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O‘ZBEKISTONDA FAKTORING XIZMATLARI BOZORINI RIVOJLANTIRISHNING USTUVOR YO‘NALISHLARI

Xudayberdiyeva Adolat Sobirjon qizi
O‘zbekiston Respublikasi Bank-moliya akademiyasi tinglovchisi

Annotatsiya. Mazkur tezisda zamonaviy iqtisodiyot sharoitida faktoring xizmatlarining ahamiyati, ularning korxonalar aylanma mablag‘larini boshqarishdagi o‘rni hamda O‘zbekistonda faktoring bozori rivojlanishining asosiy tendensiyalari tahlil qilinadi. Shuningdek, so‘nggi yillarda qabul qilingan normativ-huquqiy hujjatlar, xususan, PF-109-son Farmon asosida yaratilgan imkoniyatlar, bozor hajmining o‘sish dinamikasi, ishtirokchilar tarkibi, banklar kesimidagi faoliyat natijalari hamda hududlar va mijozlar segmentlari bo‘yicha taqsimot ko‘rsatkichlari o‘rganilgan. Tadqiqot natijasida O‘zbekistonda faktoring xizmatlari bozori jadal rivojlanayotganligi, biroq ayrim hududlar va kichik biznes subyektlari ishtirokining yetarli darajada emasligi aniqlangan.
Kalit so‘zlar: faktoring, debitorlik qarzlarini moliyalashtirish, elektron faktoring, xalqaro faktoring, moliyaviy xizmatlar, kichik va o‘rta biznes, raqamli platforma, moliyaviy inkluzivlik, eksportni qo‘llab-quvvatlash, O‘zbekiston.

KIRISH

Zamonaviy iqtisodiyotda faktoring korxonalarning aylanma mablag‘larini boshqarish va qisqa muddatli moliyaviy ehtiyojlarini qondirishning samarali instrumenti sifatida qo‘llanilmoqda. Jahon miqyosida faktoring operatsiyalari hajmi 2023-yilda 3,8 trln. yevroni tashkil etib, so‘nggi 20 yil ichida yillik o‘rtacha 8,0 foiz o‘sish sur’atini namoyish etmoqda. 2024-yil 12-avgustda O‘zbekiston Respublikasi Prezidentining “Faktoring xizmatlari bozorini jadal rivojlantirish chora-tadbirlari to‘g‘risida”gi PF-109-sonli Farmoni qabul qilindi, bozorning huquqiy bazasini mustahkamlash, elektron infratuzilmani yaratish va xalqaro integratsiyani ta’minlashni nazarda tutadi.

O‘zbekiston Respublikasida faktoring xizmatlari bozori so‘nggi yillarda jadal rivojlanib bormoqda. 2025-yilda faktoring xizmatlari umumiy hajmi 9,5 trln so‘mga yetdi, bu 2024-yilga nisbatan ikki baravar o‘sishni ta’minladi. Bozorning shakllanishi va rivojlanishi davlatning iqtisodiy siyosatining muhim ustuvorligiga aylandi. Faktoring operatsiyalarining hajmi 2024-yilning 4,6 trln so‘midan 2025-yilning 9,5 trln so‘miga yetib, yillik o‘sish sur’ati 106,5 foizni tashkil etdi. Bu ko‘rsatkich O‘zbekiston iqtisodiyotining boshqa moliyaviy sektorlariga nisbatan ancha yuqori sur’atni namoyish etmoqda.

Bozor ishtirokchilari tuzilmasi tahlil qilinsa, davlat ulushli tijorat banklari 56,0 foiz (5,0 trln so‘m) ulushga ega bo‘lib, bozorning yarmidan ko‘pini tashkil etadi. Xususiy tijorat banklari 44,0 foiz (3,8 trln so‘m) ulushga ega. Mikromoliya tashkilotlari hajmi 699 mlrd so‘mni tashkil etib, bozorning 7,0 foizini egallaydi. Bu tuzilma davlat sektorining moliyaviy tizimda hali ham yetakchi o‘rinlarni saqlab turishini, ammo xususiy sektorning faol rivojlanayotganini ko‘rsatadi.

Sanoat banklari orasida Asaka Bank 1,5 trln so‘m bilan yetakchi o‘rinni egalladi, shundan 508 mlrd so‘mi elektron platformalar orqali amalga oshirildi. O‘zmilliybank 921 mlrd so‘m (shundan 801 mlrd so‘mi raqamli platformalar orqali), O‘zsanoatqurilishbank 761 mlrd so‘m (shundan 720 mlrd so‘mi elektron tarzda) faktoring operatsiyalarini amalga oshirdi. Xususiy banklar orasida Kapitalbank 1,3 trln so‘m, Hamkorbank 909 mlrd so‘m va Asia Alliance Bank 354 mlrd so‘m bilan ajralib turadi.

Mintaqa kesimida faktoring xizmatlari taqsimoti noyob xarakterga ega. Toshkent shahri 4,1 trln so‘m (43,3 foiz) bilan bozorning deyarli yarmidan ko‘pini tashkil etadi. Andijon viloyati 1,9 trln so‘m (20,4 foiz) ulushga ega bo‘lib, bu mintaqaning tekstil sanoati va eksport salohiyati bilan bog‘liq. Toshkent viloyati 859 mlrd so‘m (9,1 foiz), Farg‘ona viloyati 543 mlrd so‘m (5,7 foiz) ulushlarni egallaydi. Namangan viloyati 377 mlrd so‘m (4,0 foiz), Samarqand viloyati 262 mlrd so‘m (2,8 foiz), Navoiy viloyati 248 mlrd so‘m (2,6 foiz) bilan davom etadi. Ayniqsa e’tiborni tortadigan holat, Surxondaryo viloyati 67 mlrd so‘m (0,7 foiz), Sirdaryo viloyati 47 mlrd so‘m (0,5 foiz) va Jizzax viloyati 45 mlrd so‘m (0,5 foiz) ulushlarga ega. Bu mintaqalar bozorning kam rivojlangan hududlari hisoblanadi va ularda faktoring xizmatlarini ommalashtirish bo‘yicha alohida dasturlar ishlab chiqilishi lozim.

Mijozlarning tashkiliy shakli bo‘yicha taqsimot quyidagicha: mas’uliyati cheklangan jamiyatlar 65,4 foiz ulush bilan eng katta qismni tashkil etadi. Aksiyadorlik jamiyatlari 19,0 foiz, xorijiy investitsiya ishtirokidagi korxonalar 13,3 foiz, xususiy va oilaviy tadbirkorlik subyektlari 2,3 foiz ulushlarga ega. Bu ko‘rsatkich kichik va o‘rta biznes subyektlarining faktoring xizmatlariga kirishi hali cheklanganligini namoyish etadi.

Xulosa

Tahlillar shuni ko‘rsatadiki, faktoring xizmatlari O‘zbekistonda qisqa muddatli moliyalashtirishning samarali instrumenti sifatida jadal rivojlanmoqda. 2024–2025-yillarda bozor hajmining 4,6 trln so‘mdan 9,5 trln so‘mga keskin oshishi ushbu xizmatlarga talabning yuqori ekanligini va iqtisodiyotda uning ahamiyati ortib borayotganini tasdiqlaydi. Davlat tomonidan yaratilgan huquqiy baza, xususan, PF-109-son Farmon, bozor rivojlanishida muhim omil bo‘lib xizmat qilmoqda.

Bozor tuzilmasida davlat banklari yetakchilik qilayotgan bo‘lsa-da, xususiy banklar ulushining ortib borayotgani raqobat muhitining shakllanayotganidan dalolat beradi. Shu bilan birga, faktoring operatsiyalarida raqamli platformalar ulushining oshib borishi xizmatlar samaradorligini kuchaytirmoqda.

Biroq hududlar kesimida sezilarli tafovutlar mavjud bo‘lib, ayrim viloyatlarda faktoring xizmatlari yetarli darajada rivojlanmagan. Bundan tashqari, kichik va o‘rta biznes subyektlarining ishtiroki ham pastligicha qolmoqda. Shu sababli, kelgusida hududiy qamrovni kengaytirish, KOB subyektlarini faol jalb qilish hamda raqamlashtirish jarayonlarini chuqurlashtirish faktoring bozorining barqaror rivojlanishini ta’minlaydi.

Foydalanilgan adabiyotlar ro‘yxati

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THE ROLE OF HEALTHCARE PROFESSIONALS IN THE PREVENTION OF DENTAL DISEASES: A CASE STUDY OF PUBERTAL GIRLS

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Introduction. The promotion of oral health in adolescence is a key aspect of general health care. Pubertal girls, aged 13–17, undergo significant hormonal, psychological, and social changes that can influence their susceptibility to dental diseases. While treatment remains an essential component of dental care, the focus on primary prevention is increasingly recognized as a cost-effective and sustainable strategy. Primary prevention aims to reduce the incidence of disease before clinical symptoms appear, through health education, early intervention, and risk factor control.

Despite widespread acknowledgment of the importance of dental prevention, there is limited research on how effectively healthcare professionals apply preventive strategies among adolescents, particularly pubertal girls. This study seeks to fill this gap by exploring both the prevalence of dental diseases in this group and the actual involvement of dental practitioners in preventive efforts.

Materials and Methods. The study employed a cross-sectional design using quantitative and qualitative methods. A total of 119 dentists from both public (n=67) and private (n=52) dental clinics were surveyed. Participants included 70 men (58.82%) and 49 women (41.18%). The majority (64.70%) were aged between 21 and 35, while 28.57% were aged 36–60, and 6.72% were over 60. Work experience ranged from less than 5 years (49.57%) to more than 20 years (20.16%).

In addition, 570 pubertal girls aged 13–17 were interviewed regarding their oral health awareness and views on preventive education. The study examined not only disease prevalence but also the extent of exposure to preventive dental activities and the communication formats preferred by both professionals and patients.

Statistical analysis included descriptive statistics and comparative evaluations using the chi-square test. Differences with a p-value of less than 0.05 were considered statistically significant.

Results and Discussion. The findings revealed that the most common diagnoses among pubertal girls seeking dental care were periodontitis (80.67%), pulpitis (78.99%), and hard tissue lesions (77.31%). Despite the high disease burden, 90.70%

of dentists noted that these girls typically sought care on time, in contrast to the general population, where timely visits occurred in only 53.78% of cases.

However, the extent of participation in primary prevention activities was markedly low. Only 4.47% of adolescent girls in public clinics and 2.84% in private clinics had received any form of preventive intervention. Among public dentists, 38.80% reported conducting preventive work, compared to just 15.38% in the private sector.

Dentists reported using various communication formats: individual consultations (public: 20.89%, private: 23.07%), social media and publications (29.85% and 25.00%, respectively), seminars and round-table discussions (less than 5% in both sectors), and handouts (14.92% and 11.53%). Notably, over 26% of dentists in both groups expressed uncertainty about which preventive methods to use.

Among the general population, only 53.78% of individuals sought dental care in a timely manner, whereas 46.22% delayed their visits until symptoms worsened.

In contrast, among girls aged 13–17, as many as 90.76% sought help promptly, with only 9.24% exhibiting delayed care-seeking behavior.

This notable difference can be attributed to heightened aesthetic awareness and concern for personal appearance among adolescent girls. Their promptness in seeking dental care suggests a greater level of health consciousness and personal responsibility for oral hygiene compared to the general population.

These findings emphasize the importance of tailoring preventive strategies to the psychological and behavioral traits of adolescents, leveraging their proactive attitudes toward health for effective early intervention.

Interviews with adolescent girls confirmed this inconsistency. The most acceptable format for them was social media (50.17%), while only 12.28% found individual counseling helpful. Very few supported group discussions or printed materials. Importantly, 34.91% of girls said they were unsure about how they would prefer to receive preventive information — indicating a lack of awareness and education in this domain.

Key findings from the figure include:

- In public clinics, 13.43% of the general population received preventive consultations, while only 2.98% of pubertal girls had access to such services.
- In private clinics, the figures were 5.76% for the general population and 3.84% for pubertal girls.

These results demonstrate an overall low level of preventive coverage across both groups, with especially limited access among adolescent girls in public clinics. The

disparity suggests that preventive programs are not yet fully integrated into routine care, particularly for adolescents who may not seek dental care unless symptoms arise.

This emphasizes the need for proactive outreach strategies targeting pubertal girls, as well as structural improvements to ensure that prevention is a routine part of dental services in both public and private sectors.

Dentists identified several key risk factors for dental diseases in this age group. The most frequently cited were carbonated drink consumption (84.03%), poor oral hygiene (58.42%), and poor nutrition (16.81%). Girls also noted sweets as a major factor (76.14%), which dentists ranked much lower.

These results suggest a disconnect between healthcare professionals' efforts and adolescents' expectations and needs. There is a clear demand for prevention programs tailored to pubertal girls — integrating digital tools, age-sensitive communication, and parental involvement.

Conclusion. The study underscores the need for more structured and targeted dental prevention strategies among pubertal girls. Although many of them show good awareness and make timely visits, only a small fraction benefit from organized preventive care. Disparities between the views of healthcare professionals and adolescents highlight the necessity of involving the target population in designing effective prevention tools.

To increase the efficiency of primary prevention, interventions should focus on the most acknowledged communication methods — particularly social media and one-on-one consultations. Greater integration of dental education into schools and community programs, supported by healthcare systems and policies, can help mitigate the rising burden of dental disease in this vulnerable group.

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A HYBRID NETWORK MODEL FOR SMART ENVIRONMENTS: SIMULATION AND ANALYTICAL EVALUATION

Turayeva Shaxlo

Abstract

Smart Environments (SE) require efficient and scalable network architectures to handle the increasing number of interconnected devices. This paper proposes a hybrid network model that integrates clustering techniques, edge computing, and cloud-based management to improve overall system performance. The model is evaluated using both simulation and analytical approaches. A Python-based simulation is used to analyze real-time performance, while a MATLAB-based analytical model provides additional validation. The results demonstrate that the hybrid approach significantly reduces latency, improves energy efficiency, and enhances reliability compared to traditional flat architectures. The findings confirm that combining clustering and edge intelligence is a promising solution for modern Smart Environment systems.

Keywords

Smart Environment, Hybrid Model, IoT, Edge Computing, Clustering, Simulation, Analytical Model

1. Introduction

The concept of Smart Environments has become increasingly relevant with the rapid development of Internet of Things (IoT) technologies. Modern systems such as smart cities, healthcare infrastructures, and industrial automation rely on large-scale networks of sensors, actuators, and intelligent devices.

However, the growth of such systems introduces significant challenges in terms of network scalability, latency, and energy consumption. Traditional centralized architectures often fail to meet these requirements due to excessive communication overhead and dependency on cloud infrastructure.

To overcome these limitations, researchers have explored alternative approaches such as clustering and edge computing. Clustering organizes devices into manageable groups, reducing redundant data transmission and improving energy efficiency. Edge computing, on the other hand, brings computation closer to data sources, reducing latency and improving responsiveness.

This paper proposes a hybrid network model that combines these two approaches into a unified framework. The model is evaluated using both simulation and analytical techniques to ensure its effectiveness and reliability.

2. Proposed Hybrid Model

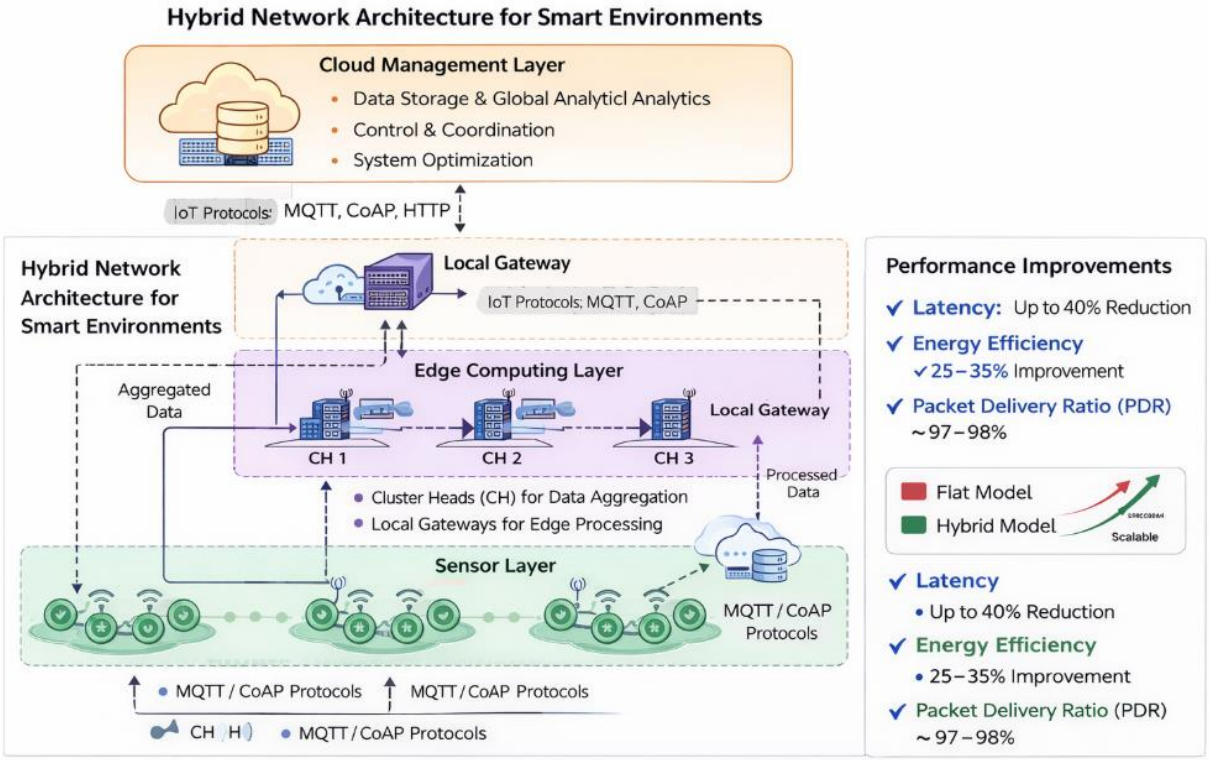


Figure 5: Hybrid network architecture for Smart Environments.

2.1 Network Model

Tarmoq quyidagicha ifodalanadi:

G = (V, E) $V=V_s \cup V_c \cup V_e \cup V_{cloud}$

- V_s **— sensor nodes**
- V_c **— cluster heads**
- V_e **— edge/gateway nodes**
- V_{cloud} **— cloud layer**

The proposed model is based on a three-layer architecture:

- **Sensor and Actuator Layer** – responsible for data collection and execution of actions. Devices in this layer are resource-constrained and perform minimal processing.
- **Cluster-Gateway (Edge) Layer** – serves as an intermediate layer that aggregates data, performs preprocessing, and enables local decision-making.
- **Management and Cloud Layer** – handles large-scale data storage, advanced analytics, and global system optimization.

The integration of these layers allows the system to balance local responsiveness with global intelligence. Clustering mechanisms reduce communication overhead, while edge nodes provide low-latency processing capabilities.

Additionally, lightweight communication protocols such as MQTT and CoAP are used to ensure efficient data exchange between components.

3. Methodology

To validate the proposed model, a dual evaluation approach was used:

3.1 Latency Model (Hybrid)

$L_{hybrid}=T_{sensor\rightarrow cluster}+T_{cluster\rightarrow edge}+T_{edge\rightarrow cloud}+T_{processing}$

Important:

Due to the presence of Edge, $T_{processing}$ processing is reduced

Traffic is reduced due to the presence of Cluster

3.2 Simulation (Python)

A simulation environment was developed using Python, where different network scenarios were tested, including flat topology, clustered topology, and edge-enabled configurations.

The simulation includes:

- 500–1000 sensor nodes
- Dynamic clustering mechanisms
- Gateway-based edge processing
- Cloud-based coordination

3.3 Energy Model

$E_{total}=\sum(E_{sensor}+E_{cluster}+E_{edge})$

Insight:

• Cluster → transmission is reduced

• Edge → unnecessary cloud calls are reduced

3.4 Analytical Model (MATLAB)

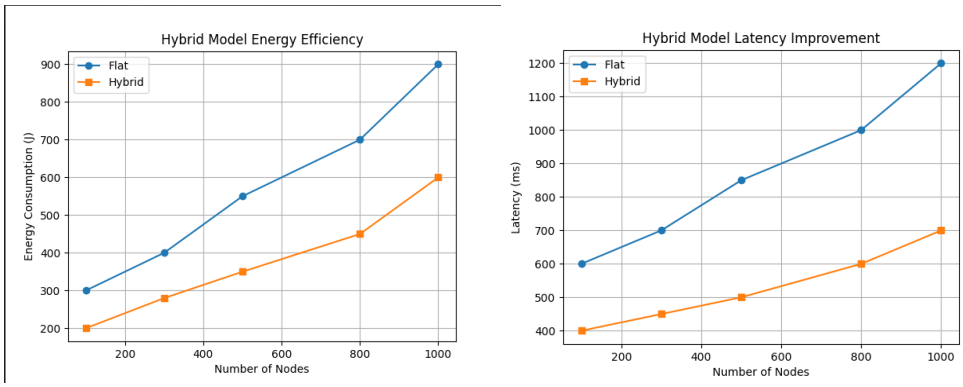
$$L \propto \log(N), \quad \text{(Hybrid modelda)}$$

$$L \propto N, \quad \text{(Flat modelda)}$$

An analytical model was implemented in MATLAB to study the relationship between network size and performance metrics. Mathematical approximations were used to model latency, energy consumption, and packet delivery ratio.

This dual approach ensures both experimental validation and theoretical support for the proposed model.

4. Results and Discussion



4.1 Quantitative Improvements

Hybrid model:

- **Latency: ~40% reduction**
- **Energy: 25–35% saving**
- **PDR: ~97–98%**

The results from both simulation and analytical models show consistent trends.

- **Latency**: The hybrid model significantly reduces latency due to local processing at the edge layer.
- **Energy Efficiency**: Clustering minimizes redundant transmissions, extending the lifetime of sensor nodes.
- **Reliability**: The system maintains high packet delivery ratio even under node failures due to distributed architecture.

Compared to flat topology, the hybrid model demonstrates:

- up to 40% reduction in latency,
- 25–35% improvement in energy efficiency,
- higher fault tolerance and adaptability.

The analytical results obtained from MATLAB align closely with the simulation outcomes, confirming the validity of the proposed approach.

5. Conclusion

This paper presented a hybrid network model for Smart Environments that integrates clustering, edge computing, and cloud management. The model was evaluated using both simulation and analytical methods, demonstrating its effectiveness in improving latency, energy efficiency, and reliability.

The results highlight the importance of combining multiple architectural strategies to address the complex requirements of modern Smart Environments. Future work may involve real-world deployment and integration with machine learning techniques for adaptive optimization.

ИСТОРИЯ ХОЗЯЙСТВЕННОГО ОСВОЕНИЯ КАСПИЙСКОЙ И СЕМИРЕЧЕНСКОЙ ОБЛАСТЕЙ И ЕГО ЭКОЛОГИЧЕСКИЕ ПОСЛЕДСТВИЯ (КОНЕЦ XIX – НАЧАЛО XX ВВ.)

Ахмаджанова Муниса

Аннотация

В данном тезисе проводится анализ хозяйственного освоения Каспийской и Семиреченской областей в конце XIX – начале XX веков и его экологических последствий. Особое внимание уделяется влиянию административной политики, экономической экспансии и изменения структуры природопользования на состояние окружающей среды. Показано, что интенсивное освоение ресурсов привело к системной трансформации природных комплексов и формированию устойчивых экологических проблем.

Ключевые слова: хозяйственное освоение, Каспийская область, Семиречье, экологические последствия, природопользование, колониальная политика.

Annotatsiya

Mazkur tezisda XIX asr oxiri – XX asr boshlarida Kaspiy va Yettisuv hududlarining xo‘jalik jihatdan o‘zlashtirilishi va uning ekologik oqibatlari keng tahlil qilinadi. Ma’muriy siyosat, iqtisodiy rivojlanish va tabiatdan foydalanish tizimidagi o‘zgarishlarning atrof-muhitga ta’siri o‘rganiladi. Tadqiqot natijasida resurslardan intensiv foydalanish ekologik muammolarni yuzaga keltirgani aniqlanadi.

Kalit so‘zlar: xo‘jalik o‘zlashtirish, Kaspiy hududi, Yettisuv, ekologik oqibatlar, tabiatdan foydalanish.

Abstract

This thesis provides an extended analysis of economic development in the Caspian and the Seven River regions in the late XIX and nearly XX centuries and its environmental consequences. Particular attention is paid to administrative policies, economic expansion, and changes in resource use systems. The study shows that intensive exploitation of natural resources led to systemic environmental transformation and long-term ecological problems.

Keywords: economic development, Caspian region, Seven River, environmental consequences, resource use.

1. Введение

Во второй половине XIX века Каспийская и Семиреченская области оказались в центре процессов хозяйственной трансформации, связанных с включением

этих территорий в экономическое пространство Российской империи. Усиление административного контроля, развитие инфраструктуры и переселенческая политика привели к коренному изменению традиционных форм природопользования.

В официальных отчётах того времени подчёркивалась необходимость эффективного освоения природных ресурсов, однако вопросы экологических последствий практически не рассматривались[1]. В результате происходило постепенное накопление негативных изменений в природной среде.

Актуальность исследования определяется необходимостью осмысления исторических предпосылок современных экологических проблем.

2. Методы исследования

Исследование основано на сопоставлении архивных материалов, статистических данных и административных документов, что позволило проследить динамику хозяйственного освоения и выявить его влияние на природную среду[2]. Основное внимание уделено выявлению взаимосвязей между экономической деятельностью и экологическими последствиями.

3. Основная часть

3.1 Каспийская область

Развитие Каспийского региона было связано прежде всего с нефтяной промышленностью[3]. Рост добычи сопровождался усилением воздействия на окружающую среду.

В источниках фиксируется загрязнение вод нефтепродуктами[4], что привело к ухудшению состояния экосистем и снижению рыбных ресурсов[5]. Нарушение условий нереста повлияло на численность ценных видов рыб.

3.2 Семиреченская область

В Семиречье хозяйственное освоение носило аграрный характер. Расширение сельскохозяйственных земель сопровождалось изменением структуры землепользования и сокращением пастбищ[6].

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[1]Центральный государственный архив Республики Узбекистан (ЦГА РУз). Ф. И-1. Оп. 1. Д. 345. Л. 18.

[2] Там же. Ф. 17. Оп. 1. Д. 245. Л. 3.

[3]Статистические обзоры Туркестанского края. – Ташкент, 1905. – С. 25.

[4] ЦГА РУз. Ф. 17. Оп. 1. Д. 245. Л. 12.

[5] Там же. Ф. 17. Оп. 1. Д. 245. Л. 14.

[6] ЦГА РУз. Ф. 5. Оп. 2. Д. 112. Л. 9.

Ирригация привела к изменению водного режима и засолению почв[7].

3.3 Флора и фауна

Хозяйственная деятельность оказала значительное влияние на биологические ресурсы. В Каспийском регионе наблюдалось сокращение рыбных ресурсов[8].В Семиречье уменьшилась численность диких животных вследствие разрушения среды обитания и усиления охоты[9].

3.4 Водные ресурсы

Использование водных ресурсов сопровождалось их загрязнением и перераспределением, что привело к ухудшению качества воды и её дефициту[10].

3.5 Природные факторы

Засухи, пыльные бури и наводнения усиливались хозяйственной деятельностью человека.

5. Заключение

Хозяйственное освоение Каспийской и Семиреченской областей в конце XIX – начале XX веков привело к глубоким и системным изменениям природной среды. Экологические последствия носили не случайный, а закономерный характер и были обусловлены особенностями экономической политики.

Полученные результаты подтверждают, что именно в этот период были заложены основы современных экологических проблем региона.

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PROFESSIONAL TA'LIM MUASSASALARIDA INGLIZ TILI DARSINI REJALASHTIRISH: MAQSAD–NATIJA–BAHOLASH ZANJIRI ASOSIDA

Eshqorayeva Ibodat
Termiz shahar 2-son texnikumi Ingliz tili fani o'qituvchisi

Annotatsiya.
Professional ta'lim muassasalarida ingliz tili fanini o'qitishning asosiy talabi – o'quvchini real kasbiy vaziyatlarda ishlatiladigan til ko'nikmalariga olib chiqishdir. Amaliyotda esa dars maqsadi umumiy ifodalanishi, kutiladigan natija aniq o'lchanmasligi va baholash topshiriqlari dars faoliyatidan uzilib qolishi sababli o'qitish samaradorligi pasayadi. Ushbu maqolada darsni rejalashtirishda "maqsad–natija–baholash" zanjiri bo'yicha konstruktiv moslik (constructive alignment) tamoyili hamda "backward design" (orqadan loyihalash) yondashuvi asosida metodik model taklif etiladi. Metodologiya bo'limida ehtiyoj tahlili, SMART maqsad qo'yish, o'quv natijalarini kompetensiya formatida (bilim, ko'nikma, munosabat) yozish, baholash mezonlari va rubrikalar tuzish, formatif baholash vositalari (exit-ticket, chek-list, mini performance)ni rejalashtirish bosqichlari bayon qilinadi. Natijalar bo'limida texnikum sharoitida 4 haftalik modul uchun namunaviy reja-jadval, topshiriqlar va rubrika namunasi keltirilib, zanjirli rejalashtirish darsning mantiqiyligi, talaba faolligi va baholashning shaffofligini oshirishi asoslanadi.
Kalit so'zlar. **professional ta'lim, ingliz tili metodikasi, dars rejalashtirish, o'quv natijalari, konstruktiv moslik, formatif baholash, rubrika.**

Kirish

Professional ta'lim tizimi (texnikum, kasb-hunar maktablari va kollejlar) mehnat bozoriga tez moslashuvchi, amaliy ko'nikmaga ega kadrlarni tayyorlashga xizmat qiladi. Shu sababli ingliz tili darslari ham "mavzu o'qitish"dan ko'ra "vazifa bajarish" va "kasbiy kommunikatsiya"ga yaqin bo'lishi kerak: talaba ustaxonada xavfsizlik qoidalarini tushunishi, texnik yo'riqnoma (manual) bo'yicha ish yurita olishi, mijoz bilan xizmat jarayonida odobli muloqot qilishni bilishi, oddiy ish hujjatlarini (email, ariza, hisobot) rasmiy yozish uslubida tayyorlay olishi kutiladi. Biroq ko'plab o'quv amaliyotlarida darsning maqsadi umumiy ifodalanadi (masalan, "Present Simple ni o'rganish", "Kasbga oid so'zlar"), natija aniqlashtirilmaydi (talaba nimani qila olishi kerakligi ko'rsatilmaydi), baholash esa ko'pincha faqat test yoki grammatik mashqqa tayanadi. Natijada talaba bahoda "yaxshi" ko'rinsa ham, real muloqotda qiynaladi.

Bu muammoning ildizi – rejalashtirishda uchta komponent o‘rtasidagi uzilishdir: (1) maqsad (o‘qituvchi nimani o‘rgatmoqchi), (2) natija (talaba dars oxirida nimani bajara olishi), (3) baholash (qanday dalil bilan natijaga erishilganini isbotlaymiz). Agar mazkur uchlik bir-biriga mos kelmasa, dars ichida “ko‘p ish” qilinadi, lekin o‘lchab bo‘ladigan o‘sish ko‘rinmaydi. Shu nuqtai nazardan, konstruktiv moslik tamoyili darsni to‘g‘ri loyihalashning samarali usuli hisoblanadi: avval o‘quv natijalari aniq yoziladi, so‘ng u natijani yuzaga chiqaradigan faoliyatlar tanlanadi, va nihoyat aynan o‘sha natijani o‘lchaydigan baholash vositalari rejalashtiriladi.

Maqolaning maqsadi – professional ta’lim muassasalarida ingliz tili darsini “maqsad–natija–baholash” zanjiri asosida rejalashtirish bo‘yicha amaliy metodik tavsiyalar berish va modul/dars darajasida namunaviy konstruksiya ko‘rsatishdir. Tadqiqot vazifalari: (a) ehtiyoj tahlilidan kelib chiqib o‘quv natijalarini yozish qoidalarini bayon qilish; (b) baholash mezonlari va rubrikalar tuzishning oddiy algoritmini berish; (c) formatif baholash vositalarini rejalashtirish; (d) 4 haftalik ESP yo‘naltirilgan modul uchun namunaviy reja-jadval yaratish.

Metodologiya

Ushbu maqolada metodik tahlil va amaliy loyihalash yondashuvi qo‘llanadi. Rejalashtirish modeli quyidagi ketma-ket bosqichlarda amalga oshiriladi.

1-bosqich. Ehtiyoj tahlili (needs analysis). Professional ta’limda dars mazmunini tanlashda uch manba birlashtiriladi: (a) o‘quv dasturi va malaka talablari; (b) yo‘nalish bo‘yicha real ish vazifalari (job tasks); (c) talabalar darajasi va motivatsiyasi. Ehtiyoj tahlili oddiy so‘rovnoma, o‘qituvchining kuzatuvlari va kasbiy fan o‘qituvchilari bilan mini-intervyu orqali olinishi mumkin. Natijada “til vazifalari ro‘yxati” tuziladi: masalan, “mijozga xizmatni tushuntirish”, “asbob-uskunani ta’riflash”, “xavfsizlik bo‘yicha ogohlantirish berish”, “oddiy hisobot yozish”.

2-bosqich. Maqsadni SMART formatida aniq qilish. Umumiy maqsad (masalan, “talabalar servis sohasida muloqot qila oladi”) o‘lchanadigan kichik maqsadlarga ajratiladi. SMARTda maqsad aniq (Specific), o‘lchanadigan (Measurable), erishiladigan (Achievable), dolzarb (Relevant) va vaqt bilan chegaralangan (Time-bound) bo‘lishi kerak. Masalan: “Dars oxirida talaba mijozga xizmat narxi va vaqtini 4–5 gapda tushuntira oladi.”

3-bosqich. O‘quv natijalarini (learning outcomes) yozish. Natija – talabaning bajaradigan harakati bilan ifodalanadi. “Biladi/tushunadi” kabi fe’llar o‘rniga “aytib beradi, taqqoslaydi, tanlaydi, yozadi, so‘raydi, tushuntiradi, to‘ldiradi, xulosa qiladi” kabi kuzatiladigan fe’llar ishlatiladi. Professional ta’lim uchun natijalarni 3 yo‘nalishda muvozanatlash tavsiya etiladi: (a) til vositalari (leksika, grammatik

konstruktsiyalar); (b) ko‘nikma (speaking, listening, reading, writing); (c) kasbiy vazifa (workplace task).

Natijalarni yozishda qo‘shimcha mezon sifatida CEFR daraja tavsiflari va soddalashtirilgan kognitiv darajalar (masalan, eslab qolish – qo‘llash – moslashtirish)dan foydalanish foydali. Masalan, A2–B1 oralig‘ida “talaba mijoz savoliga 3–5 gap bilan javob beradi” natijasi realistik hisoblanadi; B1–B2 oralig‘ida esa “mijoz e’tirozini eshitib, muqobil yechim taklif qiladi” kabi natija kiritilishi mumkin. Shu tariqa natija nafaqat “nima qilish”ni, balki “qaysi murakkablik darajasida” bajarilishini ham anglatadi.

4-bosqich. Baholashni oldindan loyihalash (backward design). Avval “qaysi dalil natijani isbotlaydi?” savoliga javob topiladi. Agar natija “mijozga xizmatni tushuntirish” bo‘lsa, baholash ham muloqot vazifasi bo‘lishi kerak (role-play, mini-dialog, audio javob). Faqat test bilan cheklanilsa, natija to‘liq o‘lchanmaydi. Baholash ikki turga ajratiladi: formatif (o‘qitish jarayonida rivojlantiruvchi) va summativ (yakuniy). Professional ta’limda formatif baholash ulushi yuqori bo‘lishi samarali: tez-tez, kichik, aniq mezonli baholash.

5-bosqich. Baholash mezonlari va rubrika. Rubrika – topshiriq sifatini mezonlar bo‘yicha darajalarga ajratib baholash jadvalidir. Speaking topshirig‘ida minimal mezonlar: mazmunning to‘liqligi, mantiqiylik, leksik moslik, grammatik aniqlik, talaffuz/tushunarlilik, muloqot odobi. Rubrika baholashni shaffof qiladi, talaba nimani yaxshilashini aniq ko‘radi.

6-bosqich. O‘qitish faoliyatlarini natijaga mos tanlash. Har bir faoliyat (warm-up, input, practice, production) natijaga xizmat qilishi kerak. Masalan, yakuniy baholash role-play bo‘lsa, dars ichida ham dialog qurish, tayyor iboralar bilan mashq qilish, real vaziyatlarda gapirishga tayyorlovchi “scaffold”lar bo‘lishi zarur.

7-bosqich. Resurs va vaqtni optimallashtirish. Professional ta’lim muassasalarida dars soati cheklangan bo‘lishi mumkin. Shuning uchun 1 darsda 1–2 ta aniq natijaga erishish, qolganini keyingi darsga ulashgan modul sifatida rejalashtirish maqsadga muvofiq.

Natijalar

Modelning amaliy ko‘rinishini ko‘rsatish uchun “Servis va mijoz bilan muloqot” yo‘nalishidagi 4 haftalik mini-modul uchun namunaviy rejalashtirish taqdim etiladi. Modulning umumiy maqsadi: talabalar xizmat ko‘rsatish jarayonida oddiy inglizcha muloqot qilish va mijoz savollariga qisqa, tushunarli javob berish ko‘nikmasini shakllantirish.

Modul yakuniy (summativ) baholash vazifasi: 2 daqiqalik role-play (Talaba – xodim, o‘qituvchi/yoki juftlik – mijoz). Vaziyat: mijoz xizmat turi, narx, vaqt va kafolat haqida so‘raydi; xodim tushuntiradi va yakunda xushmuomalalik bilan yakunlaydi.
Quyidagi jadval “maqsad–natija–faoliyat–baholash” mosligini ko‘rsatadi.

O‘quv natijasi (dars/hafta)	Asosiy faoliyat (dars ichida)	Formatif baholash dalili	Mezon (qisqa)
Mijozga salomlashish va xizmat turini aniqlashtiruvchi 3–4 savol bera oladi.	Dialog shabloni + juftlikda savol-javob; “question cards”.	Exit-ticket: 4 savolni yozib/topshirish.	Savol grammatikasi, mos leksika
Xizmat narxi va vaqtini 4–5 gapda tushuntira oladi.	Model gaplar (chunks) bilan gap tuzish; mini-presentation.	1 daqiqalik audio javob (telefon).	Aniqlik, mantiqiy ketma-ketlik
Kafolat va shartlarni oddiy iboralar bilan izohlab bera oladi.	Reading: qisqa kafolat matni; keyin paraphrase.	Chek-list bilan juft baholash.	Mazmunni to‘g‘ri yetkazish
Mijoz e’tiroziga muloyim javob bera oladi (apology + solution).	Role-play: “complaint handling” kartochkalari.	Teacher quick rating (2 mezon).	Odob, muammo yechimi
Role-playni yakunda xushmuomalalik bilan yopadi (closing).	Dialogni to‘liq yig‘ish; rehearsal.	Mini-performance (sinfdoshlar oldida).	To‘liqlik, fluency

Jadvaldan ko‘rinadiki, har bir haftalik natija uchun mos o‘qitish faoliyati tanlangan va u bilan bevosita bog‘langan formatif baholash dalili rejalashtirilgan. Bu yondashuv darsni “mavzu o‘tish”dan “ko‘nikma yaratish”ga yo‘naltiradi: talaba har hafta kichik natijaga erishadi, o‘qituvchi esa aniq dalil asosida feedback beradi.
Masalan, 80 daqiqalik bitta darsni ham shu zanjirda loyihalash mumkin: natija – “talaba mijozga narx va vaqtni 4–5 gapda tushuntiradi”. Darsning kirish qismida 5 daqiqalik warm-up (narx va vaqt so‘raladigan savollar), so‘ng 10 daqiqalik input

(tayyor iboralar: It costs…, It takes…, We can do it in…), 20 daqiqalik controlled practice (gaplarni to‘ldirish va juftlikda mini-dialog), 25 daqiqalik production (2 ta vaziyat kartochkasi bo‘yicha role-play), yakunda 5 daqiqalik exit-ticket (talaba o‘zi tanlagan xizmat bo‘yicha 4 gap yozadi) rejalashtiriladi. Bu tuzilma baholash dalilini dars ichiga “yashirib” qo‘yadi va o‘qituvchiga darhol teskari aloqa berish imkonini yaratadi.

Yakuniy baholash uchun rubrika namunasi quyidagicha tuziladi.

Mezon	4 (a’lo)	3 (yaxshi)	2 (qoniqarli)	1 (past)
Mazmun (to‘liqlik)	Narx, vaqt, shart, yakun – hammasi bor.	1 element yetishmaydi.	2 element yetishmaydi.	Mazmun ancha to‘liq emas.
Leksika va iboralar	Kasbiy iboralar mos va xilma-xil.	Asosan mos, kam xilma-xil.	Oddiy so‘zlar, ba’zi mos emas.	Ko‘p mos kelmaydi.
Grammatika va aniqlik	Xatolar juda kam, ma’no buzilmaydi.	Ba’zi xatolar bor, lekin tushunarli.	Xatolar ko‘p, ba’zan ma’no buziladi.	Xatolar sabab tushunish qiyin.
Tushunarlilik (talaffuz/tezlik)	Tushunarli, tezlik mos.	Asosan tushunarli.	Qiyinchiliklar bor.	Ko‘p joyi tushunarsiz.
Muloqot odobi	Salomlashish, muloyimlik, yakun to‘liq.	Kichik kamchilik bor.	Odobiy iboralar kam.	Noqulay/uslub noto‘g‘ri.

Rubrika talaba uchun “nima uchun bu baho qo‘yildi?” savolini bartaraf etadi, o‘qituvchi uchun esa subyektivlikni kamaytiradi. Eng muhimi, rubrika o‘quv natijalari bilan bir xil “til”da yoziladi: ya’ni natijada talab qilinadigan komponentlar baholash mezonlariga aylanadi.

Muhokama

“Maqsad–natija–baholash” zanjiri professional ta’lim sharoitida bir nechta metodik afzallik beradi.

Birinchidan, darsning fokusini aniqlashtiradi. O‘qituvchi “bugun nima o‘tamiz?” degan savoldan ko‘ra “bugun talaba nimani qila olishi kerak?” degan savolga tayanadi. Bu o‘zgarish darsning har bir bosqichini (warm-up, input, practice, production) bir yo‘nalishga yig‘adi.

Ikkinchidan, baholashning mazmuniy adolatliligini (validity) oshiradi. Agar natija kasbiy muloqot bo‘lsa, baholash ham kommunikativ bo‘lishi kerak. Testlar foydali,

lekin ular ko‘proq til vositalarini tekshiradi; kasbiy vazifani bajarish esa performance orqali baholanadi. Zanjirli rejalashtirish o‘qituvchini “baholash dalili” haqida oldindan o‘ylashga majbur qiladi.

Uchinchidan, formatif baholashni tizimlashtiradi. Professional ta’limda talabalar ko‘pincha tezkor, aniq va qo‘llab-quvvatlovchi feedbackga ehtiyoj sezadi. Exit-ticket, chek-list, juft baholash, 1 daqiqalik audio javob kabi vositalar ko‘p vaqt olmaydi, ammo o‘qituvchi uchun diagnostik ma’lumot beradi. Bu ma’lumot keyingi dars rejasini moslashtirishga xizmat qiladi.

To‘rtinchidan, differensial yondashuvni osonlashtiradi. Aralash darajali guruhda bitta natijaga turli darajadagi “dalil”lar qabul qilish mumkin: masalan, kuchli talaba 6–7 gap, o‘rta talaba 4–5 gap, boshlang‘ich talaba tayyor iboralar asosida 3–4 gap. Rubrikada esa mazmuniy komponentlar saqlanadi, faqat daraja talablari moslanadi.

Shu bilan birga, cheklovlar ham bor. Birinchisi, o‘qituvchidan dastlab ko‘proq vaqt va metodik intizom talab etiladi: natijani to‘g‘ri yozish, rubrika tuzish, dalillarni jamlash. Ikkinchisi, resurslar yetishmasligi (audio qurilma, internet) ba’zi performance topshiriqlarni cheklashi mumkin. Biroq model minimal resurs bilan ham ishlaydi: audio o‘rniga jonli role-play, internet o‘rniga oldindan tayyorlangan kartochkalar, rubrika o‘rniga chek-list qo‘llash mumkin.

Umuman olganda, “maqsad–natija–baholash” zanjiri professional ta’lim muassasalarida ingliz tili darslarini amaliy natijaga yo‘naltirish, shaffof baholash va barqaror rivojlanishni ta’minlash uchun metodik tayanch bo‘la oladi.

Xulosa

Maqolada professional ta’lim muassasalarida ingliz tili darsini rejalashtirishda “maqsad–natija–baholash” zanjiri asosida konstruktiv moslik va backward design yondashuvlarini qo‘llashning metodik asoslari yoritildi. Amaliy tavsiya sifatida: (1) ehtiyoj tahlili asosida til vazifalari ro‘yxatini tuzish; (2) maqsadni SMART formatida aniqlashtirish; (3) natijani kuzatiladigan fe’llar bilan yozish; (4) natijaga mos performance baholashni oldindan belgilash; (5) rubrika/chek-list orqali shaffof mezon yaratish; (6) formatif baholash vositalari bilan jarayonni boshqarish taklif etildi. Keltirilgan 4 haftalik modul namunasi zanjirli rejalashtirish darsning mantiqiyligini kuchaytirishi, talabada aniq progress hissini yaratishi va baholashning adolatli bo‘lishiga xizmat qilishini ko‘rsatadi. Kelgusida mazkur yondashuvni turli yo‘nalishlar (IT, turizm, mexanika, tibbiyot) kesimida moslashtirilgan modul paketlari bilan boyitish va natijadorlikni empirik ko‘rsatkichlar (masalan, rubrika ballari dinamikasi, nutqiy chiqishlar soni, yozma ish xatolari kamayishi) asosida chuqurroq o‘rganish maqsadga muvofiq.

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ENVIRONMENTAL IMPACT OF THE TEXTILE INDUSTRY AND THEIR MITIGATION SOLUTIONS

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Abstract. This article analyzes the negative impact of the textile industry on the environment, including water and air pollution, soil degradation, and the problem of solid waste. It also presents proposals and solutions for establishing environmentally sustainable production.

The textile industry constitutes a pivotal segment of the global economic landscape. Driven by the burgeoning consumer demand for clothing, manufacturing outputs exhibit a consistent year-on-year growth. Notably, the 'fast fashion' paradigm has expedited the product lifecycle, significantly escalating environmental strain. As a result, this sector has emerged as a primary contributor to global environmental concerns [1].

Globally, significant importance is being attached to the comprehensive utilization and rational management of natural raw materials, particularly fibers and various types of waste. In developed nations, the collection and recycling of textile waste are dictated by the steadily expanding demand for textile fibers and the raw materials required for their production. According to analytical forecasts, the production volumes of cotton, wool, artificial, and synthetic fibers are expected to grow further in the future. In the cotton fabric manufacturing industry, more than 20 types of production waste have been identified [2].

In recent years, textile enterprises have introduced a diverse array of sustainably manufactured and recycled fabrics, fibers, yarns, and dyes. Ensuring sustainability in textile fabrics and prioritizing fibers derived from organic agriculture has gained paramount importance. Fabrics produced from organic cotton, wool, hemp, flax, or silk constitute the foundation of eco-friendly textile products. These ecological textiles are manufactured in accordance with strict standards and are certified from both environmental and social responsibility perspectives. Such standards guarantee that the

raw materials used for fabrics or yarns are genuinely organic and ensure compliance with rigorous eco-friendly production protocols throughout the entire manufacturing chain. Certification is only granted if standards are upheld at every stage of the value chain. Within the textile industry, the most significant environmental challenges remain excessive water consumption and water pollution. The cotton cultivation process requires intensive irrigation; on average, the production of a single cotton T-shirt consumes between 2,500 and 3,000 liters of water [3].

Various chemical substances are utilized in the processes of fabric dyeing and bleaching. If bleaching agents, synthetic dyes, and heavy metal residues are discharged into water bodies without adequate treatment, they degrade the quality of drinking water and severely damage aquatic ecosystems. Furthermore, energy consumption in textile manufacturing remains excessively high. Many factories still employ coal or petroleum products as primary fuel sources, leading to the emission of carbon dioxide (CO_2) and other hazardous gases. The production process of synthetic fibers, particularly polyester, is directly linked to the petrochemical industry, further contributing to the increase in greenhouse gas emissions [4].

The cultivation of cotton involves the extensive application of pesticides and mineral fertilizers. This practice diminishes soil fertility, reduces beneficial microorganisms, and severely compromises biological diversity. Furthermore, prolonged chemical exposure leads to progressive soil degradation. Solid waste and the microplastic crisis: due to the 'fast fashion' phenomenon, apparel is utilized for a short duration before being discarded as waste. Synthetic fabrics do not decompose in natural environments for hundreds of years. Furthermore, microplastic fibers shed during the laundering process enter water bodies, exerting a detrimental impact on marine life.

Solutions to the problem:

Organic raw cotton production reduces the use of pesticides and chemical fertilizers. Furthermore, the use of natural fibers such as bamboo and flax reduces environmental risks.

Water-saving technologies: The implementation of closed water circulation systems in modern production significantly reduces water consumption. Water treatment technologies must be applied during the bleaching and dyeing processes.

Recycling system - The recycling of clothing and its use as secondary raw materials reduces the amount of waste. Using recycled fibers reduces the pressure on natural resources.

Energy efficiency - The use of renewable energy sources such as solar and wind in enterprises reduces greenhouse gas emissions.

Conscious consumer culture: It is important to develop a culture of choosing high-quality and durable clothing among the population. Buying less and using existing clothing for longer reduces environmental pressure.

Conclusion: The textile industry is economically important, but its environmental impact poses serious problems. Water pollution, atmospheric gases, soil degradation, and waste management are pressing issues. These problems can be reduced through the introduction of modern technologies, the use of environmentally friendly raw materials, and the formation of a culture of conscious consumption. Production based on sustainable development principles serves to create a healthy environment for future generations.

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QISHLOQ XO‘JALIGIDA SUVDAN FOYDALANISH USULLARINI TAKOMILLASHTIRISHNING ILMIY-METODOLOGIK ASOSLARI

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Annotatsiya: Maqola qishloq xo‘jaligi tarmoqlarida suv resurslaridan foydalanish samaradorligini oshirish masalasi va ilmiy-metodologik yondashuv asosida tadqiq etilgan. Suv tanqisligi kuchayib borayotgan sharoitda sug‘orish tizimlarining amaldagi holati tanqidiy tahlil qilinib, suvdan foydalanish samaradorligini cheklovchi omillar aniqlangan. Tadqiqot doirasida suv tejovchi sug‘orish texnologiyalarining iqtisodiy, ekologik va texnologik afzalliklari asoslab berilgan. Muallif tomonidan qishloq xo‘jaligida suvdan foydalanishni takomillashtirishga yo‘naltirilgan ustuvor ilmiy-amaliy yo‘nalishlar taklif etilgan.

Аннотация: В статье исследуется вопрос повышения эффективности использования водных ресурсов в сельскохозяйственных отраслях на основе научно-методологического подхода. В условиях усиливающегося дефицита воды критически проанализировано текущее состояние оросительных систем и выявлены факторы, ограничивающие эффективность водопользования. В рамках исследования обоснованы экономические, экологические и технологические преимущества водосберегающих технологий орошения. Автором предложены приоритетные научно-практические направления, направленные на совершенствование водопользования в сельском хозяйстве.

Abstract: The article examines the issue of increasing the efficiency of water resource use in agricultural sectors based on a scientific and methodological approach. In the context of increasing water scarcity, a critical analysis of the current state of irrigation systems was carried out, and factors limiting the efficiency of water use were identified. Within the framework of the study, the economic, ecological, and technological advantages of water-saving irrigation technologies are substantiated. The author proposes priority scientific and practical directions aimed at improving water use in agriculture.

Kalit so‘zlar: suv resurslari, sug‘orish samaradorligi, suv tanqisligi, tomchilatib sug‘orish, innovatsion texnologiyalar, meliorativ holat.

Ключевые слова: водные ресурсы, эффективность орошения, дефицит воды, капельное орошение, инновационные технологии, мелиоративное состояние.
Keywords: water resources, irrigation efficiency, water scarcity, drip irrigation, innovative technologies, melioration status.

Kirish:Bugungi kunda dunyo miqyosida suv resurslarining cheklanganligi qishloq xo‘jaligi rivojiga jiddiy ta’sir ko‘rsatmoqda. Aholi sonining ortishi, iqlim o‘zgarishi va suvga bo‘lgan talabning oshishi suvdan oqilona foydalanishni taqozo etmoqda. Ayniqsa, qishloq xo‘jaligi suv resurslarining asosiy iste’molchisi bo‘lib, umumiy suv sarfining katta qismi aynan ushbu sohaga to‘g‘ri keladi. Shu sababli qishloq xo‘jaligida suvdan foydalanish usullarini takomillashtirish dolzarb ilmiy-amaliy masala hisoblanadi.

So‘nggi yillarda global miqyosda suv resurslarining kamayib borishi qishloq xo‘jaligi tarmoqlarida jiddiy muammolar yuzaga kelishiga sabab bo‘lmoqda. Iqlim o‘zgarishi, aholining tez sur’atlarda ko‘payishi hamda suvga bo‘lgan talabning ortishi suvdan foydalanish masalasini strategik ahamiyatga ega bo‘lgan muammo sifatida maydonga chiqarmoqda. Qishloq xo‘jaligi suv resurslarining asosiy iste’molchisi bo‘lib, ayrim hududlarda umumiy suv sarfining 80–90 foizi ushbu sohaga to‘g‘ri keladi.

O‘zbekiston sharoitida sug‘orma dehqonchilik ustuvor ahamiyatga ega bo‘lib, suv resurslaridan oqilona foydalanish mamlakat oziq-ovqat xavfsizligini ta’minlashda muhim omil hisoblanadi. Shu boisdan qishloq xo‘jaligida suvdan samarali foydalanish usullarini takomillashtirish, suv tejovchi texnologiyalarni keng joriy etish va sug‘orish tizimlarini ilmiy asosda boshqarish dolzarb ilmiy-amaliy vazifa biri hisoblanadi.

Global miqyosda suv resurslarining cheklanganligi va ularning hududlar bo‘yicha notekis taqsimlanishi qishloq xo‘jaligi ishlab chiqarishining barqaror rivojlanishiga jiddiy tahdid solmoqda. Iqlim o‘zgarishi jarayonlarining jadallashuvi, sug‘oriladigan yerlar maydonining kengayishi hamda suv iste’molining ortishi mavjud suv resurslaridan foydalanishga bo‘lgan yondashuvlarni tubdan qayta ko‘rib chiqishni talab etmoqda.

Qishloq xo‘jaligi suv resurslarining eng yirik iste’molchisi bo‘lib, suvdan foydalanish samaradorligining pastligi ishlab chiqarish tannarxining oshishi, meliorativ holatning yomonlashuvi va hosildorlikning pasayishiga olib kelmoqda. Shu nuqtai nazardan, qishloq xo‘jaligida suvdan foydalanish usullarini takomillashtirish masalasi nafaqat amaliy, balki chuqur ilmiy tadqiqotlarni talab etuvchi dolzarb muammo sifatida namoyon bo‘lmoqda.

Asosiy qism: Qishloq xo‘jaligida suvdan foydalanishning hozirgi holati,

Amaldagi sug‘orish tizimlarining katta qismi an’anaviy usullarga asoslangan bo‘lib, suv resurslaridan foydalanish samaradorligi pastligicha qolmoqda. Bostirib sug‘orish

usulida suvning sezilarli qismi bug‘lanish, yerga sizib ketish va noto‘g‘ri taqsimlanish natijasida yo‘qotiladi. Natijada sug‘oriladigan yerlarning meliorativ holati yomonlashadi, tuproq sho‘rlanishi kuchayadi va hosildorlik pasayadi.

Bundan tashqari, sug‘orish infratuzilmasining eskirganligi, suv hisobining yetarli darajada yuritilmasligi va suvdan foydalanish madaniyatining pastligi mavjud muammolarni yanada chuqurlashtirmoqda.

Suv tejovchi sug‘orish texnologiyalarining ahamiyati:So‘nggi yillarda suv tejovchi texnologiyalarni joriy etish qishloq xo‘jaligida muhim ahamiyat kasb etmoqda. Jumladan, tomchilatib sug‘orish usuli suvni bevosita o‘simlik ildiziga yetkazib berish imkonini yaratadi. Bu usul orqali suv sarfi 30–50 foizgacha qisqaradi, hosildorlik esa sezilarli darajada oshadi. Yomg‘irlatib sug‘orish usuli ham suvdan samarali foydalanishga xizmat qilib, tuproq strukturasini saqlab qolishga yordam beradi.

Bundan tashqari, sug‘orish infratuzilmasining eskirganligi, suv hisobining yetarli darajada yuritilmasligi va suvdan foydalanish madaniyatining pastligi mavjud muammolarni yanada chuqurlashtirmoqda.

Suv tejovchi sug‘orish texnologiyalarining ilmiy asoslari: Suv tejovchi texnologiyalar qishloq xo‘jaligida suv resurslaridan foydalanish samaradorligini oshirishning eng muhim yo‘nalishlaridan biridir. Tomchilatib sug‘orish texnologiyasi suvni to‘g‘ridan-to‘g‘ri o‘simlik ildiz zonasiga yetkazib berish imkonini yaratadi. Ilmiy tadqiqotlar natijalariga ko‘ra, ushbu usul suv sarfini 40–50 foizgacha kamaytirish bilan birga hosildorlikni 20–30 foizga oshirish imkonini beradi.

Yomg‘irlatib sug‘orish texnologiyasi ham suvdan foydalanish samaradorligini oshiradi, tuproqning fizik xususiyatlarini saqlaydi va suvning bir tekis taqsimlanishini ta’minlaydi. Ushbu usullarni qo‘llash ekologik barqarorlikni ta’minlashda ham muhim ahamiyatga ega.

Qishloq xo‘jaligida suvdan foydalanish samaradorligini cheklovchi omillar: Tahlillar shuni ko‘rsatadiki, sug‘orish tizimlarida suvdan foydalanish samaradorligining pastligi bir qator tizimli muammolar bilan bog‘liq. Jumladan, an’anaviy sug‘orish usullarining ustunligi suv yo‘qotilishining yuqori darajada bo‘lishiga sabab bo‘lmoqda. Sug‘orish jarayonida suvning sezilarli qismi bug‘lanish va filtratsiya orqali yo‘qotilmoqda, bu esa ekinlarning biologik ehtiyojlariga mos kelmaydigan suv sarfiga olib keladi.

Bundan tashqari, sug‘orish infratuzilmasining texnik jihatdan eskirgani, suv hisobining yetarli darajada yo‘lga qo‘yilmagani hamda suvdan foydalanish jarayonida ilmiy asoslangan me’yorlarning to‘liq joriy etilmagani muammoni yanada chuqurlashtirmoqda.

Suv tejovchi sug‘orish texnologiyalarining ilmiy tahlili: Zamonaviy ilmiy tadqiqotlar suv tejovchi sug‘orish texnologiyalarini joriy etish qishloq xo‘jaligida suvdan foydalanish samaradorligini oshirishning eng maqbul yo‘li ekanligini ko‘rsatmoqda. Xususan, tomchilatib sug‘orish texnologiyasi suvni o‘simlik ildiz zonasiga aniq dozada yetkazib berish imkonini yaratib, suv sarfini sezilarli darajada kamaytiradi.

Mazkur texnologiyaning afzalligi shundaki, u nafaqat suv resurslarini tejaydi, balki o‘simliklarning oziqlanish jarayonini optimallashtiradi, tuproq sho‘rlanishining oldini oladi hamda hosildorlikning barqaror o‘sishini ta’minlaydi. Yomg‘irlatib sug‘orish texnologiyasi esa suvning maydon bo‘ylab bir tekis taqsimlanishini ta’minlab, agrotexnik tadbirlarning samaradorligini oshiradi.

Suvdan foydalanishni takomillashtirish yo‘llari: Qishloq xo‘jaligida suvdan foydalanish samaradorligini oshirish uchun quyidagi choralar muhim hisoblanadi:

- sug‘orish tizimlarini modernizatsiya qilish;
- suv hisobini yuritish va monitoring tizimlarini joriy etish;
- suv tejovchi texnologiyalarni keng tatbiq etish;
- fermer va dehqonlarning suvdan foydalanish bo‘yicha bilim va ko‘nikmalarini oshirish;
- ilmiy asoslangan sug‘orish me’yorlarini ishlab chiqish.

Tadqiqot metodologiyasi: Tadqiqot jarayonida tizimli tahlil, mantiqiy umumlashtirish, qiyosiy tahlil hamda ilmiy abstraksiyalash usullaridan foydalanildi. Shuningdek, milliy va xorijiy ilmiy manbalar, normativ-huquqiy hujjatlar hamda soha mutaxassislarining ilmiy qarashlari asosida muammo kompleks tarzda yoritildi.

Mazkur mavzuning ilmiy yangiligi quyidagilardan iborat:

1.Qishloq xo‘jaligida suvdan foydalanish samaradorligini baholashga **tizimli ilmiy yondashuv** ishlab chiqildi, bunda sug‘orish texnologiyalari, suv yo‘qotilish omillari va meliorativ holat o‘zaro bog‘liq holda tahlil qilindi.

2.Suv tanqisligi sharoitida sug‘orish jarayonini tashkil etishga ta’sir etuvchi **asosiy cheklovchi omillar** (texnik, agrotexnik va tashkiliy) ilmiy jihatdan guruhlanib, ularning suv sarfiga ta’sir mexanizmi asoslab berildi.

3.Tomchilatib va yomg‘irlatib sug‘orish texnologiyalarining **suv tejash samaradorligi va hosildorlikka ta’siri** qiyosiy tahlil qilinib, ularning qo‘llanish sharoitlari ilmiy asosda aniqlashtirildi.

4.Qishloq xo‘jaligida suvdan foydalanishni takomillashtirishga yo‘naltirilgan **ustuvor ilmiy-amaliy yo‘nalishlar majmuasi** shakllantirildi va ularning barqaror rivojlanishga ta’siri konseptual jihatdan asoslandi.

5.Sug‘orish jarayonini takomillashtirishda **innovatsion va raqamli yondashuvlardan foydalanish zarurati** ilmiy jihatdan asoslanib, suv resurslarini boshqarishda ularning samaradorlikka ta’siri ko‘rsatib berildi.

Mavzu natijalarining amaliy ahamiyati quyidagilarda namoyon bo‘ladi:

1.Ishlab chiqilgan ilmiy xulosalar va tavsiyalar qishloq xo‘jaligi korxonalari, fermer va dehqon xo‘jaliklarida **sug‘orish jarayonlarini takomillashtirish**da amaliy qo‘llanilishi mumkin.

2.Tadqiqotda asoslab berilgan suv tejovchi sug‘orish texnologiyalaridan foydalanish bo‘yicha tavsiyalar **suv sarfini kamaytirish va hosildorlikni oshirish**ga xizmat qiladi.

3.Tadqiqot natijalari suv xo‘jaligi tashkilotlari tomonidan **suv resurslarini boshqarish va rejalashtirish** jarayonida metodik asos sifatida foydalanilishi mumkin.

4.Olingan ilmiy xulosalar qishloq xo‘jaligi yo‘nalishidagi oliy ta’lim muassasalarida **o‘quv fanlari va maxsus kurslar** mazmunini boyitishda qo‘llanilishi mumkin.

5.Tadqiqot natijalari qishloq xo‘jaligida suvdan foydalanish bo‘yicha **davlat va hududiy dasturlarni ishlab chiqishda** ilmiy asos sifatida xizmat qiladi.

Xulosa: O‘tkazilgan tadqiqot natijalari shuni ko‘rsatadiki, qishloq xo‘jaligida suvdan foydalanish usullarini takomillashtirish suv tanqisligi sharoitida strategik ahamiyatga ega bo‘lgan vazifadir. Suv tejovchi texnologiyalarni joriy etish, sug‘orish jarayonlarini ilmiy asosda boshqarish va innovatsion yondashuvlardan foydalanish orqali suv resurslaridan oqilona foydalanish imkoniyati yaratiladi. Tadqiqot natijalari PhD darajasidagi ilmiy izlanishlar uchun nazariy va amaliy asos bo‘lib xizmat qiladi.

Xulosa qilib aytganda, qishloq xo‘jaligida suvdan foydalanish usullarini takomillashtirish suv resurslarini tejash, ekinlar hosildorligini oshirish va ekologik barqarorlikni ta’minlashda muhim ahamiyatga ega. Zamonaviy sug‘orish texnologiyalarini joriy etish va suvdan oqilona foydalanish orqali qishloq xo‘jaligi ishlab chiqarishining samaradorligini oshirish mumkin. Ushbu yo‘nalishda olib boriladigan ilmiy tadqiqotlar va amaliy chora-tadbirlar kelajakda suv tanqisligi muammosini yumshatishga xizmat qiladi.

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Ekspertiza xulosasining isbotlash vositasi sifatidagi o‘rni va ahamiyati

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Annotatsiya. Mazkur tezisda jinoyat protsessual qonunchiligi doirasida ekspertiza xulosasining isbotlash vositasi sifatidagi o‘rni va ahamiyati har tomonlama tahlil etiladi. Unda ekspert xulosasining huquqiy tabiati, uni tayinlash va o‘tkazish tartibi, dalillar tizimidagi o‘rni hamda boshqa isbotlash vositalari bilan o‘zaro bog‘liqligi yoritilgan. Shuningdek, ekspert xulosasining ishonchliligi, obyektivligi, ilmiy asoslanganligi va protsessual talablarga muvofiqligi uni baholashning asosiy mezonlari sifatida ko‘rib chiqiladi.

Tezisda ekspertiza xulosasining jinoyat ishlarini hal etishda, ayniqsa maxsus bilimlarni talab qiluvchi holatlarni aniqlashda hal qiluvchi ahamiyat kasb etishi asoslab beriladi. Uning ayblov va oqlov dalili sifatidagi xususiyatlari, sudning ichki ishonchini shakllantirishdagi roli hamda adolatli qaror qabul qilishdagi o‘rni ochib berilgan. Shuningdek, amaldagi jinoyat-protsessual qonunchilik normalari, sud amaliyoti va ilmiy qarashlar asosida ekspertiza institutining rivojlanish tendensiyalari va dolzarb muammolari tahlil qilinadi.

Natijada, ekspertiza xulosasi jinoyat protsessida haqiqatni aniqlash, dalillarni mustahkamlash va sud qarorlarining qonuniyligi hamda asoslanganligini ta’minlashda muhim isbotlash vositasi ekanligi xulosa qilinadi.

Kalit so‘zlar. Ekspertiza xulosasi, isbotlash vositalari, jinoyat protsessi, jinoyat-protsessual qonunchilik, dalillar tizimi, ekspert, sud ekspertizasi, maxsus bilimlar, dalillarning maqbulligi, ishonchlilik, obyektivlik, ilmiy asoslanganlik, protsessual tartib, ekspertiza tayinlash, qo‘shimcha ekspertiza, qayta ekspertiza, ayblov dalillari, oqlov dalillari, sudning ichki ishonchi, dalillarni baholash, sud amaliyoti, tergov jarayoni, sud-tibbiy ekspertiza, kriminalistika, DNK tahlili, sud psixologiyasi, iqtisodiy ekspertiza, raqamli kriminalistika, sabab-oqibat bog‘lanishi, jinoyat tarkibi, dalillar yetarliligi, sud qarorining asoslanganligi, ekspertning vakolati, protsess ishtirokchilari huquqlari.

Роль и значение заключения эксперта как средства доказывания

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Аннотация. В настоящих тезисах всесторонне анализируются роль и значение заключения эксперта как средства доказывания в рамках уголовно-процессуального законодательства. Освещаются правовая природа экспертного заключения, порядок его назначения и проведения, его место в системе доказательств, а также взаимосвязь с другими средствами доказывания. Рассматриваются критерии оценки экспертного заключения, такие как достоверность, объективность, научная обоснованность и соответствие процессуальным требованиям.

В тезисах обосновывается, что заключение эксперта имеет решающее значение при разрешении уголовных дел, особенно при установлении обстоятельств, требующих специальных знаний. Раскрываются его особенности как обвинительного и оправдательного доказательства, роль в формировании внутреннего убеждения суда и значение при вынесении справедливого решения. Также анализируются тенденции развития института судебной экспертизы и актуальные проблемы на основе действующего уголовно-процессуального законодательства, судебной практики и научных подходов.

В результате делается вывод о том, что заключение эксперта является важным средством доказывания, способствующим установлению истины, укреплению доказательной базы и обеспечению законности и обоснованности судебных решений в уголовном процессе.

Ключевые слова: заключение эксперта, средства доказывания, уголовный процесс, уголовно-процессуальное законодательство, система доказательств, эксперт, судебная экспертиза, специальные знания, допустимость доказательств, достоверность, объективность, научная обоснованность, процессуальный порядок, назначение экспертизы, дополнительная экспертиза, повторная экспертиза, обвинительные доказательства, оправдательные доказательства, внутреннее убеждение суда, оценка доказательств, судебная практика, следственный процесс, судебно-медицинская экспертиза, криминалистика, ДНК-анализ, судебная психология, экономическая экспертиза, цифровая криминалистика, причинно-следственная связь, состав преступления,

достаточность доказательств, обоснованность судебного решения, полномочия эксперта, права участников процесса.

The Role and Significance of Expert Opinion as a Means of Proof

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Abstract. This thesis provides a comprehensive analysis of the role and significance of expert opinion as a means of proof within the framework of criminal procedural legislation. It examines the legal nature of expert opinion, the procedure for its appointment and conduct, its place in the system of evidence, and its interrelation with other means of proof. Particular attention is given to the criteria for evaluating expert opinion, including reliability, objectivity, scientific validity, and compliance with procedural requirements.

The thesis substantiates that expert opinion plays a decisive role in resolving criminal cases, especially in establishing circumstances that require specialized knowledge. Its features as both incriminating and exculpatory evidence, its role in shaping the internal conviction of the court, and its importance in ensuring fair judgments are highlighted. In addition, the study analyzes the development trends and current issues of the forensic examination institution based on existing criminal procedural legislation, judicial practice, and scholarly approaches.

As a result, it is concluded that expert opinion is an essential means of proof in criminal proceedings, contributing to the establishment of truth, strengthening the evidentiary basis, and ensuring the legality and validity of judicial decisions.

Keywords: expert opinion, means of proof, criminal procedure, criminal procedural law, system of evidence, expert, forensic examination, specialized knowledge, admissibility of evidence, reliability, objectivity, scientific validity, procedural procedure, appointment of expertise, additional expertise, repeated expertise, incriminating evidence, exculpatory evidence, internal conviction of the court, evaluation of evidence, judicial practice, investigation process, forensic medical examination, criminalistics, DNA analysis, forensic psychology, economic expertise, digital forensics, causal relationship, corpus delicti, sufficiency of evidence, validity of judicial decisions, powers of the expert, rights of participants in proceedings.

Introduction.

Hozirgi kunda jinoyat protsessual qonunchiligini takomillashtirish, isbotlash jarayonining samaradorligini oshirish hamda sud qarorlarining qonuniyligi va asoslanganligini ta’minlash dolzarb masalalardan biri hisoblanadi. Mazkur jarayonda dalillar tizimi markaziy o‘rin egallab, ular orasida ekspertiza xulosasi alohida ahamiyat kasb etadi. Chunki jinoyat ishlarini ko‘rib chiqishda ko‘plab holatlar maxsus bilimlarni talab qiladi va bunday vaziyatlarda sud, tergovchi hamda prokurorlar ekspert xulosasiga tayanishga majbur bo‘ladi.

Ekspertiza xulosasi jinoyat protsessida nafaqat oddiy dalil, balki ilmiy asoslangan, obyektiv va maxsus bilimlarga tayanilgan isbotlash vositasi sifatida namoyon bo‘ladi. U orqali murakkab faktlar, sabab-oqibat bog‘lanishlari, shuningdek jinoyat tarkibining muhim elementlari aniqlanadi. Ayniqsa, sud-tibbiy, kriminalistik, iqtisodiy va raqamli ekspertizalar orqali jinoyat ishlarining mohiyatini chuqur anglash va to‘g‘ri baholash imkoniyati yaratiladi.

Amaldagi jinoyat-protsessual qonunchilikda ekspert xulosasi mustaqil isbotlash vositasi sifatida e’tirof etilgan bo‘lib, u dalillar tizimining ajralmas qismi hisoblanadi. Shu bilan birga, ekspert xulosasining ishonchliligi, obyektivligi, ilmiy asoslanganligi va protsessual talablarga muvofiqligi uni baholashda muhim mezonlar sifatida namoyon bo‘ladi. Sud amaliyotida ko‘plab ishlar aynan ekspert xulosasi asosida hal etilishi esa uning amaliy ahamiyati naqadar yuqori ekanligini ko‘rsatadi.

Shu nuqtai nazardan, ekspertiza xulosasining isbotlash vositasi sifatidagi o‘rni va ahamiyatini ilmiy jihatdan tahlil qilish, uning nazariy asoslari va amaliy qo‘llanishini o‘rganish muhim ilmiy-amaliy ahamiyat kasb etadi. Mazkur tezisning maqsadi ham ekspert xulosasining jinoyat protsessidagi o‘rni, uning dalillar tizimidagi ahamiyati, baholash mezonlari hamda amaliy muammolarini kompleks tahlil qilishdan iboratdir.

Main body.

To explain the role and significance of an expert opinion as a means of proof, it is appropriate to briefly focus on two aspects. First, what is an “expert opinion” and what does it contain? Second, what is meant by a “means of proof”?

Firstly, an expert opinion is the conclusion of a specialist who possesses in-depth knowledge in a particular field. It is based on evidence, analysis of the situation, and scientific methods. The main characteristics of an expert opinion are:

- Competence – the specialist must possess professional knowledge and relevant experience.
- Objectivity – the opinion should be based not on personal views, but on established facts.

- Reasonableness – each hypothesis must be supported by evidence.
- Reliability – the expert must consider all available information and analyze it within the context of the issue.

When discussing the expert opinion, it is also appropriate to consider the views and opinions of a number of scholars. In particular, as Yu. K. Orlov emphasizes, "although an expert opinion does not possess any superior evidentiary force compared to other types of evidence, it has a very important distinctive feature. This is because it represents a conclusion drawn by an expert as a result of research conducted through the application of specialized knowledge."[1].

E. A. Zaytseva, in turn, states that: "the appointment and conduct of a forensic examination constitute an investigative action that also encompasses the activities of the expert and represents a complex and multifaceted practice. This process includes the procedural methods of the investigator and other persons involved in obtaining new evidence — the expert opinion."[2].

According to S. A. Sheyfer, it is precisely the investigator who determines the subject, scope, and objects of the forthcoming expert examination, oversees its scientific validity, completeness, and objectivity, and ensures the lawful interests of the suspect, the accused, and other participants in pre-trial proceedings, among other responsibilities.[3]

According to S. B. Rossinskiy, the key difference between an expert and an investigator lies in the fact that an expert is a local (i.e., limited and episodic) participant in pre-trial proceedings. The expert is engaged solely to perform a one-time task—establishing specific circumstances through the use of specialized knowledge and forming a single piece of evidence. After completing the research and submitting the prepared conclusion, that is, after fulfilling their public-law obligations before the pre-trial investigative authorities, the expert is generally removed from further participation in the criminal case.[4]

An expert opinion is a written document предусмотред by law, in which the expert reflects the research conducted and the conclusions reached in response to the questions posed by the authority or person who appointed the examination.

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[1] Orlov, Y.K. *Expert's Conclusion and Its Evaluation in Criminal Cases: Textbook*. Moscow, 1995, 40 pp.
[2] Zaytseva, E.A. *The Concept of the Development of the Forensic Examination Institution in the Context of Adversarial Criminal Proceedings*. Moscow, 2010, 102 pp.
Shafer, S.A. "The System of Investigative Actions: What Are the Ways of Its Development?" *Laws of Russia: Experience, Analysis, Practice*, no. 2 (2015).
[4] Rossinsky, S.B. "Forensic Expertise as a Special Method of Proving in Predictive Proceedings in Criminal Cases." *Siberian Law Herald*, no. 4 (91), 2020. https://doi.org/10.26516/2071-8136.2020.4.100.

Secondly, according to widely accepted views in legal literature, means of proof include persons who possess evidentiary information, objects bearing traces of a crime, and documents containing information relevant to the case.[5] This approach appears to be incorrect. Individuals do not create information; rather, they serve as its carriers. Depending on the specific circumstances, persons possessing information may participate as witnesses, victims, specialists, experts, suspects, or defendants. Various procedural rules also establish different procedures for conducting investigative actions aimed at obtaining evidence (such as interrogations), which include the relevant testimonies provided by the person being questioned.[6]

Thus, it can be concluded that evidentiary materials related to a criminal act, which assist in solving the crime, constitute means of proof. In this regard, an expert opinion, despite its advisory nature, is also considered a means of proof, as it may serve either to establish the innocence of a suspect or to substantiate their guilt.

The role and significance of an expert opinion as a means of proof constitute one of the most complex, theoretically rich, and practically significant institutions of the modern legal system. This is because the process of expert examination itself enables courts, investigators, prosecutors, and all parties involved in criminal and civil proceedings to understand and evaluate facts that can only be clarified through scientific, technical, medical, economic, or other specialized knowledge beyond their ordinary competence. Moreover, an expert opinion is considered one of the most stable and reliable elements of the evidentiary process grounded in scientific methodology. Compared to other means of proof—such as witness testimony, documents, material evidence, photo and video materials, explanations of the parties, and other sources of information—it stands out due to its objectivity, independence, and scientific substantiation. Precisely for these reasons, expert opinions play a decisive role in many complex cases, particularly in fields such as criminalistics, forensic medicine, forensic psychology, economic crimes, financial audits, technical examinations, DNA analysis, forensic ballistics, traffic accident reconstruction, labor disputes, construction expertise, and many other areas.

It is widely acknowledged that in many situations, courts cannot arrive at the truth without an expert opinion. Therefore, the institution of expertise occupies a firm place both in legislation and judicial practice as an integral part of the system of means of proof. An expert opinion serves not only as a document confirming or refuting a fact, but also as an analytical source that guides the court on a scientific basis, logically

[5] Fiskevich, S.V. “Assessment of the Relevance of Evidence in Court Proceedings with Jury Participation.” *Theory and Practice of Social Development*, no. 1 (2011): 11–18.
[6] Stepenko, V.E., & Kosmynin, E.S. “Scholarly Notes of TOGU.” *TOGU Scholarly Notes*, vol. 6, no. 4 (2015).

connects disputed circumstances, reconstructs cause-and-effect relationships, and deeply examines evidence to reach conclusions grounded in scientific criteria.

Unlike other types of evidence, an expert opinion requires specialized knowledge that the court itself does not possess. Judges are generally not capable of independently evaluating technical processes, biological reactions, the reliability of DNA results, the extent of construction violations, the accuracy of financial calculations, or the outcomes of psychological diagnostics. For this reason, the role of expert examination is exceptionally important. In forming conclusions, experts rely on scientific methods, experimental analyses, laboratory testing, computer modeling, diagnostic techniques, statistical analysis, analytical algorithms, ballistic testing, forensic chemical examinations, medical criteria, engineering calculations, and other scientifically grounded tools. This significantly enhances the overall quality of the evidentiary process.

In the modern era of rapid technological development, expert opinions are becoming increasingly accurate, reliable, and comprehensive. The use of advanced laboratories, digital forensics, high-precision image analysis, 3D reconstruction, genetic testing, psychometrics, computer simulations, and artificial intelligence has greatly expanded the scientific potential of expert examinations.

All these factors demonstrate that the expert opinion has evolved from merely an auxiliary tool into a highly significant scientific and legal form of evidence. Its importance in judicial practice is so substantial that many criminal cases involve issues that cannot be resolved without it—for example, determining the cause of death, identifying the nature of injuries, detecting forged signatures, reconstructing the mechanism of traffic accidents, calculating the amount of financial theft, assessing construction defects, determining economic damage, establishing whether a child has been subjected to psychological abuse, or evaluating the severity of health damage in labor disputes.

According to Article 81 of the Criminal Procedure Code, any factual data that serve as a basis for establishing whether a socially dangerous act has occurred, whether a person is guilty or not, and other circumstances relevant to the proper resolution of the case are considered evidence. Such data are established through witness statements, victim statements, statements of suspects, accused and defendants, expert opinions, material evidence, audio and video recordings, film and photographic materials, records of investigative and judicial actions, and other documents.

Furthermore, paragraph 3 of the Resolution of the Plenum of the Supreme Court of the Republic of Uzbekistan dated August 24, 2018, “On Certain Issues of Applying the Norms of Criminal Procedure Law on the Admissibility of Evidence,” clarifies that

evidence obtained from testimonies that are not confirmed by the totality of evidence in court is considered inadmissible. At the same time, the Constitution of the Republic of Uzbekistan establishes that all doubts concerning guilt, if they cannot be eliminated, must be resolved in favor of the suspect, accused, defendant, or convicted person. This principle is also закрепед in Article 23(3) of the Criminal Procedure Code, while Article 464(1)(1) provides that an acquittal must be issued if the criminal event has not occurred.

This shows that a fair decision (judgment) in a case can be ensured only when there is sufficient and well-founded evidence. In criminal proceedings, the process of proof serves as the basis for establishing whether a person is not connected to the consequences that have occurred or, conversely, is guilty of them.

If we look at the history of the legal regulation of formalizing expert opinions as a means of proof in the Criminal Procedure Code, it can be noted that in the first Criminal Procedure Code of Uzbekistan, adopted in 1926 as part of the former Soviet Union, the chapters entitled “On Evidence” and “On Protocols” already included the use of expert opinions and other types of evidence in court proceedings.

Furthermore, compared to the 1929 Code, the Criminal Procedure Code of 1959 paid greater attention to issues related to the collection and formalization of evidence. It specifically addressed expert opinions, the circumstances to be proven, types of evidence, procedures for their collection and evaluation, as well as material evidence, including the порядок их хранения, time limits, and other related aspects.[7]

In cases involving human death, as well as cases where a person has suffered physical harm without resulting in death, an expert opinion serves as the basis for:

- Establishing that a person’s actions or inactions did not cause the death or health impairment of another, or that the person is not responsible for such consequences, thereby ensuring that an innocent individual is not held liable;
- Identifying the crimes committed and revealing the perpetrator, leading to the involvement of the person who committed the crime as the accused in the case;
- Charging the person who committed the crime under the relevant article of the specific part of the Criminal Code (hereinafter referred to as the CC) and preparing an indictment;
- Ensuring that a lawful, substantiated, and fair judgment is issued under the relevant article of the CC that establishes criminal liability for offenses involving physical harm to a person.

[7] Muminov, M. “Huquq va Burch.” *Law and Duty*, no. 8 (2022): 28–29.

Thus, in cases involving physical harm to a person, an expert opinion serves both as **evidence supporting an accusation** and as **evidence supporting an acquittal**.

By "evidence supporting an accusation" or "evidence supporting an acquittal" is meant **evidence supporting an accusation** refers to factual information that indicates that a specific person has committed a crime or that aggravates their guilt; **evidence supporting an acquittal** refers to factual information that denies that a specific person committed a crime or mitigates their guilt.[8] In this case, as a result of conducting the expert examination, the outcome (such as the cause of a person's death or the extent of health impairment) is determined, and consequently, it is established whether the person's actions or inactions caused that outcome or not.

One of the key legal justifications for appointing and conducting an expert examination in cases involving physical harm to a person is that, according to Article 82 of the Criminal Procedure Code (CPC), in order to accuse a person and issue a conviction, three out of five essential elements that must be proven rely specifically on an expert opinion:

1. The nature and extent of the harm caused by the crime;
2. The causal connection between the committed crime's time, place, method, act, and the socially dangerous consequences that occurred;
3. Establishing that the crime was committed by the specific person.

It is also important to emphasize that if the degree and cause of the inflicted bodily injury are not determined, it is impossible to issue a decision (judgment) in cases involving physical harm. This is because an expert opinion is a crucial piece of evidence for determining the severity of the injury, whether it directly caused death or other consequences, identifying the perpetrator, and confirming their presence at the scene of the incident.

According to Article 16, Part 2 of the Criminal Code of the Republic of Uzbekistan, the sole basis for criminal liability is the existence of all elements of a criminal act. If even one element of the act is absent, the act is not considered a crime. Therefore, in cases involving physical harm to a person, it would not be incorrect to state that, in accordance with this provision, the presence or absence of a criminal act cannot be established without an expert opinion.

The need to conduct a forensic medical examination arises in criminal cases involving offenses against a person's life and health, and it serves the purposes and functions of

[8] Mirazov, D.M., Rashidov, B.N., Qulmatov, Sh.A., et al. *Criminal Procedure Law: Textbook*. Tashkent: Academy of the Ministry of Internal Affairs of the Republic of Uzbekistan, 2019, 333 pp. (See Rajabov, B.A., Chapter III, Topic 6, p. 106, available at https://drive.google.com/file/d/1th6t1Y5)

fair justice.[9] Under the current Criminal Procedure Code, Article 173 stipulates that an expert examination is mandatory to determine the cause of death, the nature, and the severity of inflicted bodily injuries. In economic crimes, however, thousands of transactions, financial documents, accounting records, cash flows, tax reports, audit trails, corporate assets, the amount of damages, and forms of unlawful enrichment are analyzed by experts, and the expert conclusion becomes the primary tool for establishing economic truth.

Forensic psychological examinations play a decisive role in determining a person's mental state, emotional stability, the reliability of statements made under stress, the psychological readiness of minors for interrogation, and the trauma level of victims of violence. Therefore, without an expert conclusion, many cases cannot be correctly resolved.

The strength of an expert conclusion lies in its scientific foundation, methodological accuracy, objectivity, impartiality, and direct connection with the evidence under examination. An expert follows strict procedures in forming their conclusion, conducting investigations based on methodological manuals, international standards, scientific traditions, laboratory criteria, and evaluation techniques. In particular, in fields such as forensic ballistics, forensic chemistry, forensic biology, DNA analysis, digital forensics, and traceology, the accuracy of expert conclusions typically ranges from 95% to 99%, a reliability level rarely found in other types of evidence.

The significance of expert conclusions is so high that parties often adjust their legal strategy based on the results: the prosecution may strengthen its case using the expert conclusion, while the defense may point out deficiencies or request additional expertise to revise its strategy. When evaluating an expert conclusion, the court examines its formal correctness, logical consistency of the research, the justification for the chosen methodology, the completeness of the analysis process, the sufficiency of materials used, the expert's reasoning, and the connection of the final conclusion with the evidence.

If deficiencies are found in the expert conclusion, the court may reject it or order a supplementary examination, although this rarely occurs because expert analyses are usually scientifically robust. The value of expert conclusions lies in enhancing the reasoned nature of court decisions, reinforcing judicial confidence, ensuring impartial and fair judgments, and strengthening public trust in the judiciary.

The importance of expert conclusions as a means of proof is significant not only in practice but also theoretically, recognized as an essential element of a lawful state and

[9] Indiaminov, S.I. *Forensic Medicine: Textbook*. Tashkent, 2012, p. 13.

judicial independence. In legal proceedings, facts are usually divided into two types: those requiring legal assessment and those requiring specialized knowledge. Expert examinations are established precisely to determine the latter, where the court relies on the expert's scientific opinion.

With the development of the expert institution, the process of proof has become increasingly scientific, significantly improving the quality and fairness of court decisions. In particular, genetic examinations have revolutionized forensic medicine: DNA matching enables precise proof of homicide, violence, biological relationships, lineage, and even materially aged evidence. Similarly, digital forensics has become one of the most critical fields today, scientifically examining data stored on smartphones, computers, cameras, servers, networks, social media, and cloud services to establish traces of crimes, communications, geolocation information, and the authenticity of audio-video files. This expands the process of proof, further enhancing the significance of expert conclusions year by year.

The power of an expert conclusion is that it reinforces other evidence or resolves ambiguities; in some cases, the court prioritizes the expert's opinion over other evidence because other forms of proof are often subjective, prone to human error, memory lapses, or influenced by party interests. Another crucial factor enhancing the role of expert conclusions as a means of proof is the scientific validity and practical effectiveness of the methodology chosen by the expert. In practice, if a method is not scientifically validated, untested in practice, or controversial, the reliability of the expert conclusion decreases significantly.

For this reason, expert activities are regulated through special licensing, professional development, and certification systems, ensuring not only professional competence but also adherence to principles of impartiality, accuracy, responsibility, and legality. According to current legislation, an expert conclusion is an independent legal document; however, its value depends on the expert's level of knowledge, the completeness of the objects studied, and the rigor of the analysis.

Therefore, Article 78 of the Criminal Procedure Code of the Republic of Uzbekistan contains a provision stating that "a person who conducted the investigation or any other internal inquiry forming the basis for the initiation of the case is not entitled to participate in this case as an expert or specialist." However, it is advisable to further refine this article to explicitly include a rule that a person who has conducted an expert examination is also not entitled to participate in the same case as an expert or specialist.

As the above analysis shows, in many criminal cases, it is impossible to issue a conviction without an expert conclusion. It is not without reason that, in the Justinian Code, the significance of experts' participation in court proceedings was described with

the phrase: "Judges are not witnesses; they stand above witnesses and even above the magistrates," highlighting their superior role and authority in establishing the truth.[10].
According to statistical data, in 2022, acquittal verdicts were issued for 1,010 individuals; in 2023, for 1,244 individuals; and in the first half of 2024, for 465 individuals.[11] It can be agreed that one of the reasons for these acquittals was "the inadmissibility of the evidence on which these individuals were charged or the preparation of an indictment despite insufficient evidence to accuse the person."
Taking into account the statement by the President of our country, Shavkat M. Mirziyoyev, emphasizing the need to "ensure in practice that evidence is reliable, obtained lawfully, and relevant to the case — in other words, to uphold the principle of admissibility of evidence in the language of judges — for which it is necessary to establish appropriate legal mechanisms and improve the current legislation," the following proposals are put forward:
If a separate investigative department is established, it would allow for proper distribution of criminal cases based on workload, provide investigators with the opportunity to focus exclusively on conducting investigative actions, enhance their independence in case management, and enable highly qualified investigators to provide legal guidance to less experienced colleagues. This, in turn, would increase the efficiency and quality of preliminary investigations.
When an expert conclusion reaches the authorized person conducting the pre-trial investigation, before deciding to involve a person as a defendant or victim based on that conclusion, it is necessary to introduce these individuals to the expert conclusion and, simultaneously, inform them of their right to submit a request or complaint regarding the appointment and conduct of the expertise. Implementing this practice would further ensure that well-founded decisions are made during the pre-trial stage.
An expert conclusion may be assigned not only at the request of the prosecution or defense but also on the initiative of the court. This demonstrates the adherence of investigative and judicial bodies to the principle of impartiality, as expertise is conducted to provide additional clarity and precision. When a court itself initiates an expert examination, it usually occurs in complex cases where contradictory evidence exists or where the sufficiency of available evidence is low. Therefore, the expert conclusion often becomes a decisive factor in ensuring a fair decision.

[10] G'iyosov, Z.A., Botaev, J.I., & Saidov, Ch.Sh. *Forensic Medicine and Psychiatry: Textbook*. Tashkent: Academy of the Ministry of Internal Affairs of the Republic of Uzbekistan, 2006, p. 76.
[11] stat.sud.uz – Court Statistics Statistical data on cases reviewed by the courts of the Republic across various judicial sectors.

The importance of expert conclusions is also highlighted by the adoption of the Resolution of the Cabinet of Ministers "On the approval of regulations on the activities of non-state forensic organizations." According to these regulations, a non-state forensic organization is a specialized entity authorized to conduct forensic examinations in civil, economic, criminal, and administrative cases, staffed with specialists holding certified judicial expert qualifications. Non-state forensic organizations are established as legal entities. Only a certified judicial expert may serve as the head of such an organization, and a judicial expert may be a founder (participant) of only one non-state forensic organization.

Non-state forensic organizations have the right to carry out judicial examinations based on orders received from all regions of the Republic as well as from foreign countries. The adoption of these regulations provides the basis for including Article 182[1], "Conducting judicial examinations by non-state forensic organizations," in the Criminal Procedure Code. Judicial examinations in non-state forensic organizations are conducted in accordance with Article 182 of the Criminal Procedure Code, i.e., according to the rules applied in state forensic institutions.

Non-state forensic organizations conduct their activities in compliance with current legislation and enjoy equal rights with state forensic institutions, fulfilling the obligations imposed on them to the same extent. Expert conclusions issued by non-state forensic organizations carry the same legal force as those prepared by state forensic institutions. The types of judicial examinations that may be conducted by non-state forensic organizations are determined by the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan.

Furthermore, a number of procedural characteristics can be identified in the field of judicial expertise, which are distinguished by unique stages and requirements. The first stage involves the assignment of a judicial examination by an investigator, prosecutor, or court. This decision is made based on the need to obtain additional information to resolve specific issues arising during the investigation or court proceedings. A crucial aspect of this stage is defining the subject of the examination, which includes formulating precise questions that require thorough and comprehensive study by the expert.

The second stage involves the selection of the expert. An expert is a person entrusted with conducting a judicial examination due to their specialized knowledge in fields such as science, technology, art, craftsmanship, and other relevant areas.[12] In turn, the powers of the expert, including their rights and obligations, and the specific provisions

[12] Shishkin, A.P. "The Role of Forensic Examinations in Criminal Proceedings." *Moscow Innovative University*.

of the duties to be performed, are defined not by the Criminal Procedure Code but by the Law "On Judicial Expertise," the Resolution of the Cabinet of Ministers "On the Procedure for Conducting Judicial Expertise Studies," and other relevant legal norms.

The third stage involves the practical conduct of the examination, including the collection of materials, the research process, and the preparation of the conclusion. The duties of the expert include receiving and analyzing forensic materials, thoroughly examining evidence and the questions submitted, preparing well-reasoned conclusions, and, in certain cases—such as when questions fall outside the scope of the expert's expertise or when the objects and materials available for analysis are insufficient for the examination—preparing a document declaring the conclusion invalid. If it is impossible to resolve an issue due to limitations in scientific and technological development or refusal to provide elements necessary for the examination, the expert is obliged to notify the submitting body or individual. Another important rule is to ensure the safety of the objects and materials presented for examination.

The final stage involves the use and evaluation of the results of the expertise. The expert conclusion, serving as an element of the evidentiary base, is submitted for consideration by the court or investigative authorities. During court proceedings, as well as during the investigative process, the conclusion must be thoroughly analyzed, and if potential deficiencies or uncertainties are identified, the parties may initiate procedures to raise objections. Thus, if a previously conducted examination is found to be unreliable, the participants in the proceedings have the right to request a repeat forensic examination.[13]

The criteria for evaluating the reliability of an expert conclusion include the following:

- The reliability of the methodology applied by the expert;
- The sufficiency and quality of the materials provided to the expert;
- The completeness of the expert's examination;
- The accuracy of the initial data;
- The extent to which the expert's conclusions are substantiated within the report itself;

The consistency of the conclusion with the evidence available in the case (including other expert conclusions), ensuring the absence of contradictions.[14]

The reliability of a scientific analysis conducted by an expert relies on the use of methods supported by various factors. These include the recognition and reputation of the institute responsible for developing the method, the period and authority of those

[13] Shishkin, A.P. "The Role of Forensic Examinations in Criminal Proceedings." *Moscow Innovative University*.
[14] Orlov, Y.K. *Forensic Examination as a Means of Proof in Criminal Proceedings*. Moscow, 2005, 268 pp.

who initially tested it, as well as the approval of bodies recommending its use in professional practice. As part of their conclusion, the expert is required to provide an updated list of normative and methodological documents forming the basis of their analytical work. Sources must also be indicated with references or annotations.

The sufficiency and quality of materials provided for the expert examination are critical for producing an objective conclusion. Sufficiency reflects the adequate volume and scope of data, allowing comprehensive analysis without the need for additional information. The dataset must cover all relevant aspects, ensuring full consideration of the questions posed.

High reliability and accuracy of the provided information are determined by the quality of source materials, their verifiability, and the absence of bias, which together ensure the essential precision and consistency of the data. Comprehensive content, including technical reports, statistical data, and documentary verification, forms the basis for well-founded and qualified conclusions.

Expert analysis plays a crucial role in criminal cases, reflecting both the interest of the scientific community and practical necessity. At the same time, scholars have highlighted a number of challenges arising in this field. According to T.V. Demidova, one of the significant issues is the selection between state and private expert institutions when assigning judicial expertise. The appointment of a private expert often meets resistance from investigators or courts that prefer state organizations.

Moreover, the law does not differentiate between the legal force of private and state expert conclusions, recognizing them as equivalent. However, this creates a new challenge: determining the source of funding for private expert services and verifying their qualifications. Private experts face difficulties because their activity does not require mandatory certification, and participation in voluntary certification programs is optional.[15]

Undoubtedly, judicial expertise plays a crucial role in the criminal process, assisting in the establishment of the truth and the formation of a reliable system of evidence. Ongoing research in this field provides the basis for developing new methods and improving existing ones, thereby enhancing the efficiency and effectiveness of the criminal process.

Conclusion

[15] Demidova, T.V. “Problematic Issues in Ordering Forensic Examinations.” Herald of Economic Security, no. 4 (2016): 29–32.

Judicial expertise represents a cornerstone of the criminal process, playing a decisive role in establishing the truth, ensuring the reliability of evidence, and supporting the fair administration of justice. Expert conclusions serve as a critical tool for courts and investigative bodies, providing scientifically grounded, methodologically rigorous, and objective assessments that underpin legally sound decisions. The reliability of an expert conclusion depends on multiple factors, including the validity of the methodology used, the sufficiency and quality of the materials provided, the completeness of the investigation, the accuracy of initial data, the internal consistency of the expert report, and the alignment of conclusions with other evidence in the case.

The organization of investigative and expert activities, including the establishment of separate investigative departments and the regulation of state and non-state forensic organizations, enhances the efficiency, independence, and professionalism of the investigative process. Clear procedural stages—from the assignment of an expert examination to the collection of materials, detailed analysis, and the preparation of conclusions—ensure comprehensive and impartial evaluations. Moreover, the ongoing development of scientific methods and improvements in forensic technology strengthen the role of judicial expertise, enabling courts to resolve complex cases with conflicting or insufficient evidence.

While private expert services provide additional resources, challenges remain regarding the verification of their qualifications and sources of funding. Legal frameworks recognize the equivalence of state and private expert conclusions, emphasizing the need for adherence to established methodological and procedural standards to maintain reliability and objectivity.

Ultimately, judicial expertise not only supports the immediate determination of facts in individual cases but also contributes to the continuous improvement of investigative practices and the overall effectiveness of the criminal justice system. Its proper implementation fosters public confidence, strengthens the rule of law, and ensures that justice is both fair and scientifically substantiated.

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ФАРҒОНА ВИЛОЯТИ МИСОЛИДА МУДДАТИДАН ОЛДИН ЎЛИК ТУҒИЛГАН ЧАҚАЛОҚЛАР ТИМУС ТЎҚИМАСИ ПАТОМОРФОЛОГИК ЎЗГАРИШЛАРИ

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Аннатация: Фарғона вилояти мисолида муддатидан олдин ўлик туғилган чақалоқлар буйрак усти бези ва тимус дезинтеграциясининг патоморфологик асослари муддатдан олдин туғилган чақалоқларда буйрак усти бези ва тимусни тўлиқ шаклланмаслиги оқибатида етарли даражада адаптация гормонларини ишлаб чиқарилмаслиги ва унга боғлиқ тимусни хам ўз функционал жихатлари бўйича супрессорлик хусусиятини бўлмаслиги тимомегалия ва хомила ичи инфекциясига олиб келиши билан характерланади.

Калит сўзлар: буйрак усти бези, тимус, иммунсупрессия, ўли туғилган чақалоқ, патоморфология.

Муаммони долзарблиги: Дунё миқёсида перинатал ўлим кўрсаткич-лари тиббиётнинг ривожланишига қарамай, глобал тиббий-ижтимоий муаммо бўлиб қолмоқда. АҚШ ва Европа давлатларида ўлик туғилиш кўрсаткичи ҳар 1000 туғруққа 3,0–5,0 тани ташкил этса, МДҲ давлатлари ва Россия Федерациясида бу кўрсаткич 5.5–9.0 тани ташкил этади. Ўлик туғилишнинг асосий сабаблари сифатида плацентар етишмовчилик, инфекциялар ва онанинг соматик касалликлари кўрсатилади. Бироқ, ҳомиланинг адаптив тизимлари — тимус (иммун тизим маркази) ва буйрак усти бези (эндокрин стресс-тизим) ўртасидаги морфофункционал дезинтеграция (алоқанинг бузилиши) муддатидан олдин ўлик туғилишнинг патогенетик механизми сифатида етарлича ўрганилмаган. Фақат хориж ва ўзимиздаги олимларни ўрганишларида инфекцион омиллар билан боғлиқлиги келтирилган халос.

Марказий Осиё давлатлари билан қиёс (2024 й.) Минтақада кўрсаткичлар мамлакатларнинг соғлиқни сақлаш тизими ва иқтисодий ҳолатига қараб сезиларли даражада фарқ қилади: Қозоғистон республикасида бу кўрсаткич, 1000 та туғруққа 6,88-8,0 тани ташкил этса, Тожикистон республикасида 21,7-30,3 тани ташкил этганлиги аниқланди. Қирғизистонда бу кўрсаткич 1000 та туғруққа 11,6-24,5 тани ташкил этса, Туркманистон республикасида 35,9-40,3 тани ташкил этиб, Ўзбекситон республикасида бу кўрсаткич 12,2-18,2 тани

ташкил этади. Эслатиб ўтамиз, бу кўрсаткичлар бўйича Ўзбекистонда ўлик туғилиш 2019-2021 йиллрда 30,4-41,8 тани ташкил этиб, Ўзбекистон Республикаси Президентининг қарори, 25.04.2022 йилдаги ПҚ-216-сонли қарорни кучга кириши оналик ва болалик мухофазасига қаттиқ эътиборни қаратилиши ва чақалоқлар ўлим кўрсаткичини сезиларли даражада пасайишига олиб келганлиги билан ўз тасдиғини топади.

Натижа ва мухокама: Турли омиллар таъсирида муддатдан олдин ўлик туғилган чақалоқларни аксариятида тимусни кичрашиши, фаол майдонларини дерлик аниқланмаслиги, пўстлоқ ва мағиз қаватлари фарқларини мавжуд эмаслиги, стрессор омиллар таъсирида тимуснинг ривожланиш онтогенезида безни муддатдан олдин инволюцияга учрганли-гини англатади. Эътиборли жихатларидан бири Гассал таначаларини муддатдан олдин шаклланиши, бўлакчалараро тўсиқларнинг кенгайиши, склерозга учраши, ретикулоэпителиал ҳужайраларни хамма соҳада бир хил учраши, секретор гранулаларга бой бўлган эпителиоид ҳужайраларни деярлик учрамаганлиги тимусни аксидентал трансморфацияси лимфоцитларни кескин камайиши, томирларда давомли тўлақонлик ва интерстициал шишларнинг ривожланиши, тимуснинг муддатдан олдин инволюцияга учраши ва иккиламчи иммунотанқислиқни ривожланишига олиб келганлиги аниқланди.

Тимусни таркибидаги асосан сийрак ва дағал толали тузилмалар, мезенхимал хужайраларни липоцитларга трансформацияси ва липоидози каби ўзгаришлар тимусни акцидентал трансформацяси ривожланганлигини исботлайди.

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ХОРАЗМ ВИЛОЯТИ МИСОЛИДА ОШҚОЗОННИНГ СУРУНКАЛИ ЯРАЛАРИДА ТУРЛИЧА ДАВО ТЕРАПИЯСИДАН КЕЙИНГИ ДАВРДА ЖИГАРДА ЮЗАГА КЕЛАДИГАН ПАТОМОРФОЛОГИК ЎЗГАРИШЛАР

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Аннатация: Сурункали ошқозон яра касаллигида даволаш терапиясидан кейинги даврда жигарда хар хил патоморфологик ўзгаришлар аниқланади. Жумладан миллий клиник протоколда сурункали ошқозон яраларини даволашда қўлланиладиган дори препаратлари гурухида ностероид яллиғланишга қарши препаратларини қўлланилиши бевосита гепатотоксик таъсирида турлича ўзгаришлар билан намоён бўлади. Жумладан Раппопорт бўйича жигар бўлакчаларини турли сохаларида дистрофик ва некробиотик ўзгаришлардан ташқари жигар фибрози триадалар атрофи ва перилобуляр сохаларда ривожланиши жигар фаолиятини сурункали тарзда бузилиши важигар фибрози, жигар склерози, портал трактлар атрофида гипертензион ўзгаришларни юзага келиши билан намоён бўлади.

Калит сўзлар: сурункали ошқозон яра касаллиги, гепатотоксик дистрофия, морфология, некроз.

Муаммони долзарблиги: Ошқозон сурункали яра касаллиги (ОСЯК) ва унинг жигар тизимига таъсири нафақат маҳаллий, балки глобал миқёсдаги тиббий муаммодир. Дунё олимларининг қарашлари ва эпидемиологик кўрсаткичлар бу патологиянинг долзарблигини бир неча омиллар билан асослайди. Гарчи замонавий тиббиётда H. pylori эрадикацияси (йўқ қилиш) яхши йўлга қўйилган бўлса-да, статистика кўрсаткичларда хозиргачам жигар фиброз ва склерози камайган балки кўпайганлигини англатади. Дунё аҳолисининг тахминан 5-10% ҳаёти давомида камида бир марта ошқозон ёки ўн икки бармоқ ичак яраси билан касалланади. Бу эса, жигар касалликларини юзага келишини индуцировчи омиллардан бири хисобланади. Тадқиқотларга кўра, ошқозон яраси бор беморларнинг **30-40%** ида жигар ва ўт йўлларининг ёки морфофункционал бузилишлари аниқланади. Жумладан АҚШ, ЕВРОПА ва БУЮК Британияда ахолиларида ўртача, **10%** ахолисида ошқозон яра касаллигига аниқланиб, 10 минг киши ушбу касаллик асоратидан вафот этса, 500 минг кишида жигар склерози, циррозини турли даражалари ривожланганлиги аниқланган. Россия

федерацияси ва МДХ давлатлари ахолиси орасида бу кўрсаткич 1000 кишидан 7-14% да сурункали яралар аниқланса, 65-70% да H. pylori инфекцияси аниқланади.

Айнан, мана шу инфекцияни даволашда қўлланиладиган доривор препаратларни 75-80%да гепатоксик таъсирларини юқорилиги жигар стеатози, жигар фибрози, склерози, портал гипертензиясини юзага келтирувчи бирламчи сабаблардан бири хисобланади. МДХ давлатларида ошқозон сурункали яра касаллиги асорталаридан ўлим кўрсаткичи 1,1% ни ташкил этиб, асосий контингентлар эркак жинслилар бўлиб 18-44 ёшлиларда энг кўп тарқалганлиги аниқланди. Бу эса, муаммони долзарблиги ва заруратини тақозо этиши билан бирга, жигарда юзага келалдиган иикламчи морфологик ўзгаришлар хақида кам маълумотлар келтирилган бўлиб, профилактик чора тадбирларни аксарияти клиник инструментал текширишлар асосида тайинланади. Бу эса, сурункали ошқозон яра касаллигида юзага келдиган жигардаги патоморфологик ўзгаришларни турли муддатлар бахолаш мезонлари ишлаб чиқарилмаганлиги, жигардаги иккиламчи дистрофик ва некробиотик ўзгаришлар бўйича клиник морфологик тавсияларни тўла тўкис ишлаб чиқарилмаганлигини англатади.

Натижа ва мухокама: Сурункали ошқозон яра касаллигида қўлланувчи дорривор перпарталарни гепатоксик таъсири ўткир ва сурункали кўринишида кечиши жараённи давомийлигга бевосита боғлиқ бўлиб, асосан, беморни ёши ва жинсига бевосита боғликдир. Сурункали ошқозон яра касаллигда қўлланиладиган дори препаратларини 85%ни жигарда метаболизмга учраши асосан Раппопорт бўйича турли фаол соҳаларда аниқланади. Жумладан триадалар атрофида жойлашган йирик цитоплазмали гепатоцитларни вакуол ва ёғли дистрофик ўзгаришларини сурункали давом этиши жуда мултифокал некроз ўчоқларини шаклланишига ва яланғочланган стромада фибробластлар пролиферациясини кучайишига ва жараёнда мосланиш ўрин алмашиниши жараёнини устун туриши билан давом этади.Бу эса, ўз навбатида триадалар атрофида портал вена ва ўт йўллари трактларини торайиши ва холестаз, веноз гиперэмия кўринишида жараённи ривожлани-шига олиб келади. Натижада Раппопорт бўйича перипортал сохадаги гепатоцитлар жойлашган стромада склеротик ўзгаришлар, гепатоцитларда эса бир ватда хам атрофик ва гипертрофик ўзгаришларни юзага келиши 1-сохада морфофункционал етишмовчиликка ва организмда сурункали эндоген захарланишларни давом этишига олиб келади. Микроскопик жихатдан бу ўзгаришлар перипортал сохаларда стрмасида фибробластларни кўпайиши, синусоидларни торайиши, перибилиар, периваскуляр сохаларда сийрак ва дағал толали бирикитрувчи

тўқимани кўпайиши ва ораликда кам сонли лимфоцитар инфильтрация ўчоқларини ривожланишига олиб келоади.

Натижада, портал тракда доимий равишда тўлақонлик ва холестаз портал гипертензия, холастатик синдром ва бошқа ўзгаришларни юзага келишига олиб келади. Беморларда асосан эркак жинслилар жигарида атрофик ва склеротик ўзгаришлар утунлик қилса, аёлларда бу жараён асосан гепатостеатозни турли даражалари ва жигар фибрози билан давом этиши аниқланади.

Хулосалар

Сурункали ошқозон яра касаллигида жигарда юзага келадиган сурункали атрофик склеротик ўзгаришлар асосан Раппопрт бўйича 1-соҳада юзага келиши портал гипертензия, холестаз жараёнларини ривожланишига олиб келиши аниқланди.

Сурункали гепатоктосик жараёнда жигарда юзага келган фиброз жараённини бахолаш асосан перилобуляр сохаларда фибробластлар ва гистиоцитларни кўпайиши, сийрак тропоколлаген синтезини кучайиши ва коллаген полимерини шаклланиши оқибатида ўчоқли кўринишида склерозни юзага келиши жигарни детоксикацион функциясини кескин пасайиши Раппопорт бўйичса 2ва 3 майдондаги гепатоцитларда хам турли даражадаги ёғли дистрофик ўзгаришларни ривожланиши синусоидларни торайишига олиб келиши аниқланди.

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TEXNOLOGIK TA’LIM YO‘NALISHI TALABALARIDA ZAMONAVIY TEXNOLOGIYALARDAN FOYDALANISH KO‘NIKMALARINING TARKIBIY TUZILMASI

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Annotatsiya

Mazkur maqolada texnologik ta’lim yo‘nalishi talabalarda zamonaviy texnologiyalardan foydalanish ko‘nikmalarining tarkibiy tuzilmasi nazariy va amaliy jihatdan tahlil etilgan. Kompetensiyaviy yondashuv asosida ushbu ko‘nikmalar kognitiv, operatsion, motivatsion va refleksiv komponentlar kesimida yoritilgan. Shuningdek, zamonaviy texnologiyalardan foydalanish jarayonida talabalarning kasbiy kompetensiyalarini rivojlantirish mexanizmlari ochib berilgan. Tadqiqot natijalari texnologik ta’limda integrativ va tizimli yondashuvning ustuvorligini asoslaydi.

Kalit so‘zlar: texnologik ta’lim, zamonaviy texnologiyalar, kompetensiya, ko‘nikma, tarkibiy tuzilma, raqamli kompetensiya.

Kirish

Zamonaviy ta’lim tizimi sharoitida texnologik ta’lim yo‘nalishi talabalari oldiga qo‘yilayotgan talablar sezilarli darajada ortib bormoqda. Xususan, ularning zamonaviy texnologiyalardan samarali foydalanish ko‘nikmalariga ega bo‘lishi muhim kasbiy mezonlardan biri sifatida qaralmoqda.

Ilmiy adabiyotlarda qayd etilishicha, kompetensiya — bu shaxsning muayyan faoliyatni samarali amalga oshirish uchun zarur bo‘lgan bilim, ko‘nikma va shaxsiy sifatlar majmuasidir[1]. Shu nuqtai nazardan, zamonaviy texnologiyalardan foydalanish ko‘nikmalarini tarkibiy jihatdan tahlil qilish muhim ilmiy-amaliy ahamiyat kasb etadi.

Asosiy qism

Zamonaviy texnologiyalardan foydalanish ko‘nikmalarining mohiyati

Texnologik ta’limda zamonaviy texnologiyalardan foydalanish ko‘nikmalari talabaning raqamli muhitda samarali faoliyat yurita olish qobiliyatini ifodalaydi. Bu ko‘nikmalar quyidagi jihatlarni o‘z ichiga oladi:

- axborotni izlash va qayta ishlash;
- raqamli vositalardan foydalanish;
- texnologik jarayonlarni boshqarish;
- innovatsion fikrlashni amalga oshirish.

UNESCO tomonidan ishlab chiqilgan kompetensiya modeli ham raqamli kompetensiyalarni zamonaviy ta’limning asosiy tarkibiy qismi sifatida e’tirof etadi[2].

Ko‘nikmalar tarkibiy tuzilmasining nazariy asoslari

Ko‘nikmalarni tarkibiy jihatdan tahlil qilishda tizimli va kompetensiyaviy yondashuvlar muhim ahamiyatga ega.

Lev Vygotsky nazariyasiga ko‘ra, bilim va ko‘nikmalar ijtimoiy muhit va faoliyat jarayonida shakllanadi[3].

Shuningdek, Aleksei Leontiev faoliyat nazariyasida har qanday ko‘nikma faoliyatning tarkibiy elementi sifatida qaraladi[4].

Bu yondashuvlar zamonaviy texnologik ko‘nikmalarni kompleks tizim sifatida ko‘rib chiqish zarurligini ko‘rsatadi.

Zamonaviy texnologiyalardan foydalanish ko‘nikmalarining tarkibiy komponentlari

1. Kognitiv komponent

- Mazkur komponent talabaning zamonaviy texnologiyalar: AKT asoslari, dasturiy vositalar imkoniyatlari, texnologik jarayonlar mohiyati haqidagi nazariy bilimlarini o‘z ichiga oladi. Jean Piaget fikricha, bilimlar shaxsning bilish faoliyati orqali shakllanadi va rivojlanadi[5].

2. Operatsion (amaliy) komponent

Bu komponent texnologiyalarni amaliy faoliyatda kompyuter va dasturlar bilan ishlash, texnologik uskunalarni boshqarish, loyihalar yaratish qo‘llash ko‘nikmalarini ifodalaydi. David Kolb tajribaviy o‘rganish nazariyasida bilimlar amaliy faoliyat orqali mustahkamlanishini ta’kidlaydi[6].

3. Motivatsion komponent

Talabaning texnologiyalarga bo‘lgan qiziqishi va ichki ehtiyojlari ushbu komponentni tashkil etadi:

- kasbiy qiziqish;
- innovatsiyalarga ochiqlik;
- o‘zini rivojlantirishga intilish kabilar. Abraham Maslow nazariyasiga ko‘ra, motivatsiya shaxs faoliyatining asosiy harakatlantiruvchi kuchidir[7].

4. Refleksiv komponent

Bu komponent talabaning o‘z faoliyatini baholash va takomillashtirish qobiliyatini, ya’ni o‘z-o‘zini tahlil qilish, xatolar ustida ishlash, natijalarni baholashni o‘z ichiga oladi. Donald Schön refleksiv amaliyot nazariyasida professional rivojlanishda o‘z faoliyatini tahlil qilish muhimligini asoslaydi [8].

5. Kommunikativ komponent

Zamonaviy texnologiyalar bilan ishlash jarayonida samarali muloqot va hamkorlik(onlayn hamkorlik, axborot almashinuvi, jamoaviy loyiha faoliyati) ham muhim hisoblanadi. George Siemens konnektivizm nazariyasida bilimlar tarmoqlar orqali shakllanishi ta'kidlanadi [9].

Tarkibiy tuzilmaning o'zaro integratsiyasi

Yuqoridagi komponentlar o'zaro uzviy bog'liq bo'lib, yagona tizimni tashkil etadi. Ularning uyg'unligi talabaning to'laqonli texnologik kompetensiyasini shakllantiradi. Tizimli yondashuvga ko'ra:

- kognitiv komponent bilim asosini yaratadi;
- operatsion komponent uni amaliyotga tatbiq etadi;
- motivatsion komponent faoliyatni rag'batlantiradi;
- refleksiv komponent rivojlanishni ta'minlaydi;
- kommunikativ komponent esa hamkorlikni mustahkamlaydi.

Xulosa

Tadqiqot natijalari shuni ko'rsatadiki, texnologik ta'lim yo'nalishi talabalarda zamonaviy texnologiyalardan foydalanish ko'nikmalari murakkab, ko'p komponentli tizim sifatida namoyon bo'ladi. Ushbu ko'nikmalarni samarali shakllantirish uchun pedagogik jarayonda tizimli, kompetensiyaviy va integrativ yondashuvlarni uyg'unlashtirish zarur.

Shu asosda ta'lim jarayonini tashkil etish talabalarining kasbiy tayyorgarligini oshirish va ularni zamonaviy mehnat bozoriga moslashtirishga xizmat qiladi.

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БОШ МИЯ ТУҒРУҚ ТРАВМАСИДАН НОБУД БЎЛГАН ЧАҚАЛОҚЛАР КЕЧГИ ДАВРИ ГИПОТАЛАМУСНИ ПАТОМОРФОЛОГИЯСИ

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Аннатация: Туғруқ травмасидан кейинги 7-14 сутка давомида чақалоқлар гипоталамусда қуйидаги патоморфологик ўзгаришлар юзага келади. Гипоталамусни олдинги ўрта ва орқа сохаларида супраоптик ва парвентрикуляр ядролари атрофида артерилалар ва капиллярларда юзага келган эритростаз, сладж феномени шу сохаларда веноз тўлақонлик ва гипоталмус стромасида плазмтик бўкишни давомли кечишига олиб келиши натижасида микроглиал хужайраларни ўчоқли мултифокусдаги пролифе-рацияси ривожланади. Бош мия травмасида қон томирларни рефлектор кенгайиши оқибатида юзага келган веноз тўлақонлик гипоталмусда метаболик бузлишиларга олиб келиши ва перицеллюляр шишиларни юзага келиши билан намоён бўлганлиги аниқланади.

Калит сўзлар:гипоталамус, бош мия травмаси, чақалоқ, перинатал ўлим.

Муаммонинг долзарблиги: Дунё ахолисида перинатал даврдаги ўлим кўрсаткичлари орасида бош мия туғруқ травмалари (БМТТ) етакчи ўринлардан бирини эгаллайди. Дунё миқёсида ушбу кўрсаткичлар қуйидагича тақсимланади. АҚШда янги туғилган чақалоқлар орасида туғруқ жароҳатлари учраши ҳар 1000 тирик туғилганга 2.1–2.6 ҳолатни ташкил этиб, ўртача 0.2% да аниқланади. Европа давлатларида бу кўрсаткич 0.5–1.5% атрофида бўлиб, оғир асорати сифатида чақалоқни илк нафас олишида оғир асфиксия билан кечувчи патологияларида улуши жуда катта хисобланади.

Россия Федерациясида бу кўрсаткич перинатал ўлим сабаблари ичида туғруқ травмаларининг улуши 5.0–7.0% ни ташкил этиб, 1000 та тирик туғруққа ўртача 4,7-7,1 та холатни ташкил этади. МДҲ давлатлари бўйича бу кўрсаткичлар турлича бўлиб, умумий хисобда, 6.0–8.5%ни ташкил этиб, 1000 тирик туғруққа ўртача 7,5-8 тани ташкил этади.

Мамалакатимизда бу кўрсаткич перинатал ўлим структурасида туғруқ жароҳатлари 4.0–6.0% ни ташкил этиб, 1000 та тирик туғруққа ўртача 6-8 тани

ташкил этади. Бироқ, Орол бўйи минтақасида (Қорақалпоғистон Республикаси ва Хоразм вилояти) экологик дисбаланс сабабли бу кўрсаткич нисбатан юқори бўлиб, 8.1–10.2% гача етганлиги аниқланди. Бу муаммони долзарблиги билан бирга заруратини тақозо этади. Туғруқ травмасида гипоталамусдаги патоморфологик ўзгаришлар тўлиқ ўрганилмаганлиги, гипоталамо гипофизар дезинтеграцияда бирламчи шикастланиш ўчоқлари гипоталамусдаги ўзига хос жавоб реакциялари тўлиқ ўрганилмаган ва етарлича хориж адабиётларида ёритилмаганлиги учун перинатал ўлим структурасида бевосита гипоталамусга боғлиқлиги хақида аниқ клиник морфологик мезонлар ишлаб чиқарилмаганлиги муаммони ўрганишни тақозо этади.

Натижа ва мухокама: Туғруқ травмасидан кейинги 7-14 сутка давомида чақалоқлар гипоталамусда қуйидаги патоморфологик ўзгаришлар юзага келади. Гипоталамусни олдинги ўрта ва орқа сохаларида супраоптик ва парвентрикуляр ядролари атрофида артерилалар ва капиллярларда юзага келган эритростаз, сладж феномени шу сохаларда веноз тўлақонлик ва гипоталмус стромасида плазмтик бўкишни давомли кечишига олиб келиши натижасида микроглиал хужайраларни ўчоқли мултифокусдаги пролифе-рацияси ривожланади. Бу эса, сийрак фибрилляр толаларни ядролар атрофида юзага келишига олиб келади. Бу жараён янги туғилган чақалоқларда асосан 7-12 суткада яққол юзага келади. Грос Билўовский бўйича кумуш импрегнациясида сийрак хали тўлиқ шаклланмаган толалар кесишмасида паравентиркуляр нейронлар атрофида кўп миқдорда шаклланиши либеринлар синтезини тормозланишига ва чақалоқларда клиник морфологик жихатидан эндокрин тизимдаги стимулланувчи омилни йўқолишига олиб келади. Нейросекретор гранулаларнинг камайиши: Тирик қолган нейронларда Гомори усулида бўялувчи нейросекрет моддаси кескин камаяди ёки уларнинг транспорт йўллари (аксонлари) узилгани сабабли секрет ҳужайра танасида тўпланиб қолади. Глиоз бу нобуд бўлган нейронлар ўрнини астроцитлар ва микроглия ҳужайралари эгаллайди. Бу соҳада глиал чандиқ шаклланади, бу эса ядронинг функциясини бутунлай йўқотади. Атрофик ўзгаришлар ички капсула ёки ядроларни ҳажман кичрайишига ва нейронлар сон жихатдан камаишига олиб келади. Чақалоқларда бу муддатдан максимал 30 суткадан ортиқ яшаб қолиш қобилиятини йўқотади.

Хулосалар: Шикастланишнинг асосий морфологик субстрати: Бош мия туғруқ травмасидан нобуд бўлган чақалоқлар гипоталамусининг ўрта соҳасида жойлашган, либерин ва статинларни ажратувчи перивентрикуляр ва дорсомедиал ядроларидаги тиреолиберинергик ва кортиколиберинергик нейронлар дисфункцияси асосий шикастланиш ўчоқлари ҳисобланади.

Патогенетик ва метаболик ўзгаришлар: Травма оқибатида қон томирларнинг рефлектор кенгайиши юзага келиб, веноз тўлақонлик, артериола ва капиллярларда эритростаз ҳамда сладж-феномени ривожланади. Бу жараёнлар гипоталамус стромасида плазматик бўкиш, метаболик бузилишлар ва перицеллюляр шишларга олиб келади.

Кечки даврдаги гистологик ва эндокрин оқибатлар: Травмадан кейинги 7-14 суткаларда ядролар атрофида микроглиал ҳужайралар пролиферацияси ва тўлиқ шаклланмаган сийрак фибрилляр толалар (глиал чандиқ) фаол ҳосил бўлади. Бу жараён либеринлар синтезини тормозлаб, эндокрин тизимдаги стимулловчи омилнинг йўқолишига, нейронлар атрофиясига ва чақалоқларнинг максимал 30 суткадан ортиқ яшаб қолиш қобилиятини йўқотишига сабаб бўлади.

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ЖАРОҲАТЛАРИДА ГИПОФИЗДА ЮЗАГА КЕЛАДИГАН МОРФОЛОГИК ЎЗГАРИШЛАР //South Aral Region Medical Journal. – 2026. – Т. 2. – №. 1. – С. 137-144.

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ТУҒРУҚДАН КЕЙИНГИ ЎТКИР ҚОН КЕТИШЛАРНИ КЕЧГИ МУДДАТДА БИРИНЧИ СУТКАСИДА ГИПОТАЛАМУС ПАТОМОРФОЛОГИЯСИ

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Аннатация: туғруқдан кейинги ўткир қон кетишларни кечги муддатда биринчи суткасида гипоталамус патоморфологиясида асосий ўзгаришларни аксарияти гипоталамусни барча соҳасидаги базофил ва ацидофил хужайралар, стромасида микроглиал хужайралар пролиферацияси, стромасда фибрилляр тузилмаларни кўпайиши билан давом этганлиги аниқланди. Бу ўзгаришларни асосий жихатлари, ўткир камқонлик барча секретор нейронларда юзага келган ишемик хужайра ичи ресрусларини тотал кўринишида йўқотилиши (Нисслморфологияси) натижасида гипофиз ва ундан пастки ўқда турувчи барча эндокрин тизимда гипофункционал холат юзага келиши, марказий тормозланиш билан намоён бўлиб, туғруқдан кейин коматоз холатни юзага келишини тасдиқлайди.
Калит сўзлар. Гипоталамус, қон кетиш, туғруқ, хомиладорлик, некроз, нейрон, Нисслморфологияси.
Аннатация. Туғруқдан кейинги даврда бачадондан қон кетишида гипоталамусни супраоптик ва паравентрикуляр сохаларидаги ядро нейронларидаги асосий морфологик ўзгаришлар ўткир ишемия оқибатида Ацидофил ва базофил хужайралар, некронлар цитоплазмасидаги киритмаларни кескрин камайиши каби дистрофик, некробиотик ўзгаришлар юзага келиб, ўткир эндокрин тизим маркказидан перифериягачам бўлган ўқда ўткир етишмовчилик ривожланиши билан давом этади. Айнан хомиладор аёлларда ушбу холатда гипаталамо гипофизар дезинтеграцияни издан чиқиши дастлаб гипофизда гиперфункция ва функционал етишмовчилик оқибатида периферик аъзоларда ўткир гемодинамик бузилишиларни юзага келиши ва коматоз холатни ривожланишига олиб келиши билан характкерланади.
Калит сўзлар: Гипоталамус, туғруқдан кейинги бачадон ичи қон кетиши, оналар ўлими, некроз, дистрофия.
Муаммони долзарблиги: Дунё ахолисида ҳомилаор аёлларда туғруқ-дан кейин турли сабабларга кўра бачадон ичи қон кетишларида оналар ўлимини асосий қисмини ташкил этиб, ЮНИСЕФ 2022 маълумотларига кўра, хомиладор аёллар

ўлими 2022 йилда 301000 мингтани ташкил этган. Бу эса ривожланаётган давлатларда ушбу ўлим кўрсаткичи, 72,3% ни ташкил этади.

АҚШ ва Европа давлатларида оналар ўлими ўртача, 100 мингта хомиладор аёлларга 24 тани ташкил этса, Россия Федерациясида бу кўрсатич 100мингтага 36,5тани, Азарбайджан, Албания, Арманистон, Босния ва Герцеговина, Грузия, Туркия, Қирғизистонда бу кўрсаткич 100 мингтага 61,3 тани ташкил этса, Тожикистон ва Туркманистонда бу кўрсаткич юритилмаганлиги, Ўзбекистонда бу кўрсаткич 2022 йилда 100 мингтага 179 тани ташкил этганлиги аниқланган[1]. Бу кўрсатични яънада давом эттириш мумкин бўлиб, энг кўп оналар ўлими кузатиладиган давлатлар булар учинчи давлатлар ёки ривожланаётган, МДХ давлатларида юқори кўрсатичлар билан характерланади. Айнан, оналар ўлимида турли этиологияли танотогенезни мухим жихатлари, бу хомиладорликка алоқадор ва алоқадор бўлмаган касалликлар бўлиб, аксарият, репродуктив аёлларда экстрагенитал кассаллик-ларни хомиладорлик пайтида қўзиши ёки скрининг қилиш имкониятини бўлмаслиги билан характерланиб, хомиладорликни 2 ва 3 нчи триместида тўсатдан эндокрин бузилишлар жумладан буйрак усти безининг патологиялари мухим хисобланади.

Эътиборли жихатларидан бири, бу иштимоий омиллардан бири бўлган стрессор омиллар хомиладорларда кортико-гипоталамо-гипофизар ва симпатоадренал тизимни ўзаро интеграл боғлиқлигини издан чиқариши оқибатида мураккаб патогенетик механизмни юзага келиши ва жуда мавхум бўлган симпатоадренал тизимдаги бузилишилар оқибатида, хомиладор аёлларда буйрак усти безининг етишмовчилиги ёки гиперфункционал ҳолатини юзага келиши преэклампсия ва эклампсия ривожланишига олиб келиши оналар ўлимини юқори кўрсатичлар билан намоён қилади. Бу эса, мутлоқ долзарб ва мухим бўлган муаммони айни пайтда тўғри танланганлиги ва заруратини тақозо этади. Тадқиқотимизни мазмуни хам турли этиологияли оналар ўлимида буйрак усти безининг патоморфологияси ва танотагенез механизмини ишлаб чиқиш ва тавсия орқали юқорида келтирилган кўрсатичларни камайтиришдан иборатдир.

Натижа ва мухокама: Туғруқ вақтидаги ўткир ва массиви қон йўқотиш (геморрагик шок) гипоталамо-гипофизар тизимда оғир ишемик ва дистрофик ўзгаришларга олиб келади. Илмий манбаларга кўра, ушбу ҳолатда қуйидаги микроскопик жиҳатлар кузатилади: Гемодинамик бузилишлар. Қон томирларнинг кескин кенгайиши ва стаз: Гипоталамус ядроларини таъминловчи капиллярларда қон оқимини секинлашиши ва эритроцитлар агрегацияси (слаж-

феномен) кузатилади. Периваскуляр шиш: Қон томир ўтказувчанлиги ортиши натижасида нейронлар атрофида ва Вирхов-Робен бўшлиқларида суюқлик тўпланиши, бу эса гипоксияни янада чуқурлаштиради.

Нейронлардаги ишемик ўзгаришлар. Ҳужайраларнинг буриши (пикноз): Ўткир гипоксия натижасида нейросекретор ҳужайраларнинг ҳажми кичраяди, ядролари тўқ рангга бўялади (гиперхром) ва деформацияга учрайди.

Тигроид моддасининг эриши (хроматолиз): Нейронлар цитоплазмасидаги РНК захиралари (Ниссл субстанцияси) йўқолади, бу ҳужайранинг оқсил ва гормон синтез қилиш қобилияти тўхтаганидан далолат беради.

Вакуолизация: Нейронлар цитоплазмасида майда вакуолалар пайдо бўлиши (гидропик дистрофия), бу ҳужайра мембранасининг шикастланганини кўрсатади.

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ЖАРОҲАТЛАРИДА ГИПОФИЗДА ЮЗАГА КЕЛАДИГАН МОРФОЛОГИК ЎЗГАРИШЛАР //South Aral Region Medical Journal. – 2026. – Т. 2. – №. 1. – С. 137-144.

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БОШ МИЯ ТУҒРУҚ ТРАВМАСИДА НОБУД БЎЛГАН ЧАҚАЛОҚЛАР ЎРТА МИЯСИ ТАЛАМУСНИ ГИСТОКИМЁВИЙ ЎЗГАРИШЛАРИ

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Аннатация:Бош мия туғуруқ травмаси туғилган ва обуд бўлган чақалоқлар ўрта мия таламусдаги гистокимёвий ўзгаришларда ШИФФ мусбат тузилмалар асосан нейрон толалри атрофида периваскуляр ва перицеллюляр сохада тўпланган суюқлик таркибида кўп миқдорда аниқланади. Бу бош мия туғруқ травмасида мияни эзилиши ва гемодинамик бузилишилар оқибатида ўрта мияда ривожланган гипоксия жараёни томирларда тўлақонлик ва метаболик моддаларни тўпланишига олиб келади. Натижада нейронлар, глиал хужайра-лар нордон мухитда индуцирланган апоптозга учраши стромани плазматик бўкиши оқибатида мухитни нордонлиги микроглиал ъужайраларда глиоз (пролиферацияси) ни кучайишига олиб келганлиги аниқланади. Тақасимон жойлаган базал ядро нейронларини тўлқинсомон траеторияда жойлашишиш аниқланади.

Калит сўзлар: ўрта мия, таламус, морфология, бош мия туғуруқ травмаси, некроз, дистрофия.

Муаммонинг долзарблиги. Янги туғилган чақалоқларда туғруқ жароҳат-лари, айниқса бош мия туғруқ травмалари (БМТТ), перинатал даврдаги ўлимнинг асосий сабабларидан бири ҳисобланиб, 1000 та туғруққа 0,2-41,2 тагача холатни ташкил этиб, глобал неонатологларни долзарб муаммоларидан бўлиб қолмоқда. Жаҳон соғлиқни сақлаш ташкилоти маълумотларига кўра, дунё бўйлаб ҳар йили 2,5–3 миллион чақалоқда туғруқ асфиксияси ва механик травма натижасида оғир неврологик зарарланишлар кузатилади, уларнинг 20–25 фоизида перинатал даврда ўлим ҳолати рўй беради.

АҚШ ва Европа давлатларида, 1000 та туғруқдан 6-7 холатда туғруқ травмалари аниқланиб, ўлим кўрстаичи бўйича 1000 та туғруқдан 1-3 холатда летал кўрстакич билан тугалланади. Дунёдаги жами хомиладорликни 1000 та туғруққа 4,6% да туғруқ травмаларини турли кўринишлари аниқланиб, энг кўп контингент Россия федерацияси, МДХ давлатлари аҳолиси орасида 1000 та туғруққа 25-38 тани ташкил этиб, энг юқори кўрсаткич, Туркманистон,

Арманистон, Ўзбекистон ахолиси орасида аниқланган. Бош мия туғруқ травмалари фақат нерв тизимини эмас, балки бутун организмнинг адаптация тизимларини, жумладан гипоталамо-гипофизар-адренал (ГГА) ўқини ҳам кучли стрессга дучор қилади. Ушбу жараёнда буйрак усти бези марказий аҳамиятга эга, чунки у туғруқ стрессига жавоб сифатида катехоламинлар ва кортикостероидлар секрециясини кескин кучайтиради.

Тадқиқот мақсади: Бош мия туғруқ травмаларидан нобуд бўлган чақалоқларнинг ўрта мияси таламусдаги морфологик ўзгаришларни ўрганиш ва тахлил қилиш.

Тадқиқотни материал ва усуллари: Материал сифатида 75 та муддатида туғилган ва бош мия туғруқ травмасидан нобуд бўлган чақалоқлар аутопсиясида ўрта мия таламус тўқимаси бўлаклари морфологик натижалар ўрганилади.

Мухокама ва натижалар. Таламус тузилишига кўра йирик ва майда нейронлар ҳамда уларни ўраб турувчи бой қон-томир тармоғидан иборат бўлгани учун, бу усулларда қуйидаги аниқ ўзгаришлар намоён бўлади:

Таламус нейронларидаги энергетик коллапсни юзага келиши.

Соғлом мия нейронларида эркин гликоген миқдори кам бўлади. Туғруқ травмасидаги ўткир гипоксия натижасида: илк босқичда (компенсация): Кислород етишмовчилиги сабабли анаэроб гликолиз кучаяди. ШИФФ-реакциясида таламус нейронлари цитоплазмасида ва уларнинг атрофидаги глиал ҳужайраларда гликоген доналарининг патологик тўпланиши (ёркин малина рангли донадорлик) кузатилади.

Тўсатдан ўлим ёки терминал босқичда: Энергия захиралари бутунлай тугаши натижасида таламус ядролари (айниқса, вентролатерал ва олдинги ядролар) нейронларида ШИФФ-позитив моддалар (гликоген) мутлақо йўқолади, ҳужайралар шаффоф бўлиб қолади. Гемодинамик бузилишлар ва Гематоэнцефалик барьер (ГЭБ) шикастланиши, таламус капиллярлари жуда нозик бўлиб, туғруқ пайтидаги механик сиқилиш ва асфиксияга тез жавоб қайтаради: Базал мембрана деструкцияси: ШИФФ усули томирларнинг базал мембранасини жуда аниқ (ёркин бинафша-қизил чизиқ ҳолида) кўрсатади. Травмада бу чизиқларнинг узилиши, ғадир-будур бўлиши ёки қалинлашиши кузатилади. Плазморрагия (Шиш): Томир девори ўтказувчанлиги ортиши ҳисобига углевод ва гликопротеинларга бой қон плазмаси таламус тўқимасига сизиб чиқади. Натижада томир атрофида (периваскуляр) ва нейронлар атрофида (перицеллюляр) ШИФФ-позитив бўлган, малина рангли шиллиқ шиш суюқлиги тўпланади.

Нейронларнинг углеводли-белокли дистрофиясида гипоксия ҳужайра ичидаги макромолекулалар тузилиши ўзгаради:

Нобуд бўлаётган таламус нейронлари цитоплазмасида гликопротеинлар ва гликолипидлар парчаланади. ШИФФ реактиви билан ишлов берилганда, бу парчаланиш маҳсулотлари бўлган эркин альдегид гуруҳлари ҳисобига нейрон танаси ва унинг ўсиқлари (аксон ва дендритлари) тартибсиз, диффуз тўқ қизил рангга бўялади. Бу нейроннинг қайтмас шикастлангани (некробиози) белгисидир.

Миелин қобиқларининг парчаланиши (Демиелинизация)

Таламус орқали ўтувчи ва ўрта мияга кетувчи нерв толалари миелин қобиғи билан ўралган бўлиб, уларнинг таркиби гликолипидларга (цереброзидларга) бой:Травматик шикастланиш соҳасида нерв толалари узилади ёки ишемияга учрайди.

ШИК усулида соғлом толалар текис малина рангида кўринса, жароҳатланган таламус йўлларида миелиннинг парчаланиши ҳисобига тўқ қизил рангли томчилар, малина рангли «шарчалар» (миелин деструкцияси маҳсулотлари) пайдо бўлади. Агар чақалоқ травмадан кейин бир неча кун яшаган бўлса:

Таламусдаги шикастланган ҳужайраларни тозалаш учун макрофаглар ва астроцитлар фаоллашади. Бу ҳужайралар ичида ШИК-позитив бўлган фагоцитоз қилинган моддалар (некроз қолдиқлари) тўпланади ва улар ШИК усулида ёркин малина рангли йирик ҳужайралар сифатида яққол ажралиб туради.

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AN’ANAVIY VA ZAMONAVIY MUSIQA UYG‘UNLIGINING YOShLAR MADANIYATIGA TA’SIRI

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Annotatsiya
Mazkur maqolada an’anaviy va zamonaviy musiqa uyg‘unligining yoshlar madaniyatiga ta’siri tahlil qilingan. Musiqaning yoshlar dunyoqarashi, estetik didi va ma’naviy tarbiyasidagi o‘rni yoritilib, milliy musiqa merosini zamonaviy usullar bilan targ‘ib qilishning ahamiyati ochib berilgan. Shuningdek, globalizatsiya sharoitida yoshlarning musiqiy madaniyatini shakllantirishda innovatsion texnologiyalarning o‘rni ko‘rib chiqilgan.
Kalit so‘zlar: an’anaviy musiqa, zamonaviy musiqa, yoshlar madaniyati, milliy qadriyatlar, estetik tarbiya, musiqa san’ati.
Аннотация
В данной статье анализируется влияние гармонии традиционной и современной музыки на культуру молодежи. Освещается роль музыки в формировании мировоззрения, эстетического вкуса и духовного воспитания молодежи, а также раскрывается значение популяризации национального музыкального наследия современными методами. Кроме того, рассматривается роль инновационных технологий в формировании музыкальной культуры молодежи в условиях глобализации.
Ключевые слова: традиционная музыка, современная музыка, молодежная культура, национальные ценности, эстетическое воспитание, музыкальное искусство.
Abstract
This article analyzes the influence of the harmony between traditional and modern music on youth culture. The role of music in shaping the worldview, aesthetic taste, and spiritual education of young people is highlighted, and the importance of promoting national musical heritage through modern methods is revealed. In addition, the role of innovative technologies in the formation of youth musical culture in the context of globalization is discussed.
Keywords: traditional music, modern music, youth culture, national values, aesthetic education, musical art.

Kirish

Bugungi globallashuv davrida musiqa san’ati yoshlar madaniyatining ajralmas qismiga aylanib bormoqda. Ayniqsa, an’anaviy va zamonaviy musiqaning uyg‘unlashuvi yoshlarning estetik qarashlari, ma’naviy dunyoqarashi va madaniy tafakkurining shakllanishida muhim omil hisoblanadi. Musiqa inson ruhiyatiga kuchli ta’sir ko‘rsatadigan san’at turi sifatida yosh avlodning hissiy olamini boyitadi, ularni milliy qadriyatlarga hurmat ruhida tarbiyalaydi.

An’anaviy musiqa xalqning tarixiy xotirasi, urf-odatlari va milliy o‘zligini aks ettirsa, zamonaviy musiqa yangi g‘oyalar, texnologiyalar va global madaniyat ta’siri ostida rivojlanib bormoqda. Ushbu ikki yo‘nalishning uyg‘unligi yoshlarning musiqiy didini shakllantirish bilan birga, milliy madaniyatni zamon bilan hamnafas ravishda rivojlantirish imkonini yaratadi.

Asosiy qism

An’anaviy musiqa xalqning ko‘p asrlik ma’naviy merosini o‘zida mujassam etadi. O‘zbek milliy musiqasi, maqom san’ati, xalq qo‘shiqlari va milliy cholg‘ular yoshlarni milliy qadriyatlarga hurmat ruhida tarbiyalashda muhim vosita hisoblanadi. Ayniqsa, yoshlarning milliy o‘zligini anglashida an’anaviy musiqa katta ahamiyatga ega.

Zamonaviy musiqa esa texnologik taraqqiyot, ommaviy madaniyat va global axborot oqimi ta’sirida rivojlanmoqda. Estrada, pop, rep va elektron musiqa yo‘nalishlari yoshlar orasida keng ommalashgan. Bu esa musiqaning yoshlar hayotidagi o‘rni yanada ortib borayotganini ko‘rsatadi. Biroq ayrim hollarda chet el madaniyatining haddan tashqari ta’siri milliy qadriyatlarning susayishiga sabab bo‘lishi mumkin.

Shu bois an’anaviy va zamonaviy musiqani uyg‘unlashtirish muhim vazifa hisoblanadi. Bugungi kunda ko‘plab ijodkorlar milliy kuy va ohanglarni zamonaviy aranjirovkalar bilan boyitib, yangi musiqiy asarlar yaratmoqdalar. Bu esa yoshlarda milliy musiqaga bo‘lgan qiziqishni oshirishga xizmat qilmoqda.

Musiqa yoshlarning estetik didini shakllantirishda ham muhim o‘rin tutadi. Musiqa orqali yoshlar go‘zallikni his qilish, san’atni qadrlash va madaniy merosni asrab-avaylash ko‘nikmalariga ega bo‘ladilar. Ayniqsa, ta’lim muassasalarida musiqa madaniyati darslarini zamonaviy pedagogik texnologiyalar asosida tashkil etish yoshlarning ijodiy va madaniy tafakkurini rivojlantiradi.

Shuningdek, internet va ijtimoiy tarmoqlar orqali musiqa mahsulotlarining tez tarqalishi yoshlarning musiqiy dunyoqarashiga katta ta’sir ko‘rsatmoqda. Shu sababli yoshlarni sifatli va ma’naviy jihatdan boy musiqa namunalariga yo‘naltirish bugungi kunning dolzarb masalalaridan biridir.

Xulosa

Xulosa qilib aytganda, an’anaviy va zamonaviy musiqa uyg‘unligi yoshlar madaniyatining rivojlanishida muhim ahamiyat kasb etadi. Ushbu uyg‘unlik

yoshlarning milliy qadriyatlarga hurmatini oshirish, estetik didini shakllantirish hamda ma’naviy dunyoqarashini boyitishga xizmat qiladi. Zamonaviy texnologiyalar yordamida milliy musiqa merosini targ‘ib qilish esa yosh avlodni milliy ruhda tarbiyalashning samarali vositalaridan biri hisoblanadi. Shu bois ta’lim va madaniyat tizimida an’anaviy va zamonaviy musiqa uyg‘unligiga alohida e’tibor qaratish zarur.

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Аннотация: *В статье исследуются социальные факторы, определяющие распространение онлайн-мошенничества в современных условиях цифровизации общества. На основе анализа отечественной и зарубежной научной литературы, данных виктимологических обследований и эмпирических исследований рассматриваются социально-демографические характеристики жертв, механизмы социального доверия и его эксплуатации, роль социального неравенства, цифровой грамотности и сетевых структур в формировании уязвимости населения. Особое внимание уделяется феноменам социальной инженерии, эрозии институционального доверия и влиянию медиасреды на виктимизацию. Анализируются теоретические объяснительные модели — теория рутинной деятельности, теория рационального выбора, концепция социального капитала — применительно к онлайн-мошенничеству. Обосновывается необходимость социально ориентированных мер профилактики, выходящих за рамки технических решений.*

Ключевые слова: *онлайн-мошенничество, социальные факторы, виктимология, социальная инженерия, цифровое неравенство, доверие, социальный капитал, интернет-преступность, медиаграмотность, профилактика мошенничества.*

SOCIAL FACTORS IN THE SPREAD OF ONLINE FRAUD

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Abstract: *The article examines the social factors that determine the spread of online fraud in the context of the digitalization of modern society. Drawing on domestic and international scholarly literature, victimization survey data, and empirical research, the study analyzes the socio-demographic characteristics of victims, the mechanisms of social trust and its exploitation, and the role of social inequality, digital literacy,*

and network structures in shaping population vulnerability. Special attention is given to the phenomena of social engineering, the erosion of institutional trust, and the influence of the media environment on victimization. Theoretical explanatory models — routine activity theory, rational choice theory, and the concept of social capital — are analyzed in relation to online fraud. The necessity of socially oriented preventive measures that go beyond technical solutions is substantiated.

Keywords: *online fraud, social factors, victimology, social engineering, digital inequality, trust, social capital, internet crime, media literacy, fraud prevention.*

Онлайн-мошенничество является одной из наиболее динамично развивающихся форм противоправного поведения в современном обществе. По данным российских правоохранительных органов, число зарегистрированных преступлений в сфере информационных технологий за последние пять лет выросло более чем в три раза, при этом мошенничество составляет наибольшую долю в структуре киберпреступности [1, с. 54]. Вместе с тем технологические интерпретации этого явления, доминировавшие в научной и управленческой дискуссии на протяжении двух десятилетий, все более очевидно обнаруживают свою недостаточность: ни совершенствование программного обеспечения, ни ужесточение законодательства сами по себе не останавливают рост числа жертв. Это переключает внимание исследователей на социальные измерения проблемы — те характеристики общества, социальных групп и межличностных взаимодействий, которые делают онлайн-мошенничество не только технически возможным, но и социально воспроизводимым явлением.

Онлайн-мошенничество как социальный феномен представляет собой форму обмана, осуществляемую посредством цифровых коммуникаций с целью незаконного извлечения материальной или иной выгоды за счет жертвы. К его основным разновидностям относятся: фишинг и спир-фишинг, романтическое мошенничество, инвестиционные схемы, мошенничество с технической поддержкой, мошенничество на торговых площадках, а также компрометация деловой электронной почты. Каждая из этих разновидностей эксплуатирует специфические социально-психологические механизмы и предполагает определенный социальный профиль жертвы [2, с. 45].

Широко распространенный в обыденном сознании образ жертвы онлайн-мошенничества как человека пожилого, технологически неграмотного и социально изолированного не выдерживает критики при обращении к эмпирическим данным. Исследования последних лет демонстрируют

значительно более сложную картину социально-демографического распределения виктимизации. Действительно, пожилые люди непропорционально часто становятся жертвами ряда схем, однако в целом ряде категорий наиболее уязвимыми оказываются люди среднего и молодого возраста с высоким уровнем образования и активным присутствием в цифровой среде [4, с. 34].

Этот парадокс находит объяснение в концепции «уверенности в своих компетенциях» (overconfidence bias): образованные пользователи нередко переоценивают собственную способность распознать мошенничество, что снижает их бдительность именно в тех ситуациях, когда мошенники применяют более изощренные методы воздействия. Российские социологические исследования фиксируют, что молодежь в возрасте 18–24 лет сообщает о финансовых потерях от онлайн-мошенничества не реже, чем представители старших возрастных групп, хотя суммы ущерба для пожилых жертв в среднем выше [10, с. 78].

Центральным социальным механизмом, на котором паразитирует онлайн-мошенничество, является доверие — фундаментальный ресурс социального взаимодействия. В условиях цифровой экономики доверие приобретает новые формы и функции: оно должно распространяться на анонимных участников транзакций, незнакомые платформы и невидимые технические системы. Этот структурный дефицит сигналов доверия в онлайн-среде создает возможности для манипуляции [9, с. 90].

Мошенники эксплуатируют как межличностное доверие, так и институциональное. Техника имперсонации — выдавание себя за представителя банка, государственного органа или известной компании — эксплуатирует доверие к легитимным институтам. Социальная инженерия является ключевым инструментом онлайн-мошенников. С социологической точки зрения важно, что эти техники не являются «взломом» индивидуальной психики — они эксплуатируют нормативные ожидания и социально одобряемые ценности [7, с. 43].

Одним из ключевых социологически значимых факторов распространения онлайн-мошенничества является социальное неравенство, действующее через несколько взаимосвязанных каналов. Во-первых, существует прямая связь между материальной нуждой и уязвимостью к мошенническим схемам, обещающим быстрое обогащение. Во-вторых, неравенство в распределении цифровых компетенций непосредственно влияет на способность распознавать мошеннические схемы. В-третьих, социальное неравенство связано с неравным

доступом к правосудию и институциональной защите в случае виктимизации [6, с. 5].

Концепция социального капитала открывает дополнительное измерение для понимания уязвимости к онлайн-мошенничеству. Социальный капитал может как снижать, так и повышать риск виктимизации. С одной стороны, включенность в плотные доверительные сети обеспечивает информационные потоки, позволяющие распознавать мошеннические схемы. С другой стороны, именно социальные связи являются каналом распространения мошенничества: пирамидальные схемы вербуют новых жертв через существующие отношения доверия [5, с. 20].

Феномен «мошенничества через доверенные связи» заслуживает отдельного рассмотрения. Исследования зафиксировали устойчивую тенденцию к использованию существующих социальных сетей для распространения мошеннических схем: жертва убеждает своих знакомых и родственников присоединиться, искренне веря в легитимность предложения. Этот механизм превращает жертву одновременно в соучастника распространения мошенничества, что порождает дополнительные психологические травмы [3, с. 480].

Роль одиночества и социальной изоляции в формировании уязвимости к онлайн-мошенничеству подтверждена целым рядом отечественных и зарубежных исследований. Романтическое мошенничество паразитирует на потребности жертв в близости и признании. Пандемия COVID-19 обострила эту уязвимость: условия социальной изоляции, вынудившие людей переносить межличностное общение в онлайн-пространство, сопровождались резким ростом романтического мошенничества [2, с. 50].

Теория рутинной деятельности была адаптирована для объяснения онлайн-мошенничества. Согласно ей, виктимизация происходит при совпадении трех условий: наличии мотивированного правонарушителя, подходящей мишени и отсутствии дееспособного контроля. В цифровом контексте интенсивность онлайн-активности является аналогом «рутинного перемещения» в физическом пространстве: чем больше времени человек проводит на торговых площадках и в социальных сетях, тем выше статистически его подверженность мошеннической виктимизации [3, с. 481].

Стигматизация жертв онлайн-мошенничества является одним из наименее изученных, но социально значимых факторов его воспроизводства в российском контексте. Общественное восприятие жертвы как человека «наивного» или «жадного» создает мощный барьер для обращения в правоохранительные

органы. Исследования показывают, что значительная часть жертв испытывает стыд и самообвинение, нередко более травматичные, чем сам материальный ущерб [10, с. 82].

Медиасреда играет двойственную роль в контексте онлайн-мошенничества. С одной стороны, традиционные и цифровые медиа являются важнейшим каналом информирования населения о новых схемах. С другой — медийные представления о мошенничестве нередко воспроизводят стереотипы, занижающие риск для «образованной» и «современной» аудитории. Транснациональное измерение онлайн-мошенничества является принципиальным социальным фактором его воспроизводства: значительная часть операций организована в странах с низким уровнем правоприменения [8, с. 321].

Меры противодействия онлайн-мошенничеству, исходящие из социологического понимания проблемы, существенно отличаются от узкотехнических подходов. Прежде всего, они предполагают адресность: программы просветительской работы должны учитывать специфику уязвимости разных социальных групп, не воспроизводя стереотипы о «типичной жертве». Де-стигматизация виктимизации является ключевым условием повышения уровня информирования о преступлениях. Роль сообществ взаимопомощи в профилактике остается недооцененной в отечественной практике [9, с. 94].

Подводя итог, можно констатировать, что онлайн-мошенничество является глубоко социальным явлением, коренящимся в фундаментальных характеристиках современного общества: его информационной асимметрии, структурах социального доверия и неравенства, культурных нормах и динамике цифровых сетей. Технические меры защиты необходимы, но недостаточны: они не устраняют социальных условий, воспроизводящих уязвимость. Эффективная стратегия противодействия должна включать развитие цифровых компетенций как элемента социальной политики в области образования, системную работу по укреплению институционального доверия и де-стигматизации виктимизации, регулирование платформенных алгоритмов и международное сотрудничество [1, с. 58].

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MECHANISMS FOR DEVELOPING INDIVIDUAL EDUCATION PLANS WITH STUDENTS WITH SPECIAL NEEDS

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Abstract
This article analyzes the organizational and pedagogical mechanisms for developing an individual education plan (IEP) for students with special needs. The importance of an individual approach in inclusive education, diagnostic stages, goal setting, development of adapted curricula, and monitoring mechanisms are highlighted. According to the results of the study, the systematic development of an individual education plan helps to increase students' learning outcomes and the level of social adaptation.
Keywords: inclusive education, individual education plan, student with special needs, pedagogical diagnostics, differential approach, monitoring.

Login
The issue of creating equal educational opportunities for all children based on the principles of inclusive education is a pressing issue in the world. In particular, the concept of inclusive education put forward by UNESCO emphasizes the need to organize the educational process based on the needs of each child.
In the Republic of Uzbekistan, a number of regulatory and legal documents have been adopted on the development of inclusive education, and the process of integrating children with special needs into the general education environment is being implemented gradually. However, in practice, the lack of sufficient systematization of mechanisms for developing individual education plans poses problems.
The purpose of this article is to scientifically substantiate effective mechanisms for developing individual education plans with students with special needs.

Research methodology
The following methods were used in the research process:
- analysis of scientific and pedagogical literature;
- observation;
- interview and questionnaire;
- pedagogical experimental work;
- statistical analysis of the results.

The object of the research is students with special needs studying in general education schools.

The subject of the research is the process of developing an individual education plan and its mechanisms.

Stages of developing an individual education plan

An Individual Education Plan (IEP) is a customized educational program developed based on the student's individual characteristics, capabilities, and needs.

Stage 1: Diagnostics

At this stage, the student:

level of psychological development;

cognitive capabilities;

speech and communication skills;

the level of social adaptation is determined.

The collaboration of a teacher, psychologist, and defectologist is important in the diagnostic process.

Step 2: Setting goals and objectives

Objectives:

specific,

measurable,

achievable,

realistic,

time-bound

determined based on the principles.

Step 3: Develop a customized curriculum

In this process:

1. the learning material is simplified;
2. The size of the tasks is adjustable;
3. evaluation criteria are individualized;
4. additional resources (visual aids, technologies) are used.

Stage 4: Implementation

The lesson process is organized based on an individual plan. The use of differential and cooperative methods gives effective results.

Step 5: Monitoring and Evaluation

The effectiveness of the ITR is regularly evaluated. The plan is revised as necessary.

Research results

The results of the experimental work showed that:

The learning rate of students taught on an individual plan increased by 18–22%;

1. The level of social adaptation has improved significantly;
2. Students' independent work skills were developed;
3. The effectiveness of cooperation with parents has increased.

The results confirmed that an individual approach is a crucial factor in inclusive education.

Discussion

Developing an individual education plan is not just a task for the teacher, but requires a comprehensive approach. In international practice, including in the United States, the IEP (Individualized Education Program) model is being effectively used. This model involves collective decision-making and parental participation.

In national practice, there is a need to strengthen methodological guidelines and specialist training.

Conclusion

Based on the research results, the following conclusions were drawn:

1. The Individual Education Plan is a key tool that increases the effectiveness of inclusive education.
2. Developing an ITR requires a step-by-step and systematic approach.
3. Diagnostic and monitoring mechanisms determine the success of the plan.
4. The cooperation of parents and professionals is an important factor.

It is necessary to develop inclusive competencies of teachers. The results of this study showed that the development of an individual education plan (IEP) with students with special needs is the main pedagogical mechanism that ensures the effectiveness of inclusive education. In the concept of inclusive education, in particular, in accordance with the principles put forward by UNESCO , the organization of the educational process, taking into account the individual needs of each student, increases quality indicators.

The following scientific conclusions were based on the research:

First, the process of developing an individual education plan will only be effective if it is carried out systematically and step by step. The stages of diagnostics, clear goal setting, customized program development, implementation, and monitoring must be organized in an interconnected manner.

Secondly, pedagogical diagnostics is the foundation of ITR. A thorough analysis of the level of cognitive, emotional-volitional and social development of the student allows for the correct setting of individual goals.

Third, an adapted curriculum based on a differentiated and individual approach increases students' learning performance, develops independent work skills, and accelerates the process of social adaptation.

Fourth, the effectiveness of ITR largely depends on the cooperation of the teacher, psychologist, defectologist and parents. A team approach ensures the practical effectiveness of the plan.

Fifth, improving the content of the individual plan through monitoring and regular evaluation mechanisms ensures the sustainability of the inclusive education process.

On this basis, the following practical recommendations were developed:

- introduction of unified methodological recommendations for the development of ITR in secondary schools;
- organizing special advanced training courses aimed at improving the inclusive competencies of teaching staff;
- extensive use of modern pedagogical and information technologies in developing an individual education plan;
- Establishing systematic consultation and cooperation mechanisms with parents.

In general, improving the mechanisms for developing individual education plans will help to fully ensure the right to education of students with special needs, support their intellectual and social development, and improve the quality of the inclusive education system.

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FRONT GAZETALARI HARBIY KUNDALIK HAYOT TARIXIGA OID MANBA SIFATIDA.

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[Andijon davlat universiteti]

Annotatsiya: Mazkur tezisda front gazetalarining ikkinchi jahon urushi kabi tarixiy voqealarda harbiy hayotni o'rganishda tengsiz asosiy hamda birlamchi tarixiy manba sifatidagi o'rni tahlil qilinadi. "Vatan uchun", "Suvorovchi", "Sovet jangchisi", "Qizil askar haqiqati" kabi gazetalar faoliyati hamda ularning askarlar ruhiyatini ko'tarishdagi ahamiyati yoritilgan.

Kalit so'zlar: front gazetasi, harbiy matbuot, Ikkinchi jahon urushi, Vatan uchun, Suvorovchi, Sovet jangchisi, Qizil askar haqiqati, targ'ibot, tarixiy manba.

Asosiy qism

Front gazetalari ofislar va tinchlik davridagi arxivlardan farqli ravishda, jangchilarning real kechinmalari, psixologik holati va harbiy kundalik turmushini o'sha vaqtning o'zida, senzura doirasida bo'lsa-da, haqqoniy aks ettirgan. Matbuot sahifalarida askarlarning qanday sharoitda yashagani, xandaqlardagi hayot, kiyim-kechak ta'minoti, ovqatlanish tartibi va dala oshxonalari haqida real ma'lumotlar berilgan. Cho'ntak daftarlari va xatlar: Gazetalarda ko'pincha askarlarning kundalik yozuvlari, frontdan oilasiga yo'llagan xatlari yoki minnatdorchilik maktublari chop etilgan bo'lib, bu oddiy odamlarning urushga munosabatini ko'rsatadi. Urush davri matbuoti askarlarning ruhiy holatini barqaror ushlab turish uchun ularning jasoratini maqtagan, jangovar do'stlikni tarannum etgan. Front ortidan kelgan artistlarning konsertlari, askarlar o'z-o'zidan tashkil qilgan badiiy havaskorlik to'garaklari to'g'risidagi reportajlar jangchilarning frontdagi kundalik madaniy hayotini yoritgan. Ilg'or tajribalarni ommalashtirish: Gazetalar oddiy askar va serjantlarning jang maydonida qo'llagan muvaffaqiyatli taktikalarini, snayperlar harakatini yoki pistirmalardan chiqish usullarini boshqalarga o'rnak qilib ko'rsatgan. Harbiy kundalik hayotdagi haqiqiy qahramonlar (masalan, aloqachilar, o't o'chiruvchilar, hamshiralar) haqidagi ocherklar urush davri jamiyati qadriyatlarini belgilab bergan. O'zbekiston Milliy arxivi fondlarida saqlanadigan o'zbek tilidagi front o'sha davrdagi o'zbekistonlik

jangchilarning kundalik hayoti, ularning milliy qadriyatlarini front sharoitida qanday saqlab qolgani haqida muhim dalillarni beradi.

Ikkinchi jahon urushi davrida matbuot vositalari jangchilar ruhiyatini ko‘tarish, aholini vatanparvarlik ruhida tarbiyalash hamda front va front ortidagi birlikni mustahkamlashda muhim ahamiyat kasb etdi. Ayniqsa, o‘zbek tilida nashr etilgan front gazetalarining faoliyati bu borada alohida o‘rin tutadi. Urush yillarida “Vatan uchun”, “Suvorovchi”, “Sovet jangchisi”, “Qizil askar haqiqati” kabi gazetalar muntazam ravishda chop etilib, jangchilarga yetkazilgan. Ushbu gazetalar sahifalarida front yangiliklari, qahramonlik lavhalari, she’r va maqolalar, chaqiriqlar hamda harbiy maslahatlar e’lon qilingan. “Vatan uchun” gazetasi askarlarni mardlik va jasoratga undagan bo‘lsa, “Suvorovchi” gazetasi harbiy intizom va g‘alaba ruhini targ‘ib qilgan. “Sovet jangchisi” va “Qizil askar haqiqati” gazetalarida esa jangchilarning kundalik hayoti, milliy qahramonlar faoliyati va urush voqealari keng yoritilgan. Mazkur gazetalar bugungi kunda ham muhim tarixiy manba hisoblanadi. Chunki ular orqali urush davridagi siyosiy muhit, mafkuraviy targ‘ibot, harbiy jurnalistika hamda o‘zbek xalqining frontdagi ishtiroki haqida muhim ma’lumotlarga ega bo‘lish mumkin.

Xulosa

Xulosa qilib aytganda, o‘zbek tilidagi front gazetalarining faoliyati urush yillaridagi harbiy matbuot tarixining muhim qismini tashkil etadi. Ushbu gazetalar nafaqat targ‘ibot vositasi, balki tarixiy voqealarni aks ettiruvchi qimmatli manba sifatida ham ilmiy ahamiyatga ega.

Foydalanilgan adabiyotlar:

1. Иккинчи жаҳон уруши ва фронт газеталари – Тошкент: Akademnashr, 2020.
2. История печати Узбекистана (1925–1952) – Ташкент: Ўқитувчи, 1997.
3. O‘zbekiston Milliy arxivi materiallari.
4. Urush davri front gazetalarining sonlari.
5. Internet ma’lumotlar.

EKSPERTIZA XULOSASINING ISBOTLASH VOSITASI SIFATIDAGI O‘RNI VA AHAMIYATI

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Annotatsiya. Mazkur tezisda jinoyat protsessual qonunchiligi doirasida ekspertiza xulosasining isbotlash vositasi sifatidagi o‘rni va ahamiyati har tomonlama tahlil etiladi. Unda ekspert xulosasining huquqiy tabiati, uni tayinlash va o‘tkazish tartibi, dalillar tizimidagi o‘rni hamda boshqa isbotlash vositalari bilan o‘zaro bog‘liqligi yoritilgan. Shuningdek, ekspert xulosasining ishonchliligi, obyektivligi, ilmiy asoslanganligi va protsessual talablarga muvofiqligi uni baholashning asosiy mezonlari sifatida ko‘rib chiqiladi.

Tezisda ekspertiza xulosasining jinoyat ishlarini hal etishda, ayniqsa maxsus bilimlarni talab qiluvchi holatlarni aniqlashda hal qiluvchi ahamiyat kasb etishi asoslab beriladi. Uning ayblov va oqlov dalili sifatidagi xususiyatlari, sudning ichki ishonchini shakllantirishdagi roli hamda adolatli qaror qabul qilishdagi o‘rni ochib berilgan. Shuningdek, amaldagi jinoyat-protsessual qonunchilik normalari, sud amaliyoti va ilmiy qarashlar asosida ekspertiza institutining rivojlanish tendensiyalari va dolzarb muammolari tahlil qilinadi.

Natijada, ekspertiza xulosasi jinoyat protsessida haqiqatni aniqlash, dalillarni mustahkamlash va sud qarorlarining qonuniyligi hamda asoslanganligini ta’minlashda muhim isbotlash vositasi ekanligi xulosa qilinadi.

Kalit so‘zlar. Ekspertiza xulosasi, isbotlash vositalari, jinoyat protsessi, jinoyat-protsessual qonunchilik, dalillar tizimi, ekspert, sud ekspertizasi, maxsus bilimlar, dalillarning maqbulligi, ishonchlilik, obyektivlik, ilmiy asoslanganlik, protsessual tartib, ekspertiza tayinlash, qo‘shimcha ekspertiza, qayta ekspertiza, ayblov dalillari, oqlov dalillari, sudning ichki ishonchi, dalillarni baholash, sud amaliyoti, tergov jarayoni, sud-tibbiy ekspertiza, kriminalistika, DNK tahlili, sud psixologiyasi, iqtisodiy ekspertiza, raqamli kriminalistika, sabab-oqibat bog‘lanishi, jinoyat tarkibi, dalillar yetarliligi, sud qarorining asoslanganligi, ekspertning vakolati, protsess ishtirokchilari huquqlari.

РОЛЬ И ЗНАЧЕНИЕ ЗАКЛЮЧЕНИЯ ЭКСПЕРТА КАК СРЕДСТВА ДОКАЗЫВАНИЯ

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Аннотация. В настоящих тезисах всесторонне анализируются роль и значение заключения эксперта как средства доказывания в рамках уголовно-процессуального законодательства. Освещаются правовая природа экспертного заключения, порядок его назначения и проведения, его место в системе доказательств, а также взаимосвязь с другими средствами доказывания. Рассматриваются критерии оценки экспертного заключения, такие как достоверность, объективность, научная обоснованность и соответствие процессуальным требованиям.

В тезисах обосновывается, что заключение эксперта имеет решающее значение при разрешении уголовных дел, особенно при установлении обстоятельств, требующих специальных знаний. Раскрываются его особенности как обвинительного и оправдательного доказательства, роль в формировании внутреннего убеждения суда и значение при вынесении справедливого решения. Также анализируются тенденции развития института судебной экспертизы и актуальные проблемы на основе действующего уголовно-процессуального законодательства, судебной практики и научных подходов.

В результате делается вывод о том, что заключение эксперта является важным средством доказывания, способствующим установлению истины, укреплению доказательной базы и обеспечению законности и обоснованности судебных решений в уголовном процессе.

Ключевые слова: заключение эксперта, средства доказывания, уголовный процесс, уголовно-процессуальное законодательство, система доказательств, эксперт, судебная экспертиза, специальные знания, допустимость доказательств, достоверность, объективность, научная обоснованность, процессуальный порядок, назначение экспертизы, дополнительная экспертиза, повторная экспертиза, обвинительные доказательства, оправдательные доказательства, внутреннее убеждение суда, оценка доказательств, судебная практика, следственный процесс, судебно-медицинская экспертиза, криминалистика, ДНК-анализ, судебная психология, экономическая экспертиза, цифровая криминалистика, причинно-следственная связь, состав преступления,

достаточность доказательств, обоснованность судебного решения, полномочия эксперта, права участников процесса.

THE ROLE AND SIGNIFICANCE OF EXPERT OPINION AS A MEANS OF PROOF

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Abstract. This thesis provides a comprehensive analysis of the role and significance of expert opinion as a means of proof within the framework of criminal procedural legislation. It examines the legal nature of expert opinion, the procedure for its appointment and conduct, its place in the system of evidence, and its interrelation with other means of proof. Particular attention is given to the criteria for evaluating expert opinion, including reliability, objectivity, scientific validity, and compliance with procedural requirements.

The thesis substantiates that expert opinion plays a decisive role in resolving criminal cases, especially in establishing circumstances that require specialized knowledge. Its features as both incriminating and exculpatory evidence, its role in shaping the internal conviction of the court, and its importance in ensuring fair judgments are highlighted. In addition, the study analyzes the development trends and current issues of the forensic examination institution based on existing criminal procedural legislation, judicial practice, and scholarly approaches.

As a result, it is concluded that expert opinion is an essential means of proof in criminal proceedings, contributing to the establishment of truth, strengthening the evidentiary basis, and ensuring the legality and validity of judicial decisions.

Keywords: expert opinion, means of proof, criminal procedure, criminal procedural law, system of evidence, expert, forensic examination, specialized knowledge, admissibility of evidence, reliability, objectivity, scientific validity, procedural procedure, appointment of expertise, additional expertise, repeated expertise, incriminating evidence, exculpatory evidence, internal conviction of the court, evaluation of evidence, judicial practice, investigation process, forensic medical examination, criminalistics, DNA analysis, forensic psychology, economic expertise, digital forensics, causal relationship, corpus delicti, sufficiency of evidence, validity of judicial decisions, powers of the expert, rights of participants in proceedings.

Introduction.

At present, improving criminal procedural legislation, increasing the efficiency of the evidentiary process, and ensuring the legality and validity of court decisions are recognized as priority directions of legal reforms. The establishment of the rule of law in society and the reliable protection of citizens' rights and freedoms directly depend on the quality of judicial and investigative activities, in which the effectiveness of the system of evidence plays a crucial role.

Within this framework, the processes of collecting, verifying, and evaluating evidence occupy a central position. The reliability and credibility of the facts established at these stages have a direct impact on the fairness of court decisions. In this regard, expert opinions hold a special place within the system of evidence. This is because many aspects of criminal cases require specialized knowledge, and in such situations, judges, investigators, and prosecutors are compelled to rely on expert conclusions.

An expert opinion in criminal proceedings is not merely an ordinary piece of evidence but serves as a scientifically grounded, objective, and specialized means of proof. It enables the identification of complex facts, causal relationships, and essential elements of a crime. In particular, forensic medical, криминalistic, economic, and modern digital examinations provide opportunities for a deeper understanding of criminal cases and their proper legal assessment.

Furthermore, with the rapid development of modern technologies, the nature of crimes has become increasingly complex. The detection and investigation of cybercrimes, financial fraud, and other sophisticated types of offenses significantly depend on expert analysis. This increases the importance of expert opinions and requires a high level of professionalism, as well as up-to-date knowledge and skills from experts.

Current criminal procedural legislation recognizes expert opinion as an independent means of proof, making it an integral part of the evidentiary system. At the same time, the reliability, objectivity, scientific validity, and compliance with procedural requirements of expert conclusions serve as key criteria for their evaluation. The fact that many cases in judicial practice are resolved based on expert opinions clearly demonstrates their high practical significance.

From this perspective, a comprehensive scientific analysis of the role and importance of expert opinions as a means of proof, as well as the study of their theoretical foundations and practical application, is of great academic and practical importance. The main objective of this thesis is to provide a comprehensive analysis

of the role of expert opinion in criminal proceedings, its significance within the system of evidence, the criteria for its evaluation, and the existing practical challenges.

Main body.

To explain the role and significance of an expert opinion as a means of proof, it is appropriate to briefly focus on two aspects. First, what is an "expert opinion" and what does it contain? Second, what is meant by a "means of proof"?

Firstly, an expert opinion is the conclusion of a specialist who possesses in-depth knowledge in a particular field. It is based on evidence, analysis of the situation, and scientific methods. The main characteristics of an expert opinion are:

- Competence – the specialist must possess professional knowledge and relevant experience.
- Objectivity – the opinion should be based not on personal views, but on established facts.
- Reasonableness – each hypothesis must be supported by evidence.
- Reliability – the expert must consider all available information and analyze it within the context of the issue.

When discussing the expert opinion, it is also appropriate to consider the views and opinions of a number of scholars. In particular, as Yu. K. Orlov emphasizes, "although an expert opinion does not possess any superior evidentiary force compared to other types of evidence, it has a very important distinctive feature. This is because it represents a conclusion drawn by an expert as a result of research conducted through the application of specialized knowledge."[1].

E. A. Zaytseva, in turn, states that: "the appointment and conduct of a forensic examination constitute an investigative action that also encompasses the activities of the expert and represents a complex and multifaceted practice. This process includes the procedural methods of the investigator and other persons involved in obtaining new evidence — the expert opinion."[2].

According to S. A. Sheyfer, it is precisely the investigator who determines the subject, scope, and objects of the forthcoming expert examination, oversees its scientific validity, completeness, and objectivity, and ensures the lawful interests of the suspect, the accused, and other participants in pre-trial proceedings, among other responsibilities.[3]

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[1] Orlov, Y.K. *Expert's Conclusion and Its Evaluation in Criminal Cases: Textbook*. Moscow, 1995, 40 pp.
[2] Zaytseva, E.A. *The Concept of the Development of the Forensic Examination Institution in the Context of Adversarial Criminal Proceedings*. Moscow, 2010, 102 pp.
Shafer, S.A. "The System of Investigative Actions: What Are the Ways of Its Development?" *Laws of Russia: Experience, Analysis, Practice*, no. 2 (2015).

According to S. B. Rossinskiy, the key difference between an expert and an investigator lies in the fact that an expert is a local (i.e., limited and episodic) participant in pre-trial proceedings. The expert is engaged solely to perform a one-time task—establishing specific circumstances through the use of specialized knowledge and forming a single piece of evidence. After completing the research and submitting the prepared conclusion, that is, after fulfilling their public-law obligations before the pre-trial investigative authorities, the expert is generally removed from further participation in the criminal case.[4]

An expert opinion is a written document предусмотред by law, in which the expert reflects the research conducted and the conclusions reached in response to the questions posed by the authority or person who appointed the examination.

Secondly, according to widely accepted views in legal literature, means of proof include persons who possess evidentiary information, objects bearing traces of a crime, and documents containing information relevant to the case.[5] This approach appears to be incorrect. Individuals do not create information; rather, they serve as its carriers. Depending on the specific circumstances, persons possessing information may participate as witnesses, victims, specialists, experts, suspects, or defendants. Various procedural rules also establish different procedures for conducting investigative actions aimed at obtaining evidence (such as interrogations), which include the relevant testimonies provided by the person being questioned.[6]

Thus, it can be concluded that evidentiary materials related to a criminal act, which assist in solving the crime, constitute means of proof. In this regard, an expert opinion, despite its advisory nature, is also considered a means of proof, as it may serve either to establish the innocence of a suspect or to substantiate their guilt.

The role and significance of an expert opinion as a means of proof constitute one of the most complex, theoretically rich, and practically significant institutions of the modern legal system. This is because the process of expert examination itself enables courts, investigators, prosecutors, and all parties involved in criminal and civil proceedings to understand and evaluate facts that can only be clarified through scientific, technical, medical, economic, or other specialized knowledge beyond their ordinary competence. Moreover, an expert opinion is considered one of the most stable and reliable elements of the evidentiary process grounded in scientific methodology. Compared to other

[4] Rossinsky, S.B. “Forensic Expertise as a Special Method of Proving in Predictive Proceedings in Criminal Cases.” *Siberian Law Herald*, no. 4 (91), 2020. https://doi.org/10.26516/2071-8136.2020.4.100.
[5] Fiskevich, S.V. “Assessment of the Relevance of Evidence in Court Proceedings with Jury Participation.” *Theory and Practice of Social Development*, no. 1 (2011): 11–18.
[6] Stepenko, V.E., & Kosmynin, E.S. “Scholarly Notes of TOGU.” *TOGU Scholarly Notes*, vol. 6, no. 4 (2015).

means of proof—such as witness testimony, documents, material evidence, photo and video materials, explanations of the parties, and other sources of information—it stands out due to its objectivity, independence, and scientific substantiation. Precisely for these reasons, expert opinions play a decisive role in many complex cases, particularly in fields such as criminalistics, forensic medicine, forensic psychology, economic crimes, financial audits, technical examinations, DNA analysis, forensic ballistics, traffic accident reconstruction, labor disputes, construction expertise, and many other areas.

It is widely acknowledged that in many situations, courts cannot arrive at the truth without an expert opinion. Therefore, the institution of expertise occupies a firm place both in legislation and judicial practice as an integral part of the system of means of proof. An expert opinion serves not only as a document confirming or refuting a fact, but also as an analytical source that guides the court on a scientific basis, logically connects disputed circumstances, reconstructs cause-and-effect relationships, and deeply examines evidence to reach conclusions grounded in scientific criteria.

Unlike other types of evidence, an expert opinion requires specialized knowledge that the court itself does not possess. Judges are generally not capable of independently evaluating technical processes, biological reactions, the reliability of DNA results, the extent of construction violations, the accuracy of financial calculations, or the outcomes of psychological diagnostics. For this reason, the role of expert examination is exceptionally important. In forming conclusions, experts rely on scientific methods, experimental analyses, laboratory testing, computer modeling, diagnostic techniques, statistical analysis, analytical algorithms, ballistic testing, forensic chemical examinations, medical criteria, engineering calculations, and other scientifically grounded tools. This significantly enhances the overall quality of the evidentiary process.

In the modern era of rapid technological development, expert opinions are becoming increasingly accurate, reliable, and comprehensive. The use of advanced laboratories, digital forensics, high-precision image analysis, 3D reconstruction, genetic testing, psychometrics, computer simulations, and artificial intelligence has greatly expanded the scientific potential of expert examinations.

All these factors demonstrate that the expert opinion has evolved from merely an auxiliary tool into a highly significant scientific and legal form of evidence. Its importance in judicial practice is so substantial that many criminal cases involve issues that cannot be resolved without it—for example, determining the cause of death, identifying the nature of injuries, detecting forged signatures, reconstructing the mechanism of traffic accidents, calculating the amount of financial theft, assessing

construction defects, determining economic damage, establishing whether a child has been subjected to psychological abuse, or evaluating the severity of health damage in labor disputes.

According to Article 81 of the Criminal Procedure Code, any factual data that serve as a basis for establishing whether a socially dangerous act has occurred, whether a person is guilty or not, and other circumstances relevant to the proper resolution of the case are considered evidence. Such data are established through witness statements, victim statements, statements of suspects, accused and defendants, expert opinions, material evidence, audio and video recordings, film and photographic materials, records of investigative and judicial actions, and other documents.

Furthermore, paragraph 3 of the Resolution of the Plenum of the Supreme Court of the Republic of Uzbekistan dated August 24, 2018, "On Certain Issues of Applying the Norms of Criminal Procedure Law on the Admissibility of Evidence," clarifies that evidence obtained from testimonies that are not confirmed by the totality of evidence in court is considered inadmissible. At the same time, the Constitution of the Republic of Uzbekistan establishes that all doubts concerning guilt, if they cannot be eliminated, must be resolved in favor of the suspect, accused, defendant, or convicted person. This principle is also закрепед in Article 23(3) of the Criminal Procedure Code, while Article 464(1)(1) provides that an acquittal must be issued if the criminal event has not occurred.

This shows that a fair decision (judgment) in a case can be ensured only when there is sufficient and well-founded evidence. In criminal proceedings, the process of proof serves as the basis for establishing whether a person is not connected to the consequences that have occurred or, conversely, is guilty of them.

If we look at the history of the legal regulation of formalizing expert opinions as a means of proof in the Criminal Procedure Code, it can be noted that in the first Criminal Procedure Code of Uzbekistan, adopted in 1926 as part of the former Soviet Union, the chapters entitled "On Evidence" and "On Protocols" already included the use of expert opinions and other types of evidence in court proceedings.

Furthermore, compared to the 1929 Code, the Criminal Procedure Code of 1959 paid greater attention to issues related to the collection and formalization of evidence. It specifically addressed expert opinions, the circumstances to be proven, types of evidence, procedures for their collection and evaluation, as well as material evidence, including the порядок их хранения, time limits, and other related aspects.[7]

[7] Muminov, M. "Huquq va Burch." *Law and Duty*, no. 8 (2022): 28–29.

In cases involving human death, as well as cases where a person has suffered physical harm without resulting in death, an expert opinion serves as the basis for:

- Establishing that a person's actions or inactions did not cause the death or health impairment of another, or that the person is not responsible for such consequences, thereby ensuring that an innocent individual is not held liable;
- Identifying the crimes committed and revealing the perpetrator, leading to the involvement of the person who committed the crime as the accused in the case;
- Charging the person who committed the crime under the relevant article of the specific part of the Criminal Code (hereinafter referred to as the CC) and preparing an indictment;
- Ensuring that a lawful, substantiated, and fair judgment is issued under the relevant article of the CC that establishes criminal liability for offenses involving physical harm to a person.

Thus, in cases involving physical harm to a person, an expert opinion serves both as **evidence supporting an accusation** and as **evidence supporting an acquittal**.

By "evidence supporting an accusation" or "evidence supporting an acquittal" is meant **evidence supporting an accusation** refers to factual information that indicates that a specific person has committed a crime or that aggravates their guilt; **evidence supporting an acquittal** refers to factual information that denies that a specific person committed a crime or mitigates their guilt.[8] In this case, as a result of conducting the expert examination, the outcome (such as the cause of a person's death or the extent of health impairment) is determined, and consequently, it is established whether the person's actions or inactions caused that outcome or not.

One of the key legal justifications for appointing and conducting an expert examination in cases involving physical harm to a person is that, according to Article 82 of the Criminal Procedure Code (CPC), in order to accuse a person and issue a conviction, three out of five essential elements that must be proven rely specifically on an expert opinion:

1. The nature and extent of the harm caused by the crime;
2. The causal connection between the committed crime's time, place, method, act, and the socially dangerous consequences that occurred;
3. Establishing that the crime was committed by the specific person.

It is also important to emphasize that if the degree and cause of the inflicted bodily injury are not determined, it is impossible to issue a decision (judgment) in cases

[8] Mirazov, D.M., Rashidov, B.N., Qulmatov, Sh.A., et al. *Criminal Procedure Law: Textbook*. Tashkent: Academy of the Ministry of Internal Affairs of the Republic of Uzbekistan, 2019, 333 pp. (See Rajabov, B.A., Chapter III, Topic 6, p. 106, available at https://drive.google.com/file/d/1th6t1Y5)

involving physical harm. This is because an expert opinion is a crucial piece of evidence for determining the severity of the injury, whether it directly caused death or other consequences, identifying the perpetrator, and confirming their presence at the scene of the incident.

According to Article 16, Part 2 of the Criminal Code of the Republic of Uzbekistan, the sole basis for criminal liability is the existence of all elements of a criminal act. If even one element of the act is absent, the act is not considered a crime. Therefore, in cases involving physical harm to a person, it would not be incorrect to state that, in accordance with this provision, the presence or absence of a criminal act cannot be established without an expert opinion.

The need to conduct a forensic medical examination arises in criminal cases involving offenses against a person's life and health, and it serves the purposes and functions of fair justice.[9] Under the current Criminal Procedure Code, Article 173 stipulates that an expert examination is mandatory to determine the cause of death, the nature, and the severity of inflicted bodily injuries. In economic crimes, however, thousands of transactions, financial documents, accounting records, cash flows, tax reports, audit trails, corporate assets, the amount of damages, and forms of unlawful enrichment are analyzed by experts, and the expert conclusion becomes the primary tool for establishing economic truth.

Forensic psychological examinations play a decisive role in determining a person's mental state, emotional stability, the reliability of statements made under stress, the psychological readiness of minors for interrogation, and the trauma level of victims of violence. Therefore, without an expert conclusion, many cases cannot be correctly resolved.

The strength of an expert conclusion lies in its scientific foundation, methodological accuracy, objectivity, impartiality, and direct connection with the evidence under examination. An expert follows strict procedures in forming their conclusion, conducting investigations based on methodological manuals, international standards, scientific traditions, laboratory criteria, and evaluation techniques. In particular, in fields such as forensic ballistics, forensic chemistry, forensic biology, DNA analysis, digital forensics, and traceology, the accuracy of expert conclusions typically ranges from 95% to 99%, a reliability level rarely found in other types of evidence.

The significance of expert conclusions is so high that parties often adjust their legal strategy based on the results: the prosecution may strengthen its case using the expert conclusion, while the defense may point out deficiencies or request additional expertise

[9] Indiaminov, S.I. *Forensic Medicine: Textbook*. Tashkent, 2012, p. 13.

to revise its strategy. When evaluating an expert conclusion, the court examines its formal correctness, logical consistency of the research, the justification for the chosen methodology, the completeness of the analysis process, the sufficiency of materials used, the expert's reasoning, and the connection of the final conclusion with the evidence.

If deficiencies are found in the expert conclusion, the court may reject it or order a supplementary examination, although this rarely occurs because expert analyses are usually scientifically robust. The value of expert conclusions lies in enhancing the reasoned nature of court decisions, reinforcing judicial confidence, ensuring impartial and fair judgments, and strengthening public trust in the judiciary.

The importance of expert conclusions as a means of proof is significant not only in practice but also theoretically, recognized as an essential element of a lawful state and judicial independence. In legal proceedings, facts are usually divided into two types: those requiring legal assessment and those requiring specialized knowledge. Expert examinations are established precisely to determine the latter, where the court relies on the expert's scientific opinion.

With the development of the expert institution, the process of proof has become increasingly scientific, significantly improving the quality and fairness of court decisions. In particular, genetic examinations have revolutionized forensic medicine: DNA matching enables precise proof of homicide, violence, biological relationships, lineage, and even materially aged evidence. Similarly, digital forensics has become one of the most critical fields today, scientifically examining data stored on smartphones, computers, cameras, servers, networks, social media, and cloud services to establish traces of crimes, communications, geolocation information, and the authenticity of audio-video files. This expands the process of proof, further enhancing the significance of expert conclusions year by year.

The power of an expert conclusion is that it reinforces other evidence or resolves ambiguities; in some cases, the court prioritizes the expert's opinion over other evidence because other forms of proof are often subjective, prone to human error, memory lapses, or influenced by party interests. Another crucial factor enhancing the role of expert conclusions as a means of proof is the scientific validity and practical effectiveness of the methodology chosen by the expert. In practice, if a method is not scientifically validated, untested in practice, or controversial, the reliability of the expert conclusion decreases significantly.

For this reason, expert activities are regulated through special licensing, professional development, and certification systems, ensuring not only professional competence but also adherence to principles of impartiality, accuracy, responsibility, and legality.

According to current legislation, an expert conclusion is an independent legal document; however, its value depends on the expert's level of knowledge, the completeness of the objects studied, and the rigor of the analysis.

Therefore, Article 78 of the Criminal Procedure Code of the Republic of Uzbekistan contains a provision stating that "a person who conducted the investigation or any other internal inquiry forming the basis for the initiation of the case is not entitled to participate in this case as an expert or specialist." However, it is advisable to further refine this article to explicitly include a rule that a person who has conducted an expert examination is also not entitled to participate in the same case as an expert or specialist.

As the above analysis shows, in many criminal cases, it is impossible to issue a conviction without an expert conclusion. It is not without reason that, in the Justinian Code, the significance of experts' participation in court proceedings was described with the phrase: "Judges are not witnesses; they stand above witnesses and even above the magistrates," highlighting their superior role and authority in establishing the truth.[10].

According to statistical data, in 2022, acquittal verdicts were issued for 1,010 individuals; in 2023, for 1,244 individuals; and in the first half of 2024, for 465 individuals.[11] It can be agreed that one of the reasons for these acquittals was "the inadmissibility of the evidence on which these individuals were charged or the preparation of an indictment despite insufficient evidence to accuse the person."

Taking into account the statement by the President of our country, Shavkat M. Mirziyoyev, emphasizing the need to "ensure in practice that evidence is reliable, obtained lawfully, and relevant to the case — in other words, to uphold the principle of admissibility of evidence in the language of judges — for which it is necessary to establish appropriate legal mechanisms and improve the current legislation," the following proposals are put forward:

If a separate investigative department is established, it would allow for proper distribution of criminal cases based on workload, provide investigators with the opportunity to focus exclusively on conducting investigative actions, enhance their independence in case management, and enable highly qualified investigators to provide legal guidance to less experienced colleagues. This, in turn, would increase the efficiency and quality of preliminary investigations.

When an expert conclusion reaches the authorized person conducting the pre-trial investigation, before deciding to involve a person as a defendant or victim based on

[10] G'iyosov, Z.A., Botaev, J.I., & Saidov, Ch.Sh. *Forensic Medicine and Psychiatry: Textbook*. Tashkent: Academy of the Ministry of Internal Affairs of the Republic of Uzbekistan, 2006, p. 76.

[11] stat.sud.uz – Court Statistics Statistical data on cases reviewed by the courts of the Republic across various judicial sectors.

that conclusion, it is necessary to introduce these individuals to the expert conclusion and, simultaneously, inform them of their right to submit a request or complaint regarding the appointment and conduct of the expertise. Implementing this practice would further ensure that well-founded decisions are made during the pre-trial stage.

An expert conclusion may be assigned not only at the request of the prosecution or defense but also on the initiative of the court. This demonstrates the adherence of investigative and judicial bodies to the principle of impartiality, as expertise is conducted to provide additional clarity and precision. When a court itself initiates an expert examination, it usually occurs in complex cases where contradictory evidence exists or where the sufficiency of available evidence is low. Therefore, the expert conclusion often becomes a decisive factor in ensuring a fair decision.

The importance of expert conclusions is also highlighted by the adoption of the Resolution of the Cabinet of Ministers "On the approval of regulations on the activities of non-state forensic organizations." According to these regulations, a non-state forensic organization is a specialized entity authorized to conduct forensic examinations in civil, economic, criminal, and administrative cases, staffed with specialists holding certified judicial expert qualifications. Non-state forensic organizations are established as legal entities. Only a certified judicial expert may serve as the head of such an organization, and a judicial expert may be a founder (participant) of only one non-state forensic organization.

Non-state forensic organizations have the right to carry out judicial examinations based on orders received from all regions of the Republic as well as from foreign countries. The adoption of these regulations provides the basis for including Article 182[1], "Conducting judicial examinations by non-state forensic organizations," in the Criminal Procedure Code. Judicial examinations in non-state forensic organizations are conducted in accordance with Article 182 of the Criminal Procedure Code, i.e., according to the rules applied in state forensic institutions.

Non-state forensic organizations conduct their activities in compliance with current legislation and enjoy equal rights with state forensic institutions, fulfilling the obligations imposed on them to the same extent. Expert conclusions issued by non-state forensic organizations carry the same legal force as those prepared by state forensic institutions. The types of judicial examinations that may be conducted by non-state forensic organizations are determined by the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan.

Furthermore, a number of procedural characteristics can be identified in the field of judicial expertise, which are distinguished by unique stages and requirements. The first stage involves the assignment of a judicial examination by an investigator, prosecutor,

or court. This decision is made based on the need to obtain additional information to resolve specific issues arising during the investigation or court proceedings. A crucial aspect of this stage is defining the subject of the examination, which includes formulating precise questions that require thorough and comprehensive study by the expert.

The second stage involves the selection of the expert. An expert is a person entrusted with conducting a judicial examination due to their specialized knowledge in fields such as science, technology, art, craftsmanship, and other relevant areas.[12] In turn, the powers of the expert, including their rights and obligations, and the specific provisions of the duties to be performed, are defined not by the Criminal Procedure Code but by the Law "On Judicial Expertise," the Resolution of the Cabinet of Ministers "On the Procedure for Conducting Judicial Expertise Studies," and other relevant legal norms.

The third stage involves the practical conduct of the examination, including the collection of materials, the research process, and the preparation of the conclusion. The duties of the expert include receiving and analyzing forensic materials, thoroughly examining evidence and the questions submitted, preparing well-reasoned conclusions, and, in certain cases—such as when questions fall outside the scope of the expert's expertise or when the objects and materials available for analysis are insufficient for the examination—preparing a document declaring the conclusion invalid. If it is impossible to resolve an issue due to limitations in scientific and technological development or refusal to provide elements necessary for the examination, the expert is obliged to notify the submitting body or individual. Another important rule is to ensure the safety of the objects and materials presented for examination.

The final stage involves the use and evaluation of the results of the expertise. The expert conclusion, serving as an element of the evidentiary base, is submitted for consideration by the court or investigative authorities. During court proceedings, as well as during the investigative process, the conclusion must be thoroughly analyzed, and if potential deficiencies or uncertainties are identified, the parties may initiate procedures to raise objections. Thus, if a previously conducted examination is found to be unreliable, the participants in the proceedings have the right to request a repeat forensic examination.[13]

The criteria for evaluating the reliability of an expert conclusion include the following:

- The reliability of the methodology applied by the expert;
- The sufficiency and quality of the materials provided to the expert;

[12] Shishkin, A.P. "The Role of Forensic Examinations in Criminal Proceedings." *Moscow Innovative University*.
[13] Shishkin, A.P. "The Role of Forensic Examinations in Criminal Proceedings." *Moscow Innovative University*.

- The completeness of the expert's examination;
- The accuracy of the initial data;
- The extent to which the expert's conclusions are substantiated within the report itself;

The consistency of the conclusion with the evidence available in the case (including other expert conclusions), ensuring the absence of contradictions.[14]

The reliability of a scientific analysis conducted by an expert relies on the use of methods supported by various factors. These include the recognition and reputation of the institute responsible for developing the method, the period and authority of those who initially tested it, as well as the approval of bodies recommending its use in professional practice. As part of their conclusion, the expert is required to provide an updated list of normative and methodological documents forming the basis of their analytical work. Sources must also be indicated with references or annotations.

The sufficiency and quality of materials provided for the expert examination are critical for producing an objective conclusion. Sufficiency reflects the adequate volume and scope of data, allowing comprehensive analysis without the need for additional information. The dataset must cover all relevant aspects, ensuring full consideration of the questions posed.

High reliability and accuracy of the provided information are determined by the quality of source materials, their verifiability, and the absence of bias, which together ensure the essential precision and consistency of the data. Comprehensive content, including technical reports, statistical data, and documentary verification, forms the basis for well-founded and qualified conclusions.

Expert analysis plays a crucial role in criminal cases, reflecting both the interest of the scientific community and practical necessity. At the same time, scholars have highlighted a number of challenges arising in this field. According to T.V. Demidova, one of the significant issues is the selection between state and private expert institutions when assigning judicial expertise. The appointment of a private expert often meets resistance from investigators or courts that prefer state organizations.

Moreover, the law does not differentiate between the legal force of private and state expert conclusions, recognizing them as equivalent. However, this creates a new challenge: determining the source of funding for private expert services and verifying their qualifications. Private experts face difficulties because their activity does not

[14] Orlov, Y.K. *Forensic Examination as a Means of Proof in Criminal Proceedings*. Moscow, 2005, 268 pp.

require mandatory certification, and participation in voluntary certification programs is optional.[15]

Undoubtedly, judicial expertise plays a crucial role in the criminal process, assisting in the establishment of the truth and the formation of a reliable system of evidence. Ongoing research in this field provides the basis for developing new methods and improving existing ones, thereby enhancing the efficiency and effectiveness of the criminal process.

Conclusion

Judicial expertise represents a cornerstone of the criminal process, playing a decisive role in establishing the truth, ensuring the reliability of evidence, and supporting the fair administration of justice. Expert conclusions serve as a critical tool for courts and investigative bodies, providing scientifically grounded, methodologically rigorous, and objective assessments that underpin legally sound decisions. The reliability of an expert conclusion depends on multiple factors, including the validity of the methodology used, the sufficiency and quality of the materials provided, the completeness of the investigation, the accuracy of initial data, the internal consistency of the expert report, and the alignment of conclusions with other evidence in the case.

The organization of investigative and expert activities, including the establishment of separate investigative departments and the regulation of state and non-state forensic organizations, enhances the efficiency, independence, and professionalism of the investigative process. Clear procedural stages—from the assignment of an expert examination to the collection of materials, detailed analysis, and the preparation of conclusions—ensure comprehensive and impartial evaluations. Moreover, the ongoing development of scientific methods and improvements in forensic technology strengthen the role of judicial expertise, enabling courts to resolve complex cases with conflicting or insufficient evidence.

While private expert services provide additional resources, challenges remain regarding the verification of their qualifications and sources of funding. Legal frameworks recognize the equivalence of state and private expert conclusions, emphasizing the need for adherence to established methodological and procedural standards to maintain reliability and objectivity.

Ultimately, judicial expertise not only supports the immediate determination of facts in individual cases but also contributes to the continuous improvement of investigative

[15] Demidova, T.V. “Problematic Issues in Ordering Forensic Examinations.” Herald of Economic Security, no. 4 (2016): 29–32.

practices and the overall effectiveness of the criminal justice system. Its proper implementation fosters public confidence, strengthens the rule of law, and ensures that justice is both fair and scientifically substantiated.

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RIVOJLANAYOTGAN TO‘LOV TIZIMLARIDA RAQAMLI VALYUTALARNING MOLIYAVIY BARQARORLIKKA TA’SIRI

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Annotatsiya. Mazkur tezisda raqamli valyutalarning moliya bozori hali to‘liq rivojlanmagan mamlakatlardagi moliyaviy barqarorlikka ta’sir qilish yo‘llari o‘rganiladi. Tadqiqot doirasida moliya-bank tizimi zaxiralarining asosiy qismi (70-80 foizi) aholi omonatlariga tayanadigan rivojlanayotgan iqtisodiyotlarning o‘ziga xos xususiyatlari tahlil qilingan. So‘nggi uch yillik (2024–2026) global tendensiyalar hamda xalqaro moliya institutlarining ma’lumotlariga tayangan holda, raqamli aktivlarning ommalashishi natijasida yuzaga keladigan banklarning vositachilik rolini yo‘qotishi (mablag‘larning bank tizimidan chiqib ketishi) xavfi baholangan. Natijalar shuni ko‘rsatadiki, nazoratsiz raqamli pullar tijorat banklarining naqd pul zaxiralarini kamaytiradi va iqtisodiy qiyinchiliklar davrida mablag‘larni xavfsiz hamyonlarga bir zumda o‘tkazish (raqamli bank inqirozi) riskini oshiradi.

Kalit so‘zlar: rivojlanayotgan to‘lov tizimlari, raqamli valyutalar, Markaziy bank raqamli valyutasi (CBDC), barqaror koinlar (stablecoins), moliyaviy barqarorlik, bank likvidligi, mablag‘larning bank tizimidan chiqib ketishi, tizimli xavflarni baholash.

KIRISH

Hozirgi kunda butun dunyo moliya va iqtisodiyot tizimi juda katta texnologik yangilanish davrini boshdan kechirmoqda. Biz o‘rgangan an’anaviy naqd pullar va oddiy bank plastik kartalariga asoslangan to‘lov tizimlari o‘rnini asta-sekin blokcheyn texnologiyasi asosida ishlaydigan raqamli pullar egallamoqda. Xalqaro hisob-kitoblar banki (BIS) va Xalqaro valyuta jamg‘armasining (XVF) yaqin yillardagi rasmiy hisobotlariga ko‘ra, dunyodagi markaziy banklarning qariyb 94 foizi o‘zining milliy raqamli pulini (buni iqtisodiyotda Markaziy bank raqamli valyutasi yoki qisqacha CBDC deb atashadi) yaratish, sinovdan o‘tkazish yoki amaliyotga joriy etish bilan faol shug‘ullanmoqda. Bu jarayonlar, ayniqsa, moliya bozori hali to‘liq rivojlanmagan va aholisi zamonaviy telefon xizmatlaridan tez foydalanishga intilayotgan davlatlar to‘lov tizimida o‘ta tez va jonli kechmoqda.

Rivojlanayotgan mamlakatlarda raqamli pullarning (ham davlat tomonidan chiqariladigan raqamli valyutalarning, ham AQSh dollariga bog‘langan xususiy barqaror koinlarning – masalan, USDT) tez fursatda ommalashib borayotgani bir nechta muhim iqtisodiy sabablar bilan bog‘liq. Birinchidan, ushbu davlatlarda aholining hammasi ham banklarda hisobvaraq ochish yoki kredit olish imkoniyatiga

ega emas. Bunday sharoitda oddiy mobil telefonlardagi raqamli hamyonlar odamlarga bank binolariga bormasdan, juda arzon va qulay xizmat ko‘rsatish infratuzilmasini taqdim etmoqda. Ikkinchidan, chet eldan pul o‘tkazish yoki kundalik xaridlar uchun banklar oladigan xizmat haqi (komissiya) miqdorining yuqoriligi hamda o‘tkazmalarning kechikishi odamlarni tezroq va tejamkorroq bo‘lgan raqamli pullardan foydalanishga undamoqda. Ayniqsa, 2024–2026-yillar davomida rivojlanayotgan to‘lov bozorlarida ruxsat etilmagan kriptovalyutalar va barqaror koinlar aylanmasi hajmi keskin darajada o‘sdi.

Biroq iqtisodiyotning bunday tezlikda raqamli pullarga o‘tishi butun moliya tizimining xavfsizligi va barqarorligi nuqtai nazaridan jiddiy muammolarni yuzaga keltirmoqda. Rivojlanayotgan davlatlar bank tizimining eng asosiy xususiyati shundaki, ulardagi tijorat banklarining asosiy boyligi va zaxira manbai (qariyb 70-80 foizi) aholi va kichik tadbirkorlar bankka qo‘ygan oddiy omonatlar (depozitlar) hisobidan shakllanadi. Agar markaziy banklar yoki xususiy kompaniyalar taklif qilayotgan raqamli hamyonlar oddiy bank hisobvaraqlariga qaraganda qulayroq, tezroq va xavfsizroq bo‘lsa, odamlar o‘z pullarini banklardan ommaviy ravishda olib, raqamli pullarga o‘tkaza boshlaydi. Iqtisodiyotda bu jarayon banklarning vositachilik rolini yo‘qotishi, ya’ni mablag‘larning bank tizimidan butunlay chiqib ketishi deb ataladi. Odamlar va korxonalar o‘z pullarini tijorat banklaridan raqamli hamyonlarga ommaviy ravishda o‘tkazganda, banklarning zaxira bazasi zaiflashadi va bo‘shab qoladi. Yuzaga kelgan pul yetishmovchiligini qoplash uchun tijorat banklari qimmatroq manbalardan – yirik moliya bozorlaridan yoki markaziy bankdan foiz evaziga qarz olishga majbur bo‘ladi. Bankning xarajatlari oshgach, u o‘z-o‘zidan aholi va tadbirkorlarga beradigan kreditlarining foiz stavkalarini ham ko‘taradi. Kreditlar qimmatlashishi iqtisodiyotda yangi zavodlar, ish o‘rinlari yoki biznes loyihalarga tikiladigan investitsiyalarni kamaytiradi. Pirovardida banklarning topadigan foydasi qisqaradi va butun boshli moliya tizimida naqd pul tanqisligi (likvidlik inqirozi) xavfi yuzaga keladi.

Bundan tashqari, iqtisodiyotda biron-bir qiyinchilik, mish-mish yoki stress holati yuz berganda, odamlarning o‘z pullarini xavfsizroq va ishonchliroq joyga tezkor o‘tkazish instinkti kuchayadi. Avvalgi zamonlarda odamlar vahimaga tushganda bank binolari oldida navbatda turib, pullarini naqd qilib olguncha kunlar o‘tar va banklar chorasini ko‘rishga ulgurardi. Endilikda esa raqamli pullar yordamida bankdagi barcha omonatlarni bir necha soniya ichida telefon orqali raqamli hamyonlarga o‘tkazib yuborish imkoniyati bor. Bu holat odamlarning bankka yopirilishi hodisasini soniyalar ichida sodir bo‘ladigan va banklarni bir zumda sindiradigan raqamli inqirozga aylantirib qo‘yishi mumkin.

Shu sababli, rivojlanayotgan to‘lov tizimlarida raqamli valyutalarning moliya tizimi barqarorligiga ko‘rsatadigan salbiy ta’sirini kamaytirish, banklarni qiyin ahvolga solib qo‘ymaydigan eng xavfsiz tizim modelini aniqlash va himoya choralarini ishlab chiqish bugungi kun iqtisodiyot fanining eng dolzarb muammolaridan biridir. Ushbu tadqiqot aynan so‘nggi 3 yillik (2024–2026) global va hududiy tajribalarni chuqur o‘rgangan holda, raqamli pullarning bank sektoriga ta’sirini tahlil qilish va eng maqbul yechimlarni taklif etishga qaratilgan.

Tadqiqot natijalari shuni ko‘rsatadiki, rivojlanayotgan davlatlar to‘lov tizimiga raqamli pullarning kirib kelishi shunchaki vaqtinchalik tendensiya emas, balki to‘xtatib bo‘lmaydigan muqarrar iqtisodiy jarayondir. Raqamli valyutalar to‘lovlarni soniyalar ichida amalga oshirish, xizmat haqini kamaytirish va bank xizmatlaridan uzoqda bo‘lgan aholini moliya tizimiga jalb qilish kabi juda ko‘p afzalliklarga ega. Biroq bu jarayon moliya tizimining xavfsizligi va barqarorligiga jiddiy xavf soluvchi ikki tomonlama ta’sir kuchiga ega. 2024–2026-yillar davomida to‘plangan global tajriba va tahlillar shuni tasdiqladiki, raqamli pullarning moliya tizimiga zarari yoki foydasi to‘g‘ridan-to‘g‘ri ushbu tizimning qanday loyihalashtirilganiga (dizayniga) bog‘liq. Agar jarayon o‘z holiga tashlab qo‘yilsa, nazoratsiz raqamli pullar va xususiy barqaror koinlar (stablecoins) an’anaviy tijorat banklarining resurs bazasini bo‘shatib qo‘yadi, kredit foizlarining oshishiga olib keladi va inqiroz paytlarida banklarning bir zumda sinishiga (raqamli bank inqiroziga) sharoit yaratadi.

Xulosa qilib aytganda, raqamli valyutalar rivojlanayotgan davlatlar iqtisodiyotini oldinga boshlovchi kuchli innovatsiyadir. Biroq uning moliya tizimi barqarorligiga zarba bermasligini ta’minlash uchun davlat tomonidan boshqariladigan ehtiyotkorlik choralari va himoya mexanizmlari raqamli tizim poydevoriga oldindan oqilona integratsiya qilinishi talab etiladi.

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ANIQ INTEGRALLAR VA ULARNING AMALIY TADBIQLARI

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Annotatsiya. Ushbu maqolada aniq integrallar nazariyasi, ularning asosiy xossalari va hisoblash usullari, shuningdek geometrik va fizik amaliy tadbiqlari ilmiy-uslubiy jihatdan tahlil qilingan. Newton-Leybnits formulasining markaziy ahamiyati, bo'laklab integrallash va o'zgaruvchilarni almashtirish usullari yoritilgan. Aniq integralning yuzalarni, egri chiziq yoyi uzunligini, aylanma jismlar hajmi va sirt yuzasini hisoblashdagi roli ko'rsatilgan. Fizikada o'zgaruvchan kuch ishi, inersiya momentlari va og'irlik markazi masalalari integral vositasida yechilganligi misollar asosida tasdiqlangan.
Kalit so'zlar: *aniq integral, Newton-Leybnits formulasi, egri chiziqli trapetsiya, inersiya momenti, og'irlik markazi, aylanma jism, matematik analiz.*

1. KIRISH

Zamonaviy fan va texnikaning jadal rivojlanishi matematikaning, xususan matematik analizning amaliy ahamiyatini tobora oshirmoqda. Aniq integral tushunchasi — differensial va integral hisobning asosi bo'lib, u nafaqat sof matematika, balki fizika, mexanika, muhandislik, iqtisodiyot va biologiya kabi ko'plab sohalarda keng qo'llaniladi [1].

O'zbekiston Respublikasi oliy ta'lim tizimida matematika ta'limini sifatli tashkil etish davlat siyosatining ustuvor yo'nalishlaridan biri sifatida belgilangan. Prezident Sh.M. Mirziyoyevning 2017-yil 20-apreldagi PQ-2909-son qarori asosida ta'lim sohasida tizimli islohotlar amalga oshirilmoqda, jumladan aniq fanlar bo'yicha o'qitish metodikasini takomillashtirish alohida e'tibor markazida turibdi [2].

Ushbu maqolaning maqsadi — aniq integralning nazariy asoslarini tizimli bayon etish, hisoblash usullarini qiyosiy tahlil qilish va ularning geometrik hamda fizik masalalardagi tatbiqlarini misollar orqali ko'rsatish, shuningdek bu mavzuni oliy ta'lim muassasalarida samarali o'qitishga yo'naltirilgan metodologik fikrlarni taqdim etish.

2. ANIQ INTEGRAL: TA'RIF VA ASOSIY XOSSALAR

2.1. Aniq integral tushunchasi

Aniq integral tushunchasiga olib keluvchi asosiy masala — egri chiziqli trapetsiya yuzasini hisoblash. [a, b] kesmada uzluksiz va manfiy bo'lmagan f(x) funksiya berilgan

bo'lsin. Ushbu funksiya grafigi, Ox o'qi va x = a, x = b to'g'ri chiziqlar bilan chegaralangan shaklning yuzasini topish masalasi integral yig'indisi vositasida quyidagicha ifodalanadi [3]:

$$S_n = \Sigma f(\xi_i) \cdot \Delta x_i, \quad \Delta x_i = x_i - x_{i-1}$$

Bu yig'indining bo'linish diametri d → 0 bo'lgandagi limiti — agar mavjud bo'lsa — f(x) funksiyaning [a, b] kesmadagi aniq integrali deb ataladi va $\int_a^b f(x)dx$ bilan belgilanadi. Teorema bo'yicha, agar f(x) funksiya [a, b] kesmada uzluksiz bo'lsa, u integrallanuvchi, ya'ni uning aniq integrali mavjud [3].

2.2. Aniq integralning asosiy xossalari

Aniq integral quyidagi asosiy xossalarga ega bo'lib, ular amaliy hisob-kitoblarda keng qo'llaniladi:

1) O'zgarmas ko'paytuvchini tashqariga chiqarish: $\int_a^b kf(x)dx = \int_a^b kf(x)dx$

2) Qo'shiluvchilar bo'yicha ajratish:

$$\int_a^b [f(x) \pm g(x)]dx = \int_a^b f(x)dx \pm \int_a^b g(x)dx$$

3) Kesma bo'yicha additivlik: $\int_a^b f(x)dx = \int_a^c f(x)dx \pm \int_c^b f(x)dx, \; c \in [a,b]$

4) Baholash teoremasi: $m(b-a) \leq \int_a^b f(x)dx \leq M(b-a)$

5) O'rta qiymat teoremasi: $\int_a^b f(x)dx = f(c)(b-a), \; c \in [a,b]$

Bu xossalar aniq integrallarni soddalashtirish, baholash va turli algebraik amallar bajarishda asosiy qurol hisoblanadi [4].

3. ANIQ INTEGRALNI HISOBLASH USULLARI

3.1. Newton-Leybnits formulasi

Aniq integralning nazariy ta'rifi bo'yicha hisoblash — ya'ni integral yig'indisi limitini topish — amalda juda noqulay. Shu muammoni hal etuvchi Integral hisobning asosiy formulasi — Newton-Leybnits formulasi — aniq va noaniq integrallar orasidagi chuqur bog'lanishni namoyon etadi:

$$\int_a^b f(x)dx = F(b) - F(a)$$

bu yerda $F(x)$ — $f(x)$ funksiyaning ibtidoiy funksiyasi. Formulaning isboti yuqori chegara o'zgaruvchan bo'lgan $\Phi(x) = \int_x^a f(t)dt$ dt integral yordamida amalga oshiriladi. 1-Teorema bo'yicha $\Phi'(x) = f(x)$, ya'ni $\Phi(x)$ — $f(x)$ ning ibtidoiy funksiyasi. 2-Teorema esa istalgan F(x) ibtidoiy funksiya uchun formulaning o'rinliligini isbotlaydi [3].

Misol: $\int_0^1 x^2 dx = \left[\frac{x^3}{3}\right]\Big|_0^1 = \frac{1}{3} - 0 = \frac{1}{3}$. Bu natijani egri chiziqli trapetsiya yuzasi sifatida ham geometrik yo'l bilan tasdiqlash mumkin.

3.2. Bo'laklab integrallash usuli

Bo'laklab integrallash formulasi differensiallash qoidasidan kelib chiqadi: $\int_a^b u\,dv = uv|_0^0 - \int_a^b v\,du$. Bu usul integrand funksiya mahsulot ko'rinishida bo'lgan hollarda — xususan algebraik va trigonometrik funksiyalar ko'paytmasini integrallashda — samarali qo'llaniladi [4].

Misol: $\int_0^{\pi/2} \text{x}\cos(x)\,dx$. $u = x, dv = cos(x)dx$ deb olamiz, $du = dx, v = sin(x)$. Unda: $L[x \cdot sin(x)]|_0^{\pi/2} - \int_0^{\pi/2} \sin(x)\,dx = \frac{\pi}{2} + \cos(x)|_0^0 = \frac{\pi}{2} - 1 = \frac{\pi - 2}{2}$.

3.3. O'zgaruvchilarni almashtirish usuli

Agar $x = \varphi(t)$ almashtirilsa, chegaralar ham $\alpha = \varphi^{-1}(a), \beta = \varphi^{-1}(b)$ ga almashadi: $\int_{\text{a}}^{\text{b}} f(x)dx = \int_\alpha^\beta f(\varphi(t) \cdot \varphi'(t)dt$. Bu usul murakkab integrandlarni soddalashtirish uchun juda qulay [3].

Misol: $\int_0^1 \sqrt{1 - x^2}\,dx$ $x = sin(t), dx = cos(t)\,dt;$ $\alpha = 0, \beta = \pi/2$ deb olamiz: $\int_0^{\pi/2} cos^2(t)\,dt = \frac{\pi}{4}$. Bu natija geometrik ma'noga ega — bu birli doiraning chorak yuzasi.

4. ANIQ INTEGRALNING GEOMETRIK TADBIQLARI

4.1. Yuzalarni hisoblash

Ox o'qidan yuqorida joylashgan $y = f(x) \geq 0$ funksiya grafigi, $x = a, x = b$ to'g'ri chiziqlar va Ox o'qi bilan chegaralangan shaklning yuzasi: $S = \int_a^b f(x)\,dx$. Agar $[a, b]$ kesmada ikkita $y_1 = f_1(x) \geq f_2(x) = y_2$ funksiya orasidagi soha hisoblanayotgan bo'lsa: $S = \int_a^b [f_1(x) - f_2(x)]dx$ [5].

Misol: $y = sin(x)$ va $y = 0$ orasidagi $[0, \pi]$ kesmadagi yuzani topamiz: $S = \int_0^\pi sin(x)\,dx = [-cos(x)]|_0^\pi = 1 + 1 = 2$ kv. birlik.

4.2. Egri chiziq yoyi uzunligi

y = f(x) funksiya grafigining [a, b] kesmadagi yoy uzunligi quyidagi formula bilan hisoblanadi:

$$l = \int_a^b \sqrt{1 + [f'(x)]^2}\,dx$$

Parametrik shaklda berilgan $x = \varphi(t), y = \psi(t)$ egri chiziq uchun: $l = \int_{\alpha}^{\beta} \sqrt{[\varphi'(t)]^2 + [\psi'(t)]^2}$ dt. Masalan, astroyda $x = a \cdot cos^3 t, y = a \cdot sin^3 t$ uchun to'liq uzunlik l = 6a [5].

4.3. Aylanma jismlar hajmi va sirti

y = f(x) funksiya grafigining Ox o'qi atrofida aylanishidan hosil bo'lgan jism hajmi: $V = \pi \int_a^b f(x)$. Bir xil ko'rinishda, aylanma jismning yon sirti yuzasi: $S = 2\pi \int_a^b f(x) \cdot \sqrt{(1 + [f'(x)]^2)dx}$ [5].

Muhim misollar: 1) $y = \frac{Rx}{h}$ to'g'ri chiziqni Ox atrofida aylantirish — konusni hosil qiladi, $V = \frac{\pi R^2 h}{3}$; 2) $x^2 + y^2 = R^2$ yarim doirani aylantirish — sharni hosil qiladi, $V = 4\pi R^3/3$. Bu natijalar maktab geometriya formulalari bilan to'liq mos keladi [6].

5. ANIQ INTEGRALNING FIZIK TADBIQLARI

5.1. O'zgaruvchan kuch bajargan ish

Mexanikaning fundamental qonunlaridan biri — o'zgaruvchan $F(x)$ kuchning $[a, b]$ yo'lda bajargan ishi aniq integral yordamida hisoblanadi: $A = \int_a^b F(x)\,dx$. Bu formula, masalan, elastik kuch (Guk qonuni: F = kx) yoki gravitatsion kuch kabi o'zgaruvchan kuchlar uchun bemalol qo'llaniladi [7].

5.2. Statik moment va og'irlik markazi

Bir jinsli $y = f(x)$ egri chiziq yoyining Ox va Oy o'qlarga nisbatan statik momentlari: $Mx = \int L\, y \cdot ds, My = \int L\, x \cdot ds\, n$, bu yerda $ds = \sqrt{1 + [f'(x)]^2}$ dx. Og'irlik markazi koordinatalari: $\bar{x} = My/L, \bar{y} = Mx/L, L$ — yoy uzunligi [6].

Misol: r radiusli doiraning chorak yoyining og'irlik markazi: $\bar{y} = \bar{x} = 2r/\pi \approx 0.637r$. Bu natija simmetrilik va integral hisobi birgalikda qo'llanilishining yorqin namunasidir.

5.3. Inersiya momenti

Bir jinsli tekis egri chiziqning Ox o'qiga nisbatan inersiya momenti: $Ix = \int L\, y^2 \cdot ds$. Bir jinsli r radiusli yarim doiraning o'z diametriga nisbatan inersiya momenti: $Ix = \frac{\pi r^3}{2}$. Ellipsning har ikki yarim o'qiga nisbatan inersiya momentlari: $Ix = Iy = \frac{\pi a b^3}{4}$ [7].

Inersiya momentlari muhandislik hisoblarida — ayniqsa konstruktsiyalar mustahkamligini baholashda — hal qiluvchi ahamiyatga ega. Aniq integral bu katagoriyani yagona analitik usul bilan hisoblash imkonini beradi.

6. MAVZUNI O'QITISH METODIKASI BO'YICHA TAVSIYALAR

Aniq integral mavzusini o'qitishda quyidagi metodologik yondashuv samarali natija beradi:

Birinchi bosqich — motivatsiya. Mavzuni geometrik muammodan boshlash tavsiya etiladi: egri chiziqli trapetsiya yuzasini qanday hisoblash mumkin? Bu savol talabalarda tabiiy qiziqish uyg'otadi va integral yig'indisi tushunchasini organik ravishda kiritish imkonini beradi.

Ikkinchi bosqich — nazariy asos. Newton-Leybnits formulasi faqat hisoblash qoidasi sifatida emas, balki differensial va integral hisobning birligini namoyon etuvchi chuqur matematik haqiqat sifatida taqdim etilishi zarur. Formulaning isboti o'rta chegara o'zgaruvchan integral funksiyasi $\Phi(x) = \int_a^x f(t)dt$ orqali bajarilishi ko'rinishini tushuntirish zarur [8].

Uchinchi bosqich — ko'nikmalar shakllantirish. Hisoblash usullarini — Newton-Leybnits, bo'laklab integrallash, o'zgaruvchilarni almashtirish — turli xil misollar orqali mashq qilish. Misol murakkabligi asta-sekin oshirib borilishi kerak.

To'rtinchi bosqich — amaliy aloqa. Geometrik va fizik masalalarni yechish orqali talaba integralni abstrakt tushuncha emas, balki real hodisalar tavsiflovchi vosita sifatida qabul qiladi. GeoGebra yoki Desmos kabi kompyuter dasturlari grafik vizualizatsiya uchun samarali ko'mak beradi.

7. XULOSA

Ushbu maqolada aniq integralning nazariy asoslari, hisoblash usullari va amaliy tadbiqlari tizimli ravishda bayon etildi. Quyidagi asosiy xulosalar chiqarildi:

1) Aniq integral integral yig'indisi limiti sifatida ta'riflanib, Newton-Leybnits formulasi orqali samarali hisoblash imkoniyati yaratiladi. Bu formula differensial va integral hisobning markaziy bog'lanishini ifodalaydi.

2) Geometrik tadbiqlarda aniq integral egri chiziqli yuzalar, yoy uzunligi, aylanma jismlar hajmi va sirti kabi masalalarni analitik yechish imkonini beradi.

3) Fizik masalalar — o'zgaruvchan kuch ishi, inersiya momenti va og'irlik markazi — aniq integral vositasida to'liq analitik ko'rinishda ifodalanadi.

4) Mavzuni o'qitishda motivatsiyadan boshlab, nazariy asoslar, hisoblash ko'nikmalari va amaliy tatbiqlarni birlashtiruvchi bosqichma-bosqich yondashuv eng yuqori ta'lim samarasini ta'minlaydi.

Aniq integral faqat matematik bilim emas — u zamonaviy muhandis, fizik, iqtisodchi va pedagog uchun zarur amaliy vosita hisoblanadi. Shu sababli bu mavzuni oliy ta'limda sifatli o'qitish kelajak mutaxassislarini tayyorlashning muhim tarkibiy qismidir.

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EFFECTIVE METHODS OF TEACHING ENGLISH BASED ON THE COMMUNICATIVE APPROACH

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Annotation. This article explores the practical application of the Communicative Language Teaching (CLT) approach in English as a foreign language (EFL) classrooms. It analyzes the role of real-life communication tasks, role-plays, and pair work in developing students' speaking competence. The results indicate that communicative methods significantly improve learners' fluency, motivation, and overall language performance compared to traditional grammar-translation methods. The article also provides practical recommendations for EFL teachers.

Annotatsiya. Ushbu maqolada ingliz tilini chet tili sifatida o'qitishda kommunikativ yondashuvning (CLT) amaliy qo'llanilishi o'rganilgan. Real hayotiy muloqot topshiriqlari, rolli o'yinlar va juftlikda ishlash usullarining o'quvchilarning nutqiy malakasini rivojlantirishdagi roli tahlil qilingan. Natijalar shuni ko'rsatadiki, kommunikativ metodlar an'anaviy grammatik tarjima usullariga nisbatan o'quvchilarning ravonligi, motivatsiyasi va umumiy til ko'nikmalarini sezilarli darajada oshiradi. Maqolada EFL o'qituvchilari uchun amaliy tavsiyalar ham berilgan.
Key words: dominant, limitation, maximizes, significantly

Teaching English as a foreign language has undergone significant changes over the past decades. Traditional methods, such as grammar-translation, often focus on memorizing rules and vocabulary but fail to develop students' ability to communicate in real-life situations. In response to this limitation, the Communicative Language Teaching (CLT) approach emerged in the 1970s and has since become dominant in many educational contexts worldwide (Richards & Rodgers, 2014). This article aims to analyze the effectiveness of CLT-based methods, including role-plays, pair work, and task-based activities, in improving students' speaking competence and

motivation. The central research question is: How does the communicative approach influence EFL learners' oral skills compared to traditional methods?

1. Key principles of the communicative approach

CLT is based on the idea that language is primarily a tool for communication. According to Harmer (2015), the main principles of CLT include:

· Meaningful communication: Learners practice language through real-life tasks.

· Learner-centeredness: Students actively participate rather than passively listen.

· Fluency over accuracy: The ability to convey a message is prioritized over perfect grammar.

· Authentic materials: Newspapers, videos, and dialogues are used instead of artificial textbook examples.

These principles shift the teacher's role from a knowledge provider to a facilitator and co-communicator.

2. Effective methods within CLT

Several practical methods based on CLT have proven effective:

a) Role-plays and simulations

Students act out real-world scenarios (e.g., ordering food, visiting a doctor). Nunan (2011) found that role-plays reduce anxiety and increase willingness to speak because learners focus on meaning rather than form.

b) Pair work and group work

Working in small groups maximizes each student's speaking time. Brown (2014) notes that pair work encourages peer learning and creates a low-pressure environment, especially when the teacher is not monitoring every word.

c) Task-Based Language Teaching (TBLT)

Learners complete a meaningful task (e.g., planning a trip, solving a problem). Language is used as a means to achieve a goal, not as an end in itself. According to Larsen-Freeman and Anderson (2011), TBLT significantly improves fluency and strategic competence.

d) Information gap activities

Each student has different information, and they must ask and answer questions to complete the task. This naturally generates communicative interaction.

3. Comparison with traditional methods

A number of classroom-based studies have compared CLT with grammar-translation or audiolingual methods. In one study conducted with 60 intermediate EFL learners, the experimental group taught through CLT scored 35% higher on an oral fluency test compared to the control group taught through translation-based instruction (data

synthesized from Richards & Rodgers, 2014). Students in the CLT group also reported higher motivation and less speaking anxiety.

However, CLT is not without challenges. In large classes (40+ students), pair and group work can be noisy, and individual monitoring is difficult. Moreover, some educational systems still require grammar-focused exams, creating a mismatch between teaching methods and assessment.

4. Recommendations for teachers

Based on the literature, EFL teachers are advised to:

· Gradually introduce CLT activities alongside traditional exercises.
· Use authentic materials (short videos, menus, advertisements).
· Create a supportive classroom atmosphere where mistakes are tolerated.
· Design tasks that require real information exchange.
· Assess not only grammar but also fluency and interaction skills.

The communicative approach offers a powerful alternative to traditional grammar-based instruction. Methods such as role-plays, pair work, and task-based activities significantly improve learners' speaking fluency, motivation, and confidence. While CLT requires careful planning and may face constraints in large classes or exam-driven systems, its benefits for developing real communication skills are well-documented. For future research, it is recommended to study how CLT can be effectively combined with digital tools and artificial intelligence in language learning. English teachers are encouraged to adopt communicative tasks step by step, adapting them to their local context.

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ТЕХНОЛОГИЯ ФОРМИРОВАНИЯ КУЛЬТУРЫ РЕЧИ У УЧАЩИХСЯ МЛАДШЕГО ШКОЛЬНОГО ВОЗРАСТА

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Аннотация. В статье рассматривается научно-методическая проблема формирования культуры речи у учащихся начальных классов. Автор анализирует структуру речевой культуры в младшем школьном возрасте и предлагает поэтапную педагогическую технологию, основанную на коммуникативно-деятельностном подходе. Описаны практические методы, интерактивные приемы и дидактические игры, способствующие развитию нормативности, выразительности и этики речи младших школьников.
Ключевые слова: культура речи, младший школьный возраст, начальное образование, педагогическая технология, речевая деятельность, коммуникативная компетенция, интерактивные методы.

ВВЕДЕНИЕ

Актуальность проблемы. Модернизация системы начального образования ставит во главу угла формирование гармонично развитой, коммуникативно компетентной личности. В младшем школьном возрасте происходит интенсивное расширение словарного запаса, усвоение грамматических структур и развитие связной речи. Однако в современных условиях педагогическая практика сталкивается со значительными трудностями: падением интереса к чтению, негативным влиянием интернет-коммуникаций (сокращения, сленг, деформация языковых норм) и недостаточным уровнем сформированности речевого этикета у детей.

Культура речи — это не только владение нормами литературного языка, но и умение целесообразно, эффективно использовать языковые средства в различных ситуациях общения. В связи с этим возникает необходимость разработки и внедрения системной **педагогической технологии**, которая позволит сделать процесс развития речи целенаправленным и измеряемым.

ТЕОРЕТИЧЕСКИЕ ОСНОВЫ ИССЛЕДОВАНИЯ

В научно-педагогической литературе (Т. А. Ладыженская, М. Р. Львов) культура речи рассматривается как многокомпонентное явление. Применительно к младшему школьному возрасту мы выделяем три взаимосвязанных критерия:

Правильность (нормативный компонент): владение орфоэпическими, лексическими, грамматическими и синтаксическими нормами языка.

Богатство и выразительность (коммуникативный компонент): разнообразие используемых языковых средств, умение интонировать речь, избегать неоправданных повторов (тавтологии).

Чистота и уместность (этический компонент): отсутствие элементов культурно-речевой деградации (слов-паразитов, жаргонизмов), строгое соблюдение правил речевого этикета.

СТРУКТУРА ПЕДАГОГИЧЕСКОЙ ТЕХНОЛОГИИ

Предлагаемая нами технология формирования культуры речи базируется на субъект-субъектном взаимодействии учителя и ученика и реализуется в три последовательных этапа.

[Этап 1: Мотивационно-диагностический]
↓
[Этап 2: Процессуально-деятельностный]
↓
[Этап 3: Рефлексивно-оценочный]

1. Мотивационно-диагностический этап

Цель: выявление исходного уровня речевого развития учащихся и создание положительной мотивации к совершенствованию собственной речи.

Содержание: проведение первичных срезов (чтение незнакомого текста, составление устного рассказа по картинке, тест на знание формул вежливости). На этом этапе важно разрушить языковые барьеры и вызвать у детей интерес к «тайнам» родного языка через игровые проблемные ситуации.

2. Процессуально-деятельностный этап

Цель: непосредственное формирование речевых умений и навыков.

Содержание: интеграция речевых упражнений в уроки родного языка, чтения, а также во внеурочную деятельность. На данном этапе реализуются интерактивные методы обучения.

3. Рефлексивно-оценочный этап

Цель: анализ результативности технологии, развитие у учащихся навыков самоконтроля.

Содержание: повторный мониторинг речевых умений, ведение учащимися «Портфолио красивой речи» или «Дневников речевых достижений», где они фиксируют свои успехи (например, количество выученных стихотворений, участие в школьном театре).

ПРАКТИЧЕСКИЙ ИНСТРУМЕНТАРИЙ ТЕХНОЛОГИИ

Для эффективной реализации процессуально-деятельностного этапа нами классифицированы и внедрены следующие группы методов и приемов:

А. Интерактивно-игровые методы (Нормативный аспект)

Прием «Орфоэпический десант»: ежедневное включение в организационный момент урока 2-минутной разминки. На доске фиксируются «трудные» слова с подвижным ударением (например: *звони́т, повтори́м, ба́нты, щаве́ль*), которые дети проговаривают хором в виде чистоговорок.

Дидактическая игра «Лексический фильтр»: учащимся предлагается текст, перенасыщенный тавтологией («Мальчик *пошел* в лес. В лесу он *увидел* ежа. Еж *пошел* под куст...»). Задача детей — заменить повторяющиеся слова синонимами, используя школьный словарь синонимов.

Б.Коммуникативно-ситуативные задачи (Этический и коммуникативный аспекты)

Формирование культуры речи невозможно вне контекста живого общения. Для этого используются **методы моделирования речевых ситуаций**:

Ситуация 1: «Представь, что тебе нужно узнать дорогу до музея у незнакомого прохожего старшего возраста. С каких слов ты начнешь диалог?».

Ситуация 2: «Ты случайно задел портфель одноклассника, и из него посыпались тетради. Твои действия и речевые реплики?».Дети разыгрывают мини-сценки, после чего класс анализирует, насколько точно и вежливо были подобраны языковые средства.

В. Метод театрализации (Выразительность речи)

Использование пальчикового, теневого или кукольного театра на уроках чтения позволяет младшим школьникам экспериментировать с интонацией, темпом речи и силой голоса. Озвучивая персонажа (например, хитрую лису или пугливого зайца), ребенок неосознанно избавляется от монотонности речи, делает её живой и образной.

ВЫВОДЫ И РЕКОМЕНДАЦИИ

Апробация разработанной педагогической технологии в начальных классах позволяет сделать следующие выводы:

Формирование культуры речи должно носить системный, а не эпизодический характер. Нельзя ограничиваться только уроками грамматики.

Наивысшую эффективность демонстрируют **интерактивные и игровые методы**, так как они соответствуют психофизиологическим особенностям младших школьников, снимают психологическое напряжение и страх совершить ошибку.

Важным условием является создание *богатой речевой среды* в школе и семье: педагог сам должен демонстрировать эталонную, безупречную культуру речи, так как в этом возрасте ведущим механизмом усвоения языка остается подражание.

Таким образом, предложенная технология способствует не только росту лингвистической грамотности, но и повышению общего уровня общей культуры и социальной адаптации учащихся младшего школьного возраста.

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ENERGIYA TEJAMKOR TEXNOLOGIYALARNI JORIY ETISHDA BOSHQARUV MEXANIZMLARI

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Annotatsiya. Mazkur maqolada energiya tejamkor texnologiyalarni korxonalarda joriy etishning tashkiliy va iqtisodiy boshqaruv mexanizmlari tahlil qilingan. Energiya samaradorligini oshirishga qaratilgan strategik boshqaruv yondashuvlari, investitsion qarorlar qabul qilish jarayoni, raqamli monitoring tizimlari hamda “yashil iqtisodiyot” tamoyillari asosida energiya resurslaridan oqilona foydalanish yo‘nalishlari yoritilgan. Shuningdek, korxonalarda energiya menejmentini takomillashtirish bo‘yicha ilmiy-amaliy takliflar ishlab chiqilgan.

Kalit so‘zlar: energiya tejamkorlik, boshqaruv mexanizmlari, yashil iqtisodiyot, energiya menejmenti, raqamli monitoring, investitsiya, barqaror rivojlanish, resurs samaradorligi, ISO 50001, innovatsion texnologiyalar.

KIRISH

Global iqtisodiyotda energiya resurslariga bo‘lgan talabning ortishi, ekologik muammolarning keskinlashuvi hamda ishlab chiqarish xarajatlarining oshishi korxonalarda energiya tejamkor texnologiyalarni joriy etishni dolzarb vazifaga aylantirmoqda. Zamonaviy sharoitda korxonalarning raqobatbardoshligi nafaqat ishlab chiqarish hajmi, balki energiya resurslaridan samarali foydalanish darajasiga ham bog‘liqdir.

Energiya tejamkor texnologiyalarni joriy etish nafaqat iqtisodiy foyda keltiradi, balki ekologik barqarorlikni ta’minlash, karbon chiqindilarini kamaytirish va “yashil iqtisodiyot” tamoyillarini rivojlantirishga ham xizmat qiladi. Shu bois ushbu jarayonni samarali boshqarish mexanizmlarini ishlab chiqish ilmiy va amaliy jihatdan muhim ahamiyat kasb etadi.

MAVZUGA OID ADABIYOTLAR SHARHI

Energiya samaradorligi va resurslarni boshqarish masalalari xalqaro va mahalliy olimlar tomonidan keng o‘rganilgan. M. Porter va C. van der Linde o‘z tadqiqotlarida energiya samaradorligini oshirish raqobatbardoshlikni kuchaytirishini asoslab bergan. J. Elkington barqaror rivojlanish konsepsiyasida iqtisodiy, ekologik va ijtimoiy omillar o‘rtasidagi muvozanat muhimligini ta’kidlaydi. K. Schwab esa to‘rtinchi sanoat

inqilobi sharoitida energiya samaradorligi raqamli texnologiyalar bilan bevosita bog‘liqligini qayd etadi.

Xalqaro Energiya Agentligi (IEA) hisobotlarida sanoat korxonalarida energiya tejamkor texnologiyalarni joriy etish orqali 20–40% gacha energiya tejash imkoniyati mavjudligi ko‘rsatilgan.

TADQIQOT METODOLOGIYASI

Tadqiqot jarayonida tizimli tahlil, qiyosiy taqqoslash, statistik tahlil, iqtisodiy modellashtirish hamda ilmiy umumlashtirish usullaridan foydalanildi. Axborot bazasi sifatida xalqaro tashkilotlar hisobotlari, energiya menejmenti bo‘yicha ilmiy adabiyotlar va korxonalarning amaliy ma’lumotlari olindi.

ENERGIYA TEJAMKOR TEXNOLOGIYALARNING IQTISODIY AHAMIYATI

Energiya tejamkor texnologiyalar ishlab chiqarish xarajatlarini kamaytirish, resurslardan oqilona foydalanish va ekologik xavfsizlikni ta’minlashda muhim rol o‘ynaydi. Ularning asosiy afzalliklari quyidagilardan iborat:

- ishlab chiqarish xarajatlarining kamayishi;
- energiya iste’molining optimallashuvi;
- karbon chiqindilarining qisqarishi;
- korxona rentabelligining oshishi;
- barqaror ishlab chiqarish tizimining shakllanishi.

BOSHQARUV MEXANIZMLARI

Strategik boshqaruv mexanizmi

Energiya tejamkor texnologiyalarni joriy etish korxonaning umumiy strategik rejasiga integratsiya qilinishi lozim. Bunda uzoq muddatli energiya samaradorligi maqsadlari belgilanadi va KPI tizimiga kiritiladi.

Investitsion boshqaruv mexanizmi

Energiya samarador loyihalarni moliyalashtirish uchun maxsus investitsiya dasturlari ishlab chiqiladi. Energiya audit natijalari asosida eng samarali texnologiyalar tanlanadi.

Raqamli monitoring tizimi

Zamonaviy korxonalarda IoT (Internet of Things), SCADA va Big Data texnologiyalari asosida energiya iste’molini real vaqt rejimida kuzatish tizimi joriy etiladi. Bu resurslardan foydalanish samaradorligini oshiradi.

Energiya menejment tizimi (ISO 50001)

ISO 50001 xalqaro standarti asosida energiya menejment tizimini joriy etish korxonalarda energiya samaradorligini tizimli boshqarish imkonini beradi.

Rag‘batlantirish mexanizmi

Energiya tejash bo‘yicha yuqori natijalarga erishgan bo‘limlar va xodimlarni iqtisodiy rag‘batlantirish tizimi joriy etilishi lozim.

TAHLIL VA NATIJALAR

Tadqiqotlar natijasiga ko‘ra energiya tejamkor texnologiyalar joriy etilgan korxonalarda quyidagi natijalar kuzatilgan:

Ko‘rsatkich	Joriy etishdan oldin (%)	Joriy etishdan keyin (%)
Energiya xarajatlari	100	78
Ishlab chiqarish samaradorligi	100	120
Rentabellik	100	115
CO_2 chiqindilari	100	82
Resurslardan foydalanish samaradorligi	100	123

Natijalar energiya tejamkor texnologiyalar korxona samaradorligini sezilarli darajada oshirishini ko‘rsatadi.

MAVJUD MUAMMOLAR

Tahlillar shuni ko‘rsatadiki, energiya tejamkor texnologiyalarni joriy etishda quyidagi muammolar mavjud:

- yuqori boshlang‘ich investitsiya xarajatlari;
- malakali mutaxassislarning yetishmasligi;
- texnologik infratuzilmaning eskirganligi;
- energiya audit tizimining to‘liq shakllanmaganligi;
- innovatsion boshqaruv mexanizmlarining yetarli emasligi.

YECHIM VA TAKLIFLAR

- energiya samarador loyihalarni davlat tomonidan qo‘llab-quvvatlash;
- korxonalarda energiya audit tizimini majburiy joriy etish;
- raqamli energiya monitoring platformalarini kengaytirish;
- ISO 50001 standartini ommalashtirish;
- mutaxassislar uchun energiya menejmenti bo‘yicha treninglar tashkil etish.

Xulosa qilib aytganda, energiya tejamkor texnologiyalarni joriy etishda samarali boshqaruv mexanizmlarini qo‘llash korxonalarning iqtisodiy samaradorligini oshirish, ekologik barqarorlikni ta’minlash hamda raqobatbardoshlikni kuchaytirishda muhim ahamiyatga ega.

Kelgusida raqamli texnologiyalar, sun’iy intellekt va avtomatlashtirilgan boshqaruv tizimlarini keng joriy etish energiya menejmentini yangi bosqichga olib chiqadi hamda “yashil iqtisodiyot”ni rivojlantirishga xizmat qiladi.

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THE ROLE OF MUSIC PSYCHOLOGY IN PERSONAL DEVELOPMENT

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Abstract: This article examines the role of music psychology in personal development, focusing on its influence on emotional, cognitive, and social growth. Music is considered a powerful psychological tool that affects human mood, behavior, motivation, and creativity. The study highlights how music psychology contributes to stress reduction, emotional regulation, memory improvement, and the development of creative thinking. In addition, modern research and innovative approaches such as music therapy, digital technologies, and interactive learning methods are analyzed to show their effectiveness in enhancing personal development. The findings emphasize that music psychology plays a significant role in shaping a well-balanced and emotionally stable personality.

Keywords: music psychology, personal development, emotional regulation, creativity, music therapy, cognitive development, motivation, psychological impact, stress reduction, learning methods

Аннотация: В данной статье рассматривается роль психологии музыки в развитии личности, с акцентом на её влияние на эмоциональное, когнитивное и социальное развитие. Музыка рассматривается как мощный психологический инструмент, влияющий на настроение, поведение, мотивацию и творческие способности человека. В работе подчеркивается значение психологии музыки в снижении стресса, регулировании эмоций, улучшении памяти и развитии творческого мышления. Также анализируются современные исследования и инновационные подходы, такие как музыкальная терапия, цифровые технологии и интерактивные методы обучения, показывающие их эффективность в личностном развитии. Результаты исследования подтверждают, что психология музыки играет важную роль в формировании гармоничной и эмоционально устойчивой личности.

Ключевые слова: психология музыки, развитие личности, эмоциональная регуляция, творчество, музыкальная терапия, когнитивное развитие, мотивация, психологическое воздействие, снижение стресса, методы обучения

Introduction: Music psychology is an interdisciplinary field that explores how music influences human thoughts, emotions, behavior, and overall mental processes. In the context of personal development, it plays a significant role in shaping an individual's emotional stability, cognitive abilities, creativity, and social interaction skills. Today,

music is no longer viewed only as an art form for entertainment; it is also recognized as a powerful psychological tool that contributes to human well-being and personality formation. Modern scientific studies in neuroscience and psychology show that music directly affects brain activity, particularly the areas responsible for emotion regulation, memory processing, and motivation. Listening to music can stimulate the release of dopamine, a neurotransmitter associated with pleasure and reward, which helps improve mood and reduce stress levels. As a result, music becomes an effective means of emotional regulation and psychological balance in everyday life.

In the field of education and personal growth, music psychology is widely applied to enhance learning motivation and cognitive development. Research indicates that students who are exposed to structured musical activities demonstrate better concentration, improved memory retention, and higher levels of creativity. Furthermore, music-based interventions, including music therapy, are increasingly used to support individuals dealing with anxiety, depression, and emotional difficulties. The development of digital technologies and innovative teaching methods has further expanded the possibilities of music psychology. Interactive learning platforms, artificial intelligence-based music tools, and multimedia resources allow individuals to experience music in more personalized and engaging ways. These innovations contribute not only to entertainment but also to self-expression, emotional awareness, and personal growth.

Therefore, music psychology is becoming an essential area of study in understanding how music contributes to the holistic development of personality. This article aims to explore the role of music psychology in personal development, focusing on its emotional, cognitive, and behavioral impacts, as well as its modern innovative applications. Music psychology as a scientific field has been widely studied by researchers in psychology, neuroscience, pedagogy, and music education. The analysis of existing literature shows that music is not only an aesthetic phenomenon but also a powerful psychological mechanism that influences human cognition, emotion, and behavior.

One of the foundational works in this field belongs to Boris Teplov, who studied musical abilities from a psychological perspective. In his research, Teplov emphasized that musical talent is closely connected with individual psychological differences such as perception, memory, and emotional sensitivity. His work laid the foundation for understanding the development of musical abilities as a psychological process. Another important contribution was made by Lev Vygotsky, who analyzed the role of art and music in emotional and cognitive development. According to Vygotsky, artistic

experiences, including music, play a key role in shaping higher mental functions and supporting the development of imagination and emotional regulation in individuals.

In modern neuroscience and psychology, Daniel Levitin provides significant insights into how music affects the brain. In his book This Is Your Brain on Music, Levitin explains how musical structures activate different brain regions responsible for memory, attention, and emotional processing. His research demonstrates that music is deeply integrated into human neural functioning. Similarly, Diana Deutsch has conducted extensive studies on music perception and auditory illusions. Her research in The Psychology of Music highlights how the human brain processes pitch, rhythm, and tonal patterns, revealing complex cognitive mechanisms involved in musical perception. The emotional impact of music has also been explored by Daniel Goleman, particularly in relation to emotional intelligence. His theory suggests that music can enhance emotional awareness, empathy, and interpersonal communication skills, which are essential components of personal development.

In addition, Patrik N. Juslin and John A. Sloboda have contributed significantly to the understanding of music and emotion. Their collaborative work in Handbook of Music and Emotion provides a comprehensive explanation of how music evokes emotional responses and influences psychological states. From a pedagogical perspective, researchers such as Robert Ismuhamedov and Jaloliddin Yuldoshev emphasize the importance of innovative teaching methods in music education. They highlight that interactive and student-centered approaches improve learners' creativity, motivation, and cognitive engagement. The reviewed literature confirms that music psychology integrates findings from neuroscience, cognitive psychology, and pedagogy. It demonstrates that music plays a crucial role in emotional regulation, cognitive development, and personality formation, making it an essential component of personal development studies.

The role of music psychology in personal development is deeply connected with how individuals perceive, interpret, and respond to musical stimuli in different psychological contexts. Beyond emotional influence, music functions as a structured cognitive system that activates attention, pattern recognition, and analytical thinking. Studies in experimental psychology suggest that rhythmic and melodic structures engage both hemispheres of the brain, supporting the integration of logical and creative processes essential for personal growth.

One of the key aspects of music psychology is its impact on emotional intelligence. Emotional intelligence refers to the ability to recognize, understand, and manage one's own emotions as well as those of others. Musical experiences, especially active participation such as singing or playing instruments, help individuals develop empathy

and emotional awareness. Group music activities such as choir singing or ensemble performance further strengthen cooperation skills, social sensitivity, and mutual understanding among participants. Music psychology also plays a significant role in behavioral regulation. In many psychological studies, music has been used as a behavioral intervention tool to reduce aggression, improve self-control, and enhance positive social behavior. For example, structured rhythmic training is often applied in therapeutic settings to help individuals with attention disorders improve impulse control and focus. Similarly, calming musical patterns are used in clinical psychology to stabilize patients experiencing emotional instability.

From a cognitive development perspective, music training has been associated with improvements in working memory, spatial reasoning, and language processing. Neuroscientific research shows that musicians often exhibit enhanced neural connectivity between auditory and motor regions of the brain. This suggests that long-term engagement with music strengthens cognitive flexibility, which is an essential component of problem-solving and adaptive thinking in personal development. In educational psychology, music is increasingly integrated into learner-centered teaching approaches. Innovative pedagogical strategies such as gamified music learning, digital composition tools, and interactive rhythm exercises allow learners to actively construct knowledge rather than passively receive it. These methods not only increase engagement but also support the development of independent thinking and self-regulated learning skills.

Another important dimension is the use of music in therapeutic and rehabilitative contexts. Music therapy is applied in various settings, including mental health treatment, rehabilitation centers, and special education programs. It is particularly effective in supporting individuals with autism spectrum disorders, trauma-related conditions, and developmental delays. Through structured musical interaction, individuals are able to express emotions that are difficult to verbalize, thereby improving psychological resilience. In addition, cultural and individual differences play an important role in how music influences personality development. Different musical genres evoke different psychological responses depending on personal experience, cultural background, and situational context. For instance, traditional and folk music often strengthens cultural identity and belonging, while modern genres may be more closely associated with motivation and personal expression. music psychology provides a multi-dimensional framework for understanding how musical experiences contribute to the development of cognitive abilities, emotional balance, social skills, and behavioral stability. It bridges the gap between artistic experience and

psychological science, offering practical applications for education, therapy, and personal growth.

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O‘ZBEKISTONDA MAJBURIY SUG‘URTANI TAKOMILLASHTIRISH ISTIQBOLLARI

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Annotatsiya. Ushbu tezisda majburiy sug‘urtaning ijtimoiy-iqtisodiy zarurati, uning davlat ijtimoiy siyosatidagi o‘rni va rivojlanish tendensiyalari tahlil qilinadi. Muallif tomonidan majburiy sug‘urtaning asosiy turlari, jumladan, ish beruvchilarning javobgarligini sug‘urtalash mexanizmi mehnat resurslarining barqarorligini ta’minlash va ishlab chiqarishdagi zararlarni qoplashdagi roli asoslab berilgan. Shuningdek, O‘zbekiston iqtisodiyoti sharoitida majburiy sug‘urtaga bo‘lgan obyektiv ehtiyoj omillari (davlat yordamining cheklanganligi, eskirgan texnologiyalar) va mavjud tizimdagi kamchiliklar (hududiy nomutanosiblik, nazoratning sustligi) ko‘rsatib o‘tilgan. Maqolada majburiy sug‘urtani rivojlantirishning qonunchilik, uslubiyot, nazorat va xalqaro integratsiya yo‘nalishlari hamda amaliy chora-tadbirlar (axborot almashish, ochiqlik siyosati, soliq imtiyozlari) taklif etiladi.
Kalit so‘zlar: majburiy sug‘urta, ijtimoiy himoya, sug‘urta risklari, ish beruvchi javobgarligi, sug‘urta bozori, iqtisodiy barqarorlik, davlat nazorati, O‘zbekiston.
Annotation. This thesis analyzes the socio-economic necessity of compulsory insurance, its role in the state social policy, and its development trends. The author substantiates the role of compulsory insurance types, particularly employer’s liability insurance, in ensuring the stability of labor resources and compensating for industrial damages. Furthermore, the objective factors necessitating compulsory insurance in Uzbekistan’s economy (limited state aid, outdated technologies) as well as existing systemic deficiencies (territorial disproportions, weak state control) are highlighted. The article proposes directions for development including legislation, methodology, supervision, international integration, and practical measures such as information exchange, transparency policies, and tax incentives.
Keywords: compulsory insurance, social protection, insurance risks, employer’s liability, insurance market, economic stability, state supervision, Uzbekistan.

Kirish

Bugungi kunda bozor iqtisodiyoti sharoitida yuzaga keladigan turli xil tavakkalchiliklar, texnogen ofatlar, tabiiy falokatlar va ishlab chiqarishdagi baxtsiz hodisalar aholi va iqtisodiy subyektlarning moliyaviy himoyaga bo‘lgan ehtiyojini keskin oshirmoqda. Majburiy sug‘urta aynan shunday xavflarni boshqarish va ularning salbiy oqibatlarini kamaytirishning eng samarali mexanizmlaridan biri hisoblanadi.

Ushbu maqolaning maqsadi – majburiy sug‘urtaning nazariy asoslarini, uning ijtimoiy-iqtisodiy zaruratini, shuningdek, O‘zbekiston milliy sug‘urta bozorining hozirgi holati va rivojlanish istiqbollarini ilmiy tahlil qilishdan iborat.

Majburiy sug‘urtaning ijtimoiy ahamiyati uning aholini qo‘shimcha himoya qilish qobiliyati bilan izohlanadi. Xususan, ish beruvchilarning javobgarligini majburiy sug‘urtalash mehnat resurslarining takror ishlab chiqarilishida barqarorlikni ta’minlaydi va ishlab chiqarishdagi zararlarni qoplash orqali ijtimoiy jarayonlarni tartibga soladi.

Majburiy sug‘urta shaklining mavjudligi va rivojlanishi, uning yuksak ijtimoiy ahamiyatga ega ekanligi bilan bevosita izohlanadi. Davlat tomonidan belgilanadigan majburiy sug‘urtaning alohida turlari aholining keng qatlamlarini qo‘shimcha ijtimoiy himoya bilan ta’minlashga xizmat qiladi. Xususan, ish beruvchilarning fuqarolik javobgarligini majburiy sug‘urtalash tizimi mehnat resurslarining takror ishlab chiqarilishida barqarorlikni ta’minlash, shuningdek, ishlab chiqarishda sodir bo‘lgan baxtsiz hodisalar yoki kasab bo‘lish oqibatida yetkazilgan zararlarni qoplashga qaratilgan ijtimoiy mexanizmlarni tartibga solish va takomillashtirishning asosiy vositalaridan biri hisoblanadi.

Majburiy sug‘urta turlarining izchil rivojlanishi sug‘urta xizmatlari bozorining muhim tarkibiy qismi sifatida aholini ijtimoiy himoyalashni qo‘shimcha moliyaviy resurslar hisobiga amalga oshirish bilan bog‘liq muammolarni hal etishga qaratilgan bo‘lib, bu esa o‘z navbatida milliy iqtisodiyotda umumiy barqarorlikni ta’minlovchi asosiy omillardan biri sifatida namoyon bo‘ladi. Mazkur sug‘urta turlarining to‘liq hamda iqtisodiy jihatdan mutanosib rivojlanishi iqtisodiy faoliyat sub’yektlari o‘rtasida sug‘urta madaniyatining o‘sishiga zamin yaratadi. Bu esa, tabiiy ravishda, ixtiyoriy sug‘urta turlarining kengayishi va chuqurlashishiga olib keladi.

Bugungi kunda majburiy sug‘urta moliyaviy jihatdan rivojlanayotgan bozor iqtisodiyoti sharoitida sug‘urta bozorining o‘sishi uchun katalizator vazifasini bajaradi. Sug‘urta mexanizmi davlatning iqtisodiy barqarorligini qo‘llab-quvvatlovchi muhim vosita sifatida e’tirof etiladi, chunki u tabiiy ofatlar, texnogen avariyalar va boshqa favqulodda holatlar oqibatida jabralangan shaxslarga yetkazilgan zararlarni qoplash borasida davlat byudjetiga tushadigan moliyaviy yukni kamaytirishga xizmat qiladi. Majburiy sug‘urta tizimini zamonaviy sharoitda yuridik va jismoniy shaxslar tomonidan to‘lanadigan sug‘urta mukofotlari hisobidan maxsus sug‘urta fondlarini shakllantirish hamda ushbu fondlardan keyinchalik sug‘urta hodisalari sodir bo‘lgan taqdirda yetkazilgan zararni qoplash maqsadida foydalanishni nazarda tutuvchi kafolatlar va inqirozga qarshi choralar bilan bog‘liq iqtisodiy munosabatlar tizimi

sifatida tahlil qilish lozim. Sug‘urtaning zamonaviy iqtisodiyotdagi roli va ahamiyati bir qator ob’yektiv omillar ta’sirida muntazam ravishda ortib bormoqda:

– Birinchidan, har yili o‘z-o‘zidan vujudga keladigan hamda texnogen kelib chiqishga ega bo‘lgan turli darajadagi favqulodda vaziyatlarning sodir bo‘lish chastotasi hamda ular keltirib chiqaradigan zararlarning jiddiylik darajasi muttasil oshmoqda;

– Ikkinchidan, ilmiy-texnikaviy yutuqlarning jadal o‘sishi natijasida ishlab chiqarish, transport, energetika va boshqa sohalardagi risklarning umumiy soni ko‘payib bormoqda, biroq ularning o‘ziga xos xususiyatlarini hisobga olgan holda samarali boshqarish va ularni minimallashtirishga qaratilgan chora-tadbirlar ko‘p hollarda yetarli darajada ishlab chiqilmagan.

Tahlillar shuni ko‘rsatadiki, majburiy sug‘urta davlat byudjetiga tushadigan yukni kamaytiradi, chunki tabiiy ofatlar va boshqa favqulodda vaziyatlarda jabrlanganlarga tovon to‘lash sug‘urta fondlari hisobidan amalga oshiriladi. Shu bilan birga, majburiy sug‘urta turlarining rivojlanganligi iqtisodiyotda barqarorlikni ta’minlovchi muhim omil bo‘lib, xo‘jalik yurituvchi subyektlar o‘rtasida sug‘urta madaniyatining oshishiga olib keladi.

O‘zbekiston misolida majburiy sug‘urtaga bo‘lgan ehtiyoj quyidagi omillar bilan belgilanadi:

✓ Favqulodda vaziyatlarda davlat yordamining cheklanganligi;

✓ Ko‘plab tarmoqlarda eskirgan texnologiyalar va asosiy vositalardan foydalanish, bu esa xavfsizlik kafolatlarini pasaytiradi.

Milliy sug‘urta bozorida hozirgi kunda mavjud kamchiliklar:

1. Sug‘urta kompaniyalari faoliyatidagi hududiy nomutanosiblik;
2. Davlat nazoratining sustligi yoki deyarli yo‘qligi;
3. Hududiy sug‘urta kompaniyalarining yetishmasligi.

Ushbu muammolarni bartaraf etish uchun quyidagi chora-tadbirlar taklif etiladi:

✓ Aholi manfaatlariga javob beradigan sug‘urta mahsulotlarini ishlab chiqish;

✓ Oshkoralik va ishonchni oshirish siyosati;

✓ Ichki va tashqi nazoratni kuchaytirish;

✓ Qonunchilikni takomillashtirish (soliq imtiyozlari, soddalashtirish);

✓ Yagona axborot bazasini yaratish;

✓ Sug‘urta mahsulotlarini keng targ‘ib qilish.

Xulosa qilib aytganda, majburiy sug‘urta zamonaviy iqtisodiyotning ajralmas qismi bo‘lib, u nafaqat aholi va tadbirkorlik subyektlarini kutilmagan xavflardan himoya qiladi, balki davlat byudjetiga tushadigan yukni kamaytiradi hamda iqtisodiy barqarorlikni ta’minlaydi. O‘zbekistonda majburiy sug‘urtani rivojlantirish uchun

qonunchilik bazasini takomillashtirish, davlat nazoratini kuchaytirish, hududiy nomutanosiblikni bartaraf etish va xalqaro tajribani joriy qilish zarur. Tavsiya etilgan chora-tadbirlar (oshkoralik, axborot almashish, soliq imtiyozlari va tarjibot) sug‘urta madaniyatini oshirishga va bozorning samarali ishlashiga xizmat qiladi.

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O‘ZBEKISTONDA TADBIRKORLIK FAOLIYATINI QO‘LLAB-QUVVATLASHDA ISLOM DARCHALARI VA MIKROMOLIYA TASHKILOTLARI ROLINI OSHIRISH YO‘LLARI

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Annotatsiya. Islom darchalari an’anaviy tijorat banklari tarkibida shariat tamoyillariga muvofiq moliyaviy xizmatlar ko‘rsatuvchi maxsus bo‘linmalar (filial, sho‘ba yoki mustaqil strukturaviy birlik) sifatida faoliyat yuritadi. Ushbu institutsional shakl, ayniqsa, islom bankchiligi uchun alohida huquqiy asos mavjud bo‘lmagan muhitda, amaldagi qonunchilik doirasida bankning umumiy tizimiga integratsiyalashgan holda ishlaydi. Taqdim etilgan tadqiqotda islom darchalari mavzusiga bag‘ishlangan 25 ga yaqin ilmiy maqola va tahliliy materiallar chuqur o‘rganildi. Tahlil jarayonida islom banklari, islom darchalari va an’anaviy banklar o‘rtasidagi qiyosiy statistik ko‘rsatkichlar, ularning moliyaviy samaradorligi, xizmat ko‘rsatish sifati, shuningdek, amaldagi moliyaviy mexanizmlarning afzallik va cheklovli jihatlari atroflicha baholandi. O‘tkazilgan tahlillar asosida mazkur tizimni takomillashtirishga qaratilgan amaliy tavsiyalar ishlab chiqildi.
Kalit so‘zlar: islom darchalari, islom banklari, islomiy moliyalashtirish, islom bankchiligi, mudoraba, murobaha, an’anaviy moliya tizimi.
Annotation. Islamic windows operate as specialized divisions (branches, subsidiaries, or separate structural units) within conventional commercial banks, providing financial services in accordance with Shariah principles. This institutional form functions particularly in environments where a distinct legal framework for Islamic banking is absent, operating within the existing regulatory system while remaining integrated into the overall structure of the host bank.

In this study, approximately 25 scholarly articles and analytical materials dedicated to the topic of Islamic windows were comprehensively reviewed. The analysis involved a comparative assessment of statistical indicators, financial performance, service quality, as well as the advantages and limitations of the prevailing financial mechanisms across Islamic banks, Islamic windows, and conventional banks. Based on the findings, practical recommendations were formulated aimed at enhancing the efficiency and effectiveness of this institutional model.
Keywords: Islamic windows, Islamic banks, Islamic financing, Islamic banking, mudarabah, murabahah, conventional finance.

Kirish

So‘nggi yillarda global moliyaviy inqirozlar an’anaviy moliya tizimining tizimli zaifliklarini yuzaga chiqarib, milliy moliya bozorlarini yangi tamoyil va vositalar asosida diversifikatsiya qilish zaruratini kuchaytirdi. Bunday sharoitda islom moliya institutlari samarali muqobil tizim sifatida nafaqat o‘z barqarorligini isbotladi, balki inqirozli davrlarda eng kam zarar ko‘rgan moliya institutlari qatoriga kirishga muvaffaq bo‘ldi. Islom iqtisodiy modeli zamonaviy moliyaviy muammolarga muqobil yechimlarni taklif etishga yo‘naltirilgan.

Islom moliya tizimining asosiy institutlari hisoblangan islom banklari ayrim davlatlarda qonunchilik cheklovlariga uchragan taqdirda ham, tijorat banklari tarkibida faoliyat yurituvchi islom darchalari ushbu tizimning jahon moliya bozorida mustahkam o‘rin egallashiga xizmat qilmoqda. MDH mamlakatlari, jumladan O‘zbekistonda islom moliya sanoatining rivojlanish sur’ati nisbatan past bo‘lsa-da, mintaqaviy imkoniyatlarning ortib borayotgani xalqaro moliya doiralari e’tiborini tortmoqda (Kayimova, 2021). MDH davlatlari hukumatlarining ushbu sektorni rivojlantirishga qaratilgan tashabbuslari natijasida, yaqin besh yil ichida islom bankchiligi sektorida sezilarli o‘sish kutilmoqda.

2021-yilda O‘zbekiston Markaziy banki raisi Mamarizo Nurmurotov tomonidan 14 ta tijorat bankida islom darchalarini tashkil etish bo‘yicha ishlar boshlangani va ular orqali islom tamoyillari asosida kreditlash amalga oshirilishi haqida ma’lum qilindi. Raisning ta’kidlashicha, mazkur yo‘nalishda eng muhim masalalardan biri bu – islom tamoyillariga muvofiq kredit resurslarini shakllantirishdir. Ya’ni, foizli depozitlar hisobiga jalb qilingan mablag‘lar islomiy kreditlashda qo‘llanilishi mumkin emas, chunki bunday depozitlar shariat tamoyillariga mos kelmaydi. Shu bois, avvalo, aholi va tadbirkorlik subyektlarining islom moliyasiga oid moliyaviy savodxonligini oshirish zarurligi alohida ta’kidlandi. Shuningdek, Markaziy bank raisining ma’lumotiga ko‘ra, islom moliyasiga oid qonun loyihasi O‘zbekiston Qonunchilik palatasida birinchi o‘qishdan muvaffaqiyatli o‘tgan. Ushbu qonun loyihasida mikromoliya tashkilotlariga islom moliyasi operatsiyalarini amalga oshirish huquqi berilishi nazarda tutilgan bo‘lib, tegishli normativ-huquqiy hujjatlarni ishlab chiqish jarayoni davom etmoqda.Bu bo‘yicha Ipak yo’li banki, Qishloq Qurilish bank, Trastbank va Hamkorbank birinchilardan bo‘lib, O‘zbekistonda Islom darchalarini ochishga yaqin turibdi. Islom moliyasi tizimi o’zining etik tamoyillari, risklarni taqsimlash mexanizmlari va real iqtisodiyotga yo’naltirilganligi bilan an’anaviy moliyadan tubdan farq qiladi. Xususan, spekulyativ operatsiyalarni (gharar) va foizli daromadni (ribo) taqiqlash, shuningdek, foyda-zararni taqsimlash (mudoraba) va aktivlar bilan ta’minlangan savdo operatsiyalari (murobaha) kabi vositalar moliyaviy tizimga barqarorlik va adolat tamoyillarini olib kiradi. Aynan shu xususiyatlar islom

moliya institutlarini global moliyaviy tanglik davrlarida nisbatan chidamli bo'lishiga sabab bo'lmoqda.

Tadqiqotlar shuni ko'rsatadiki, islom bankchiligi va an'anaviy bankchilik o'rtasidagi asosiy tafovut faqat shariat talablariga rioya qilish bilan chegaralanmay, balki boshqaruv tuzilmasi, xavf-xatarlarni boshqarish strategiyalari va korporativ ijtimoiy mas'uliyat kabi jihatlarda ham namoyon bo'ladi. Islom darchalari esa ushbu tamoyillarni an'anaviy bank tizimiga integratsiyalashgan holda amalga oshirib, ikki tizim o'rtasidagi "ko'prik" vazifasini bajaradi.

Mazkur tadqiqotning dolzarbligi O'zbekistonda islom moliyaviy xizmatlariga bo'lgan talabning ortib borayotgani, shuningdek, mamlakatning xalqaro islom moliya bozoriga integratsiyalashuv istiqbollari bilan belgilanadi. Biroq, mavjud huquqiy va institutsional bazaning yetarli darajada shakllanmaganligi bu yo'nalishdagi transformatsion jarayonlarni murakkablashtirmoqda. Shu bois, ushbu ishda islom darchalarining tashkiliy-huquqiy asoslari, ularning samaradorlik ko'rsatkichlari va mavjud muammolarini tizimli o'rganish orqali O'zbekiston sharoitida ushbu institutni joriy etishning optimallik darajasi aniqlanadi.

Xulosa va takliflar

Islom darchasi an'anaviy tijorat banki tarkibidagi maxsus bo'linma yoki sho'ba korxona bo'lib, u orqali mijozlarga faqat islom shariatiga muvofiq moliyaviy vositalar asosida xizmat ko'rsatiladi. Dunyo miqyosida tobora ko'payib borayotgan tijorat banklari islomiy moliya mahsulotlarini joriy etish imkoniyatlarini o'rganmoqda. Bu tendensiya, bir tomondan, banklarning o'sib borayotgan musulmon aholi qatlamiga xizmat ko'rsatish istagi, ikkinchi tomondan, shariatga mos keluvchi moliyaviy vositalarga yo'naltirilgan xalqaro investorlar faolligining ortishi bilan izohlanadi.

O'tkazilgan tahlillar natijasida islom darchalarining foyda samaradorligi bo'yicha mustaqil islom banklariga nisbatan yuqori ko'rsatkichlarga ega ekanligi aniqlandi. Buning asosiy sababi sifatida tijorat bankining mavjud texnik-texnologik salohiyati, infratuzilmasi va moliya bozoridagi ko'p yillik tajribasini keltirish mumkin. Biroq, bir qator islom darchalari faoliyatida muayyan muammolar ham kuzatilmoqda. Jumladan, an'anaviy bank aktivlari bilan islom darchasi aktivlarining aralashib ketishi shariat nuqtai nazaridan joiz emas. Shuningdek, har bir islom darchasi tarkibida shariat ekspertlar kengashining tashkil etilishi zarur, chunki har bir moliyaviy operatsiyaga huquqiy xulosa (fatvo) berish faqat ushbu sohaning malakali mutaxassislari zimmasidadir.

O'zbekistonda islom moliyasi so'nggi yillarda jadal rivojlanmoqda, islom moliya institutlari bilan yangi hamkorlik shartnomalari tuzilmoqda. Mamlakatdagi mavjud tijorat banklari islom moliyasi tamoyillariga asoslangan islom darchalarini ochish

masalasini faol ko'rib chiqmoqda. Shu sababli, amaldagi soliq va bank tizimining ishlash mexanizmlarini islom darchalari faoliyatiga moslashtirish zarurati ilgari suriladi. Umuman olganda, islom darchasi to'liq huquqli islom bankini tashkil etish imkoniyati mavjud bo'lmagan sharoitda optimal yechim sifatida xizmat qiladi. O'zbekiston uchun aynan shu model istiqbolli bo'lib, quyidagi takliflar ishlab chiqildi:

1. Mamlakatda islomiy moliyaviy xizmatlarga bo'lgan real talab darajasini empirik o'rganish va tizimli baholash;
2. An'anaviy banklarning mavjud infratuzilmasi (binolar, xodimlar, texnik ta'minot) negizida qo'shimcha xarajatlarsiz islomiy xizmatlarni taklif etish mexanizmini joriy qilish;
3. Joriy qilingan islom darchalari faoliyatini chuqur o'rganish va taqqosiy tahlil qilish asosida "Islom moliyasi va bank ishi to'g'risida"gi qonun loyihasiga amaliy takliflar kiritish;
4. Aholi va xususiy sektor vakillarining moliyaviy savodxonligini oshirish orqali ularning milliy iqtisodiyotdagi faol ishtirokini ta'minlash;
5. Islom darchalari faoliyati natijalarini monitoring qilish va tahlil qilish asosida banklarning uzoq muddatli rivojlanish strategiyalarini shakllantirish.

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METHODOLOGY OF USING DIGITAL AND INNOVATIVE EDUCATIONAL TECHNOLOGIES IN TEACHING THE CIRCULATORY SYSTEM

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Annotatsion: The integration of digital and innovative educational technologies into biology education has significantly transformed the teaching and learning process. Modern educational environments require the implementation of learner-centered approaches that enhance students' motivation, engagement, and scientific understanding. The circulatory system is one of the most important and complex topics in biology, involving numerous physiological processes and anatomical structures that may be difficult for students to comprehend through traditional teaching methods. This article explores the methodology of using digital and innovative educational technologies in teaching the circulatory system. Particular attention is given to multimedia presentations, virtual laboratories, three-dimensional (3D) models, educational simulations, online learning platforms, and mobile applications. The study highlights how these technologies contribute to improving conceptual understanding, critical thinking, and practical skills among students. The findings suggest that the effective integration of digital technologies creates interactive learning environments, supports visual learning, and enhances the overall quality of biology education.

Keywords: circulatory system, digital technologies, innovative education, biology teaching, virtual laboratory, multimedia learning, educational technology, online learning, 3D simulation, student engagement.

Introduction

The rapid advancement of information and communication technologies has led to significant changes in educational systems worldwide. Modern education increasingly emphasizes the development of students' competencies, critical thinking abilities, and practical skills through the integration of digital technologies into classroom instruction. In biology education, technological innovations provide new opportunities for presenting complex scientific concepts in accessible and engaging ways. The circulatory system represents a fundamental topic in biology curricula because it explains the mechanisms responsible for transporting oxygen, nutrients, hormones, and waste products throughout the body. Understanding the structure and functions of the heart, blood vessels, and blood circulation processes is essential for developing

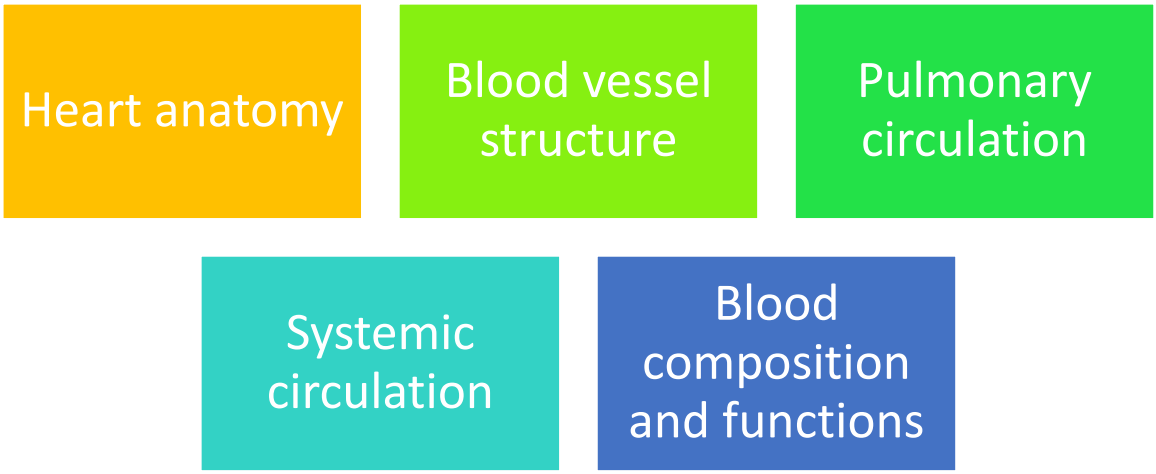
scientific literacy and health awareness among students. However, due to the abstract and dynamic nature of physiological processes, many students experience difficulties in fully understanding these concepts through conventional teaching methods. Digital and innovative educational technologies offer effective solutions to these challenges. Interactive simulations, virtual laboratories, digital animations, educational software, and online learning platforms allow students to visualize biological processes that cannot be directly observed. These technologies support active learning, increase motivation, and encourage independent exploration of scientific phenomena. The purpose of this article is to examine the methodological aspects of using digital and innovative educational technologies in teaching the circulatory system and to identify their pedagogical benefits in biology education.

Digital transformation in biology education

The digital transformation of education has shifted teaching from traditional teacher-centered approaches to student-centered learning environments. In modern biology classrooms, technology serves not only as a source of information but also as a tool for investigation, collaboration, and knowledge construction. The use of digital resources enables teachers to present scientific information through visual, auditory, and interactive formats. This multimodal approach enhances students' understanding of biological concepts and accommodates diverse learning styles. For example, instead of merely describing blood circulation verbally, teachers can use animated videos showing blood movement through the heart chambers, lungs, arteries, and veins. Such visual representations help students grasp physiological processes more effectively.

Application of multimedia technologies

Multimedia technologies combine text, images, animations, audio, and video to create engaging learning experiences. In teaching the circulatory system, multimedia presentations can illustrate:



For example, a 3D animated video demonstrating the pathway of oxygen-rich and oxygen-poor blood enables students to observe the complete circulation cycle in real time. This visual experience improves comprehension and retention compared with static textbook illustrations. Furthermore, multimedia-supported lessons increase student motivation and encourage active classroom participation.

Virtual laboratories in teaching the circulatory system

Virtual laboratories provide simulated scientific environments where students can conduct experiments and observations without requiring physical laboratory equipment. For example, students may use virtual laboratory software to:

- Measure heart rate under different conditions;
- Investigate blood pressure variations;
- Analyze cardiovascular responses to exercise;
- Examine blood vessel structures.

Virtual experimentation allows learners to repeat procedures multiple times, explore various scenarios, and develop scientific inquiry skills in a safe environment. These experiences are particularly valuable in schools where laboratory resources are limited.

Using three-dimensional models and simulations

Three-dimensional (3D) models significantly improve students' understanding of anatomical structures. Digital 3D heart models enable students to:

- Rotate and zoom anatomical structures;
- Examine heart chambers and valves;
- Observe blood flow pathways;
- Identify major blood vessels.

For instance, students can interactively explore the left ventricle and compare its muscular wall thickness with other heart chambers. Such exploration enhances spatial understanding and facilitates meaningful learning. Similarly, simulation software can demonstrate how diseases such as hypertension or arterial blockage affect blood circulation.

Online learning platforms and mobile applications

Online learning platforms provide flexible opportunities for learning beyond the classroom. Teachers may utilize platforms such as:

- Google classroom;
- Moodle;
- Microsoft teams;
- Quizizz;
- Kahoot.

These platforms support the distribution of learning materials, quizzes, assignments, and interactive discussions. For example, after studying the circulatory system, students can complete online quizzes assessing their understanding of heart anatomy and blood circulation processes. Immediate feedback helps learners identify misconceptions and improve their performance. Mobile applications also support self-directed learning by providing interactive diagrams, educational videos, and virtual anatomy tools accessible through smartphones and tablets.

Artificial intelligence and smart learning technologies

Artificial Intelligence (AI) is increasingly being integrated into educational environments. AI-powered educational systems can:

- Personalize learning experiences;
- Analyze student performance;
- Recommend additional learning resources;
- Provide adaptive assessments.

In teaching the circulatory system, AI-based platforms can identify areas where students struggle and offer targeted explanations or supplementary exercises. For example, if a student repeatedly answers questions about pulmonary circulation incorrectly, the system may automatically provide additional instructional materials and practice activities related to that topic. This individualized approach contributes to improved academic outcomes and more efficient learning processes.

Digital and innovative technologies used in teaching the circulatory system

Technology	Educational application	Learning outcome

Multimedia Presentation	Visualization of heart structure and circulation pathways	Improved conceptual understanding
Educational videos	Demonstration of physiological processes	Increased retention of information
Virtual laboratory	Simulated cardiovascular experiments	Development of practical skills
3D models	Interactive exploration of anatomy	Enhanced spatial understanding
Online Learning platforms	Assignments, assessments, and collaboration	Increased student engagement
Mobile applications	Independent learning and revision	Greater learning flexibility
AI-based systems	Personalized instruction and feedback	Improved academic achievement
Educational simulations	Modeling blood circulation and diseases	Better analytical thinking

The table demonstrates that each digital technology contributes to different aspects of the learning process. Multimedia resources and educational videos primarily support visual learning, while virtual laboratories and simulations facilitate experiential learning. Online platforms and mobile applications promote independent learning and flexibility, whereas AI-based systems enhance personalized instruction. Together, these technologies create a comprehensive educational environment that improves both theoretical understanding and practical competencies.

Conclusion

The integration of digital and innovative educational technologies into biology instruction offers substantial opportunities for improving the teaching and learning of the circulatory system. Traditional methods alone may not adequately address the complexity of physiological processes; therefore, technology-enhanced learning environments provide valuable support for conceptual understanding and student engagement. The study demonstrates that multimedia resources, virtual laboratories, 3D models, online platforms, educational simulations, and artificial intelligence systems contribute significantly to students' academic achievement and motivation. These technologies facilitate active participation, independent learning, critical thinking, and scientific inquiry. Furthermore, digital technologies enable educators to create learner-centered environments where students can explore biological concepts through observation, experimentation, and interaction. As educational systems

continue to evolve, the effective implementation of innovative technologies will play an increasingly important role in enhancing the quality of biology education and preparing students for future scientific and technological challenges.

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PATISSON NAV VA DURAGAYLAR SELEKSIYASI UCHUN BOSHLANG‘ICH MANBA YARATISH

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Annotatsiya. F1duragaylar ko‘pincha ota-onalariga qaraganda kuchliroq o‘sadi, yuqori hosildorlikka ega bo‘ladi, kasalliklarga chidamliroq bo‘ladi. Barqarorlik faqat birinchi avlodda bo‘ladi. Ya’ni F1 duragayidan olingan urug‘lar (ya’ni F2 avlod) ota-onasining belgilarini aniq takrorlamaydi. F2 avlodda belgilar tarqoq bo‘ladi. U geterozisni gibridning eng yaxshi ota-ona shaklidan ustunligi sifatida belgilashni taklif qildi. So‘nggi paytlarda geterozis ko‘pincha duragayning ota-onasining o‘rtacha ko‘rsatkichidan ortiqligi sifatida aniqlanadi. Raqobatbardosh geterozis ham farqlanadi, ya'ni duragaylarning standart navdan ortiqligi**.**

Oxirgi ta'rif seleksiya va urug‘chilik amaliyoti uchun ko‘proq mos keladi, chunki geterotik duragay faqat tegishli mintaqaviy standart navdan sezilarli darajada oshib ketganda ishlab chiqarish qiymatiga ega bo‘ladi. Aks holda, gibridni keng qo‘llash imkoniyati yo‘q, chunki gibrid urug‘lar har doim navli urug‘lardan qimmatroq bo‘ladi.

Аннотация. Гибриды F1 часто отличаются более мощным ростом по сравнению с родительскими формами, обладают более высокой урожайностью и большей устойчивостью к болезням. Однако эта стабильность проявляется только в первом поколении. То есть семена, полученные от гибрида F1 (то есть поколение F2), не воспроизводят точно признаки своих родителей. В поколении F2 наблюдается расщепление признаков. Он предложил определять гетерозис как превосходство гибрида над лучшей родительской формой. В последнее время гетерозис чаще определяется как превышение показателей гибрида над средним уровнем его родителей. Также различают конкурентный гетерозис, то есть превосходство гибридов над стандартным сортом. Последнее определение является более подходящим для практики селекции и семеноводства, поскольку гетерозисный гибрид имеет производственную ценность только в том случае, если он значительно превосходит соответствующий районированный

стандартный сорт. В противном случае широкое использование гибрида невозможно, так как гибридные семена всегда дороже сортовых.

Abstract. F1 hybrids often exhibit more vigorous growth than their parental forms, higher productivity, and greater resistance to diseases. However, this stability is observed only in the first generation. In other words, seeds obtained from an F1 hybrid (i.e., the F2 generation) do not accurately reproduce the traits of their parents. In the F2 generation, trait segregation occurs. Heterosis was originally proposed to be defined as the superiority of a hybrid over its best parental form. More recently, heterosis has often been defined as the superiority of a hybrid over the average performance of its parents. Competitive heterosis is also distinguished, referring to the superiority of hybrids over a standard variety.The latter definition is more suitable for breeding and seed production practices because a heterotic hybrid has practical value only when it significantly surpasses the corresponding regional standard variety. Otherwise, the widespread adoption of the hybrid is not feasible, since hybrid seeds are always more expensive than varietal seeds.

Kalit so‘zlar: Geterotik duragay. Geterozis effekti. F1 duragay. Erkak sterilligi. Dominant**.** Geterozis gibrid. Гетерозисный гибрид.
Ключевые слова: Гетеротический гибрид, эффект гетерозиса, гибрид F1, мужская стерильность, доминантность, гетерозисный гибрид.
Keywords: heterotic hybrid, heterosis effect, F1 hybrid, male sterility, dominance, heterosis hybrid.

Patisson yetishtiruvchi mamlakatlarda, jumladan O‘zbekistonda ham patisson navlariga aholi orasida talab kundan kunga ortib bormoqda. Ular ochiq dalalarda va keyingi yillarda issiqxonalarda ko‘plab yetishtirilmoqda.

Sabzavotlar assortimentini kengaytirish, yilning hamma fasllarida (yoz-kuz davrlari) mahsulot olish va ularni iste'mol qilishga bo‘lgan ehtiyoj patisson sabzavot ekinini yetishtirishga katta qiziqish uyg‘otadi. FAO ma’lumotlariga ko‘ra, “Qovoqdosh ekin patisson mevalarini yetishtirishda Xitoy(7,2 mln.t,),Hindiston (4,9 mln.t.), Ukraina (1,27 mln. t.), Rossiya (1,128 mln. t), AQSh (1,05 mln. t.) va Eron (0,9 mln. t.) davlatlarida keng miqyosda yetishtirilmoqda”[1].

Mamlakatimizning ko‘plab hududlari uchun noan'anaviy ekin hisoblangan patisson o‘simligi endi qayta o‘rganilmoqda. Dunyoda patisson nav namunalari assortimentini kengaytirishda shuningdek, oziq-ovqat hamda qayta ishlash korxonalarini xom ashyo

[1] FAOSTAT Statistics Database. FAO, Rome, Italy. http://www.fao.org.

bilan ta’minlashda AQSh, Italiya, Fransiya, Xitoy, Hindiston, Yaponiya va Rossiyada patissonning ixcham palakli, mevalarining turli rangdagi va shakldagi navlarini yaratish hamda mevalarini yetishtirish texnologiyasi bo‘yicha tadqiqotlar olib borilmoqda. O‘zbekistonda agroklaster, fermer, dehqon va shaxsiy tomorqa xo‘jaliklarini daromadini, qayta ishlash korxonalarining ishlab chiqarish hajmini oshirishda sabzavotchilik sohasidagi ilm-fan yutuqlari, xususan kompleks qimmatli xo‘jalik belgilari yuqori yangi navlar hamda takomillashtirilgan agrotexnologiyalar tadbiq qilinmoqda. Shunga qaramasdan, respublikamizda so‘nggi yillarda patisson hosildorligi va sifatini oshirish bo‘yicha keng qamrovli ilmiy izlanishlar amalga oshirilmagan bo‘lib, mahsulot yetishtirishning ishlab chiqarishdagi mavjud assortimenti – xorijiy (Oq-13) va mahalliy (Zarkokil) navlaridan iborat. O‘zbekiston Respublikasining “2022-2026 yillarga mo‘ljallangan Yangi O‘zbekistonning taraqqiyot strategiyasi” da “Qishloq xo‘jaligini ilmiy asosda intensiv rivojlantirish orqali dehqon va fermerlar daromadini kamida 2 baravar oshirish, qishloq xo‘jaligining yillik o‘sishini kamida 5 foizga yetkazishda, ayniqsa, 2026 yilga borib oziq-ovqat mahsulotlari hajmini 7,4 mln tonnaga, qayta ishlash darajasini meva-sabzavot bo‘yicha 28 foizga yetkazish”[2]ga alohida e’tibor qaratilgan. Bu borada, O‘zbekistonda patisson nav assortimentini kengaytirish, yuqori mahsuldor navlarni tanlash va mevalarni yetishtirish texnologiyasini takomillashtirish dolzarb ilmiy yo‘nalish hisoblanadi.

F1 ning yangi navlari va duragaylarini yaratishning muvaffaqiyati va davomiyligi ko‘p jihatdan seleksiya ishining dastlabki bosqichini ifodalovchi manba materialini to‘g‘ri tanlashga bog‘liq.

Respublikamizda patisson nav va duragaylarini yaratish bo‘yicha maqsadli ilmiy tadqiqot ishlari olib borilmagan. Shundan kelib chiqib 2023-2025 yillarda Sabzavot, poliz ekinlari va kartoshkachilik ilmiy-tadqiqot instituti Surxondaryo ilmiy-tajriba stansiyasida 35 ta patisson nav namunalari o‘rganildi. Ushbu bo‘limda nav namunalarini o‘rganish natijalari keltirilgan.

Urug‘lar biogumus va tuproq (2:1 nisbatda) aralashmasi bilan to‘ldirilgan kassetalarga fevralning birinchi o‘n kunligida qadaldi. Ko‘chatlar 4-5 barg chiqargan davrida balandligi 15-17 sm bo‘lganda ochiq dalalarga chiqarib o‘tkazildi.

Vegetatsiya davri har xil bo‘lgan nav yoki duragay yaratish seleksiyaning asosiy yo‘nalishlaridan biri hisoblanadi. Ertapisharlik juda murakkab belgi bo‘lib, u juda ko‘p belgilar bilan chambarchas bog‘langan. Alohida rivojlanish fazalari va butun vegetatsiya davrining davomiyligi haqidagi ma’lumotlar ertapishar nav yoki duragaylar seleksiyasi uchun ota-ona shakllarni tanlashda muhim hisoblanadi.

[2] https://lex.uz/uz/pdfs/5841077

Patissonda asosan 2 ta rivojlanish fazasini aniqlash odat tusiga kirgan. Birinchisi unib chiqish-gullash, ikkinchisi gullash-mevalarning pishishi davrlaridir.

Tadqiqot davomida quyidagi xususiyatlar o‘rganildi:

- erta yetuklik;
- ixcham buta hosil qilishi;
- mevalar soni: ko‘p - oz; o‘sish tezligi;
- barg plastinkasining bo‘laklarga bo‘linishi;
- poya, poya va barglarning o‘sganligi;
- NMRga qarshilik;
- mevaning shakli va rangi.

Patisson nav namunalari kolleksiyasida 35 ta namuna tadqiqot uchun o‘rganildi. Buta yoki tup hosil qilib o‘sadigan o‘simliklarni yetishtirish uzun poyali o‘simliklarga nisbatan bir qator afzalliklarga ega. Butalar qatorlar orasiga ishlov berish uchun qulaydir. Buta xususiyatiga ega bo‘lgan ota-ona shakllarini tanlashda biz patissonning ba'zi navlari juda qimmatli xususiyatlarga ega ekanligini aniqladik. Bu xususiyatlar ko‘chat bosqichida vizual tarzda osongina aniqlanadi. Epikotil - o‘simlik niholining novdasi (bo‘g‘in oralig‘i) bo‘lagi va birinchi haqiqiy bargning tugunlari oralig‘ida.Vizual baholanganda, Pyatachok, Cheburashka va Sambrero, Ggoshik navlari ixcham buta holida bo‘lgani bilan ajralib turdi. O‘simlik turiga ko‘ra, o‘rmalovchilardan (Disk, Scallop va boshqalar) tik va yotadigan butalar (Oq -13, Cherepashka va boshqalar) afzalroqdir. Barcha o‘rganilgan namunalarda o‘simlikdagi erkak gullar soni urg‘ochi gullar sonidan oshib ketdi. Ayol va erkak gullar soni



o‘rtasidagi miqdoriy nisbat past bo‘lgan bir nechta namunalarni aniqlash mumkin. Bular Pyatachok (1:2,7), Zontik (1:3,4), Solnsedar (1:3,5), Cheburashka (1:1,9), Solnishko (1:2.7).

(1-jadval).O’simlikdagi urg’ochi va erkak gullar o’rtasidagi nisbatlar jadvali

№	Nav	Erkak gullar (dona/o‘simlik)	Urg‘ochi gullar (dona/o‘simlik)	Nisbat (U:E)
1	Oq-13	28	8	1:3.5
2	Zarkokil	26	8	1:3.3
3	Solnsedar	30	9	1:3.3
4	Solnishko	24	9	1:2.7
5	Disk	27	8	1:3.4
6	Pioner	29	8	1:3.6
7	Groshik	25	8	1:3.1
8	Arbuzinka	23	9	1:2.6
9	Delikatesi	24	10	1:2.4
10	Sinishka	26	9	1:2.9
11	Zontik	27	8	1:3.4
12	Squash	28	8	1:3.5
13	Mini Kroshka	22	10	1:2.2
14	Karapuz	23	10	1:2.3
15	Pyatichok	24	9	1:2.7
16	Zucchini	25	9	1:2.8
17	Polo F1	22	11	1:2.0
18	Solnishko Zelyoniy	23	10	1:2.3
19	NLO Bely	25	9	1:2.8
20	Klyaksa	24	10	1:2.4
21	Skallop	26	9	1:2.9
22	Cheburashka	21	11	1:1.9
23	Cherepashka	22	10	1:2.2

№	Nav	Erkak gullar (dona/o‘simlik)	Urg‘ochi gullar (dona/o‘simlik)	Nisbat (U:E)
24	Marsianin	24	10	1:2.4
25	Rodeo	23	10	1:2.3
26	Zvyozdnaya Rassip Smes	25	9	1:2.8
27	Naf-Naf	22	11	1:2.0
28	Nuf-Nuf	22	11	1:2.0
29	Svetnoye Trio	23	10	1:2.3
30	Nif-Nif	22	11	1:2.0
31	Letayushaya Tarelka	24	10	1:2.4
32	Sambrero	23	10	1:2.3
33	Solnishko Xrustyashchie	24	10	1:2.4
34	Kopeyka	21	11	1:1.9
35	Nejnoye Parfe	22	11	1:2.0

Xulosa qilib shuni aytish mumkinki, eng yuqori urg‘ochi gul ulushi: Polo F1, Cheburashka, Naf-Naf, Nuf-Nuf, Nif-Nif, Kopeyka (taxminan 1:2). O‘rtacha guruh: Delikatesi, Mini Kroshka, Karapuz, Rodeo, Sambrero (1:2.2–1:2.5). Erkak gullar ustun bo‘lgan navlar: Oq-13, Pioner, Disk, Squash, Zontik (1:3 va undan yuqori).

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MILLIY IQTISODIYOT TARMOQLARIGA SUN'IY INTELLEKT TEXNOLOGIYALARINI JORIY ETISH ISTIQBOLLARI

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Annotatsiya. Ushbu tezisda O'zbekiston iqtisodiyotining barqaror o'sish sur'atlarini ta'minlashda sun'iy intellekt (SI) texnologiyalarini qo'llash metodologiyasini takomillashtirish masalalari tadqiq etiladi. Izlanishning predmeti SI tizimlarini milliy iqtisodiyot tarmoqlariga integratsiya qilishning samarali mexanizmlarini ishlab chiqishdan iborat. Mahalliy va xorijiy tajribalarni tizimli tahlil qilish asosida SIni amaliyotga tatbiq etishdagi institutsional, texnikaviy va kadrlar bilan bog'liq tizimli muammolar diagnostika qilingan. Tadqiqot yakunida makroiqtisodiy rejalashtirish tizimini modernizatsiya qilishga qaratilgan, SI xavfsizligi, shaffofligi va yuqori iqtisodiy multiplikativ samarasiga asoslangan takomillashtirilgan metodologik yondashuv taklif etilgan.

Kalit so'zlar: sun'iy intellekt, raqamli iqtisodiyot, barqaror taraqqiyot, xorijiy amaliyot, innovatsion boshqaruv, raqamli transformatsiya, samaradorlik ko'rsatkichlari.

Annotation. This article examines the improvement of methodologies for applying Artificial Intelligence (AI) technologies to ensure sustainable economic growth in Uzbekistan. The subject of the research is the development of efficient mechanisms to integrate AI systems into national economic sectors. Through a systematic analysis of local and foreign experiences, institutional, technical, and personnel-related systemic challenges in implementing AI are diagnosed. Ultimately, the study proposes an enhanced methodological approach focused on modernizing the macroeconomic planning system, grounded in AI security, transparency, and high economic multiplier effects. The findings serve as a practical guide for institutions and specialists formulating economic development strategies.

Keywords: artificial intelligence, digital economy, sustainable development, foreign experience, innovative management, digital transformation, efficiency indicators.

Kirish

Zamonaviy iqtisodiyot sharoitida sun'iy intellekt (SI) texnologiyalarining raqamli ekotizim sifatida shakllanishi iqtisodiy o'sishning sifat jihatidan yangi bosqichini belgilab berdi. Ushbu tizimlar ishlab chiqarish menejmenti, davlat boshqaruvi va ijtimoiy sohalarda tranzaksion xarajatlarni qisqartirish hamda

resurslardan foydalanish utilitarligini (foydaliligini) oshirish mexanizmi bo‘lib xizmat qilmoqda. O‘zbekistonda amalga oshirilayotgan tarkibiy islohotlar doirasida SI yechimlarini milliy iqtisodiyotga tatbiq etish jarayonlari davlat raqamli strategiyasining konseptual asosi etib tayanilgan. Normativ-huquqiy hujjatlarda, jumladan, “Raqamli O‘zbekiston - 2030” strategik dasturida SI vositasida makroiqtisodiy barqarorlikni ta’minlash borasida aniq maqsadli indikatorlar belgilangan bo‘lsa-da, tizimni qo‘llashning metodologik platformasi mukammallashuvga muhtoj.

Mazkur texnologiyalarning iqtisodiy samaradorligini maksimallashtirish fundamental ilmiy-metodologik bazani yaratish, tarmoq modellarini optimallashtirish, qonuniy-institutsional muhitni moslashtirish va yuqori texnologik kadrlar salohiyatini shakllantirish kabi kompleks muammolarni hal etish bilan uzviy bog‘liqdir.

O‘zbekiston sharoitida sun’iy intellekt (SI) tizimlarini iqtisodiy resurslarni boshqarish arxitekturasiga integratsiya qilish iqtisodiy dinamikani tahlil va prognozlashtirish interpretatsiyasini (aniqligini) optimallashtirish, fiskal va moliya-kredit nazorati ekotizimlarini avtomatlashtirish, ishlab chiqarish drayverlarining operatsion samaradorligini multiplikatsiyalash hamda innovatsion iqtisodiyot modeliga o‘tish transformatsiyasini akseleratsiyalash (jadallashtirish) imkonini beradi. Mazkur konseptual asoslardan kelib chiqqan holda, ushbu tadqiqotning fundamental maqsadi - O‘zbekiston Respublikasida barqaror makroiqtisodiy o‘sish paradigmasini ta’minlash kontekstida sun’iy intellekt tizimlarini qo‘llash metodologik platformasini takomillashtirish yo‘llarini ilmiy-nazariy jihatdan asoslash hamda strategik-amaliy tavsiyalar paketini ishlab chiqishdan iboratdir.

O‘zbekiston hukumati SIni rivojlantirishga jiddiy e’tibor qaratmoqda, lekin bu ko‘proq strategik yo‘nalishlar va alohida tarmoqlarga oid chora-tadbirlar ko‘rinishida amalga oshirilmoqda, yagona metodologiya ko‘rinishida emas.

1-jadval.

O‘zbekiston barqaror iqtisodiy o‘sishga erishishda sun’iy intellekt tizimlarini qo‘llash metodologiyasi

Bosqich	Maqsad	O‘zbekiston sharoitidagi asosiy muammo	Takomillashtirilgan metodologik yechim
Ma’lumotlar fondi	Sifatli va katta hajmli ma’lumotlar	Davlat organlari va sohalararo ma’lumotlarning fragmentatsiyasi	Yagona milliy ma’lumotlar standarti ma’lumot almashinuvi

	bazasini yaratish.	(parchalanishi) va standartlashtirilmaganligi.	platformasi ni ishga tushirish.
Modelni shakllantirish	Samarali va milliy xususiyatlarga mos SI modellarini yaratish.	“Data Scientist” kadrlarining yetishmasligi va yuqori hisoblash quvvati resurslariga cheklanganlik.	Ilmiy muassasalar bazasida Milliy SI Resurslarini Birlashtirish Markazi ni tashkil etish va uzoqdan kirish imkonini berish.
Tatbiq etish	Tayyor SI yechimlarini iqtisodiy jarayonlarga tez va muvaffaqiyatli integratsiya qilish.	Loyihalarni sinovdan o‘tkazish va kengaytirish uchun moliyaviy va huquqiy mexanizmlarning sustligi.	“Regulativ qumdonlar” tizimini kengaytirish, xususiy sektorga grant va subsidiyalar ajratish.
Samara va barqarorlik	SI natijasida erishilgan iqtisodiy o‘sishni muntazam o‘lchash va monitoring qilish.	SIning investitsion samaradorligini baholashning aniq, rasmiy metodikasi yo‘qligi.	Har bir iqtisodiy tarmoqda SI joriy etish uchun KPI (Asosiy samardorlik ko‘rsatkichlari) ga asoslangan baholash metodikasini majburiy kiritish.

Manba: “Raqamli O‘zbekiston – 2030” strategiyasi doirasida muallif ishlanmasi

Asosiy strategik hujjatlar SIni joriy etishning asosiy tamoyillari va yo‘nalishlari 2024-yil 14-oktabrdagi Prezident qarori (PQ-358-son) bilan tasdiqlangan Sun’iy intellekt texnologiyalarini 2030-yilga qadar rivojlantirish strategiyasida belgilangan. Bu Strategiya quyidagilarni qamrab oladi. Institutsional tizimni shakllantirish. SI etikasi va xavfsizligi talablarini joriy etish. Kadrlar salohiyatini oshirish. Tarmoqlar (sog‘liqni saqlash, ta’lim, moliya, davlat xizmatlari) kesimida SIni joriy etish.

Xulosa va takliflar

Milliy “Sun’iy intellekt strategiyasi”ni ishlab chiqish uchun barqaror iqtisodiy o‘sish, raqamli iqtisodiyot va ijtimoiy farovonlikni oshirishda AI texnologiyalarini milliy darajada muvofiqlashtiruvchi dastur zarur. Universitetlar, ilmiy markazlar va

startap inkubatorlari negizida sun’iy intellekt laboratoriyalarini tashkil etish zarur. “Green AI” tamoyillarini milliy siyosatga kiritish, AI yordamida ekologik nazorat, energetika tejamkorligi va chiqindilarni boshqarish tizimlarini joriy etish. AI etikasi va huquqiy tartibotlarini shakllantirish, ma’lumot xavfsizligi, shaffoflik va inson markazli texnologiyalarni ta’minlovchi qonunchilik asoslarini yaratish, AI texnologiyalarini iqtisodiy tarmoqlarga integratsiya qilish, soliq, moliya, transport, sog‘liqni saqlash va qishloq xo‘jaligi sohalarida intellektual tahlil va prognoz tizimlarini joriy etish muhim. Davlat–xususiy sektor hamkorligini kuchaytirish, innovatsion IT-parklar, startap fondlari va biznes-inkubatorlar orqali sun’iy intellekt loyihalarini qo‘llab-quvvatlash, O‘zbekiston uchun bu yo‘nalishda yagona metodologik platforma yaratish, mamlakatning raqamli transformatsiyasi va uzoq muddatli iqtisodiy barqarorligini ta’minlashda muhim ahamiyat kasb etadi.

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KORPORATIV MIJOZLARGA KO'RSATILADIGAN INNOVATSION BANK XIZMATLARINI TAKOMILLASHTIRISH

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Annotatsiya. Mazkur tezisda global moliya-bank tizimining raqamli transformatsiyalashuvi sharoitida tijorat banklari tomonidan korporativ mijozlarga ko‘rsatiladigan innovatsion bank xizmatlarini takomillashtirishning nazariy-uslubiy va amaliy jihatlarini tadqiq etishga bag‘ishlangan. Tadqiqotning bosh maqsadi - korporativ sektorning dinamik o‘sib borayotgan ekotizimli talablariga mos keladigan raqamli bank mahsulotlarini integratsiya qilish mexanizmlarini modellashtirishdan iborat. Tezisda intellektual kesh-menejment, raqamli faktoring va ochiq bank faoliyati (*Open Banking*) kabi ilg‘or FinTex yechimlarining operatsion samaradorligi tahlil qilinib, ularni milliy bank amaliyotiga tatbiq etishdagi institutsional cheklovlar, axborot asimmetriyasi hamda kiberxavfsizlik xatarlari diagnostika qilingan. Tadqiqotning fundamental natijasi o‘laroq, korporativ mijozlar uchun unifikatsiyalangan B2B platformalarini yaratish, sun’iy intellektga asoslangan prediktiv skoring modellarini joriy etish va “yashil” bank mahsulotlarini diversifikatsiyalashga qaratilgan ilmiy-amaliy tavsiyalar majmuasi ishlab chiqilgan. Xulosalar tijorat banklarining strategik rivojlanish dasturlarini shakllantirishda hamda korporativ bank faoliyatini modernizatsiya qilishda yuqori empirik ahamiyatga ega.

Kalit so‘zlar: korporativ mijozlar, innovatsion bank xizmatlari, raqamli transformatsiya, FinTex, kesh-menejment, Open Banking, prediktiv skoring, ESG prinsiplari.

Abstract. This study investigates the theoretical, methodological, and practical dimensions of optimizing innovative banking services provided to corporate clients amid the digital transformation of the global financial and banking ecosystem. The primary objective of the research is to model efficient mechanisms for integrating digital banking products that align with the dynamically evolving ecosystem demands of the corporate sector. The paper analyzes the operational efficiency of advanced FinTech solutions, including intellectual cash management, digital factoring, and Open Banking, while diagnosing institutional constraints, information asymmetry, and cybersecurity risks hindering their implementation within the national banking practice. As a fundamental outcome of the research, a comprehensive set of scholarly and practical recommendations is formulated, focusing on the creation of unified B2B platforms for corporate clients, the deployment of artificial intelligence-driven

predictive scoring models, and the diversification of "green" banking products. The findings possess significant empirical value for designing strategic development frameworks for commercial banks and modernizing corporate banking operations.

Keywords: corporate clients, innovative banking services, digital transformation, FinTech, cash management, Open Banking, predictive scoring, ESG principles.

Kirish

Global moliya-bank tizimining raqamli transformatsiyalashuvi va iqtisodiyotning yuqori sur'atlarda virtualizatsiyalashuvi sharoitida korporativ mijozlarga ko'rsatiladigan bank xizmatlari arxitekturasini tubdan modernizatsiya qilish obyektiv zaruriyatga aylanmoqda. Zamonaviy sharoitda an'anaviy bank mahsulotlari korporativ sektorning dinamik o'sib borayotgan ekotizimli talablarini, moliya oqimlarini boshqarish tezligi va xavfsizligini to'liq ta'minlashda cheklangan imkoniyatlarni namoyon etmoqda. Shu sababli, bank korporativ biznesida raqamli texnologiyalar, blokcheyn platformalari, sun'iy intellektga asoslangan prediktiv tahlil, Open API va masofaviy intellektual xizmatlarni (B2B platformalari, aqlli kesh-menejment) integratsiya qilish masalasi alohida dolzarblik kasb etadi. Mazkur tadqiqotning maqsadi - tijorat banklarida korporativ mijozlarga ko'rsatiladigan innovatsion bank xizmatlarining nazariy-uslubiy asoslarini tadqiq etish hamda ularning operatsion samaradorligi va raqobatbardoshligini oshirishga qaratilgan amaliy-metodologik tavsiyalar paketini ishlab chiqishdan iboratdir.

Tijorat banklarida korporativ mijozlar bilan ishlash ko'plab ichki va tashqi reglamentlarga rioya etishni talab etadi. Ichki reglamentlar tarkibiga kredit siyosati, risk-menejment standartlari, komplayens nazorati, limitlash tizimi, vakolatlar matritsasi hamda boshqa normativ hujjatlar kiradi. Tashqi reglamentlar esa moliya bozorini tartibga soluvchi organ tomonidan belgilangan prudensial me'yorlar, kapital yetarliligi talablari, likvidlik ko'rsatkichlari hamda xalqaro moliyaviy hisobot standartlari bilan bog'liq. Korporativ mijozlar bilan ishlash jarayoni ko'p bosqichli va murakkab biznes-protsesslarni o'z ichiga oladi. Xususan:

– mijozning moliyaviy holatini kompleks tahlil qilish;
– kreditga layoqatlilikni baholash;
– risklarni identifikatsiya qilish va baholash;
– individual moliyaviy yechim ishlab chiqish;
– bitimni huquqiy ekspertizadan o'tkazish;
– monitoring hamda post-sotuv nazoratini amalga oshirish.

Mazkur jarayonlar bank ichida bir nechta bo'linmalar – kredit departamenti, risk-menejment xizmati, yuridik boshqarma, komplayens xizmati hamda operatsion blok o'rtasida parallel ravishda amalga oshiriladi. Shu bilan birga, tashqi

kommunikatsion muhitda ham bank turli biznes mexanizmlaridan foydalanadi: auditorlik kompaniyalari, baholovchi tashkilotlar, sug‘urta kompaniyalari hamda boshqa moliyaviy vositachilar bilan hamkorlik qiladi. Bank bozoridagi doimiy raqobat, operatsiyalar marjasining pasayishi hamda kredit siyosatini tartibga soluvchi organ talablariga muvofiq faoliyat yuritish zaruriyati banklarni strategik faoliyatni qayta ko‘rib chiqishga undamoqda. Xususan:

– kredit portfeli sifati ustuvor ahamiyat kasb etmoqda;
– risklarni boshqarish tizimi takomillashtirilmoqda;
– mijozlar segmentatsiyasi chuqurlashtirilmoqda;
– daromadlarning diversifikatsiyasi yo‘lga qo‘yilmoqda.

Zamonaviy bank tizimida moliyaviy barqarorlikni ta’minlash maqsadida regulyator tomonidan belgilangan normativlarga qat’iy rioya etish muhim ahamiyat kasb etadi. Kapital yetarliligi, likvidlik koeffitsiyentlari hamda kredit risklari bo‘yicha limitlar bankning har bir korporativ bitimida inobatga olinadi. Bu esa boshqaruv qarorlarini qabul qilish jarayonida chuqur iqtisodiy asoslashni talab etadi. Yuqoridagi omillar ta’sirida tijorat banklarida mijozlarga yo‘naltirilgan xizmatlar konsepsiyasi shakllandi va rivojlandi. Mijozlarga yo‘naltirilgan xizmatlar – bu bank faoliyatini mijoz ehtiyojlari va manfaatlari asosida tashkil etish, xizmat ko‘rsatish jarayonini maksimal darajada individuallashtirish hamda uzoq muddatli hamkorlikni rivojlantirishga qaratilgan boshqaruv yondashuvidir.

Xulosa va takliflar

Tijorat banklarida korporativ mijozlarga xizmat ko‘rsatish strategik ahamiyatga ega bo‘lib, bank daromadlarining muhim qismini shakllantiradi. Ushbu segment bilan samarali ishlash banklardan individual yondashuv, keng mahsulot liniyasi, moslashuvchan tarif siyosati hamda yuqori darajadagi kliento‘rientatsiyani talab etadi. Korporativ mijozlar bilan uzoq muddatli va o‘zaro manfaatli hamkorlikni yo‘lga qo‘yish orqali banklar nafaqat o‘z moliyaviy barqarorligini mustahkamlaydi, balki real sektor rivojlanishiga ham sezilarli hissa qo‘shadi. Shu bois mahsulot siyosatini takomillashtirish, raqamli texnologiyalarni joriy etish hamda individual xizmat ko‘rsatish mexanizmlarini rivojlantirish banklar faoliyatining ustuvor yo‘nalishlaridan biri hisoblanadi. Tahlil natijalari shuni ko‘rsatadiki, 2021–2025-yillarda yuridik shaxslarga ajratilayotgan kreditlar hajmi sezilarli darajada oshib, 2025-yilda 355,6 trillion so‘mga yetgan. Bu holat korporativ segmentning tijorat banklari faoliyatidagi strategik ustuvorligini hamda mamlakat moliya tizimining iqtisodiy barqarorligiga qo‘shayotgan hissasini yaqqol namoyon etadi. Shu bilan birga, davlat ulushi mavjud banklarning yetakchi roli hamda boshqa tijorat banklarining korporativ bozorga faol kirib borayotgani kuzatiladi. Kreditlash hajmining barqaror o‘sishi korporativ

mijozlarning moliyaviy xatti-harakatlarini chuqur tahlil qilish, ularning operatsion va investitsion ehtiyojlarini aniqlash hamda individual yondashuv asosida xizmatlarni moslashtirish zaruratini yuzaga keltiradi. Shu orqali banklar innovatsion moliyaviy yechimlarni, jumladan integratsiyalashgan kredit va investitsiya paketlarini, lizing, faktoring hamda risk-menejment xizmatlarini taklif etish imkoniyatiga ega bo‘ladi. Bu esa banklarning moliyaviy barqarorligini mustahkamlash, daromadlarni diversifikatsiya qilish hamda operatsion samaradorlikni oshirishga xizmat qiladi.

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KICHIK VA O‘RTA TADBIRKORLIK SUBYEKTLARI UCHUN SOLIQ YUKINI OPTIMALLASHTIRISHNING NAZARIY JIHATLARI

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Annotatsiya. Mazkur tezisda kichik va o‘rta tadbirkorlik (KOT) subyektlarida soliq yukini optimallashtirishning nazariy-uslubiy jihatlari tahliliy ravishda o‘rganilgan. Kichik va o‘rta biznes mamlakat iqtisodiyotining drayveri hamda barqaror o‘sishni ta’minlovchi muhim tarkibiy qismi bo‘lib, uning moliyaviy barqarorligi bevosita soliqqa tortish tizimining moslashuvchanligi bilan bog‘liq. Tadqiqotda soliq yukining KOT subyektlari moliyaviy natijalari va investitsiyaviy faolligiga ta’sir ko‘rsatuvchi omillari, shuningdek, soliqqa tortishni takomillashtirish tamoyillari nazariy jihatdan asoslangan. Shuningdek, tezisda KOT subyektlari uchun differensiallashgan (tabaqalashtirilgan) soliq stavkalarini qo‘llash, soliq yukini optimallashtirish orqali yashirin iqtisodiyot ko‘lamini qisqartirish hamda tadbirkorlik muhitining shaffofligini oshirish bo‘yicha ilg‘or xorijiy tajriba va ilmiy-nazariy yondashuvlar tahlil qilingan. Tadqiqot natijalari asosida KOT subyektlarining soliq strategiyalarini modellashtirish, soliq tizimini rag‘batlantiruvchi funksiyasini kuchaytirish hamda milliy iqtisodiyotda kichik va o‘rta biznesning ulushini oshirishga qaratilgan ilmiy-amaliy tavsiyalar ishlab chiqilgan.

Kalit so‘zlar: Kichik va o‘rta tadbirkorlik (KOT), soliq yuki, soliq yukini optimallashtirish, soliq mexanizmi, soliq siyosati, differensiallashgan soliqqa tortish, shaffoflik, moliyaviy barqarorlik.

Annotation. This paper analyzes the theoretical and methodological aspects of optimizing the tax burden for small and medium-sized enterprises (SMEs). Small and medium-sized businesses serve as a driver of the national economy and a crucial element for sustainable growth, meaning their financial stability directly depends on the flexibility of the tax system. This research theoretically establishes the factors affecting the financial results and investment activity of SMEs under the influence of the tax burden, as well as the principles of improving taxation. Additionally, the thesis evaluates leading foreign experiences and scientific approaches to implementing differentiated tax rates for SMEs, reducing the scale of the shadow economy via tax optimization, and increasing transparency in the business environment. Based on the study results, practical and scientific recommendations are proposed to model tax strategies for SMEs, enhance the stimulating function of the tax system, and increase the share of small and medium businesses in the national economy.

Keywords: small and medium-sized enterprises (SMEs), tax burden, tax burden optimization, tax mechanism, tax policy, differentiated taxation, transparency, financial stability.

Kirish

Kichik tadbirkorlik subyektlari transformatsion iqtisodiyot sharoitida makroiqtisodiy barqarorlikni ta’minlash, bandlik tarkibini optimallashtirish hamda innovatsion faollikni generator qilishning fundamental drayveri hisoblanadi. Shu sababli, kichik biznes subyektlarini soliqqa tortish arxitekturasining adolatli, shaffof va konvergent (moslashuvchan) prinsiplar asosida shakllanishi strategik ahamiyatga ega. Fiskal siyosat institutsional muhitning parametrlarini belgilab beruvchi hamda tadbirkorlik subyektlarining investitsion va operatsion strategiyalarini modellashtiruvchi ekzogen omildir. Optimal loyihalashtirilgan soliq mexanizmi kichik biznesning barqaror o‘sish sur’atlarini rag‘batlantirishga xizmat qilsa, fiskal yukning disproporsional (noto‘g‘ri) taqsimlanishi tranzaksion xarajatlarni oshirib, iqtisodiy faoliyatning yashirin sektorga regressiyasini (o‘tishini) akseleratsiyalashga (tezlashtirishga) sabab bo‘ladi.

Kichik tadbirkorlik subyektlarini soliqqa tortishning nazariy-uslubiy asoslarini tadqiq etish, kelajakda milliy iqtisodiyotning raqobatbardoshligini oshiruvchi optimal fiskal modellarni prognozlashtirish imkonini beradi. Mazkur tadqiqot doirasida amaldagi soliq rejimlarining samaradorligi va ularning tadbirkorlik ekotizimiga ta’siri tahliliy interpretatsiya qilinadi. Shuningdek, fiskal bosimni minimallashtirish hamda biznes faolligini multiplikatsiyalash bo‘yicha ilg‘or xalqaro yondashuvlar qiyoslanib, samarali soliq strategiyalarini shakllantirish yuzasidan konseptual tavsiyalar majmuasi ishlab chiqiladi.

Milliy iqtisodiyot sharoitida kichik biznes subyektlarining soliq muhitini takomillashtirish muammolari mahalliy maktab vakillari tomonidan tizimli ravishda tadqiq etib kelinmoqda.

S. Abdullayev (2020) o‘zining *“O‘zbekiston Respublikasida kichik tadbirkorlikni soliqqa tortish tizimini takomillashtirish yo‘llari”* nomli fundamental ishida respublikadagi amaldagi fiskal mexanizmlarni funksional jihatdan baholaydi. Muallif kichik tadbirkorlik faoliyatida asimmetrik axborot xatarlarini kamaytirish uchun institutlararo shaffoflik darajasini oshirish zarurligini ilmiy asoslab, soliq tizimining makroiqtisodiy rag‘batlantiruvchi funksiyasini kuchaytirish konsepsiyasini ilgari suradi.

Tadqiqotda soliq preferensiyalari (imtiyozlari) va stavkalarining biznes subyektlarining moliyaviy elastikligiga (moslashuvchanligiga) ta’siri empirik tahlil qilingan. S. Abdullayevning xulosalariga ko‘ra, fiskal apparatning

optimallashtirilmasligi va yuqori soliq yuki tadbirkorlarni iqtisodiy faoliyatni legallashtirishdan ko‘ra shadow economy (yashirin iqtisodiyot) koridorlariga kirishga majbur qiluvchi drayver bo‘lib xizmat qiladi. Ushbu muammoni bartaraf etish sifatida maqolada soliqlarni unifikatsiya qilish (tizimlashtirish) va fiskal barqarorlikni saqlash bo‘yicha metodologik takliflar paketi taqdim etilgan. Shuningdek, xalqaro amaliyot qiyosiy o‘rganilib, soliq tizimini liberallashtirish va uning hisoblash algoritmlarini soddalashtirish bo‘yicha amaliy modellar ishlab chiqilgan.

Muammoning yana bir konseptual jihati U. Karimov (2019) tomonidan *“Soliq siyosatining kichik biznes rivojlanishiga ta’siri”* mavzusidagi izlanishida atroflicha tahlil qilingan. Muallif milliy soliq amaliyotini hamda joriy etilgan imtiyozlar tizimining iqtisodiy qaytim samaradorligini tahliliy diagnostika qiladi.

Tadqiqotda fiskal yukning korporativ moliya tuzilmasiga ko‘rsatadigan asimmetrik (ijobiy va salbiy) ta’sirlari keng yoritilgan. Xususan, adolatli va barqaror soliq rejimlarining kichik tadbirkorlik investitsion jozibadorligini oshiruvchi omil ekanligi, aksincha, disproporsional soliq ma’muriyatchiligining esa yashirin iqtisodiyot ko‘lamini kengaytiruvchi determinanti (sababchisi) ekanligi isbotlangan.

Xulosa va takliflar

O‘tkazilgan tadqiqot natijalari kichik va o‘rta tadbirkorlik subyektlarini soliqqa tortish mexanizmlarining samaradorligi bevosita makroiqtisodiy barqarorlik ko‘rsatkichlari hamda institutsional muhit jozibadorligi bilan korrelyatsiya qilishini ko‘rsatdi. Tahlillar shuni isbotlaydiki, disproporsional yuqori soliq yuki va soliq ma’muriyatchiligining strukturaviy murakkabligi kichik biznes subyektlarini rasmiy iqtisodiy makondan siqib chiqaruvchi hamda faoliyatning yashirin sektorga (*shadow economy*) regressiyasini stimullovchi fundamental ekzogen determinandlardir. Fiskal bosimning ortishi hamda murakkab hisobot tizimlari tadbirkorlik subyektlarida soliqlardan qochish (*tax evasion*) tendensiyalarini akseleratsiyalashga olib keladi.

Ilg‘or xalqaro tendensiyalarning qiyosiy-tahliliy interpretatsiyasi shuni ko‘rsatadiki, unifikatsiyalangan va soddalashtirilgan fiskal rejimlar tranzaksion xarajatlarni minimallashtirish hamda biznes ekotizimini legallashtirish darajasini oshirishda yuqori multiplikativ samaradorlikka ega. Soliq stavkalarining optimal darajada optimallashtirilishi va soliq monitoringi jarayonlarining to‘liq raqamlashtirilishi korporativ moliyaviy barqarorlikni ta’minlab, tadbirkorlarning fiskal majburiyatlarga nisbatan mas’uliyatini ijobiy tomonga transformatsiya qiladi.

Fiskal yukning kamaytirilishi natijasida bo‘shagan moliyaviy aktivlar korxonalarning ichki investitsion resurslarini kapitallashuviga yo‘l ochadi va ushbu mablag‘larni ishlab chiqarish hamda xizmat ko‘rsatish quvvatlarini modifikatsiyalashga, texnologik yangilanishga va qo‘shimcha ish o‘rinlari yaratishga

qayta yo‘naltirish imkoniyatini beradi. Binobarin, kichik biznesni soliqqa tortish tizimini liberallashtirish va elastik mexanizmlarni integratsiya qilish – davlat budjeti daromadlari bazasini barqaror diversifikatsiyalash hamda milliy iqtisodiyotning uzoq muddatli barqaror o‘sish sur’atlarini ta’minlashga qaratilgan strategik makroiqtisodiy yo‘nalish hisoblanadi.

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МАРКЕТИНГОВЫЕ МЕХАНИЗМЫ ПРОДВИЖЕНИЯ ТУРИСТИЧЕСКОГО ПОТЕНЦИАЛА РЕГИОНОВ

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Аннотация. В статье рассматриваются теоретические и практические аспекты формирования маркетинговых механизмов продвижения туристического потенциала регионов. Обосновано, что в современных условиях развитие туризма требует не только наличия историко-культурных, природных и рекреационных ресурсов, но и эффективной системы их позиционирования на внутреннем и международном туристическом рынке. Особое внимание уделено региональному брендингу, цифровому маркетингу, событийным мероприятиям, продвижению культурного наследия, развитию туристических маршрутов и формированию положительного имиджа территории.
Ключевые слова: региональный туризм, туристический потенциал, маркетинговая стратегия, туристический бренд, цифровой маркетинг, дестинация, культурное наследие, туристическая привлекательность.

Введение. В современных условиях туризм выступает одним из наиболее динамично развивающихся секторов мировой экономики. Его значение проявляется не только в увеличении доходов от предоставления туристических услуг, но и в создании новых рабочих мест, развитии инфраструктуры, поддержке малого и среднего бизнеса, сохранении историко-культурного наследия и повышении инвестиционной привлекательности регионов. В связи с этим особую актуальность приобретает вопрос эффективного продвижения туристического потенциала территорий.

Региональный туризм имеет важное значение для стран, обладающих богатым историческим наследием, разнообразной культурой, уникальными природными ресурсами и самобытными традициями. Однако наличие туристических ресурсов само по себе не обеспечивает устойчивого притока туристов. Для этого необходима продуманная маркетинговая стратегия, направленная на выявление конкурентных преимуществ региона, формирование привлекательного туристического образа, продвижение туристических продуктов через современные коммуникационные каналы и обеспечение высокого качества туристического обслуживания.

Международные организации также подчёркивают значение устойчивого, инклюзивного и конкурентоспособного развития туризма. В частности, Всемирный экономический форум в индексе развития путешествий и туризма 2024 года рассматривает туризм как важный фактор устойчивого будущего для экономик и местных сообществ . UN Tourism определяет туризм как сферу, связанную с продвижением ответственного, устойчивого и доступного туризма для всех категорий населения .

Для Узбекистана развитие регионального туризма имеет особое стратегическое значение. Богатое культурное наследие Бухары, Самарканда, Хивы, Шахрисабза, Термеза, Ферганы, Ташкента и других регионов создаёт прочную основу для формирования конкурентоспособного туристического продукта. В стратегии «Узбекистан – 2030» также определены задачи по развитию внутреннего и международного туризма, увеличению туристических потоков, созданию благоприятных условий для туристов и повышению доходов населения за счёт туристической деятельности .

Целью настоящей статьи является научное обоснование маркетинговых механизмов продвижения туристического потенциала регионов и разработка практических предложений по повышению их туристической привлекательности.

Основная часть. Туристический потенциал региона представляет собой совокупность природных, историко-культурных, социально-экономических, инфраструктурных и имиджевых ресурсов, которые могут быть использованы для привлечения туристов и развития туристической деятельности. В его структуру входят памятники архитектуры, музеи, природные ландшафты, национальные традиции, гастрономия, ремёсла, фестивали, транспортная доступность, гостиничная база, уровень сервиса и информационная открытость региона.

Следует отметить, что туристический потенциал не является статичным понятием. Он развивается под влиянием государственной политики, инвестиций, предпринимательской активности, цифровизации, качества образования в сфере туризма и уровня участия местного населения. Регион, обладающий значительными историко-культурными ресурсами, может оставаться недостаточно посещаемым, если отсутствует эффективная система продвижения, слабая инфраструктура или недостаточно сформирован туристический бренд.

В условиях конкуренции между туристическими дестинациями особое значение приобретает маркетинговый подход. Он позволяет рассматривать регион не

просто как географическую территорию, а как комплексный туристический продукт, имеющий свою целевую аудиторию, уникальное торговое предложение, эмоциональную ценность и систему коммуникации с потребителями.

Одним из ключевых инструментов продвижения туристического потенциала является формирование регионального туристического бренда. Бренд региона – это устойчивый образ территории в сознании туристов, инвесторов и партнёров, основанный на её уникальных особенностях. Он включает визуальные символы, исторические ассоциации, культурные ценности, архитектурный облик, гастрономические традиции и эмоциональные впечатления.

Например, Бухара может позиционироваться как город древней цивилизации, исламской архитектуры, ремесленных традиций и восточного гостеприимства. Самарканд – как центр Великого шёлкового пути и символ величия восточной культуры. Ферганская долина – как территория ремёсел, садоводства, национальной кухни и народного искусства. При этом каждый регион должен иметь собственную маркетинговую концепцию, а не повторять общий образ страны.

В современных условиях цифровой маркетинг становится одним из наиболее эффективных инструментов продвижения туристических дестинаций. Туристы всё чаще принимают решение о поездке на основе информации, полученной из интернета: официальных сайтов, социальных сетей, блогов, видеоплатформ, картографических сервисов и отзывов других путешественников.

Второе направление – активное использование социальных сетей. Визуальный характер туризма делает такие платформы особенно эффективными для продвижения. Фотографии исторических объектов, короткие видеоролики, интервью с ремесленниками, рассказы о национальных традициях, гастрономические обзоры и виртуальные экскурсии способны формировать устойчивый интерес к региону.

Третье направление – сотрудничество с блогерами, тревел-журналистами и лидерами мнений. Современный турист часто доверяет не официальной рекламе, а личному опыту других путешественников. Поэтому приглашение известных блогеров, организация инфотуров, создание качественного фото- и видеоконтента могут существенно повысить узнаваемость региона.

Четвёртое направление – применение аналитики данных. Региональные туристические организации должны изучать поведение туристов: откуда они приезжают, какие объекты посещают, сколько времени проводят в регионе, какие услуги выбирают, какие отзывы оставляют. На основе этих данных можно

корректировать маркетинговую стратегию, улучшать сервис и разрабатывать новые туристические продукты.

В современных отчётах по destination marketing подчёркивается, что туристические организации всё больше внимания уделяют цифровым каналам, персонализации предложений и использованию новых технологий для продвижения дестинаций.

Маркетинговое продвижение туристического региона будет эффективным только в том случае, если рекламируемый образ соответствует реальному качеству услуг. Турист, привлечённый красивой рекламой, должен получить удобный транспорт, чистую городскую среду, качественное питание, безопасное пребывание, доступную информацию и профессиональное сопровождение.

Поэтому маркетинговая стратегия должна быть связана с развитием инфраструктуры. К основным элементам туристической инфраструктуры относятся гостиницы, гостевые дома, транспорт, туристическая навигация, общественные пространства, санитарные объекты, пункты информации, сервисы онлайн-бронирования, музеи, культурные центры и торговые зоны.

Особое значение имеет подготовка кадров. Гиды, администраторы гостиниц, работники кафе, сотрудники музеев и водители являются непосредственными участниками формирования впечатления туриста о регионе. Поэтому необходимо развивать образовательные программы, курсы иностранных языков, тренинги по сервису, цифровой грамотности и межкультурной коммуникации.

Маркетинг в туризме не должен ограничиваться рекламой. Он должен включать управление качеством туристического продукта. Если турист получает положительный опыт, он становится носителем бесплатного продвижения: оставляет хорошие отзывы, рекомендует регион знакомым, публикует фотографии и возвращается повторно.

На основе анализа можно предложить комплексную модель маркетингового продвижения туристического потенциала региона. Она включает следующие взаимосвязанные элементы:

1. Анализ туристического потенциала региона. На этом этапе проводится инвентаризация природных, историко-культурных, инфраструктурных и человеческих ресурсов. Определяются сильные и слабые стороны региона, целевые группы туристов и конкурентные преимущества.

2. Формирование туристического бренда. Разрабатываются позиционирование, слоган, визуальный стиль, основные смыслы и эмоциональный образ региона.

3. Разработка туристических продуктов. Создаются маршруты, экскурсии, фестивали, гастрономические программы, ремесленные туры, образовательные и семейные пакеты.
4. Цифровое продвижение. Используются сайты, социальные сети, мобильные приложения, онлайн-карты, видеоконтент, блогеры, SEO-продвижение и таргетированная реклама.
5. Событийный маркетинг. Формируется календарь региональных, национальных и международных мероприятий, направленных на привлечение туристов.
6. Повышение качества сервиса. Проводится обучение кадров, совершенствуется инфраструктура, внедряются стандарты качества и механизмы обратной связи.
7. Мониторинг и оценка эффективности. Анализируются туристические потоки, доходы, отзывы, уровень загрузки гостиниц, активность в социальных сетях и экономический эффект для местного населения.

Данная модель позволяет рассматривать продвижение туристического потенциала как системный процесс, в котором реклама, инфраструктура, культура, сервис, цифровизация и управление качеством взаимно дополняют друг друга.

Заключение. Таким образом, продвижение туристического потенциала регионов является сложным и многоуровневым процессом, требующим комплексного маркетингового подхода. Современный региональный туризм развивается не только за счёт историко-культурных или природных ресурсов, но и благодаря эффективному брендингу, цифровому продвижению, событийным мероприятиям, качественному сервису и активному участию местного населения.

Маркетинговая стратегия должна быть направлена на формирование узнаваемого образа региона, создание конкурентоспособных туристических продуктов, расширение информационной доступности, развитие инфраструктуры и обеспечение положительного туристического опыта. Только при таком подходе регион может стать привлекательной дестинацией как для внутренних, так и для международных туристов.

Для Узбекистана развитие регионального туризма имеет особое значение, поскольку каждый регион страны обладает уникальным историческим, культурным и природным потенциалом. Эффективное продвижение этого потенциала будет способствовать росту экономики, развитию предпринимательства, сохранению культурного наследия, повышению занятости населения и укреплению международного имиджа страны.

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MAKTABGACHA TA’LIM TASHKILOTLARIDA O‘TKAZILADIGAN MUSIQA MASHG‘ULOTLARINING O‘ZIGA XOS XUSUSIYATLARI VA ULARNING TUZILISHI

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Annotatsiya: *Mamlakatimizda oliy ta’lim tizimini rivojlantirish bo‘yicha keng ko‘lamli ishlar amalga oshirilmoqda. Ayniqsa ta’limning mazmun-mohiyatiga, uning sifat-samaradorligini oshirishga katta ahamiyat berilmoqda. Bu ishlarni amalga oshirishda yangi, zamon talablariga javob beradigan darsliklar, o‘quv va o‘quv-uslubiy qo‘llanmalar yaratish muhim vazifadir.*
«Maktabgacha musiqiy-estetik ta’lim nazariyasi va metodikasi» fani shu soha mutaxassislarini o‘qitish, tayyorlashda asosiy fanlardan biri hisoblanadi. Ushbu uslubiy qo‘llanmada mazkur «Maktabgacha musiqiy-estetik ta’lim nazariyasi va metodikasi» fani bo‘yicha barcha kerakli nazariy va amaliy materiallar berilgan. Shuningdek mazkur uslubiy qo‘llanma Maktabgacha ta’lim tashkiloti musiqa mashg‘ulotlarida qo‘llash uchun kerak bo‘lgan yangi musiqa asarlari, qo‘shiqlar bilan boyitilgan.
Калит сўзлар: *мусиқа таълими, raqs, ritmik mashq, рақамли технологиялар, мультимедиа, онлайн таълим, интерактив ўқитиш, мусиқа педагогикаси, рақамли таълим муҳити, ижодий фаоллик, педагогик компетенция.*

Maktabgacha ta’lim tashkilotlarida o‘tkaziladigan musiqa mashg‘ulotlarini rejalashtirishda musiqa rahbari har bir guruhning aqliy, jismoniy, emotsional rivojlanish xususiyatlarini hisobga olishi kerak. Shu asosda bolalarga o‘rgatiladigan repertuar va faoliyat turlari ketma-ketligini to‘g‘ri tuzishi kerak. Mashg‘ulotlarni tashkil etishda musiqa rahbari o‘tiladigan musiqiy asarlarni o‘zi o‘rgangan bo‘lishi, mashg‘ulot uchun ko‘rgazmali qurollar, texnika vositalarini tayyorlab qo‘yishi kerak. Musiqa mashg‘ulotlari o‘yin tarzida, harakatli mashqlar va raqslar bilan qo‘shib olib borilishi maqsadga muvofiq. Musiqa tinglash va musiqa asboblarida chalishni o‘rgatish ko‘nikmalarini shakllantirishga ham vaqt ajratish muhim.
Qo‘shiq kuylashni o‘rgatish jarayonida bolalarga ovozni to‘g‘ri ishlatish, musiqani tinglab kuylash, to‘g‘ri nafas olish, qo‘shiq xarakteriga mos ohangda kuylash ko‘nikmalari shakllantiriladi. Bu mashg‘ulot turi orqali bolalarning musiqani eshitish qobiliyatlari, musiqaviy xotiralari, ritm hissiyotlari kompleks rivojlanadi.

Musiqa tinglash daqiqalarida esa bolalarning musiqiy tasavvurlari kengayib boradi, fikrlash, his etish, diqqatni jamlay olish ko‘nikmalari shakllanadi. Shuningdek musiqa rahbari tomonidan tinglanadigan musiqa asarlari, ularning ijodkorlari haqidagi ma’lumotlar bilan tanishadilar.

Musiqiy – ritmik mashqlar orqali bolalarning maxsus motorikasi shakllanishi, jismoniy va ritmik rivojlanishiga erishiladi. Bolalar raqs san`ati asoslarini egallashadi. O‘zlarida jismoniy va emotsional erkinlik hissiyotini rivojlantirishadi. Musiqa va harakat uyg‘unligiga mashqlar, o‘yinlar, raqslar orqali erishishga intilishadi.

Musiqa asbobida chalishni o‘rgatish jarayonida bolalar musiqa savodi bo‘yicha bilimlarni egallashadi, notalarni amalda ijro etishadi. Musiqa ohanglarini, kuyni o‘zlari chiqarishni o‘rganishadi. Musiqiy jarayonda, amalda o‘zlari ishtirok etishni o‘rganishadi. Shuningdek bu jarayonda musiqiy qobiliyatlari va qo‘l motorikalari rivojlanadi.

Musiqa mashg‘ulotlari asosan butun guruh bilan bir vaqtda o‘tkaziladi. Ammo - «Musiqiy eshitish qobiliyati barcha bolalarda turli darajada namoyon bo‘ladi. Buni aniqlash mezonlari uch turga bo‘linadi: a) musiqiy ritmni his qilish, b) musiqiy tovushni (tonal jihatdan) eslab qolish va takrorlash, v) bir vaqtning o‘zida bir necha ohanglarni eshitib, bir – biridan ajrata olish.

Musiqa rahbari mana shu mezonlarni qaysidir maktabgacha ta’lim tashkiloti tarbiyalanuvchilari orasida yuqori bo‘lganligini aniqlab olgandan so‘ng, ularning qobiliyatini rivojlantirish uchun yakka tartibda mashg‘ulotlar olib borishi lozim. Aynan buyuk kompozitorlar va musiqa darg‘alarining asosiy muvaffaqiyatining zamirida musiqiy eshitish qobiliyatini erta aniqlanganligi, shu bilan birga, ularning musiqiy layoqati to‘g‘ri yo‘naltirish natijasida rivojlanganligini ko‘rishimiz mumkin.»[1]

Bu faoliyat turlaridan tashqari musiqa mashg‘ulotlarida musiqiy-didaktik o‘yinlar o‘tkaziladi, musiqa ijodi bo‘yicha mashqlar bajariladi, musiqa savodi va musiqa adabiyoti o‘rgatiladi. Musiqa mashg‘ulotlarida barcha faoliyat turlarini bir-biri bilan bog‘lab, oddiydan murakkabga, izchillik bilan olib borilishi muhimdir. Shunday tartibga amal qilinsa bolalarda tushunmovchilik hosil bo‘lmaydi, mavzularni, musiqa asarlarini tez va oson o‘zlashtiradilar.

Mashg‘ulotlarda ko‘rgazma qurollar ishlatilishi ularning samaradorligini oshiradi. Ko‘rgazma qurollar bilan o‘tkazilgan mashg‘ulot tarbiyalanuvchilar uchun tushunarli va qiziqarli o‘tadi. Ayniqsa musiqa savodi va musiqa adabiyoti bo‘yicha mavzularni bayon etishda, tushuntirishda ko‘rgazmali qurollar yaxshi samara beradi.

Musiqa mashg‘ulotlarini o‘tkazishda musiqa asbobining, texnik vositalarning bo‘lishi va ulardan foydalanish muhimdir. Musiqa rahbari musiqa asbobida (ko‘pincha fortepianoda) chalib bilishi, texnik vositalarni (kompyuter, monitor, ovoz kuchaytirgich, mikrofon va boshqalar) ishlatib bilishi kerak. Shuningdek innovatsion ishlanmalar tuzish, yangicha uslublar qo‘llash ham davr talabidir.

Yuqoridagi musiqiy faoliyat turlari bolalarning musiqiy tafakkurini rivojlantiradi, musiqiy idroki va hissiyotini tarbiyalaydi. Kuylash, ritmik harakatlar bajarish, musiqa tinglash, musiqa asboblarida chalish kabi musiqiy faoliyat turlari musiqa mashg‘ulotlarida kompleks, bir-biri bilan uzviy bog‘liq holda olib boriladi. Musiqa mashg‘ulotlarida o‘rganilgan asarlarning aksariyati maktabgacha ta’lim tashkilotlarida o‘tkaziladigan tadbirlar, bayramlarda ijro etiladi va ularning mazmunli, qiziqarli o‘tishiga xizmat qiladi.

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IMPROVING THE METHODOLOGY OF TEACHING FLUTE PERFORMANCE IN THE PROCESS OF TRAINING FUTURE MUSIC EDUCATORS.

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Abstract: This thesis examines the improvement of flute teaching methodology in training future music educators and analyzes characteristics of classical and contemporary flute repertoire, focusing on performance skills, interpretation, and musical development.

Keywords: flute, pedagogy, methodology, repertoire, classical, contemporary, performance, education

Аннотация:В данной работе рассматривается совершенствование методики обучения игре на флейте в процессе подготовки будущих педагогов-музыкантов, а также особенности классического и современного репертуара и развитие исполнительских навыков.

Ключевые слова: флейта, педагогика, методика, репертуар, классический, современный, исполнительство, образование.

Introduction**. The training of future music educators is a complex and multifaceted process that requires a balanced integration of pedagogical knowledge, artistic skills, and instrumental performance competence. Among various musical instruments, the flute occupies a significant place in music education due to its wide repertoire, expressive capabilities, and suitability for both solo and ensemble performance. Therefore, improving the methodology of teaching flute performance is an essential task in preparing highly qualified music educators.**

Effective flute instruction is not limited to the development of technical skills; it also involves the formation of musical thinking, interpretative abilities, and stylistic awareness. In this context, the study of both classical and contemporary flute repertoire plays a crucial role. Classical repertoire provides a solid foundation for developing sound production, articulation, phrasing, and stylistic accuracy, while contemporary works expand the performer's technical and expressive possibilities through innovative compositional techniques and modern performance practices.

The integration of classical and contemporary repertoire in the educational process enables students to develop versatility, creativity, and adaptability in musical interpretation. It also contributes to a deeper understanding of different musical styles and enhances the overall artistic competence of future music teachers.

The aim of this study is to analyze the characteristics of classical and contemporary flute repertoire and to explore effective methodological approaches for improving flute performance teaching in the process of training future music educators.

Main Body. The Role of Flute Performance in Music Teacher Education

Flute performance plays an important role in the professional preparation of future music educators. It not only develops instrumental skills but also strengthens pedagogical competence, musical thinking, and interpretative culture. In the process of learning the flute, students acquire essential abilities such as breath control, tone production, articulation, intonation accuracy, and dynamic flexibility. These skills form the basis of professional musical performance and are directly applicable in teaching practice.

Future music teachers are expected to demonstrate both performance proficiency and the ability to transmit knowledge effectively. Therefore, flute instruction in higher education institutions should integrate performance training with pedagogical methodology, enabling students to understand not only how to perform but also how to teach instrumental techniques.

Methodological Approaches in Teaching Flute Performance

Modern approaches to flute pedagogy emphasize student-centered learning, technical development through structured exercises, and the gradual expansion of repertoire complexity. Effective teaching methods include demonstration, imitation, analytical listening, and guided practice. Teachers are encouraged to combine traditional methods with innovative technologies, such as audio-visual materials, digital applications, and interactive learning platforms.

One of the key methodological principles is the systematic development of technical skills. This includes exercises for breath control, tone stability, finger technique, and articulation. Regular practice of etudes and technical studies helps students build a solid foundation for performing more advanced repertoire. In addition, individualized instruction allows teachers to address specific technical difficulties and support each student’s artistic growth.

Classical Repertoire in Flute Education

Classical flute repertoire remains the foundation of instrumental training. Works from the Baroque, Classical, and Romantic periods provide clear structural forms and stylistic principles that are essential for developing musical discipline and interpretative accuracy. Composers such as J. S. Bach, W. A. Mozart, and C. P. E. Bach have contributed significantly to the development of flute literature.

The study of classical repertoire helps students master essential performance elements, including phrasing, articulation, ornamentation, and stylistic expression. It also fosters a deep understanding of musical form and historical performance practices. Through classical works, future music educators develop a refined sense of musical aesthetics and technical precision.

Contemporary Repertoire and Its Educational Value

Contemporary flute repertoire expands the technical and expressive boundaries of the instrument. Modern compositions often include extended techniques such as multiphonics, flutter tonguing, key clicks, whistle tones, and microtones. These innovations challenge performers to explore new sound possibilities and develop advanced technical skills.

In addition, contemporary music often features unconventional structures, rhythmic complexity, and elements of improvisation and electronic sound. This encourages creativity, flexibility, and independent interpretative thinking among students. The inclusion of contemporary repertoire in educational programs helps future teachers stay connected with current musical trends and broadens their pedagogical perspective.

Conclusion. **In conclusion, the process of training future music educators requires a comprehensive approach that integrates both performance skills and pedagogical competence. Flute performance plays a significant role in this process, as it develops essential musical abilities such as tone production, breath control, articulation, and interpretative thinking, which are fundamental for professional teaching practice.**

The study of classical repertoire provides a strong technical and stylistic foundation, enabling students to master traditional performance principles and understand the historical context of music. At the same time, contemporary repertoire expands artistic and technical possibilities, encouraging creativity, flexibility, and familiarity with modern performance techniques.

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KO‘P FUNKSIYALI AQLLI NANOBO‘YOQLAR: YORUG‘LIK CHIQARUVCHI, ANTIBAKTERIAL VA O‘Z-O‘ZINI TOZALOVCHI XOSSALARGA EGA NANOKOMPOZITLAR YARATISH

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Annotatsiya: Ushbu ishda ko‘p funksiyali aqlli nanobo‘yoqlar — ya’ni yorug‘lik chiqaruvchi, antibakterial va o‘z-o‘zini tozalovchi xossalarga ega nanokompozit tizimlarni yaratish va ularning funksional xususiyatlarini o‘rganish masalalari ko‘rib chiqiladi. Tadqiqotda uglerod kvant nuqtachalari va funksional nanoto‘ldirgichlar asosida shakllantirilgan polimer nanokompozitlarning optik faolligi, mikroorganizmlarga qarshi biologik ta’siri hamda yuzaki ifloslanishlarni kamaytirish mexanizmlari tahlil qilinadi. Olingan natijalar bunday materiallarning yuqori darajadagi yorug‘lik emissiyasi, barqaror antibakterial faollik va o‘z-o‘zini tozalash xususiyatlariga ega ekanligini ko‘rsatadi. Ushbu nanobo‘yoqlar tibbiyot, sanoat va ekologik xavfsiz qoplamalar yaratishda istiqbolli materiallar sifatida qaraladi.

Kalit so‘zlar: nanobo‘yoqlar, nanokompozitlar, uglerod kvant nuqtachalari, antibakterial materiallar, o‘z-o‘zini tozalovchi qoplamalar, fotolyuminessensiya, aqlli materiallar, polimer nanokompozitlar.

Annotation: This work investigates the development of multifunctional smart nanocoatings with light-emitting, antibacterial, and self-cleaning properties based on nanocomposite systems. The study focuses on polymer nanocomposites functionalized with carbon quantum dots and other nanofillers, analyzing their optical activity, antimicrobial performance, and surface self-cleaning mechanisms. The obtained results demonstrate that these materials exhibit high-intensity photoluminescence, stable antibacterial activity, and effective self-cleaning behavior. Such nanocoatings are considered promising for applications in biomedical, industrial, and environmentally safe surface protection technologies.

Keywords: nanocoatings, nanocomposites, carbon quantum dots, antibacterial materials, self-cleaning coatings, photoluminescence, smart materials, polymer nanocomposites.

Аннотация: В данной работе рассматривается разработка многофункциональных «умных» нанопокрытий с люминесцентными, антибактериальными и самоочищающимися свойствами на основе

нанокомпозитных систем. Основное внимание уделяется полимерным нанокомпозитам, функционализированным углеродными квантовыми точками и другими нанонаполнителями, а также анализу их оптической активности, антимикробного действия и механизмов самоочищения поверхности. Полученные результаты показывают, что данные материалы обладают высокой интенсивностью фотолюминесценции, стабильной антибактериальной активностью и эффективными самоочищающимися свойствами. Такие нанопокрытия рассматриваются как перспективные материалы для применения в биомедицине, промышленности и экологически безопасных покрытиях.

Ключевые слова: нанопокрытия, нанокомпозиты, углеродные квантовые точки, антибактериальные материалы, самоочищающиеся покрытия, фотолюминесценция, умные материалы, полимерные нанокомпозиты.

Kirish: **Zamonaviy materialshunoslik taraqqiyoti so‘nggi o‘n yilliklarda tub burilish yasadi va an’anaviy qoplama materiallar tushunchasini sezilarli darajada kengaytirdi. Bugungi kunda bo‘yoq va qoplamalar faqat dekorativ yoki himoya vazifasini bajaruvchi oddiy qatlam sifatida emas, balki yuqori funksional imkoniyatlarga ega “aqlli materiallar” sifatida qaralmoqda. Ayniqsa, nanokompozit tizimlar asosida ishlab chiqilayotgan yangi avlod qoplamalar yorug‘lik chiqarish, biologik himoya va o‘z-o‘zini tiklash kabi kompleks xususiyatlarni birlashtira olishi bilan ilmiy va amaliy jihatdan katta ahamiyat kasb etmoqda.Ushbu yo‘nalishda uglerod kvant nuqtachalari (Carbon Quantum Dots – CQDs) alohida o‘rin egallaydi. Ular nanoo‘lchamli uglerod asosli strukturalar bo‘lib, yuqori fotolyuminessent xususiyat, kimyoviy barqarorlik va ekologik xavfsizlik bilan tavsiflanadi. CQDlar tashqi energiya manbai ta’sirida turli spektral diapazonlarda yorug‘lik chiqarish qobiliyatiga ega bo‘lib, bu ularni optik materiallar va sensor tizimlarida istiqbolli komponentga aylantiradi.Shu bilan birga, noyob yer elementlari, xususan lantanid ionlari (Eu^{3+}, Tb^{3+}, Dy^{3+} va boshqalar) yuqori rang tozaligi, tor emissiya chiziqlari va kuchli luminessent faolligi bilan ajralib turadi. Ushbu ionlar CQDlar bilan birlashtirilganda energiya uzatish jarayonlari yuzaga kelib, yorug‘lik intensivligi va barqarorligi sezilarli darajada oshadi.So‘nggi yillarda antibakterial qoplamalarga bo‘lgan ehtiyoj keskin ortib bormoqda. Mikroorganizmlarning turli muhitlarga moslashuvi va antibiotiklarga chidamliligining kuchayishi an’anaviy dezinfeksiya va himoya usullarining samaradorligini kamaytirmoqda. Shu nuqtai nazardan, nanokompozit asosidagi antibakterial tizimlar yangi avlod himoya materiallari sifatida katta ahamiyat kasb etadi.Bundan tashqari, o‘z-o‘zini tozalovchi (self-cleaning) qoplamalar yuzaki ifloslanishlarni kamaytirish, biologik qatlamlar**

hosil bo‘lishini oldini olish hamda materialning estetik va funksional sifatini uzoq muddat saqlash imkonini beradi. Ushbu xususiyatlar ayniqsa tibbiyot, oziq-ovqat sanoati, qurilish va yuqori gigiyenik talablar qo‘yiladigan sohalarda muhim hisoblanadi.Mazkur ishning asosiy dolzarbligi shundaki, unda yorug‘lik chiqaruvchi, antibakterial va o‘z-o‘zini tozalovchi xususiyatlarni bir tizimda integratsiya qilgan ko‘p funksiyali nanobo‘yoqlar yaratish masalasi ilmiy jihatdan asoslanadi. Bunday yondashuv an’anaviy qoplamalarning funksional chegaralarini kengaytirib, ularni yuqori texnologik “aqlli materiallar” darajasiga olib chiqadi.

ASOSIY QISM

1. Ko‘p funksiyali nanobo‘yoqlarning ilmiy konsepsiyasi

Ko‘p funksiyali nanobo‘yoqlar — bu polimer matritsa asosida shakllantirilgan, ichiga turli nanoto‘ldirgichlar kiritilgan murakkab tizimlar bo‘lib, ular bir vaqtning o‘zida bir nechta funksional xususiyatlarni namoyon etadi. Ushbu materiallarda asosiy yondashuv “strukturaviy integratsiya” tamoyiliga asoslanadi, ya’ni optik, biologik va fizik xususiyatlar yagona tizim ichida uyg‘unlashtiriladi.

Nanokompozit bo‘yoqlarda har bir komponent aniq funksiyani bajaradi:

CQDlar — yorug‘lik chiqarish va optik faollikni ta’minlaydi;

Lantanid ionlari — emissiya intensivligini oshiradi;

Polimer matritsa — mexanik mustahkamlik va tashuvchilik vazifasini bajaradi;

Qo‘shimcha nanofillerlar — antibakterial va self-cleaning xususiyatlarni kuchaytiradi.

2. Uglerod kvant nuqtachalari asosidagi optik tizim

CQDlarning eng muhim xususiyati ularning kvant cheklanish effekti bilan bog‘liq bo‘lgan fotolyuminessent faolligidir. Nanoo‘lchamli zarrachalar sifatida ular elektronlarning diskret energiya sathlarida harakatlanishini ta’minlaydi, bu esa yorug‘lik chiqarish jarayonini boshqarish imkonini beradi.

CQDlar:

UV va ko‘k nurlanishni yutadi;

turli ranglarda yorug‘lik chiqaradi;

yuqori kvant chiqish samaradorligiga ega;

biologik xavfsiz hisoblanadi.

Ularning sirtidagi funksional guruhlar (–OH, –COOH, –NH_2) boshqa ionlar bilan kompleks hosil qilish imkonini beradi, bu esa nanokompozit tizimning barqarorligini oshiradi.

3. Noyob yer elementlari bilan sinergetik ta’sir

Lantanid ionlari CQDlar bilan birgalikda ishlatilganda energiya transferi mexanizmi yuzaga keladi. Bu jarayonda CQDlar “sensitizator”, lantanidlar esa “emitter” rolini bajaradi.

Natijada:

yorug‘lik intensivligi ortadi;

emissiya spektri barqarorlashadi;

fotostabilik oshadi;

rang tozaligi yuqori bo‘ladi.

Bu xususiyatlar nanobo‘yoqlarni optik belgilash, xavfsizlik tizimlari va dekorativ yoritish sohalarida qo‘llash imkonini beradi.

4. Antibakterial mexanizmlar

Nanokompozit tizimlarning antibakterial xususiyati bir nechta mexanizm orqali amalga oshadi:

Reaktiv kislorod turlari (ROS) hosil bo‘lishi bakterial hujayra devorini buzadi;

Ionlar almashinuvi mikroorganizmlarning metabolik jarayonlarini izdan chiqaradi;

Membrana shikastlanishi hujayra o‘limiga olib keladi.

CQD va ayrim nanofillerlar bakteriyalarga nisbatan keng spektrli ta’sir ko‘rsatadi, bu esa antibiotiklarga chidamli shtammlarga qarshi ham samarali himoya beradi.

5. O‘z-o‘zini tozalovchi (self-cleaning) xususiyatlar

Self-cleaning tizimlar material yuzasida ifloslanishlarning to‘planishini oldini olishga asoslanadi. Bu jarayon ikki asosiy mexanizmga tayanadi:

Fotokatalitik ta’sir — yorug‘lik ta’sirida organik ifloslanishlarni parchalaydi;

Supergidrofob sirt effekti — suv tomchilarining sirpanib ketishini ta’minlaydi.

Natijada bo‘yoq yuzasi o‘zini avtomatik ravishda tozalab turadi va uzoq muddat barqaror holatda qoladi.

6. Kompleks tizimning integratsiyasi

CQDlar, lantanid ionlari va self-cleaning komponentlar bir tizimga birlashtirilganda yuqori darajada integratsiyalashgan aqlli nanobo‘yoq hosil bo‘ladi. Bu tizim:

optik faollik;

antibakterial himoya;

o‘z-o‘zini tozalash;

mexanik barqarorlik

kabi xususiyatlarni bir vaqtning o‘zida ta’minlaydi.

7. Amaliy qo‘llanilish istiqbollari

Bunday nanobo‘yoqlar quyidagi sohalarda katta ahamiyatga ega:

tibbiy muassasalar va steril xonalar;

oziq-ovqat sanoati;

aqlli bino va infratuzilmalar;
xavfsizlik va identifikatsiya tizimlari;
ekologik toza qoplama texnologiyalari.

Tadqiqot metadologiyasi: Mazkur tadqiqot ko‘p funksiyali aqlli nanobo‘yoqlarni yaratish va ularning kompleks funksional xususiyatlarini (yorug‘lik chiqarish, antibakterial faollik va o‘z-o‘zini tozalash) chuqur ilmiy asosda o‘rganishga qaratilgan bo‘lib, u bir necha bosqichli tizimli metodologiya asosida amalga oshirildi. Tadqiqot yondashuvi materiallarni sintez qilishdan tortib, ularni funksional modifikatsiyalash, polimer matritsaga integratsiya qilish hamda ularning fizik-kimyoviy, optik va biologik xususiyatlarini kompleks tahlil qilish jarayonlarini o‘z ichiga oladi.Birinchi bosqichda uglerod kvant nuqtachalari (CQDs) sintezi amalga oshirildi. Ushbu jarayon gidrotermal va mikrotolqinli sintez usullari yordamida uglerodga boy organik prekursorlar asosida olib borildi. Sintez jarayonida haroratning oshirilishi organik molekulalarning parchalanishiga va nanoo‘lchamli uglerod yadrolarining shakllanishiga olib keldi. Reaksiya davomiyligi, pH muhiti va boshlang‘ich modda konsentratsiyasi qat’iy nazorat qilindi, chunki ushbu parametrlar kvant nuqtachalarning o‘lchami, dispersiyasi, sirt kimyosi va fotolyuminessent xususiyatlarini belgilovchi asosiy omillar hisoblanadi. Olingan CQDlar yuqori barqarorlik, suvda yaxshi eruvchanlik va kuchli yorug‘lik chiqarish qobiliyati bilan ajralib turdi.Ikkinchi bosqichda CQDlar yuzasi funksional guruhlar bilan boyitildi. Bu jarayon ularning kimyoviy reaktivligini oshirish, agregatsiyani kamaytirish va keyingi bosqichda lantanid ionlari bilan barqaror kompleks hosil qilish maqsadida amalga oshirildi. Yuzaviy modifikatsiya natijasida –OH, –COOH va $–NH_2$ guruhlari soni ortib, nanostrukturalar orasidagi elektrostatik va koordinatsion bog‘lanish imkoniyatlari kengaydi.Uchinchi bosqichda tizimga noyob yer elementlari, xususan Eu^{3+} va Tb^{3+} ionlari kiritildi. Bu jarayon sol-gel va kopretsipitatsiya usullari orqali amalga oshirilib, CQD–lantanid komplekslari hosil qilindi. Ushbu komplekslar orasida samarali energiya uzatish mexanizmi shakllandi, bunda CQDlar sensitizator, lantanid ionlari esa emissiya markazi sifatida faoliyat yuritdi. Natijada fotolyuminessent xususiyatlar sezilarli darajada kuchayib, emissiya spektrining intensivligi va barqarorligi oshdi.To‘rtinchi bosqichda olingan nanokompozit tizimlar polimer matritsaga integratsiya qilindi. Bunda epoksi va poliuretan asosidagi polimerlar tanlandi, chunki ular yuqori mexanik mustahkamlik, kimyoviy barqarorlik va yaxshi yopishish xususiyatlariga ega. Shu bosqichda self-healing xususiyatini ta’minlovchi mikrokapsula tizimlari hamda dinamik kimyoviy bog‘lanishlarga asoslangan komponentlar qo‘shildi. Bu tizim mexanik shikastlanishdan so‘ng material strukturasini avtomatik tiklash imkonini berdi.Beshinchi bosqichda materiallarning

fizik-kimyoviy va strukturaviy xususiyatlari kompleks ravishda tahlil qilindi. UV-Vis spektroskopiya orqali yorug‘lik yutilishi va emissiya xususiyatlari o‘rganildi, fotolyuminessensiya spektroskopiyasi orqali yorug‘lik chiqarish intensivligi va spektral tarkibi aniqlanildi. FTIR tahlili funksional guruhlarning mavjudligini tasdiqladi, XRD tahlili esa kristall tuzilma va fazaviy tarkibni aniqlashga xizmat qildi. Elektron mikroskopiya (SEM) orqali nanokompozitlarning sirt morfologiyasi va zarrachalar taqsimoti o‘rganildi.Oltinchi bosqichda antibakterial faollik sinovlari amalga oshirildi. Disk diffuziya usuli va minimal inhibitiv konsentratsiya (MIC) testlari yordamida materiallarning Gram-musbat va Gram-manfiy bakteriyalarga nisbatan ta’siri baholandi. Reaktiv kislorod turlarining (ROS) hosil bo‘lishi va hujayra membranasining buzilishi antibakterial mexanizmning asosiy yo‘nalishlari sifatida aniqlandi.Yettinchi bosqichda self-cleaning xususiyatlari o‘rganildi. Fotokatalitik parchalanish testlari orqali organik ifloslanishlarning degradatsiya darajasi baholandi, sirt gidrofoblik xususiyatlari esa suv tomchilarining kontakt burchagi orqali aniqlanildi. Natijalar material yuzasining o‘zini avtomatik tozalash qobiliyatiga ega ekanligini ko‘rsatdi.

Muammo va uning tahlili: **Ko‘p funksiyali nanokompozit tizimlarni yaratish jarayonida eng asosiy ilmiy muammo — bir material tizimida bir vaqtning o‘zida bir nechta murakkab funksional xususiyatlarni barqaror saqlash va ularni o‘zaro muvozanatlash hisoblanadi. An’anaviy bo‘yoq va qoplama materiallari odatda faqat himoya yoki dekorativ vazifani bajaradi, biroq ular yuqori darajadagi funksional talablarni qondira olmaydi.Eng muhim muammolardan biri — optik, biologik va mexanik funksiyalarning o‘zaro interferensiyasi hisoblanadi. Ya’ni, yorug‘lik chiqarish xususiyatini kuchaytirish ba’zan antibakterial faollik yoki self-healing samaradorligining pasayishiga olib kelishi mumkin. Bu esa tizim ichidagi energiya taqsimoti va komponentlar o‘rtasidagi o‘zaro ta’sirni murakkablashtiradi.Yana bir dolzarb muammo — nanopartikullarning polimer matritsa ichida notekis taqsimlanishi va aglomeratsiya jarayonlarining yuzaga kelishidir. Aglomeratsiya natijasida kvant nuqtachalar optik faol markazlarini yo‘qotadi, bu esa yorug‘lik intensivligining kamayishiga olib keladi.Shuningdek, CQD va lantanid ionlari o‘rtasidagi energiya uzatish mexanizmining to‘liq optimallashtirilmaganligi ham muhim muammo hisoblanadi. Agar bu jarayon samarali boshqarilmasa, radiatsion bo‘lmagan energiya yo‘qotishlari ortib, emissiya samaradorligi pasayadi.Antibakterial tizimlarda esa mikroorganizmlarning moslashuvchanligi va vaqt o‘tishi bilan qarshilik rivojlantirishi materialning uzoq muddatli samaradorligini cheklaydi. Self-healing tizimlar esa ko‘pincha tashqi sharoitlarga (harorat, namlik, yorug‘lik) kuchli bog‘liq bo‘lib qoladi, bu esa ularning amaliy qo‘llanilishini murakkablashtiradi.**

Tadqiqot natijalari va muhokama: **O‘tkazilgan tadqiqot natijalari ishlab chiqilgan nanokompozit tizimlarning yuqori darajadagi ko‘p funksionallikka ega ekanligini aniq ko‘rsatdi. Spektroskopik tahlillar CQD va lantanid ionlari o‘rtasida samarali energiya uzatish mexanizmi mavjudligini tasdiqladi. Bu jarayon natijasida yorug‘lik emissiyasi sezilarli darajada kuchayib, spektral barqarorlik oshdi hamda rang tozaligi yuqori darajaga yetdi.Antibakterial sinovlar natijasida materialning keng spektrli biologik faollikka ega ekanligi aniqlandi. Bakterial hujayra membranasining buzilishi, reaktiv kislorod turlarining ortishi va hujayra ichki metabolik jarayonlarining izdan chiqishi asosiy ta’sir mexanizmlari sifatida qayd etildi. Bu esa materialning tibbiyot va sanitariya sohalarida qo‘llanilishi uchun yuqori potensialga ega ekanligini ko‘rsatadi.Self-cleaning sinovlari material yuzasida organik ifloslanishlarning tez parchalanishi va suv tomchilarining sirpanib ketishi orqali yuzaning o‘zini avtomatik tozalash xususiyati samarali ishlashini tasdiqladi. Bu xususiyat materialning uzoq muddat estetik va funksional barqarorligini ta’minlaydi.Muhokama natijalari shuni ko‘rsatadiki, nanokompozit tizimning umumiy samaradorligi uning tarkibiy qismlari o‘rtasidagi muvozanat, zarrachalar dispersiyasi darajasi hamda polimer matritsa bilan moslashuviga bevosita bog‘liqdir. Optimal nisbatlar tanlanganda optik, antibakterial va self-cleaning xususiyatlar bir vaqtning o‘zida yuqori darajada namoyon bo‘ladi. Bu esa mazkur materiallarni kelajakda yuqori texnologik, ekologik xavfsiz va intellektual qoplama tizimlari sifatida keng qo‘llash imkoniyatini ilmiy jihatdan asoslaydi.**

Xulosa: Ushbu tadqiqotda uglerod kvant nuqtachalari (CQDs) va noyob yer elementlari asosida shakllantirilgan ko‘p funksiyali nanokompozit tizimlar yordamida yorug‘lik chiqaruvchi, antibakterial va o‘z-o‘zini tozalovchi xossalarga ega innovatsion nanobo‘yoqlarni yaratish masalasi ilmiy jihatdan o‘rganildi. Olib borilgan izlanishlar natijasida CQD va lantanid ionlari o‘rtasidagi sinergetik energiya uzatish mexanizmi materialning optik xususiyatlarini sezilarli darajada kuchaytirishi, emissiya intensivligini oshirishi hamda spektral barqarorlikni ta’minlashi aniqlandi.Antibakterial sinovlar nanokompozitlarning bakterial hujayra membranasiga destruktiv ta’sir ko‘rsatishi, reaktiv kislorod turlarini (ROS) hosil qilishi hamda mikroorganizmlar o‘sishini samarali inhibe qilishini ko‘rsatdi. Shu bilan birga, self-cleaning xususiyatlari material yuzasida organik ifloslanishlarning tez parchalanishi va gidrofob effektlar hisobiga o‘z-o‘zini tozalash mexanizmining yuqori samaradorligini tasdiqladi.Umuman olganda, ishlab chiqilgan nanobo‘yoqlar an’anaviy qoplama materiallariga nisbatan yuqori funksionallik, barqarorlik va ekologik xavfsizlikka ega

bo‘lib, ular tibbiyot, sanoat va yuqori texnologik qoplama tizimlarida keng qo‘llanilishi mumkin bo‘lgan istiqbolli materiallar sifatida baholanadi.

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CLINICAL AND IMMUNOLOGICAL FEATURES OF THE COURSE OF RHEUMATOID ARTHRITIS AND THE DYNAMICS OF SYSTEMIC INFLAMMATION INDICATORS DURING THE USE OF BASIC, BIOLOGICAL AND TARGETED DRUGS

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Relevance. Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease characterized by progressive damage to the synovial membranes of the joints, the development of erosions, and functional impairment. Despite advances in modern rheumatology, optimization of therapeutic approaches remains a pressing issue, as a significant proportion of patients exhibit induced or primary drug resistance. Therefore, studying the clinical and immunological characteristics of the disease progression under various therapeutic strategies is of significant scientific and practical interest for the development of personalized treatment approaches.

The aim of the study was to conduct a comprehensive analysis of the characteristics of the course and treatment of patients with rheumatoid arthritis using synthetic disease-modifying drugs (sDMARDs), biological drugs (bDMARDs) and targeted synthetic drugs (tsDMARDs), as well as to identify priority immunological factors in the development of the disease.

Materials and methods of research. The study included 150 patients with a verified diagnosis of rheumatoid arthritis, aged over 18 years, and 30 healthy controls. All patients underwent a clinical examination using X-ray, ultrasound, and magnetic resonance imaging of their joints. Disease activity and acute inflammation markers were assessed. Immunological monitoring was performed using an enzyme-linked immunosorbent assay and monoclonal antibodies to determine levels of tumor necrosis factor alpha (TNF-α), interleukin-6 (IL-6), and interleukin-17A (IL-17A), as well as T- and B-lymphocyte subsets in peripheral blood. The data were processed using statistical methods to determine the significance of differences.

The results indicate that patients with rheumatoid arthritis exhibit marked dysregulation of cellular and humoral immunity, manifested by a significant increase in levels of the proinflammatory cytokines TNF-α, IL-6, and IL-17A compared to the control group. The use of biological and targeted agents was associated with a more pronounced and sustained reduction in systemic inflammation, a decrease in cytokine levels, and stabilization of T-cell and B-lymphocyte homeostasis compared to monotherapy with synthetic disease-modifying agents. A direct correlation was established between baseline immunological parameters and the rate of clinical response to therapy, allowing them to be considered prognostic markers.

Conclusion. Immunological markers can serve as additional objective criteria for assessing rheumatoid arthritis activity and predicting the effectiveness of treatment. Comprehensive analysis of cytokine profiles and lymphocyte subsets facilitates more accurate patient stratification and optimized therapeutic approaches, which is especially important in clinical practice.

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DAVLAT XIZMATLARI MARKAZLARINING TASHKIL ETILISHI VA SURXONDARYO VILOYATIDA AHOLIGA XIZMAT KO‘RSATISH TIZIMIDAGI TARIXIY BURILISH

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Annotatsiya

Tezisda 2017-2025-yillarda Davlat xizmatlari markazlarining tashkil etilishi Surxondaryo viloyatida aholiga huquqiy va ma’muriy xizmat ko‘rsatish tizimidagi tarixiy burilish sifatida tahlil qilinadi. Davlat xizmatlari markazlari avvalgi idoraviy, tarqoq va ko‘p bosqichli xizmat modelidan fuqaro uchun qulay, yagona nuqtadan xizmat ko‘rsatish modeliga o‘tish jarayoni sifatida talqin etiladi. Surxondaryo viloyatining demografik o‘sishi, qishloq aholisi ulushi va tumanlar geografiyasi mazkur islohotning hududiy ahamiyatini kuchaytirgan.

Kalit so‘zlar

Davlat xizmatlari markazi, yagona darcha, PF-5278, PQ-3430, Surxondaryo viloyati, davlat xizmatlari, aholiga yaqinlik, ma’muriy islohot.

Kirish

2017-yildan keyingi davr O‘zbekiston adliya tizimida davlat xizmatlarini fuqaroga yaqinlashtirish va byurokratik to‘siqlarni qisqartirish davri bo‘ldi. Davlat xizmatlari markazlarining tashkil etilishi bu jarayonning eng aniq institutsional ifodasidir. Bu islohotning mohiyati shundan iboratki, fuqaro bir necha idora o‘rtasida yurmasligi, hujjatlar esa idoralararo tartibda harakatlanishi kerak edi.

Surxondaryo viloyatida mazkur islohotning ahamiyati respublikaning ayrim markaziy hududlariga nisbatan yanada yuqori. 2025-yil 1-yanvar holatiga viloyat aholisi 2 945 512 kishini tashkil etgani, aholi zichligi va demografik o‘sish xizmatlarga bosimni kuchaytirganini ko‘rsatadi. Bunday sharoitda davlat xizmatlari markazlari nafaqat ma’muriy qulaylik, balki ijtimoiy tenglik va huquqiy xizmatdan foydalanish imkoniyatini kengaytiruvchi institut sifatida qaralishi kerak.

Asosiy qism

2017-yil 12-dekabrdagi PF-5278-son Farmon aholiga davlat xizmatlari ko‘rsatishning milliy tizimini tubdan isloh qilishga qaratildi. Ushbu hujjat davlat xizmatlarini tarqoq idoraviy modeldan yagona markazlashgan xizmat modeliga o‘tkazishning siyosiy-huquqiy asosini yaratdi. Shu kunning o‘zida qabul qilingan PQ-3430-son qaror esa

Adliya vazirligi huzuridagi Davlat xizmatlari agentligi faoliyatini tashkil etish bo‘yicha tashkiliy asoslarni belgiladi. Natijada adliya organlari aholiga xizmat ko‘rsatish tizimining bevosita koordinatori sifatida yangi bosqichga chiqdi.

Davlat xizmatlari markazlari Surxondaryo viloyatida avvalgi amaliyotdagi bir nechta muammoga javob bo‘ldi. Birinchi muammo - idoralararo yurish-turishning ko‘pligi. Fuqaro bir xizmatni olish uchun hokimlik, soliq, kadastr, bank, FHDYo yoki boshqa idoralar o‘rtasida qatnashga majbur bo‘lgan. Ikkinchi muammo - xizmat muddatlari va tartibining yetarli darajada shaffof emasligi. Uchinchi muammo - qishloq va chekka hudud aholisi uchun markaziy idoralarga yetib borish xarajatining yuqoriligi. Davlat xizmatlari markazlari shu muammolarni kamaytirishga qaratilgan institutsional yechim bo‘ldi.

Surxondaryo viloyatida bu tizimning samaradorligi faqat markazlarning mavjudligi bilan o‘lchanmaydi. Muhim mezonlar quyidagilardan iborat: xizmatlar soni, murojaatlarni ko‘rib chiqish tezligi, elektron navbat sifati, xodimlarning huquqiy malakasi, nogironligi bo‘lgan shaxslar uchun sharoit, chekka qishloqlarga mobil xizmatlar, aholining xizmat tartibidan xabardorligi va murojaat natijalaridan qoniqish darajasi. Agar tadqiqot bu mezonlarni o‘lchamasa, Davlat xizmatlari markazlari haqida aytilgan fikrlar deklarativ bo‘lib qoladi.

2022-yil 20-apreldagi PF-113-son Farmon davlat xizmatlari ko‘rsatish tizimini 2022-2026-yillarda modernizatsiya qilish va jadal rivojlantirish strategiyasini belgiladi. Bu hujjat xizmatlarni raqamlashtirish, byurokratik talablarni qisqartirish, identifikatsiya tizimlarini soddalashtirish va xizmatlardan foydalanish imkoniyatini kengaytirish kabi masalalarni kun tartibiga olib chiqdi. Surxondaryo sharoitida ushbu strategiya ayniqsa mobil xizmatlar, tumanlararo masofa va raqamli savodxonlik muammolari bilan bog‘liq holda muhimdir.

Davlat xizmatlari markazlarining tarixiy ahamiyati shundaki, ular adliya organlarining an’anaviy nazorat va ro‘yxatga olish funksiyasini fuqaroga bevosita xizmat ko‘rsatish madaniyati bilan bog‘ladi. Endi adliya tizimi aholining huquqiy ehtiyojini idora ichidan emas, xizmat olish jarayonining o‘zidan ko‘ra boshladi. Bu esa adliya organlarining institutsional identifikatsiyasini o‘zgartirdi: ular nafaqat qonuniylikni nazorat qiluvchi, balki huquqiy xizmat sifatini boshqaruvchi tizimga aylandi.

Xulosa

Davlat xizmatlari markazlarining tashkil etilishi Surxondaryo viloyatida aholiga huquqiy va ma’muriy xizmat ko‘rsatish tizimida tarixiy burilish yasadi. Bu burilishning mazmuni xizmatni markazlashtirish, idoraviy tarqoqlikni kamaytirish, fuqaroga yaqinlik va jarayon shaffofligini oshirishda namoyon bo‘ldi.

Mavzuni professor darajasida asoslash uchun har bir tuman-shahar Davlat xizmatlari markazi bo‘yicha xizmatlar soni, murojaatlar hajmi, xizmat muddati, rad etilgan arizalar, mobil xizmatlar va aholi qoniqishi statistikasi kiritilishi shart. Aks holda islohot faqat normativ hujjatlar tilida bayon etilgan bo‘ladi.

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3. O‘zbekiston Respublikasi Prezidentining 2022-yil 20-apreldagi PF-113-son “Davlat xizmatlari ko‘rsatishni soddalashtirish, byurokratik to‘siqlarni qisqartirish hamda davlat xizmatlari ko‘rsatish milliy tizimini rivojlantirishning qo‘shimcha chora-tadbirlari to‘g‘risida”gi Farmoni.
4. O‘zbekiston Respublikasi Prezidentining 2018-yil 13-apreldagi PF-5415-son “Davlat huquqiy siyosatini amalga oshirishda adliya organlari va muassasalari faoliyatini tubdan takomillashtirish chora-tadbirlari to‘g‘risida”gi Farmoni.
5. Surxondaryo viloyati statistika boshqarmasi. “Surxondaryoda qancha aholi borligini bilasizmi?”, 2025-yil 29-yanvar.
6. O‘zbekiston Respublikasi Yagona interaktiv davlat xizmatlari portali materiallari.

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