushbu bo'limda bosimni boshqarishning uch asosiy yondashuvi - mexanik, kimyoviy va gibrid usullari batafsil ko'rib chiqiladi.

Mexanik usullar bosimni boshqarish bo'yicha eng qadimgi va keng qo'llaniladigan usullardan biri hisoblanadi. Bu usullar oddiy fizika qonunlari asosida ishlaydi va ularning ishonchliligi yuqori bo'ladi. Eng ko'p uchraydigan mexanik uskunalar qatoriga gaz reduktorlari, klapanlar, manometrlar, prujinali regulyatorlar, pistonli tizimlar va turli filtrli to'siqlar kiradi. Reduktorlar ballon ichidagi yuqori bosimli gazni ma'lum darajada pasaytirib, uni ish sharoitiga moslashtiradi. Klapanlar esa gaz oqimini ochish, yopish yoki muvozanatlashtirish vazifasini bajaradi. Bunday uskunalar o'z konstruksiyasi jihatidan oddiy, texnik xizmat ko'rsatish oson va ekspluatatsiya davomida ko'p hollarda qo'lda boshqariladi.

**Xulosa:**

Metanogel materiallar zamonaviy ilm-fanning rivojlanishida muhim rol o'ynaydi. Ularning noyob fizik-kimyoviy xususiyatlari tufayli turli sohalarida keng qo'llanilishi, kelajakda ushbu materiallar bo'yicha tadqiqotlarni yanada rivojlantirishga turtki bo'lmoqda. Shunday qilib, metanogellar yangi texnologiyalar va ekologik muammolarni hal qilishda muhim ahamiyat kasb etadi. Metanogellar ilmiy tadqiqotlar uchun katta ahamiyatga ega. Ular nanomateriallar, biomimetik materiallar hamda ilg'or tibbiy texnologiyalar sohalarida yangi imkoniyatlar yaratmoqda. Shu bilan birga, metanogellar asosida sun'iy to'qimalar va biokompatibil materiallar yaratish muhim ahamiyat kasb etadi.

Gaz ballonlaridagi yuqori bosimdagi gazlarni xavfsiz va samarali tartibga solish zamonaviy texnologiyalarning asosiy yo'nalishlaridan biridir. Kirish bo'limida bu masalaning dolzarbligi, tadqiqot obyekti va predmeti, shuningdek, metanogellarning bosimni pasaytirishdagi imkoniyatlarini ilmiy asoslash maqsadi ko'rsatildi. Shu bilan birga, ilmiy ishning metodologiyasi, tadqiqot usullari va amaliy ahamiyati belgilab olindi.

Gaz ballon tizimlari, yuqori bosimli gazlarning fizikasi va ularni tartibga solish zarurati keng tahlil qilindi. Tahlillar shuni ko'rsatdiki, yuqori bosimli gazlarning xavfsiz saqlanishi, transporti va qo'llanilishi bosimni boshqarish usullarining to'g'ri tanlanishiga bog'liq. Mexanik, kimyoviy va gibrid yondashuvlar yordamida bosimni nazorat qilish mumkin bo'lib, har bir usulning o'ziga xos afzallik va cheklovlari mavjud. Bosimni pasaytiruvchi qurilmalar (regulyatorlar)ning konstruktiv yechimlari esa tizimdagi bosimning barqarorligini ta'minlashda muhim omil hisoblanadi. Nazariy jihatdan metanogellarni qo'llash uchun mustahkam asos bo'lib xizmat qiladi.

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## ON THE STAGE OF THE BERDAKH KARAKALPAK STATE MUSICAL THEATRE: THE BALLET “QIRIQQIZ” — HARMONY OF NATIONAL TRADITION AND STAGE CULTURE

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**Abstract.** This article analyzes the ballet “Qiriqqiz,” staged on the Berdakh Karakalpak State Musical Theatre, from the perspective of the artistic achievements that emerged during the process of reinterpreting Karakalpak national heritage through the medium of contemporary ballet. The study examines costumes, headdresses, color choices, the national characteristics of dance vocabulary, and their integration with ballet technique. In addition, stage decoration, the system of character portrayals, the symbolic meanings of women’s and girls’ clothing, and the ethnographic foundations of the costumes selected for male roles are discussed in detail. The paper offers a scholarly analysis of the synthesis of nationality and modernity in the ballet, the epic’s stage interpretation, and its artistic-aesthetic value.

**Keywords.** Qiriqqiz ballet, Karakalpak national costume, stage culture, dance vocabulary, national heritage, ballet art, ethnography, folk epics.

The rich oral heritage of the Karakalpak people—particularly their heroic epics—has long served as a source of inspiration for various branches of art. The epic “Qiriqqiz” is one of the brightest examples of this heritage, celebrating the bravery of forty courageous girls led by Gulayim in their struggle for the freedom of their homeland. Over centuries, the epic has taken shape in the collective consciousness as a symbol of patriotism, courage, female honor, and national pride.

Today, this epic has been reinterpreted through the art of ballet, transforming into a major artistic work that harmonizes national traditions with the demands of modern stage performance. During the creation of the ballet, in-depth study was conducted on Karakalpak national dress culture, the features of dance vocabulary, color aesthetics, traditional headdresses, and their symbolic meanings. The following section provides scholarly commentary on the ballet’s primary artistic components—costumes, dance vocabulary, male and female character portrayals, stage design, epic interpretation, and the expression of national identity within contemporary art.

The ballet “Qiriqqiz,” staged by the Berdakh Karakalpak State Musical Theatre, stands as a vivid expression of the Karakalpak people’s historical memory, national aesthetic outlook, and artistic heritage within modern performing arts. Based on the folk epic, the work brings to life—through the artistic means of ballet—the courage, patriotism, and resilience demonstrated by forty brave girls led by Gulayim in defense of their land. The creation of the ballet is the result of thorough exploration of folklore materials, ethnographic sources, Karakalpak national costume culture, musical rhythms, and the plastic vocabulary of folk dances. It is precisely these elements that enhance the aesthetic value and artistic merit of the performance.

In the ballet, the artistic meaning of the stage scenes is revealed primarily through national imagery and costumes. Karakalpak women’s clothing is rich in distinctive ornaments, color symbolism, headdress structures, and social meanings. For the stage, traditional headpieces such as *popikli taqiya*, *bas oraw*, and *sawkele* were reinterpreted while preserving their authentic forms. In the portrayal of Gulayim, the slight tilt of the *popikli taqiya* to the left signifies that she is an unmarried young girl. Moreover, the movement and gentle sway of the *popik* add aesthetic charm to the dance vocabulary, further enhancing the youthful, courageous, and determined nature of the character.

For the depiction of married women, the *bas oraw* (scarf) is used to symbolically express their status, wisdom, and resilience within stage culture. In the characters Aqsuliw and the elder women (*jengeler*), the wrapping style, color, and ornamentation of the scarf were chosen to match their age, status, and life experience. For Sarbinaz and the warrior girls, lightweight battle-inspired headpieces are used, adorned with jewelry, beads, and metal plates. These elements evoke the ancient martial heritage of the Karakalpak people and infuse the stage with an epic spirit. The garments worn by the female characters also carry symbolic meaning. Gulayim’s narrow red costume represents energy, bravery, and leadership; Aqsuliw’s deep green-red colors reflect her maturity and spiritual completeness; Sarbinaz appears in a blue-toned dress, symbolizing devotion, purity, compassion, and strength. Ordinary village women are portrayed in light, pastel-colored long dresses, representing sincerity, modest upbringing, and humility.

The costumes used in the ballet maintain traditional forms while being adapted to stage requirements—lightweight, flexible, and suitable for dance plasticity. Special fabrics and sewing techniques were employed to ensure freedom of movement during jumps and turns. As a result, the artistic value of national clothing is preserved while fully meeting the technical demands of ballet.

One of the strongest aspects of the production is the high-level synthesis of national dance elements with academic ballet technique. Karakalpak dances are characterized by deep bends, shoulder movements, soft hand gestures, and frequent stamping elements. These are skillfully blended with ballet techniques such as *adagio*, *allegro*, *pirouettes*, and others. The synchronized dancing of the warrior girls with swords and shields—especially the rhythmic harmony of their movements—adds dynamism, drama, and a distinctive epic quality to the ballet.

In the production, the stage costumes of the male characters are also selected with distinctive ethnographic precision. The character Arislan reflects the traditional clothing style of Khorezm young men: a white yaxtak, a turban on his head, black sharovar, a gold-embroidered belt, and a light outer garment. His white costume symbolizes purity, courage, and manliness. Allayer bay, on the other hand, represents wealth and authority; his status is emphasized through a luxurious chapon made of high-quality fabrics, a fur bo‘rik, and gold ornamentation.

In the characters Sayeke shonaq and Jurin’ taz, the simple lifestyle and everyday dress culture of the Karakalpak people are portrayed realistically through cotton shirts, wide sharovar, and sho‘girme headgear. The costumes of the Kalmyk soldiers in the ballet are created in a decorative stylized manner and are intentionally made to contrast sharply with the Karakalpak characters—they appear in garments made of curly leather, coarse headpieces, and battle cloaks. This visual differentiation through colors, shapes, and textures effectively conveys the historical conflict between the two peoples.

Overall, the ballet “Qiriqiz” not only brings the national heritage of the Karakalpak people back to the stage but also elevates it to a new level by interpreting it within the aesthetics of contemporary ballet. The harmony of costume, music, choreography, and dramaturgy creates a powerful impact on the audience. The performance’s complex stage solutions, the diversity of characters, the dynamism of the dance compositions, the unique rhythm and balance, and the national spirit are vividly, expressively, and artistically embodied on stage.

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**Abstract:** The cultural heritage of the peoples of Central Asia has been shaped by ancient beliefs and customs closely connected with nature. Such rituals were intended to maintain harmony between humans and the natural environment, emphasizing values such as fertility, prosperity, health, and peace. Among the most significant nature-related ceremonies are the celebration of “Navruz,” rain-invoking rituals, the preparation of “Sumalak,” and practices of worshiping water, plants, and the sun. Comparative analysis reveals both common and distinct features among the nations: water rituals among Uzbeks, wind-related traditions among Kazakhs, and plant or sun worship among Tajiks. These rituals serve as symbols of national identity, help form ecological awareness, and preserve cultural continuity. The article explores the historical origins, modern transformation, and ecological-cultural significance of these nature-related rituals in Central Asian societies

**Keywords:** central asia, ritual, nature, navruz, belief, tradition, ecological culture, comparative analysis, folk customs

**Login:** Since the most ancient times of human history, the issue of interaction with nature has become an integral part of human life. In particular, in the way of life of the peoples of Central Asia, respect for nature, worship of it, its preservation, and rituals associated with natural phenomena have formed a unique cultural system. These rituals are considered an important cultural phenomenon that expresses the worldview, values, social life, and spiritual needs of the people. The rituals associated with nature of the peoples of Central Asia had not only a religious or mythological basis, but also had ecological and social significance. Rituals associated with nature are the result of the people's life experience, the level of perception of the environment, and the culture of living in harmony with it. For example, the holiday of "Navruz" celebrating the arrival of spring, rituals dedicated to calling for rain or water, prayers and beliefs on the eve of the harvest reflect the worldview of the people directly related to nature.[1] Such rituals were carried out to ensure harmony between man and nature, to wish for fertility, peace and prosperity. Nature rituals among the peoples of Central Asia have their own regional characteristics. For example, while water worship and the preparation of sumalak are

widespread among the Uzbeks, ancient customs dedicated to the wind and sky have been preserved among the Kazakhs, and rituals related to plants and the sun have been preserved among the Tajiks[2]. These similarities and differences were formed under the influence of historical, ethnic, religious and climatic factors, and they reflect the ecological thinking and cultural identity of the people. The relevance of this topic is that in the process of globalization, many national traditions and rituals are losing their significance. Therefore, it is important to study the ancient rituals of the peoples of Central Asia related to nature, analyze them on a scientific basis and revive them in modern cultural life. This is necessary not only to preserve historical memory, but also to instill responsibility for nature and environmental awareness in the younger generation. The purpose of this study is to conduct a comparative analysis of the specific features of nature-related rituals among the peoples of Central Asia, to study their historical roots, semantic content, and transformation in modern society. The study uses ethnographic, historical, and comparative-linguistic analysis methods to identify the commonalities and differences of the rituals.[3] The work also highlights the spiritual, aesthetic, and ecological significance of nature-related rituals in the life of the people. As a result, these rituals are considered an important part of the cultural memory of the people, a symbol of national identity, and a factor in the formation of ecological consciousness.

**Research methodology:** The methodological basis of this study was formed on the basis of complex, systematic and comparative approaches to the analysis of nature-related rituals of the peoples of Central Asia. To study the interrelationship between nature and ritual, ethnolinguistic, cultural studies, historical-typological and sociopsychological methods were used in harmony[4]. In this way, the study was widely covered not only within the framework of folklore and ritual studies, but also in the context of ecological thinking, religious-mythological worldview and socio-cultural context. The theoretical basis of the study is advanced ideas aimed at studying the relationship between culture and language. From this point of view, the views of such scholars as E. Sapir, B. Whorf, K. Levi-Strauss, M. Eliade, Sh. Rakhmatullayev, T. Nafasov, G. Karimova on the semantics of culture and language, the mythological roots of rituals, and the social function of ancient beliefs formed the scientific and theoretical foundation of the research.[5] Using the ethnographic method, the traditional rituals of the peoples of Central Asia, their territorial characteristics, social function, and ritualistic elements were collected and analyzed. In this process, samples of folk oral art, ancient holidays, folk images and rituals preserved among the people, and religious customs were studied. The information was systematized mainly on the basis of written sources, monographs on folk ethnography, and oral sources. The historical-typological method played an important role in determining the process of formation of rituals and their ancient roots. Through

this approach, the attitude of the peoples of Central Asia to nature was analyzed in relation to ancient Zoroastrianism, egalitarianism, pre-Islamic beliefs, and later Islamic culture. As a result, the semantic layers of rituals — that is, the transformation process of mythological symbols and religious symbols associated with natural phenomena — were revealed on a scientific basis.[6] The comparative-linguistic method was aimed at identifying semantic similarities and differences between the ritual terminology, symbols, and terms of different peoples. Through this approach, the ritual lexicon and nature-related concepts of the Uzbek, Tajik, Kazakh, Kyrgyz, and Turkmen peoples were analyzed, and their common regional cultural roots were identified. Using the sociopsychological method, the social significance of rituals, their role in the formation of collective consciousness and ecological feelings were studied. The transformation of these rituals in modern society — that is, the process of transition from ancient beliefs to ecological consciousness and national identity — was analyzed. The data obtained as a result of the research were processed on the basis of systematic analysis, and the functional, semantic, and structural features of rituals were summarized. At the same time, the research followed the principle of an interdisciplinary approach - that is, the content of the rituals was comprehensively covered on the basis of scientific integration between the disciplines of ethnography, cultural studies, sociology, ecology and linguistics. As a result, the research allows us to evaluate the nature-related rituals of the peoples of Central Asia not only as a historical and cultural phenomenon, but also as a cultural system that expresses ecological thinking and national identity.[7]

**Analysis and results:** The rituals of the peoples of Central Asia related to nature are an integral part of the ancient worldview, beliefs and cultural identity of the people. A study of the content system of these rituals shows that the elements of nature - water, sun, wind, flora and fauna - were interpreted in the imagination of the people not only as a source of life, but also as divine power. Therefore, each ritual contains a symbolic expression of the elements of nature, which express the spiritual, spiritual and ecological values of the people. During the study, it was possible to identify three main functional layers of the rituals of the peoples of Central Asia: ritualistic, cultural-social and ecological-spiritual. The ritualistic layer is the external appearance of the ritual, that is, a system of customs, prayers, songs, symbolic actions. For example, among the Uzbek people, the rituals of preparing sumalak at the beginning of spring, cleaning water sources, “calling for rain” or “throwing water” are based on the people's reverence for water and the belief in wishing for blessings. Kazakhs have the “Jer-su” (Earth-water) ceremony, Tajiks have the “Gul Gardon” or “Navruzi Somon” ceremony, which are the continuation of the cult of plants and the sun. This situation demonstrates the unified, but diverse philosophical attitude of the peoples of the region to nature. The cultural and

social layer expresses the role of ceremonies in the formation of collective consciousness. Through each ceremony, society restores its historical memory, strengthens its values, and ensures cultural continuity.[8] In particular, the holiday of Navruz has been preserved in this respect as a universal socio-cultural phenomenon among all the peoples of Central Asia. Its main idea is renewal, awakening, and living in harmony with nature. The results of the study show that such a social essence of rituals continues to create positive emotional unity between people even in modern times. The ecological-spiritual layer constitutes the deepest semantic basis of the rituals. Worship of the elements of nature, respect for water as a “source of life”, recognition of the tree as sacred, and a loving attitude towards the animal world - all these are expressions of the ancient spiritual system that shapes the ecological consciousness of the people. In the conditions of today's ecological crisis, the study of such rituals is not only of historical interest, but also of important scientific and practical significance for the development of modern ecological culture. Comparative analysis shows that the rituals of the peoples of Central Asia contain many similar semantic nuclei.[9] Most of these are associated with ancient Zoroastrian, egalitarian, and animistic beliefs, which later acquired new spiritual meaning when integrated into Islamic culture. For example, water or sun worship later became a symbol of “blessing” and “purity,” while rituals associated with plants took on a festive form expressing the ideas of “fertility” and “prosperity.” The study also found that some rituals have changed their functional meaning in modern times.[10] For example, the rituals of “calling for rain” or “throwing into water,” which previously had a religious-mythological meaning, are now being reinterpreted more as folk performances or children’s games. This confirms the transformation of rituals, that is, the process of transition from ancient beliefs to cultural-aesthetic forms.

**Conclusion:** The results of the above research show that the nature-related rituals of the peoples of Central Asia are a complex cultural system that serves to maintain harmony between man and nature, as well as to form the spiritual and ecological thinking of the people. These rituals are inextricably linked with the ancient beliefs, mythological views and religious traditions of the people, through which respect, gratitude and reverence for natural phenomena are expressed. As a result of the comparative analysis, it was found that the rituals of all the peoples of Central Asia are based on common semantic foundations, but each of them is formed differently according to its national, geographical and climatic characteristics. For example, while rituals related to water and fertility prevail among the Uzbeks, the traditions of worshipping the wind and sky are dominant among the Kazakhs, and rituals related to the sun and plants are dominant among the Tajiks. This situation, along with the unity of common values in the perception of nature by the peoples of the region, also reflects their national identity. The results of

the study show that rituals have not lost their relevance in modern times. They continue to exist in various forms in oral folklore, national holidays, environmental events, and social life. Also, the religious and spiritual content of some rituals has become aesthetic or social, which confirms their transformative nature. Based on the research, it can be concluded that the nature-related rituals of the peoples of Central Asia are a complex phenomenon that embodies the philosophy of human life in harmony with the environment, ecological responsibility, and cultural memory. They still remain an important cultural resource for the understanding of the people's identity, strengthening national unity, and developing environmental awareness. Therefore, the scientific study of these rituals, their restoration as a cultural heritage, and their transmission to the younger generation are of strategic importance in maintaining the spiritual stability of the peoples of Central Asia.

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## “CULTURAL RELATIONS OF STONE AGE COMMUNITIES (BASED ON THE KALTAMINOR SITE)”

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**Annotation.** This article analyzes the cultural relations of the Kaltaminor historical-cultural communities, formed during the Neolithic period in Central Asia, with neighboring Neolithic groups such as the Eastern Caspian region, Southern Turkmenistan (Joyitun culture), the Southern Urals, and the Kazakh steppes. The research compares the scholarly views of S.P. Tolstov, V.M. Masson, A.V. Vinogradov, and G.E. Markov, highlighting the origins of the Kaltaminor culture, its influence on neighboring cultures, and similarities in stone industry and pottery technology. Late Paleolithic–Mesolithic sites discovered in the Kyzylkum and Zarafshan valleys confirm the local roots of this culture and demonstrate that its relations with neighboring regions were complex and multilayered.

**Keywords.** Kaltaminor culture, Neolithic period, neighborhood relations, Eastern Caspian, Joyitun culture, Kyzylkum, microlithic tools, archaeology, Neolithic–Mesolithic continuity, Ural culture.

**Introduction.** The study of Neolithic-period archaeological processes in Central Asia serves as an important source for illuminating the economic activities, cultural development, and mutual relations of ancient communities. The Kaltaminor historical-cultural communities stand at the center of these processes and are known as Neolithic groups engaged in hunting, fishing, and gathering in lowland areas. S.P. Tolstov was the first to comment on the cultural relations of these communities with the Eastern Caspian, Southern Turkmenistan (Joyitun culture), the Southern Urals, Kazakhstan, and other regions of Central Asia. Later, V.M. Masson, A.V. Vinogradov, and other researchers conducted in-depth analyses, developing the scholarly foundations for the formation of the Kaltaminor culture and its ties with neighboring communities. The following sections provide a detailed account of Kaltaminor's neighborhood relations, origins, cultural similarities, and regional influence.

**Main Part.** The issue of cultural relations between the Kaltaminor historical-cultural communities, traditionally engaged in hunting and fishing, and neighboring Neolithic groups was first noted by S.P. Tolstov. Based on sources from the Jonbos-4 site, he observed that the Kaltaminor culture shared many similarities with the Joyitun

communities of southern Central Asia, who were among the earliest farming societies (in terms of stone industry characteristics and pottery features)<sup>1</sup>.

Extensive research has been conducted on the origins of the Kaltaminor culture. A major difficulty lies in the absence of fully studied Late Paleolithic and Mesolithic sites within the settlement boundaries of the Kaltaminor communities. Many scholars link the roots of Neolithic material culture in the Central Asian lowlands to the Mesolithic cultures of the Eastern Caspian, specifically the Balkhan region. V.M. Masson associated the formation of the Kaltaminor culture with the migration of Caspian tribes through the Uzboy, while emphasizing that this was not the sole factor and that still unidentified local cultures also played a role<sup>2</sup>. This view is supported by A.V. Vinogradov's recent studies<sup>3</sup>.

Discoveries of Mesolithic sites such as Uchashi 131, Kok-ayoz 1–2, and Chorbaqti in the Kyzylkum region confirm the local roots of the Kaltaminor culture<sup>4</sup>. Later studies also noted its cultural ties with Neolithic groups of the Southern Urals and Trans-Ural regions, evidenced by microlithic technologies, trapezoidal tools, and pottery decorations.

For example, A.V. Vinogradov highlighted similarities between the Kaltaminor culture and the Joyitun culture of Southern Turkmenistan and the Eastern Caspian. However, he argued that the influence of Central Asian communities on Eastern European cultural processes was overstated, noting that such influence was mainly visible in the Southern Urals and Trans-Ural regions. Trapezoidal tools were widespread in sites such as Cheruk, Sulama, Oqtayloq, and Aydabol in the Eastern Caspian and Ustyurt. In Kazakhstan, the influence of Kaltaminor is observed in symmetric and “horn-shaped trapezoid” microliths. These similarities indicate cultural relations during the Mesolithic–Neolithic transition. The Oyukli culture of Northern Balkhan, studied by G.E. Markov and S. Hamroquliev, also shows close ties with Kaltaminor, as evidenced by microlithic tools and decorated pottery<sup>5</sup>.

In conclusion, the cultural proximity between the Joyitun and Kaltaminor cultures can be explained by three factors:

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<sup>1</sup> Толстов С.П. Хорезмская археологическая экспедиция, 1939. КСИИМК, вып.6, 1940; Хорезмская археологическая экспедиция, 1940. КСИИМК, вып.12, 1946,с.91,92

<sup>2</sup> Массон В.М. Земледельческий неолит юго-запада Средней Азии. // Средняя Азия в эпоху камня и бронзы. – Л.: Наука, 1966. С.144.

<sup>3</sup> Виноградов А.В. Кўрсатилган адабиётлар. 1981. 162-бет.

<sup>4</sup> Хужаназаров М., Сайфуллаев Б. Кук-аяз - новый палеолитический памятник в Северо-Восточных Кызылкумах. ИМКУ, №31. Самарканд, 2000. С.9-16.

<sup>5</sup> Виноградов А.В. Кўрсатилган адабиёт, 1981. 126, 127-бетлар.

1. Formation based on local continuity.
2. Roots connected to the Late Paleolithic–Mesolithic cultures of the Eastern Caspian.
3. Influence of farming communities migrating northward from Eastern Iran and western regions.

**Conclusion.** The above scientific analyses demonstrate that the Kaltaminor culture was the result of complex and multilayered historical processes that took shape in Central Asia during the Neolithic period. Its formation was significantly influenced by local Mesolithic–Neolithic communities, the cultures of the Eastern Caspian, and the northward migration of farming centers from the south. Archaeological materials — trapezoidal arrowheads, microliths, and decorated pottery — clearly confirm the cultural relations of the Kaltaminor culture with neighboring regions. However, these relations manifested more as technological exchanges rather than ethnic proximity. The discovery of new sites further strengthens the evidence of local roots while showing that the Kaltaminor culture had only limited influence on cultural processes in neighboring regions. The study of the Kaltaminor culture remains an important scholarly source for reconstructing Neolithic cultural relations in Central Asia.

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**Annotatsiya:** *Maqolada ilk uyg‘onish davrida san’at taraqqiyoti va sharq mutafakkirlarining musiqaga oid qarashlari haqida fikr yuritilgan. Musiqiy meros tizimida Sharq mutafakkirlarining qarashlari o‘ziga xos ilmiy tizimni tashkil etadi. Forobiydan professor Fitratgacha bo‘lgan jarayonda musiqa nazariyasi asoslari san’at va adabiyot bilan uyg‘unlikda ishlab chiqilgan.*

**Kalit so‘zlar:** *g‘oyaviy- badiiy, tarbiyaviy, serqirrali, teranlik, mantiqiy, mutafakkir, san’at, musiqa, sharq, davr.*

**Аннотация:** *В статье рассматривается развитие искусства и взглядов восточных мыслителей на музыку в эпоху раннего Возрождения. В системе музыкального наследия взгляды восточных мыслителей образуют уникальную научную систему. На протяжении всей истории – от Фараби до профессора Фитрата – основы музыкальной теории развивались в гармонии с искусством и литературой.*

**Ключевые слова:** *идейно-художественный, образовательный, разнообразный, глубокий, логичный, мыслитель, искусство, музыка, восток, эпоха.*

Jahon pedagogikasida Sharq mutafakkirlarining san’at va adabiyot haqidagi ilmiy qarashlarini ilmiy tadqiq etish yo‘lida qator ishlanishlar olib borilgan. Xususan, ularning musiqaga oid bildirgan fikrlari, yaratgan maxsus asarlarini aniqlash, ularni nashr etish, mazkur san’at turining rivojlanishiga xos xususiyatlarni aniqlash yo‘nalishidagi izlanishlarni takomillashtirish muhim ahamiyat kasb etadi.

Jahon pedagogika ilmida Sharq qomusiy olimlarining ijodiy-musiqiy merosini yaxlit o‘rganish bo‘yicha izlanishlar olib borilmoqda. Jumladan, o‘zbek xalqining dunyoqarashi, urf-odat va an‘analarini o‘zida aks ettiruvchi musiqa san’ati, uning ko‘p asrlik tarixi va ma‘naviyatni yuksaltirishdagi mavqeyi, musiqiy merosning o‘ziga xos xususiyatlarini aniqlash yuzasidan ilmiy asoslangan konsepsiyalarni ishlab chiqishga alohida diqqat qaratilmoqda.

O`zbek xalqi tarixida yangi davr ochgan O`zbekiston Respublikasi mustaqilligi milliy mafkura, ilm-fan, madaniyat va ma`naviyat sohalarini yanada rivojlantirish vazifalarini qo`ydi. Bunday muhim vazifalar o`zbek xalqi madaniyati, fani, adabiyoti va san`ati tarixini tubdan o`rganish, undan bugungi kun uchun amaliy xulosalar chiqara bilish asosidagina to`la bajarilishi mumkin. Musiqa ma`naviyatning ajralmas qismi ekanligini hisobga olsak, yuqoridagi masalalar, o`z navbatida, musiqa merosini o`rganish, tadqiq etish dolzarb masaladir. Musiqiy meros tizimida Sharq mutafakkirlarining qarashlari o`ziga xos ilmiy tizimni tashkil etadi. Forobiydan professor Fitratgacha bo`lgan jarayonda musiqa nazariyasi asoslari san`at va adabiyot bilan uyg`unlikda ishlab chiqilgan. Binobarin: “Mamlakatimizda barcha soha tarmoqlar qatori madaniyat va san`at, adabiyot, ommaviy axborot vositalari rivojiga katta e`tibor berilmoqda. Ayniqsa, keyingi paytda bu soha ravnaqini yangi bosqichga ko`tarish bo`yicha ulkan ishlar qilinmoqda”<sup>1</sup>. Haqiqatan, Sharq mutafakkirlarining musiqaga oid qarashlari o`z kelayotgan yosh avlodning ma`naviy kamolotida o`ziga xos dastur vazifasini o`taydi. Bu borada Sharq ilm-fani rivojiga katta hissa qo`shgan Abu Nasr Forobiy, Abu Ali Ibn Sino, Alisher Navoiy, Zahiriddin Bobur, Zokirjon Furqat, Abdurauf Fitrat singari qomusiy ijodkorlarning musiqaga oid fikr-qarashlarini yaxlit tizim sifatida tekshirish yuzasidan ilmiy tadqiqotlarni yanada chuqurlashtirish zarurati mavjud.

Sharq mumtoz musiqasining nazariy asoslari – mumtoz musiqa va uning tarqalishi bilan bogliq bolgan kasb-hunar azaldan amaliy va nazariy bilimlarni oz ichiga oluvchi yagona ilm hisoblangan. Sharq klassik musiqasining nazariy masalalari Forobiy, Ibn Sino, Safiuddin Urmaviy, Abdulqodir Marogiy, Abdurahmon Jomiy, Najmiddin Kavkabiy, Darvesh Ali kabi ulkan olimlar tomonidan atroflicha organilgan. Ularning asarlari musiqa ilmining poydeborini tashkil qiladi. Risolalarda mumtoz musiqaning ijtimoiy hayotdagi orni, tarixiy shakllari, ijrochilik masalalari hamda ular negizidaqi kuy va usul tuzilmalarining tarkib topish qonun-qoidalari vatafsil yoritilgan. Nomi zikr etilgan musiqashunoslarda har birining oziga xos tomonlari bo`lishi bilan bir qatorda umumiy qarashlar, vorisiylik rishtalari, izchil an`analar ham yaqqol sezilib turadi. Ular ijodi tabiiy ravishda bir-birini toldirib, umuman, mumtoz musiqa asoslariga nisvatan yagona ilmiy an`ana bolib gavidalanadi Sharq ilmi serqirraligi va keng qamrovga ega ekanligi bilan alohida e`tiborni tortadi. Diniy-dunyoviy fanlar qatorida musiqa san`ati ham Sharqda taraqqiy etgan. Buni juda ko`p badiiy va musiqaga bag`ishlab yozilgan maxsus asarlar tasdiqlab turadi. Abu Nasr Forobiydan tortib professor Fitratgacha bo`lgan juda katta davrdagi manbalar buni tasdiqlab turadi. Shu manbalar orasida Alisher Navoiyning “Majolis un nafois”, Boburning “Boburnoma”, Fitratning “Adabiyot

<sup>1</sup> Mirziyoyev Sh.M. Adabiyot va san`at, madaniyatni rivojlantirish – xalqimiz ma`naviy olamini yuksaltirishning mustahkam poydevoridir. //Xalq so`zi gazetasi. – Toshkent, 2017 yil. 4 avgust.

qoidalari”, “O‘zbek klassik musiqasi va uning tarixi”, A.Sa’diyning “Amaliy va nazariy adabiyot darslari” asarlari alohida ajralib turadi.

Qomusiy olim Abu Nasr Forobiy musiqaga alohida e’tibor qaratgan. Uning “Musiqaga haqida katta kitob”, “Musiqaga uyg‘unligi haqida” degan asarlari arab tilida yozilgan. Har ikki asar ham rus tiliga tarjima qilingan. Xususan, “Musiqaga uyg‘unligi haqida” kitobi birinchi marta ilmiy muomalaga olib kirilgan.

Ulug‘ mutafakkir Abu Nasr Forobiy qomusiy olim sifatida Sharq ijtimoiy-estetik tafakkuri taraqqiyotida muhim o‘rin tutadi. U bir necha fanlar qatorida musiqaga ham katta e’tibor qaratdi va uning inson hayotidagi o‘rnini ko‘rsatib berdi. Forobiyning musiqiy merosi rus pedagogikasi va musiqashunosligida alohida o‘rganilgan. Xususan, uning fan olamida mashhur “Musiqaga haqida katta kitob” asari olima Sayda Diasovna Daukeyevaning “Konsepsiya muzikalnoy nauki Abu Nasra Muxammada al-Farabi v traktate “Bolshaya kniga muziki”<sup>2</sup> nomli nomzodlik dissertatsiyasida keng tahlil va talqin etilgan. “Katta musiqaga kitobi”da Forobiy musiqaga fanining tamoyillari va metodologiyasini ishlab chiqqan. Shu o‘rinda ta’kidlash kerakki, hozirga qadar Forobiyning musiqiy merosi o‘zbek tiliga deyarli tarjima qilinmagan. Bu asarlar, asosan, arab tilidan rus tiliga o‘girilganligi ma’lum. S.Daukeyeva tadqiqotida esa arab tilidagi asliy matn va rus tilidagi tarjimaga tayangan. Xususan, olima Forobiy davrida qo‘llanilgan musiqaga terminlarini arabchasi bilan yonma-yon bergan. Olimaning fikricha, qadimdan kelgan an’anaga ko‘ra musiqaga Forobiyga tegishlidir<sup>3</sup>. Forobiy musiqani matematik fanlar qatoriga kiritadi: “quyidagi matematik fanlar: arifmetika, geometriya, astronomiya, musiqaga, statika va mexanika”. Ma’lumki, matematika fanlarida chiziqlar, tekisliklar, geometrik jismlar, raqamlar, turli shakllar, formulalar ishlatiladi. Shu jihatdan qaraganda, Forobiyning musiqani ham matematik fanlar qatoriga kiritishi mantiqan to‘g‘ridir. Mutafakkirning fikricha, musiqaga matematik fan sifatida, uni ushbu bo‘limga kiritish uchun asos bo‘ladi. Chunki unda ham elementlar – tovushlar, ritmik birliklar (davomiylik), raqamlar, miqdor kabilar muhim o‘rin tutadi. Haqiqatan, musiqada ohang, ritmning uyg‘unligi, tekisligi aynan raqamlar va uning miqdori bilan bog‘liq. Qolaversa, bu fanda musiqiy lahndan tashqari aqlning, ratsional fikrning ham o‘rni bor, busiz qalbga yaiqn, his-tafakkurimizga ta’sir qiladigan musiqaga, qo‘shiqni yaratib bo‘lmaydi. Shu jihatdan, Forobiyning fikrlari bugungi musiqashunoslik uchun ahamiyatli. Dunyoviy fanlar qorishiq yashagan qadimgi davrlarda Forobiy ularni xususiyatlariga qarab klassifikatsiya qildi va shular qatorida musiqaga katta e’tibor qaratdi. Yana bir jihatni alohida qayd etish kerak, “hisoblash” matematik fanlardagi kabi musiqaga ham tegishli.

<sup>2</sup> Даукеева Сайда Диасовна. Концепция музыкальной науки Абу Насра Мухаммада ал-Фараби в трактате "Большая книга музыки". Дисс. канд. наук. искусствоведение. –Москва, 2000. –С. 54.

<sup>3</sup> Даукеева Сайда Диасовна. Концепция музыкальной науки Абу Насра Мухаммада ал-Фараби в трактате "Большая книга музыки". Дисс. канд. наук. искусствоведение. –Москва, 2000. –С. 54.

Chunki notalar soni ohang uchun muhim asos vazifasini o'taydi. Forobiy, musiqa nazariyasi va musiqiy amaliyot degan terminlarni qo'llaydi. Uning fikricha, musiqa amaliyoti "sezgi bilan idrok etilgan obyekt"dir. Qolaversa, musiqiy amaliyot musiqa asboblari bilan ish ko'radi. Olim musiqa san'atini tarozi' ( mantiq) ilmi bilan ham bog'lab talqin etadi. Musiqada his etish va eshitish idroki muhimdir.

Forobiy "sabab zanjiri" nazariyasini ilgari suradi. Uning fikricha, musiqa matematikaning bir qismi, matematika pedagogika fanlarining bir qismi bo'lsa, ikkinchisi nazariy falsafaga tegishli bo'lib, u falsafaning ikki tarmog'idan biri (metafizika) – keng qamrovli borliq haqidagi fanlar bilan bog'liq. Forobiy san'atni inson faoliyatining bir turi sifatida tavsiflaydi. Haqiqatan ham, insonning ma'naviy hayotini san'atsiz, musiqasiz tasavvur etib bo'lmaydi. Ohanglar ijrochisi va ijodkori haqidagi g'oyani shakllantirish, uni muayyan shaklda amalga oshirish tugallangan musiqiy ish va uning ijrosi, nazariy-musiqiy kompozitsiyani ko'rib chiqish kabilarni Forobiy bilish jarayoni deb tushunadi. Ijro shakli (aynan) shaklga tegishli ekanligiga kelsak, kompozitsiya, bu ijrochining o'zining shaklini tayyorlaganligidan ko'rinadi, tasavvur va ijro organining shakli, shundan kelib chiqadiki, bu tufayli yaratilgan kuy tinglovchi tomonidan idrok qilinadi va eshitiladigan qilishda taqlid qiladi<sup>4</sup> Ko'rinadiki, mutafakkir olim musiqaning yaralish jarayonini ham ilmiy asoslab beradi: ohang ijrochisi, ijodkor, g'oya, muayyan shakl, ijro. Shu bilan birga yaratilgan kuy, avvalo, tinglovchi tomonidan idrok qilinadi va eshitiladi. Shundan keyingina tinglovchi uni xirgoyi qilishi, Forobiy ta'biri bilan aytganda, "taqlid qilishi" mumkin. S.Daukeyevaning yozishicha, Forobiy musiqa san'ati shakllarini mantiqiy jihatdan tizimlashtirdi. U rassomlik va musiqa san'atini qiyoslaydi. Rassom badiiy obrazning yaratilgan kompozitsiyasi g'oyasidan kelib chiqadi. Ijro shakli (aynan) shaklga tegishli ekanligiga kelsak, kompozitsiya, bu ijrochining o'zining shaklini tayyorlaganligidan ko'rinadi<sup>5</sup>. Abu Nasr Forobiyning "Musiqqa haqida katta kitob" asari arab tilida bitilgan. Bu asar yangi asr boshlarida rus tiliga o'girilgan. Mazkur asarni rus olimasi S.D. Daukeyeva maxsus o'rgangan. U dissertatsiyasi so'ngida Forobiyning "Musiqqa va she'riyat risolalari"iga sharh yozgan va ilovalar tarzida asarning rus tilidagi variantini keltirgan. Biz ham shu manbaga tayangan holda mutafakkir olimning musiqiy qarashlarini tadqiq etishga harakat qildik. Al-Forobiy musiqa nazariyasining asosiy bo'limlari ketma-ketligida tavsiflaydi: rejim, ritm va nazariya

<sup>4</sup> Al-Farobiy 1967, 61-62. Қаранг: Даукеева Сайда Диасовна. Концепция музыкальной науки Абу Насра Мухаммада ал-Фараби в трактате "Большая книга музыки". Дисс. канд. наук. искусствоведение. –Москва, 2000.

<sup>5</sup> Даукеева Сайда Диасовна. Концепция музыкальной науки Абу Насра Мухаммада ал-Фараби в трактате "Большая книга музыки". Дисс. канд. наук. искусствоведение. –Москва, 2000. –С. 70.

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**Abstract:** Archaeological research and the main archaeological monuments of Karmana, archaeological research was carried out at the Burqutepa, Chillatepa, Old Mound, Kaltepa and Kunjaktepa monuments located in the district. During the research, many monuments of ancient and early medieval times were recorded in this area, and this article discusses the latest archaeological research in the Karmana district and their results.

**Keywords:** Central Asia, Karmana, Kyzylkum, Zarafshan, early Middle Ages, Middle Ages, defensive wall, ark, shahristan, rabod.

**Introduction.** Archaeological research conducted in the Karmana district in recent years has yielded important results in the scientific study of the rich history of this region and the identification of historical and cultural layers. As a result of excavations conducted at monuments such as Burqutepa, Chillatepa, Old Kurgan, Kaltepa and Kunjaktepa, numerous archaeological finds, architectural remains and cultural layers dating back to the ancient and early medieval periods were discovered. The materials obtained from these monuments make the Karmana region an important source not only for the archeology of Uzbekistan, but also for the entire Central Asia. This article scientifically analyzes the etymology of the name Karmana, its geographical location, its reflection in historical sources and the results of recent archaeological research conducted in the region. This sheds light on the place of the Karmana region in ancient and medieval history, urbanization processes, the interaction of urban and rural life, stages of cultural development and the scientific significance of archaeological monuments.

**Literature review.** The name Karmana was first mentioned in 712 in the work of the historian Abu Ja'far Muhammad ibn Jarir at-Tabari, "Tarihi ar-rusul wal-muluk" ("History of the Prophets and Rulers") (Abu Ja'far al-Tabari, 1987; 229). Later, information about Karmana is also found in the historical and geographical work "Hudud ul-Olam" (The Boundaries of the World), written by an unknown author in 983. The work mentions the geographical location of Karmana, its location on the Samarkand road from Bukhara, its prosperity, clean water, and abundance of various delicacies (Hudud ul-Olam. Bartolda, 1930; 22). In the work "History of Bukhara" by the 10th century historian Muhammad Narshahi, Karmana is described as follows: Karmina is one of the villages of Bukhara, its water comes from the Bukhara water: its khiroji is added to the

khiroji of Bukhara. It also has its own separate village; a mosque and a mosque were built there. There were many writers and poets in Karmina (Narshahi, 1991; 95).

In addition, the name Karmina is mentioned in Ibn Arabshah's "History of Amir Temur", Mirzo Ulugbek's "History of the Four Nations", Sharafuddin Ali Yazdi's "Zafarnoma", Mirzo Babur's "Boburnoma", Abu Tahirhoja Samarkandi's "Samaria", Mir Muhammad Amin Bukhari's "Ubaydullanoma" and many other works. The occurrence of this name in the works of famous scientists and writers indicates the high status of Karmina.

One of the oldest monuments located in the Karmina region is the Burquttepa monument. The first brief information about this monument was left by A.Y. Yakubovsky, the head of the Zarafshan expedition in 1934. According to him, the monument consisted of an ark (kohandiz), a shahristan and a rabad (Yakubovsky, 1934; 150). In 1986, a schematic plan of the monument was drawn up, and based on fragments of archaeological finds excavated from it, it was assumed that people lived in Burkuttepa from the 3rd-2nd centuries BC to the Middle Ages (Manylov, 1987; 171-173).

**Main part.** As a result of archaeological research conducted at the Burquttepa monument in 1999-2001, an 8-meter-wide defensive wall of the arch was uncovered and studied, and at the same time, as a result of excavations carried out in the northern part of the arch, the remains of a basement-like dwelling were discovered here, along with archaeological finds of the monument dating back to the 4th-3rd centuries BC. The monument is located 150-200 meters east of the Shahristan arch (now converted into a cemetery), and as a result of excavations conducted here during the last field season, numerous pottery fragments, baked bricks, and millstones dating back to the 10th and 13th centuries were recorded (Khujanazarov, Mirzaakhmedov, Gritsina, Rakhimov. 2001. 189-190; Khujanazarov, Gritsina, Mirzaakhmedov. 2002; 179-186). A scientific analysis of the findings obtained as a result of research conducted in Shahristan in 2023 shows that people lived here not only in the Middle Ages, but also in the early Middle Ages, that is, in the 5th-8th centuries, and taking into account the fact that a cultural layer continues here, we can assume that the ark and Shahristan appeared at the same time.

The Old Kurgan monument is located on the left bank of the Zarafshan River, which is now completely destroyed and replaced by residential areas. Glazed pottery fragments recovered from this area date from the 15th to the early 20th centuries. The pottery materials were divided into four groups: 1) 15th-16th centuries; 2) late 17th-mid 18th centuries; 3) second half of the 18th century-mid 19th century; 4) second half of the 19th century-early 20th century (Gritsina, Mirzaakhmedov, Khozhanazarov. 2000; 73-75). In 2022-2023, in order to determine the area of the rabod part of the Burquttepa monument, excavations were carried out in several pits approximately 20 meters south and east of

the arch, as well as in its city center. In the layers excavated in the pits, fragments of pottery vessels from different periods were recorded, and it was determined that this place consists of mixed layers. As can be seen from this data, the rabod part was fully developed during the construction works carried out in the territory of the city of Karmana since the late Middle Ages. In addition, archaeological excavations were carried out in the monuments of rural settlements (Chillatepa, Kunjaktepa) located in the areas close to the Burquttepa monument, as well as field research studies were carried out to form a list of archaeological monuments of the district.

The main goal of studying the rural areas located in the outskirts of the city of Karmana was to determine the relationship between the city and the countryside. In particular, excavations were carried out in a trench measuring 2.8x7.5 m from the southern edge of the Chillatepa monument arch and an area measuring 3x5.5 m and 2.5x3.75 m on the southern border of its settlement. As a result of the research, material cultures from the period from antiquity to the 12th century were identified in the trench in the palace area. According to preliminary data, the settlement was formed in late antiquity, and the remains of a defensive wall built of mud brick dating back to the early Middle Ages were discovered and studied on the cultural layers of this period. The defensive wall was built of mud brick measuring 42x23x9 cm, with a preservation height of 1 m and a width of 1.85 m. The pottery vessels found around this wall were determined to date back to the 7th-8th centuries AD. The village, which fell into crisis in the early Middle Ages, was redeveloped during the Karakhanid period in the 11th-12th centuries. In particular, among the upper layers, baked bricks and fragments of pottery vessels dating back to this period were observed (Saidov, Rakhimov, Kholmatov, Khozhamov, Omonov, 2023; 40). Researchers have expressed their opinions about this monument as a defensive wall of the early Middle Ages of the city (Rahimov, Raimkulov. 2024; 193-196).

In addition, research was carried out at the Kunjaktepa monument on the outskirts of the city, and a 2x11.5 m trench was excavated in its north-western side and a 2x3 m pit 8 meters from the western side of the monument. In the trench excavated in the north-western area of the monument, the remains of 4 pakhsa and mudbrick defensive walls dating back to the early medieval period and the remains of a pakhsa-walled dwelling on its inner side were discovered. In one of the rooms, the remains of 2 side-by-side household pits were discovered. One of these pits was built on the floor of the room, while the other was cut off from the floor of the room, and the depth of its preserved part reaches 20 cm. During these excavations, fragments of a goblet, a red-glazed bowl, and a date pot dating back to the late antiquity period were found between the defensive wall (Saidov, Rakhimov, Kholmatov, Khozhamov, Omonov, 2023; 40). The Kaltepa monument was

studied by the Navoi archaeological detachment in 1986. The topography was drawn, photographed, and described. According to it, the monument is rectangular in shape, measuring 60x54 m. The northern part is 4.5 m high. Most of it is covered with a cemetery. The pottery fragments found during the excavations date back to the antique and early medieval periods. From the results of the research, it can be concluded that the Kaltepa archaeological monument is the remains of a small settlement belonging to the rural nobility in its time.

**Conclusion.** Although the territory of the Chillatepa monument occupied a large area in antiquity and the early Middle Ages, the discovery of a defensive wall here indicates that the monument had a smaller area in the 7th-8th centuries. The Chillatepa village, which experienced a crisis in the early Middle Ages, was redeveloped during the Karakhanid period in the 11th-12th centuries. This is evidenced by the fragments of baked bricks and pottery vessels belonging to this period among the upper layers of the monument.

During the excavations carried out at the Kunjaktepa monument, the discovery of a goblet, a red-glazed bowl, and fragments of a date pot belonging to the late antiquity period among the defensive wall proves that the lower layers of the monument belong to this period, that is, to the late antiquity period.

The pottery vessels found in the rural areas, with their high quality of preparation technique and technology, are not inferior to the pottery vessels from the Burkuttepa monument, the site of the oldest city of Karmana, that is, they were made by city craftsmen.

According to preliminary data, 46 monuments have been registered in the Karmana district, and the lack of sufficient research in the district and the recording of rock carvings in this area require the systematic continuation of archaeological research in this area in the coming years, and at the same time, such research will create an opportunity to shed more light on the history of the district in a more accurate and detailed way.

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## Аннотация

Сурункали йирингли синусит — бу юз соҳаси ҳаво ўтказувчи ёрқин бўшлиқларининг узок муддатли яллиғланиш жараёни бўлиб, унинг асосий белгиси йирингли экссудатнинг ҳосил бўлиши ва давомий яллиғланиш реакцияси ҳисобланади. Касаллик кўп ҳолларда ўткир синуситнинг нотўлиқ даволанишидан кейин ёки юқори нафас йўллари инфекциялари, септик ҳолатлар ва анатомик мос келмасликлар натижасида ривожланади. Клиник кўриниши нос нафас олишнинг қийинлашиши, бош оғриғи, юзда оғриқ ва оғирлик ҳисси, юқори жоғ лабининг шишиши, йирингли ажралишлар ва нафасда нохуш ҳид пайдо бўлиши билан намоён бўлади.

**Калит сўзлар:** Сурункали йирингли синусит, яллиғланиш, клиника

**Долзарблиги.** Сурункали йирингли синуситлар нафас олиш тизимининг энг кенг тарқалган яллиғланиш касалликларидан бири бўлиб, аҳоли орасида катталар ва болаларда бирдек учрайди. Ушбу патология нафақат тиббий, балки ижтимоий аҳамиятга ҳам эга, чунки узок муддатли оғриқ, меъёрий нафас олишнинг бузилиши, иш қобилиятининг пасайиши ва инфекциянинг мия ёки орбита каби кўшни структураларга тарқалиш хавфи билан кечади[2,4,6].

Жаҳон соғлиқни сақлаш ташкилоти маълумотларига кўра, сурункали синуситлар нафас олиш касалликлари орасида катта улушни эгаллайди ва кўпинча антибиотикларга чидамли микрофлора билан боғлиқ бўлади. Шу сабабли, касалликнинг клиник тавсифини, микробиологик хусусиятларини ва самарали терапевтик йўлларини ўрганиш бугунги кунда оториноларингологиянинг энг долзарб йўналишларидан бири ҳисобланади[1,3,5].

**Тадқиқот мақсади** сурункали йирингли синусит касаллигининг клиник хусусиятларини ўрганиш.

**Тадқиқот материали ва услуби.** Клиник тадқиқотлар натижаларини баҳолаш учун Бухоро вилоят кўп тармоқли тиббиёт маркази ЛОР бўлимида сурункали синусит ташҳиси билан оғриган 84 нафар бемор текширилди, улардан 40 нафари эркаклар ва 44 нафари эса 20 ёшдан 70 ёшгача бўлган аёллардир.

**Натижалар.** Ушбу гуруҳимизда анамнез бўйича касалликнинг давомийлиги 6 ойдан 1 йилгача 5 нафар беморда, 1 йилдан 3 йилгача 28 нафар беморда, 3 йилдан 5 йилгача - 32 нафар беморда, 5 йилдан 10 йилгача – 11 нафар беморда қайд этилган. 8 нафар бемор касалликнинг бошланишини эслай олмади. Моносинуит 25 нафар беморда (29,76%), полисинуит 59 нафар беморда (70,24%) кузатилган.

I гуруҳ беморларида бурун ён бушликларида яллиғланиш жараёнининг локализацияси тўғрисидаги маълумотлар келтирилган бўлиб, ундан кўриш мумкинлиги, ўнг томонлама жараён -38,10%, чап томонлама жараён -32,14% ва 25 нафар бемор (29,76%) икки томонлама синусит билан касалланган.

Назорат остига олинган беморларда пешонада оғриқ 5 нафар беморда, бошнинг тепа қисмида оғриқ – 2 нафар беморда, юқори жағ соҳасидаги оғриқ – 11 нафар беморда ва диффуз бош оғриғи – 18 нафар беморда кузатилган. Эрталабги бош оғриғи – 14 нафар беморда, кун орасида – 5 нафар беморда, кечқурунги бош оғриқлар – 7 нафар беморда ва кун давомидаги оғриқлар – 12 нафар беморда кузатилган.

Умумий ҳолсизлик ҳақида шикоятлар 31 нафар бемор (36,9%), безовталиқ - 12 нафар беморда (14,29%), тез чарчаш - 8 нафар беморда (9,5%), доимий бурун орқали нафас олишнинг қийинлашуви – 46 нафар беморда (54,76%), даврий бурун орқали нафас олишнинг бузилиши -18 нафар беморда (21,43%) кузатилди. Шу билан бирга, 48 нафар беморда (57,14%) куннинг биринчи ярмида бурундан ажралма оқиши ҳақида шикоят қилдилар. 8 нафар беморда (9,52%) гипосмия ва 2 нафар беморда (2,38%) аносмия қайд этилган.

Олд риноскопияда қуйидагилар аниқланди: бурун шиллик қавати оч пушти рангда- 41 нафар беморда (48,8%) да, 12 нафар беморда шиллик қават (14,3%) да цианотик, 19 нафар бемор(22,6%) да бурун шиллик қавати гиперемиялашган ва шишган, 12 нафар беморда (14,3%) бурун шиллик қаватида куруқлик ва атрофия аниқланган.

Нафас олишнинг қийинлашуви бемор томонида бурун тўсиғи эгрилиги натижасида келиб чиқиши 9 нафар беморда (10,7%), нафас олиш бузилишисиз эса – 8 нафар беморда (9,5%), пастки бурун чиғаноғи гипертрофияси 13 нафар беморда (15,5%), ўрта бурун чиғаноғи гипертрофияси -5 нафар беморда (5,9%), бурун йўлларида полипозиди 17 нафар беморда (20,2%) аниқланган.

Ўрта бурун йўлида йирингли ажралманинг бўлиши 23 нафар беморда (27,4%), юқори бурун йўлида - 9 нафар беморда (10,7%) кузатилган. 15 нафар (17,6%) беморларда йирингли ажралма пастки бурун йўлига оқиши кузатилган. 10

нафар беморда (11,9%) йирингли ажралманинг ҳалқум орқа деворидан оқиши кузатилган.

Рентген текширувида 6 нафар беморда юқори жағ бўшлиғида бир томонлама горизонтал суюқлик сатҳи даражаси аниқланган, икки томонлама - 5 нафар беморда, пешона бўшлиғида - 3 нафар беморда, юқори жағ бўшлиғининг бир томонлама гомоген пневматизациянинг пасайиши- 3 нафар беморда, пешона бўшлиғида - 1 нафар беморда, этмоидал бўшлиққа - 12 нафар беморда, икки томонлама юқори жағ бўшлиғининг гомоген пневматизациянинг пасайиши - 2 нафар беморда, этмоидал бўшлиққа - 7 нафар беморда, бир томонлама юқори жағ ва этмоидал бўшлиқларининг гомоген пневматизациянинг пасайиши – 15 нафар беморда, икки томонлама – 7 нафар беморда, бир томонлама интенсив барча бўшлиқлари пневматизациясининг пасайиши - 19 нафар беморда ва иккала томонда интенсив барча бўшлиқлари пневматизациясининг пасайиши - 4 нафар беморда кузатилди.

Бурун ёндош бўшлиқларида полиплар мавжудлигини истисно қилиш учун йодолипол ёки урографин билан контрастли рентгенография ўтказилди. Бурун ёндош бўшлиқларининг рентгенконтрасли тасвири нафақат шиллик қаватдаги патологик жараёнларни балки шиллик қаватдаги продуктив яллиғланишли ўзгаришлар, аммо унинг самарали яллиғланиши, полип шаклланиши билан бирга, унинг шакли, ҳажми ва миқдори тўғрисида маълумотлар берди.

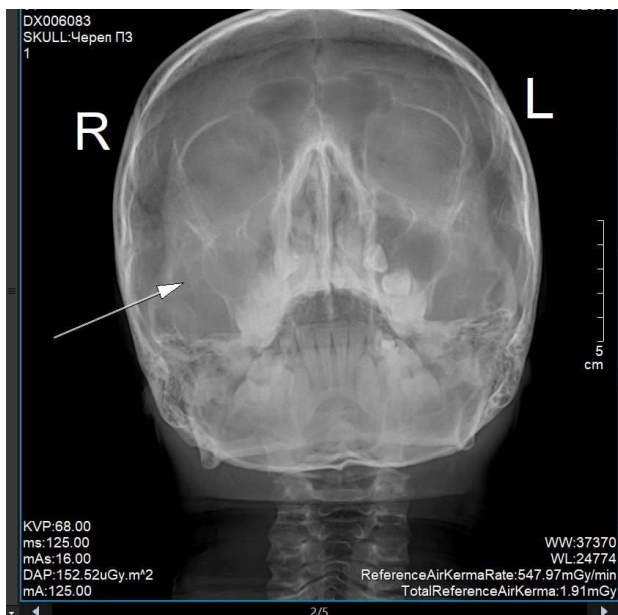
Шуни ҳисобга олган ҳолда полипларни ҳамли ҳосила тоифасига кирганлиги сабабли, уларнинг мавжудлигини кўрсатадиган ўзгаришлар патологиянинг ушбу шакли учун энг характерли бўлиб чиқди.

Бундан ташқари, рентгенконтрастланган бўшлиққа ярим шарсимон, овал шаклдаги тўлишиш нуқсонлари топилган. Ҳажмли ҳосиланинг бўлиши ёки мавжудлиги, шунингдек, бир нечта "бармоқсимон ботиклик" шаклидаги чуқурликлар билан аниқланди (1-расм), рентгенконтрасли препаратининг соясида чекка бўлмаган тўлиқ ёритгичлар билан, полипларнинг контурларини такрорлайдиган кесилган соялар кўриниши билан тасвирланди (2-расм).



**1-расм. Бемор М.В.34 ёш. Бурун ёндош бўшликлари рентгенографияси. Икки томонлама сурункали йирингли гайморит.**

Икки томонда, ён деворда жойлашган соянинг икки томонлама ёритилиши кўринади; бири синуснинг ён деворида, иккинчиси алвеоляр кўрфазнинг бутун ён деворида.



**1-расм. Бемор Ю.С. 37 ёшда. Бурун ёндош бўшликлари рентгенографияси. Ўнг томонлама сурункали йирингли юкори жағ бўшлиғи синусити**

Ўнг томонда, рентген контрастли препаратининг соясида, юмалоқ шаклдаги нуқсонлари "бармоқ чуқурликлари" шаклида контурланади.

**Хулоса.** Беморларнинг анамнези маълумотларини батафсил таҳлил қилиш натижасида 17 нафар беморда сурункали йирингли риносинуит аниқлангандан сўнг 1 мартадан 3 мартагача консерватив даво муваффақиятсиз амалга оширилганлиги аниқланди. Улардан 4 нафар беморда консерватив терапия (бурун ёндош бўшлиқлари пункцияси), эҳтимол, уларнинг асосизлиги ва тўлиқ етарлилиги туфайли прогрессияга олиб келган, яъни сурункали йирингли риносинуитларнинг кучайишига олиб келган. Қолган 67 нафар бемор (79,76%) илгари шу касаллик бўйича даволанмаган. Компютер томографиясидан фойдаланиш бурун ёндош бўшлиқларининг йирингли-яллиғланиш касалликларини нурли диагностикаси имкониятларини сезиларли даражада кенгайтди.

Компютер томографияси бурун ёндош бўшлиқларининг, шу жумладан рентгенконтрастли текшириш усулининг барча маълум тадқиқотларига қараганда кўпроқ маълумотга эга.

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## MATEMATIKA O‘QITISH METODIKASI VA SUN’IY INTELLEKT TEXNOLOGIYALARI ASOSIDA TA’LIM JARAYONINI TAKOMILLASHTIRISH

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### Annotatsiya

Ushbu maqola umumta’lim maktablarida matematika fanini o‘qitishda sun’iy intellekt (SI) texnologiyalarining pedagogik va amaliy ahamiyatini keng ko‘lamda o‘rganishga bag‘ishlangan. Tadqiqotda SI vositalarining o‘quv jarayonini individualizatsiya qilish, murakkab matematik masalalarni tahlil qilish, shuningdek, o‘quvchilarning bilim va ko‘nikmalarini baholash imkoniyatlari batafsil tahlil qilinadi. Maqolada SI texnologiyalarining matematika darslarini interaktiv va qiziqarli qilish, o‘quvchilarda mantiqiy fikrlash, analitik qobiliyat va ijodiy yondashuvlarni rivojlantirishdagi roli ta’kidlangan. Shuningdek, maqolada sun’iy intellektning o‘qituvchi va talaba o‘rtasidagi o‘zaro aloqalarni kuchaytirishi, o‘quv jarayonini optimallashtirish, shaxsiylashtirilgan mashg‘ulotlar orqali o‘quvchilarning matematik bilimlarini mustahkamlashdagi imkoniyatlari yoritilgan. Tadqiqot natijalari SI texnologiyalari yordamida matematik masalalarni vizual tarzda tushuntirish, murakkab kontseptsiyalarni soddalashtirish va sinov hamda baholash jarayonini samarali tashkil etish mumkinligini ko‘rsatadi. Shu bilan birga, maqolada pedagoglar uchun SI vositalarini darslarda samarali qo‘llash bo‘yicha metodik tavsiyalar ham berilgan. Ushbu tadqiqot matematika fani o‘qitish jarayonini innovatsion texnologiyalar bilan boyitish, ta’lim sifatini oshirish va o‘quvchilarning individual o‘qishini rag‘batlantirishga qaratilgan ilmiy asosli va amaliy tavsiyalarga boydir.

**Kalit so‘zlar:** umumta’lim maktabi, matematika fani, sun’iy intellekt, interaktiv ta’lim, pedagogik texnologiyalar, individualizatsiya, ta’lim samaradorligi, innovatsion metodlar, o‘quv jarayoni, analitik va ijodiy fikrlash.

Zamonaviy ta’lim tizimi axborot-kommunikatsiya texnologiyalarining jadal rivojlanishi sharoitida yangi bosqichga ko‘tarilmoqda. Ayniqsa, matematika fani kabi mantiqiy fikrlashni talab qiladigan yo‘nalishlarda sun’iy intellekt (SI) texnologiyalarining qo‘llanishi o‘qitish jarayonini yanada samarali tashkil etishga katta imkoniyatlar yaratmoqda. Matematikani o‘qitish metodikasi o‘z ichiga o‘quvchi tafakkurini rivojlantirish, ularni mustaqil yechim topishga o‘rgatish, nazariy bilimlarni amaliyotga tatbiq etish vazifalarini olgan. Bu jarayonni sun’iy intellekt vositalari bilan boyitish

o'qitish sifatini yuqori bosqichga ko'taradi. Matematika fanini o'qitish bugungi kunda nafaqat bilim berish, balki o'quvchilarda mantiqiy, analitik va ijodiy fikrlash ko'nikmalarini shakllantirish jarayoni sifatida qaraladi. Umumta'lim maktablarida darslarni samarali tashkil etish, murakkab mavzularni oson va tushunarli tarzda tushuntirish hamda har bir o'quvchining individual ehtiyojlarini hisobga olish juda muhim. Shu bois, sun'iy intellekt (SI) texnologiyalari matematikani o'qitishda zamonaviy va innovatsion yondashuv sifatida muhim rol o'ynaydi. SI texnologiyalari o'quvchilarning o'zlashtirish darajasini aniqlash, ularning kuchli va zaif tomonlarini aniqlash hamda individual mashg'ulotlar orqali bilimni mustahkamlash imkoniyatini beradi. Shu bilan birga, darslarni interaktiv va vizual tarzda tashkil etish, murakkab masalalarni animatsiyalar yoki simulyatsiyalar orqali tushuntirish orqali o'quvchilarning matematikaga bo'lgan qiziqishini oshiradi. Shunday qilib, SI yordamida dars jarayoni yanada samarali, qiziqarli va talaba markazli bo'lib qoladi. Maqolada sun'iy intellektning umumta'lim maktablarida matematikani o'qitish jarayonidagi pedagogik ahamiyati, amaliy qo'llanilishi va o'quvchilarga ta'lim sifatini oshirishdagi roli tahlil qilinadi. Shuningdek, maqolada o'qituvchilarning pedagogik jarayonni SI yordamida tashkil etishi, o'quvchilarning mustaqil ishlash ko'nikmalarini rivojlantirish va murakkab matematik tushunchalarni soddalashtirish imkoniyatlari yoritilgan. Bugungi kunda ta'lim jarayonida raqamli texnologiyalar va sun'iy intellekt vositalarini qo'llash nafaqat zamonaviy pedagogik yondashuvni rivojlantirishga, balki o'quvchilarda mustaqil fikrlashni, masalalarni yechish qobiliyatini va ijodiy yondashuvni shakllantirishga xizmat qiladi. Shu nuqtai nazardan, umumta'lim maktablarida matematika fanidan sun'iy intellektni samarali qo'llash bugungi pedagogik jarayonning dolzarb masalalaridan biridir.

Matematikani o'qitish metodikasining nazariy asoslari, Matematika o'qitish metodikasi pedagogikaning alohida sohasi bo'lib, u o'quvchilarning matematik bilimlarni o'zlashtirish jarayonidagi qonuniyatlarni o'rganadi. S. Alixonovning "Matematika o'qitish metodikasi" asarida ta'kidlanishicha, matematika o'qitishning asosiy maqsadi:

o'quvchilarda mantiqiy va tanqidiy tafakkurni rivojlantirish,

nazariy bilimlarni amaliyot bilan bog'lash,

tahlil, sintez, taqqoslash, umumlashtirish kabi fikrlash jarayonlarini shakllantirish,

mustaqil ishlash ko'nikmalarini rivojlantirishdan iboratdir.

An'anaviy metodika quyidagi tamoyillarga asoslanadi:

1.1. Ilmiylik tamoyili

Matematik tushunchalar ilmiy asoslangan, aniq va qat'iy bo'lishi zarur.

## 1.2. Izchillik va uzviylik

Yangi mavzu avvalgi bilimlarga tayanib o'tiladi.

## 1.3. Onglilik va faollik

O'quvchi mavzuni tayyor holatda emas, balki faol o'rganish orqali egallaydi.

## 1.4. Mustahkamlash

Amaliy mashqlar, testlar, grafik chizmalar orqali bilimlar mustahkamlanadi.

## 1.5. Individual yondashuv

Har bir o'quvchining tayyorgarlik darajasi hisobga olinadi.

An'anaviy metodlarning afzalligi ko'p bo'lsa-da, jadal rivojlanayotgan davrda ular o'quvchining tezkor, interaktiv, vizual o'quv ehtiyojlarini to'liq qondira olmayotgani kuzatiladi. Shu sababli, zamonaviy texnologiyalar bilan uyg'unlashtirilgan yondashuv talab etiladi.

## 2. Ta'limda sun'iy intellekt texnologiyalarining qo'llanilishi

Sun'iy intellekt texnologiyalari ta'lim sohasiga kirib kelishi bilan o'rganish jarayoni yangi bosqichga ko'tarildi. Baydullayev A.S. va hamkorlarning ilmiy maqolasida ta'limda SIning asosiy xususiyatlari keng yoritilgan.

SIning ta'limdagi asosiy afzalliklari quyidagilar: Avtomatik tahlil va baholash,

o'quvchining yechimdagi xatolari tez aniqlanadi va tahlil qilinadi. Individual ta'lim yo'li bu har bir o'quvchi uchun maxsus algoritm asosida shaxsiy o'quv yo'li yaratiladi.

Masofaviy ta'limni kuchaytirish, AI asosida interaktiv platformalar, videoizohlar, virtual laboratoriyalar yaratiladi.

Matematikani an'anaviy metodika va sun'iy intellekt asosida integratsiyalash esa matematik ta'limda eng yuqori samaradorlik "metodika + sun'iy intellekt" uyg'unligida erishiladi.

Quyida ikkala yo'nalishning integratsiyalashgan modeli beriladi:

### 1. Tushuntirish jarayoni

An'anaviy: o'qituvchi mavzuni og'zaki tushuntiradi.

SI: mavzuni interaktiv simulyatsiya, 3D model orqali ko'rsatadi.

## 2. Masala yechish

An'anaviy: doska, daftar, qo'llanma.

SI: bosqichma-bosqich tahlil qiluvchi aqlli platformalar.

Matematik ta'limda sun'iy intellektdan foydalanishning ijobiy va salbiy jihatlari

Ijobiy tomonlari: ta'lim sifatini oshiradi, shaxsiylashtirilgan o'quv yo'llari, murakkab mavzularni vizualizatsiya qiladi, o'quvchining xatolarini tahlil qiladi, o'qituvchining vaqtini tejaydi.

Salbiy tomonlari: texnologiyaga haddan tashqari bog'lanib qolish, ma'lumotlar xavfsizligi muammolari, o'qituvchilar faoliyatining qisqarishi xavfi, qurilmalarning qimmatligi.

O'zbekistonda matematika ta'limida sun'iy intellektning istiqbollari;

Raqamli ta'lim platformalarini yaratish, virtual matematika laboratoriyalari, o'qituvchilar uchun SI asosida avtomatlashtirilgan dars rejalari, o'quvchilarni mantiqiy fikrlash darajasini o'lchovchi aqlli tizimla, AI yordamida o'qituvchilar malakasini oshirish kurslari, O'zbekistonning "Raqamli O'zbekiston – 2030" strategiyasi bu jarayonning davlat darajasida qo'llab-quvvatlanayotganini ko'rsatadi.

Mening shaxsiy fikrim shuki, SI texnologiyalari murakkab matematik tushunchalarni sodda va tushunarli tarzda tushuntirish imkonini beradi. Masalan, funksiyalar, geometrik shakllar yoki algebraik tenglamalar mavzusini animatsiyalar yoki vizual modellardan foydalangan holda tushuntirish o'quvchilarda mavzuga qiziqishni oshiradi va ularning mustaqil fikrlashini rag'batlantiradi. Men kuzatdimki, o'quvchilar vizual va interaktiv materiallar yordamida mavzuni tezroq o'zlashtiradi va murakkab masalalarni yechishga harakat qiladi. Shuningdek, SI texnologiyalari yordamida darslarni guruh bo'yicha ham samarali tashkil etish mumkin. Masalan, o'quvchilarni qobiliyatlariga mos guruhlarga ajratish va ularga moslashtirilgan mashqlar berish orqali hamkorlikda ishlash ko'nikmalarini rivojlantirish mumkin. Men o'zim tajribamda shuni ko'rdimki, bu yondashuv o'quvchilarning ijtimoiy va muloqot ko'nikmalarini ham oshiradi, shuningdek, ularni masalalarni turli usullarda yechishga rag'batlantiradi. Umumta'lim maktablarida matematika fanini o'qitishda sun'iy intellekt texnologiyalarini qo'llash o'quv jarayonini yanada samarali, interaktiv va individualizatsiyalangan qilish imkonini beradi. Tadqiqot natijalari shuni ko'rsatdiki, SI yordamida murakkab matematik tushunchalarni sodda va tushunarli tarzda tushuntirish, o'quvchilarning qobiliyatlariga mos mashqlar berish hamda dars jarayonini vizual va interaktiv qilish mumkin. Bu

nafaqat o'quvchilarning mavzuni tezroq o'zlashtirishiga, balki ularning mantiqiy fikrlash, tahlil qilish va ijodiy yondashuv ko'nikmalarini rivojlantirishga xizmat qiladi.

Umumta'lim maktablarida matematika fanini o'qitishda sun'iy intellekt texnologiyalarini qo'llash o'quv jarayonini yanada samarali, interaktiv va individualizatsiyalangan qilish imkonini beradi. Tadqiqot natijalari shuni ko'rsatdiki, SI yordamida murakkab matematik tushunchalarni sodda va tushunarli tarzda tushuntirish, o'quvchilarning qobiliyatlariga mos mashqlar berish hamda dars jarayonini vizual va interaktiv qilish mumkin. Bu nafaqat o'quvchilarning mavzuni tezroq o'zlashtirishiga, balki ularning mantiqiy fikrlash, tahlil qilish va ijodiy yondashuv ko'nikmalarini rivojlantirishga xizmat qiladi. Mening shaxsiy fikrim shuki, SI texnologiyalari o'qituvchi va o'quvchi o'rtasidagi aloqani kuchaytiradi, darsni qiziqarli qiladi va o'quvchilarni mustaqil fikrlashga rag'batlantiradi. Shu bilan birga, SI vositalari o'quvchilarning kuchli va zaif tomonlarini aniqlash, shaxsiylashtirilgan mashg'ulotlar tashkil etish va o'quv jarayonini samarali boshqarish imkonini beradi. Kelajakda umumta'lim maktablarida matematika fanini o'qitishda SI texnologiyalarini yanada keng qo'llash, innovatsion metodlarni rivojlantirish va pedagogik jarayonni raqamlashtirish orqali ta'lim sifatini oshirish mumkin. Men o'zinning pedagogik tajribam asosida ishonch bilan ayta olamanki, sun'iy intellekt yordamida matematika darslarini tashkil etish o'quvchilarning bilimini chuqurlashtirish va ularning matematikaga bo'lgan qiziqishini orttirishda samarali vosita bo'ladi.

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Jismoniy tayyorgarlik va sport kafedrası letyenantı,

**Anotatsiya.** Ushbu maqolada funksional ko'pkurash mashg'ulotlarining inson organizmining funksional holatini rivojlantirishdagi ahamiyati yoritilgan. Tadqiqotda jismoniy mashqlar majmuasi orqali yurak-qon tomir, nafas olish, mushak va asab tizimlarining faoliyatini yaxshilash yo'llari tahlil qilingan. Funksional ko'pkurash mashqlari tananing umumiy chidamliligi, tezkorligi, muvofiqligi va kuchini oshirishga qaratilgan bo'lib, ularni muntazam bajarish organizmning ish qobiliyatini sezilarli darajada oshiradi. Maqolada mashg'ulotlarning tuzilishi – tayyorlov, asosiy va yakunlovchi qismlar bo'yicha mashqlar majmui keltirilib, ularning fiziologik ta'siri asoslab berilgan. Natijalar shuni ko'rsatadiki, funksional ko'pkurash mashqlari inson sog'lom turmush tarzini shakllantirish va jismoniy tayyorgarlikni yaxshilashda samarali vosita hisoblanadi.

**Kalit so'zlar:** funksional ko'pkurash, jismoniy mashqlar, funksional holat, organizm, sog'lom turmush tarzi, chidamlilik.

**Anotation.** This article highlights the importance of functional multicooker training in the development of the functional state of the human body. The study analyzed ways to improve the functioning of the cardiovascular, respiratory, muscular and nervous systems through a complex of physical exercises. Functional multicooker exercises are aimed at increasing the overall endurance, agility, compatibility and strength of the body, while performing them regularly significantly increases the body's working capacity. The article presents a set of exercises on the structure of training – preparatory, basic and concluding parts, on the basis of which the physiological effect is based. The results show that functional multicooker exercises are an effective tool in the formation of a healthy human lifestyle and improving physical fitness.

**Keywords:** functional multicooker, exercise, functional state, organism, healthy lifestyle, endurance.

**Аннотация.** В данной статье освещается значение тренировок по функциональному многоборью в развитии функционального состояния организма человека. В исследовании были проанализированы способы улучшения работы

сердечно-сосудистой, дыхательной, мышечной и нервной систем С помощью комплекса упражнений. Функциональные упражнения в многоборье направлены на повышение общей выносливости, быстроты, выносливости и силы тела, а их регулярное выполнение значительно повышает работоспособность организма. В статье представлена структура тренировок – комплекс упражнений на подготовительную, основную и заключительную части, обосновано их физиологическое действие. Результаты показывают, что функциональные упражнения в многоборье являются эффективным средством формирования здорового образа жизни человека и улучшения физической формы.

**Ключевые слова:** функциональное многоборье, упражнения, функциональное состояние, организм, здоровый образ жизни, выносливость.

Zamonaviy sport va jismoniy tarbiya tizimida inson organizmining funksional holatini rivojlantirish eng muhim yo'nalishlardan biridir. Funksional ko'pkurash (ya'ni turli jismoniy sifatlarni birgalikda shakllantiruvchi mashqlar tizimi) nafaqat sportchilar, balki keng jamoatchilik uchun ham sog'lom turmush tarzining asosi bo'lib xizmat qiladi. Insonning funksional holati deganda yurak-qon tomir, nafas olish, mushak, asab va endokrin tizimlarning muvofiqlashgan faoliyati tushuniladi. Ushbu tizimlarning uyg'un ishlashi jismoniy ish qobiliyatining asosiy ko'rsatkichi hisoblanadi. Shuning uchun funksional ko'pkurash mashqlari orqali organizmni kompleks tarzda rivojlantirish dolzarb masalalardan biridir. Funksional ko'pkurash — bu inson organizmining harakat imkoniyatlarini kengaytiruvchi, kuch, chidamlilik, tezlik, muvofiqlik va epchillik kabi jismoniy sifatlarni birgalikda rivojlantiruvchi mashqlar tizimidir. Bunday mashg'ulotlar insonning kundalik hayotdagi tabiiy harakatlariga yaqin bo'lib, mushak guruhlari o'rtasidagi muvofiqlikni mustahkamlaydi. Zamonaviy sport turlarida ham, jismoniy tarbiya darslarida ham funksional mashqlar organizmning umumiy tayyorgarligini oshirish, sog'lom turmush tarzini shakllantirishda samarali usul hisoblanadi. Ular nafaqat sportchilarning, balki oddiy shug'ullanuvchilarning ham jismoniy faolligini oshirish, yurak-qon tomir va nafas olish tizimlarini mustahkamlashda muhim o'rin tutadi. Funksional mashg'ulotlar tizimli ravishda, uch qismdan iborat tarzda tashkil etiladi: tayyorlov qismi, asosiy qism va yakunlovchi qism. Har bir bosqichning maqsadi organizmga bosqichma-bosqich yuklama berish va fiziologik moslashuvni ta'minlashdir. Tayyorlov qismida organizmni yuklamaga tayyorlash, yurak urish chastotasini oshirish, mushaklarni harakatga tayyorlash maqsadida yengil mashqlar bajariladi. Bu bosqichdagi mashqlar majmuasi 3–5 daqiqa yengil yugurish; tana, qo'l va oyoq bo'g'imlarini aylantirish; tizzani baland ko'tarib yurish va sakrash mashqlari; nafas olish-chiqarish mashqlari (4/4 ritmda).

Funksional ko'pkurash mashg'ulotlari inson organizmining turli tizimlariga ijobiy ta'sir ko'rsatadi.

-yurak-qon tomir tizimi: yurak urish hajmini oshiradi, qon aylanishini yaxshilaydi, arterial bosimni me'yorda ushlab turadi.

-nafas olish tizimi: o'pkaning vital sig'imini kengaytiradi, gaz almashinuvi jarayonini yaxshilaydi.

-mushak tizimi: mushak tolalarining elastikligini va kuchini oshiradi, tananing muvozanat saqlash qobiliyatini rivojlantiradi.

-asab tizimi: harakatlar muvofiqligini kuchaytiradi, reflekslarni tezlashtiradi.

-energiya almashinuvi: aerob va anaerob jarayonlarni faollashtiradi, charchoqqa bardoshlilikni oshiradi. Tadqiqotlar shuni ko'rsatadiki, funksional ko'pkurash mashqlari bilan muntazam shug'ullangan insonlarda yurak urish chastotasi tinch holatda kamayadi, nafas olish hajmi ortadi va umumiy jismoniy ish qobiliyati 15–25% gacha yaxshilanadi. Funksional ko'pkurash mashg'ulotlari nafaqat sportchilarga, balki keng jamoatchilikka ham mosdir. Ularni maktab, kollej va oliy o'quv yurtlarining jismoniy tarbiya mashg'ulotlariga kiritish orqali o'quvchilarning sog'lom turmush tarzini shakllantirish, chiniqish darajasini oshirish mumkin. Shuningdek, bunday mashg'ulotlar stressni kamaytiradi, immun tizimni mustahkamlaydi va inson psixologik holatiga ijobiy ta'sir ko'rsatadi. Mazkur mashqlar majmui orqali inson organizmida koordinatsion, mushak, yurak-qon tomir, nafas olish va nerv tizimlari o'zaro uyg'unlikda ishlay boshlaydi. Shu bois, funksional ko'pkurash mashg'ulotlari jismoniy tayyorgarlikning muhim komponenti sifatida sog'lom turmush tarzini shakllantirishda katta ahamiyat kasb etadi. Funksional ko'pkurash nafaqat tanaga, balki ong va hissiyotlarga ham ijobiy ta'sir ko'rsatadi. Mashqlar davomida endorfin (baxt gormoni) ajraladi, stress gormoni — kortizol miqdori kamayadi. Bu esa inson kayfiyatini yaxshilaydi, uyquni me'yorga keltiradi va motivatsiyani oshiradi. Muntazam mashg'ulotlar diqqatni jamlash, xotirani mustahkamlash, hissiy barqarorlikni saqlashda ham muhim rol o'ynaydi. Ayniqsa o'quvchilar va talabalar orasida bunday mashg'ulotlar intellektual samaradorlikni oshirishda yordam beradi. Funksional ko'pkurash mashqlari o'quvchi-yoshlarning jismoniy tarbiya jarayonida katta tarbiyaviy ahamiyatga ega. Bu mashqlar yoshlarning o'zini boshqarish va iroda kuchini tarbiyalaydi, jamoaviylik, intizom, mustaqillik sifatlarini rivojlantiradi, harakat madaniyatini shakllantiradi, sog'lom turmush tarzini odatga aylantiradi. Funksional ko'pkurash mashg'ulotlari inson organizmining barcha asosiy tizimlarini — yurak-qon tomir, nafas olish, mushak, asab va endokrin tizimlarni uyg'un holda rivojlantiruvchi samarali jismoniy faoliyat turi hisoblanadi. Tadqiqotlar shuni ko'rsatadiki, bunday mashqlar majmuasi muntazam qo'llanilganda organizmning

funksional holati yaxshilanadi, charchoqqa bardoshlilik ortadi, yurak urish chastotasi me'yorga tushadi va nafas olish chuqurlashadi. Funksional mashqlar murakkab sport texnikasiga asoslanmaganligi sababli ularni barcha yoshdagi kishilar — maktab o'quvchilaridan tortib, kattalar va hatto keksalargacha — bajarishlari mumkin. Ular sog'lom turmush tarzining ajralmas qismi bo'lib, organizmni chiniqtiradi, immun tizimni mustahkamlaydi hamda psixologik barqarorlikni ta'minlaydi. Funksional ko'pkurash mashg'ulotlarini jismoniy tarbiya jarayonlariga kiritish o'quvchilarning umumiy jismoniy tayyorgarligini oshiradi, ularning motivatsiyasini kuchaytiradi va sog'lomlashtiruvchi samarani ta'minlaydi. Shu bois, mazkur mashqlar majmuasini har bir ta'lim bosqichida muntazam qo'llash dolzarb hisoblanadi.

Funksional ko'pkurash mashqlari organizmning barcha tizimlarini birgalikda rivojlantiruvchi samarali jismoniy tarbiya shaklidir. Funksional ko'pkurash mashg'ulotlarining afzalligi shundaki, ular maxsus jihozlarsiz, cheklangan sharoitda ham bajarilishi mumkin. Shu sababli bu mashqlar tizimi nafaqat professional sportchilar, balki o'quvchi-yoshlar, talabalar va keng aholining sog'lomlashtirish maqsadlarida qo'llanishi uchun ham qulaydir. Funksional mashqlarni jismoniy tarbiya mashg'ulotlariga kiritish orqali yoshlarning harakat faoliyatini faollashtirish, chidamlilikni rivojlantirish, irodaviy sifatlarni tarbiyalash va sog'lom turmush tarziga bo'lgan qiziqishni oshirish mumkin. Ular insonda jismoniy barkamollik, ruhiy barqarorlik, muvozanat va o'zini boshqarish qobiliyatlarini shakllantiradi. Shunday qilib, funksional ko'pkurash mashqlari organizmning funksional holatini rivojlantirishda, sog'lom hayot falsafasini shakllantirishda hamda yosh avlodni jismonan va ma'naviy barkamol etib tarbiyalashda samarali, arzon va universal vosita sifatida e'tirof etilishi mumkin. Bu yo'nalish bo'yicha mashg'ulotlarni muntazam tashkil etish sog'lom, chiniqqan, faol va irodali insonlarni voyaga yetkazishning muhim kafolati hisoblanadi.

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## Abstract

The accelerating global transition to a green economy requires innovative labor market reforms that can ensure economic resilience, social inclusion, and environmental sustainability. Central Asian countries face a unique challenge: how to reposition their labor markets away from resource-intensive industries toward green, knowledge-based sectors. This article analyzes the current situation of green jobs and sustainable labor policies in Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, and Turkmenistan. It examines institutional gaps, skills shortages, and policy fragmentation, and presents practical recommendations for integrating green employment into national development strategies. The article also emphasizes the importance of human capital development, regional cooperation, digital innovation, and public-private partnerships as crucial mechanisms for the success of sustainable labor market reforms.

## Introduction

Central Asia stands at a strategic crossroads between traditional economic models and the urgent need for ecological transformation. The region's economies have long been dependent on extractive industries, water-intensive agriculture, and outdated energy systems. However, environmental pressures, international commitments, and global market shifts now require the adaptation of labor policies toward sustainability and innovation. The rise of green jobs offers an opportunity not only to protect the environment but also to modernize the labor market, enhance competitiveness, and improve living standards.

To seize this opportunity, governments must design policy reforms that integrate environmental goals with employment strategies. This requires a long-term vision, targeted investments, and alignment between education systems, business interests, and national economic priorities.

## Theoretical Foundations

The transition to green employment can be explained through two major theoretical approaches. First, ecological modernization theory argues that economic growth and environmental protection can coexist through institutional reform and technological innovation. Second, human capital theory emphasizes that investment in skills development increases productivity and enables the workforce to adapt to emerging labor market demands.

A successful green transition must therefore combine economic incentives, environmental regulation, and education policy. Labor markets must be redesigned to promote inclusive participation, lifelong learning, gender equality, and digital skills, while stimulating innovation in energy, agriculture, industry, and services.

## **Current Situation of Green Jobs in Central Asia**

The development of green jobs in Central Asia is uneven but promising.

Uzbekistan has declared a shift to a green economy and initiated major renewable energy projects, particularly in solar and wind power. New employment opportunities are emerging in energy auditing, resource efficiency, carbon accounting, and environmental consulting.

Kazakhstan has developed one of the most advanced green policy frameworks in the region, establishing more than 230 renewable energy facilities and promoting green innovation through government subsidies and international partnerships.

Kyrgyzstan and Tajikistan have potential in sustainable agriculture and hydroenergy, yet they face difficulties due to limited infrastructure and financial constraints.

Turkmenistan is implementing energy efficiency measures in fossil fuel industries but still lacks comprehensive green labor policies.

Overall, the region has begun the transition but lacks integrated strategies that connect labor policy, climate policy, and education system modernization.

## **Challenges to Sustainable Labor Reform**

Despite visible progress, several systemic challenges hinder green labor market growth in Central Asia:

Mismatch between education and labor market demands — universities and vocational institutions still provide outdated training unrelated to the needs of emerging green sectors.

Weak inter-ministerial coordination — environmental policies often operate separately from employment and education strategies.

Insufficient investment — green sectors depend largely on donor funding, while domestic investment remains low.

Barriers to inclusion — women, rural communities, and young graduates often lack access to quality training or green job opportunities.

Limited statistical data — governments struggle to measure green employment or forecast demand for green skills.

These challenges must be addressed through structured policy reform and cross-sector cooperation.

## **Policy Recommendations**

### **1. Design Green Skills Training Programs**

Governments should introduce specialized training in fields such as renewable energy management, waste recycling, climate risk assessment, and sustainable agriculture. Universities and vocational centers should integrate green competencies into existing curricula and offer certification programmes aligned with international standards.

### **2. Foster Public–Private Partnerships**

To accelerate job creation, governments must collaborate with businesses, research institutions, and international organizations. Tax incentives, innovation grants, and green investment funds can stimulate job growth in strategic sectors such as clean energy, bioeconomy, eco-tourism, and smart infrastructure.

### **3. Promote Inclusive Employment Models**

Labor policies must prioritize women, youth, and rural populations by providing targeted training, entrepreneurship support, microfinance opportunities, and mentoring systems. This will help reduce inequality and increase social resilience.

### **4. Establish a Central Asian Green Jobs Network**

Regional cooperation is essential. A coordinated platform for knowledge exchange, policy harmonisation, and international funding could significantly accelerate the green transition and avoid duplication of efforts.

### **5. Improve Data and Forecasting Mechanisms**

Labor market information systems should incorporate environmental indicators and real-time workforce analytics. This would enable policymakers to better understand green employment trends and anticipate future skills demand.

## **Conclusion**

Green jobs are not only an environmental necessity but also a strategic economic opportunity for Central Asia. With the right policy reforms, the region can modernize its labor markets, unlock new sources of growth, attract foreign investment, and improve the overall quality of life. The transition to sustainable employment requires cooperation between governments, academic institutions, businesses, civil society, and international partners.

Central Asia must view green jobs not as an alternative sector, but as a core engine for economic development and human capital advancement. The success of this transformation depends on a bold approach to policy innovation, social inclusion, and long-term strategic planning.

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**Abstract:** The study of the ethnogenesis and ethnic history of the peoples of Central Asia is one of the important problems of our time. In the context of the independence of the peoples of Central Asia and their ethnocultural revival as a people, in-depth historical knowledge and a clear understanding of the peoples' rightful place in the ethnic diversity of the historical process are of great importance in order to strengthen their understanding of their national identity.

**Keywords:** Ethno, race, nation, people, Turks, homeland, ethnogenesis, ethnoculture, Turan, Turk , people, ethnicity.

**Introduction.** It has become one of the pressing issues to highlight, based on concrete evidence, the ancient ties of friendship between the ethnic groups living in the Central Asian region and the inextricable connection between the history and culture of any people with the history and culture of neighboring fraternal peoples. Central Asia or Middle Asia <sup>1</sup>is a natural region in the interior of the Asian continent, with an area of 6 million km <sup>2</sup>. Its northern and western edges extend to Mongolia and the state border between the PRC and the Russian Federation, its eastern part is Greater Xinjiang, and its southern side is the Sangpo (Brahmaputra) in Tibet and Surrounded by the upper reaches of the Indus River, Central Asia is located much higher than sea level.

**Main part. Central Asia** refers to the five republics that gained independence after the collapse of the Soviet Union: Kyrgyzstan, Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan.

During the Soviet era, the term " Central Asia and Kazakhstan" (Central Asia and Kazakhstan Economic Region) was used for this region. However, after gaining independence in 1991, the term "Central Asia" began to be used both in these countries and in foreign countries. In January 1992, at an official meeting of the heads of five states, the term "Central Asia" was adopted. Currently, this term has been accepted by the world community, as a result of which Central Asian departments have been opened in most international organizations and scientific research institutes.

helps to determine the role and place of certain ethnic groups, peoples, including the peoples of Central Asia, in the history of mankind . The ethnography of the peoples of

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<sup>1</sup>Central Asia is often a political concept, while Middle Asia is a geographical concept.

this region, which have a common historical fate, a common socio-cultural background, a close lifestyle and social development, is in many ways variable. No matter how stable their historical and ethnological and ethnic structure is, the ethnic groups of Central Asia have always developed and changed over time.

In particular, the peoples of Central Asia are not only the product of a long and complex historical process, but also have a very close spiritual culture and general psychological characteristics. To determine the characteristics of these peoples, it is necessary to first turn to some pages of ethnic history.

In the 6th century BC, these territories were ruled by the Iranian kingdom, and in the 4th century by the Greco-Macedonian kingdom led by Alexander the Great. Later, these territories were part of the Khorezm and Qang states, then the Kushan kingdom (late 5th century - early 3rd century), the Hephthalite state (5th-6th centuries), the Turkic Khaganate (6th-7th centuries), and the Arab Caliphate (8th century).

, the Samanid, Seljuk (11th century), and Ghaznavid (10th-12th centuries) states emerged in ancient Central Asia (Movarunnahr). For a while, these territories also came under the rule of the Karakhanids (10th century).

the 12th century to the beginning of the 13th century, it was under the rule of the Khorezm Kingdom (995-1200). From the end of the second decade of the 13th century, these territories were occupied by Mongol invaders. In the 70s of the 14th century, the state of Amir Temur was established.

15th to early 16th centuries, these lands were under the rule of the Shaybanids, and then the Ashtar Khanids.

As a result, in the middle of the 18th century, three states were formed: the Emirate of Bukhara, the Khanates of Khiva and Kokand. In the second half of the 19th century, Turkestan became a colony of the Russian Empire. Soon the Kokand Khanate was abolished, and the country was transformed into a raw material base for Russia. Thus, the lands of Central Asia were under the control and oppression of other states for almost 26 centuries. According to written sources, from the end of the 16th - beginning of the 17th centuries until 1924, these territories were called "Turkestan".

This region has been called "Turon", "Turkiston", "Movapoy nahr", "Central Asia" and finally "Central Asia" at different times. Naturally, these regions differed somewhat in terms of territory. Therefore, everyone is interested in how the Turonzamin region was called in the past and its history, of course<sup>2</sup>.

**Literature analysis.** Turan is a historical geographical term first used in the works of the encyclopedist Abu Rayhan Beruni, historians at-Tabari and al-Istakhriya, and in the epic poem "Shahnama" by Abul-Qasim Firdawsi, the names "Iran" and

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<sup>2</sup>Doniyorov A., Boriyev O., Ashirov A. Ethnology of the peoples of Central Asia. – Tashkent: "NIF MSH", 2020. – P. 29.

"Turan" are mentioned. It is known that the border between the territories of Iran and Turan is determined by the Amu Darya. means "earth", "soil", "field" and "steppe". Accordingly, the toponym "Turon" means lowlands, fields and steppes, that is, vast pastures. The expressions "Turon" and "the land of the Turanians" can be associated with vast territories.

As noted above, historically and geographically, the Turanian territories represent the homeland of the Turkic peoples living in the regions from the Pacific Ocean to the Aegean Adriatic in the Mediterranean Sea, from the Arctic Ocean to Tibet and the Himalayas, and from northern India to Anatolia, that is, present-day Turkey.

The central part of Turan is geographically called the Turan Lowland and mainly includes the northwestern parts of Central Asia and the southwestern parts of Kazakhstan, with its borders extending to the Caspian Sea, the Ural Mountains in the north, the Tangritog foothills in the east, and the Pamir and Kopetdag\* mountains in the south. Turan was home to the Alp Er Tunga, the Afrosiab and Kushan kings, the eastern and western Turkic khaganates, Attila, Parthia, Karakhanids,

There were the Ghaznavids, Seljuks, Khorezmshahs, Genghis Khan, Chigatai, Timurids, Ottomans, Khans of the Edirne and Siberian khanates, Shaybanids, Ashtar Khanates, and the Emirate of Bukhara, Khiva, and Kokand khanates.

Thus, the term "Turan" is considered a general name that encompasses all peoples within its borders, since it means Turks. There are full grounds to call the word "Turk" the great Turkistan, which includes all its branches. According to the historian Sh. Kamoliddin, the oldest name for the Central Asian region is "Turan", and the successor and equivalent of this term in later centuries is "Turkiston"<sup>3</sup>. and ethnic history of the peoples of Central Asia. Some linguists include the Turkic language, along with the Mongolian and Tungus-Manchu languages, in the Altaic language family. In particular, linguists such as E. D. Polivanov and G. Y. Ramstedt believe that this language family can be expanded by including Korean and Japanese. According to the Altaic theory, the history of the Turkic language begins in ancient times, when the Altaic languages formed as one language, that is, in the Altaic period. The Altaic ancestral language (the main language) was first divided into two - Tungus-Manchu and Turkic-Mongolian languages, and then the Turkic-Mongolian language itself was divided into two - Turkic and Mongolian. However, the issue of the genetic relationship of the Turkic language to the Altaic languages is still considered at the level of speculation<sup>4</sup>.

The Arab historian al-Tabari noted that in the 7th-8th centuries, the population of Balkh, Tokharistan, Badkhis, Kokhistan, Serakhs, Chaganiyan, Bukhara, Chach and

<sup>3</sup>Malyavkin A.G. Uygurskoe gosudarstva v IX-XIII vv.. - Novosibirsk: Nauka, 1983. - S. 56.

<sup>4</sup>Doniyorov A., Boriyev O., Ashirov A. Ethnology of the peoples of Central Asia. - Tashkent: "NIF MSH", 2020. - P. 37.

Fergana was mainly Turkic. According to the author, the Karluks were the largest among these peoples. According to written sources, a certain border was established between the Samanids and the Karluk state, but there was no clear border in the modern sense. Turkic tribes freely migrated to Transoxiana from the northern regions of the Syrdarya. According to Masudi, the Karluks lived throughout Fergana, Shash and their surroundings in the 10th century<sup>5</sup>.

The peaceful and peaceful entry of Turkic tribes into Transoxiana continued uninterrupted both before the Arabs and during their rule, even despite the Samanids' construction of defensive walls in the border areas against the intrusion of Turkic tribes. As a result, their migration to a settled life and the Turkification of the indigenous population accelerated, ensuring the socio-economic structure and ethno-political unification of these tribes in the regions of Transoxiana where Turkic tribes and tribes were widespread<sup>6</sup>.

Similar historical conditions reached their peak in the life of the Turkic peoples of Central Asia in the 9th century. At the same time, the processes of feudalization were also intensifying among the Turkic ethnic group. This process was accompanied by constant wars and plundering campaigns of representatives of the upper class, who sought to conduct a policy independent of the supreme authority. In the pastoral regions, a strong state power was needed to put an end to the barbarism. Such a strong state power was formed on the basis of a certain leading clan.

Elshunos K. Shoniyozov rightly noted, although political power in Transoxiana was in the hands of the Samanids in the 9th-10th centuries, the Uzbek people were formed within the framework of the Karluk-Qarakhanid state in its northern, northeastern and northwestern regions. It is this large Turkic ethnocultural territorial integrity that is characterized as an important fundamental basis in the history of the ethnogenesis of the Uzbek people<sup>7</sup>.

Research on these ethnic groups through written sources and field studies has led to the creation of a work that sheds light not only on the material and spiritual culture of the settled population, but also on the economic practices, family relations, material culture,<sup>8</sup> religious beliefs, and various forms of interaction with the local population (trade, cultural).

<sup>5</sup>Abulfazl Muhammad ibn Husayn Bayhaqi. History of Masudi. History of Uzbekistan (V-XI centuries), (History of Uzbekistan and sources). Editors: A. Akhmedov, O. Buriev. Volume III. – Tashkent: “O'zbekiston”, 2023. – P. 420-427.

<sup>6</sup>Shoniyozov K.Sh. The Karluk state and the Karluks. – Tashkent: Sharq, 1999. – P. 34.

<sup>7</sup>Doniyorov A., Boriyev O., Ashirov A. Ethnology of the peoples of Central Asia. – Tashkent: “NIF MSH”, 2020. – P. 40.

<sup>8</sup>Mamataliev AP Study of the ethnography of the Fergana Valley (Based on articles in social and humanitarian journals of the years of independence) / News of the National University of Uzbekistan. No. 4/1, 2011. - 154 pages.

**Conclusion.** The process of formation of the Uzbek people is the result of the active assimilation and consolidation of Turkic ethnic and ethnographic groups with a Karluk, Kipchak and Oghuz component, according to their origin. The influence of the Oghuz ethnic component in the ethnogenesis of Turkmens, Azerbaijanis and Anatolian Turks of Turkic origin is clearly felt, the influence of the Kazakh, Karakalpak, Kyrgyz and Bashkirs is clearly felt, the influence of the Karluk component in the history of the formation of the Uyghurs is clearly felt.

In the formation of the Uzbek people, the influence of all three ethnolinguistic components mentioned above can be seen. This situation has led to the ethnic multi-component nature of the Uzbek people being ethnically, linguistically, anthropologically, and culturally diverse and colorful. Also, the rich and diverse culture of the Uzbek people, the mixing of elements of the steppe pastoral culture with the settled urban culture, indicates that this is the result of these assimilation processes.

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## SOCIAL CONDITION OF THE POPULATION DURING THE QARAKHANI PERIOD

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**Abstract:** The article discusses the social life of the Karakhanid period, the lifestyle of the population, and their professions and positions. The number of sources providing information about the Karakhanid period is very small, which makes it difficult to obtain information about the social strata of the population of that period.

**Keywords:** Turkic tribes, "Turkic factor" and "Turkic element", "gatehouse", "Kutadgu bilig", black people, Alawites, scholars, dream interpreters, astronomers and astrologers, farmers, merchants, herders and the poor

**Introduction.** The Karakhanid state covered a vast territory from the Karakum Desert in the west to Lake Lobnor in the east, and from Lake Balkhash in the north to the Amu Darya in the south. The ethnic composition of the population was also complex, with some speaking Turkic, others Persian and Arabic. In addition, their social life was not uniform. The geographical conditions, economic foundations, and laws of the places where they lived were different.

During the reign of the Karakhanids, migration processes in Turkestan intensified significantly. Many Turkic tribes, previously engaged in cattle breeding and included in the tribal union called the Uyghurs, migrated from the pastures in and around the foothills of the Yettisuv, Tangritog and Altai mountains to the cities and agricultural regions of Turkestan. Therefore, a transition from cattle breeding to agriculture was observed among them. As a result, a new form of ownership entered the social life of these tribes.

This change was directly related not only to the availability of areas suitable for farming, but also to the improvement of their social standard of living. During their stay in the Seven Seas, the production relations and way of life based on farming in the south penetrated every sphere of the social life of these tribes. The Turkic tribes living in the west of the Pamirs were attracted, first of all, by the advantages inherent in farming. In particular, the immigrants were interested in important agricultural products, a sedentary and luxurious lifestyle, and a comfortable environment. These aspects influenced the thinking, mentality, and customs of the Turkic tribes [4:77-78].

**Main part.** The Karakhanids' nomadic Turkic origins, their occupation of many cities, and their important position in trade between China and the rest of the Islamic world led to the establishment of several cities in the region's mountain ranges. These high-altitude cities flourished above the lowland farming zones during the early decades of Karakhanid Islamization and geographic expansion. In 2011, the archaeological

remains of the city of Tashbulak in the Malguzar Mountains of eastern Uzbekistan were excavated. Founded in the late 19th century, it flourished under the Karakhanids in the early 11th century.

The presence of Muslim tombs suggests that the city was founded after the Karakhanids converted to Islam. The city's inhabitants were engaged in sheep and cattle breeding. The city is a previously unknown example of a highland urban center built by nomads. It served to integrate the nomad population into the political structures and economic life of the empire. Initial fieldwork in 2015 identified another large walled highland Karakhanid city at Turgunbulak, just 3 km from Tashbulak. Surface finds of pottery similar to those found at Tashbulak and the remains of large fortified towers were found here. The existence of cities such as Tashbulak suggests that the political and industrial foundations of the Karakhanids originated both in lowland urban administrative centers and in mountain pastoral communities. There was a significant expansion of urban development throughout the region. This situation coincided with the Islamization of these lands and the expansion of the territory under Karakhanid control in the late 10th and early 11th centuries. This process extended far beyond the major Samanid urban centers and was part of the semi-sedentary process of the region's numerous nomadic peoples [10:284].

Part of the population of the cities was engaged in animal husbandry. Another part was engaged in metallurgy, including the production of iron, steel, copper, bronze and silver products. From the end of the 10th century to the 11th century, merchants and artisans traded along the Silk Road, which covered the territory from Ustrushana (Tajikistan, Uzbekistan) to the Aral Sea and Bukhara. Archaeological excavations in the cities ruled by the Karakhanids have yielded numismatic evidence, a wide range of exotic fruits and nuts. This, in turn, testifies to the mutual economic influence of the mountain and foothill cities on each other. Although high-mountain urbanism is not well known for the nomadic peoples of this period, the Karakhanids, after adopting Islam, established central cities in the mountainous regions. They used them to control trade, the production of iron and other metals. The integration of nomadic populations into a broader economic network and transcontinental trade network during the Karakhanid period undoubtedly contributed to the strengthening of their economic and cultural development throughout the region [9:303].

From a socio-cultural point of view, in the Middle Ages, the influence of crafts on society, social relations, social institutions, the cultural potential of the masses and public consciousness was extremely wide. During the Karakhanid period, settlements in Turkestan were almost always located in oases-cities surrounded by mountains, steppes and deserts. The place where urban craftsmen worked was the main trading center where

the products of both the settled population and nomads were sold. With the strengthening of the Karakhanid power, the unification of vast territories from East Turkestan to Khorezm ensured the security of internal and international trade routes and formed a common economic environment. With the mass settlement of Turkic peoples in cities, the integration of images of steppe culture into urban art and crafts was observed. Nomads remained faithful to the ancient "steppe" artistic traditions (patterns and techniques of "animal style", realistic animal images, pottery, totem elements in jewelry, etc.). Although ethnocultural characteristics left a certain mark on crafts, the previous artistic ideals, tastes, and standards in the work of urban craftsmen did not undergo such significant changes. Sedentary life and steppe craft culture continued in parallel.

The pottery of the Karakhanid period reflects the tolerance and openness of the Turkic peoples. They adopted the professional skills and religious motifs of the settled peoples of Turkestan. Although the ornaments and forms of bronze, copper, and ceramic objects were universal, some samples showed local, ethno-cultural features. Despite the adoption of Islam and settled culture, the nomadic peoples managed to preserve their Turkic-steppe traditions. They even brought the "Turkic factor" and "Turkic element" to the forefront in crafts and art. This is clearly seen in the widespread use of unglazed ceramic vessels, known as "gray pottery", similar to Bronze Age vessels in the cities of Turkestan. Vessels decorated with zoomorphic images and handles are associated with ancient Turkic traditions. Thus, nomadic "steppe" patterns entered the artisan style. Although ethno-cultural characteristics left their mark on artisanal works, urban masters continued to use the previous artistic ideals, tastes, and standards without significant changes [11:88].

During archaeological excavations at the Afrosiab settlement, dwellings dating back to the 11th-12th centuries were discovered. This allows us to determine the characteristics of the houses of different social strata of society, namely artisans, small merchants, urban Sogdians, and lower-class officials. When describing the settlements according to ethnographic characteristics, it can be assumed that the "gatehouse" served as an entrance gate or a structure at the gate. According to researchers, "in order to respect the traditions of the population and not disturb the family, until recently, the tradition of building a separate room at the entrance to the house for receiving strangers, especially male strangers, continued. From this room, one could enter the courtyard where the summer kitchen of the house was located. In the northeastern side of the courtyard, instead of a sofa, there was a "peshavon" - a closed porch. This type of house allows us to determine some features of the relief and social structure of Afrosiab in the 11th-12th centuries. The northeastern part of these settlements, after being abandoned for a long time after the 8th century, was repopulated in the second half of the 12th century. The

small area of the houses indicates that land for building houses was at a high price during this period. Since there are no traces of any production activity, it can be noted that this type of house belonged to an ordinary city dweller, a small merchant or a low-ranking official [4:75].

**Discussion and conclusions.** The number of sources providing information about the social life of the Karakhanid period is very small, which makes it difficult to obtain complete information about the social strata of the population of that period. Therefore, Yusuf Khos Hajib's work "Kutadgu Bilig" is among the few sources that we can rely on. In this work, the author cites the social strata that existed in his time as follows:

1. **The common people.** The common people are far from morals, simple and straightforward. Despite their lack of discipline and decency in dealing with other categories of people, they still have their place in society and are a necessary stratum. Yusuf Khos Hajib emphasizes that since this stratum is economically helpless, it spends most of its life worrying about feeding its stomach [5:647].

2. **Descendants of the Prophet (Alawites).** It is clear that by the time of the Karakhanids, this class had gained special respect among the rulers. Yusuf Khos Hajib teaches that rulers should treat this class with kindness and courtesy, and that they should be shown special respect and honor because they were descendants of the Prophet.

3. **Scholars. Scholars** are those who distinguish between right and wrong and guide people to the right path. This group is a beacon of knowledge for the common people. Therefore, they are required to be respected and honored, just like the descendants of the Prophet [6:356-357].

During the Karakhanid period, we can see a mass movement of scholars living and working in the eastern regions to the west. The relocation of his capital to Samarkand by Ibrahim Tamgach Khan in 1040 was an important event. From this time on, the main aspects of the Karakhanid policy towards local scholars are manifested. One of its features was the attraction of theologians from the eastern regions, far from Turkestan, to official positions within the Karakhanid state. These scholars acted in agreement with the Karakhanids. For example, when Abu Ali al-Husayn ibn Ali ibn Abul Qasim al-Lamishiy (d. 1128, Samarkand; originally from the village of Lamish in Fergana) who arrived as part of the embassy in Baghdad in 1122, was invited to perform the hajj, he refused to fulfill it, citing the khan's instructions. The army was kept away from the local population. Separate military judges - qazi askars - were appointed for the military. A qazi askar named Abu Hafs Umar ibn Shuayb ibn Abul Qasim as-Sarram ad-Dizaki (d. 1131) worked in Samarkand [3:490].

The activities of this group of scholars show a cautious attitude towards local Samarkand scholars. For example, after the death of Qazi Ahmad ibn Mansur Isfijobi (d. 1088), a whole chest was found containing fatwas in which the Samarkand muftis pointed out their mistakes and offered them the right solutions. However, the deceased did not dare to make them public during his lifetime [2:201].

Discussion of an issue often lasted several days and sometimes even caused a wide public resonance. In Samarkand, during the reign of Abul Yusr Pazdavi, the discussion of the issue of alcohol took on a political character due to influential figures interested in its solution. The jurist was forced to leave the city, despite the personal support of the ruler [1:119a, 151a].

He was executed in Samarkand in 1161 for demanding greater rights for Muslims and scholars under the Kara-Khitans [2:203].

4. **Doctors.** The inevitability of any living person suffering from some disease in their life makes doctors a particularly important stratum in society. Considering that ensuring the stability of society is achieved through the treatment of various ailments and mental illnesses, and in addition, the fact that the doctor was the highest paid person in the hospital built in Samarkand by the Karakhanid ruler Ibrahim Tamgach Khan, it becomes clear why doctors were considered a special class worthy of respect during the Karakhanid era.

5. **Sorcerers.** Occultists formed a separate class during the Karakhanid period. One of them was the sorcerers, who, according to Yusuf Khos Hajib, were engaged in the treatment of human diseases. However, since sorcery was not a divine science, doctors did not believe in their various prayers. Similarly, sorcerers did not recognize doctors [7:375].

6. **Dream Interpreters.** Another occult scholar who formed a separate social stratum were dream interpreters, whose reputation and importance were linked to the fact that every person has dreams while sleeping and that these dreams, if interpreted correctly, can come true.

7. **Astrologers (astronomers and astrologers).** The importance of calculating the year, month, and day in society ensured that astronomers were also distinguished as a separate class. It is noteworthy that Yusuf Khos Hajib included astrologers in this class under the general name of "astrologers". Since it was believed that the movement of the stars was not limited to calendar calculations, but also had a positive or negative impact on human life, astrologers were also recognized as a class with a high status.

8. **Poets.** Poets enjoyed great prestige and influence among the people during the Karakhanid period. The praise of those they praised spread among the people, and

the reputation of those they disparaged was damaged. Having such great influence among the people made them a separate social stratum.

9. **Peasants. In the Middle Ages, the material well-being** and prosperity of any state were undoubtedly primarily associated with the activities of peasants. As in all eras and in all states, peasants were considered a separate social stratum during the Karakhanid period [8:330-331].

10. **Merchants.** Merchants were not only people who conducted trade relations with different countries, but also a category that disseminated various news about what was happening in the world.

11. **Cattlemen.** The Karakhanids originated from the nomadic Karluk tribe, which was mainly engaged in cattle breeding. Cattle breeding continued to play an important role in the life of nomadic tribes in later periods. Therefore, cattle breeders were also considered a separate social stratum [5:663-666].

12. **Artisans.** The activities of all 11 strata listed above are undoubtedly related to artisans. It was artisans who were considered the category that produced the tools of labor of representatives of these strata.

13. **The poor.** The difference between the poor and the black common people is most likely that they are a relatively civilized class, unlike the black people, and do not live only on the basis of their own needs [6:367].

From the above considerations, it is clear that the minister has a structural-functional view of society, in modern terms, of the Radcliffe-Brown type. According to him, the social structure of society is composed of various groups or classes, whose place in this society is determined mainly by specific professional roles. The function of each class or structural component is its contribution to the harmony and preservation of the overall social system. All strata, even the common people, are necessary elements of the social system. Social integration is based on the specific, but complementary characteristics and functions of each. During this period, the ruler's palace was considered the most superior institution of the social system. While the various social strata provided food, clothing, intellectual enlightenment, spiritual comfort, etc., the ruler's palace ensured internal and external security by controlling and coordinating the functions of the entire society and protecting it from external aggression [12:232-238].

**Conclusion.** Each stratum, along with performing certain functions for the well-being of society, enjoys a certain set of rights and requirements that the ruling institution must recognize. One of the main tasks of the ruling palace is to protect rights and implement these requirements. Among them are the right to fair and honest treatment, the right to receive good and prompt payment for work performed, the right to be treated humanely, the right to be treated in a manner appropriate to one's stratum, and most

importantly, the right not to be in a materially helpless situation and to enjoy all the basic necessities of life. It is this last right that serves as the basis for peace and security within the state.

The ruler gains the respect of the people by recognizing and enforcing these rights. Successful governance requires the establishment and maintenance of a complex set of social relationships. This requires a good understanding of the nature of the people with whom one deals. Such understanding can only be achieved through knowledge.

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**Abstract.** This article discusses the history of the formation of the term "Uzbek" and when it appeared. Also, the historical roots and naming of the term "Uzbek" , as well as the semantic features of each name, are revealed through specific sources.

**Keywords:** Turkic peoples, Turk, Turkish Budun, Blue Turk, Sart, Chigatay, Uzbek, Uzbek, Dashti-Kipchak, Oghuz, ethnogenesis...

**Introduction.** During the years of independence, the desire to understand our national identity has increased among our people , and interest in our past, the glorious path of our ancestors and the rich spiritual heritage has increased. Shavkat Mirziyoyev said : “National history must be created with a national spirit. Otherwise, it <sup>1</sup>will not have an educational effect.” It would not be wrong to say that the national spirit is clearly reflected in the name Uzbek itself . The fact that our people received this name also includes a great history.

Speaking of the ethnonym "Uzbek", most scientific articles and sources on this topic claim that this term was used by some Turkic-Mongol tribes who lived in the vast Kypchak Steppe (the steppes stretching from the upper reaches of the Syrdarya and the western slopes of the Tien Shan to the lower reaches of the Dnieper River), because they considered themselves free and not subject to anyone, and therefore claimed to be "Uzbek", that is, "one's own bek", "one's own bek".

### **Literature analysis.**

Academician A. Askarov believes that the complete formation of modern Uzbeks occurred in antiquity. The antiquity period falls on the 4th century BC and 4th century AD, and about a hundred settlements dating from this period have been found in Uzbekistan.

In general, like many civilizations in world history, the first civilizations in Central Asia also arose along rivers. One of these was the Amu Darya , and the people living on its banks spoke Iranian languages, namely Sogdian, Khorezmian, Bactrian and Saka . The cities they lived in were called Bactria, Sogdiana, Margiana, Parthia, Davan and Ancient

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<sup>1</sup>Mirziyoyev Sh. M. Videoconference meeting on issues of radically improving the system of spiritual and educational work and strengthening cooperation between state and public organizations in this regard. January 19, 2021.

<https://president.uz/oz/lists/view/4089>

Khorezm. The Syrdarya basins have been inhabited by Turkic-speaking people since ancient times.

The Turks and Turkic-speaking peoples extended from the present Tashkent region, the Syrdarya, Jizzakh, Fergana Valleys of Southern Kazakhstan to the territories of Southern Altai, Siberia, Yenisei, Chukotka. This corresponds to the 3rd millennium BC<sup>2</sup>. Until this time, the Sakas, Bactrians, Sogdians and Turks lived separately around the Amu Darya. This situation continued until the antiquity, that is, 2-2.5 thousand years ago. In the 80s of the 13th century and the beginning of the 14th century, the term Uzbek began to be used in Arabic and Persian works as a general name for the Turko-Mongol nomadic and semi-nomadic population of the Dashti-Kipchak. There are different opinions about the origin and essence of the ethnonym Uzbek.

Until the 40s-50s of the 20th century, the view that the formation of the Uzbek people took place in the 15th-16th centuries AD was dominant in the works of foreign and former autocratic historians. However, the deeper we approach the issue, the more inaccurate and superficial this scientific hypothesis becomes. However, if we move away from any passions and approach the issue from the point of view of objectivity, not all works created during the former USSR were written in this spirit. In particular, one of the scientists who deeply studied the ethnogenesis of the Uzbek ethnos, Professor A.Yu. Yakubovsky, in his treatise published to the scientific community in the 40s of the 20th century, sheds light on the issue of the formation of the Uzbek people in a completely new, scientific way. According to Yakubovsky, when the nomadic Uzbeks of the Dashti-Kipchak invaded the territory of present-day Uzbekistan, they met with the Turkic-speaking tribes and peoples living there in a settled manner. As a result of the mixing of these two ethnic groups, the Uzbek people were formed. The nomadic tribes that came from the Dashti-Kipchak in the late 15th and early 16th centuries only became a certain component of the already formed ethnos and gave it a name.

**Main part.** One group of scholars associates the origin of this term with the name of the famous ruler of the Golden Horde, Uzbek Khan. Another group of scholars believes that the term Uzbek arose in the eastern part of the Qipchak Steppe and was applied to all the Turkic-Mongol tribes living there. A third group of researchers argue that the term Uzbek, as a general name for the Turkic-Mongol population of the Qipchak Steppe, arose in the last quarter of the 13th century, that is, before Uzbek Khan. For example, the name of the Scythian chieftain was Ugizbek or a shortened form of this name - "Uzbek" ("Uzbak"). The historian Usama ibn Munqiz, who lived in the 12th century, notes in his work "Kitab al-I'tibar" that the name of the emir of Mosul was Uzbek. The famous historian Rashdiddin Fazlullah al-Hamadani also gives information in his work "Jome at-

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<sup>2</sup>Asqarov A. Ethnogenesis and ethnic composition of the Uzbek people. Textbook. – T.: "Universitet" publishing house, 2007

Tavorih" that the name of the governor of Tabriz belonging to the Ilgezid dynasty was Uzbek Muzaffar. It is also known that the name of one of the commanders of Jalaluddin Khorezmshah was Jahan Pahlavon Uzbek . However, according to almost all researchers, part of the Turko-Mongol tribes that migrated from Dashti-Kipchak to Movarunnahr at the beginning of the 16th century gradually assimilated with the local Turkish population and became the last major layer of the Turkish population. At the same time, they are considered to have given them the name Uzbeks. Before giving our personal opinion on this matter, we decided to cite the views of a group of scholars and teachers.

It should be noted that the mentioned Dashti-Kipchak Uzbeks lived in tribal relations and mainly lived a nomadic pastoral lifestyle. Their economic characteristics were fundamentally different from the life of the indigenous sedentary population of Central Asia. However, after they settled in the lands of Transoxiana and Khorezm, they mixed with the local people and formed a new Uzbek nation.

The head of the Khorezm archaeological and ethnographic expedition is a world-famous scientist S.P. Tolstoy notes that the ethnogenetic process of the Uzbek people began on the territory of the Kang state. He emphasizes that "the first ancestors of the Uzbek people lived on the territory of the Kang state and in the regions it occupied, and their ethnic composition and language were not the same."

S.P. Tolstoy's ideas are valuable in that he clarifies the question of when, or rather, within which state, the processes of the formation of the peoples of Central Asia as a nation took place, and expresses the conclusion that the process of the formation of the Uzbeks as a nation took place within the framework of the Karakhanid state.

On August 21-29, 1942, at the initiative of the Department of History and Philosophy of the USSR Academy of Sciences, a scientific session was held in Tashkent on the ethnogenesis of the peoples of Central Asia. Several scientists participated in this session with their reports and expressed their opinions. At the Tashkent scientific conference, anthropologist LV Oshanin noted in his report that as a result of many years of comparative study of the anthropology of the Uzbek, Kazakh, Kyrgyz, and Tajik peoples, he found signs of a specific brachycephalic European race in Uzbeks and Tajiks. Oshanin called this anthropological type the "Central Asian interfluve type."

In turn, not all works created during the period of the authoritarian regime can be considered suitable for scientific consumption. The first chapter of MG Vakhobov's monograph "The Uzbek Socialist Nation <sup>35</sup>", published in Uzbek and Russian, is called "The Uzbek People and Their Structure", and it mainly provides information about the formation of the Uzbek people.

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<sup>35</sup>. Toshev, Solejon Akhmatjonovich. (2020). Studying the history of the Soviet colonial period of Uzbekistan in Turkey. Looking back. 2(Special issue 2). 347353

**Results.** This work, it can be said, was written in full compliance with the ideas of Marxism-Leninism. Based on the ideas of leading scholars before him, MG Vakhobov divides the ethnic history and ethnogenesis of the Uzbek people into three major historical stages:

Stage 1: The period up to the 11th century, the period when the initial core of the Uzbek people was formed

Stage 2: 11th-12th centuries, the period when the process of the Uzbeks becoming a nation was completed.

Stage 3 : The period up to the 19th century

It should be noted that there are some inaccuracies and contradictions in MG Vakhobov's division into stages. For example, the first stage in the division into stages covers a very large historical period, while the second historical period covers only a distance of 100 years . In addition, serious errors are also evident in clarifying issues or periodizing historical dates.

raised many problems related to ethnic and national issues in his work , but since he tried to illuminate their solution on the basis of the theory of Marxism-Leninism, he allowed some contradictions. Nevertheless, it is possible to obtain the necessary information on some issues related to ethnic history and ethnogenesis from the work of MG Vakhobov. However, in our opinion, it would be appropriate to look at this information critically.

The process of the formation of the Uzbek people is also covered in the works of B.Karmisheva M.Ermatov, B.A.Akhmedov, academician Karim Shoniyozov, and Akhmadali Askarov.

**Conclusion.** We have only briefly touched upon the scientific works of scientists who have contributed to the study of the ethnogenesis and ethnic history of the Uzbek people through the information written above . In our further research, we will try to approach the issue in more depth. Because the ethnogenesis of any people is a very complex process, which requires deep knowledge, deep reflection, and critical observation from the researcher.

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## ETHNIC COMPOSITION OF THE BRONZE AGE POPULATION OF UZBEKISTAN

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**Abstract.** The ethnic history of the Uzbek people and the historical processes associated with it, the formation of the ancestors of the Uzbek people as a people, are reflected in Bactria, in particular in its Bronze Age culture. This article discusses the ethnic history of the Bronze Age population.

**Keywords:** Bactria, Sogdiana, Shash, Fergana, Khorezm, Nomozgoh, "urmitan", "khurmitan", "Avesta" and "Rigveda".

**Introduction .** The ethnic history of the Uzbek people is directly related to the history of this region. The ancestors of the Uzbek people lived as a people in the historical lands of Central Asia, such as Bactria, Sogdiana, Shosh, Fergana, Khorezm, and the territories adjacent to these lands. In the Bronze Age, Central Asia was inhabited by cultures based on nomadic pastoralism and sedentary agriculture. Anthropologists and archaeologists have always been interested in studying the ethnic composition of the population of these cultures .

**Literature review.** Anthropologists are almost unanimous in their opinion about the ethnic composition of the Bronze Age population of Central Asia, believing that during the Bronze Age, the territories from the Caspian Sea to the Pamirs were inhabited by people of the Mediterranean race [1].

The cultures studied archaeologically are quite diverse. The southern regions of Central Asia were inhabited mainly by sedentary, agricultural peoples. After the discovery of the Nomozgoh culture (Nomozgoh IV-V) in this region, the inhabitants of this culture were called Aryans in science. This idea was especially strengthened after the discovery of the Sopolli cultures in southern Uzbekistan and the Dashtli cultures in northern Afghanistan [2].

is putting forward the idea that "...the owners of this culture were not Aryans, but Dravidian or Elamite speakers" [3].

spread that the inhabitants of Central Asia spoke Dravidian in the Bronze Age [4]. This idea was supported by prominent scholars of Central Asian history at the time [5]. B. Litvinsky tries to prove this idea on the example of the Shurtogai monument of the Harappan culture, located on the left bank of the Amu Darya . Unfortunately, no other monument of the Harappan culture has been found in Central Asia. Although the supporters of the idea of Dravidian language are extremely familiar with the

anthropological sources of Central Asia, they do not use them in their works. Or rather, they do not want to mention them. It is known that the Dravidians are a race spread around the equator and are considered dark-skinned people.

**The main part.** As we have noted, the Sopolli culture and the anthropology of Bronze Age Central Asia in general are very well studied, but anthropological sources on the Equatorial race are almost non-existent. This fact alone confirms that the population of Central Asia in the Bronze Age did not belong to the Dravidian race or did not speak the Dravidian language.

As we have noted above, anthropologists have repeatedly emphasized that the territory from the Caspian to the Pamirs was inhabited by people of the Eastern Mediterranean race. Academician EV Rtveladze says that the language of the Bronze Age inhabitants of Central Asia should also be sought here, and SP Tolstov "revived" the idea that the inhabitants of Central Asia were Hurrian-speaking in the Bronze Age [6].

In this article, EV Rtveladze outlined the geography of the distribution of writings characteristic of the peoples of the Ancient East. According to him, the Hurrian script spread in the direction of the southern shores of the Caspian Sea - the northeastern shores of the Persian Gulf - Central Iran. Indeed, the Hurrian script spread around the Caspian and Lake Urmia. This is only a few hundred kilometers from Southern Turkmenistan. Based on this geographical distribution, EV Rtveladze believes that the population of Central Asia was Hurrian-speaking in the Bronze Age. EV Rtveladze tried to support his thesis with another piece of information. In his opinion, the similarity of the names of the Uzbek clan "Mitan" and the Hurrian state "Mitani" was taken as an example. He also connects ethnotoponyms such as "urmitan", "khurmitan" (Bukhara), and "khuarazm" (Khorezm - meaning the land of the Hurrians) with the name of the Hurrians [7]. The fact that not a single Hurrian inscription has been found in the Bronze Age monuments of Central Asia, and in general, EV Rtveladze's idea of Hurrianism, is far from the truth and is not based on any factual source.

**Results.** AA Askarov's general opinion about the Bronze Age population of Central Asia is as follows: "...the owners of the ancient farming culture, the cattle-breeding tribes of the north of Central Asia, and possibly the peoples of the steppe zones of South Russia spoke one language - Iranian and its dialects. In my opinion, the peoples of the Sopolli and Kuchuktepa cultures understood each other linguistically, and on the basis of this language the Ancient Bactrian language arose, that is, one of the dialects of the Iranian language" [8].

In recent years, AA Askarov has put forward the idea that "a part of the population of the Andronovo culture was Turkic-speaking" [9]. Although the supporters of this idea are still in the minority, the Kazakh archaeologist KM Baypakov puts forward the idea

that a part of the population of the Andronovo culture was Turkic-speaking [10]. The basis for these ideas is the written sources cited in the Ancient Chinese chronicles. As is known, these chronicles contain information about the “di” – “tiyek” – “tiyeuk” – “turk” peoples living in northern China in the 3rd-1st millennium BC [11].

Anthropologists [12] and archaeologists [13] have expressed their opinions on the genetic unity of the Andronov and Saks in the regions of Central Asia. Depending on the historical conditions, the existence of the Andronov culture until the 8th century BC has been observed in the Southern Urals and Kazakhstan [14]. We think it is necessary to clarify another issue, while in some regions there is no similarity in the material culture of the Andronov and Saks, similarities in burial and pottery between the Tagisken culture and the Dandiboy-Begazi or Karasuk cultures have been observed [15]. This fact confirms that the Khorezm Saks (Massagets) were the owners of local culture. They were in constant cultural contact with the southern peoples engaged in sedentary agriculture. The presence of southern ceramics in the material culture of the Saka tribes living along the Aral Sea is also covered in the articles of ASSagdullayev [16].

there are opinions that the Sakas were also Erontians [17].

Based on the bust of a man found in Jarkoton, an idea of the external structure of the inhabitants of Jarkoton emerged. Until now, many statues have been found in the tombs of Jarkoton and Boston, in which the human figure was represented in an anthropomorphic form. The bust statue found in the Jarkoton arch depicts the human figure in a lifelike way. If we think about this statue, the inhabitants of Jarkoton belonged to the European race, with a pointed nose, black hair and beard, and red skin.

Of course, the fact that the inhabitants of the southern regions of Central Asia were Aryans is far from the historical truth. The people of the Potala culture do not resemble the Aryans described in the Avesta and Rigveda both anthropologically and in terms of the examples of material culture they created. The fact that they spoke the Dravidian language is far from the truth. The inhabitants of the Potala culture had close cultural and trade relations with the Dravidian-speaking peoples (Harappan culture). However, the fact that they were one people is denied by comparing the material cultures of the monuments of the Jarqotan and Harappan cultures. We have already shown above that they did not speak the Hurrian language.

**Conclusion.** In our opinion, the inhabitants of the Sopolli culture formed an ethnic group with the Anov-Namazgoh, Murghab, Dashtli, central and northern Iranians and spoke one of the ancient Iranian dialects. On the basis of this language, the ancient Bactrian and "Avesto" languages were formed.

The inhabitants of the Andronovo culture are called Aryans in scientific literature. The material culture, geography of distribution, and climate of the Andronovo culture

correspond to the Aryans described in the Avesta and Rigveda. We also support this idea, but this idea requires some editing. In our opinion, the wealthy warriors of the Andronovo culture were Aryans. The poor of the Andronovo culture, due to the lack of livestock, switched to a sedentary lifestyle, creating the basis for the emergence of such cultures as the Chust, Kuchuk, and Yaz I.

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**G‘afforova Dilnura**

Bux.DU Musiqa ijrochiligi va madaniyat kafedrası “Vokal san’ati (an’anaviy xonandalik) mutaxassisligi,  
1-bosqich magistri

**Ilmiy rahbar: B.I. Mustafayev, professor**

**Annotatsiya:** maqolada ovoz diapozoni, xonanda ovozi, uning asosiy sifatlari, xonandalik ovozi turlari, xonandalik ovozlari rivojlantirish usullari, shuningdek mutaxassislarning ovoz diapozoni, uning o‘ziga xos jihatlari xususida fikr-mulohazalar bayon etilgan.

**Kalit so‘zlar:** xonandalik ovozi, diapozon, vokal san’ati, musiqa pedagogikasi, intonatsiya, diksiya, ovoz tembri, nafas, rezonans, artikulatsiya, xonandalik an’analari, nutq, musiqiy ifoda, vokal mashqlari, xonanda mahorati.

Vokal san’atida ovoz diapazonining ahamiyati katta. Zero, ovoz diapazoni xonandaning ijrochilik imkoniyatini belgilaydi. Uning vokal texnikasi, sahnadagi ifoda vositalari va ijro diapazoni aynan ovoz chegarasiga bog‘liq bo‘ladi.

“Ovoz” — tabiiy fiziologik hodisa bo‘lsa, “Xonanda ovozi” — badiiylashgan, musiqa ifodasiga xizmat qiluvchi ijrochilik vositasidir. “Ovoz” va “xonanda ovozi” tushunchalariga musiqashunoslik va vokal pedagogikasi nuqtayi - nazaridan ilmiy ta’riflar beriladi. Ovoz — bu insonning tovush chiqarish apparati orqali havo tebranishidan hosil bo‘ladigan akustik hodisa bo‘lib, u nutq va musiqiy ifoda vositasi hisoblanadi. Zero, musiqa nazariyasida: Ovoz — bu muayyan balandlik (chastota), kuch (dinamika), davomiylik va tembrga ega bo‘lgan tovushdir[1].

Fiziologiya nuqtayi nazaridan ovoz insonning havo nayi, tovush bog‘lamalari va rezonator tizimi faoliyati natijasida hosil bo‘ladi [2].

“Xonanda ovozi” tushunchasi — bu inson ovozining musiqiylashgan, boshqarilgan va badiiylashgan shakli, ya’ni ijrochilik maqsadlariga yo‘naltirilgan ovoz turidir.

Xonanda ovozining go‘zalligi va kuchliligi uning diapazoni emas, ovozni boshqarish madaniyati va hissiyotni yetkazish qobiliyati bilan belgilanadi

Musiqa pedagogikasida xonanda ovozi — inson ovoz apparatining tabiiy xususiyatlariga asoslangan, ammo vokal mashqlari orqali balandlik, tembr, dinamika va diapazon jihatidan rivojlantirilgan ovozdır[3].

Xonandalik ovozi o'zining asosiy sifatlariga ega. Diapazon - xonandaning eng past va eng yuqori tovush oraliq'i sanalsa, tembr - ovozning individual rang-barangligi, ya'ni "ovoz bo'yog'i" kuch (dinamika) esa - ovoz chiqarishdagi havo bosimi va rezonans ta'sirini belgilaydi. Soflik (intonatsiya) - ovoz balandligining aniqligi va musiqa lad tizimiga mosligi. Diksiya - so'zlarni ravshan va aniq talaffuz qilish qobiliyati. Rezonans - ovozning tana bo'shliqlarida (ko'krak, bosh, burin) yangrash darajasi.

Ovoz diapazoni — bu inson ovozining past nota (eng quyi) dan tortib to yuqori nota (eng baland) gacha bo'lgan cholinadigan tovushlar orasidagi kenglikdir. YA'ni, har bir xonandaning ovozi ma'lum chegarada erkin cholinadigan tovushlarni qamrab oladi. Bu chegara ovoz diapazoni deb ataladi. Masalan: Ayollar ovozida — soprano, metsso-soprano, alt, Erkaklar ovozida — tenor, bariton, bas kabi turlar shunga asoslanadi.

Xonanda ovoz diapozonini ahamiyatli jihatlari quyidagilarda namoyon bo'ladi:

- xonanda ovoz diapazonini bilishi orqali o'ziga mos repertuar tanlaydi.
- maqom, opera, estrada yoki xalq qo'shiqlarini ijro etishda ovoz diapazoni qo'shiqning ruhiy ta'sirini oshiradi.
- vokal mashqlari orqali diapazonni kengaytirish mumkin, lekin tabiiy ovoz chegarasidan chiqish mumkin emas.
- ovoz diapazoni bilan birga tembr (ovoz rangi) va dinamika (kuch va balandlik) ham muhim rol o'ynaydi.

Xonanda ovozi xususida mutaxassislar turlicha fikr-mulohazalar bildirishadi. N. Qurbonaliyev [4]: "Xonanda ovozi nafaqat tabiiy ne'mat, balki uning madaniy va ruhiy tajribasini ifoda etuvchi musiqiy vositadir",-deb ta'riflansa, YE. Mirzayev [5] "Xonanda ovozi nafas, rezonans va artikulatsiya tizimlarining uyg'un faoliyati orqali shakllanadi; ovozni kuch bilan emas, idrok va hissiyot bilan boshqarish kerak", - degan fikrni ilgari suradi.

Ovoz diapazoni — bu inson ovozining eng past notadan to eng yuqori notagacha bo'lgan tovushlar oraliq miqyosi hisoblanadi. YA'ni, har bir xonanda yoki ovoz sohibi qay darajada past va qay darajada baland tovushni aniq va tabiiy chiqara olishi ovoz diapazoni bilan belgilanadi.

Vokal san'atida inson ovozi asosan quyidagi turlarga bo'linadi: Erkak ovozlari: "Bas" - eng past tovushli erkak ovozi, kuchli va chuqur tembrli. "Bariton" - bas va tenor orasidagi mo'tadil ovoz turi. "Tenor" - yuqori va jarangdor erkak ovozi.

Ayol ovozlari: "Alt" - past, barqaror va jumboqli ayol ovozi. "Metsso-soprano" - o'rtacha balandlikda, yumshoq va iliq tembrli ovoz. "Soprano" - eng baland, nurli va yengil ayol ovozi.

Odatda diapazon oktavalar bilan o'lchanadi (masalan, 1 oktava, 2 oktava va h.k.). Bir oktavada 8 nota bo'ladi, demak, ovoz diapazoni qanchalik keng bo'lsa, ijrochining texnik imkoniyatlari shunchalik katta bo'ladi.

Xonanda ovozi haqida musiqashunos olimlar va vokal sohasi mutaxassisleri turli ilmiy ta'riflar berishgan. Jumladan, N. Zokirov [6] "Xonanda ovozi — bu inson nafas apparati, tovush bog'lamalari va rezonatorlar faoliyati orqali hosil bo'ladigan individual tembrga ega tabiiy cholg'udir."- deya e'tirof etadi. B. Rajabov[7] esa shunday yozadi: "Ovoz insonning ichki ruhiyati, hissiyoti va jismoniy imkoniyatini namoyon etuvchi musiqiy ifoda vositasi bo'lib, har bir xonandada u o'ziga xos tembr va diapazon bilan farqlanadi". YE. V. Kolesnikova[8] izlanishlarida: "Xonanda ovozi — bu nafas, tovush va nutq apparatining muvozanatli ishlash natijasida vujudga keladigan, dinamik va emotsional imkoniyatlarga ega jonli instrument"ligini bayon etadi. O.Yunusov[9] xonandalik ovozining milliy musiqa madaniyatini rivojlantirishdagi o'rni va ahamiyatini izohlab: "Xonanda ovozi — xalq musiqa madaniyatida insoniy hissiyotni, milliy ruhni ifoda etuvchi eng ta'sirchan vosita ekanligini uqtiradi."

Ovoz diapazoni keng bo'lgan o'zbek xonandalari nafaqat vokal texnikasi, balki musiqiy hissiyot, nafas nazorati va tembr imkoniyatlari bilan ham ajralib turadi. Tarixiy ovoz diapazoni kengligi bilan tanilgan o'zbek vokalchi xonandalardan Mumtoz va an'anaviy vokal yo'nalishda Munavvar Qori Yorqulov (1909–1973) ovoz diapazoni: taxminan 2,5–3 oktava, Mavludaxon Abdullayeva (1918–2003) Ovoz diapazoni keng soprano (fa–sol<sup>3</sup> chamasi). Farog'at Madaliyeva - Ovoz diapazoni: metsso-sopranodan yuqori sopranogacha (taxm. 3 oktava) darajasida bo'lgan.

O'zbek vokal maktabida ovoz diapazoni keng xonandalar ko'pchilikni tashkil qiladi. Ular nafaqat ovoz kengligi, balki nafas texnikasi, tembr, diksiya va milliy uslubni saqlab qolish qobiliyati bilan ham ajralib turadilar.

Zamonaviy ovoz diapazoni kengligi bilan mashhur o'zbek vokalchi-xonandalardan Yulduz Usmonova (ovoz diapazoni - 3 oktavaga yaqin). Sevara Nazarxon – (ovoz diapazoni: metsso-soprano, ammo texnik jihatdan 2,5 oktavadan ortiq qamrovga ega. Nasiba Abdullayeva - diapazon: do<sup>1</sup>–do<sup>4</sup>, (ya'ni to'liq 3 oktava). Erkak xonandalar

orasidan Rashid Bekqulov (1925–1989) diapazon: si–sol<sup>2</sup> oralig‘ida (2,5 oktava). SHerali Jo‘rayev bariton ovoz sohibi, 2,5 oktava atrofidagi diapazon bilan mashhur bo‘lgan. Botir Zokirov (1936–1985) Diapazon: baritondan tenorgacha, taxminan 3 oktavani tashkil etgan.

Ovoz diapazonini rivojlantirish muhim ahamiyat kasb etadi. U quyidagi usullar orqali amalga oshiriladi.

1. To‘g‘ri nafas olish (diafragmal nafas) — ovozni barqaror chiqarishga yordam beradi.
2. Vokal mashqlari — pastdan balandga yoki aksincha harakatlanish orqali ovoz ligamentlarini mashq qilish.
3. Diksiya va artikulyatsiyani rivojlantirish— tovush aniqligini oshiradi.
4. To‘g‘ri ovoz qo‘yish — har bir ovoz turi uchun maxsus mashqlar bilan to‘g‘ri diapazonni saqlab qolish.

Xullas, ovoz diapazoni — vokal san‘atining asosiy tushunchalaridan biri bo‘lib, u xonandalik mahoratining texnik va estetik imkoniyatlarini belgilaydi. Har bir xonanda o‘z ovoz diapazonini bilishi, unga mos repertuar tanlashi va uni doimiy ravishda rivojlantirib borishi zarur. Keng diapazon, to‘g‘ri nafas va tembr uyg‘unligi— san‘atkorning ijrochilik salohiyatini belgilaydigan muhim omillardandir.

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