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# 1-SECTION

# PYTHON YORDAMIDA OB-HAVO MA'LUMOTLARINI STATISTIK TAHLIL QILISH VA PROGNOZLASH

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***Annotatsiya:*** *Ushbu maqolada ob-havo ma’lumotlarini statistik tahlil qilish va prognozlash masalalari ko‘rib chiqilgan. Tadqiqot davomida Python dasturlash tili yordamida harorat ma’lumotlari qayta ishlanib, ularning vaqt bo‘yicha o‘zgarish tendensiyalari tahlil qilindi. Shuningdek, Linear Regression algoritmi asosida prognozlash modeli ishlab chiqilib, kelgusidagi harorat qiymatlarini bashoratlash amalga oshirildi. Olingan natijalar modelning ob-havo ma’lumotlarini tahlil qilish va prognozlashda samarali qo‘llanilishi mumkinligini ko‘rsatdi.*

***Kalit so‘zlar:*** *Python, ob-havo ma’lumotlari, statistik tahlil, prognozlash, Linear Regression, ma’lumotlar tahlili, harorat, modellashtirish.*

***Аннотация:*** *В данной статье рассматриваются вопросы статистического анализа и прогнозирования погодных данных. В ходе исследования с использованием языка программирования Python были обработаны данные о температуре воздуха и проанализированы тенденции их изменения во времени. Кроме того, на основе алгоритма Linear Regression была разработана модель прогнозирования, позволяющая оценивать будущие значения температуры. Полученные результаты показали эффективность применения данного подхода для анализа и прогнозирования погодных данных.*

***Ключевые слова:*** *Python, погодные данные, статистический анализ, прогнозирование, Linear Regression, анализ данных, температура, моделирование.*

***Abstract:*** *This article explores methods for statistical analysis and forecasting of weather data. During the study, temperature data were processed and analyzed using the Python programming language to identify trends and patterns over time. In addition, a*

*forecasting model based on the Linear Regression algorithm was developed to predict future temperature values. The obtained results demonstrate the effectiveness of Python and machine learning techniques in weather data analysis and forecasting tasks.*

***Keywords:*** *Python, weather data, statistical analysis, forecasting, Linear Regression, data analysis, temperature, modeling.*

## KIRISH

So‘nggi yillarda ma’lumotlar tahlili va sun’iy intellekt texnologiyalarining rivojlanishi turli sohalarda prognozlash masalalariga bo‘lgan qiziqishni sezilarli darajada oshirdi. Xususan, ob-havo ma’lumotlarini tahlil qilish va kelgusidagi ko‘rsatkichlarni oldindan baholash meteorologiya, qishloq xo‘jaligi, transport, energetika hamda ekologiya sohalarida muhim ahamiyat kasb etadi. Ob-havo sharoitlarining oldindan prognoz qilinishi turli xavflarning oldini olish, resurslardan samarali foydalanish va rejalashtirish jarayonlarini takomillashtirish imkonini beradi. Python dasturlash tili ma’lumotlarni qayta ishlash, statistik tahlil qilish va prognozlash masalalarini yechishda keng qo‘llaniladigan zamonaviy vositalardan biri hisoblanadi. Ushbu dasturlash tilining Pandas, Matplotlib va Scikit-learn kabi kutubxonalari yordamida ma’lumotlarni tahlil qilish hamda prognozlash modellarini yaratish mumkin. Mazkur maqolada Python dasturlash tili yordamida harorat ma’lumotlari tahlil qilinib, Linear Regression algoritmi asosida prognozlash modeli ishlab chiqiladi hamda uning samaradorligi baholanadi.

**Ob-havo ma’lumotlarini tahlil qilish va prognozlash.** Ob-havo ma’lumotlarini tahlil qilish meteorologik jarayonlarni o‘rganish va kelgusidagi o‘zgarishlarni oldindan aniqlash imkonini beradi. Harorat, namlik, shamol tezligi va atmosfera bosimi kabi ko‘rsatkichlar ob-havo prognozlarini shakllantirishda muhim rol o‘ynaydi. Statistik tahlil yordamida ma’lumotlardagi tendensiyalar va bog‘liqliklar aniqlanadi. Prognozlash jarayonida esa tarixiy ma’lumotlardan foydalanilib, kelajakdagi qiymatlar baholanadi. Hozirgi kunda Machine Learning algoritmlari, xususan Linear Regression usuli vaqt bo‘yicha o‘zgaruvchi ma’lumotlarni prognozlashda keng qo‘llanilmoqda. Linear

Regression algoritmi kiruvchi va chiquvchi ma’lumotlar o‘rtasidagi bog‘liqlikni aniqlaydi hamda ushbu bog‘liqlik asosida kelajakdagi qiymatlarni bashorat qiladi. Mazkur tadqiqotda harorat ma’lumotlari asosida prognozlash modeli yaratiladi.

**Python yordamida statistik tahlil va prognozlash.** Quyida Python dasturlash tili va Scikit-learn kutubxonasi yordamida harorat ma’lumotlarini tahlil qilish hamda prognozlash modeli keltirilgan. Dasturda 30 kunlik harorat ma’lumotlari asosida Linear Regression algoritmi yordamida model quriladi, modelning aniqligi baholanadi va keyingi kunlar uchun harorat qiymatlari prognoz qilinadi[1-6].

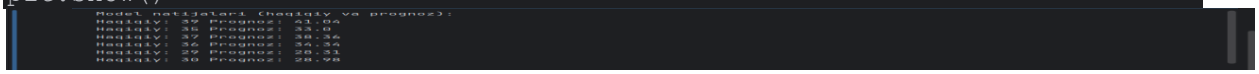
```
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_absolute_error
from sklearn.metrics import mean_squared_error
from sklearn.metrics import r2_score

# 30 kunlik harorat ma'lumotlari
data = {
    "Kun": [1,2,3,4,5,6,7,8,9,10,
            11,12,13,14,15,16,17,18,19,20,
            21,22,23,24,25,26,27,28,29,30],

    "Harorat": [22,24,23,25,27,26,28,27,29,30,
                28,31,32,30,33,35,34,36,35,37,
                38,36,39,37,40,38,41,39,42,40]
}
df = pd.DataFrame(data)
# Kiruvchi va chiquvchi ma'lumotlar
X = df[["Kun"]]
y = df["Harorat"]
# Ma'lumotlarni ajratish]
X_train, X_test, y_train, y_test = train_test_split(
    X,
    y,
    test_size=0.2,
    random_state=42
)
# Model yaratish
model = LinearRegression()
model.fit(X_train, y_train)
# Prognoz
y_pred = model.predict(X_test)
print("Model natijalari (haqiqiy va prognoz):")
for actual, pred in zip(y_test.values, y_pred):
    print("Haqiqiy:", actual,
          "Prognoz:", round(pred, 2))
# Baholash
mae = mean_absolute_error(y_test, y_pred)
mse = mean_squared_error(y_test, y_pred)
```

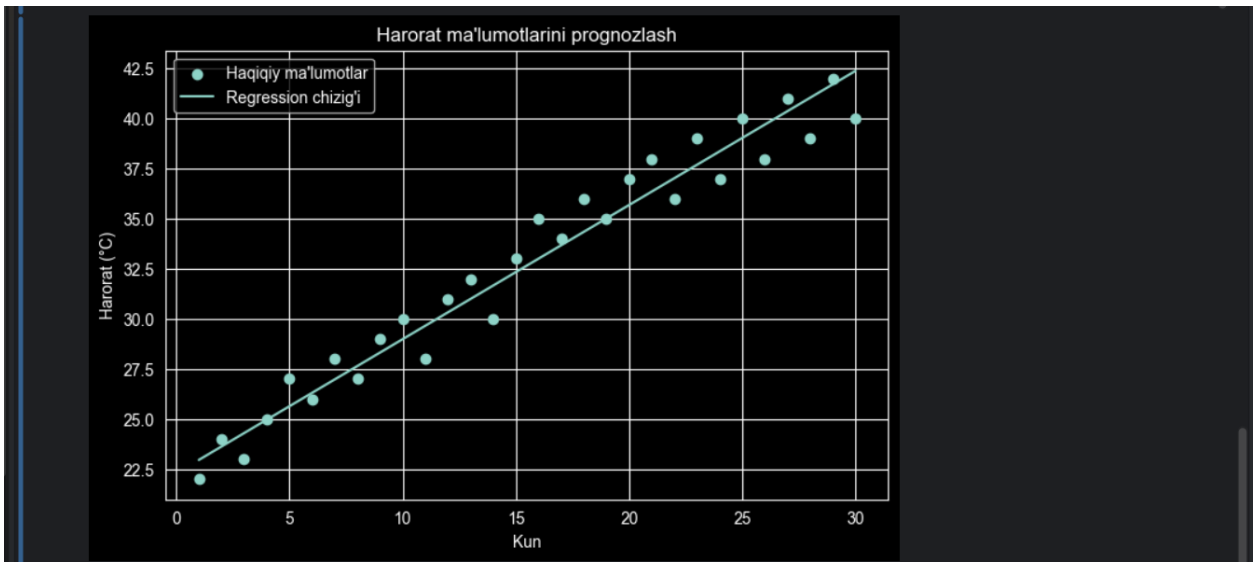
```
r2 = r2_score(y_test, y_pred)

print("\nModel baholash:")
print("MAE (o‘rtacha xatolik):",
      round(mae, 2))
print("MSE (kvadrat xatolik):",
      round(mse, 2))
print("R2 (aniqlik darajasi):",
      round(r2, 2))
# Kelajakdagi 5 kun uchun prognoz
future_days = pd.DataFrame({
    "Kun": [31, 32, 33, 34, 35]
})
future_prediction = model.predict(future_days)
print("\nKelajakdagi harorat prognozi:")
for day, temp in zip(
        future_days["Kun"],
        future_prediction):
    print(
        "Kun:", day,
        "Harorat:", round(temp, 2), "°C"
    )
# Grafik
plt.figure(figsize=(8,5))
plt.scatter(
    df["Kun"],
    df["Harorat"],
    label="Haqiqiy ma'lumotlar"
)
plt.plot(
    df["Kun"],
    model.predict(X),
    label="Regression chizig'i"
)
plt.title("Harorat ma'lumotlarini prognozlash")
plt.xlabel("Kun")
plt.ylabel("Harorat (°C)")
plt.legend()
plt.grid(True)
plt.show()
```



```
Model baholash:
MAE (o‘rtacha xatolik): 1.46
MSE (kvadrat xatolik): 2.38
R2 (aniqlik darajasi): 0.82

Kelajakdagi harorat prognozi:
Kun: 31 Harorat: 43.06 °C
Kun: 32 Harorat: 43.73 °C
Kun: 33 Harorat: 44.4 °C
Kun: 34 Harorat: 45.07 °C
Kun: 35 Harorat: 45.74 °C
```




*1-rasm. Harorat ma’lumotlarini prognozlash*

**Natijalar tahlili.**Model natijalari tahlili shuni ko‘rsatdiki, Linear Regression algoritmi harorat ma’lumotlaridagi umumiy tendensiyalarni muvaffaqiyatli aniqlay oldi. Baholash natijalariga ko‘ra, MAE va MSE qiymatlari model xatoligining past ekanligini ko‘rsatdi. $R^2$ ko‘rsatkichi esa modelning ma’lumotlar o‘rtasidagi bog‘liqlikni yaxshi tushuntira olishini tasdiqladi[7-8].

Shuningdek, model yordamida keyingi besh kun uchun harorat qiymatlari prognoz qilindi. Olingan natijalar haroratning umumiy o‘zgarish tendensiyasini aks ettirib, prognozlash modelining amaliy jihatdan samarali ekanligini ko‘rsatdi. Grafik tahlili ham haqiqiy ma’lumotlar va prognoz natijalari o‘rtasida yaqin moslik mavjudligini ko‘rsatdi.

Umuman olganda, ishlab chiqilgan model ob-havo ma’lumotlarini tahlil qilish va qisqa muddatli prognozlash masalalarida qo‘llash uchun yetarli aniqlikka ega ekanligi aniqlandi.

## XULOSA

Ushbu maqolada Python dasturlash tili yordamida ob-havo ma’lumotlarini statistik tahlil qilish va prognozlash masalalari o‘rganildi. Harorat ma’lumotlari asosida Linear Regression algoritmi yordamida prognozlash modeli ishlab chiqildi va uning samaradorligi baholandi. Olingan natijalar modelning harorat

ma’lumotlaridagi tendensiyalarni aniqlash hamda kelgusidagi qiymatlarni bashorat qilish imkoniyatiga ega ekanligini ko‘rsatdi. Baholash ko‘rsatkichlari modelning qoniqarli aniqlikda ishlashini tasdiqladi.

Shuningdek, Python dasturlash tili va Machine Learning algoritmlaridan foydalanish ob-havo ma’lumotlarini tahlil qilish va prognozlash jarayonlarini avtomatlashtirish hamda samaradorligini oshirishda muhim ahamiyatga ega.

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# NAMANGAN VILOYATI TURIZMI VA REKREATSIYA RESURSLARI

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***Annotatsiya.****Ushbu maqola Namangan viloyatining ,tabiiy va madaniy rekreatsiya resurslarini tahlil qilishga bag'ishlangan.Alohida e'tibor esa Namangan viloyarining asosiy turizm salohiyatini belgilovchi "Xalqaro gullar festivali" ning hudud iqtisodiyoti, turizm oqimiga ta'siri hamda qadimiy davlatchilik tarixidan so'zlovchi "Axsikent"arxeologik yodgorligining turistik jozibadorlikni oshirishdagi o'rni yoritilgan.*

***Kalit so'zlar:****Namangan ,rekreatsiya resurslari,ekoturizm,ziyorat turizmi,Xalqaro gullar festivali,Axsikent .*

***Abstract.*** *This article is dedicated to the analysis of natural and cultural recreational resources of the Namangan region. Special emphasis is placed on the impact of the "International Flowers Festival" on the regional economy and tourist flow, which defines the primary tourism potential of the area. Furthermore, the role of the "Axsikent" archaeological monument, which reflects the ancient history of statehood, in increasing tourist attractiveness is highlighted.*

***Keywords*** *Namangan, recreational resources, ecotourism, pilgrimage tourism, International Flowers Festival, Aksikent.*

## KIRISH

Namangan viloyati O‘zbekiston Respublikasining sharqiy qismida joylashgan, geografik jihatdan O‘zbekistonning boshqa rayonlariga qaraganda qulay joylashgani, tabiiy resurslari ko‘p va xilma xil ekanligi bilan boshqa viloyatlardan ajrab turadi Hududi 7,9 ming kv. km., bu jihatdan u O‘zbekistonning Farg‘ona vodiysi viloyatlari o‘rtasida eng yirigi hisoblanadi. Namangan viloyati Qirg‘iziston bilan shimol va sharqdan chegaralarga ega ekanligi ushbu respublikalar bilan transchegaraviy turizmni rivojlantirish imkonlarini beradi. Shuningdek, etibor beriladigan bo‘lsa ushbu qo‘shni hududlarda ham ekoturizmni rivojlantirish istiqbollari viloyatning ushbu

sohadagi potensiali bilan o‘xshashdir.. Umuman olganda, viloyatning iqtisodiy-geografik va geosiyosiy o‘rni uning iqtisodiy-ijtimoiy rivojlanishiga va bozorlarining rivojlanishiga qulaylik yaratadi. Tabiiy resurslar Namangan viloyatining iqtisodiy salohiyati uchun ijobiy baholanadi hamda ko‘plab tumanlarida qazilma boyliklar ko‘p uchraydi Bunday tabiiy boyliklarning uchrashi hududni o‘rganishga tashrif buyuruvchi turistlar oqimiga ijobiy ta‘sir qiladi. Viloyat shifobaxsh issiq mineral suvlarga boy hisoblanib uning Chortoq, Shahand, Kosonsoy, Uchqo‘rg‘on suvlari o‘zining minerallanish darajasi bo‘yicha alohida ahamiyat kasb etadi. Ushbu tabiiy resurslarning turismdagi axamiyati ulkan hisoblanadi, viloyat nafaqat ziyorat turizmi balki davolash turizmi jihatdan ham mamlakatda o‘zining ulkan ahamiyati, salohiyati va potensialiga ega va undan foydalanib kelmoqda. Yuqorida ta‘kidlangan hududlar o‘zining tabiiy boyliklari, asosan minerallarga boy bo‘lgan yer osti suvlari mavjud bo‘lgan dam olish davolash maskanlari evaziga hududga nafaqat mamlakat balki butun Markaziy Osiyo mintaqasi turistlarini jalb etib kelmoqda. Ekoturizm uchun eng muhim bo‘lib hisoblangan tabiiy resurs mintaqa hududini tashkil etgan tog‘ va adirlar hisoblanadi. Viloyat tog‘lik va adirlik hududlarida dam olish sihatgohlari hududga asosan bir kundan bir haftagacha tashrif buyiruvchilarni jalb qiladi

## ASOSIY QISM

Mamlakatimizning ko‘p asrlik tarixi va mustaqillik davridagi taraqqiyotida Namangan viloyati o‘zining boy o‘tmishi, madaniyati bilan muhim o‘rin egallab kelgan. Namangan viloyatida jami 250 dan ortiq madaniy meros ob‘ektlari mavjud.. Bularning soni ko‘pligiga qaramasda qo‘l bilan sanoqlilarigina turistlarni qabul qilish imkoniyati, shart sharoitlari va infratuzilmalarga egadir. Turistlarni qiziqtirishi mumkun bo‘lgan turistik ob‘ektlarga turistik mashrutlarni tashkil etish ham viloyat turizm rivojiga ulkan hissa qo‘shadigan amaliy tadbirlardan biri bo‘ladi. Madaniy meroslarning

ko‘pchiligi antik davr yodgorliklari hisoblanadi, bu esa Namangan viloyatiga tashrif buyuruvchilarning nafaqat rekrarsion resurslardan foydalanish uchun balki ziyorat, agroturim, ilmiy turizm, ekoturizm sohalari uchun ham tashriflari sonini oshirish mumkin.Eng mashhur qadamjolardan biri bu Axsikent sanaladi u Namangan viloyati To‘raqo‘rg‘on tumanidagi Shahand qishlog‘i hududida, Sirdaryoning o‘ng sohilida joylashgan qadimiy shahar xarobasi. Miloddan avvalgi III—II asrlarda vujudga kelgan, IX—X asrlarda Farg‘ona vodiysining poytaxti bo‘lgan. Zahiriddin Muhammad Boburning „Boburnoma“ asarida tasvirlangan shaharlardan biri.




1-rasm.Namangan viloyati hududidagi -Axsikent madaniy shahar yodgorligi

Bundan tashqari O‘zbekistondagi “Xalqaro gullar festivali” har yili bahor oyida aynan Namangan viloyatida o‘tkaziladi.U rang-barang gullar olamiga hamda mamlakatning madaniy an’analariga bag‘ishlangan festival hisoblanib,gul bog‘chalarining egalari va bog‘ dizaynerlari uchun o‘zlarining badiiy gul kompozitsiyalarini namoyish etish, ham O‘zbekistondagi, ham boshqa hududlardan tashrif buyuruvch sayyohlar uchun o‘zlarini tanitish , go‘zalligi bilan lol qoldirish uchun noyob imkoniyatdir. “Namangan xalqaro

gullar festivali” ilk bor 1961-yilda o‘tkazilganidan buyon u katta tadbirga aylanib, shahar aholisi uchun ham, uning mehmonlari uchun ham unutilmas voqelik bo‘lib kelmoqda.Ajoyib manzarali ko‘rinishdan tashqari, Gullar festivali mehmonlarga qator tadbirlarni taklif etadi.Shuningdek, bu yerda madaniy chiqishlar, musiqiy konsertlar va an’anaviy raqs dasturlari ham tadbirga bayramona kayfiyat bag‘ishlaydi..Keyingi yillarda festivalning ko‘lami kengayishi natijasida mahalliy sayyohlar bilan bir qatorda, xorijiy sayyohlar soni ham ortib bormoqda. Festivalda J. Koreya, Rossiya, Turkiya, Pokiston, Niderlandiya va Qirg‘iziston, Tojikiston, Qozog‘iston, Turkmaniston kabi qo‘shni davlatlardan mehmonlar ishtirok etmoqda.Festivalning ochilish kunlari Gullar paradi Namangan shahrining markaziy ko‘chalari bo‘ylab bo‘lib o‘tadi. Ushbu paradga gullar va milliy ramzlar tushirilgan bayroq bilan bezatilgan yengil avtomobillar, mashinalari ishtirok etadi. Kolonna butun shahar bo‘ylab Z.M.Bobur nomidagi istirohat bog‘igacha o‘tib, floristika va gulchilik san’atining rang-barang yurishi bilan mehmonlar e’tiborini tortadi.

2

2-rasm.Xalqaro gullar festivalidagi parad

Har yili o’tkazilib kelinadigan bu festivalning 2025-yil may oyida 64 yilligi bo’lib o’tdi.Bu nafaqat yurtimiz, balki xorijdan ham minglab sayyohlarni jalb etishga muvofiq bo’ldi.Mazkur festivalga tayyorgarlik doirasida shaharga 100 milliondan ortiq, jumladan, ko‘cha-xiyobonlarga 45 million, Bobur, Afsona

va Yangi O‘zbekiston bog‘lariga 65 million tup gul ekildi.64-Xalqaro Gullar festivalining o‘ziga xos va tarixiy jihati shundaki, o‘tgan yil 40 kun o‘tkazilgan festival bu gal mahalliy va xorijiy sayyohlar, gulsevarlar, san’at va madaniyat ixlosmandlarining talab va rag‘batlarini inobatga olgan holda ilk bor 50 kun davom etdi. Festival doirasida viloyatga tashrif buyurgan xorijiy sayyohlar soni 720 mingdan oshdi, mehmonlarning umumiy soni esa 7 milliondan ziyodni tashkil etdi.Festival kunlari Z. M. Bobur nomidagi madaniyat va istirohat bog‘iga mehmonlar tashrif buyurgan Namangan shahri mehmonlariga xorijiy va mahalliy ishtirokchilar tomonidan maxsus maydonlarda tabiiy gullardan yaratilgan turli kompozitsiyalar, dizayn va dekoratsiyalar namoyish etildi.64-Xalqaro Gullar festivali doirasida 100 dan ortiq madaniy tadbirlar – jahon va milliy estrada yulduzlari ishtirokida konsertlar, Fashion Week 2025 – yirik modalar haftaligi, xalqaro va mahalliy sport musobaqalari, ilmiy-amaliy konferensiyalar va seminarlar, kattalar va bolalar uchun spektakllar va sirk tomoshalari, xalqaro hunarmandchilik ko‘rgazmalari, kulgu kechalari, “Dunyo taomlari Namanganda” – gastronomik turizm tadbirlari, “Lavanda sayli” va dron-shoular o‘tkazildi.




**3-rasm.**

**Xalqaro gullar festivalidan namunalar**

## XULOSA

Xulosa qilib aytganda, Namangan viloyatining rekreatsiya va turizm resurslari o‘zining noyob tarixiyligi va mavsumiy jozibadorligi bilan ajralib turadi. Yuqorida aytib o’tilganidek ,Axsikent arxeologik yodgorligi mintaqaning qadimiy davlatchilik va madaniyat markazi sifatidagi salohiyatini ochib bersa, har yili o‘tkaziladigan Xalqaro gullar festivali viloyatning zamonaviy "ekotizim brendi"ga aylanganini isbotlaydi.Viloyat turizmining istiqbolli rivoji aynan mana shu ikki yo‘nalishning — arxeologik meros va floristik san’atning uyg‘unligiga bog‘liq. Axsikentni "ochiq osmon ostidagi muzey" sifatida xalqaro marshrutlarga kiritish hamda Gullar festivalining geografiyasini kengaytirish orqali Namangan nafaqat vodiydagi, balki butun mamlakatdagi eng yirik turistik markazlardan biriga aylanish imkoniyatiga ega. Bu esa, o‘z navbatida, hududiy infratuzilmani yaxshilash va rekreatsiya resurslaridan barqaror foydalanishni ta’minlovchi asosiy omildir.

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# STUDY OF THE INTERACTION OF COMPONENTS IN THE AMMONIUM MOLYBDATE − POTASSIUM NITRATE − WATER SYSTEM USING THE ISOMOLAR SEQUENCE METHOD

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***Annotation:*** *In this study, the interaction of the $(NH_4)_6Mo_7O_{24} – KNO_3 – H_2O$ ternary system was investigated using the isomolar series method. During the research, a transition point corresponding to the formation of a new solid phase was identified. By analyzing changes in the physicochemical properties of solutions, such as pH, density, viscosity, refractive index, and crystallization temperature, the effect of component ratios on the nature of interaction in the system was established.*

*Through this method, the interaction of ammonium molybdate and potassium nitrate in different ratios was theoretically substantiated. The results confirm the effectiveness of the*

*isomolar series method for identifying phase transitions and analyzing complex multicomponent solutions.*

***Аннотация:*** *В данном исследовании взаимодействие компонентов тройной системы $(NH_4)_6Mo_7O_{24} – KNO_3 – H_2O$ было изучено методом изомолярных серий. В ходе исследования была выявлена точка перехода, соответствующая образованию новой твёрдой фазы. Путём анализа изменений физико-химических свойств растворов, таких как pH, плотность, вязкость, показатель преломления и температура кристаллизации, было установлено влияние соотношения компонентов на характер взаимодействия в системе.*

*С помощью данного метода было теоретически обосновано взаимодействие молибдата аммония и нитрата калия при различных соотношениях компонентов. Полученные результаты подтвердили эффективность метода изомолярных серий для выявления фазовых переходов и анализа сложных многокомпонентных растворов.*

***Keywords:*** *ammonium molybdate, potassium nitrate, isomolar sequence method, pH value, density, viscosity, refractive index, crystallization temperature.*

***Ключевые слова:*** *молибдат аммония, нитрат калия, метод изомолярной последовательности, значение pH, плотность, вязкость, показатель преломления, температура кристаллизации.*

## INTRADUCTION

Nowadays, along with macro fertilizers, the importance of micronutrient fertilizers is also being paid sufficient attention. Many researchers and agronomists believe that nitrogen, phosphorus, and potassium-based fertilizers have the main impact on crop yield. However, the excessive use of these chemical fertilizers is causing serious problems such as environmental pollution and reduced soil fertility [1; pp.1-4].

If the soil is not regularly replenished with the necessary micronutrients, the levels of these elements will decrease over time, which leads to reduced productivity. Therefore, it is crucial to continuously provide plants with the necessary micronutrients to ensure healthy growth and high yields [2; EP0509030].

Micronutrient fertilizers are most effective when combined with primary nutrients like nitrogen (N), phosphorus (P), and potassium (K), along with specific organic fertilizers and high-yielding crop varieties [3; 2019].

Molybdenum is mainly present in the soil in the form of molybdate ($MoO_4^{2-}$), and plants absorb this trace element in the form of molybdate ions. The role of the trace element molybdenum is invaluable in acting as a cofactor for important enzymes such as nitrogenase and nitrate reductase. At the same time, phosphate ions are also important in the absorption of molybdenum by plants [4; pp.2482-2489].

Compared to the 18 essential nutritional elements needed for plant growth and development, molybdenum is required in minimal amounts. However, it plays an important role in the body, as it is a component of more than sixty different enzymes [5; 2011, 6; pp.137-144, 7; 2023].

Excessive use of molybdenum can hurt the growth and development of plants. The deficiency of this element is primarily manifested by severe chlorosis (loss of green color) in the leaves, especially in their central parts. Chlorosis then spreads to young leaves and becomes more severe, resulting in the leaves turning pale. In such cases, observed in the plant Cicer arietinum (pea), it was found that the affected leaves dried up and died [8; pp.860-864].

In this study, the interactions between the components of the ternary system $(NH_4)_6Mo_7O_{24}–KNO_3–H_2O$ were comprehensively investigated using the isomolar series method. During the experimental analysis, no formation of a new compound was observed.

The physicochemical properties of the solutions, including pH, density, viscosity, refractive index, and crystallization temperature, were systematically examined to determine the effect of component ratios on the interaction mechanism within the system. In addition, the interaction between ammonium heptamolybdate and potassium nitrate at different compositional ratios was

theoretically substantiated through the application of the isomolar series approach.

The obtained results demonstrate the high efficiency and reliability of this method for identifying phase transitions and studying complex multicomponent solution systems. The experimental data were analyzed graphically. This provided insight into the fact that, in the solution, ammonium heptamolybdate and potassium nitrate remain as the initial components while retaining their individual characteristics and physiological activity.

**Materials and Methods.** To elucidate the interaction mechanism between ammonium molybdate and potassium nitrate, the physicochemical characteristics of dilute solution mixtures were systematically investigated employing the isomolar series method. The study involved measuring the pH, density, refractive index, and kinematic viscosity of mixtures prepared from 0.01 M solutions of [$(NH_4)_6Mo_7O_{24}$] and [$KNO_3$] at various compositional ratios.

The kinematic viscosity of the solutions was determined using a VPJ-3 capillary viscometer equipped with a 1.12 mm diameter capillary tube, with a measurement precision of ±0.00001 mm²/s. Relative density values were obtained by the pycnometric method [9; pp. 2–1], while pH measurements were carried out using a FiveGoTM F2 Mettler-Toledo pH meter.

The dependence of the physicochemical parameters of the investigated solutions on the component ratio in the [$(NH_4)_6Mo_7O_{24}$]–[$KNO_3$] system is summarized in Table 1 and illustrated in Figure 1.

**Results of the research.** Examination of the pH–composition dependence in the [(NH4)6Mo7O24(0.01 M) + KNO3(0.01 M)] system showed that the gradual addition of potassium nitrate led to a decrease in pH from 5.50 to 5.45. A pronounced break in the curve was detected at the molar ratio of 1:9, where the pH reached 4.87.

**Table 1.**

*Changes in the physicochemical properties of solutions under the influence of variations in the component ratio in the [(NH4)6Mo7O24 (0.01 M) + KNO3 (0.01 M)] system.*

| | Composition of components | | pH | Density, g/cm$^3$ | Viscosity, mm$^2$/c | Refractive index | Crystallization temprature, °C |
|---|---|---|---|---|---|---|---|
| | $(NH_4)_6Mo_7O_{24}$, ml | $KNO_3$, ml | | | | | |
| | 30 | 0 | 5,50 | 1,1402 | 1,1181 | 1,3351 | 1,0 |
| | 27 | 3 | 5,49 | 1,1244 | 1,0984 | 1,3348 | 0,9 |
| | 24 | 6 | 5,46 | 1,1086 | 1,0704 | 1,3345 | 0,8 |
| | 21 | 9 | 5,45 | 1,0928 | 1,0594 | 1,3343 | 0,7 |
| | 18 | 12 | 5,42 | 1,077 | 1,0564 | 1,3340 | 0,6 |
| | 15 | 15 | 5,38 | 1,0612 | 1,0544 | 1,3339 | 0,6 |
| | 12 | 18 | 5,31 | 1,0454 | 1,0514 | 1,3337 | 0,5 |
| | 9 | 21 | 5,24 | 1,0296 | 1,0484 | 1,3336 | 0,5 |
| | 6 | 24 | 5,21 | 1,0138 | 1,0454 | 1,3335 | 0,4 |
| 0 | ***3*** | ***27*** | ***4,87*** | ***1,0181*** | ***1,0404*** | ***1,3333*** | ***1,1*** |
| 1 | 0 | 30 | 5,45 | 0,9825 | 0,9927 | 1,3334 | 1,0 |

Analysis of the “composition–density” relationship showed that a gradual increase in the concentration of potassium nitrate, accompanied by a corresponding decrease in the content of ammonium heptamolybdate, led to a steady decrease in solution density from 1.1402 to 0.9825 g/cm³. However, at the component ratio [$(NH_4)_6Mo_7O_{24}$ (0.01 M) : $KNO_3$ (0.01 M)] = 1:9, an anomalous density value of 1.0181 g/cm³ was observed.

Similarly, examination of the “composition–refractive index” diagram revealed a gradual decrease in the refractive index from 1.3351 to 1.3333 as the system approached the 1:9 composition ratio. At this ratio, a distinct inflection point was observed, indicating a significant change in the physicochemical state of the system. Further addition of potassium nitrate resulted in a slight increase in the refractive index to 1.3334.

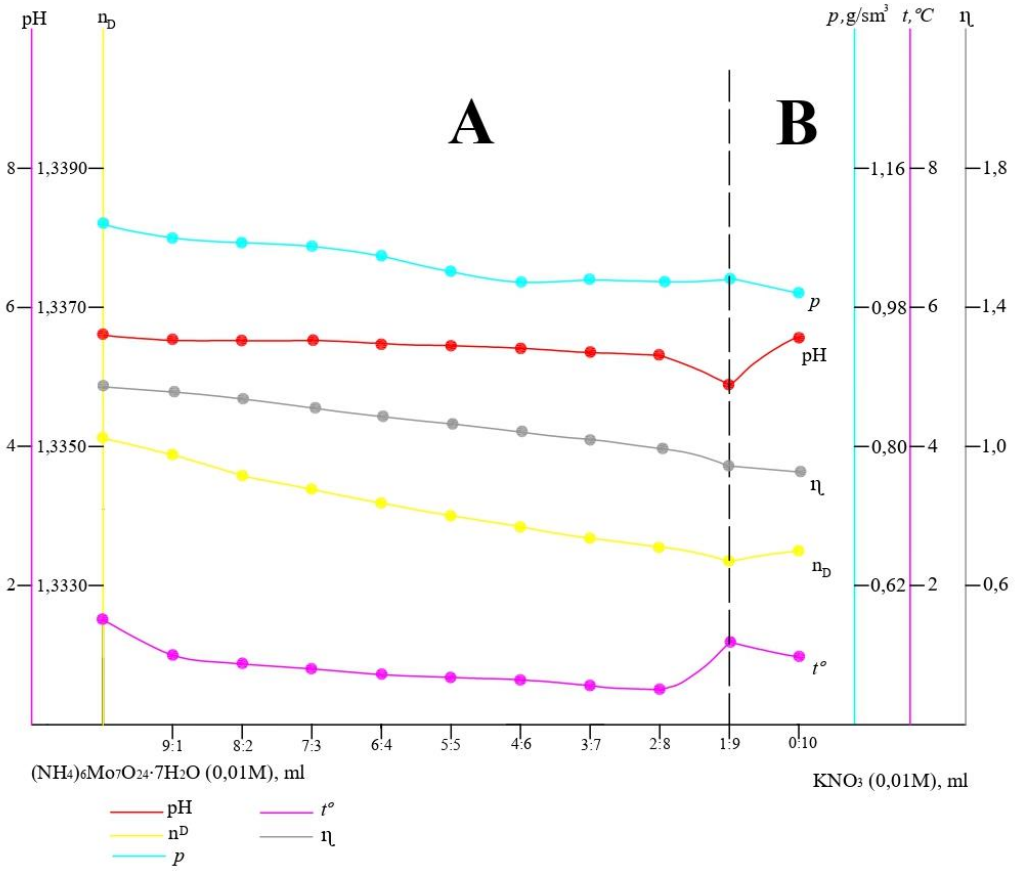


***Fig. 1.*** *Changes in the physicochemical properties of solutions depending on the ratio of components in the system [$(NH_4)_6Mo_7O_{24}$(0.01M) + $KNO_3$(0.01M)]*

The viscosity of the investigated system decreased from 1.1181 mm²/s to 0.9927 mm²/s as the concentration of 0.01 M ammonium heptamolybdate decreased and the proportion of 0.01 M potassium nitrate increased. A distinct inflection point was observed at a component ratio of 1:9, corresponding to a viscosity value of 1.0404 mm²/s.

## CONCLUSION

A comprehensive physicochemical investigation of the ternary system $(NH_4)_6Mo_7O_{24}$–$KNO_3$–$H_2O$ was carried out using the isomolar series method based on 0.01 M solutions of ammonium heptamolybdate and potassium nitrate. The experimentally obtained results made it possible to draw the following conclusions:

– As the component ratio within the isomolar series was varied, significant changes were observed in the physicochemical properties of the solutions, including pH, density, viscosity, refractive index, and crystallization temperature.

– Although the interactions between the components exerted a certain influence on the physicochemical properties of the solution, they did not result in the formation of a new chemical phase. It was established that no new compound was formed as a result of the interaction between the components of the investigated system.

– The simultaneous decrease in pH, the reduction of density and viscosity to minimum values, as well as changes in the refractive index and crystallization temperature, indicate the formation of the initial substances in the solution while preserving the individual properties and physiological activity of ammonium heptamolybdate and potassium nitrate.

– These results provide valuable insight into the behavior of molybdenum–potassium systems and may serve as a scientific basis for optimizing the composition of micronutrient fertilizers.

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# ХРОМАТО-МАСС-СПЕКТРОМЕТРИЧЕСКОЕ ИССЛЕДОВАНИЕ СИНТЕЗИРОВАННОГО N-(БУТ-2-ИН-1-ИЛ)-N-ФЕНИЛАНИЛИНА

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***Аннотация:*** *Исследован масс-спектр синтезированного N-(бут-2-ин-1-ил)-N-фениланилина. Установлена молекулярная масса соединения и предложены основные пути фрагментации молекулярного иона.*

***Ключевые слова:*** *N-(бут-2-ин-1-ил)-N-фениланилин, масс-спектрометрия, фрагментация, молекулярный ион, хроматография.*

## ВВЕДЕНИЕ

Для установления молекулярной массы синтезированного N-(бут-2-ин-1-ил)-N-фениланилина был проведён хромато-масс-спектрометрический анализ. На основании анализа полученного масс-спектра (рис. 1) были идентифицированы основные ионы, образующиеся в результате фрагментации молекулярного иона соединения. Предполагаемые пути распада молекулярного иона и состав образующихся фрагментов представлены на схеме и в таблице 1.

**Таблица 1**

Основные ионы, зарегистрированные в масс-спектре N-(бут-2-ин-1-ил)-N-фениланилина

| m/e | Ион | Относительная интенсивность, % |
|---|---|---|
| 42 | $C_2H_4N^+$ | 20,4 |
| 54 | $C_4H_6^+$ | 24,6 |
| 91 | $C_6H_5N^+$ | 26,2 |
| 182 | $C_{13}H_{12}N$ | 28,0 |
| 221 | $C_{16}H_{15}N^+$ | 25,3 |

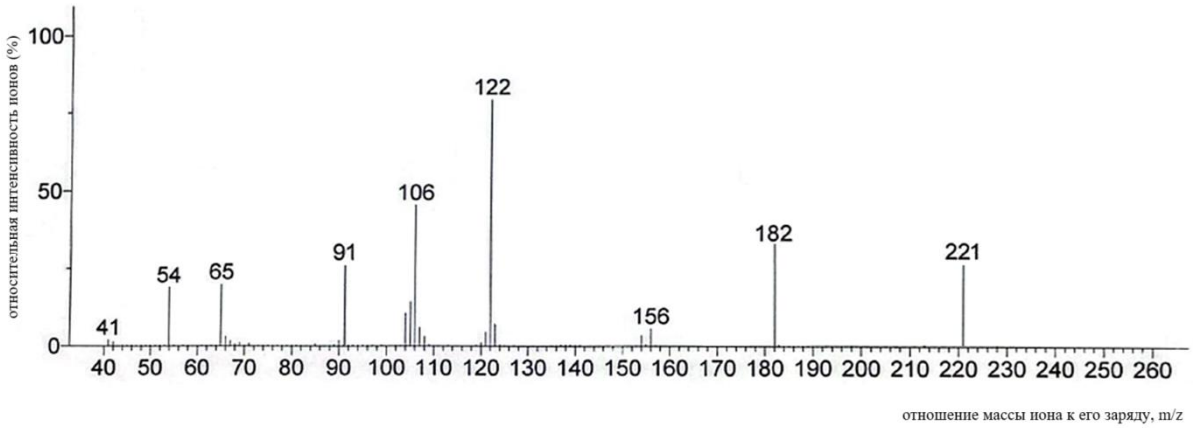
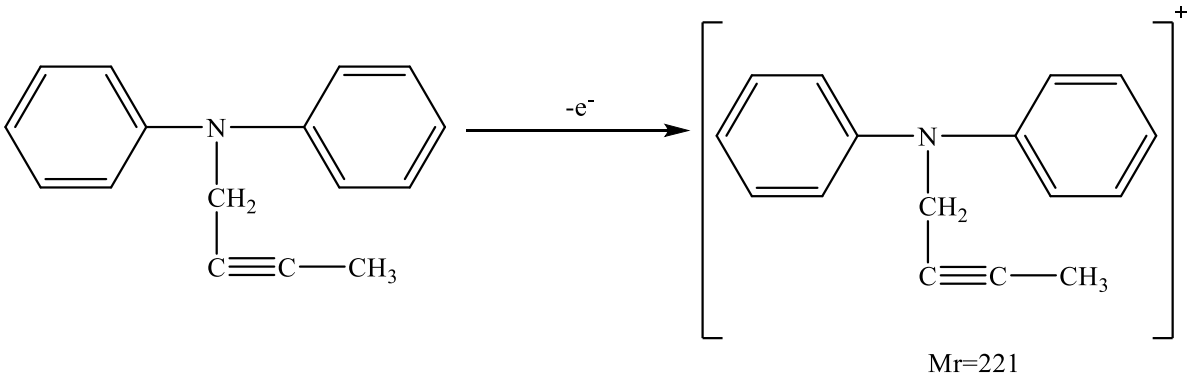


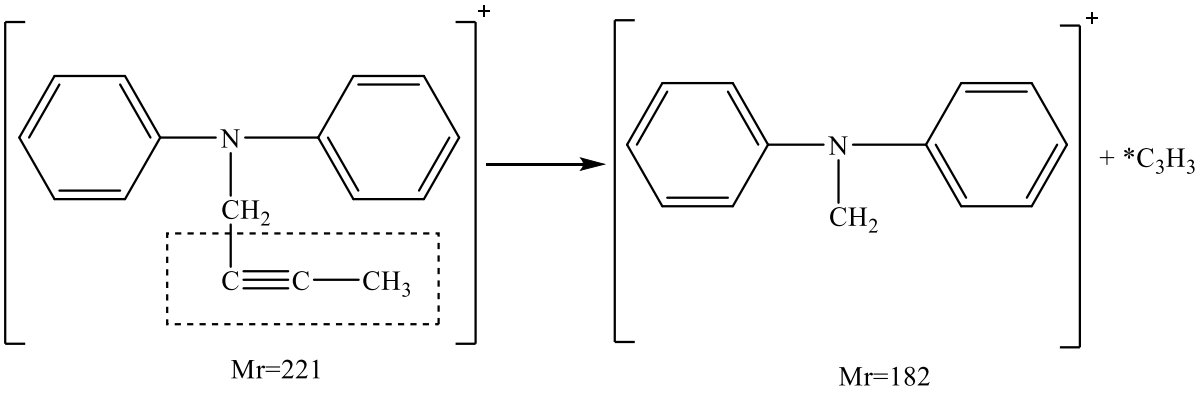

**Рисунок 1. Хромато-масс-спектр синтезированного N-(бут-2-ин-1-ил)-N-фениланилина.**

В масс-спектре синтезированного N-(бут-2-ин-1-ил)-N-фениланилина наблюдался молекулярный ион с m/z = 221, что полностью соответствует его расчётной молекулярной массе. На основании полученных данных был предложен механизм последовательной фрагментации молекулярного иона. Схема образования основных фрагментных ионов, возникающих в результате ступенчатого распада молекулярного иона N-(бут-2-ин-1-ил)-N-фениланилина, представлена ниже.

В масс-спектре исследуемого соединения наблюдается молекулярный ион с m/z = 221 , что соответствует расчётной молекулярной массе N-(бут-2-ин-1-ил)-N-фениланилина. Хроматографический пик соединения регистрировался при времени удерживания 4,894–4,917 мин.

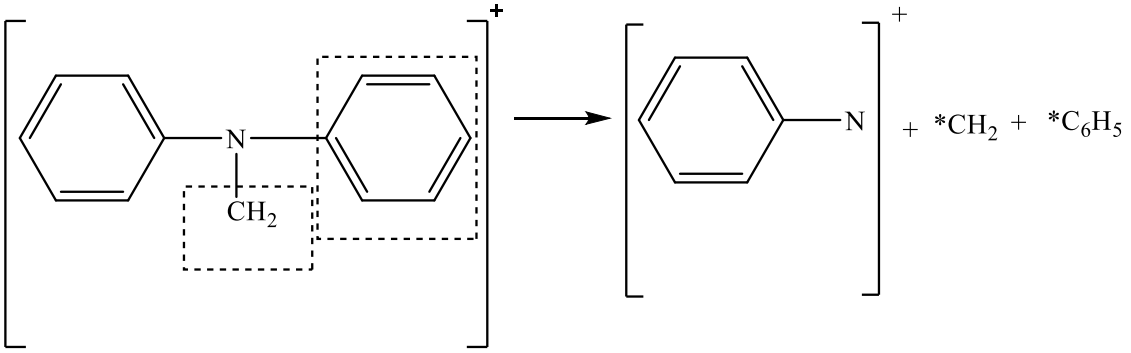



Под действием электронного удара молекулярный ион подвергается последовательной фрагментации. Одним из основных направлений распада является отщепление метильного радикала от бутинового заместителя, что приводит к образованию фрагментного иона с m/z = 182, соответствующего иону N-(фенил(фенил)амино)метилена.



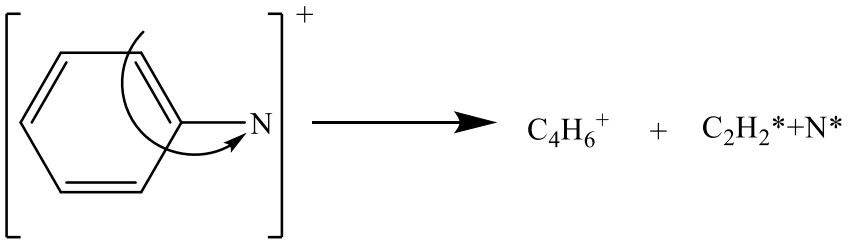

Дальнейшая фрагментация иона с m/z = 182 сопровождается разрывом связи между фенильным кольцом и метиленовой группой с образованием характерного иона m/z = 91, который может быть отнесён к

фенилиминному фрагменту.




Mr=182 Mr=91

Последующий распад данного иона приводит к формированию фрагмента с m/z = 54, соответствующего иону состава $C_4H_6^+$. Образование данного пика связано с дальнейшим разрушением ароматической системы и перегруппировкой углеродного скелета.




Mr=91 Mr=54

Наличие в спектре ионов с m/z 156, 122, 106, 65 и 54 свидетельствует о многостадийном механизме фрагментации молекулярного иона. Процесс распада включает последовательное отщепление радикалов, разрыв связей в боковой цепи и частичную деструкцию ароматических фрагментов.

Полученные данные хромато-масс-спектрометрического анализа подтверждают строение синтезированного соединения и свидетельствуют о том, что исследуемый продукт соответствует структуре N-(бут-2-ин-1-ил)-N-фениланилина.

Результаты хромато-масс-спектрометрического анализа подтвердили строение синтезированного N-(бут-2-ин-1-ил)-N-фениланилина и

позволили установить характерные направления фрагментации его молекулярного иона.

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# ASSESSMENT OF THE INFLUENCE OF THE LITHOLOGICAL COMPOSITION OF ROCKS IN THE AERATION ZONE ON THE MIGRATION OF POLLUTANTS IN THE FLOODPLAIN AND VALLEY OF THE AKHANGARAN RIVER

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***Annotation:*** *The article presents an assessment of the influence of the lithological composition of rocks in the aeration zone on the migration of pollutants in the floodplain and valley sediments of the Akhangaran River. The work uses a set of methods, including geological mapping, field experimental migration work in pits, laboratory analyses of the physical and mechanical properties and chemical composition of rocks, as well as the study of the processes of sorption of heavy metals. The results of the study established a high protective role of the aeration zone, since only 0.15–0.2% of the initial concentration of metal salts penetrates to a depth of 1.0–1.5 m.*

***Keywords:*** *aeration zone, migration of pollutants, heavy metals, lithological composition, groundwater, Akhangaran River, groundwater protection.*

## INTRADUCTION

The Ahangaran River Valley is a densely populated area where underground water is used for drinking and domestic water supply, as well as for irrigation of agricultural land. Groundwater pollution poses a serious threat to the health of the population and the economy of the region. Alluvial deposits in floodplains are usually characterized by significant heterogeneity of their lithological composition. The presence of different types of rocks (sands, clays, loams, pebbles) creates a complex picture of filtration flows and makes it difficult to predict the spread of pollution. The Ahangaran River Valley is experiencing a significant anthropogenic load associated with industry, agriculture and utilities. This leads to contamination of the soil and surface water

with various pollutants that can enter the aeration zone and pollute the groundwater.

To develop effective measures to protect groundwater from pollution, it is necessary to have a clear understanding of the factors that determine the migration of pollutants in the aeration zone. Assessing the influence of lithological composition is an important step in this direction.

Thus, the assessment of the influence of the lithological composition of rocks in the aeration zone on the migration of pollutants in the floodplain and valley of the Akhangaran River is an urgent scientific and practical task, the solution of which will allow developing more effective measures for the protection of groundwater and ensuring sustainable water use in the region.

**Material and methods.** This study, aimed at assessing the influence of the lithological composition of rocks in the aeration zone on the migration of pollutants in the floodplain and valley of the Akhangaran River, should use a set of methods combining field observations, laboratory analyses and mathematical modeling. Here are the main methods: field methods (geological mapping and lithological description), rock sampling in the aeration zone, water sampling from surface and underground sources, regular measurements of the ground water level, conducting field experiments to study the migration of pollutants; laboratory methods: determination of the physical and mechanical properties of rocks in the aeration zone, chemical composition of rocks in the zone aeration, concentration of pollutants in water and rocks, experimental study of sorption and desorption of pollutants by rocks of the aeration zone, study of biochemical processes of decomposition of pollutants; methods of data processing and analysis (statistical, correlation,geostatic analyses); methods of mathematical modeling.

**Results and their discussion.** When irrigation increases, polluted soils and rocks of the aeration zone become sources of groundwater contamination as a result of leaching of various salts, water-soluble parts of heavy metals. To

study possible migration routes of pollutants through the rocks of the aeration zone, experimental work was carried out in pits.

According to the map of Quaternary deposits, engineering and geological and other maps compiled during a complex hydrogeological and engineering and geological survey of 1:50 000 scale for land reclamation purposes in the area of work, the aeration zone is mainly composed of loess-like loams, sandy loams and gravel-pebble deposits in the valleys andfloodplain of the Akhangaran River with a thickness of 1-3 mm. up to 10-20 meters or more.

According to "Kyzyltepageologiya" data, the soil cover of the work area is contaminatedwith Zn, Mn, Pb,Sb, Sr (gross contents). With the development of irrigation, the water-soluble part of these metals can pollute the rocks of the aeration zone, then underground water.

To study the possible migration routes of these components through the rocks of the aeration zone, experimental migration works were carried out for two (coarse-grained and fine-grained) varieties of rocks of the aeration zone. During the sinking of the pits, samples were taken from a depth of 0.2, 1.0, and 2.0 m prior to the experiment for appropriate chemical analyses (water extraction, granulometric composition, content of petroleum products, and heavy metals). At the end of the experiment, samples were taken from the same intervals for evaluation

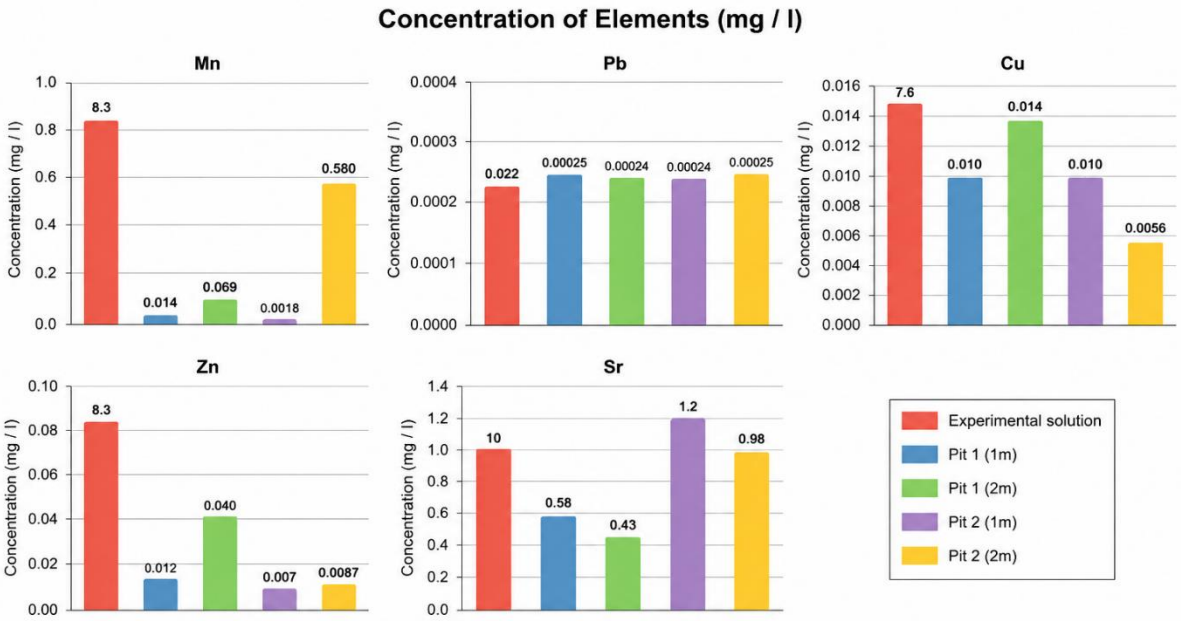
changes in the concentration of metals after the experiment. Based on the results of field and laboratory studies, a slight increase in the concentration of zinc and copper associated with accumulation in clay rocks was established. The experiments were conducted from the earth's surface.

For example, we present the results of changes in the concentration of metals in depth in various rocks of the aeration zone, pits 1, 2-gravel and loam. Experiments were carried out in pits 1 and 2 with the following concentrations of metal salts: manganese-8.3 mg / l; lead-22 mg / l; copper-7.6 mg/L; zinc-8.3 mg/L; strontium-10 mg/l (Table 1). The concentration of the above metals at a

depth of 1.0 m according to pit No. 1, it was significantly reduced to: manganese-0.014 mg / l; lead-0.00025 mg/l; copper-0.010 mg/l; zinc-0.012 mg/l; strontium-0.58 mg/l. This percentage is between 0.000014 (lead) and 0.58 (strontium) of the original concentration.

Table 1.

Change in the concentration of heavy metals in the experimental solution




| Elements, mg / l | | Mn | Pb | Cu | Zn | Sr |
|---|---|---|---|---|---|---|
| Concentration of the experimental solution | | 8.3 | 22 | 7.6 | 8.3 | 10 |
| Pit 1 | 1m | 0.014 | 0.00025 | 0.010 | 0.012 | 0.58 |
| | 2m | 0.069 | 0.00024 | 0.014 | 0.040 | 0.43 |
| Pit 2 | 1m | 0.0018 | 0.00024 | 0.010 | 0.010 | 1.2 |
| | 2m | 0.580 | 0.00025 | 0.0056 | 0.0087 | 0.98 |

In the course of research, the concentrations of Mn, Pb, Cu, Zn, and Sr in the rocks of the aeration zone were determined prior to the experiment (pits 1-6).

*Manganese. (hazard class 3),* active in natural processes, mobile in reducing and inert in oxidizing processes, easily passes into solutions, it is more difficult to plant out of it.*Lead. (hazard class 1),*a weakly mobile element, in alkaline and slightly alkaline soils with a pH of 7.5-9.5, it is practically stationary. In landscapes, it migrates ina biocarbonate form. It does not form a halo of contamination. According to the pits 1,3,4 passed within the lower part

of the Akhangaran MPV – Gejigen branch in the soils of the aeration zone to a depth of 2.0 m, the concentration of manganese is 0.6; 4.9; 6.8, the maximum permissible concentration of lead is 3.0; 0.6; 0.3, respectively. For pits 5 and 6 (Dalverzinsky MPV), the concentration of manganese and lead is about 5.5-6.0 MPC. The hydrogen index of the geological environment of the site is 7.5-8.5-slightly alkaline environment. Accumulation of a relatively high concentration in conditions of remoteness from the source of contamination (OHC and AHMC) seems to depend on the pH of the medium. In the underground waters of the MCC 19, 20, 8, 9, 5, located in the zone of influence of the OHC of AGMC (Kokaral MPV), the concentration of manganese, respectively, is 1.5; 0.6; 0.3 MPC and decreases with distance from the OHCV. The hydrogen index (pH) of the medium (rock, water) west of the OHC is 6.1-6.5 – a weakly acidic medium that promotes the activation of the mobility of these metals. Due to the relatively high dilution capacity of the groundwater flow compared to the flow of the Dalverzinsky MPV, there is a dispersion of concentration along the flow of the groundwater flow.

According to GCK 21 (Dalverzinsky MPV), the concentration of manganese is 0.2-0.5 MPC. In conditions of a slightly alkaline environment, difficult water exchange, which contribute to the creation of an alkaline barrier, pollutants accumulate.

*Copper (Class 2)*participates in plant syntheses. Monovalent copper content is insoluble, divalent - easily soluble. It is most strongly bound to manganese, least strongly bound to zinc and nickel, and is a weakly mobile element in alkaline environments. *Zinc (hazard class 1).* Migration ability-contrasts and changes depending on the chemical composition of the landscape. It is dispersed in various rocks enriched with organic matter, and weakly mobile in alkaline soils. *Strontium (hazard class 3)* is a weakly mobile element in subalkaline media, the migration ability is identical inredoxreactions.

As a result of field experimental migration studies on the migration of pollutants through rocks of aeration zones with different structures, it was revealed:

- mobile forms of metals in the elements Pb, Mn, Zn, etc. have a close correlation with the gross ones, which leads to the possibility of their migration into the chain-release-soil-plants.

- the time of penetration of pollutants per 1 meter of the aeration zone depth was: for pebbles-0.2-0.9 hours; for loams underlain by pebbles-6.0-10 hours; for loess-like loams-2.5-3.0 days; - the pebble deposits of the Akhangaran River section (the final part) are the most permeable compared to the pebble deposits of the interfluve valleys. This circumstance is explained by the fact that the permeability of pebble deposits largely depends on their aggregates – the more clay and powdery fractions in the aggregates, the lower the permeability.

- the highest concentrations of heavy metals accumulate in the soil cover. This is confirmed by a significant decrease in the initial concentration of the experimental solution at a depth of 1.0 m.

- in the presence of clay interlayers in a relatively homogeneous section of pebbles, there is a decrease in the concentration of pollutants from top to bottom and their accumulation in clay rocks. This is due to the fact that the mineralogical composition of loamy rocks contains a significant amount of clay fractions (30-35% of the total volume), which have sorption abilities.

Filtration of experimental solution that has reached a depth of 1 m in the rocks of the aeration zone

of different lithological composition, significantly decreases and amounts to 0.008 – 0.02% in relation to the initial one: for Mn in loams and sandy loams, it is 0.008-0.02%.

pebbles – 0.02-0.15%.

- the presence of aeration zones of loamy soils in the rocks, provided that the pH of the medium is 7.3-8.1, contributes to the formation of an alkaline barrier on which zinc and copper can be deposited.

- the concentration of the solution filtered through the aeration zone to a depth of 2.0 m in all cases did not exceed the maximum permissible concentration;

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# BIOLOGIYA DARSLARIDA EKOLOGIK KO'NIKMALARNI SHAKLLANTIRISH (11-SINF)

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***Annatotsiya.*** *Ushbu maqolada 11-sinf o'quvchilari biologiya darslarida ekologik ko'nikmalar shaklantirish orqali tabiiy ekotizimlarga munosabat, ekologik ko'nikmalarni qo'llash orqali ekoligik odatlarga ega bo'lishi masalalari yoritilgan. Har bir o'rta ta'lim maktabini tamomlagan o'quvchi bilishi lozim bo'lgan ekologik ma'lumotlar yoritilgan.*

***Annatation.*** *This article discusses the development of ecological skills among 11th-grade students in biology lessons, examining their attitude toward natural ecosystems and how applying these ecological skills helps them develop sound ecological habits. It also presents the essential ecological knowledge that every student graduating from secondary school should possess.*

***Kalit so'zlar:*** *ekologik odat, ekologik ko'nikma, ekotizim, ekologik ma'lumot, ekologiya, ekologik muammo, atrof-muhit.*

***Key words:*** *ecological habit, ecological skill, ecosystem, ecological information, ecology, ecological problem, environment.*

## KIRISH

Zamonaviy ta'lim tizimida tabiatni muhofaza qilish va o'quvchilar ekologik ongini shakllantirishga bo'lgan ehtiyoj tobora ortib bormoqda. Sanoatning jadal rivojlanishi, urbanizatsiya jarayonlari va global iqlim o'zgarishlari tufayli kelajak avlodning ekologik savodxonligi milliy va xalqaro miqyosda muhim masalaga aylangan. Shu nuqtai nazardan, maktab ta'limining barcha bosqichlarida, xususan, 11-sinf biologiya darslarida ekologik ko'nikmalarni maqsadli tarzda shakllantirish pedagogik ahamiyatga molik vazifadir.

O'zbekiston Respublikasining "Ta'lim to'g'risida" gi Qonuni va "Milliy o'quv dasturi" ekologik tarbiya va atrof-muhitga mas'uliyatli munosabatni

shakllantirishni uzluksiz ta'limning tarkibiy qismi sifatida belgilaydi. Ushbu normativ hujjatlar talablarini amalda to'liq amalga oshirish uchun biologiya darslarida turli interfaol metodlar va innovatsion yondashuvlarni qo'llash zarur.

Maqolaning maqsadi – 11-sinf o'quvchilarida biologiya kursi doirasida ekologik ko'nikmalarni shakllantirish imkoniyatlarini nazariy va amaliy jihatdan tahlil qilish, shuningdek, ushbu jarayonni optimallashtirish bo'yicha metodologik tavsiyalar ishlab chiqishdan iborat. Tadqiqot ob'ekti – umumiy o'rta ta'lim maktablarining 11-sinf o'quvchilari, predmeti esa biologiya darslarida ekologik ko'nikmalar shakllanish jarayoni hisoblanadi.

Hozirgi kunda O'zbekiston maktablarida biologiya dasturida ekologiya bo'limi alohida o'rin tutadi: biosfera, ekotizimlar, oziq-ovqat zanjiri, moddalar almashinuvi kabi mavzular o'quvchilar bilimining poydevori hisoblanadi. Biroq nazariy bilimlarni hayotiy amaliyot bilan uyg'unlashtirish ko'pincha yetarli darajada amalga oshirilmaydi. Shu sababli ushbu tadqiqot dolzarb va amaliy ahamiyatga egadir.

## ASOSIY QISM

"Ekologik ko'nikma" tushunchasi zamonaviy pedagogika va ekopsixologiya fanlarida quyidagicha ta'riflanadi: bu – o'quvchining atrof-muhit bilan munosabatda ongli, mas'uliyatli va ijodiy tarzda harakat qila olish qobiliyati bo'lib, nazariy bilimlar, kuzatuv tajribasi va amaliy faoliyat sintezidan vujudga keladi (Deryabo, Yasvin, 1996). Mazkur ko'nikmalar besh asosiy guruhga bo'linadi: kuzatuv ko'nikmalari, tahliliy ko'nikmalar, muammo hal qilish ko'nikmalari, hamkorlik ko'nikmalari va amaliy-tadqiqotchilik ko'nikmalari.

***1-jadval***

***Ekologik ko'nikmalar tasnifi va ularni rivojlantirish usullari***

| Ko'nikma turi | Asosiy tarkibiy qismlar | O'qitish usullari |
|---|---|---|

| | | |
|---|---|---|
| Kuzatuv | Tabiiy hodisalarni kuzatish, ma'lumot yig'ish, o'zgarishlarni qayd etish | Dala tadqiqotlari, laboratoriya kuzatuvlari, daftar yuritish |
| Tahlil qilish | Ekotizimlar o'rtasidagi munosabatlarni tushunish, sabab-oqibat bog'liqligini aniqlash | Grafiklar tahlili, muhokama, aqliy hujum |
| Muammoni hal qilish | Ekologik muammolarni aniqlash, yechim topish, reja tuzish | Loyiha usuli, keys-stadi, munozara |
| Hamkorlik | Guruhda ishlash, fikrlarni baham ko'rish, umumiy maqsad sari harakat | Guruhli loyihalar, seminar, ekskursiya |
| Amaliy faoliyat | O'simlik o'stirish, muhitni muhofaza qilish, qayta ishlash | Bog' yaratish, tozalash aksiyalari |

Kuzatuv ko'nikmalari o'quvchining tabiiy muhitda bo'layotgan jarayonlarni sistemali qayd qilish va farqlash qobiliyatini rivojlantiradi. Tahliliy ko'nikmalar esa yig'ilgan ma'lumotlarni talqin etish, o'zaro bog'liqliklarni aniqlash va xulosa chiqarishni o'z ichiga oladi. Muammo hal qilish ko'nikmalari – amaliy ekologiyaning yadrosi: o'quvchi muayyan ekologik muammoni aniqlaydi, alternativ yechimlar taklif qiladi va ularni baholaydi.

11-sinf biologiya dasturida "Ekologiya va tabiatni muhofaza qilish" bo'limi mavjud bo'lib, unda biosfera tuzilishi, populyatsiya ekologiyasi, antropogen omillar va tabiatni muhofaza qilish choralari keng yoritiladi. Ushbu

bo'lim o'quvchilarga nafaqat nazariy bilim, balki tanqidiy fikrlash va ekologik muammolarni mustaqil baholash ko'nikmalarini ham berishi lozim.

G'arb va Osiyo mamlakatlarining ilg'or pedagogik tajribasi shuni ko'rsatadiki, ekologik ta'lim ayniqsa loyiha metodi, muammoli ta'lim va dala ekskursiyalari orqali samarali amalga oshiriladi. Finlandiya, Janubiy Koreya va Yaponiyaning maktab o'quv dasturlarida ekologik ko'nikmalar shakllantirishga maxsus soatlar ajratilgan bo'lib, natijalar o'quvchilarning atrof-muhitga faol munosabati va ilmiy tadqiqotchilik qobiliyatining sezilarli oshishini ko'rsatadi.

O'zbekistonda so'nggi yillarda maktab o'quv dasturlarini modernizatsiya qilish doirasida biologiya fani o'qituvchilariga ekologik tarbiyaviy ishlarni kuchaytirish bo'yicha uslubiy ko'rsatmalar ishlab chiqilgan. Xususan, 2022–2023 o'quv yilidan boshlab 11-sinf biologiya darsliklarida ekosistemalar va global ekologik muammolarga oid yangi mavzular kiritilgan.

Biologiya darslarida ekologik ko'nikmalarni shakllantirish uchun quyidagi metodlar alohida ahamiyat kasb etadi:

Birinchidan, loyiha metodi – o'quvchilar kichik guruhlar tarkibida real ekologik muammolarni o'rganadi va yechim taklif qiladi. Masalan, "Mahalliy suvning ifloslanish darajasini baholash" yoki "Maktab atrofidagi o'simlik qoplamini kartalashtirish" kabi loyihalar o'quvchilarning amaliy ko'nikmalarini jadal rivojlantiradi.

Ikkinchidan, dala tadqiqotlari (ekskursiyalar) – tabiiy muhitga chiqib, o'simlik va hayvonlar dunyosini bevosita kuzatish, namunalar to'plash, suv va tuproq ko'rsatkichlarini o'lchash o'quvchilarda chuqur taassurot va barqaror ko'nikmalar shakllantiradi. Bunday mashg'ulotlar an'anaviy dars formatiga nisbatan 1,5 barobar yuqori samaradorlik ko'rsatadi.

Uchinchidan, muammoli ta'lim texnologiyasi – o'qituvchi o'quvchilarga real hayotdan olingan ekologik muammoli vaziyatni taqdim etadi (masalan, Orol dengizining qurishiga olib kelgan omillar tahlili) va o'quvchilar mustaqil

ravishda muammo sabablarini aniqlashga, yechimlar topishga va taqdim etishga harakat qiladi.

To'rtinchidan, interfaol metodlar (debatlar, rolli o'yinlar, "ekspert kengashi") – o'quvchilar turli ekologik pozitsiyalarni himoya qilib, fikrlarini asoslaydi va boshqalarning qarashlarini tanqidiy baholashni o'rganadi.

2023–2024 o'quv yilida Toshkent shahrining 3 ta umumta'lim maktabida o'tkazilgan kuzatuv tadqiqoti natijalari turli o'qitish metodlarining ekologik ko'nikmalar shakllantirishdagi samaradorligini qiyosiy baholash imkonini berdi. Tadqiqotda jami 120 nafar 11-sinf o'quvchisi ishtirok etdi.

***2-jadval.***

***Turli o'qitish metodlarining samaradorlik taqqoslama tahlili***

| O'qitish metodi | Bilim o'zlashtirish (%) | Ko'nikma rivojlanishi | Motivatsiya darajasi | Umumiy baho |
|---|---|---|---|---|
| An'anaviy ma'ruza | 62% | Past | O'rta | ★★☆☆☆ |
| Laboratoriya ishlari | 78% | O'rta | Yuqori | ★★★☆☆ |
| Loyiha metodi | 85% | Yuqori | Juda yuqori | ★★★★☆ |
| Dala tadqiqoti | 91% | Juda yuqori | Juda yuqori | ★★★★★ |
| Aralash yondashuv | 88% | Yuqori | Juda yuqori | ★★★★★ |

** Baho: bilim testi (100 ball), ko'nikma rubrikalari va o'quvchi so'rovnomalari asosida*

Yuqoridagi jadvaldan ko'rinib turibdiki, dala tadqiqoti metodida o'quvchilar bilimni eng yuqori darajada (91%) o'zlashtirib, juda yuqori motivatsiya ko'rsatadi. Aralash yondashuv (nazariy bilim + laboratoriya + dala

ishi) esa barcha ko'rsatkichlar bo'yicha muvozanatli va yuqori natija beradi. An'anaviy ma'ruza metodi esa faqat 62% bilim o'zlashtirishni ta'minlaydi va ko'nikma rivojlanishi past darajada qoladi.

Tadqiqot natijalari ko'rsatadiki, ekologik ko'nikmalarni shakllantirish jarayonida amaliy faoliyat va bevosita tabiat bilan muloqot hal qiluvchi rol o'ynaydi. Shu sababli o'qituvchi har bir mavzuni o'qitishda nazariy va amaliy qismlarni oqilona birlashtirishi maqsadga muvofiqdir.

"Ekotizimlar va ularning barqarorligi" mavzusida 11-sinf uchun loyiha-tadqiqot asosidagi dars quyidagi tuzilmani o'z ichiga oladi: 1) Motivasiya bosqichi – real hayotdan ekologik vaziyat (5 daqiqa); 2) Bilimlarni yangilash – avvalgi bilimlar bilan bog'lash (7 daqiqa); 3) Guruhli tadqiqot – belgilangan ekotizimni tahlil qilish, muammolarni aniqlash (15 daqiqa); 4) Taqdimot va muhokama – guruh xulosalari, tanqidiy baholash (10 daqiqa); 5) Refleksiya va uyga vazifa – kuzatuv daftarini to'ldirish (3 daqiqa).

Bunday tuzilma o'quvchini darsning faol ishtirokchisiga aylantiradi va ekologik muammolarni mustaqil baholash ko'nikmalarini rivojlantiradi. O'qituvchining roli esa bilim uzatuvchidan fasilitator – jarayonni yo'naltiruvchi va qo'llab-quvvatlovchi – ga o'zgaradi.

## XULOSA

Biologiya darslarida ekologik ko'nikmalarni shakllantirish – bu nafaqat ta'limiy, balki ijtimoiy va tarbiyaviy ahamiyatga ega jarayondir. Ushbu maqolada bayon etilgan tahlillar va tadqiqot natijalari asosida quyidagi xulosalar chiqarish mumkin:

Birinchidan, ekologik ko'nikmalar tizimli va izchil yondashuv orqali shakllanadi: faqat nazariy bilim berish emas, balki kuzatuv, tahlil va amaliy faoliyat orqali o'quvchini tabiiy jarayonlar ishtirokchisiga aylantirish talab etiladi.

Ikkinchidan, dala tadqiqotlari va loyiha metodlarining samaradorligi an'anaviy ma'ruza metodiga nisbatan 25-30 foizga yuqori ekanligi eksperimental

tarzda tasdiqlangan. Bu o'qituvchilarga dars rejalashtirishda amaliy komponentga ko'proq e'tibor qaratishni tavsiya etadi.

Uchinchidan, aralash yondashuv – nazariy bilim, laboratoriya tajribalari va dala kuzatuvlarini birlashtirgan kompleks metod – ko'nikma rivojlanishida eng barqaror natijalarni beradi va uni keng qo'llash lozim.

To'rtinchidan, ekologik ta'limning muvaffaqiyati faqat o'qituvchi mahoratiga emas, balki maktabning moddiy-texnik bazasiga, o'quv dasturining moslashuvchanligiga va o'quvchi oilasining qo'llab-quvvatlashiga ham bog'liq.

Kelajakda ekologik ko'nikmalar shakllantirishning raqamli texnologiyalar bilan integratsiyasi (masalan, GIS-xaritalar, ekologik monitoring dasturlari, virtual dala tadqiqotlari) yangi imkoniyatlar ochishi kutilmoqda. O'zbekiston maktab ta'limini yangilash davom etar ekan, biologiya fani o'qituvchilari ushbu yo'nalishda ilg'or metodlarni o'zlashtirib, amaliyotga joriy etishda muhim rol o'ynaydi.

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# 2-SECTION

# SHAXSNI GAROV SIFATIDA TUTQUNLIKKA OLISH JINOYATLARINING OLDINI OLISH TENDENSIYALARI VA AMALIY JIHATLARI

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***Annotatsiya:*** *Ushbu maqolada shaxsni garov sifatida tutqunlikka olish jinoyatlarining oldini olish, uning kriminologik tavsifi va kelib chiqish sabablari tahlil qilingan. Jamoat xavfsizligiga jiddiy tahdid soluvchi mazkur jinoyatning sabablarini o‘rganishda ko'p omillik, an'anaviy, interaksionistik va virtuallik omillarining o'rni ko'rib chiqiladi. Jinoyatchilik determinantlarini aniqlash, jamiyatdagi ijtimoiy-huquqiy munosabatlarni takomillashtirish hamda aholining huquqiy madaniyatini yuksaltirish orqali maqsadli va ilmiy asoslangan profilaktika choralarini ishlab chiqish zarurati asoslangan. Shuningdek, xalqaro standartlar va zamonaviy texnologiyalarni joriy etish orqali jinoyatlarni barvaqt aniqlash va ularga qarshi kurashish samaradorligini oshirish bo'yicha takliflar ilgari surilgan.*

***Kalit so‘zlar:*** *shaxsni garovga olish, jamoat xavfsizligi, kriminologik tavsif, jinoyat determinantlari, huquqiy madaniyat, jinoyatlar profilaktikasi, virtuallik omili.*

***Аннотация:*** *В данной статье анализируются тенденции и практические аспекты предотвращения преступлений, связанных с захватом заложников, а также их криминологическая характеристика и причины возникновения. При изучении причин этого преступления, представляющего серьезную угрозу общественной безопасности, рассматривается роль многофакторных, традиционных, интеракционистских подходов и фактора виртуальности. Обоснована необходимость выявления детерминант преступности, совершенствования социально-правовых отношений и повышения правовой культуры населения для разработки целенаправленных и научно обоснованных мер профилактики. Также выдвигаются предложения по повышению эффективности раннего выявления преступлений путем внедрения международных стандартов и современных технологий.*

***Ключевые слова:*** *захват заложника, общественная безопасность, криминологическая характеристика, детерминанты преступности, правовая культура, профилактика преступлений, фактор виртуальности.*

***Abstract:*** *This article analyzes the tendencies and practical aspects of preventing hostage-taking crimes, along with their criminological characteristics and underlying causes.*

*In studying the causes of this crime, which poses a serious threat to public security, the role of multifactorial, traditional, and interactionist approaches, as well as the virtuality factor, is examined. The author justifies the necessity of identifying crime determinants, improving socio-legal relations, and enhancing the population's legal culture to develop targeted and scientifically grounded preventive measures. Furthermore, recommendations are proposed to increase the effectiveness of early crime detection through the implementation of international standards and modern technologies.*

***Keywords:*** *hostage-taking, public security, criminological characteristics, crime determinants, legal culture, crime prevention, virtuality factor.*

## KIRISH

Mamlakatimizda jinoyatchilikning oldini olish va tezkorlik bilan aniqlash bo‘yicha qator islohotlar amalga oshirilmoqda. Jamoat xavfsizligini kafolatlash, jinoyat sabablarini kechiktirmay bartaraf etish va davlat organlari mas’uliyatini oshirish maqsadida quyidagi kompleks chora-tadbirlarni amalga oshirish dolzarbdir:

- Hamkorlik va muloqotni kuchaytirish: Huquqni muhofaza qiluvchi organlar, jamoatchilik va aholi o‘rtasida samarali va uzviy hamkorlik tizimini yo‘lga qo‘yish.
- **Huquqiy madaniyat va savodxonlikni oshirish:** Aholi o‘rtasida huquqiy savodsizlikka barham berish, qonun va davlat dasturlari mohiyatini tushuntirish orqali qonunga itoatkorlik va odob-axloq ruhini singdirish.
- **Axborot texnologiyalari va OAVdan foydalanish:** Sohaga zamonaviy axborot-kommunikatsiya texnologiyalarini keng joriy etish hamda huquqiy targ‘ibotda ommaviy axborot vositalari rolini oshirish.

**Professional kadrlar tayyorlash:** Zamonaviy fan dasturlari asosida yuksak huquqiy ong va madaniyatga ega mutaxassislarni tayyorlashni jadallashtirish.

Ushbu choralar jamiyatda eng ko‘p uchraydigan jinoyatlarga qarshi mustahkam immunitet hosil qilishga va kurashish samaradorligini tubdan oshirishga xizmat qiladi [1].

Jinoyatchilikning oldini olishda aholining huquqiy ongi, islohotlarni tushunishi va yuksak huquqiy madaniyati muhim ahamiyatga ega. Ushbu yo‘nalishda samaradorlikka erishish uchun shaxs, oila, mahalla va ta’lim muassasalari o‘rtasidagi o‘zaro hamkorlik tizimi huquqiy jihatdan mustahkamlandi. Shuningdek, aholining huquqiy madaniyatini oshirish maqsadida bugungi kunda ta’lim va huquq sohalarida bir qator ustuvor vazifalar belgilandi. Xususan, nodavlat umumiy o‘rta professional ta’lim tashkilotlari sonini 1000 taga yetkazish, ulardagi o‘quvchilar ulushini 3 barobarga oshirish, yoshlarni oliy ta’lim bilan qamrab olish darajasini kamida 50 foizga yetkazish, umumiy o‘rta ta’lim maktablarini oliy ma’lumotli pedagog kadrlar bilan to‘liq ta’minlash hamda advokatlar sonini kamida 2000 nafarga ko‘paytirish masalalari shular jumlasidandir[2].

Boshqa shaxsni qonunga xilof ravishda majburan ushlagan yoki hayoti va sog‘ligiga xavfli tarzda ushlab turgan va uchinchi shaxslarni majburiy harakatlarni bajarish uchun boshqa shaxsni o‘ldirish yoki o‘ldirish bilan qo‘rqitish,tahdid qilish, badaniga turli darajadagi jarohatlar yetkazish yoki ushlab turishga umuman mos kelmaydigan tarzda tazyiq o‘tkazgan, zo‘ravonlik va zo‘rlik ishlatgan har qanday shaxs «garovga olgan shaxs» hisoblanib, davlat tuzilmalari va idoralari, yirik miqyosdagi xalqaro hukumatlararo huquqiy tashkilotlar, har qanday jismoniy (yakka tartibdagi shaxs) yoki yuridik (huquqiy maqomga ega) shaxs yoki shaxslar guruhiga ma’lum bir shart qo‘yish orqali ma’lum harakatni bajarishga majburlashdan tiyilishi kabi qonunga zid harakatlarni xalqaro hamjamiyat qoralaydi [3].

Bu borada M.Y.Pavlik shaxsni garov sifatida tutqinlikka olishni jamoat xavfsizligiga qarshi ong xavfli jinoyatlar guruhini tashkil etishini ta’kidlaydi [4].

Jinoyatchilikka qarshi kurashning, uni kamaytirishning va oldini olishning yana bir muhim hamda ijtimoiy-huquqiy jihati shundan iboratki, har bir makonda ijtimoiy xavfli munosabatlarni tartibga soladigan va tizimlashtiradigan jinoyat qonunchiligining mavjud bo‘lishi hisoblanadi [5]. Jinoyatlarning oldini olishda huquqiy normalarning mavjudligi muhim ahamiyatga ega. Biroq, K.P.Ansiferov ta’kidlashicha, shaxsni garovga olish jinoyatiga qarshi qonunchilik amaliyoti hali yetarlicha takomillashmaganligi sababli, huquqni muhofaza qiluvchi organlar bu jinoyatni to‘g‘ri kvalifikatsiya qilish va mulkiy ziyonni undirishda qator qiyinchiliklarga duch kelmoqda [6].

Shaxsni garov sifatida tutqunlikka olish jinoyatlarining oldini olish nazariy va amaliy jihatdan muhim ahamiyatga ega bo‘lib, bunda huquqiy meyorlarni modernizatsiya qilish, tezkor-qidiruvda zamonaviy texnologiyalarni qo‘llash hamda xavf guruhlarini aniqlovchi raqamli monitoring mexanizmlarini joriy etish dolzarbdir. Bugungi kunda mazkur jinoyatlarga qarshi kurashishning amaliy va huquqiy vositalari yetarli emasligi hamda ularning kriminologik tavsifi ilmiy jihatdan to‘liq mustahkamlanmaganligi kuzatilmoqda. Jamiyatning globallashuvi, kiberjinoyatchilik va texnologiyalarning tezkor rivojlanishi jinoyatlarning tabiatini doimiy o‘zgartirayotganligi sababli, ularning kelib chiqishi bo‘yicha yagona ilmiy-huquqiy yondashuv hali shakllanmagan. Shu bois, jamoat xavfsizligiga jiddiy tahdid soluvchi ushbu jinoyatlarning sabablarini aniqlashda kompleks tahlil, xalqaro standartlar hamda zamonaviy va individuallashtirilgan yondashuvlarni joriy etish talab etiladi.

Shaxsni garov sifatida tutqunlikka olishning kriminologik tavsifi to‘rtta asosiy yo‘nalishni, ya’ni jinoyatning nazariy-amaliy tasnifini, uning kelib chiqish sabablari va shart-sharoitlarini, jinoyatchi shaxsi ta’limotini hamda profilaktika masalalarini qamrab oladi. Ushbu jinoyatni tadqiq etish avvalo milliy qonunchilik (ya’ni boshqa shaxs yoki tashkilotni ma’lum harakatga majburlash maqsadida shaxsni garovda ushlab turishning ijtimoiy xavfli qilmish ekanligi) hamda rivojlangan xorijiy davlatlar tajribasini qiyosiy tahlil qilishdan

boshlanadi. Tadqiqot davomida bunday jinoyatlar statistikasi nima uchun o‘sayotganligi, jinoyatchilar toifasi qanday shakllanayotganligi, nega aynan shu jinoyat turi tanlanayotganligi va nima sababdan ular o‘z maqsadiga erishayotganligi kabi savollarga javob izlanadi. Shuningdek, jinoyatlarni kriminologik jihatdan tahlil qilishda jamiyatdagi voqea-hodisalar o‘rtasidagi o‘zaro bog‘liqlik va ichki qonuniyatlarni ifodalovchi «determinatsiya» tushunchasi hamda bunday qilmishlarning shakllanish xususiyatlarini chuqur o‘rganish talab etiladi.

S.S.Niyozova fikriga ko‘ra, jinoyatchilik determinantlari – bu muayyan bir voqea yoki hodisaning yuzaga kelishi va uning davom etishini o‘zida ifodalovchi omillar, ya’ni jinoyat sodir bo‘lishiga zamin yaratadigan shart-sharoitlar yig‘indisidir [7].

Jinoyatchilikka oid ilmiy qarashlarga ko‘ra, determinatsiya — bu jinoyatning kelib chiqish sabablari, unga zamin yaratuvchi omillar va shart-sharoitlarni aniq faktlarga tayanib o‘rganish jarayonidir. Shaxsni garovga olish jinoyatlarida bu murakkab jarayon jinoyat sabablari va o‘zaro bog‘lanishlarni aniqlash, shaxsning psixologik va fiziologik holatidagi zo‘riqishlarni o‘rganish hamda tashqi muhit ta’sirini tizimli tahlil qilishni o‘z ichiga oladi. Mazkur jinoyatning kelib chiqish sabablarini asosiy nazariy yondashuvlar orqali izohlash mumkin: tashqi va ichki salbiy mezonlarning birgalikdagi ta’sirini ustuvor biluvchi ko‘p omillik va an’anaviy yondashuvlar , ma’lum makon va zamondagi “jamiyat – muhit – shaxs” integratsiyasiga asoslanuvchi interaksionistik yondashuv , shuningdek, shaxsning virtual olamga chuqur sho‘ng‘ishi oqibatida ruhiy barqarorligining buzilishi va jinoyatga moyillik paydo bo‘lishini ifodalovchi virtuallik omilidir. Ushbu turdagi jinoyatlarning barvaqt oldini olish jarayonida kurashni jinoyatning oqibatlariga emas, balki uning ildizi va ichki motivatsiyasiga qaratish, sabab hamda shart-sharoitlarni aniq farqlash lozim. Bundan tashqari, texnologiyalar va jinoyat usullari doimiy yangilanib borayotganligi sababli, profilaktik choralarni ilg‘or yondashuvlar asosida

modernizatsiya qilish , faqat qat’iy jazo bilan cheklanmasdan, aholining huquqiy ongini yuksaltirish va ijtimoiy-iqtisodiy barqarorlikni ta’minlash orqali qonunlarga hurmat ruhini shakllantirish , hamda shaxsni jinoyat sodir etishga undovchi subyektiv motivlarni bartaraf etish ustuvor vazifa hisoblanadi.

Jinoyatlarning, xususan shaxsni garovga olishning oldini olish maqsadli va ilmiy asoslangan profilaktikani talab etadi. Olimlarning fikricha, buning uchun jinoyatga yetaklovchi ichki motivlar va tashqi muhit shartlarini , shuningdek jinoyatga salbiy ta’sir ko‘rsatuvchi umumiy va maxsus omillarni aniqlash zarur. Jinoyatchilikka qarshi kurash bevosita jinoyat sabablarini va unga imkon beruvchi sharoitlarni o‘rganishni taqozo qiladi. Bundan tashqari, jamiyatda profilaktik ta’sir ko‘rsatuvchi huquqiy mexanizmlarni aniqlash va mas’ul organlar faoliyatini tizimli muvofiqlashtirish huquqbuzarliklarni barvaqt bartaraf etishda yuqori samara beradi. Bu omillar shaxsni garovga olish jinoyatining “sabablar doirasi”ni, ya’ni motiv va maqsadlarni shakllantiruvchi holatlarni aniqlashni talab qiladi. Chunki jinoyat faqat shaxsiy omillar emas, balki jamiyatdagi qarama-qarshiliklar va ijtimoiy nomutanosibliklar oqibatida yuzaga keladigan ziddiyatdir. Ushbu sabablar doirasini aniq belgilash hamda jamiyatdagi ijtimoiy-huquqiy va iqtisodiy o‘zgarishlarni o‘z vaqtida qayd etib borish jinoyatchilikni prognoz qilish, xavfli tendensiyalarni ilk bosqichdayoq sezish va ularni barvaqt cheklash imkonini beradi.

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# SHAXSNI GAROV SIFATIDA TUTQUNLIKKA OLISH JINOYATLARI UCHUN JAVOBGARLIKNI TAKOMILLASHTIRISH YO‘LLARI TAHLILI

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***Annotatsiya:*** *Mazkur maqolada shaxsni garov sifatida tutqunlikka olish jinoyatlari uchun javobgarlikni takomillashtirish masalalari tahlil qilingan. Jinoyatning nazariy va kriminologik jihatlari, uning jamoat xavfsizligiga tahdid soluvchi xususiyatlari ochib berilgan. Shuningdek, Germaniya, Rossiya, Qozog‘iston, Armaniston va Belarus kabi xorijiy davlatlarning jinoyat qonunchiligi tajribasi qiyosiy o‘rganilgan. Xorijiy tajriba va jinoyatning ijtimoiy xavflilik darajasi ortib borayotganini inobatga olib, milliy Jinoyat kodeksining 245-moddasini yangi qismlar bilan to‘ldirish va jazo choralarini, xususan, uyushgan guruh yoki retsidivistlar uchun javobgarlikni kuchaytirish bo‘yicha aniq takliflar ilgari surilgan.*

***Kalit so‘zlar:*** *shaxsni garovga olish, jamoat xavfsizligi, jinoiy javobgarlik, qiyosiy tahlil, xorijiy tajriba, jazoni og‘irlashtiruvchi holatlar, jinoyat qonunchiligi.*

***Аннотация:*** *В данной статье анализируются вопросы совершенствования ответственности за преступления, связанные с захватом заложников. Раскрыты теоретические и криминологические аспекты преступления, а также его особенности, угрожающие общественной безопасности. Кроме того, проведено сравнительное изучение опыта уголовного законодательства зарубежных стран, таких как Германия, Россия, Казахстан, Армения и Беларусь. С учетом зарубежного опыта и возрастающей степени общественной опасности данного преступления, выдвинуты конкретные предложения по дополнению статьи 245 национального Уголовного кодекса новыми частями и ужесточению мер наказания, в частности, для организованных групп или рецидивистов.*

***Ключевые слова:*** *захват заложника, общественная безопасность, уголовная ответственность, сравнительный анализ, зарубежный опыт, отягчающие обстоятельства, уголовное законодательство.*

***Abstract:*** *This article analyzes the issues of improving liability for hostage-taking crimes. The theoretical and criminological aspects of the crime, as well as its features that threaten public security, are revealed. Furthermore, a comparative study of the criminal legislation experience of foreign countries such as Germany, Russia, Kazakhstan, Armenia,*

*and Belarus was conducted. Taking into account foreign experience and the increasing level of social danger of this crime, specific proposals were put forward to supplement Article 245 of the national Criminal Code with new parts and to tighten penalties, particularly for organized groups or recidivists.*

***Keywords:*** *hostage-taking, public security, criminal liability, comparative analysis, foreign experience, aggravating circumstances, criminal legislation.*

## KIRISH

Shaxsni garov sifatida tutqunlikka olish jinoyatlari jamoat xavfsizligiga, fuqarolar osoyishtaligi va davlat institutlarining normal faoliyatiga jiddiy putur yetkazadi. Nazariy jihatdan jamoat xavfsizligiga qarshi tajovuzlar uchga bo‘linadi: 1) to‘g‘ridan-to‘g‘ri tajovuzlar (terrorizm, shaxsni garovga olish, ommaviy tartibsizliklar va b.); 2) xavfsizlik qoidalarini buzish natijasidagi tajovuzlar (yong‘in, qurilish, sanitariya qoidalarini buzish va b.); 3) o‘ta xavfli ashyolar bilan bog‘liq tajovuzlar (qurol-yarog‘, radioaktiv va portlovchi moddalar bilan qonunga xilof ravishda muomala qilish). Shaxsni garovga olish jinoyati uchun javobgarlikni takomillashtirish qonunchilikdagi bo‘shliqlarni to‘ldirish va amaliyotdagi muammolarni bartaraf etishni talab qiladi. Buning uchun jinoyatning mazmun-mohiyatini nazariy boyitish, xorijiy tajriba va xalqaro konvensiyalar asosida qiyosiy tahlil o‘tkazish, tergov qilish hamda sud amaliyoti muammolarini o‘rganish, tergov metodikasini, shu jumladan uning taktik va psixologik jihatlarini takomillashtirish, shuningdek, aybdorlarga nisbatan javobgarlikni kuchaytirish zarur. Ushbu jinoyatlar xalqaro miqyosda xavfli bo‘lganligi sababli, O‘zbekiston Respublikasi mustaqillikning dastlabki yillaridayoq “Odamlarni garovga olishga qarshi kurash” to‘g‘risidagi xalqaro Konvensiyaga qo‘shilgan [1], natijada bu jinoyatga qarshi kurash xalqaro hamkorlik doirasida yanada kuchaytirilgan.

V.A.Osipov "garova olish" tushunchasi davlat, tashkilot yoki shaxslarni uni ozod qilish sharti bo‘lgan har qanday talabni bajarishga majbur qilish uchun uning erkinligini cheklash va (yoki) uning ma’lum bir joydan chiqib ketishining

noqonuniy oldini olish bilan birga shaxs ustidan nazoratni noqonuniy egallashni o‘z ichiga oladi deb hisoblaydi [2].

M.Y.Pavlik jamoat xavfsizligi ijtimoiy qadriyat sifatida shaxs, jamiyat va davlatning hayotiy manfaatlarini himoya qilishga qaratilgan. Bu himoya ijtimoiy, tabiiy yoki texnogen tabiatning salbiy ta’sirlaridan muhofaza qilishni o‘z ichiga oladi va ularning normal faoliyatini ta’minlash uchun yetarli darajada xavfsizlikni saqlab qolish bilan tavsiflanadi [3] deya fikr bildirgan.

K.P.Ansiferov shaxsni garov sifatida tutqinlikka olish hozirgi vaqtda jamoat xavfsizligi va inson shaxsiyatiga qarshi eng xavfli jinoyatlardan biri ekanligini, u uzoq rivojlanish tarixiga egaligini, evolyutsiya jarayonida ushbu harakat davlatlar, odamlar guruhlari va shaxslarga siyosiy ta’sir ko‘rsatish vositasidan bir qator davlatlarning xalqaro va milliy qonunchiligida taqiqlangan jinoyatga aylanganligini ta’kidlaydi [4].

M.Y.Gushin nazariy jihatdan shaxsni garov sifatida tutqunlikka olish jinoyatining eng muhim o‘ziga xos xususiyatlarini quyidagicha tavsiflaydi: qilmish sodir etilishi natijasida umumiy xavf kelib chiqadi; jamoatchilik xarakteriga ega (namoyishkorona) qilmish hisoblanadi; bosqinchilar o‘z maqsadlariga erishishlari uchun ataylab qo‘rquv, tushkunlik, aholi o‘rtasida keskinlik muhiti yaratishga harakat qiladi; odatda ba’zi odamlarga nisbatan xavfli zo‘ravonlik qo‘llaniladi va boshqa odamlarga ma’lum xatti-harakatlarni qo‘zg‘atish uchun psixologik ta’sir ko‘rsatiladi [5].

R.E.Oganyan esa shaxsni garov sifatida tutqinlikka olishga tayyorgarlik bosqichining intellektual (aqliy) va amaliy jihatlariga katta e’tibor qaratadi. Bu borada u quyidagilarni aytib o‘tadi: alohida potensial jabrlanuvchini kuzatishni o‘rnatish orqali gavdalanadi (agar jabrlanuvchi o‘z boshimchalik bilan yoki sodir etish jarayonida tanlanmaydi; jinoyatchi qo‘yayotgan talablar ro‘yxatini o‘rganish va shaxslar doirasini aniqlash muhim sanaladi; hamkorlarni tanlash va rollarni taqsimlash; jinoyat sodir etish uchun zarur bo‘lgan vositalar va boshqa

vositalarni tanlash; jabrlanuvchini qo‘lga olish yoki ushlab turish joyidan qochish yo‘llari yoki variantlarini ishlab chiqish va boshqa harakatlar kiradi [6].

Shaxsni garov sifatida tutqunlikka olish jinoyatlari uchun javobgarlikni takomillashtirish istiqbollari masalasida dastlab milliy qonunchilik normalari doirasida tahlilni yuritish lozim. Ushbu jinoyatlarning o‘ziga xos xususiyatlarini quyidagicha talqin etish mumkin:

1. Garov sifatida tutqunlikka olingan shaxsni ozod qilish, qo‘yib yuborish va shartli ozod qilish asosi jinoyat sodir etgan shaxsning asosiy ustunlik funksiyasini ta’minlaydi.

2. Davlat idoralari, xalqaro yirik tashkilot, jismoniy yoki yuridik (huquqiy maqomga ega) shaxsdan biron-bir harakat sodir etish yoki biron-bir harakat sodir etishdan o‘zini tiyib turishni va to‘xtatishni talab qilish jinoyat sodir etgan shaxsning asosiy birlamchi maqsadi hisoblanadi.

3. Shaxsni garov tariqasida tutqunlikka olish yoki tutqunlikda ushlab turish jinoyat sodir etgan shaxsning asosiy harakati sanaladi.

4. Ushbu norma Jinoyat kodeksning 155 (terrorizm) va 165 (tovlamachilik) - moddalarida nazarda tutilgan alomatlar bo‘lmasligini talab etadi.

Shaxsni garov sifatida tutqunlikka olish jinoyatining javobgarlik masalasini xorijiy davlatlar tajribasidan kelib chiqib qiyosiy tahlil etish maqsadga muvofiqdir. Shu munosabat bilan ko‘pgina xorijiy davlatlar tajribasini, ularning qonunchiligini o‘rganib tahlil etamiz.

Germaniya jinoyat qonunchiligida shaxsni garov sifatida tutqunlikka olish jinoyatini (239b) kvalifikatsiya qilishda og‘irlashtiruvchi holatlar mavjudligi aniqlansa 6 oydan 5 yilgacha muddatga ozodlikdan mahrum qilish jazosi qo‘llaniladi (234-paragraf 2-qismi) [7].

Rossiya jinoyat qonunchiligi 206-moddasi 1-qismida shaxsni garovga olish yoki ushlab turish orqali davlat, tashkilot yoki fuqaroni har qanday harakatni sodir yetishga majbur qilish yoki garovga olingan shaxsni ozod qilish

sharti bilan uni tutqunlikka olganlik uchun besh yildan o‘n yilgacha ozodlikdan mahrum qilish tarzidagi jazo belgilangan. Shuningdek, xuddi shu harakatlar: oldindan kelishilgan holda bir guruh shaxslar tomonidan til biriktirib va til biriktirmay; hayot yoki sog‘liq uchun xavfli bo‘lgan, xavf tug‘diradigan usullarda va uslublarda; qurol (harbiy) yoki qurol sifatida ishlatiladigan (qonunda taqiqlanadigan) narsalar va vositalardan foydalangan holda hamda texnik qoidalarga amal qilmay; voyaga yetmagan shaxsga nisbatan (bila turib); homiladorligi aybdorga ayon bo‘lgan ayolga nisbatan bila turib; ikki yoki undan ortiq shaxsga nisbatan avvaldan rejalashtirib va tashkillashtirib amalga oshirilsa olti yildan o‘n besh yilgacha ozodlikdan mahrum qilish bilan jazolanadi. Ushbu moddaning birinchi yoki ikkinchi qismlarida nazarda tutilgan harakatlar uyushgan guruh tomonidan yoki uning mafaatini ko‘zlab sodir etilgan bo‘lsa yoki odamning o‘limiga yoxud beparvolik (o‘z-o‘ziga ishonish) tufayli boshqa og‘ir oqibatlarga olib kelgan bo‘lsa sakkiz yildan yigirma yilgacha ozodlikdan mahrum qilish bilan jazolanadi [8].

Qozog‘iston Respublikasi jinoyat kodeksi 261-moddasida shaxsni garovga olish yoki ushlab turish, davlat idoralarini, yirik tashkilotlarni yoki boshqa shaxsni biron bir harakatni amalga oshirishga majbur qilish yoki to‘sqinlik qilish maqsadida yoki garovga olinganni ozod qilish va ozod qilishni paysalga solish sharti sifatida biron bir harakatni amalga oshirishga nisbatan jinoiy javobgarlik belgilangan. Shuningdek ushbu moddaning birinchi yoki ikkinchi qismlarida nazarda tutilgan harakatlar jinoiy guruh tomonidan yoki uning manfaatini ko‘zlab sodir etilgan bo‘lsa yoki odamning o‘limiga yoki beparvolik (o‘z-o‘ziga ishonish) tufayli boshqa og‘ir oqibatlarga olib kelgan bo‘lsa, Qozog‘iston Respublikasi fuqaroligidan mahrum qilinib o‘n yildan o‘n besh yilgacha ozodlikdan mahrum qilish bilan jazolanishi belgilangan [9].

Armaniston jinoyat kodeksining 218-moddasida garovga olingan shaxsni ozod qilish sharti bilan davlat idoralarini, yirik tashkilotlarni yoki boshqa shaxsni biron bir harakatni amalga oshirishga majbur qilish yoki to‘sqinlik qilish

maqsadida yoki garovga olinganni ozod qilish va ozod qilishni paysalga solish sharti sifatida biron bir harakatni amalga oshirishga nisbatan jinoiy javobgarlik belgilangan. Shuningdek ushbu moddaning birinchi yoki ikkinchi qismlarida nazarda tutilgan harakatlar jinoiy guruh tomonidan yoki uning manfaatini ko‘zlab sodir etilgan bo‘lsa yoki odamning o‘limiga yoki beparvolik (o‘z-o‘ziga ishonish) tufayli boshqa og‘ir oqibatlarga olib kelgan bo‘lsa, olti yildan o‘n yilgacha ozodlikdan mahrum qilish bilan jazolanishi mustahkamlangan. Ushbu moddaning birinchi yoki ikkinchi qismlarida nazarda tutilgan holatlar: uyushgan guruh tomonidan sodir etilgan bo‘lsa; beparvolik tufayli odamning o‘limi yoki boshqa og‘ir oqibatlar olib kelgan bo‘lsa sakkiz yildan o‘n besh yilgacha ozodlikdan mahrum qilish bilan jazolanishi keltirib o‘tilgan. Shu bilan bir qatorda Armaniston jinoyat qonunchiligida shaxs o‘z talablaridan voz kechsa va garovga olingan shaxsni ixtiyoriy ravishda ozod qilsa, agar uning harakatlarida boshqa jinoyat tarkibi bo‘lmasa, jinoiy javobgarlikdan ozod qilish masalasi ham nazarda tutilgan [10].

Belarus Respublikasi Jinoyat kodeksining 291-moddasiga ko‘ra, biror tashkilot yoki shaxsni ma’lum harakatga majburlash maqsadida odamni garovga olish, ushlab turish yoki unga tahdid qilish 5 yildan 10 yilgacha ozodlikdan mahrum qilish bilan jazolanadi. Mazkur jinoyat oldindan til biriktirgan guruh tomonidan, takroran, hayot va sog‘liq uchun xavfli zo‘ravonlik bilan, voyaga yetmaganlarga, homilador ayolga yoki ikki va undan ortiq shaxsga nisbatan sodir etilsa, 6 yildan 12 yilgacha ozodlikdan mahrum qilish jazosi tayinlanadi. Agar qilmish uyushgan guruh tomonidan amalga oshirilsa yoxud odam o‘limiga yoki boshqa og‘ir oqibatlarga sabab bo‘lsa, jazo muddati 10 yildan 15 yilgacha oshadi. Shu bilan birga, garovdagi shaxsni ixtiyoriy yoki hokimiyat talabiga asosan ozod qilgan aybdorning harakatlarida boshqa jinoyat tarkibi bo‘lmasa, u javobgarlikdan ozod etilishi qonunda mustahkamlangan [11].

Yuqoridagi tahlillar shuni ko‘rsatmoqdaki, ko‘pgina xorijiy davlatlarda shaxsni garov sifatida tutqunlikka olish jinoyati uchun qattiqroq jazo choralari belgilangan.

Amaldagi jinoyat qonunchiligimizda shaxsni garov sifatida tutqunlikka olish jinoyati uchun javobgarlikni takomillashtirish zarurati mavjud. Aynan ushbu turdagi jinoyatlar uchun javobgarlik doirasini aniq belgilab olish juda muhim sanaladi. Sababi, bugungi kunda ushbu turdagi jinoyatlar soni kundan-kunga ortib bormoqda. Shu bilan birga, ularning ijtimoiy xavflilik darajasi ortib bormoqda, bu birinchi navbatda garovga olingan odamlar sonida namoyon bo‘ladi, ular orasida ayollar, bolalar va hatto chaqaloqlar borligi ushbu jinoyatlarga nisbatan jazolarni kuchaytirish choralarini ko‘rishni taqazo etadi. Barcha yuqoridagi fikrlar va tahlillarni e’tiborga olgan holda, amaldagi jinoyat kodeksi 245-moddasini 3 va 4-qism bilan to‘ldirishni va uni quyidagicha tahrirda bayon etishni taklif etamiz:

O‘sha harakatlar:

a) takroran yoki xavfli retsidivist tomonidan;

b) o‘ta xavfli retsidivist tomonidan;

v) uyushgan guruh a’zosi tomonidan yoki shu guruh manfaatlarini ko‘zlab sodir etilgan bo‘lsa;

g) jabrlanuvchining o‘lishiga sabab bo‘lsa, —

o‘n besh yildan yigirma besh yilgacha ozodlikdan mahrum qilish bilan jazolanadi.

Shaxsni garov sifatida tutqinlikka olishga tayyorgarlik ko‘rishda ishtirok etgan shaxs, o‘zining harakatlari yuzasidan hokimiyat organlariga o‘z vaqtida xabar bersa yoki og‘ir oqibatlar yuzaga kelishining oldini olgan bo‘lsa, ixtiyoriy ravishda o‘z harakatlarini to‘xtatsa, basharti bu shaxsning harakatlarida jinoyatning boshqa tarkibi bo‘lmasa, jinoiy javobgarlikdan ozod etiladi.

Xulosa sifatida, shaxsni garov sifatida tutqunlikka olish jinoyatlari uchun javobgarlikni takomillashtirish istiqbollari yuzasidan quyidagi fikr-mulohazalarni ilgari surish mumkin:

1. Shaxsni garov sifatida tutqunlikka olish jinoyatlari uchun javobgarlikni kuchaytirishni amalga oshirish.

2. Shaxsni garov sifatida tutqunlikka olish jinoyatlarining javobgarlik doirasini aniq belgilab olish.

3. Shaxsni garov sifatida tutqunlikka olish jinoyatlarini tergov qilishning samarali usul va vositalarini o‘z ichiga olgan metodikani ishlab chiqish.

4. Shaxsni garov sifatida tutqunlikka olish jinoyatlari uchun jazo tayinlash tizimini yanada takomillashtirish.

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# O‘ZBEK TILIDAGI PRAGMATONIMLARNING MILLIY-MADANIY XUSUSIYATLARI

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***Annotatsiya:*** *Mazkur maqolada o‘zbek pragmatonimlarining milliy-madaniy xususiyatlari lingvokulturologik nuqtayi nazardan tahlil qilinadi. Til va madaniyat o‘rtasidagi uzviy munosabat, pragmatonimlarning madaniy konseptlarni ifodalashdagi o‘rni hamda o‘zbek xalqining tarixiy-madaniy qadriyatlari brend nomlarida qanday aks etishi yoritiladi. Tadqiqot davomida “Samarqand”, “Buxoro”, “Humo”, “Ipak yo‘li”, “Ulug‘bek”, “Ibn Sino” kabi tarixiy va madaniy birliklarning pragmatonim sifatida qo‘llanishi tahlil qilinadi. Shuningdek, mehmondo‘stlik, oilaparvarlik, baxt, tabiatga yaqinlik va hamjihatlik kabi milliy mentalitet unsurlarining pragmatonimlar tizimidagi ifodasi ko‘rib chiqiladi.*

***Kalit so‘zlar:*** *pragmatonim, lingvokulturologiya, milliy madaniyat, mentalitet, madaniy konsept, tarixiy qatlam, o‘zbek tili, brend nomlari, semiosfera, madaniy qadriyat.*

***Annotation:*** *This article analyzes the national and cultural characteristics of Uzbek pragmatonyms from a linguocultural perspective. It examines the relationship between language and culture, the role of pragmatonyms in expressing cultural concepts, and the reflection of Uzbek historical and cultural values in brand names. The study focuses on the use of historical and cultural units such as “Samarkand,” “Bukhara,” “Humo,” “Silk Road,” “Ulugbek,” and “Ibn Sina” as pragmatonyms. In addition, the article discusses the representation of national mentality elements such as hospitality, family values, happiness, harmony with nature, and social solidarity in the system of Uzbek pragmatonyms.*

***Keywords:*** *pragmatonym, linguoculturology, national culture, mentality, cultural concept, historical layer, Uzbek language, brand names, semiosphere, cultural values.*

## KIRISH

Tilshunoslikda til va madaniyat munosabati eng muhim nazariy masalalardan biri hisoblanadi [1]. Ushbu masala asosan uch xil yondashuv orqali izohlanadi: birinchidan, til madaniyatni aks ettiradi; ikkinchidan, til madaniyatni shakllantiradi; uchinchidan esa til va madaniyat o‘zaro ta’sirda rivojlanadi.

Ushbu qarashlar bir-birini inkor etmaydi, balki tilning madaniy mohiyatini turli jihatlardan ochib beradi.

Nemis tilshunosi Vilgelm Gumbolt tilni “millat ruhi” sifatida talqin qilgan . Uning fikriga koʻra, har bir xalqning tili uning dunyoqarashi va madaniyatini oʻziga xos tarzda ifodalaydi. Keyinchalik bu gʻoya Eduard Sapir va Benjamin Li Uorf tomonidan rivojlantirilib, til inson tafakkuri va madaniy idrokini shakllantiruvchi vosita sifatida baholandi [3].

Zamonaviy lingvokulturologiyada til madaniyatning saqlovchisi va uzatuvchisi sifatida qaraladi. Yevgeny Vereshchagin va Vitaly Kostomarov tilning “madaniy komponenti”ni oʻrganish metodologiyasini ishlab chiqqan boʻlib, bu yondashuv pragmatonimlarni tahlil qilishda ham muhim ahamiyat kasb etadi [4]. Valentina Maslova til madaniyatni avloddan avlodga yetkazuvchi asosiy mexanizm ekanligini ta’kidlaydi .

Lingvokulturologiyada “madaniy konsept” tushunchasi muhim oʻrin egallaydi. Anna Verbitska tillardagi universal tushunchalar har bir madaniyatda oʻziga xos shaklda namoyon boʻlishini qayd etadi [6]. Masalan, oʻzbek madaniyatidagi “baraka” konsepti oddiy farovonlik emas, balki ilohiy ne’mat, xotirjamlik, moʻl-koʻllik va mehnat samarasi kabi ma’nolarni ham oʻzida mujassamlashtiradi. Shu sababli “Baraka” nomi ostidagi supermarket yoki savdo markazlari iste’molchida sifat, ishonch va iqtisodiy qulaylik haqidagi tasavvurlarni uygʻotadi.

Yuriy Lotman tomonidan ishlab chiqilgan semiosfera nazariyasiga koʻra, madaniyat belgilar tizimidan iborat boʻlib, har bir belgi umumiy madaniy kontekstda ma’no kasb etadi . Pragmatonimlar ham ana shu belgilar tizimining tarkibiy qismi sifatida xalqning tarixiy xotirasi, folklori va qadriyatlari bilan bogʻliq holda talqin qilinadi. Masalan, “Humo” pragmatonimi oʻzbek folkloridagi baxt va erkinlik ramzi boʻlgan afsonaviy qush obraziga asoslanadi.

Oʻzbek pragmatonimlarida milliy-madaniy xususiyatlar quyidagi vositalar orqali ifodalanadi:

- leksik vositalar;
- semantik vositalar;
- fonetik vositalar;
- morfologik vositalar;
- intertekstual vositalar.

O‘zbek xalqining boy tarixiy merosi pragmatonimlar tizimida ham yaqqol namoyon bo‘ladi. Xususan, qadimiy shaharlar nomlari asosida yaratilgan brendlar milliy tarix va madaniyatni aks ettiruvchi muhim vosita hisoblanadi [8].

“Samarqand” nomi pragmatonimiyada keng qo‘llanadigan tarixiy-geografik birliklardan biridir. “Samarqand sharobi”, “Samarqand qog‘ozi”, “Samarqand non” kabi nomlar ushbu shaharning tarixiy nufuzi va madaniy salohiyatiga tayanadi. Samarqand nomi iste’molchida qadimiylik, sifat va milliy an’ana haqidagi tasavvurlarni uyg‘otadi.

“Buxoro” nomi esa ilm-fan, ma’rifat va nozik did ramzi sifatida qo‘llaniladi. “Buxoro atlas”, “Buxoro xalchalari”, “Buxoro ziyofat uyi” kabi pragmatonimlar Buxoroning tarixiy va madaniy obro‘sini tijorat maqsadlarida namoyon etadi.

“Xiva” nomi bilan bog‘liq pragmatonimlar ko‘pincha turizm, hunarmandchilik va milliy san’at sohalarida uchraydi. Bu nom Xivaning jahon merosi ob’ekti sifatidagi nufuzini ifodalaydi.

Buyuk Ipak yo‘li bilan bog‘liq pragmatonimlar ham alohida e’tiborga loyiqdir. “Ipak yo‘li bank”, “Silk Road Travel” kabi nomlar O‘zbekistonning qadimiy savdo va madaniy aloqalar markazi bo‘lganini eslatadi.

Temuriylar davri bilan bog‘liq nomlar ham pragmatonimlar tizimida faol qo‘llanadi. “Temur” nomi kuch-qudrat, qat’iyat va strategik fikrlash ramzi sifatida biznes, sport va qurilish sohalarida uchrasa, “Ulug‘bek” nomi ilm-fan va ta’lim bilan bog‘liq muassasalarda qo‘llanadi.

Shuningdek, “Ibn Sino” va “Avitsenna” nomlari tibbiyot va farmatsevtika sohalarida ishonch, ilmiy salohiyat va tarixiy an’anani ifodalovchi pragmatonim sifatida keng tarqalgan.

Milliy oshxona bilan bog‘liq pragmatonimlar ham tarixiy-madaniy qatlamning muhim ko‘rinishidir. “Palov markazi”, “Somsa uyi”, “Norin”, “Shurpa” kabi nomlar o‘zbek xalqining gastronomik madaniyatini aks ettiradi.

Milliy mentalitet xalqning dunyoqarashi, qadriyatlari va turmush tarzini ifodalovchi muhim omildir [9]. O‘zbek milliy mentalitetining asosiy jihatlari mehmondo‘stlik, oilaparvarlik, kattalarga hurmat, hamjihatlik va ma’naviyatga intilish bilan xarakterlanadi.

Mehmondo‘stlik o‘zbek xalqining eng muhim qadriyatlaridan biridir. Shu sababli “Mehmon”, “Mehribon”, “Qo‘noq uyi” kabi pragmatonimlar mehmonxona va restoranlar nomida keng qo‘llanadi. Bunday nomlar iste’molchiga samimiylik va qulaylik hissini beradi.

Oila va uy tushunchalari ham pragmatonimiyada faol ifodalanadi. “Oila markazi”, “Yurt”, “Mahal” kabi nomlar oilaviy qadriyatlar va milliy birlikni aks ettiradi.

Baxt va saodat motivlari o‘zbek mentalitetida alohida ahamiyatga ega. “Saodat”, “Baxt”, “Nasib”, “Tabarruk” kabi pragmatonimlar insonning moddiy va ma’naviy farovonlikka intilishini ifodalaydi.

Tabiat bilan uyg‘unlik motivi ham ko‘plab pragmatonimlarda namoyon bo‘ladi. “Tog‘ suvlari”, “Lola”, “Binafsha”, “Zarafshon” kabi nomlar tabiat go‘zalligi va poklik timsoli sifatida qo‘llanadi.

Mehnat va shijoat qadriyatlari “Mehnat”, “G‘ayrat”, “Shijoat” kabi nomlar orqali ifodalanadi. Bu pragmatonimlar o‘zbek xalqining mehnatsevarlik va qat’iyatlilik fazilatlarini aks ettiradi.

Bundan tashqari, o‘zbek pragmatonimlarida ijtimoiy birdamlik va hamkorlik tushunchalari ham muhim o‘rin tutadi. “Hamkor bank”, “Birlik”,

“Ittifoq”, “Hamjamiyat” kabi nomlar xalq orasidagi o‘zaro yordam va jamoaviylik qadriyatlarini ifodalaydi .

O‘zbek pragmatonimlari milliy madaniyat, tarixiy xotira va mentalitetning muhim lingvistik ko‘rinishidir. Ular nafaqat tijorat maqsadiga xizmat qiladi, balki xalqning madaniy qadriyatlari va tarixiy tajribasini ham ifodalaydi. Pragmatonimlar orqali o‘zbek xalqining mehmondo‘stlik, oilaparvarlik, hamjihatlik, ilm-fanga hurmat va ma’naviyatga intilish kabi xususiyatlari namoyon bo‘ladi. Shu sababli muvaffaqiyatli pragmatonim yaratishda milliy-madaniy omillarni chuqur hisobga olish muhim ahamiyat kasb etadi.

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# AXBOROTLASHGAN JAMIYATDA MA’NAVIY HAYOTNING O‘ZIGA XOS XUSUSIYATLARI

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***Annotatsiya.*** *Mazkur maqolada axborotlashgan jamiyat sharoitida shaxs ma’naviyatining shakllanishi va rivojlanishiga xos xususiyatlar tahlil qilinadi. Zamonaviy axborot-kommunikatsiya texnologiyalarining inson dunyoqarashiga, qadriyatlar tizimiga ta’siri, shuningdek bu jarayonda yuzaga keladigan xavf-xatarlar va ularning oldini olish yo‘llari ko‘rib chiqiladi. Muallif axborot makonidagi ma’naviy barqarorlikni ta’minlashda huquqiy-normativ baza va ilmiy-nazariy meros uyg‘unligining ahamiyatini asoslaydi.*

***Kalit so‘zlar:*** *axborotlashgan jamiyat, ma’naviyat, ma’naviy hayot, axborot xavfsizligi, milliy qadriyatlar, raqamli madaniyat, mafkuraviy immunitet.*

***Аннотация.*** *В статье анализируются специфические особенности формирования и развития духовности личности в условиях информационного общества. Рассматривается влияние современных информационно-коммуникационных технологий на мировоззрение человека, систему ценностей, а также возникающие в этом процессе риски и пути их предупреждения. Автор обосновывает значимость гармоничного сочетания нормативно-правовой базы и научно-теоретического наследия в обеспечении духовной устойчивости в информационном пространстве.*

***Ключевые слова:*** *информационное общество, духовность, духовная жизнь, информационная безопасность, национальные ценности, цифровая культура, идеологический иммунитет.*

***Abstract.*** *This article analyzes the specific features of the formation and development of an individual's spirituality under the conditions of the information society. It examines the influence of modern information and communication technologies on a person's worldview and value system, as well as the risks arising in this process and ways to prevent them. The author substantiates the importance of harmonizing the legal-normative framework with scientific-theoretical heritage in ensuring spiritual stability within the information space.*

***Keywords:*** *information society, spirituality, spiritual life, information security, national values, digital culture, ideological immunity.*

## KIRISH

XXI asr insoniyat tarixiga axborot va kommunikatsiya texnologiyalarining jadal rivojlanishi davri sifatida kirib bormoqda. Internet, sotsial tarmoqlar, mobil aloqa vositalari va sun’iy intellekt tizimlarining kundalik hayotga chuqur kirib borishi nafaqat iqtisodiy, balki ijtimoiy-ma’naviy munosabatlarni ham tubdan o‘zgartirib yubordi. Bugungi kunda axborot oqimi shaxsning shakllanishida, uning dunyoqarashi, qadriyatlar tizimi va milliy o‘zligini anglashida hal qiluvchi omilga aylanib bormoqda.

Axborotlashgan jamiyat sharoitida ma’naviy hayot o‘ziga xos qarama-qarshiliklarga ega. Bir tomondan, axborot texnologiyalari bilim olish, madaniy almashinuv va shaxsning intellektual rivojlanishi uchun beqiyos imkoniyatlar yaratadi. Ikkinchi tomondan, nazoratsiz axborot oqimi, mafkuraviy tahdidlar, "ommaviy madaniyat" ta’siri yoshlar ma’naviyatiga, ayniqsa milliy qadriyatlarga sodiqlik tuyg‘usiga jiddiy xavf solishi mumkin. Shu boisdan axborotlashgan jamiyatda ma’naviy hayotning o‘ziga xos xususiyatlarini ilmiy jihatdan o‘rganish dolzarb ahamiyat kasb etadi.

Maqolaning maqsadi — axborotlashgan jamiyat sharoitida ma’naviyatning shakllanish mexanizmlarini, ushbu jarayonda yuzaga keladigan o‘ziga xos xususiyatlarni hamda ma’naviy barqarorlikni ta’minlashning huquqiy-tashkiliy asoslarini tahlil qilishdan iborat.

## ASOSIY QISM

**1. Ma’naviyat tushunchasining mazmun-mohiyati.** Ma’naviyat masalasi o‘zbek faylasuflari va olimlari tomonidan keng o‘rganilgan murakkab ijtimoiy-falsafiy kategoriyalardan biridir. E. Yusupov ma’naviyatni inson axloqi va odobi, bilimlari, iste’dodi, qobiliyati, amaliy malakalari, vijdoni, imoni, e’tiqodi, dunyoqarashi va mafkuraviy qarashlarining o‘zaro uzviy bog‘langan, jamiyat taraqqiyotiga ijobiy ta’sir ko‘rsatadigan yagona tizim sifatida ta’riflaydi

[1]. Bu ta’rif ma’naviyatning ko‘p qirrali, dinamik xususiyatga ega ekanligini ko‘rsatadi — u faqat ichki ruhiy holat emas, balki jamiyat taraqqiyoti bilan uzviy bog‘liq ijtimoiy hodisadir.

A. Erkaev o‘z tadqiqotlarida ma’naviyatni millat yashovchanligining muhim ko‘rsatkichi, uning ijtimoiy-madaniy mavjudligining mohiyati sifatida talqin etadi, bunda insonning mehr-shafqat, adolat, vijdon, vatanparvarlik kabi xususiyatlari ma’naviyatning tarkibiy qismlari ekanligini ta’kidlaydi [2]. Bu yondashuv shuni ko‘rsatadi: ma’naviyat statik tushuncha emas, balki jamiyatdagi ijtimoiy-iqtisodiy va texnologik o‘zgarishlar ta’sirida doimiy ravishda sinovdan o‘tadigan, qayta shakllanadigan hodisadir.

M. Imomnazarov esa ma’naviyatni insonning ichki, botiniy dunyosi, qalb haqiqatining ifodasi sifatida sofiyona-falsafiy nuqtai nazardan tahlil qiladi, bunda ma’naviyatning har qanday qat’iy ta’rifi uning cheksiz mohiyatini to‘liq qamrab ola olmasligini ta’kidlaydi [3]. Bu fikr axborotlashgan davrda ham muhim ahamiyatga ega: ma’naviyatni faqat tashqi ko‘rsatkichlar — ta’lim darajasi, axborot savodxonligi bilan o‘lchab bo‘lmaydi, balki uning chuqur ichki, individual tabiatini hisobga olish zarur.

**2. Axborotlashgan jamiyat sharoitida ma’naviy hayotning o‘ziga xos xususiyatlari.** Axborotlashgan jamiyatda ma’naviy hayot quyidagi o‘ziga xos xususiyatlar bilan tavsiflanadi:

Birinchidan, axborotning tezkorligi va ommaviyligi. Ilgari ma’naviy tarbiya asosan oilaviy muhit, ta’lim muassasalari va mahalliy ijtimoiy munosabatlar doirasida shakllangan bo‘lsa, bugungi kunda har qanday geografik chegaradan tashqarida joylashgan axborot manbai bir zumda shaxs ongiga ta’sir ko‘rsatish imkoniyatiga ega bo‘ldi. Bu holat ma’naviy tarbiyaning an’anaviy institutlari — oila, mahalla, ta’lim tizimi roli va mexanizmlarini qaytadan ko‘rib chiqishni taqozo etadi.

Ikkinchidan, axborotning saralanmaganligi va sifat nazoratidan xoli bo‘lishi. Sotsial tarmoqlar va ochiq platformalarda tarqaladigan axborotning

aksariyati professional tahrir va ilmiy-axloqiy ekspertizadan o‘tmagan bo‘ladi. Bu, o‘z navbatida, yoshlar ongida qadriyatlar tizimining buzilishi, "yengil-yelpi" hayot tarzini ideallashtirish, milliy va umuminsoniy qadriyatlardan begonalashish kabi salbiy holatlarga olib kelishi mumkin.

Uchinchidan, mafkuraviy ta’sir vositalarining ko‘paygani. Zamonaviy axborot makoni nafaqat foydali bilim, balki turli mafkuraviy oqimlar, destruktiv g‘oyalar tarqalishi uchun ham qulay muhit yaratadi. Ma'naviyatshunoslik fanida qayd etilganidek, jamiyatda yuksak ma’naviyat bo‘lmagan joyda jaholat, beparvolik, xudbinlik kabi illatlar kuchayadi, bu esa millatning mafkuraviy immunitetini zaiflashtiradi [4].

**3. Ma’naviy barqarorlikni ta’minlashning huquqiy-tashkiliy asoslari.** Axborot makonidagi munosabatlarni tartibga solish, axborot resurslaridan foydalanish tartib-qoidalarini belgilash maqsadida O‘zbekiston Respublikasida tegishli qonunchilik bazasi shakllantirilgan. Jumladan, O‘zbekiston Respublikasining "Axborotlashtirish to‘g‘risida"gi Qonuni axborot resurslarini yaratish, ulardan foydalanish, axborot egalari va foydalanuvchilar o‘rtasidagi munosabatlarni huquqiy jihatdan tartibga soladi hamda axborot xavfsizligini ta’minlashning tashkiliy-huquqiy asoslarini belgilaydi [5]. Ushbu qonun hujjati axborotlashgan jamiyat sharoitida fuqarolarning axborotdan foydalanish huquqlarini kafolatlash bilan birga, jamiyat ma’naviy-axloqiy muhitini himoya qilish vazifasini ham ko‘zda tutadi.

Huquqiy-normativ baza o‘z-o‘zidan ma’naviy tarbiya vazifasini bajara olmaydi — u faqat zarur shart-sharoit yaratadi. Asosiy yuk ta’lim tizimi, oila va jamoatchilik institutlariga tushadi. Shu sababli axborotlashgan jamiyatda ma’naviy tarbiya tizimini takomillashtirish quyidagi yo‘nalishlarda olib borilishi maqsadga muvofiq:

— yoshlarda axborotni tanqidiy tahlil qilish ko‘nikmalarini, ya’ni "media-savodxonlik"ni shakllantirish;

— milliy va umuminsoniy qadriyatlarni raqamli muhitga moslashtirilgan zamonaviy uslublar — interaktiv ta’lim platformalari, sifatli raqamli kontent orqali targ‘ib qilish;

— ta’lim muassasalarida axborot xavfsizligi va mafkuraviy immunitetni mustahkamlashga yo‘naltirilgan tizimli tarbiyaviy ishlarni yo‘lga qo‘yish;

— oila institutining axborot iste'moli borasidagi nazorat va tarbiyaviy funksiyasini kuchaytirish.

Bu yo‘nalishlarning barchasi yagona maqsadga — shaxsning axborot oqimi ta’sirida o‘zligini saqlab qolishi, millat ma’naviy-mafkuraviy barqarorligini ta’minlashga xizmat qiladi.

## XULOSA

Xulosa qilib aytganda, axborotlashgan jamiyat sharoitida ma’naviy hayot o‘zining murakkab va ko‘p qirrali xususiyatlariga ega bo‘lib, u bir vaqtning o‘zida ham yangi imkoniyatlar, ham jiddiy xavf-xatarlar manbai hisoblanadi. Zamonaviy axborot-kommunikatsiya texnologiyalari insonning bilim olish va dunyoqarashini kengaytirish imkoniyatlarini sezilarli darajada oshirgan bo‘lsa-da, ayni paytda nazoratsiz axborot oqimi, mafkuraviy tahdidlar va qadriyatlar tizimining eroziyasi kabi muammolarni ham keltirib chiqarmoqda.

Ushbu sharoitda ma’naviy barqarorlikni ta’minlash murakkab, ko‘p bosqichli yondashuvni talab etadi: bir tomondan, mustahkam huquqiy-normativ baza — xususan, axborotlashtirish sohasidagi qonunchilik — zarur tashkiliy-huquqiy muhitni yaratadi; ikkinchi tomondan, milliy ma’naviyatshunoslik ilmiy merosi asosida shakllantirilgan tarbiyaviy strategiyalar shaxsning ichki mafkuraviy immunitetini mustahkamlaydi. Shu ikki omilning uyg‘un birikishi orqali axborotlashgan jamiyatda yosh avlodning sog‘lom ma’naviy-axloqiy qiyofasini saqlab qolish va rivojlantirish mumkin bo‘ladi.

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# YOSHLARNING MA'NAVIY-MAFKURAVIY TARBIYASIDA BADIIY ADABIYOTLARDAN FOYDALANISH MASALALARI

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***Annotatsiya.*** *Mazkur maqolada yoshlarning ma'naviy-mafkuraviy dunyoqarashini shakllantirishda badiiy adabiyotning o'rni va ahamiyati tahlil qilingan. Davlat siyosati darajasida qabul qilingan normativ hujjatlar, milliy g'oya nazariyasi va birinchi prezidentimiz hamda mamlakatimiz Prezidentining ma'naviy-ma'rifiy sohadagi qarashlari asosida badiiy adabiyotdan ta'lim-tarbiya jarayonida foydalanishning samarali yo'llari ko'rsatib berilgan. Tadqiqot natijalari kitobxonlik madaniyatini oshirish bo'yicha amaliy tavsiyalar ishlab chiqishga xizmat qiladi.*

***Abstract.*** *This article analyzes the role and significance of literary works in shaping the spiritual and ideological worldview of young people. Based on state policy documents, the theory of national idea, and the views of the First President and the current President of Uzbekistan on spiritual-educational matters, effective ways of using literary works in the educational process are presented. The research findings serve as practical recommendations for improving reading culture.*

***Kalit so'zlar:*** *ma'naviyat, mafkuraviy immunitet, badiiy adabiyot, yoshlar tarbiyasi, milliy g'oya, kitobxonlik madaniyati, ta'lim-tarbiya.*

***Keywords:*** *spirituality, ideological immunity, literary works, youth upbringing, national idea, reading culture, education and upbringing.*

## KIRISH

Mustaqillik yillarida O'zbekistonda yoshlarni har tomonlama barkamol, ma'naviy yetuk va mafkuraviy jihatdan mustahkam shaxslar etib tarbiyalash davlat siyosatining ustuvor yo'nalishlaridan biriga aylandi. Zamonaviy axborot makonining tobora murakkablashib borayotgani, raqamli muhitda turli g'oyaviy ta'sirlarning kuchayishi yosh avlod ongi va qalbini begona, tasodifiy ta'sirlardan

asrash zaruratini yanada dolzarblashtirmoqda. Davlatimiz rahbariyati tomonidan ham bu masalaga alohida e’tibor qaratilmoqda — xususan, "Milliy tiklanishdan — milliy yuksalish sari" tamoyili asosida jamiyat hayotida ezgu qadriyatlarni qaror toptirish, ayniqsa yosh avlodning ma’naviy-intellektual salohiyatini yuksaltirishda kitobxonlik madaniyatini oshirishning ahamiyati alohida ta’kidlangan [1].

Badiiy adabiyot ushbu vazifani amalga oshirishda o‘ziga xos o‘rin tutadi, chunki u faqat estetik zavq manbai bo‘lib qolmay, balki insonning ichki dunyosini, qadriyatlar tizimini, vatanga va xalqqa bo‘lgan munosabatini shakllantiruvchi kuchli vositadir. Badiiy matn orqali yetkaziladigan g‘oya va tuyg‘ular nazariy ma’lumotga nisbatan chuqurroq emotsional-irodaviy ta’sir ko‘rsatadi, bu esa uni yoshlar tarbiyasida almashtirib bo‘lmaydigan vositaga aylantiradi.

Maqolaning maqsadi — badiiy adabiyotning yoshlar ma’naviy-mafkuraviy tarbiyasidagi vazifalarini davlat siyosati, milliy g‘oya nazariyasi va pedagogik amaliyot nuqtai nazaridan tahlil qilish, shuningdek uni zamonaviy ta’lim jarayoniga tatbiq etishning samarali yo‘llarini ishlab chiqishdan iborat.

## ASOSIY QISM

### 1. Davlat siyosati darajasida kitobxonlik madaniyatini rivojlantirish masalalari

So‘nggi yillarda O‘zbekistonda kitobxonlik madaniyatini rivojlantirishga qaratilgan bir qancha institutsional chora-tadbirlar amalga oshirildi. Bunday tashabbuslardan biri sifatida yoshlarning intellektual va ilmiy salohiyatini oshirish, dunyo miqyosidagi mashhur asarlarni o‘zbek tiliga tarjima qilib, keng ommaga yetkazish maqsadida maxsus davlat loyihasi tashkil etilgani alohida ahamiyatga ega [2]. Bunday loyihalar yoshlarni zamonaviy ilm-fan va madaniyatning eng so‘nggi yutuqlari bilan tanishtirish, ularda jahon adabiyoti namunalariga qiziqishni oshirish maqsadini ko‘zlaydi.

Bu kabi davlat darajasidagi tashabbuslar shuni koʻrsatadi: badiiy adabiyotdan foydalanish endi tasodifiy yoki ixtiyoriy xarakterdagi ish emas, balki tizimli, maqsadli va institutsional asosga ega davlat siyosatining ajralmas qismidir. Bu, oʻz navbatida, ta'lim muassasalarida adabiyot bilan ishlash metodikasini ham yangi sifat bosqichiga koʻtarish zaruratini taqozo etadi.

**2. Badiiy adabiyot va milliy gʻoya: nazariy-pedagogik asoslar**

Badiiy adabiyotning mafkuraviy-tarbiyaviy vazifasini toʻgʻri tushunish uchun uni milliy gʻoya nazariyasi kontekstida koʻrib chiqish maqsadga muvofiqdir. Milliy gʻoya va ma'naviyatning pedagogik asoslarini oʻrganishga bagʻishlangan tadqiqotlarda ta'kidlanishicha, xalq ogʻzaki ijodiyotining deyarli barcha janrlarida ushbu ijodning yaratuvchisi boʻlgan xalqning mehnatsevarligi, vatanparvarligi, ota-onaga hurmat, kattalarga ehtirom va ajdodlar merosiga sadoqat tuygʻulari oʻz ifodasini topgan [3]. Bu fikr badiiy ijodning — xoh ogʻzaki, xoh yozma shaklda boʻlsin — xalq ma'naviy-axloqiy tajribasining tabiiy "tashuvchisi" ekanligini koʻrsatadi.

Demak, badiiy asarlar bilan ishlash shunchaki matnni oʻqib-tushunish jarayoni emas, balki bir necha avlodlar tomonidan sinab koʻrilgan axloqiy-ma'naviy qadriyatlar tizimini oʻzlashtirish jarayonidir. Yoshlar ushbu asarlar orqali nafaqat tilni, balki millatning dunyoqarashini, qadriyatlar tizimini va tarixiy xotirasini meros qilib oladilar. Bu jihat badiiy adabiyotni mafkuraviy immunitetni shakllantirishning tabiiy va samarali vositasiga aylantiradi.

**3. Milliy ma'naviy meros — badiiy adabiyotning qudratli zamini**

Birinchi prezidentimiz I. Karimov milliy madaniyat va xalq ma'naviy boyligi ildizlariga e'tibor berish zarurligini alohida ta'kidlab, bu xazina asrlar davomida toʻplangan, tarixning koʻplab sinovlaridan oʻtgan va insonlarga ogʻir damlarda madad boʻlgan boylik ekanligini bildirgan edi [4]. Bu fikr badiiy adabiyotning nafaqat bugungi kun, balki kelajak avlodlar uchun ham ahamiyatli ekanligini koʻrsatadi — chunki klassik va mumtoz adabiyot namunalari aynan shu "asrlar davomida toʻplangan xazina"ning bir qismidir.

Bunday meros bilan ishlashda asosiy vazifa — uni saqlab qolish bilan birga, uni "yanada boyitish", ya’ni zamonaviy talqin va metodlar bilan yangilab borishdir. Bu, ayniqsa, yoshlar bilan ishlashda muhim ahamiyat kasb etadi, chunki faqat saqlangan, lekin yangilanmagan meros yosh avlod uchun jonli ta’sir kuchini yo‘qotishi mumkin. Shu sababli mumtoz adabiyot namunalarini zamonaviy ta’lim texnologiyalari, interaktiv metodlar va muhokama shakllari bilan uyg‘unlashtirish dolzarb vazifa hisoblanadi.

**4. Ta’lim-tarbiya tizimida badiiy adabiyotdan foydalanish metodikasi**

Badiiy adabiyotning tarbiyaviy salohiyatini to‘liq ro‘yobga chiqarish ko‘p jihatdan uni ta’lim jarayoniga to‘g‘ri integratsiya qilish metodikasiga bog‘liq. Mamlakatimiz Prezidenti Sh.M. Mirziyoyev ta’lim va tarbiya tizimining barcha bo‘g‘inlari faoliyatini zamon talablari asosida takomillashtirishni davlatning birinchi darajali vazifasi sifatida belgilagan edi [5]. Bu ko‘rsatma adabiyot ta’limi metodikasini ham zamonaviylashtirish zarurligini bildiradi.

Ushbu maqsadga erishish uchun quyidagi metodik yondashuvlardan foydalanish samarali natija beradi:

- **Muhokama va bahs-munozara usuli** — badiiy asar qahramonlarining xatti-harakatlarini axloqiy nuqtai nazardan tahlil qilish;
- **Qiyosiy tahlil** — mumtoz va zamonaviy asarlardagi qadriyatlar tizimini taqqoslash;
- **Ijodiy yozma ishlar** — o‘quvchilarning badiiy matn asosida o‘z fikr-mulohazalarini bayon etishi;
- **Loyihaviy faoliyat** — adabiy qahramonlar misolida zamonaviy ijtimoiy muammolarni tahlil qilish;
- **Tarjima va targ‘ibot tashabbuslari** — jahon adabiyoti namunalarini o‘rganish orqali yoshlarning dunyoqarashini kengaytirish.

Bunday metodlar badiiy adabiyotni passiv o‘qish ob’yektidan faol tarbiyaviy vositaga aylantiradi va yoshlarning mustaqil fikrlash, tahlil qilish va xulosa chiqarish qobiliyatini rivojlantiradi.

### 5. Zamonaviy tahdidlar sharoitida adabiyotning himoyalovchi vazifasi

Bugungi kunda yoshlar ongini turli yot g‘oyaviy ta’sirlardan himoya qilish masalasi alohida dolzarblik kasb etmoqda. Raqamli muhitda tarqalayotgan nomaqbul kontent, yuzaki va mazmunsiz axborot oqimi yosh avlod tafakkurini sayozlashtirish xavfini tug‘dirmoqda. Aynan shu nuqtai nazardan, badiiy adabiyot bilan muntazam shug‘ullanish yoshlarda chuqur fikrlash ko‘nikmasini, axborotni tanqidiy baholash qobiliyatini va mustahkam qadriyatlar tizimini shakllantiradi. Bu, o‘z navbatida, ularni yot mafkuraviy ta’sirlarga qarshi tabiiy "immunitet" bilan ta’minlaydi.

## XULOSA

Yuqorida keltirilgan tahlillar shuni ko‘rsatadi: badiiy adabiyot yoshlarning ma’naviy-mafkuraviy tarbiyasida o‘rnini almashtirib bo‘lmaydigan vositalardan biri hisoblanadi. U davlat siyosati darajasida institutsional qo‘llab-quvvatlanayotgan, milliy g‘oya nazariyasida asoslangan, tarixiy-ma’naviy merosga tayangan va zamonaviy pedagogik metodlar bilan boyitilishi lozim bo‘lgan ko‘p qirrali tarbiyaviy resursdir.

Tadqiqot natijalariga ko‘ra quyidagi tavsiyalar ishlab chiqildi:

1. Kitobxonlik madaniyatini rivojlantirish bo‘yicha davlat dasturlarini ta’lim muassasalari darajasida amaliy tadbirlar bilan to‘ldirish;
2. O‘quv dasturlarida mumtoz, milliy va jahon adabiyoti namunalarining muvozanatli uyg‘unligini ta’minlash;
3. Badiiy asarlar tahlilida faol, muhokamaga asoslangan metodlardan foydalanish;
4. Yoshlarning yosh xususiyatlari va qiziqishlarini hisobga olgan holda asar tanlash mezonlarini ishlab chiqish;
5. Adabiy meros bilan ishlashda zamonaviy raqamli vositalar va tarjima loyihalaridan keng foydalanish.

Bunday kompleks yondashuv yoshlarda mustahkam ma’naviy-mafkuraviy dunyoqarashni shakllantirishga, ularni turli g‘oyaviy tahdidlardan himoya qilishga va jamiyatning barqaror ma’naviy-axloqiy rivojlanishini ta’minlashga xizmat qiladi.

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# YUQORI SINF O'QUVCHILARIDA MEDIASAVODXONLIKNI SHAKLLANTIRISHNING SHART - SHAROITLARI

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***Annotatsiya.*** *Ushbu maqolada yuqori sinf o'quvchilarida mediasavodxonlikni shakllantirishning muhim shart - sharoitlari ilmiy jihatdan tahlil qilinadi. Zamonaviy axborot makonida o'quvchilarning tanqidiy fikrlash qobiliyatini rivojlantirish va axborotni saralash ko'nikmalarini shakllantirish dolzarb masala hisoblanadi. Tadqiqotda mediasavodxonlikni rivojlantirishga ta'sir etuvchi pedagogik, ijtimoiy va texnologik omillar ochib beriladi. Shuningdek, ta'lim jarayonida mediasavodxonlikni samarali shakllantirishga doir amaliy tavsiyalar ishlab chiqilgan.*

***Kalit so'zlar.*** *Mediasavodxonlik, yuqori sinf o'quvchilari, axborot madaniyati, tanqidiy fikrlash, pedagogik sharoitlar, ta'lim jarayoni, raqamli texnologiyalar, axborot tahlili*

***Аннотация.*** *В данной статье рассматриваются основные условия формирования медиаграмотности у учащихся старших классов. В условиях современного информационного общества особое внимание уделяется развитию критического мышления и навыков анализа информации. В работе раскрываются педагогические, социальные и технологические факторы, влияющие на формирование медиаграмотности. Кроме того, предложены практические рекомендации по эффективной интеграции медиаграмотности в образовательный процесс.*

***Ключевые слова.*** *Медиаграмотность, учащиеся старших классов, информационная культура, критическое мышление, образовательный процесс, педагогические условия, цифровые технологии, анализ информации*

***Abstract.*** *This article explores the key conditions for the formation of media literacy among high school students. In the context of the modern information society, the development of critical thinking and information evaluation skills is of great importance. The study identifies pedagogical, social, and technological factors influencing media literacy*

*development. Furthermore, practical recommendations are provided for the effective integration of media literacy into the educational process.*

***Keywords.*** *Media literacy, high school students, information culture, critical thinking, educational process, pedagogical conditions, digital technologies, information evaluation*

## ASOSIY QISM

Zamonaviy globallashuv va raqamli texnologiyalar jadal rivojlanayotgan bir davrda jamiyat hayotida axborotning o'rni tobora ortib bormoqda. Ayniqsa, yuqori sinf o'quvchilari uchun axborot oqimida to'g'ri yo'nalish topish, uni tahlil qilish va baholash muhim kompetensiyalardan biriga aylangan. Shu nuqtai nazardan, mediasavodxonlikni shakllantirish ta'lim tizimining ustuvor vazifalaridan biri sifatida namoyon bo'ladi. Mazkur maqolaning asosiy qismi aynan mediasavodxonlikni shakllantirishning mazmun - mohiyati, uning tarkibiy qismlari hamda unga ta'sir etuvchi shart - sharoitlarni yoritishga qaratilgan.

Avvalo, mediasavodxonlik tushunchasining mohiyatiga to'xtalish zarur. Mediasavodxonlik - bu shaxsning turli axborot manbalaridan olingan ma'lumotlarni anglash, tahlil qilish, baholash va ulardan ongli ravishda foydalanish qobiliyatidir. Bu jarayonda o'quvchi nafaqat axborotni qabul qiladi, balki uni tanqidiy fikrlash asosida saralaydi, noto'g'ri yoki manipulyativ ma'lumotlarni aniqlashga harakat qiladi. Aynan yuqori sinf o'quvchilari bu jarayonda faol ishtirok etuvchi subyekt sifatida shakllanishi lozim, chunki ular mustaqil fikr yuritish bosqichiga kirib borayotgan bo'ladi.

Mediasavodxonlikni shakllantirishda pedagogik shart - sharoitlar muhim o'rin tutadi. Eng avvalo, o'qituvchilarning o'zlari mediasavodxonlik ko'nikmalariga ega bo'lishi zarur. Chunki ular o'quvchilarga nafaqat bilim beruvchi, balki yo'naltiruvchi va maslahatchi rolini ham bajaradi. Dars jarayonida interaktiv metodlardan foydalanish, muammoli vaziyatlar yaratish, o'quvchilarni mustaqil fikrlashga undovchi topshiriqlar berish mediasavodxonlikni rivojlantirishga xizmat qiladi. Masalan, turli media

materiallarni (maqolalar, videolar, ijtimoiy tarmoqlardagi postlar) tahlil qilish orqali o‘quvchilarda tanqidiy yondashuv shakllantiriladi.

Bundan tashqari, ijtimoiy muhit ham mediasavodxonlikni rivojlantirishda muhim omil hisoblanadi. O’quvchining oilasi, do‘stlari va keng ijtimoiy tarmog‘i uning axborotga bo’lgan munosabatini shakllantiradi. Agar oila a’zolari axborotni ongli ravishda iste’mol qilsa, farzandda ham shunday ko’nikmalar paydo bo’ladi. Shu sababli mediasavodxonlikni faqat maktab doirasida emas, balki keng ijtimoiy muhitda ham qo’llab - quvvatlash lozim.

Texnologik shart - sharoitlar ham bu jarayonda alohida ahamiyatga ega. Bugungi kunda o’quvchilar internet, ijtimoiy tarmoqlar va turli raqamli platformalardan keng foydalanmoqda. Bu esa ularga katta hajmdagi axborotga tezkor kirish imkonini beradi. Biroq shu bilan birga, yolg‘on axborotlar, feyk yangiliklar va manipulyativ kontentlar xavfi ham ortib bormoqda. Shu bois o’quvchilarga axborot xavfsizligi, manbalarni tekshirish va ishonchliligini aniqlash bo’yicha bilimlar berish zarur.

Mediasavodxonlikni shakllantirishning yana bir muhim jihati - bu tanqidiy fikrlashni rivojlantirishdir. Tanqidiy fikrlash o'quvchiga har qanday axborotni shunchaki qabul qilish emas, balki uni tahlil qilish, sabab - oqibat bog’liqligini aniqlash, turli nuqtai nazarlarni solishtirish imkonini beradi. Bu esa o'quvchini mustaqil va ongli qaror qabul qilishga olib keladi. Ayniqsa, bugungi kunda turli axborot manipulyatsiyalari keng tarqalgan bir sharoitda bu ko'nikma nihoyatda zarurdir.

Shuningdek, mediasavodxonlikni shakllantirishda o’quv dasturlari va o’quv materiallarining mazmuni ham muhim ahamiyat kasb etadi. Darslik va qo‘llanmalarda zamonaviy media vositalar bilan ishlashga oid topshiriqlar, real hayotiy misollar, tahliliy mashqlar bo‘lishi lozim. Bu orqali o’quvchilar nazariy bilimlarni amaliyot bilan bog’lash imkoniyatiga ega bo’ladi.

**Adabiyotlar tahlili.** Mazkur mavzu - yuqori sinf o’quvchilarida mediasavodxonlikni shakllantirish masalasi - bugungi kunda nafaqat milliy,

balki xalqaro miqyosda ham keng o’rganilayotgan dolzarb ilmiy yo’nalishlardan biridir. Ushbu yo’nalishda olib borilgan tadqiqotlarni tahlil qilish shuni ko’rsatadiki, mediasavodxonlik tushunchasi, uning mazmuni va shakllanish mexanizmlari turli ilmiy maktablar tomonidan har tomonlama yoritilgan.

Avvalo, chet el olimlarining tadqiqotlariga to’xtaladigan bo’lsak, mediasavodxonlik nazariyasi va amaliyoti rivojiga katta hissa qo’shgan yetuk olimlardan biri David Buckingham hisoblanadi. U o’z ilmiy ishlarida yoshlarning media bilan o’zaro aloqasi, ularning axborotni qabul qilish va tahlil qilish jarayonlarini chuqur o’rgangan. Uning tadqiqotlarida mediasavodxonlik ta’lim jarayonining ajralmas qismi sifatida talqin etiladi hamda yoshlarning fuqarolik pozitsiyasini shakllantirishdagi o’rni asoslab beriladi.

Shuningdek, Sonia Livingstone mediasavodxonlik va raqamli savodxonlikni bolalar va yoshlar rivoji bilan bog‘liq holda o’rgangan yetakchi olimalardan biridir. U o’z tadqiqotlarida mediasavodxonlikni nafaqat texnik ko’nikma, balki ijtimoiy, madaniy va fuqarolik kompetensiyasi sifatida ko’rsatadi. Uning ishlari xalqaro miqyosda, jumladan, Yevropa va global loyihalar doirasida keng qo‘llaniladi .

Bundan tashqari, mediasavodxonlikni shakllantirishning samaradorligi va ta’sirini o’rganishda Se-Hoon Jeong va uning hamkorlari tomonidan olib borilgan meta-tahliliy tadqiqotlar alohida ahamiyatga ega. Ularning ilmiy ishlari mediasavodxonlikka oid ta’limiy dasturlar o’quvchilarning bilim darajasi, tanqidiy fikrlashi va axborotni baholash ko‘nikmalariga ijobiy ta’sir ko’rsatishini ilmiy jihatdan asoslab beradi .

Yana bir muhim olima Divina Frau-Meigs bo’lib, u mediasavodxonlikni global axborot makoni, madaniy xilma-xillik va raqamli jamiyat kontekstida o’rganadi. Uning tadqiqotlarida mediasavodxonlik inson huquqlari, axborot xavfsizligi va demokratik jamiyat rivoji bilan uzviy bog’liq holda talqin qilinadi.

Shuningdek, Andrew Burn mediasavodxonlikni media ta’limi va multimodal yondashuv asosida o’rganib, o’quvchilarning kreativ va tahliliy fikrlashini rivojlantirishga qaratilgan nazariyalarni ishlab chiqqan.

Umuman olganda, xorijiy tadqiqotchilar mediasavodxonlikni keng qamrovli tushuncha sifatida ko’rib, uning pedagogik, psixologik va ijtimoiy jihatlarini chuqur o’rganganliklarini ko’rish mumkin. Ularning ilmiy ishlari mediasavodxonlikni shakllantirishning nazariy asoslarini yaratishda muhim manba bo’lib xizmat qiladi.

Endi o’zbek olimlari tomonidan olib borilgan tadqiqotlarga e’tibor qaratadigan bo’lsak, mamlakatimizda ham so’nggi yillarda mediasavodxonlik masalasiga katta e’tibor qaratilmoqda. Xususan, pedagogika va axborot texnologiyalari sohasidagi tadqiqotchilar tomonidan mediasavodxonlikni shakllantirishning metodik asoslari, o’quvchilarda axborot madaniyatini rivojlantirish masalalari o’rganilmoqda. O’zbek olimlaridan N.X. Jo’rayev, Sh.S. Sharipov, B.X. Xodjayev kabi tadqiqotchilar ta’lim jarayonida zamonaviy axborot texnologiyalaridan foydalanish, o’quvchilarning axborot bilan ishlash kompetensiyalarini shakllantirish masalalarini yoritganlar.

Shuningdek, O’zbekiston ta’lim tizimida olib borilayotgan islohotlar doirasida mediasavodxonlikni rivojlantirishga alohida e’tibor qaratilmoqda. Bu borada o’quv dasturlarini takomillashtirish, o’qituvchilarning raqamli kompetensiyalarini oshirish, zamonaviy pedagogik texnologiyalarni joriy etish kabi yo’nalishlarda ilmiy izlanishlar olib borilmoqda. Biroq, mavjud tadqiqotlar asosan umumiy axborot savodxonligi yoki raqamli kompetensiyalar doirasida yoritilgan bo’lib, aynan yuqori sinf o’quvchilarida mediasavodxonlikni shakllantirishning aniq pedagogik shart-sharoitlari yetarli darajada kompleks o’rganilmagan.

Xulosa qilib aytganda, mazkur mavzu bo’yicha olib borilgan ilmiy tadqiqotlar yetarli darajada mavjud bo’lsada, ularning aksariyati umumiy yondashuvlar bilan cheklanadi. Ayniqsa, milliy ta’lim tizimi sharoitida yuqori

sinf o’quvchilarida mediasavodxonlikni shakllantirishning aniq metodikasi, samarali pedagogik shart-sharoitlari va amaliy mexanizmlarini ishlab chiqish dolzarb ilmiy muammo sifatida qolmoqda. Shu jihatdan, ushbu tadqiqot mavzusi ilmiy yangilikka ega bo’lib, mavjud ilmiy bo‘shliqni to’ldirishga xizmat qiladi.

**Tadqiqot obyekti va qo’llanilgan metodlar.** Mazkur tadqiqotning obyekti sifatida umumiy o’rta ta’lim maktablarining yuqori sinf o’quvchilarida mediasavodxonlikni shakllantirish jarayoni olinadi. Xususan, 9-11-sinf o’quvchilarining axborot bilan ishlash, uni tahlil qilish, baholash hamda tanqidiy fikrlash ko’nikmalarini rivojlantirishga qaratilgan ta’limiy faoliyat tizimi tadqiqot markazida turadi. Tadqiqot doirasida o‘quvchilarning mediasavodxonlik darajasi, ularning axborot manbalaridan foydalanish madaniyati, shuningdek, ta’lim jarayonida mediasavodxonlikni shakllantirishga xizmat qiluvchi pedagogik shart-sharoitlar o’rganiladi.

Tadqiqot predmeti sifatida yuqori sinf o’quvchilarida mediasavodxonlikni shakllantirishning pedagogik shart - sharoitlari, metodlari va vositalari, shuningdek, ularning samaradorligini oshirishga xizmat qiluvchi didaktik yondashuvlar belgilanadi.

Tadqiqotda qo’llanilgan metodlar

Mazkur tadqiqotni amalga oshirish jarayonida quyidagi ilmiy-pedagogik metodlardan foydalanildi:

Tahlil va sintez metodi - mediasavodxonlikka oid ilmiy adabiyotlar, xorijiy va mahalliy tadqiqotlar o‘rganilib, umumlashtirildi hamda nazariy xulosalar chiqarildi.

Taqqoslash (komparativ) metodi - turli mamlakatlar ta’lim tizimida mediasavodxonlikni shakllantirish tajribalari solishtirilib, ularning o’xshash va farqli jihatlari aniqlandi.

Kuzatish metodi - o’quvchilarning dars jarayonidagi faoliyati, axborot bilan ishlash uslublari hamda mediasavodxonlik ko’nikmalarining shakllanish darajasi muntazam kuzatildi.

So’rovnoma (anketa) metodi - yuqori sinf o‘quvchilari va o’qituvchilar o’rtasida mediasavodxonlikka oid fikr va munosabatlarni aniqlash maqsadida so’rovlar o‘tkazildi.

Suhbat metodi - o’quvchilar va pedagoglar bilan individual hamda guruhli suhbatlar tashkil etilib, muammo yuzasidan chuqur ma’lumotlar olindi.

Eksperiment (tajriba-sinov) metodi - mediasavodxonlikni shakllantirishga qaratilgan pedagogik shart - sharoitlar amaliyotga joriy etilib, ularning samaradorligi sinovdan o’tkazildi.

Statistik tahlil metodi - olingan natijalar matematik-statistik usullar yordamida qayta ishlanib, ularning ishonchliligi va samaradorligi aniqlashtirildi.

**Olingan natijalar va ularning tahlili.** Mazkur tadqiqot natijasida yuqori sinf o’quvchilarida mediasavodxonlikni shakllantirishning samarali pedagogik shart - sharoitlari aniqlanadi hamda ularni ta’lim jarayoniga joriy etishning amaliy mexanizmlari ishlab chiqiladi. Shuningdek, o’quvchilarning axborotni tanqidiy tahlil qilish, manbalarni solishtirish va baholash ko’nikmalarining sezilarli darajada rivojlanishi kutiladi.

Olingan natijalar tahlili shuni ko’rsatadiki, mediasavodxonlikni shakllantirishga yo’naltirilgan maxsus metodlar va interaktiv yondashuvlar o’quvchilarning mustaqil fikrlashini oshiradi, ularning axborot madaniyatini yuksaltiradi. Statistik va sifat tahlillari asosida tajriba - sinov guruhlarida nazorat guruhlariga nisbatan ijobiy o’zgarishlar kuzatilishi aniqlanadi. Bu esa taklif etilgan pedagogik shart -sharoitlarning samaradorligini ilmiy jihatdan asoslash imkonini beradi.

## XULOSA

Mazkur maqolada yuqori sinf o’quvchilarida mediasavodxonlikni shakllantirishning nazariy asoslari, pedagogik shart-sharoitlari hamda amaliy jihatlari kompleks tarzda tahlil qilindi. Bugungi globallashuv va raqamli axborot oqimi sharoitida mediasavodxonlik o’quvchilarning eng muhim

kompetensiyalaridan biriga aylanib bormoqda. Shu sababli ushbu yo‘nalishni rivojlantirish ta’lim tizimining dolzarb vazifalaridan biri sifatida qaraladi.

Tadqiqot davomida mediasavodxonlikning mazmuni va uning tarkibiy qismlari yoritilib, o’quvchilarda axborotni tahlil qilish, tanqidiy baholash va to’g’ri xulosa chiqarish ko’nikmalarini shakllantirish zarurligi asoslab berildi. Shuningdek, mediasavodxonlikni shakllantirishda pedagogik yondashuvlar, zamonaviy axborot texnologiyalaridan foydalanish, o’qituvchilarning kasbiy kompetensiyasi hamda ijtimoiy muhitning ta’siri muhim omillar sifatida ko’rsatildi.

O’tkazilgan tahlillar shuni ko’rsatadiki, interaktiv ta’lim metodlaridan foydalanish, muammoli vaziyatlar yaratish va amaliy topshiriqlar berish o’quvchilarning media bilan ishlash ko’nikmalarini sezilarli darajada rivojlantiradi. Bundan tashqari, raqamli muhitda axborot xavfsizligi, manbalarni tekshirish va feyk ma’lumotlarni aniqlash bo’yicha bilimlarni shakllantirish ham muhim ahamiyatga ega.

Tadqiqot natijalariga ko’ra, mediasavodxonlikni samarali shakllantirish uchun ta’lim jarayonini modernizatsiya qilish, o’quv dasturlariga zamonaviy media vositalar bilan ishlashga oid topshiriqlarni kiritish va o’qituvchilarning raqamli savodxonligini oshirish zarur. Bu esa o’quvchilarning nafaqat bilim darajasini, balki ularning mustaqil fikrlash va ongli qaror qabul qilish qobiliyatini ham rivojlantiradi.

Xulosa qilib aytganda, yuqori sinf o’quvchilarida mediasavodxonlikni shakllantirish ularning shaxsiy, intellektual va ijtimoiy rivojlanishida muhim rol o’ynaydi. Bu jarayon ularni zamonaviy axborot jamiyatida faol, ongli va mas’uliyatli fuqarolar sifatida shakllanishiga xizmat qiladi. Shu bois, mazkur yo’nalishda ilmiy izlanishlarni kengaytirish va amaliy tavsiyalarni ta’lim tizimiga joriy etish dolzarb hisoblanadi.

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# THE ROLE OF BORROWING IN THE FORMATION OF SOLAR ENERGY TERMINOLOGY IN MODERN CHINESE

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***Annotation.*** *This study explores the role of the borrowing method in the formation of solar energy terminology in modern Chinese. The research examines the historical development of lexical borrowing in Chinese, identifying four major periods of foreign influence and the linguistic mechanisms through which new scientific terms are formed. Based on the theoretical classifications of V. I. Gorelov and Yan Sipen, Chinese borrowings are analyzed in three major categories: phonetic, phonetic-semantic, and semantic (calque) borrowings. Through analysis of data from the English-Chinese Dictionary of Solar Energy, the study identifies common structural models of eponymous and semantic terms used in the field of solar energy. The results demonstrate that semantic borrowing, particularly in the form of calques, plays a dominant role in the creation of new terminology, while phonetic-semantic borrowings are primarily used to adapt eponymous scientific terms. The paper emphasizes that the process of borrowing enriches Chinese scientific vocabulary, facilitates linguistic adaptation to global technological advances, and contributes to the internationalization of Chinese scientific discourse.*

***Keywords:*** *borrowing; Chinese language; solar energy terminology; loanwords; phonetic borrowing; semantic borrowing; phonetic-semantic borrowing; calque; linguistic adaptation; scientific language*

## INTRADUCTION

Among scientific terms, many concepts representing objects are lexical units borrowed from other languages in ready-made form. The history of the development of the language of science—from its earliest stages to the present day—has closely followed the process of borrowing terminology from foreign

languages. The proportion of borrowed units in terminological systems has always been significantly higher than in general literary vocabulary [6; 118].

The borrowing method refers to the process through which elements of one language are transferred into another as the result of contact and interaction [1;67]. Once borrowed words become fully adapted to the recipient language system, their foreign origin is no longer felt, and identifying their roots requires etymological analysis. When adaptation is incomplete, however, distinctive phonetic, orthographic, grammatical, or semantic features may still reveal their borrowed status.

The idea of borrowing words from one language into another is ancient in Chinese linguistic tradition. Scholars usually distinguish four major periods in the history of lexical borrowing in Chinese [11]:

1. The Eastern Han Dynasty (25–220 CE)
2. The late Qing Dynasty (until the first half of the 20th century)
3. The period of economic and political reforms beginning in 1978
4. The period from the 1990s to the present

As early as the Tang Dynasty (618 CE), the term 译语 (yìyǔ) meaning “translation words” or borrowed words was already in use. Systematic linguistic studies on borrowed vocabulary in Chinese appeared in the first half of the twentieth century. Several terms are currently used to denote “loanword” in Chinese, including 外来语 (wàiláiyǔ) ‘foreign words’, 借用语 (jièyòngyǔ) ‘borrowed words’, and 借字 (jièzì) ‘borrowed characters’. Among these, the most commonly used are 外来词 (wàiláicí) ‘foreign words’ and 借词 (jiècí) ‘loanwords’ [4].

According to V.I. Gorelov, all words in Chinese can be divided etymologically into two layers: native and borrowed lexicon. Borrowed vocabulary entered Chinese through processes of interlingual interaction.

Gorelov classified Chinese lexical borrowings into three main types according to the borrowing method [7]:

1. Phonetic borrowings (音译 *yīnyì*)
2. Semantic borrowings (意译 *yìyì*)
3. Phonetic-semantic borrowings (音译加意译 *yīnyì jiā yìyì*)

The Chinese linguist Yan Sipen also distinguished phonetic and semantic types of borrowing, emphasizing that phonetic borrowing is the primary method, whereas semantic borrowing reflects the tendency to widen or modify the meaning of existing native words to express new concepts [5]. Some researchers additionally identify a fourth type, graphic borrowings, referring to words whose graphic form is directly adopted from another writing system. This type is characteristically represented by borrowings from Japanese [3]. Since the terminology of solar energy in Chinese contains no borrowings of Japanese graphic origin, graphic borrowings will not be discussed further here.

**Phonetic Borrowings**

Borrowing through the phonetic method is one of the most important mechanisms of new word formation. In this process, the sound pattern of the foreign word is retained, while Chinese characters with similar pronunciation are used for its written form.

Gorelov notes that phonetic borrowings constitute a relatively small percentage of all borrowings in Chinese. The reasons are [7]:

1. The distinct phonetic structure of Chinese, and
2. Its logographic writing system.

According to I.D. Klenin, the main reason phonetic borrowings are limited in Chinese lies in its character-based writing system, where each syllable (and character) carries a specific meaning in addition to sound. Thus, every character is both a phonetic and semantic unit [9].

Examples of phonetic borrowings include: 苯 *běn* “benzene”; 安培 *ānpéi* “ampere”; 赫兹 *hèzī* “hertz”; 伏特 *fútè* “volt”; 瓦特 *wǎtè* “watt”.

**Phonetic-Semantic Borrowings**

In phonetic-semantic borrowings, the first component is phonetic, while the second component represents a native Chinese equivalent of the original meaning. In Chinese solar energy terminology, this type often appears in eponymous terms.

From the *English-Chinese Dictionary of Solar Energy* (英汉太阳能词典), 177 eponymous compound terms have been identified. Most consist of two elements following the structural model: proper noun + generic noun. The proper names, derived from scientists in physics and energy studies, are phonetically borrowed, while the generic noun represents a solar-energy-related term. Examples include:

阿克电池 *Ākè diànchí* – "Aker battery" (Aker + battery)

俄歇系数 *Éxiē xìshù* – "Auger coefficient" (Auger + coefficient)

布雷顿循环 *Bùléidùn xúnhuán* – "Brayton cycle" (Brayton + cycle)

伯格斯矢量 *Bógésī shǐliàng* – "Burgers vector" (Burgers + vector)

卡诺效率 *Kǎnuò xiàolǜ* – "Carnot efficiency" (Carnot + efficiency)

爱迪生电池 *Àidíshēng diànchí* – "Edison battery" (Edison + battery)

菲里尔集热器 *Fēilǐ'ěr jí rè qì* – "Fresnel collector" (Fresnel + collector)

高斯电池 *Gāosī diànchí* – "Gauss battery" (Gauss + battery)

霍尔系数 *Huò'ěr xìshù* – "Hall coefficient" (Hall + coefficient)

**Semantic Borrowings**

Semantic borrowings, also known as calques, emerge when foreign words or expressions are translated literally into Chinese. In contrast to phonetic borrowings, semantic borrowings are relatively easy to integrate, and over time, they often become indistinguishable from native vocabulary.

In the calque process, translation of a foreign word or phrase leads to the creation of a new lexical item in the recipient language. Thus, calquing is

recognized as a distinct and important way of borrowing. In Chinese linguistics, semantic borrowings are subdivided into full calques and semi-calques.

Among the methods of lexical expansion in Chinese, semantic borrowing plays a particularly significant role. Since these borrowings are formed from Chinese morphemes, they are graphically and phonetically indistinguishable from native words and therefore are easily integrated and widely used in speech. Example: 速溶 (sùróng) “instant, soluble,” from 速 “fast” and 溶 “dissolve” [11].

A prominent example in energy terminology is 智能电网 (zhìnéng diànwǎng) “smart grid.” It refers to the modernization and digitalization of power supply systems. The smart grid is built upon a unified and high-speed bidirectional communication network integrating technologies such as sensing and measurement, advanced equipment, and intelligent control systems. Smart grids are characterized by enhanced reliability, safety, energy efficiency, environmental sustainability, user-friendliness, and multi-source compatibility—including solar, wind, nuclear, and other energy sources [12].

The U.S. Department of Energy defines a smart grid as an electricity supply network that integrates communication and information technologies spanning from electricity generation to consumption. Its purpose is to increase operational efficiency, improve service quality, and reduce environmental impact [10].

The term 智能电网 has also inspired derivatives such as:智能生物材料 “smart biomaterials,”智能复合物 “smart composites,”智能（光）纤维 “smart (optical) fibers,”智能材料 “smart materials,”智能结构 “smart structures,”智能系统 “smart systems,”智能织物 “smart textiles,”智能窗 “smart windows,”智能窗技术 “smart window technology,” 智能电站 “smart power station.”

These terms are widely used in developing smart homes and cities, in the automotive industry, medicine and healthcare, science and technology, and in all areas of green energy.

In recent years, another widely adopted term in the energy sector is 数字电站 (shùzì diànzhàn) "digital substation," which also represents a semantic borrowing. The term is interpreted as both a technological innovation and an engineering facility. A digital substation is a modern power facility based on intelligent primary equipment (such as electronic transformers and smart switches) and networked secondary devices (process, bay, and station control layers), adhering to the IEC 61850 standard and related communication protocols [13].

This technology enables data exchange and interaction between intelligent power devices within a substation. Although it employs advanced devices such as electronic transformers and smart switches—reducing the need for massive secondary cabling—it does not yet provide full integration of digital meters and online monitoring systems.

In essence, a digital substation is a facility where all interfaces among primary equipment and protection, automation, control, monitoring, and recording systems communicate through a local area network (LAN) based on standardized models and services.

Several other terms from the *English-Chinese Dictionary of Solar Energy* feature the component 数字 "digital":数字计算机 "digital computer,"数字控制 "digital control,"数字指示器 "digital indicator,"数字式日照（时间）记录器 "digital solar irradiation (time) recorder."

## CONCLUSION

The formation of solar energy terminology in modern Chinese demonstrates the dynamic interaction between linguistic tradition and scientific innovation. Borrowing has served as a key mechanism for expanding the lexicon of scientific and technical fields, reflecting both the internal development of the

Chinese language and its response to external influences. Among the various types of borrowings, semantic borrowings (calques) have proven to be the most productive, enabling the creation of terms that are conceptually accurate and culturally integrated within the Chinese linguistic system. Phonetic-semantic borrowings, on the other hand, have facilitated the incorporation of international eponymous terms, maintaining global terminological consistency. Overall, the study confirms that borrowing is not merely a linguistic phenomenon, but also a reflection of the global diffusion of scientific knowledge and the increasing interconnection of languages in the modern era of technological advancement.

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# AN’ANAVIYLIK VA YANGILANISH O‘RTASIDAGI ZIDDIYAT: O‘ZBEK JAMIYATI TRANSFORMATSIYASINING DIALEKTIK TAHLILI

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***Annotatsiya.*** *Ushbu tezisda O‘zbekiston jamiyatida kechayotgan ijtimoiy transformatsiya jarayonlari an’anaviylik va yangilanish o‘rtasidagi dialektik munosabatlar nuqtai nazaridan tahlil qilinadi. Jamiyat taraqqiyotida tarixiy meros, milliy qadriyatlar hamda zamonaviy modernizatsiya tendensiyalarining o‘zaro ta’siri ochib beriladi. Shuningdek, an’anaviy va innovatsion rivojlanish omillari o‘rtasidagi ziddiyatlarning ijtimoiy-falsafiy mohiyati yoritilib, ularning O‘zbekiston taraqqiyotidagi o‘rni asoslab beriladi.*

***Kalit so‘zlar:*** *an’anaviylik, yangilanish, transformatsiya, modernizatsiya, dialektika, milliy qadriyatlar, ijtimoiy taraqqiyot, innovatsiya.*

***Аннотация.*** *В данном тезисе процессы социальной трансформации, происходящие в обществе Узбекистана, анализируются с точки зрения диалектических взаимоотношений между традиционностью и обновлением. Раскрывается взаимное влияние исторического наследия, национальных ценностей и современных тенденций модернизации на развитие общества. Кроме того, освещается социально-философская сущность противоречий между традиционными и инновационными факторами развития, а также обосновывается их роль в развитии Узбекистана.*

***Ключевые слова:*** *традиционность, обновление, трансформация, модернизация, диалектика, национальные ценности, общественное развитие, инновации.*

***Abstract.*** *This thesis analyzes the processes of social transformation taking place in Uzbek society from the perspective of the dialectical relationship between tradition and renewal. It reveals the interaction between historical heritage, national values, and contemporary modernization trends in the development of society. Furthermore, the socio-philosophical essence of the contradictions between traditional and innovative factors of development is examined, and their role in the progress of Uzbekistan is substantiated.*

***Keywords:*** *tradition, renewal, transformation, modernization, dialectics, national values, social development, innovation.*

## KIRISH

XXI asrda dunyo miqyosida yuz berayotgan globallashuv, raqamlashtirish va innovatsion rivojlanish jarayonlari milliy jamiyatlar oldiga yangi vazifalarni qo‘ymoqda. Bunday sharoitda har bir xalq o‘zining tarixiy ildizlari va madaniy merosini saqlagan holda zamonaviy taraqqiyot talablariga moslashishga intiladi. O‘zbekiston ham mustaqillik yillarida an’anaviy qadriyatlarni asrash hamda modernizatsiya jarayonlarini jadallashtirish yo‘lidan bormoqda.

Ijtimoiy-falsafiy nuqtai nazardan qaralganda, an’anaviylik va yangilanish bir-biriga qarama-qarshi hodisalar sifatida emas, balki taraqqiyotning o‘zaro bog‘liq dialektik tomonlari sifatida namoyon bo‘ladi. Dialektik qonuniyatlarga ko‘ra, har qanday rivojlanish ichki ziddiyatlar orqali yuz beradi va aynan shu ziddiyatlar taraqqiyotning harakatlantiruvchi kuchi hisoblanadi[1].

**An’anaviylikning ijtimoiy taraqqiyotdagi o‘rni.** An’anaviylik jamiyatning tarixiy xotirasi, madaniy tajribasi va ma’naviy merosini o‘zida mujassamlashtiruvchi muhim ijtimoiy hodisadir. U avlodlar o‘rtasidagi vorisiylikni ta’minlaydi, milliy o‘zlikni shakllantiradi va ijtimoiy barqarorlikni mustahkamlaydi. O‘zbek jamiyatida oila, mahalla, kattalarga hurmat, mehr-oqibat va jamoaviylik kabi qadriyatlar an’anaviylikning asosiy ko‘rinishlari sifatida namoyon bo‘ladi [2].

Shu bilan birga, an’analar faqat o‘tmish merosi emas, balki jamiyatning bugungi va kelajakdagi rivojlanishiga ta’sir etuvchi muhim omildir. Chunki har qanday modernizatsiya jarayoni tarixiy-madaniy zaminga tayanmasa, uning samaradorligi pasayadi. Shu jihatdan, an’anaviylik jamiyatning ma’naviy immunitetini ta’minlovchi mexanizm sifatida ham namoyon bo‘ladi.

Biroq ayrim hollarda konservativ qarashlarning ustuvorligi innovatsion o‘zgarishlarning sekinlashishiga sabab bo‘lishi mumkin. Ayniqsa, gender

tengligi, yoshlar siyosati, ta’lim tizimi va iqtisodiy islohotlar sohasida eski stereotiplarning saqlanib qolishi modernizatsiya jarayonlariga ma’lum darajada to‘siq bo‘lishi ehtimoldan xoli emas.

**Yangilanish va modernizatsiyaning falsafiy mohiyati**

Yangilanish jamiyatning yangi ehtiyojlari va talablariga mos ravishda rivojlanishini ifodalovchi jarayondir. U innovatsiyalarni joriy etish, yangi institutlarni shakllantirish va ijtimoiy munosabatlarni takomillashtirish bilan bog‘liq. Modernizatsiya nazariyalariga ko‘ra, jamiyat taraqqiyoti iqtisodiy, siyosiy va madaniy tizimlarning uzluksiz yangilanib borishini taqozo etadi [3].

O‘zbekistonda amalga oshirilayotgan islohotlar ham yangilanishning amaliy ifodasi hisoblanadi. Davlat boshqaruvining ochiqligi, raqamli texnologiyalarning keng joriy etilishi, ta’lim tizimining modernizatsiyasi va fuqarolik jamiyati institutlarining rivojlanishi shular jumlasidandir.

Yangilanishning muhim jihati shundaki, u jamiyatni global rivojlanish tendensiyalariga integratsiyalash imkonini beradi. Biroq modernizatsiya jarayonlari milliy xususiyatlarni inkor etmasligi lozim. Aks holda, madaniy identifikatsiya inqirozi yuzaga kelishi mumkin. Shu sababli zamonaviy taraqqiyot modeli milliy va umuminsoniy qadriyatlar uyg‘unligiga asoslanishi zarur.

**An’anaviylik va yangilanish o‘rtasidagi dialektik ziddiyat.** Dialektik falsafaga ko‘ra, har qanday rivojlanish qarama-qarshiliklarning birligi va kurashi asosida sodir bo‘ladi. An’anaviylik va yangilanish o‘rtasidagi munosabat ham aynan shunday xarakterga ega. Bir tomondan, an’analar jamiyatning barqarorligini ta’minlasa, ikkinchi tomondan, yangilanish uning dinamik rivojlanishiga xizmat qiladi.

O‘zbekiston tajribasi shuni ko‘rsatadiki, mazkur ikki omilning mutanosibligi ijtimoiy taraqqiyotning muhim shartidir. Masalan, mahalla institutining zamonaviy boshqaruv tizimi bilan uyg‘unlashuvi yoki milliy ta’lim

an’analarining innovatsion pedagogik texnologiyalar bilan boyitilishi dialektik sintezning amaliy ko‘rinishlaridir[4].

Bugungi kunda yoshlar ongida milliy qadriyatlar va global madaniyat unsurlarining bir vaqtda shakllanayotganligi ham mazkur jarayonning murakkabligini ko‘rsatadi. Natijada yangi ijtimoiy identifikatsiya modeli yuzaga kelmoqda. Ushbu model milliy o‘zlikni saqlash bilan birga, zamonaviy dunyo talablariga moslashishni ham nazarda tutadi.

Demak, an’anaviylik va yangilanish o‘rtasidagi ziddiyat destruktiv emas, balki konstruktiv xarakterga ega bo‘lib, jamiyat rivojlanishining ichki manbai sifatida namoyon bo‘ladi. Dialektik nuqtai nazardan, ularning o‘zaro inkori emas, balki uyg‘unlashuvi taraqqiyotning eng maqbul yo‘li hisoblanadi.

## XULOSA

O‘zbek jamiyati transformatsiyasi jarayonida an’anaviylik va yangilanish o‘rtasidagi munosabatlar murakkab dialektik xarakter kasb etmoqda. An’analar jamiyatning tarixiy-madaniy asoslarini mustahkamlasa, yangilanish uning zamonaviy rivojlanishini ta’minlaydi. Mazkur ikki omilning o‘zaro uyg‘unlashuvi milliy taraqqiyotning muhim sharti hisoblanadi.

Shunday ekan, O‘zbekistonning istiqboldagi rivojlanish modeli tarixiy meros va innovatsion taraqqiyotning integratsiyasiga asoslanishi lozim. Bu esa milliy o‘zlikni saqlash bilan birga, global jarayonlarda munosib ishtirok etish imkonini beradi.

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# MILLIY QADRIYATLARDAN, AN'ANA VA URF-ODATLAR YAXLIT TIZIM SIFATIDA BOLALARNI AXLOQIY TARBIYALASHDAGI O'RNI

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***Annotatsiya.*** *Ushbu maqolada bugungi kunda dolzarb masala bo‘lib kelayotgan bolalarning axloqiy tarbiyasida milliy qadriyatlar, an’analar va urf-odatlarning ahamiyati haqida yoritilgan. Maqolada ilmiy manbalar asosida mavzu tahlil qilindi. Bundan tashqari oila muhitidagi ahamiyati yoritib berildi. Tadqiqotda milliy qadriyatlar asosida vatanparvarlik, mehnatsevarlik, halollik kabi sifatlar oddiy tushuncha emas, balki bu yaxlit tizim bilan mustahkamlanish, yanada umumlashgani korsatib o‘tilgan. Maqolada tarbiya usullari, oilaviy suhbatlar, hashar kabi marosimlar ham milliylik asosi sifatida yoritib berilgan. Maqolada shuningdek globallashuv davri bo‘lganligi sababli zamonaviy pedagogic yondashuvlar bilan boyitib, yoritildi.*

***Kalit so‘zlar:*** *milliy qadriyat, urf-odat, an’ana, axloqiy tarbiya, vatanparvarlik, milliy o‘zlikni anglash,oila muqaddas, hamjihatlik.*

***Annotation****.This article highlights the importance of national values, traditions, and customs in the moral upbringing of children, which remains a pressing issue today. The topic is analyzed on the basis of scientific sources, and the significance of the family environment in this process is also elaborated. The study demonstrates that qualities such as patriotism, diligence, and honesty, rooted in national values, are not merely abstract concepts but are reinforced and further consolidated through an integrated system of traditions and customs. The article also examines upbringing methods, family conversations, and communal practices such as *hashar* as fundamental expressions of national identity. Furthermore, given the realities of the globalization era, the subject is explored in conjunction with modern pedagogical approaches, enriching the overall discussion.*

***Keywords:*** *national values, customs, traditions, moral upbringing, patriotism, national self-awareness, family sanctity, solidarity.*

## KIRISH

Bugungi kunda dunyo tez sur’atlarda rivojlanayotgan internet zamonida milliy qadriyatlar, an'ana va urf-odatlarning bola shaxsini shakllantirishdagi o'rni o‘zbek xalqi uchun juda muhim ahamiyat kasb etmoqda. O'zbekiston Respublikasi Prezidentining 2022-yil 28-yanvardagi "Yangi O'zbekiston taraqqiyot strategiyasi to'g'risida"gi PF-60-son Farmoni va 2020-yil 27-maydagi "Yosh avlodni ma'naviy-axloqiy tarbiyalash tizimini yanada takomillashtirish chora-tadbirlari to'g'risida"gi qarorida ham yosh avlodning tarbiyasini ertangi kun poydevori sifatida muhim ahamiyatlardan biri sifatida ko‘rsatib o‘tilgan.

Milliy qadriyatlar — vatanparvarlik, halollik, mehnatsevarlik, kattalarni hurmat qilish — yosh avlod ongiga faqat so'z orqali emas, balki an'ana va urf-odatlar, oilaviy muhit, hashar va marosimlar vositasida tabiiy singdirib boriladi. Rim mutafakkiri Cicero : "Insonning asosi uning tarbiyasida, tarbiyasining asosi esa oiladadir." – deb ta’rif berib o‘tgan. Bu ta’rif juda asosli va bugungi kunda bola tarbiyasidagi oila na’munasini keng tushuncha ekaniga urg‘u beradi. Ushbu maqolada milliy qadriyatlar, an’ana va urf-odat yaxlit tizim sifatida bolalarning axloqiy tarbiyasida ilmiy manbalar asosida tahlil qilindi va zamonaviy yondashuvlar bilan uyg‘unlashtirildi.

## ASOSIY QISM

Milliy qadriyatlar – bu termin faqtgina ma’lum bir xalq yoki millatga tegishli bo’lgan, necha zamonlardan, tarixiy rivojlanishlardan, aholi turmush tarzi, dunyoqarashlari, urf-odatlarini o‘zida mujassamlashtirgan, uyg‘unlashtirgan, yillar davomida boyitib, jamlab kelgan ma’naviy boyliklar yig‘indisidir. Milliy qadriyatlarni bir necha turlarga bo’lib o‘rganish mumkin. Ular quyidagilar:

1. Ma’naviy-axloqiy qadriyatlar: insonlar o‘rtasidagi samimiy munosabatlar va fazilatlariga oid: halollik, hurmat, adolatparvarlik, o‘zidan kattalarga hurmat, mehr-muhabbat, rostgo‘ylik kabilar.

2. Moddiy qadriyatlar: bu qadriyat millatning turmush tarzidagi va moddiy madaniyatidagi moddiy qadriyatlar: xalq milliy kiyimlari ( do‘ppi, adras,chopon, beqasam to‘n), tarixiy obidalari ( G‘o‘ri Amir maqbarasi, Kalon minorasi, Ark qal’asi), qo‘l mehnati buyumlari ( haykaltaroshlik, zardo‘z, kashta).

3. Diniy qadriyatlar: Islom dinida mavjud bo‘lgan amallar, urf-odatlar, bayramlar, e’tiqodlar va ziyoratgohlar.

4. Oilaga asoslangan qadriyatlar: oilaviy mehr-muhabbat, hurmat, tinchlik, nikoh, farzand tarbiyasi, ota-onaga e’tibor va g‘amxo‘rlik.

5. Jamiyatga oid qadriyat: jamoa hayotidagi muammolar, qo‘shnichilik, mahalladoshlik, el hasharlari.

6. Bayram va urf-odatlarga oid qadriyatlar: jamiyat uchun umumiy bo‘lgan diniy va dunyoviy bayramlar, marosimlar,to‘y-yig‘inlar. Bayramlarda odat bo‘lgan an’analar, turli rasm-rusumlar.

7. Tabiatni asrash qadriyati: bunda tabiatda mavjud bo‘lgan jonli va jonsiz tabiatni asrash, tabiatning har bir qatlamini hurmat va mehr ila yanada boyitish, asrab-avaylash.

Milliy qadriyatlar har bir insonning qon qoniga singib ketgan, avloddan-avlodga o‘tib kelayotgan tarbiyaning asosiy o‘chog‘idir. Har bir millatda eng ulug‘ ne’mat bola sanaladi. Ammo bolalarni yurt uchun manfaatli va kerakli yetuk inson qilib tarbiyalash har bir inson va yurt uchun eng muhim omil sifatida qaralmoqda. Milliy qadriyatlar asosida bolalar avvalo milliy o‘zligini angalab olishadi. Bolalarda mamlakat tarixi, milliyligi, tili, dinini o‘rganish orqali kimligini, millatini, ijtimoiy va tarixiy kelib chiqishi, ajdodlarni tanish va ulardan qolgan tarix yordamida esa qanday insonlarning avlodi

ekanligini his qilish va ualarga munosib farzand bo‘lmoq uchun qo‘lidan kelgan barcha ishni qilish haqidagi qarorlari uni ma’naviy jihatdan boyitib boradi.

An’analar – bu jamiyat tomonidan yaratilgan, uzoq vaqtlar davomida sinalgan va sinovdan o‘tib kelgan, avloddan – avlodlarga o‘tib kelayotgan og‘izaki yoki amaliy na’munalar, munosabatlar va urf – odatlar majmui sanaladi. Qadriyat va an’ana bir – birini to‘ldirib turuvchi unsurlar sanaladi. Masalan, qadriyat shaxiy sifatlarni o‘zida mujassamlashtirgan mavhum g‘oya bo‘lsa ( bag‘rikenglik, adolatlilik, hurmat), an’ana esa uning amaliyotdagi aksi sanaladi, ya’ni amaliy jarayonlarda aks etadi ( kattalar bilan salomlashish odobi, mehmon kuzatish odobi).An’analar bir qancha turlarga bo‘lib tahlil qilinadi:

Oilaviy an’analar: oilalarda o‘zaro munosabatlar: ota-onaga hurmat, oilaviy qadriyatlarni asrash, bobo-buvi o‘g‘itlariyu-pand nasihatlarini olmoq;

Marosim bayramlarga oid an’analar: xalq qadriyatlariga oid udumlar: to‘y marosimlari, Navro‘z, hayit bayramlari, beshik va sunnat to‘ylari kabilar.

Qo‘l mehnati: ustoz-shogird an’analari, hunarmandchilik, me’morchilik va o‘ymakorlik an’analari.

Diniy an’analar: diniy bayramlar, ro‘za tutish, ziyoratgohlarga hurmat, namoz farzlari va ularning tartib qoidalariga rioya qilish va hurmat bildirish.

Bu an’ana turlari bolalarda ham amaliy ham nazariy jihatdan bolalarning rivojlanishi, ma’naviy boyishi uchun xizmat qiladi. Marosim va bayramlarning his tuyg‘uni boyitishi ( quvonch, birgalik, hayajon, quvnoqlik) bolalarda ijobiy taassurotlar uyg‘otadi.

Urf – odatlar xalq hayotida qaysidur voqea yoki hodisaga bog‘liq holda shakllangan, muayyan vaziyat va tartib – qoidalarga ega bo‘lgan rasm-rusumlar jamlanmasi sanaladi. An’ana va urf-odat juda o‘xshash tushunchalardir, bir qaraganda ikkalasi bir ma’noni anglatadi. Ammo urf-odat ma’lum qoidalarga bo‘ysunadigan voqeylikdir.Bayramlarga hurmat, oilalardagi hurmat, farzand tarbiyasi kabitushunchalar an’analar bo‘lsa, urf – odatlarga quyidagilar misol bo‘la oladi: bola tug‘ilganda ism qo‘yish, chilla marosimlari, beshik to‘yi, sunnat

to‘y, nikoh, navro‘zdagi sumalak pishirilishi, Qurbon va Ramazon hayitidagi qurbonliklar, iftorliklar, insonlar vafoti bilan bog‘liq urf-odatlar mavjuddir.

## XULOSA

Xulosa qilib aytganda, milliy qadriyat, an’ana, urf-odat bir birini to‘ldiruvchi, ajralmas, ammo har birining o‘z vazifalari mavjud bo‘lgan yaxlit bir tizimdir. Bu uchchala atamani hech qachon yakka holda bolalar tarbiyasi uchun asos qilib ajratib olib bo‘lmaydi. Bolada milliy o‘zlikni, o‘z yurtiga mansublik tuyg‘ularini, odob-axloq me’yorlarini,tarixiy-madaniy meroslar va ajdodlar meroslariga hurmat va e’tiqodni anglatish uchun bu uchchala yaxlitlik doimo bir butunlikda olib borilishi lozim sanaladi.

Demak, milliy qadriyatlar bolalarni shaxsiy yetuk bo‘ib shakllanishi, yurt ravnaqi uchun munosib, ma’naviyatli, iymon – e’tiqodli, barkamol inson bo‘lib voyaga yetishi, oilasi, millati uchun sadoqatli, mas’uliyatli inson bo‘lib kamol topishidagi nazariy emas, balki amaliy ishtirokchi va jonli kuzatuvchi sifatida qatnashish imkonini beruvchi boy merosdir. Bolalarni axloqan yetuk, milliy va ma’naviy ongni shakllantiruvchi, jamiyat ravnaqida munosib kadrlarni tayyorlab berishda xizmat qiluvchi amaliy negiz bu – milliy qadriyatlardir.

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# THE REFLECTION OF KARMANA'S HISTORY IN MEDIEVAL HISTORICAL SOURCES

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***Abstract:*** *This article discusses the representation of Karmana District in medieval historical sources. Karmana is a region with a long and rich history, and its location along the Great Silk Road contributed not only to its economic development but also to the strengthening of its political significance and status.*

***Keywords:*** *"Shah Yuli" (Royal Road), "Bei Shi," "Tang Shu," "History of Bukhara," "Hudud al-'Alam," al-Istakhri, al-Narshakhi, Ibn Hawqal.*

## INTRODUCTION

Karmana, located on the ancient "Royal Road" (Shah Road) between the two major cities of Samarkand and Bukhara, on the eastern frontier of the Bukhara Sogd, served as an important center with significant economic and military-strategic importance. The region occupies a highly favorable geographical position: it is bordered by the Qoratog' ranges of Nurata to the north, the Kyzylkum Desert to the northwest, the Ziyovuddin–Zirabuloq mountain ranges to the south, and fertile gardens and cultivated lands to the east.

Although Karmana is currently part of Navoi Region, it cannot be separated from Bukhara in historical terms. Situated along the Great Silk Road, this city was located in the eastern part of the Bukhara oasis and served as the administrative center of the Karmana Bekdom. Traditionally, the bekdom was governed by the lawful heir to the throne of the Bukhara Khanate, which further enhanced Karmana's political significance within the region.

## MAIN BODY

The ancient history of the region is only sparsely reflected in written sources. Historical records provide limited information about the early

development of Karmana and its surrounding areas. In describing the campaigns of Alexander the Great along the lower reaches of the Zarafshan River at the end of the fourth century BCE, Greek authors mention only that a number of Sogdian fortresses were burned and destroyed during his military expeditions. These accounts constitute some of the earliest written references to the region, although they offer little detailed information about its political, economic, or cultural life at that time.

Further information about the history of Karmana, an ancient settlement in present-day Navoi Region, can be found in the medieval Chinese chronicle “Bei Shi”, dating to the 6th century. In this source, the territory is referred to as Xiao An (Lesser An), a name derived from An (Greater An), which corresponds to the Bukhara oasis. In the later Chinese chronicle “Tang Shu” (7th century), the region is mentioned as Xiao An or Hohan (Eastern An). The chronicle states that Xiao An or Hohan, identified with Khargankat–Karmana, was subordinate to the state of An (Bukhara).

According to these records, Xiao An or Hohan included twelve major cities and nearly one hundred fortifications. In 627 CE, the rulers of Bukhara and Karmana-at a time when the tenth generation of Karmana’s ruling dynasty was in power-sent envoys bearing gifts to the Chinese emperor. The Chinese chronicles also emphasize that during this period the large and small principalities of Sogdiana were governed by Turkic rulers. It is possible that the Chinese term Hohan originated from the name Khargankat.

The subsequent transfer of the administrative center of this territory to Karmana, probably during the seventh or eighth centuries, significantly accelerated the city’s development. Its favorable geographical location at the crossroads of major trade routes contributed to its economic growth and increasing political importance[1].

[1] Савриев, Ж. (2024). ЎРТА ЗАРАФШОН ВОҲАСИДА – КАРМАНА ШАҲРИНИНГ НОМЛАНИШИ ВА ТОПОГРАФИЯСИ. *"Science Shine" International Scientific Journal, 14*(1). 279-бет.

The name Karmana appears in numerous medieval sources in various forms, including Karmina, Karminiya, and Kerminiya. These different spellings reflect the linguistic traditions of the authors and the historical periods in which the sources were written.

Another of the earliest references to Karmana can be found in the Chinese medieval chronicle “Tang Shu” (7th century) as well as in the works of al-Tabari. While describing the ancient “Royal Road” that connected Samarkand and Bukhara, these sources mention Kerminiya as one of the important stations along this route. The city is portrayed as a bustling caravan stop that emerged and developed due to its strategic location on a major trade artery. Its position on the route facilitated commercial exchange, communication, and cultural interaction between different regions, contributing significantly to its economic prosperity and regional importance. Over time, Karmana evolved into a notable urban center that played an essential role in the trade networks of Central Asia[2].

The 10th-century historian Abu Bakr Muhammad ibn Ja‘far al-Narshakhi, in his book “History of Bukhara”, described Karmana, the first village of Bukhara, as follows: “Karmina is one of the villages of Bukhara. Its water comes from the water of Bukhara (the Zarafshan River), and its land tax is added to the tax of Bukhara. It also has a separate village belonging to it. A congregational mosque has been established there. There were many scholars and poets in Karmina. According to a proverb, in ancient times Karmina was called Badiyai Khurdak (‘The Little Pitcher in the Steppe’). The distance from Bukhara to Karmina is fourteen farsakhs.”

Another important source, written in 982–983 CE, is “Hudud al-‘Alam” (The Regions of the World), in which Karmina is described as one of the cities of Sogdiana. The city is said to be located on the road from Bukhara to

[2] Хўжаназаров М., Раҳимов К. А., Саидов М.М., Холматов А.Н., Эргашев О.Т. (2025) КАРМАНА АРХЕОЛОГИЯ ОТРЯДИ МАТЕРИАЛЛАРИ. Самарқанд. 6-бет.

Samarkand and is characterized as a prosperous land rich in blessings, with abundant flowing water and numerous trees[3].

Some Arab geographers, including Ibn Hawqal (10th century), al-Istakhri (d. 957), and al-Muqaddasi (1147–1223), also provided information about the history of Karmana in their works. Based on the information contained in these sources, it can be concluded that Karmana was one of the major cities of Mawarannahr during the 10th century. In particular, Ibn Hawqal lists Karmana among the large cities located outside the walls of Bukhara and provides the following description of its location and population: “Karminiya is larger than Tawawis, more populous, and possesses more fertile land. Khudimankan is a town dependent on Karminiya and forms part of its territory. Karminiya borders Khargankat and Madyomijkat. Their populations are nearly equal in number and similar in character. Karminiya also has a number of villages under its administration”[4].

The geographer Abu Ishaq al-Farisi al-Istakhri, who lived during the 9th–10th centuries, also provided information about Karmana in his work “Kitab al-Masalik wa al-Mamalik” (The Book of Routes and Kingdoms). He writes: “Karminiya is larger than Tawawis, more prosperous, more populous, and more fertile. Khudimankan belongs to Karminiya, while Khargankat and Mazyamajkat are situated opposite it; they are similar to one another in size and prosperity. Karminiya has many villages.

Sogd adjoins Bukhara from the east and begins from Karminiya. Beyond it lie Dabusiya, Rabinjan, Kushaniya, Ishtikhan, and Samarkand. These constitute the heart of Sogd. Although some consider Bukhara, Kesh, and Nasaf to be part of Sogd, we distinguish them separately...” This account demonstrates the importance of Karmana as a major urban and agricultural center in the region

[3] Абу Бакр Муҳаммад ибн Жаъфар ан-Наршахий (2011). *Бухоро тарихи*. Форс тилидан А. РАСУЛЕВ таржимаси Масъул муҳаррир А. ЎРИНБОЕВЯнги аср авлоди. 9-бет

[4] Ибн Ҳавқал (2011) КИТОБ СУРАТ АЁ-АРД. Араб тилидан таржима ва изохдар муаллифи, тарих фанлари доктори, профессор Ш. С. Камолиддин. «Узбекистон миллий энциклопедияси» Давлат илмий нашриёти 49-бет.

and highlights its strategic position on the eastern boundary of Bukhara and at the entrance to Sogdiana.[5].

In addition, the name Karmina is mentioned in a number of historical works, including “The History of Amir Timur” by Ibn Arabshah, “The History of the Four Uluses” by Mirzo Ulugh Beg, “Zafarnama” by Sharafuddin Ali Yazdi, “Baburnama” by Mirzo Babur, “Samariya” by Abu Tahirkhoja Samarqandi, and “Ubaydullanama” by Mir Muhammad Amin Bukhari, as well as in many other sources.

The appearance of this name in the works of renowned scholars, historians, and writers demonstrates that Karmana occupied a prominent position and enjoyed considerable historical, political, and cultural significance throughout different periods of Central Asian history..

## CONCLUSION

The representation of Karmana’s history in medieval sources highlights the significant role this region played in the political, economic, and cultural life of Central Asia. Historical records confirm Karmana’s development in connection with the Great Silk Road, its long-standing urban traditions, and its status as an important center of science, literature, and culture.

The information preserved in medieval chronicles, geographical works, and historical accounts demonstrates that Karmana occupied a prominent position within the Bukhara oasis and the broader region of Mawarannahr. These sources provide valuable evidence for understanding the city’s historical development, administrative importance, and contribution to regional trade and cultural exchange. Therefore, the study of medieval written sources contributes to a deeper understanding of Karmana’s past and serves as an important foundation for the scholarly assessment and preservation of its rich historical heritage.

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# MEHNAT QONUNCHILIGI VA UNING TARIXIY AHAMIYATI

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***Annotatsiya:*** *Mazkur maqolada mehnat qonunchiligining shakllanishi va rivojlanishi bosqichlari chuqur ilmiy tahlil etiladi. Jahon mehnat huquqi taraqqiyoti, xalqaro mehnat tashkilotining normativ-huquqiy hujjatlari hamda O'zbekiston Respublikasida mehnat qonunchiligi rivojlanishining tarixiy bosqichlari keng o'rganilgan. Shuningdek, mehnat qonunchiligining inson huquqlarini kafolatlash va huquqiy davlat qurilishidagi o'rni nazariy va amaliy jihatdan yoritilgan.*

***Kalit so'zlar****: mehnat qonunchiligi, tarixiy taraqqiyot, huquqiy davlat, xalqaro mehnat huquqi, inson huquqlari, Mehnat kodeksi, ijtimoiy adolat.*

***Аннотация****: В данной статье всесторонне анализируются этапы становления и развития трудового законодательства. Особое внимание уделяется эволюции международного трудового права, нормативным документам Международной организации труда, а также этапам развития трудового законодательства в Республике Узбекистан. Кроме того, раскрывается значение трудового законодательства в обеспечении прав человека и построении правового государства.*

***Ключевые слова:*** *трудовое законодательство, историческое развитие, правовое государство, международное трудовое право, права человека, Трудовой кодекс, социальная справедливость.*

***Annotation****: This article provides a comprehensive analysis of the stages of formation and development of labor legislation. Special attention is given to the evolution of international labor law, the normative acts of the International Labour Organization, and the stages of development of labor legislation in the Republic of Uzbekistan. The role of labor legislation in ensuring human rights and building a rule-of-law state is also examined from theoretical and practical perspectives.*

***Keywords:*** *labor legislation, historical development, rule of law, international labor law, human rights, Labour Code, social justice.*

## KIRISH

Mehnat insoniyat taraqqiyotining eng muhim mezonlaridan biri hisoblanadi. Insonning mehnat faoliyatisiz na moddiy ishlab chiqarish, na ijtimoiy hayot, na madaniy taraqqiyot mavjud bo‘lishi mumkin emas. Shu bois mehnat munosabatlarini tartibga soluvchi huquqiy me’yorlar qadimdan mavjud bo‘lib, ular jamiyat taraqqiyoti bilan uyg‘un holda rivojlanib kelmoqda. Mehnat qonunchiligi tarixini o‘rganish bizga nafaqat huquqiy tafakkurning evolyutsiyasini, balki ijtimoiy adolat va inson huquqlarining shakllanish bosqichlarini ham anglash imkonini beradi [1]. Asosiy qism: Qadimgi davrlarda mehnat qonunchiligining ildizlari Qadimgi Sharq davlatlarida mehnat munosabatlarini huquqiy tartibga solish jamiyat ehtiyojidan kelib chiqqan. Masalan, Xammurapi qonunlarida xo‘jayin va qul o‘rtasidagi majburiyatlar, ishning hajmi va sifatiga doir talablar, mehnatni suiiste’mol qilish uchun jazo choralarini belgilovchi normalar mavjud edi [2]. Bu huquqiy qoidalar o‘sha davr jamiyatida mehnatning iqtisodiy va ijtimoiy hayotdagi markaziy o‘rni borligini ko‘rsatadi. Qadimgi Misrda piramidalar va ibodatxonalar qurilishida minglab kishilar jalb etilgan bo‘lsa, ularning mehnati ham maxsus yozuvlar asosida hisobga olingan. Qadimgi Rim huquqida esa shartnomaviy mehnatning ilk ko‘rinishlari paydo bo‘lgan [3]. O‘rta asrlarda mehnat huquqi O‘rta asrlarda Yevropada feodalizm hukmron bo‘lib, dehqonlar yerga bog‘lab qo‘yilgan, ular barshchina va obroklar orqali feodallarga xizmat qilishgan. Shu bilan birga, shaharlarning rivojlanishi va tsex tizimining paydo bo‘lishi bilan ustalar va shogirdlar o‘rtasidagi mehnat munosabatlarini tartibga soluvchi huquqiy hujjatlar shakllandi [4]. Movarounnahr va islom huquqi tizimida mehnatning qadri yuqori baholangan. Qur’oni Karim va hadis manbalarida halol mehnat eng ulug‘ qadriyat sifatida e’tirof etilgan. Mehnat evaziga olingan daromad halol hisoblangan, ishchi va ish beruvchi o‘rtasidagi munosabatlarda adolatga rioya etish talab qilingan [5]. Sanoat inqilobi davrida mehnat qonunchiligi XVIII–XIX

asrlarda sanoat inqilobi tufayli fabrikalar, zavodlar paydo bo‘ldi va ishchi sinfi shakllandi. Bu esa mehnat munosabatlarini huquqiy tartibga solish zaruratini keltirib chiqardi. 1802-yilda Angliyada bolalar mehnatini tartibga soluvchi ilk qonun qabul qilindi. Keyinchalik 1833-yildagi “Fabrika to‘g‘risida”gi qonun orqali ishchilarning mehnat sharoitlari va ish vaqtiga oid normalar belgilandi [6]. Fransiya, Germaniya, AQSh kabi davlatlarda ham XIX asrning o‘rtalaridan boshlab mehnat qonunchiligi shakllana boshladi. Ayniqsa, 1919-yilda Xalqaro Mehnat Tashkilotining tashkil etilishi global mehnat standartlarining paydo bo‘lishiga asos soldi [7]. Xalqaro mehnat huquqi va uning ta’siri Xalqaro Mehnat Tashkiloti 100 yildan ortiq vaqt mobaynida mehnat sohasida universal standartlarni ishlab chiqib kelmoqda. Bugungi kunda XMT konvensiyalari asosida majburiy mehnat taqiqlangan, ayollar va bolalar mehnatini himoya qilishga oid qator huquqiy normalar ishlab chiqilgan [8]. O‘zbekiston ham XMTning ko‘plab konvensiyalariga qo‘shilgan va milliy qonunchiligini ularga moslashtirish yo‘lida islohotlar olib bormoqda. O‘zbekistonda mehnat qonunchiligi tarixining bosqichlari O‘zbekiston hududida mehnat munosabatlari qadimdan muhim ahamiyatga ega bo‘lib, Amir Temur tuzuklarida ham xizmat intizomi, mas’uliyat va adolat tamoyillari asosida tartibga solingan [9]. Sovet davrida O‘zbekiston SSR Mehnat kodeksi amal qilgan bo‘lsa-da, u mustaqil milliy ehtiyojlarni emas, balki markaziy hokimiyat manfaatlarini ifoda etgan [10]. 1992-yilda mustaqillikka erishgach, mehnat munosabatlarini tartibga solishning mutlaqo yangi bosqichi boshlandi. 1996-yilda O‘zbekiston Respublikasining Mehnat kodeksi qabul qilindi. Bu kodeksda xalqaro standartlarga mos me’yorlar, xususan, majburiy mehnatni taqiqlash, teng mehnat uchun teng haq, mehnat sharoitlari xavfsizligini ta’minlash normalari belgilandi [11]. Mustaqillikdan keyingi islohotlar O‘zbekistonda mehnat qonunchiligi bosqichma-bosqich yangilanib kelmoqda. Xususan, 2022-yilda yangi tahrirdagi Mehnat kodeksi qabul qilindi. Yangi kodeksda: – xodimlarning mehnat huquqlarini himoya qilish mexanizmlari kengaytirildi – mehnat shartnomalarini

tuzish, o‘zgartirish va bekor qilish jarayonlari soddalashtirildi – masofaviy mehnat va vaqtincha ishlashning yangi shakllari qonuniy asosda belgilandi [12]. Bu islohotlar O‘zbekistonni xalqaro maydonda ochiq va demokratik davlat sifatida tanitishda muhim qadam bo‘ldi. Mehnat qonunchiligining ilmiy va amaliy ahamiyati Mehnat qonunchiligi faqat huquqiy me’yorlar majmuasi emas, balki jamiyatda adolatni ta’minlovchi, inson qadr-qimmatini himoya qiluvchi muhim institutdir. U ijtimoiy barqarorlikni mustahkamlaydi, ishlab chiqarish samaradorligini oshiradi, fuqarolarning hayot sifatini yaxshilaydi [13].

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# HARBIY XIZMATCHILARNING KASBIY KOMPITETNTSIYA RIVOJLANISHI MUAMMOSINI O‘RGANISHNING ILMIY SHART-SHAROITLARI

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***Annotatsiya:*** *Mazkur maqolada harbiy xizmat, harbiy xizmatchilarda kasbiy kompetentlik va ijtimoiy-psixologik jarayonlar, harbiy xizmatchilarda kompetentsiya va uni rivojlantirishni tadqiq qilish haqida fikr yuritilgan.*

***Kalit so‘zlar:*** *harbiy xizmatchilarda kasbiy kompetentlik va ijtimoiy-psixologik jarayonlar, harbiy xizmatchilar shaxsiga xos bo‘lgan aloxida xususiyatlarning ijtimoiy-psixologik xususiyatlari, samarali moslashuv, burchga sodiqlik, kasbiy ong.*

***Annotation****: This article discusses the socio-psychological features of military service, the study of competence and its development in military personnel, and the completion of initial military-patriotic education in young people.*

***Key words:*** *competence in military personnel, research methods of its development, military patriotism in young people, military service, effective adaptation, loyalty to duty, professional consciousness.*

## KIRISH

Harbiy xizmatchilarning kasbiy kompetentligini rivojlantirish Qurolli Kuchlar tizimida ustuvor vazifalardan biridir. Bu jarayon nafaqat harbiy bilim va ko‘nikmalarni egallashni, balki shaxsning psixologik barqarorligi, liderlik qobiliyati, mustaqil qaror qabul qilish salohiyati va vatanparvarlik qadriyatlarini shakllantirishni ham o‘z ichiga oladi.

1. “Kasbiy kompetentlik” tushunchasining nazariy mohiyati

Kasbiy kompetentlik — bu shaxsning muayyan faoliyat turini samarali bajarish uchun zarur bo‘lgan bilim, ko‘nikma, malaka, shaxsiy sifatlar va tajriba uyg‘unligidir.

Pedagogika va psixologiya fanlarida kompetentlik yondashuvi XX asrning ikkinchi yarmida shakllandi. Xususan, Noam Chomsky “kompetensiya” tushunchasini ilmiy muomalaga kiritgan bo‘lsa, David McClelland kompetensiyani shaxsning muvaffaqiyatli faoliyatini belgilovchi asosiy omil sifatida asoslab berdi.

Harbiy sohada kasbiy kompetentlik quyidagi tarkibiy qismlarni o‘z ichiga oladi:

Kasbiy bilimlar (harbiy nizomlar, taktika, strategiya);

Amaliy ko‘nikmalar (qurol ishlatish, jangovar tayyorgarlik);

Psixologik barqarorlik (stressga chidamlilik, irodaviy sifatlar);

Kommunikativ kompetensiya (jamoada ishlash, buyruq berish va qabul qilish);

Axloqiy-irodaviy fazilatlar (vatanparvarlik, mas’uliyat, intizom).

2. Pedagogik asoslar- harbiy xizmatchilarni tayyorlash jarayoni maxsus tashkil etilgan pedagogik tizimga asoslanadi. Ushbu jarayon quyidagi tamoyillarga tayangan holda amalga oshiriladi:

2.1. Shaxsga yo‘naltirilgan ta’lim - bu yondashuv asosida harbiy xizmatchining individual psixologik xususiyatlari, qobiliyatlari va ehtiyojlari hisobga olinadi. Mazkur yondashuv g‘oyalari Carl Rogers tomonidan ishlab chiqilgan insonparvarlik psixologiyasiga borib taqaladi.

2.2. Faoliyatga yo‘naltirilgan yondashuv - harbiy kasbiy kompetentlik real faoliyat jarayonida shakllanadi. Bu tamoyil Lev Vygotsky va Aleksei Leontievlarning faoliyat nazariyasiga asoslanadi. Unga ko‘ra, bilim amaliy faoliyat orqali mustahkamlanadi.

2.3. Tizimlilik va uzluksizlik - kasbiy kompetentlik bosqichma-bosqich va uzluksiz ravishda shakllantiriladi, bular, boshlang‘ich harbiy tayyorgarlik, maxsus kasbiy tayyorgarlik, xizmat davomida malaka oshirish.

3. Psixologik asoslar - harbiy faoliyat yuqori darajadagi psixologik zo‘riqish bilan kechadi. Shu sababli kasbiy kompetentlikni rivojlantirish

psixologik tayyorgarlik bilan chambarchas bog‘liq bo‘lib, quyidagi nazariyalarga asoslanadi.

3.1. Motivatsiya nazariyalari - harbiy xizmatchining ichki motivatsiyasi uning kasbiy o‘sishida muhim rol o‘ynaydi. Bu borada Abraham Maslowning ehtiyojlar iyerarxiyasi nazariyasi va Frederick Herzbergning ikki omilli motivatsiya nazariyasi muhim ahamiyatga ega hisoblanadi.

3.2. Stress va adaptatsiya - jangovar sharoitda tez va to‘g‘ri qaror qabul qilish qobiliyati psixologik barqarorlikka bog‘liq. Stressga moslashuv jarayonini tushuntirishda Hans Selyening umumiy moslashuv sindromi nazariyasi muhim o‘rin tutadi.

3.3. Irodaviy sifatlar va liderlik - harbiy jamoada samarali boshqaruv liderlik kompetensiyasiga bog‘liq. Liderlikning zamonaviy psixologik talqinlari (transformatsion liderlik, vaziyatli liderlik) harbiy pedagogikada keng qo‘llaniladi.

4. Zamonaviy yondashuvlar - bugungi kunda harbiy xizmatchilar kasbiy kompetentligini rivojlantirishda simulyatsion mashg‘ulotlar, muammoli ta’lim, trening texnologiyalari, psixologik trening va stress-menejment dasturlari, axborot-kommunikatsiya texnologiyalaridan foydalanish innovatsion metodlari qo‘llanilmoqda. Shuningdek, kompetensiyaviy yondashuv asosida harbiy ta’lim standartlari takomillashtirilmoqda.

Harbiy xizmatchilar kasbiy kompetensiyasini rivojlantirish muammosini ilmiy jihatdan o‘rganish zamonaviy harbiy ta’lim va boshqaruv tizimining muhim yo‘nalishlaridan biridir. Ushbu masalani tadqiq etish ma’lum nazariy, metodologik va ijtimoiy shart-sharoitlarga tayanadi

1. Ijtimoiy-siyosiy shart-sharoitlar

**Qurolli Kuchlar modernizatsiyasi** va professional armiya modeliga o‘tish;

Globallashuv va xavfsizlik tahdidlarining murakkablashuvi;

Harbiy kadrlar tayyorlash tizimining xalqaro standartlarga moslashuvi;

Harbiy xizmatchining intellektual va psixologik salohiyatiga qo‘yilayotgan yuqori talablar.

Zamonaviy harbiy tizimda nafaqat jangovar tayyorgarlik, balki strategik fikrlash, tezkor qaror qabul qilish va kommunikativ kompetensiya ham muhim omilga aylangan.

2. Ilmiy-nazariy shart-sharoitlar

Kasbiy kompetensiya muammosini o‘rganish bir necha fanlar kesishmasida shakllangan:

2.1. Kompetensiyaviy yondashuvning shakllanishi

“Kompetensiya” tushunchasi ilmiy muomalaga Noam Chomsky tomonidan kiritilgan bo‘lsa, keyinchalik David McClelland kompetensiyani muvaffaqiyatli faoliyat ko‘rsatkichi sifatida asoslab berdi.

Bugungi kunda kompetensiyaviy yondashuv ta’lim tizimining metodologik asosiga aylangan.

2.2. Faoliyat nazariyasi

Harbiy kasbiy kompetensiya faoliyat jarayonida shakllanadi. Bu g‘oya Lev Vygotsky va Aleksei Leontievlarning faoliyat nazariyasiga asoslanadi. Unga ko‘ra, shaxs rivoji ijtimoiy faoliyat va muloqot jarayonida amalga oshadi.

2.3. Shaxs rivojlanishi va motivatsiya nazariyalari

Kasbiy kompetensiya rivoji shaxsning ichki motivatsiyasi va ehtiyojlari bilan bog‘liq. Bu borada:

Abraham Maslowning ehtiyojlar iyerarxiyasi;

Frederick Herzbergning motivatsiya nazariyasi;

Albert Banduraning ijtimoiy o‘rganish nazariyasi muhim ilmiy asos bo‘lib xizmat qiladi.

3. Psixologik-pedagogik shart-sharoitlar

3.1. Stress va ekstremal faoliyat psixologiyasi

Harbiy faoliyat yuqori xavf va zo‘riqish bilan bog‘liq. Shu sababli kasbiy kompetensiyani o‘rganishda:

stressga chidamlilik;

emotsional barqarorlik;

tezkor qaror qabul qilish qobiliyati kabi omillar ilmiy tadqiq etiladi.

Bu jarayonda Hans Selyening stress nazariyasi muhim metodologik asos hisoblanadi.

3.2. Harbiy pedagogika rivoji harbiy ta’lim tizimida: amaliy mashg‘ulotlar, modellashtirish va simulyatsiya, muammoli ta’lim, kompetensiyaviy baholash tizimi keng qo‘llanilmoqda.

Bu esa kasbiy kompetensiyani tizimli o‘rganish va diagnostika qilish zaruratini yuzaga keltiradi.

4. Metodologik shart-sharoitlar

Harbiy xizmatchilarni o‘rganishda quyidagi xususiyatlar e’tiborga olinadi:

faoliyatning xavfli va ekstremal sharoitda kechishi;

qat’iy intizom va ierarxik boshqaruv tizimi;

tezkor va mustaqil qaror qabul qilish zarurati;

jamoaviy mas’uliyat;

psixologik bosim va stress omillari.

Shu sababli o‘rganish jarayoni oddiy pedagogik tadqiqotdan farq qiladi va kompleks yondashuvni talab etadi.

Harbiy xizmatchilarning kasbiy kompetentligini rivojlantirishda o‘ziga xos xususiyatlarini o‘rganish quyidagi bosqichlarda amalga oshiriladi:

Nazariy tahlil;

Diagnostik o‘rganish;

Model ishlab chiqish;

Tajriba-sinov ishlari;

Natijalarni baholash va umumlashtirish.

Mazkur bosqichlar tizimli ravishda amalga oshirilgandagina harbiy xizmatchilarning kasbiy kompetentligini samarali rivojlantirish mumkin bo‘ladi.

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# O‘ZBEK VA QORAQALPOQ HIKOYACHILIK JANRIDA FOLKLORIZM AN’ANALARINING SHAKLLANISHI VA RIVOJLANISHI

*(O‘tkir Hoshimov va Muratbay Nizanov hikoyalari misolida)*

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***Annotatsiya:*** *Mazkur maqolada o‘zbek va qoraqalpoq hikoyachilik janrida folklorizm an’analarining shakllanishi va rivojlanishiga doir masalalar borasida so‘z yuritiladi. Xususan, O‘tkir Hoshimov va Muratbay Nizanov hikoyalari misolida tahlil qilinadi.*

***Kalit so‘zlar:*** *folklor, xalq og‘zaki ijodiyoti, hikoyachilik, mavzu va g‘oya, xalqona ruh, maqol, ertak.*

***Аннотация:*** *В данной статье рассматриваются вопросы формирования и развития фольклорных традиций в жанре узбекского и каракалпакского рассказов. В частности, он анализируется на примере рассказов Уткира Хошимова и Муратбая Низанова.*

***Ключевые слова:*** *фольклор, народное устное творчество, повествование, тема и идея, народный дух, пословица, сказка.*

***Abstract:*** *This article discusses the formation and development of folklore traditions in the Uzbek and Karakalpak short story genre. In particular, it is analyzed on the example of the stories of Utkin Hashimov and Muratbay Nizanov.*

***Keywords:*** *folklore, oral folk art, storytelling, theme and idea, folk spirit, proverb, fairy tale.*

## KIRISH

O‘zbek yozma adabiyotida xalq og‘zaki ijodidan foydalanish eng qadimgi davrlardan boshlab mavjud bo‘lgan. Aslida adabiyotning eng asosiy manbai ham xalq va uning ijodiyot olaqmidir. Birinchi navbatda og‘zaki shaklda yaralgan adabiyotimiz mana necha asrlardirki, yozma manbalar uchun poydevor vazifasini o‘tab kelmoqda. Xalqning bor boyligi, so‘zining go‘zalligi

adabiyotda namoyon bo‘ladi. Uning gullab yashnamog‘ida, taraqqiy topmog‘ida esa xalq og‘zaki ijodi, ya’ni folklorning o‘rni beqiyosdir.

Bugungi kunda xalq og‘zaki ijodi haqida bilim berish, ularda folklor asarlarini tahlil va talqin qilish ko‘nikmalarini shakllantirish, milliy an’analarga nisbatan hurmat va vatanparvarlik ruhida tarbiyalash, yosh avlodni tarbiyalash g‘oyasini ifodalashda folklor asarlari va an’analarining ahamiyatini belgilash, adabiyotshunoslik va xalq og‘zaki ijodining chambarchas bog‘liq ekanligini anglash hamda folklor asarlarini ilmiy jihatdan o‘rganish ko‘nikmalarini shakllantirish bosh vazifamizdir.

Darhaqiqat, o‘zbek adabiyotining shakllanishi va taraqqiy topishida xalq og‘zaki ijodi - bitmas tuganmas manba bo‘lib xizmat qiladi. O‘zbek adabiyotining ilk yodgorliklaridan tortib, uning butun taraqqiyot bosqichlari, so‘z san’atkorlarining ijodiyoti buning yaqqol misolidir. Xalq og‘zaki ijodi yozma adabiyot namoyondalarini xalqning dili va tili, hayot tarzi va kurashlari, dunyoqarashi va urf-odatlari, tashvishi va orzu istaklari bilan yaqindan tanishtirdi, badiiy ijodkorlik ko‘nikmalarini tug‘dirdi, g‘oya va obrazlarning poyonsiz olamiga olib kirdi. Yozuvchi va shoirlar folklorning mavzu va g‘oyalaridan, syujet va obrazlaridan, hayotni tasvirlash usul va uslublaridan ijodiy foydalanganlar va asarlarining xalqchil bo‘lishiga erishganlar. Aytish mumkinki, yozma adabiyot eng qadimgi davrdan boshlab xalq og‘zaki ijodi bilan chambarchas bog‘liq bo‘lgan. Yozuvchi va shoirlar o‘z asarlarida xalq og‘zaki ijodi namunalaridan foydalanib kelganlar. Adabiyotning qaysi jabhasini olmaylik, deyarli barchasida folklor an’analari ta’sirini ko‘rishimiz mumkin. Dunyo adabiyotshunosligida folklor va yozma adabiyot munosabati muammosi bo‘yicha hozirga qadar ko‘plab yirik ilmiy tadqiqotlar yaratilgan. Shuningdek, o‘zbek adabiyotshunosligida bu masala o‘tgan asrning 50-yillaridan beri jiddiy o‘rganilib kelinadi (xususan, Karimov N. “Hamid Olimjon poeziyasida folklor traditsiyalari” 1959; Abdullayeva Sh. “Xalq ijodiyotining yozma adabiyotga ta’siri masalasiga doir. – Nizomiy nomidagi TDPI. Ilmiy asarlar. 36-t. IV kitob.

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O‘zbek va qoraqalpoq adabiyotida hikoyachilik janri xalqona ruh, hayotiylik, milliy qadriyatlar va ijtimoiy haqiqat bilan chambarchas bog‘liq holda rivojlanib kelmoqda. Bu jabhada folklorizm — ya’ni xalq og‘zaki ijodiyoti an’analari va unsurlarining badiiy adabiyotda qo‘llanilishi muhim o‘rin egallaydi. Ayniqsa, O‘tkir Hoshimov va Muratbay Nizanov singari yozuvchilarning hikoyalarida folklorizm orqali xalqning ruhiy olami, qadriyatlari va hayotga qarashi badiiy ifodasini topgan. Demakkim, biz tahlil qilmoqchi bo‘lgan yozuvchilarimiz O‘tkir Hoshimov va Muratbay Nizanov hikoylari ham bundan mustasno emas, mahoratli yozuvchilar ijodi ham xalq og‘zaki ijodi bulog‘idan suv ichgan desak mubolag‘a emas, albatta.

## TAHLIL VA NATIJALAR

Yozuvchilarimiz ijodiga nazar tashlaydigan bo‘lsak, aksariyat hikoyalarida folklor namunalariga murojaat etganiga guvoh bo‘lamiz. O‘tkir Hoshimov - o‘zbek hikoyachiligida xalqona ruhni, milliy qadriyat va hayotiy haqiqatni badiiy yuksaklikda ifoda eta olgan adiblardan biridir. Uning asarlarida folklorizm - ya’ni xalq og‘zaki ijodi unsurlaridan foydalanish, ularni zamonaviy adabiy kontekstda qayta talqin qilish muhim uslubiy vositalardan biri sifatida namoyon bo‘ladi. Yozuvchi hikoyalarida ko‘p hollarda xalq maqollari, iboralar, aforizmlar, rivoyatlar va xalqona hikmatlar uchraydi. Ular nafaqat til bezagi

sifatida, balki obrazlarning ichki dunyosini, muallif pozitsiyasini, xalqning hayotga bo‘lgan munosabatini ifodalashda vosita bo‘lib xizmat qiladi. Masalan, uning “Urushning so‘nggi qurboni” hikoyasida xalq og‘zaki ijodining betakror namunalaridan — ona timsoli orqali sabr-toqat, fidoyilik, mardlik, Vatanga sadoqat kabi qadriyatlar yuksak darajada ko‘rsatiladi. Bu hikoyada xalqning urush yillaridagi ruhiy kechinmalari, ona yuragining iztiroblari folklorona ifoda topadi. “Daftar hoshiyasidagi bitiklar” asarida ham xalq maqollari, iboralar, hikmatli so‘zlar ko‘plab ishlatilgan. U “xalqning donishmandligi”ni adabiy asarga olib kirgan holda, bu maqollar orqali o‘zining estetik, axloqiy pozitsiyasini ham bayon qiladi: “*Quruq nonni yemoq - toza halol rizqdir. Quruq gapdan esa foyda yo‘q*”. Yoki: “*To‘yda boshi baland bo‘lishni istagan odam aza haqida o‘ylasin*”. Bu kabi iboralar O‘tkir Hoshimovning xalq ruhiyatini chuqur anglagan, uning tafakkurini hikoyaviy uslubga singdira olgan yozuvchi ekanligini ko‘rsatadi. Bundan tashqari adib hikoyalarida obrazlar ko‘pincha xalqona uslubda yaratiladi. Ularning ismi, tili, harakati, dunyoqarashi orqali o‘zbek xalqining mentaliteti, dunyoni qabul qilish usuli aks ettiriladi. Masalan, kampirlar, chol obrazlari - oqsoqolona donolik timsoli, bolalar - poklik va sodda tafakkur egasi, o‘rtamiyona odamlar - xalqning o‘rtacha ijtimoiy qatlamini aks ettiruvchi timsollar sifatida tasvirlanadi.

Adibning “Dehqonning bir tuni” hikoyasida esa Muyassar, Alijon va ularning farzandlarini faqat bir kunlik tuni haqida batafsil yoritilgan. Yozuvchi bu hikoyada ham xalq maqollaridan unumli va o‘rinli foydalangan. Hikoyani o‘qish jarayonida quyidagi xalq maqollarining nima maqsadda qo‘llanganining guvohi bo‘lamiz. Asarda Muyassarning qizi Halima o‘z akasi Valining suratini chizayotgan kezlarida “qirqiga chidadingiz, qirq birigayam chiding-da, akajon! Besh minut qoldi” [4.28] degan xalq maqolini ishlatadi. Negaki, Valining besabrligi hamda ishning oxirigacha chidamli bo‘lish kerakligi maqol mazmuniga singdirib yuborilgan. Yoki yozuvchi “Sutdan og‘zi kuygan qatiqni

ham puflab ichadi” [4.30] maqolini ham asar qahramoniga mos holatda keltiradi.

Darvoqe, O‘zbek va qoraqalpoq hikoyachiligida o‘ziga xos adabiy uslub va xalqona badiiy tilga ega yozuvchilardan biri bu shubhasiz Muratbay Nizanovdir. Uning asarlarida folklor an’analari keng va tabiiy ravishda qo‘llanilib, o‘zbek va qoraqalpoq xalqining qadriyatlari, urf-odatlari, dunyoqarashi badiiy talqinda ifodalanadi. Muratbay Nizanov ijodining asosiy manbai - o‘zbek qishlog‘i va u yerda yashovchi oddiy insonlarning turmushi. Bu hayotda folklor - ya’ni xalq ertaklari, dostonlari, rivoyatlar, maqollar, xalq ishonchlari tabiiy ravishda mavjud. Yozuvchi bu unsurlarni o‘z hikoyalarida jonli voqealar bilan uyg‘unlashtiradi. Masalan, ko‘plab hikoyalarida kampirlar va chol obrazlari orqali xalq ertaklariga xos donolik, soddalik va hazil-mutoyiba beriladi. Adib hikoyalarida xalqona til, lahjalar, maqollar, iboralar juda ko‘p uchraydi. Bu esa asarlarning jonli, tabiiy va o‘qishga yengil bo‘lishini ta’minlaydi. Masalan: “Odam degan to‘kilgan sutni yig‘ib icholmaydi, lekin saboq olsa bo‘ladi.” Yoki: “Yomg‘ir qanchalik yog‘sa, er shunchalik quvnar, odam ham g‘am ko‘rsa, sabr pishar.” Bu kabi iboralar xalq og‘zaki ijodidan olingan bo‘lib, hikoyada qahramonlarning hayotiy tajribasini ifodalashda xizmat qiladi.

Yozuvchi hikoyalarida xalq og‘zaki ijodidagi qahramonlarga o‘xshash obrazlar yaratiladi. Ular ko‘pincha mehribon, hazilkash, sergap, ammo donishmand chol-kampirlar; soddadil-yu mard dehqonlar yoki mehnatkash yoshlar bo‘ladi. Bu obrazlar xalq hayotiga chuqur singib ketgan tasvirlardir. Misol uchun, bir hikoyasida chol obrazining “qaymoq kabi gaplar” aytishi, bolalarga ertaklardek saboq berishi — folklorning hozirgi zamonda qanday yashab kelayotganini ko‘rsatadi.

Darhaqiqat, Muratbay Nizanov asarlarida xalq urf-odatlari, jumladan, to‘ylar, aza marosimlari, hosil yig‘imi, Navro‘z bayrami kabi mavzular folklorona ifodalanadi. U bu marosimlarni realistik tarzda tasvirlabgina qolmay,

ular orqali milliy qadriyatlarning qadimiy ildizlarini ko‘rsatadi. Bundan tashqari, ayrim hikoyalarda xalq ishonchlari (masalan, qarg‘ishdan yoki duo-davodan qo‘rqish, qutli kunlarga e’tiqod) badiiy uslubda, kinoyaviy va ba'zida yumoristik tarzda aks ettiriladi. Mana shu jarayonlarda ham folklore an’analarini chiroyli ifodalaganini guvohi bo‘lamiz.

Muratbay Nizanov hikoyalarida folklor an’analari — bu nafaqat badiiy uslub vositasi, balki milliy ruh, xalq tafakkuri va qadriyatlarining ifodasidir. Yozuvchi og‘zaki xalq ijodining imkoniyatlaridan foydalanib, zamonaviy o‘zbek hikoyasini milliy ruhda, o‘ziga xos xalqona ohangda yaratgan.

## XULOSA

Umuman olganda, O‘zbek va qoraqalpoq hikoyachiligida folklorizm — bu xalq og‘zaki ijodining, ya’ni ertaklar, afsonalar, dostonlar, maqollar, topishmoqlar, rivoyatlar kabi folklor janrlarining yozma adabiyotda, xususan, hikoyachilikda o‘ziga xos tarzda aks etishidir. Bu hodisa yozuvchi va xalq ijodi o‘rtasidagi uzviy bog‘liqlikni ko‘rsatadi va milliylikni ifodalovchi muhim vosita hisoblanadi.

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# YANGI O‘ZBEKISTONDA IJTIMOIY HIMOYA TIZIMINING INSTITUTSIONAL TRANSFORMATSIYASI VA KADRLARNING SIYOSIY KOMPETENSIYALARI

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***Annotatsiya:*** *Ushbu maqola Yangi O‘zbekiston sharoitida ijtimoiy himoya tizimining institutsional va raqamli transformatsiyasini, shuningdek, soha rahbar va xodimlarining siyosiy kompetensiyalariga qo‘yilayotgan mutlaqo yangi talablarni tahlil qiladi. Maqolada Ijtimoiy himoya milliy agentligi va "Inson" ijtimoiy xizmatlar ko‘rsatish markazlarining tashkil etilishi, ijtimoiy siyosatda "mahalla" institutining faollashuvi hamda "Ijtimoiy reyestr" tizimining joriy qilinishi davlat boshqaruvining xalqchil va proaktiv modeliga o‘tishini ta'minlayotgani ochib berilgan. Shuningdek, tadqiqotda ijtimoiy himoya tizimi milliy xavfsizlik va siyosiy barqarorlikni ta'minlovchi muhim strategik texnologiya ekanligi, soha xodimlarining esa shunchaki byurokratik funksiyalarni bajaruvchi emas, balki ijtimoiy ziddiyatlarni barvaqt aniqlovchi proaktiv "ijtimoiy mediatorlar" sifatidagi roli ilmiy asoslangan.*

***Kalit so'zlar:*** *Ijtimoiy davlat, ijtimoiy himoya tizimi, institutsional transformatsiya, raqamli boshqaruv, siyosiy kompetensiya, Ijtimoiy himoya milliy agentligi, Inson markazlari, mahallabay ishlash tizimi, ijtimoiy mediator, Ijtimoiy reyestr, proaktiv boshqaruv, siyosiy barqarorlik, inson kapitali, inklyuziv rivojlanish, ijtimoiy adolat.*

***Abstract:*** *This article analyzes the institutional and digital transformation of the social protection system in the context of New Uzbekistan, as well as the entirely new requirements placed on the political competencies of the sector's management and personnel. The article reveals that the establishment of the National Agency for Social Protection and "Inson" social service centers, the activation of the "mahalla" institution in social policy, and the introduction of the "Social Registry" system are ensuring a transition to a pro-people and proactive model of public administration. Furthermore, the study scientifically substantiates that the social protection system is a crucial strategic technology ensuring national security and political stability, highlighting the role of social workers not merely as bureaucrats, but as proactive "social mediators" who detect social conflicts at an early stage.*

***Keywords:*** *Welfare state, social protection system, institutional transformation, digital governance, political competence, National Agency for Social Protection, Inson centers,*

*neighborhood-based work system, social mediator, Social Registry, proactive management, political stability, human capital, inclusive development, social justice.*

## KIRISH

Zamonaviy davlat boshqaruvi tizimida “Ijtimoiy davlat” fenomenining institutsional evolyutsiyasi davlat hokimiyatining siyosiy legitimligini ta’minlovchi hamda ijtimoiy stratifikatsiyani barqarorlashtiruvchi strategik texnologiya sifatida namoyon bo‘lmoqda. Global siyosiy maydonda ijtimoiy himoya tizimlarining diversifikatsiyasi davlat boshqaruv rejimlarining texnologik darajasini ko‘rsatuvchi asosiy indikatorlardan biriga aylandi. Biroq, XXI asrning texnologik chaqiriqlari, xususan, axborot texnologiyalarining jadal rivojlanishi an’anaviy ijtimoiy institutlarni raqamli boshqaruv arxitekturasi asosida tubdan qayta qurishni taqozo etmoqda.

Ushbu raqamli transformatsiya jarayoni faqatgina texnik yangilanish bilan cheklanmay, davlat xizmatchilari va rahbar kadrlarning siyosiy kompetensiyalariga mutlaqo yangi talablarni qo‘ymoqda. Endilikda ijtimoiy himoya sohasi xodimlaridan shunchaki ma’muriy-byurokratik funksiyalarni bajarish emas, balki raqamli ma’lumotlar, Big Data tahlili asosida ijtimoiy ziddiyatlarni barvaqt aniqlay oladigan proaktiv “ijtimoiy mediator” bo‘lish talab etilmoqda.

O‘zbekiston Respublikasining ijtimoiy himoya sohasidagi islohotlari ushbu global tendensiyalarni milliy siyosiy madaniyat va o‘ziga xos institutsional sharoitlar bilan sintez qilish natijasidir. Yangi O‘zbekistonning siyosiy strategiyasi doirasida ijtimoiy himoya tizimi tubdan transformatsiya qilinib, “paternalistik davlat” modelidan “subsidiarlik” va “inklyuziv rivojlanish” tamoyillariga asoslangan yangi arxitekturaga o‘tilmoqda[6]. 2023-yildagi konstitutsiyaviy islohotlar O‘zbekistonni rasman “Ijtimoiy davlat” deb e’lon qilishi bilan ushbu yo‘nalishni qaytmas siyosiy kurs darajasiga ko‘tardi[7].

[6] Mirziyoyev Sh. Yangi O‘zbekiston taraqqiyot strategiyasi To’ldirilgan ikkinchi nashri – Toshkent: O’zbekiston nashriyoti 2022, 191-199 betlar.

[7] O‘zbekiston Respublikasining Konstitutsiyasi. – Toshkent: O‘zbekiston, 2023, 1-modda.

Bu nafaqat huquqiy asos, balki davlat boshqaruvining barcha bo‘g‘inlarida “Inson qadri uchun” tamoyilini institutsionalizatsiya qilishning boshlang‘ich nuqtasi bo‘ldi.

O‘zbekiston modelining konseptual o‘ziga xosligi – ijtimoiy himoyani boshqarishda “mahalla” institutini siyosiy subyekt sifatida faollashtirish va Ijtimoiy himoya milliy agentligi orqali markazlashgan siyosiy irodaning vertikal integratsiyalashuvidir. Ushbu institutsional tuzilma doirasida tashkil etilgan “Inson” ijtimoiy xizmatlar ko‘rsatish markazlari davlat xizmatlarining desentralizatsiyasi va fuqarolarga maksimal yaqinlashuvi texnologiyasini amalda namoyon etmoqda.

O‘zbekistondagi ijtimoiy transformatsiya davlat boshqaruvi samaradorligini oshirishning strategik drayveri va milliy siyosiy tizimning barqarorligini ta’minlovchi asosiy legitimlik manbaiga aylandi.

Zamonaviy siyosatshunoslik paradigmasida ijtimoiy himoya tizimi gumanitar yordam instrumenti ekanligi bilan birga milliy xavfsizlikni ta’minlashning fundamental tarkibiy qismi hamda siyosiy tizim barqarorligining kafolati sifatida ko‘riladi. Siyosiy institutlarning barqarorligi ko‘p jihatdan jamiyatdagi ijtimoiy anomiya va relyativ deprivatsiya darajasini pasaytirishga qodir bo‘lgan resurslarni taqsimlash mexanizmlariga bog‘liq[8].

Ted Robert Garrning “odamlar nima uchun isyon qiladi” degan konseptual qarashlaridan kelib chiqilsa, ijtimoiy himoyadagi uzilishlar kutilmalar va real imkoniyatlar o‘rtasidagi nomuvofiqlikni keltirib chiqaradi, bu esa o‘z navbatida siyosiy tizimga bo‘lgan ishonch defitsitini va radikallashuv xavfini tug‘diradi[9]. Shu bois, zamonaviy davlat boshqaruvida ijtimoiy siyosat – ichki siyosiy risklarni boshqarishning eng samarali texnologiyasidir.

O‘zbekiston sharoitida ijtimoiy himoyaning sekuritizatsiyasi - *xavfsizlik masalasiga aylanishi* davlatning strategik ustuvorliklarida yaqqol namoyon bo‘lmoqda. Siyosiy barqarorlikni ta’minlashning “Yangi O‘zbekiston modeli” ijtimoiy adolat tamoyilini milliy xavfsizlik doktrinasining ajralmas qismi sifatida

[8] Paul Pierson, The New Politics of the Welfare State (Oxford: Oxford University Press, 2001), 45-48.
[9] ed Robert Gurr, Why Men Rebel (Princeton: Princeton University Press, 1970/2011), 24-27.

institutsionalizatsiya qildi. Bu jarayonda ijtimoiy himoya tizimining raqamli transformatsiyasi va “Ijtimoiy reyestr” kabi mexanizmlarning joriy etilishi, ijtimoiy noroziliklarni keltirib chiqaruvchi subyektiv omillarni – korrupsiya, byurokratiya va moddiy yordamlarning manzilli yekkazilmasligi muammolarini bartaraf etishga qaratilgan siyosiy filtr vazifasini o‘tamoqda. Ma’lumotlarga asoslangan ijtimoiy siyosat davlatga ijtimoiy taranglik o‘choqlarini erta aniqlash va ularni lokal-mahalla darajasida hal etish imkonini beradi.

Shu bilan birga, ijtimoiy himoya tizimi jamiyatdagi siyosiy integratsiyani kuchaytiruvchi “ijtimoiy jipslashtiruvchi” funksiyasini bajaradi. Inklyuziv ijtimoiy siyosat orqali jamiyatning nogironligi bor shaxslar, kam ta’minlanganlar, ishsiz yoshlar kabi marginal qatlamlarini siyosiy-ijtimoiy jarayonlarga jalb etish, ularning tizimga bo‘lgan ishonch darajasini oshiradi[10].

Bu esa, o‘z navbatida, tashqi va ichki destruktiv siyosiy texnologiyalarning jamiyatga ta’sir qilish maydonini toraytiradi. Binobarin, O‘zbekistonda Ijtimoiy himoya milliy agentligining tashkil etilishi va uning vakolatlarining kengaytirilishi, mamlakatning uzoq muddatli barqaror rivojlanish strategiyasining tarkibiy qismi bo‘lib, milliy xavfsizlik arxitekturasini inson markazlashgan boshqaruv texnologiyalari bilan boyitishga xizmat qiladi.

O‘zbekiston ijtimoiy siyosatining institutsional transformatsiyasi 2023-yildagi fundamental ma’muriy islohotlar natijasida tarqoq boshqaruv modelidan yagona vertikal integratsiyalashgan tizimga o‘tishi bilan xarakterlanadi. Ijtimoiy himoya milliy agentligining tashkil etilishi siyosiy institutlar ierarxiyasida “ijtimoiy blok”ning mavqeini davlat rahbari darajasiga ko‘tardi[11]. Siyosiy neoinstitutsionalizm nazariyasiga ko‘ra, bunday institutsional dizayn nafaqat boshqaruv samaradorligini oshirishga, balki ijtimoiy sohada “siyosiy entropiya” *(turli idoralarning bir-biriga zid qarorlari natijasida yuzaga keladigan tartibsizlik)* xavfini bartaraf etishga xizmat qiladi. Ilgari Sog‘liqni saqlash, Xalq ta’limi va Bandlik vazirliklari o‘rtasida bo‘linib ketgan funksiyalarning yagona

[10] World Bank, Social Protection and Jobs Global Practice: Uzbekistan Social Protection System Review (Washington, DC: World Bank Group, 2024), 112-115.

[11] O‘zbekiston Respublikasi Prezidentining 2023-yil 1-iyundagi "Aholiga sifatli ijtimoiy xizmat va yordam ko‘rsatish hamda uning samarali nazorat tizimini yo‘lga qo‘yish bo‘yicha kompleks chora-tadbirlar to‘g‘risida"gi PF-82-sonli Farmoni.

markazda birlashtirilishi, ijtimoiy himoyani idoralararo funksiyadan umummilliy siyosiy strategiyaga aylantirishning fundamental yechimi bo‘ldi.

Agentlikning siyosiy boshqaruvdagi o‘rni uning nafaqat ijrochi, balki ijtimoiy xavfsizlik arxitekturasining “neyron tarmog‘i” sifatidagi funksiyasida namoyon bo‘lmoqda. Siyosiy institutlar tahlili shuni ko‘rsatadiki, Ijtimoiy himoya milliy agentligi tuzilmasidagi “Inson” ijtimoiy xizmatlar ko‘rsatish markazlari davlat va jamiyat o‘rtasidagi muloqotning yangi texnologik interfeysini yaratdi[12].

Ushbu institutsional tuzilma orqali davlat boshqaruvining "proaktiv" modeliga o‘tildi. Bu tizim doirasida ijtimoiy xodimlar shunchaki arizalarni qabul qiluvchi subyekt emas, balki mahallabay ishlash tizimi orqali ijtimoiy muammolarni preventiv aniqlash va ularni siyosiy risk darajasiga yetmasdan neytrallash imkoniga ega bo‘lgan “siyosiy barqarorlik subyektlari” sifatida shakllanmoqda. Siyosiy boshqaruv texnologiyalari nuqtai nazaridan, bu “pastdan yuqoriga” tamoyilining amaliy ifodasi bo‘lib, davlatning ijtimoiy reaksiyasi tezligini va manzilliligini keskin oshirdi.

Shu bilan birga, Agentlik ijtimoiy sug‘urta va nafaqalar tizimini boshqarish orqali mamlakatdagi ijtimoiy-siyosiy munosabatlarning yangi “ijtimoiy shartnoma” asosida qurilishini ta’minlamoqda.

Bu esa jamiyatdagi ijtimoiy passivlik va boqimandachilik kayfiyatini jilovlash o‘rniga inson kapitalini rivojlantirishga qaratilgan siyosiy texnologiyalarni joriy etish imkonini beradi. Ijtimoiy himoya milliy agentligining institutsional nufuzi, shuningdek, uning xalqaro standartlarni milliy qonunchilikka adaptatsiya qilish qobiliyatida ham ko‘rinadi. Xususan, BMTning "Nogironlar huquqlari to‘g‘risidagi konvensiyasi" talablarini hayotga tatbiq etishda Agentlik asosiy siyosiy rol vazifasini bajarmoqda.

Ijtimoiy himoya milliy agentligi Yangi O‘zbekiston siyosiy tizimining insonparvarlik xarakterini ta’minlovchi va davlat boshqaruvining xalqchil modelini amalda realizatsiya qiluvchi markaziy institutsional drayverga aylanib borayotganligini ko’rish mumkin.

[12] Peter Hall and Rosemary Taylor, Political Science and the Three New Institutionalisms, 2018.

O‘zbekistonning ijtimoiy siyosatida “Mahallabay” ishlash tizimining institutsionalizatsiyasi davlat boshqaruvining markazlashgan modelidan markazlashmagan va jamiyatga yo‘naltirilgan modeliga o‘tishini anglatadi. Siyosiy institutlar nuqtai nazaridan, tuman darajasida tashkil etilgan “Inson” ijtimoiy xizmatlar ko‘rsatish markazlari davlatning ijtimoiy funksiyalarini bevosita quyi bo‘g‘inga – fuqarolarning yashash joyiga yaqinlashtirish strategiyasining amaliy ifodasidir. Ushbu tizim doirasida mahalla instituti ijtimoiy xatarlarni aniqlash, baholash va ularga tezkor munosabat bildirish qobiliyatiga ega bo‘lgan “siyosiy mikro-insititut” maqomiga ko‘tarildi.

“Inson” markazlari faoliyatining konseptual asosi – ijtimoiy xizmatlarning individualizatsiyasi va “ishlarni boshqarish” texnologiyasidir. Siyosiy jarayonlar tahlili shuni ko‘rsatadiki, bu yondashuv fuqaroni o‘z hayotiy vaziyatini yaxshilashda davlat bilan teng huquqli sherik sifatida ko‘radigan yangi “ijtimoiy shartnoma” modelini shakllantirmoqda. Ushbu modelda ijtimoiy xodimlar mahallalarda uyma-uy yurish orqali ijtimoiy izolyatsiyada qolgan qatlamlarni aniqlaydi, bu esa siyosiy boshqaruvda “ko‘rinmas ehtiyojlar” muammosini hal etadi. Bunday proaktiv yondashuv jamiyatdagi ijtimoiy adolatsizlik hissini kamaytirish orqali davlat institutlarining legitimligini va xalqning siyosiy tizimga bo‘lgan ishonchini mustahkamlaydi.

Siyosiy texnologiyalar nuqtai nazaridan, “Inson” markazlarining mahallabay ishlash tizimi bilan integratsiyalashuvi davlat resurslarini taqsimlashda “korporativizm” va “klientelizm” kabi salbiy holatlarning oldini oluvchi filtr vazifasini o‘taydi. Har bir mahalla kesimida shakllantirilgan “ijtimoiy portret” va ijtimoiy xodimlarning doimiy monitoringi, yordamning faqat eng muhtoj va haqli qatlamga yetib borishini ta’minlaydi[13]. Bu jarayon davlat byudjetidan foydalanishning samaradorligini oshirish bilan birga, ijtimoiy-siyosiy barqarorlikni ta’minlovchi drayverga aylanadi. Zero, ijtimoiy xizmatlarning manzilliligi fuqarolarda davlatning “g‘amxo‘rlik funksiyasi” haqidagi real va ijobiy tasavvurlarni shakllantiradi.

[13] Douglas North, "Institutions, Institutional Change and Economic Performance" (1990). Cambridge University Press.2012.

Shuni ham ta’kidlash lozimki, ushbu tizim doirasida ijtimoiy xodimlarning professional kompetensiyalarini rivojlantirish siyosiy islohotlarning muvaffaqiyati uchun hal qiluvchi ahamiyatga ega. “Inson” markazlari xodimlari jamiyatdagi ziddiyatli vaziyatlarni (oilaviy nizolar, zo‘ravonlik, marginalizatsiya) yumshatuvchi “ijtimoiy mediatorlar” sifatida namoyon bo‘lmoqda. Bunday professional transformatsiya O‘zbekistonda davlat boshqaruvining “insonparvarlik” tamoyili aniq institutsional mexanizmlar orqali realizatsiya qilinayotganidan dalolat beradi.

Zamonaviy siyosiy boshqaruv arxitekturasida raqamli texnologiyalar texnik yordamchi vosita darajasidan ko‘tarilib, davlatning ijtimoiy siyosatini shakllantirishdagi fundamental strategik resurs va legitimlik manbaiga aylandi. O‘zbekiston ijtimoiy himoya tizimining raqamli transformatsiyasi, xususan, “Yagona milliy ijtimoiy himoya” axborot tizimi va uning o‘zagi hisoblangan “Ijtimoiy reyestr”ning institutsionalizatsiyasi davlat boshqaruvini “elektron hukumat” paradigmasining yangi bosqichiga olib chiqdi[14]. Bu tizim davlat va fuqaro o‘rtasidagi munosabatlarda “shaffoflikni ta’minlovchi” vazifasini o‘tab, boshqaruv apparatning diskretsion vakolatlarini *(o‘z xohishiga ko‘ra qaror chiqarish erkinligini)* tizimli ravishda qisqartirdi, bu esa o‘z navbatida jamiyatda siyosiy ishonch indeksini oshirishga xizmat qiladi.

O‘zbekiston Respublikasi Vazirlar Mahkamasining, 2021 yil 21-oktabrdagi Aholini ijtimoiy himoya qilish tizimini yanada takomillashtirish chora-tadbirlari to‘g‘risida 654-sonli qarorning qabul qilinishi davlatning ijtimoiy himoya funksiyalaranini yanada takomillashtirilish imkonini berdi. “Ijtimoiy reyestr” tizimining siyosiy-texnologik ahamiyati uning interoperabillik qobiliyatida, ya’ni 50 dan ortiq davlat idoralari va tashkilotlarining ma’lumotlar bazalari bilan uzviy integratsiyalashtirildi[15]. Ushbu algoritmik yondashuv har bir oila yoki shaxsning real ijtimoiy holatini inson omilisiz, masofaviy va avtomatlashtirilgan tartibda baholash imkonini beradi. Tizim ijtimoiy nafaqalarni tayinlashda tanish-

[14] O‘zbekiston Respublikasi Prezidentining 2023-yil 1-iyundagi "Aholiga sifatli ijtimoiy xizmat va yordam ko‘rsatish hamda uning samarali nazorat tizimini yo‘lga qo‘yish bo‘yicha kompleks chora-tadbirlar to‘g‘risida"gi PF-82-sonli Farmoni.

[15] O‘zbekiston Respublikasi Vazirlar Mahkamasining, 21.10.2021 yildagi Aholini ijtimoiy himoya qilish tizimini yanada takomillashtirish chora-tadbirlari to‘g‘risida 654-sonli qarori. https://lex.uz/uz/docs/-5688101

bilishchilik va korrupsion risklarni minimallashtirib, davlat resurslarining manzilliligini ta’minlovchi eng muhim institutga aylanib bormoqda[16].

Bu esa, o‘z navbatida, ijtimoiy yordamning muhtoj qatlamga o’z vaqtida manzilli yetib borishini taminlamoqda.

Shu bilan birga, raqamlashtirish jarayoni ijtimoiy himoya sohasida “proaktiv boshqaruv” texnologiyasini amaliyotga joriy etdi. Endilikda davlat fuqaroning arizasini kutmasdan, raqamli ma’lumotlar tahlili orqali muhtojlik xavfi ostida bo‘lgan qatlamlarni oldindan aniqlash imkoniyatiga ega[17].

Siyosiy strategiya nuqtai nazaridan, bunday yondashuv jamiyatdagi potentsial ijtimoiy taranglik o‘choqlarini erta aniqlash va ularni tizimli reabilitatsiya qilish orqali makro-darajadagi siyosiy barqarorlikni kafolatlaydi. Raqamli platformalar orqali ko‘rsatilayotgan ijtimoiy xizmatlar, xususan, “Ijtimoiy karta” texnologiyasi, davlatning ijtimoiy majburiyatlarini “servis modeli” asosida amalga oshirishga o‘tilganini ko‘rsatadi. Bu transformatsiya O‘zbekistonning jahon siyosiy maydonida zamonaviy, raqamli va insonparvar ijtimoiy davlat sifatidagi nufuzini mustahkamlovchi fundamental omildir.

O‘zbekiston Respublikasi Prezidentining 2023-yil 1-iyundagi PF-82-sonli Farmoni ushbu raqamli ekotizimning huquqiy va siyosiy fundamentini yaratib berdi, bu esa Agentlikni mamlakatdagi eng yirik “big data” operatorlaridan biriga aylantirdi. Ma’lumotlarning bunday konsentratsiyasi davlatga ijtimoiy siyosatni uzoq muddatli prognozlash va strategik rejalashtirish imkonini beradi.

Ushbu institutsional va raqamli transformatsiya ijtimoiy soha boshqaruv kadrlarining siyosiy kompetensiyalariga nisbatan yangi paradigmani yuzaga keltirdi. Yangi O‘zbekiston sharoitida rahbar va ijtimoiy xodimlar jamiyatdagi ehtimoliy siyosiy taranglik o‘choqlarini neytrallashtiruvchi, aholi bilan ochiq muloqot o‘rnatuvchi va milliy xavfsizlik arxitekturasining quyi bo‘g‘inini ta’minlovchi strategik subyektlarga aylanmoqda. Pirovardida, mazkur islohotlar

[16] Mirziyoyev Sh. Yangi O‘zbekiston taraqqiyot strategiyasi To’ldirilgan ikkinchi nashri – Toshkent: O’zbekiston nashriyoti 2022, 234-240 betlar.

[17] World Bank, Uzbekistan: Strengthening the Social Protection System through Digitalization (Washington, DC: World Bank Group, 2023), 56-62.

inson kapitalini rivojlantirish orqali kuchli, barqaror va raqamli ijtimoiy davlat poydevorini mustahkamlaydi.

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# NURJAHONBEGIM – BOBURIYLAR SALTANATI TARIXIDA O'CHMAS IZ QOLDIRGAN MALIKA

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***Annotatsiya:*** *Ushbu maqolada Buyuk Boburiylar saltanati tarixida siyosiy salohiyati, kuchli irodasi va boy madaniy merosi bilan nom qoldirgan o'rta asrlarning eng mashhur va ta'sirchan ayoli Nurjahon Begimning murakkab hayot yo'li va ijodiy faoliyati haqida ma'lumot berilgan.*

***Kalit so'zlar:*** *Mehriniso, Sher Afg'on, Doktor Beni Prasad, Qandahor, Yazd qal'asi dorug'asi, tarxon, "E'timod-ud Davla", "Nur Jahon xuntasi", Lahor, Shoh Dara qabristoni.*

***Аннотация:*** *В данной статье представлена информация о сложной жизни и творчестве Нурджахан Бегум, самой известной и влиятельной женщины Средневековья, оставившей свой след в истории Великой империи Бабура благодаря своему политическому потенциалу, сильной воле и богатому культурному наследию.*

***Ключевые слова:*** *Мехриниса, Шер Афган, Доктор Бени Прасад, Кандагар, крепость Йезд, Тархан, «Этимод-уд-Давла», «Хунта Нур Джахан», Лахор, кладбище Шах Дара.*

***Abstract:*** *This article provides information about the complex life and creative work of Nurjahan Begum, the most famous and influential woman of the Middle Ages, who left a name for herself in the history of the Great Babur Empire with her political potential, strong will and rich cultural heritage.*

***Keywords:*** *Mehrinisa, Sher Afghan, Doctor Beni Prasad, Kandahar, Yazd fortress, tarkhan, "Etimod-ud-Dawla", "Nur Jahan junta", Lahore, Shah Dara cemetery.*

## KIRISH

Ko'hna moziydan xabar beruvchi tarix zarvaraqlarini varaqlar ekanmiz, ijtimoiy hayotning barcha sohalarida erkaklar bilan qatorda buyuk jasorat sohiblarining nomlari ham tarannum etib kelinganini guvohi bo'lamiz. Ayollar

orasidan juda kop’lab shavkatli hukmdorlar, oqila maslahatgo'ylar, yetuk donishmandlar, zabardast olimalar, suxandon shoiralar va zukko san'atshunoslar yetishib chiqqan. Bunga tarix guvoh. Ana shunday ayollardan biri – Nurjahonbegim bo’lib, u Hindistonda hukmronlik qilgan Boburiy hukmdorlardan biri – Jahongirshoh (Salim, 1569 – 1627)ning ikkinchi xotinidir [2. – B. 1.]. Doktor Beni Prasad bu haqda shunday deb yozadi: “O‘rta asrlar tarixida Nurjahonchalik ishqiy mojorolarga ko‘milgan shaxs uchramaydi. Jahongir hukmronligi davridagi ko'zga yaqqol tashlanadigan voqea uning Nurjahonga uylanishi bo’ldi. U hukmron bo'lgan 15 yil davomida Nurjahon saltanatning eng jozibador va eng qudratli hukmdori bo’lib keldi”.

Nurjahonning otasi Mirzo G'iyosbek tarhonlik saroy amaldorlaridan bo'lib, uning otasi Xo'ja Muahmmad Sharif Eron shohi Taxmasp saroyida Yazd qal'asi dorug'asi lavozimida xizmat qilgan. Otasi vafot etgandan so'ng, Mirzo G'iyosbek og’ir kunlarni boshidan kechirgan va ikki o'g'li hamda bir qizi bilan Hindistonga panoh izlab kelgan. 1577-yilda Qandahorga kelishganida xotini yana bir qiz tug'ib bergan va uning ismini Mehriniso qo'yganlar.

O'sha paytlarda og'ir kunlarda qolgan Mirzo G'iyosbekka hamroh bo'lgan karvonboshi Malik Mas'ud yaxshilik qilib, uni Boburiy hukmdor Akbarshoh huzuriga xizmatga olib borgan. Mirzo G'iyosbek qobiliyatli kishi bo'lib, tez orada saroy ayonlari nazariga tushgan. Dastlab u Qobulda devonbegi lavozimiga tayinlangan, keyinroq, yosh Boburiy hukmdor Jahongir unga “Etimoduddavla” unvonini berib, o'z saroyiga devonbegilik lavozimiga qo'ygan.

1594-yilda Mehriniso Aliqulibek ismli yigitga turmushga chiqqan. 1599-yilda Aliqulibek qurolsiz qo'li bilan bir yo'lbarsni o'ldirgani uchun shahzoda Salim unga “Sher Afg'on” nomini bergan edi. Salim otasiga qarshi isyon ko'targanda, Sher Afg'on Salim xizmatidan qochib, Akbarshoh huzuriga borgan. Akbarshoh vafotidan so'ng Salim Jahongir nomi bilan taxtga chiqib, Sher Afg'onni avf etgan va Bengaliyaning Burdvan viloyatiga jogirdor etib tayinlagan. Bu ishdan ranjigan Sher Afg'on mahalliy afg'onlar isyonini bostirish

ishiga sovuqqonlik bilan qaray boshlagan. 1606-yilda Qutbiddin ismli amir roja Man Sinx o'rniga Bengaliya hokimiyatiga boshlik etib tayinlangan. U bu yerdagi Sher Afg'onni mensimay muomila qilgan va huzuriga chaqirtirib, uning shohga sadoqat bilan xizmat qilmayotganini aytib, unga tanbeh bergan. Bundan g'azablangan Sher Afg'on qilichi bilan Qutbiddinni chopib tashlagan. Qutbiddinning qo'riqchilari ham shu yerdayoq Sher Afg'onni chopib tashlaydilar. Sher Afg'onning xotini Mehriniso va qizi Lodila Begim Agraga mahbus sifatida jo'natilgan. Mehriniso Akbarshohning bevasi Salima Begim xizmatiga qo'yilgan [1. – B. 82-83.]. Bu davrda Mehriniso 35 yoshda edi. Bir necha vaqt o'tgach, 1611-yilda Jahongirshoh Mehrinisoni o'z nikohiga olgan [3. – B. 261.].

Tarixchilar Sher Afg'onning o'limi va Jahongirning Nurjahonga uylanishi borasida turli fikrlar bildiradilar. Ayrim tarixchilar Jahongir Mehrinisoni 1611-yilda birinchi bor ko'riboq uylangan va uning erining o'limiga shohning aloqasi yo'q, deb yozishgan. Ba'zi tarixchilar esa aksincha, Jahongir shahzodaligidayoq Mehrinisoga oshiq bo'lib qolgan, biroq otasi Akbarshoh bu nikohga rozilik bermagani uchun u o'z niyatini otasining vafotidan so'ng ro'yobga chiqargan, deb aytishadi. Shuning uchun ham Jahongir Mehrinisoga yetishish uchun Sher Afg'onni o'ldirtirib yuborgan, deb taxmin qilishadi.

Doktor Beni Prasad Mehriniso bilan shahzoda Salim o'rtasidagi ishqiy mojoro va Sher Afg'onning o'limida Jahongirning qo'li borligini rad etadi. Doktor Tripati va doktor Sharma ham bu fikrni ma'qullaydilar. Biroq doktor Ishvari Prasad bu fikrni ma'qullamaydi. Doktor Ishvari Prasadning ta'kidlashicha, Sher Afg'onning o'limida shohni ayblashga isbot bo'lmasa-da, uning o'limi tafsilotlari nihoyatda shubhalidir. Gollandiyalik sayyoh De Layetning mashhur "Hindiston ta'rifi va hind tarixchilaridan bir parcha" nomli mashhur asarida: "Mehriniso Sher Afg'onga unashtirilib qo'yilgani tufayli Akbarshoh Salimning unga uylanishiga ruxsat bermagan. Biroq Salim o'zining unga bo'lgan muhabbatini hech qachon unutmagan", deb yozgandi. Demak,

Jahongir Mehrinisoni qizligidayoq yaxshi ko’rgan, biroq u Sher Afg'onga unashtirilgani uchun Akbarshoh bu nikohga ruxsat bermagan. Atrofdagilarning shubhasini so’ndirish uchun uylanish marosimi Sher Afg'on o’limidan so’ng 4 yilga kechiktirilgan [1. – B. 85.].

“Muntahab ut-tavorix” asarining muallifi Hakimxon to‘ra Mehrinisoning Jahongirshoh nikohiga kirishi haqida oldindan bashorat qilingan bir qiziq tush tafsilotini keltiradi. Go‘yo Mehriniso tunlarning birida tush ko‘radi. Tushida osmondan quyosh tushib kelib, ko‘rpasi ichiga kiradi. Shunda u uyg‘onib ketadi va ko‘rgan tushini eri Sher Afg’onga so‘zlab, undan ta’birini so‘raydi. Sher Afg’on tush ta’biri bo‘yicha bilimdon bo‘lgani tufayli, darhol xotinining tushiga quyidagicha ta’bir aytadi: “Sening to‘shagingga podshoh kirar ekan”.

Mehriniso o‘z go‘zalligi, ziyrakligi, farosatli va tadbirkorligi tufayli faqat Jahongirshohnigina emas, balki saroy ahlini ham o‘ziga rom qiladi. Endilikda uni Mehriniso emas, Nurmahal (saroyning nuri) deb ataydilar. Keyinchalik esa jahonning nuri, ya’ni Nurjahon deb ataydilar. Nurjahon begim nozik ta’b shoira ham edi. U Maxfiy taxallusi bilan g‘azallar bitgan. Jahongirshoh saltanatida Nurjahonning otasi E’timod-ud Davla nomi bilan bosh vazirlik lavozimigacha ko‘tarilgan. Uning o‘g‘li, ya’ni Nurjahon begimning akasi Osafxon esa saroy boshqaruvchisi mansabida qoyim bo‘lgan [2. – B. 16.].

Nurjahonbegim Jahongirshoh saltanatida dono maslahatchi edi. Malika mamlakatning ijtimoiy, madaniy hayotiga doir ko‘pgina ezgu tadbirlarni bajargan. U ixtirochi ham edi, chunonchi, gulob va “atri Jahongiriy”ni kashf etgan. Shu bilan birga, bir necha xil xush ta’m, laziz taomlaru xona bezaklarini yaratgan. Saroy a’yonlari orasida uning hurmat e’tibori kun sayin oshib borgan. Tarixiy manbalarning bergan xabariga ko‘ra, Jahongirshoh suyukli xotini Nurjahon begim sharafiga “Nuri Jahonin” deb atalgan 12 grammli oltin tanga zarb ettirgan.

“Muntaxab ut-tavorix” muallifi Nurjahonbegimning shoh bilan qilgan mushoiralaridan (Jahongirshoh ham g‘azallar bitgan) bir nechasini ko‘rsatib

o‘tgan. Bu she’rlarni o‘qigan kishi Nurjahonbegim zamonasining iste’dodli shoirasi bo‘lganligiga shubha qilmaydi. G’azallardan biri quyidagidir:

*Hadisi holi gu dar noma sabt mekardam,*
*Sikandvor kuqat bar sari suxan meso‘xt.*

*Shahidi ishqi turo shab ba xob medidam,*
*Ki hamchu shu’layi fonus dar kafan meso‘xt.*

*Zi so‘zi sinayi Maxfiy shud on qadar ma’lum,*
*Ki hamchu xas, mijaash dar giriston meso‘xt.*

Mazmuni: Sening nomayi a’molingni yozarkanman, so‘z ustidagi nuqtalar isiriq donalaridek yonardi. Ishqingda shahid bo‘lganlarni kechalari tushimda ko‘rardim. Ular xuddi fonus shulasidek, o‘z kafanlari ichida yonardilar. Maxfiy qalbining yonishi shu qadar ediki, yig‘laganda kipriklari xuddi xasdek yonardi [4].

Nurjahon Jahongirga turmushga chiqishi bilanoq o’z ta’sirini kuchaytira boshladi. 1613-yilda Begim darajasiga ko’tarilib, saltanatdagi birinchi mavqedagi ayol o’rnini egallagan. Dastlab u shoh bilan katta qabul marosimlarida ishtirok eta boshladi. Ba’zi bir tanga pullarda uning ismiga ham zarb qilindi. Keyinroq shahning buyruqlariga o’zi imzo qo’ya boshladi. Muhtoz va kambag’al ayollarga yer berish uning ruxsatisiz amalga oshmasdi. Shunday qilib, amaliy jihatdan davlatni idora qilish ishlari Nurjahonbegim qo’liga o’ta boshlagan. Yoshi o’tib borayotgan Jahongir ham sog’ligidagi muammolar sabab bunga qarshilik qilmas edi va ko’p ishlarni aqlli, serg’ayrat rafiqasiga ishongan. Uning mayxo’rlikka kamroq berilishi va go’shtni kamroq iste’mol qilishi ham rafiqasi talabi bilan yuz bergan.

Nurjahonning siyosiy faoliyatini ikki davrga bo’lish mumkin:

Birinchi davr 1611 – 1622-yillarni o’z ichiga oladi. Bu davrda uning otasi va onasi hayot bo’lib, ular Nurjahonning haddan oshib ketishiga yo’l

qo’ymasdan unga yaxshi ta’sir ko’rsatib turar edilar. Bu paytda taxt vorisi shahzoda Xurram bilan ular hamkorlik qilar edilar.

Ikkinchi davr 1622 – 1627-yillarni o’z ichiga oladi. Uning onasi Asmat Begim 1621-yilda, otasi E’timoduddavla 1622-yilda vafot etganidan so’ng uning ishtiyoqini tizginlab turuvchi odam qolmadi. Jahongir esa sog’ligi yomonlashgani tufayli davlat ishini to’laligicha rafiqasiga topshirib qo’ygan, unga katta erkinlik bergan. Natijada, Nurjahonda taxtni to’la egallab, shohning vafotidan keyin ham hokimiyatni qo’ldan chiqarmaslik ishtiyoqi tug’ilgan. Bu esa Shoh Jahon – shahzoda Xurram bilan raqobatga olib kelgan.

Jahongirga turmushga chiqqandan so’ng Nurjahon atrofida uning maslahatchilaridan iborat bo’lgan “Nur Jahon xuntasi” deb atalgan guruh paydo bo’lgan. Bu guruhga uning onasi Asmat Begim, otasi E’timoduddavla hamda shahzoda Xurram kirardi. Taxt vorisi shahzoda Xurram Nurjahonning akasi Asafxonning qizi Arjumand bonu Begimga 1612-yilda uylangan edi. Unga taxtning o’ng tomonida o’tirish huquqi va “Shoh Jahon” unvoni, shuningdek, 30 ming piyoda va 20 ming suvoriyga sarkardalik qilish huquqi berilgan. O’sha davrda E’timoduddavla 7 ming piyoda va 7 ming suvoriyga (1619), Asafxon esa 6 ming piyoda va 6 ming suvoriy (1622) rahbarlik qilish huquqiga ega edilar. 1621-yilda Nurjahon Sher Afg’ondan bo’lgan qizi Lodila Begimni shahzoda Shahriyorga turmushga uzatgan. Bu bilan shahzodaga 8 ming piyoda va 4 ming suvoriyga rahbarlik qilish huquqi berilgan [1. – B. 86-87.]. 1622-yilda Nurjahon begimning otasi vazir E’timod-ud Davlat vafot etgach, Nurjahon begim bilan shahzoda Xurram orasida ayovsiz ziddiyat kuchaygan. Bu davrda kasalmand Jahongirshoh saltanat ishlariga qaramay qo‘ygan, binobarin, davlatni boshqarish asosan Nurjahon begim qo‘lida qolgan edi.

Shahzoda Xurram o‘z kelajagi haqida taraddudlanib, 1622-yilda otasi Jahongirshoh tomonidan o‘z qaramog‘iga topshirilgan nogiron (ko‘r qilingan) akasi – shahzoda Xusravni pinhona bo‘g‘ib o‘ldirtiradi, otasi Jahongirshohga esa “sanchiq azobidan vafot etdi”, deb xabar yuboradi. Shu zaylda saroy ichida

guruhbozlik avj olib, kundan-kun saltanatdan putur keta boshlaydi. Ana shunday qulay vaziyatni ko‘pdan beri kutib turgan Eron hukmdori Shoh Abbos to‘satdan Qandahorni qamal qiladi va qirq kunlik qamaldan so‘ng shaharni qo‘lga kiritadi. Jahongirshoh shaharni qaytarib olish maqsadida shahzoda Xurram boshchiligida katta qo‘shin to‘plab, Qandahorga yubormoqchi bo‘ladi. Lekin shahzoda Xurram saroydagi notinch vaziyatda taxtdan uzoqlashishii istamay, Qandahorga borishdan voz kechadi va tez kunda otasi Jahongirshohga qarshi qo‘zg‘olon ko‘taradi. Qo‘zg‘olon bostiriladi. Ammo saroydagi guruhbozlik, maxfiy fitnalar mamlakatning ichki va tashqi mavqeiga salbiy ta’sir ko‘rsatadi.

Saltanatni vaqtincha Nurjahonbegim boshqarardi. U o‘z niyatlarini amalga oshirish maqsadida Jahongirshohga sodiq lashkarboshi Mahobatxonni saroydan chetlatib, Bengaliyaga jo‘natadi va mol-mulkini ro‘yxatga oldiradi. Bundan norozi bo‘lgan Mahobatxon saltanatga qarshi bosh ko‘taradi. Shu voqeadan sal vaqt o‘tgach, Jahongirshoh Nurjahonbegim bilan birga poytaxtdan Qobulga qarab safarga chiqadi. Mahobatxon rajputli qo‘shini bilan yo‘lga chiqib, Shoh qofilasini (karvon) o‘rab oladi. Mahobatxonning barcha shartlari Jahongirshoh tarafidan noiloj qabul qilinadi. Nurjahonbegim Mahobatxonga qarshilik ko‘rsatmoqchi bo‘ladi, lekin kuchlar teng emasligiga ko‘zi yetgach, makr-xiyla yo‘lini qidiradi. Shoh karvoni Mahobatxon nazorati ostida Qobulga qarab yo‘l oladi. Qobulga kirilgach, Nurjahon begim Jahongirshohni Mahobatxon soqchilari qo‘lidan qutqarib oladi va Kobul qo‘shinini Mahobatxonga qarshi qo‘yadi. Endi Mahobatxon uchun kochishdan boshqa chora qolmaydi. U Qobuldan qochib Dekanga boradi va shahzoda Xurramga qo‘shiladi.

Ammo bu vaqtda shahzoda Xurramning ahvoli og‘irlashib, Eronga qochib o‘tish fikrida yurardi. Biroq, 1626-yilda oktyabr oyida akasi valiahd shahzoda Parvezning to‘satdan vafot etishi, uning so‘ngan umidlarini yana jonlantirib yuboradi. 1627-yilda Jahongirshoh Kashmir bo‘ylab sayohatga chiqadi.

Sayohatdan qaytayotib, xastalanib yo‘lda vafot etadi va Lahorda dafn etiladi. Bu xabarni eshitgan shahzoda Xurram taxtni egallash uchun Dekandan Agraga yo‘l oladi.

Shahzoda Xurram Agraga yetib kelgunga qadar uning qaynotasi Osafxon muvaqqat ravishda marhum shahzoda Husravning o‘g‘li Dovar Baxshni taxtga o‘tqazadi. Shahzoda Shahriyorni ushlatib, ko‘ziga mil torttirib, ko‘r qiladi. Kuyovi shahzoda Xurramning Agraga yaqinlashgani xabarini eshitgan Osafxon taxt sohibi qo‘g‘irchoq Dovar Baxshni turli-tuman vasvasalar bilan qo‘rqitib, taxtdan voz kechishi va o‘zini panaga olishini maslahat beradi. Dovar Baxsh taxtni tashlab qochadi va Eron shohi huzuriga panoh istab boradi.

Shahzoda Xurram 1628-yil fevral oyida Agraga kirib, aytarlik qarshiliksiz taxtga o‘tiradi Niyatlariga yeta olmagan malika Nurjahon begim 1645-yilda vafot etadi va qabri Lahorning Shoh Dara qabristoniga qo‘yiladi. “Tazkirat ul-havotin”da yozilishicha, Nurjahon begimning qabr toshiga o‘zi bitgan quyidagi bayt yozilgan ekan:

*Bar mazori mo g‘aribon na charog‘i,na guli,*

*Na par parvona yobi, na sadoyi bulbuli.*

Mazmuni: Biz g‘ariblarning mozorimizda, na chiroq, na gul, na bulbul sadosiyu, na biror parvonani topmaysan [5].

Nurjahonbegim siyosiy hayotdan tashqari, ijtimoiy sohalarda ham faol bo‘lgan. Xususan, u savdo bilan shug‘illangan. Bir qancha kemalarga egalik qilib, indigo va kiyim savdosini yo‘lga qo‘ygan. Bu ishlarda unga akasi Asafxon yordam bergan. Inglizlar bilan savdoni yaxshilashga harakat qilishgan, chunki portugallar bilan ularning munosabati yaxshi bo‘lmagan.

Nurjahonbegim qo’shni davlatlarning malikalari bilan ham yaxshi munosabatlar o‘rnatgan. Xususan, malika ashtarxoniy hukmdor Imomqulixonning onasidan maktub olib, javob tariqasida Nurjahon Xo‘ja Nosirni Samarqandga sovg‘a-salomlar bilan jo‘natgan. Shuningdek, Nurjahonbegim yaxshi shoira bo‘lgan va boy kutubxonaga egalik qilgan.

Kambag‘al qizlarning o‘qishi uchun pul ajratib turgan. San’atning rassomchilik turiga ham qiziqib, kiyimlarga va matolarga rasm chizgan.

Nurjahon ovga qiziqqan yagona malika bo‘lsa kerak. 1616-yilda u katta, qrisha degan qushni ovlagan. Ma’lumotlarga qaraganda, 1617-yilda Nurjahonbegim Jahongir bilan ovga chiqqanda, ularga 4 ta yo‘lbars hujum qilgan. Malika hukmdorning ruxsati bilan yo‘lbarslarni o‘ldirgan.

Nurjahon begim me’morchilik sohasiga ham alohida e’tibor bergan. Nursaroy bog‘i va hovlisini, Lahorda Doro Shukoh nomli, uning vakili Nur Saroy nomli bog‘lar qurdirgan, qurilish bitgach katta bayram uyushtirgan. Shuningdek, unga Jahongir tomonidan Zahiriddin Muhammad Bobur tomonidan Agrada qurilgan Gul Afshor nomli bog‘ sovg‘a qilingan va bog‘ga Nur Afshor nomi berilgan. Bobur tomonidan qurilgan yana bir bog‘ – Zahro yoki Zahara ham malikaga berilib, nomi Nur manzilga o‘zgartirilgan. Malikalarga o‘zlari uchun jogir tarzida yerlar hadya qilingan. Nurjahonning Ajmirda jogirlari bo‘lgan. 1617-yilda Xurramning Dekkandagi g‘alabasi sharafiga Todadan ham jogir berilgan. 1622-yilda otasi Etimod ud-davla vafotidan so‘ng, otasining barcha mol-mulki unga qoladi. Bundan tashqari, u Bengal va Butandan Iskandarobodga keladigan savdogarlardan boj olish huquqiga ham ega bo‘lgan [6].

## XULOSA

Xulosa qilib shuni aytishim mumkinki, Nurjahanbegimning murakkab, oz’ navbatida ziddiyatli hayot-faoliyati nafaqat Boburiylar imperiyasi, balki butun Sharq ayollarining siyosiy va madaniy hayotida o’ziga xos o’ringa ega. Uning siyosiy faoliyati va madaniy tashabbuslari bugungi kunda ham tarixchilar va tadqiqotchilar tomonidan katta qiziqish bilan o‘rganilmoqda. Nurjahonbegim o‘z davrining eng buyuk, ma’rifatli va ta’sirchan ayollaridan biri sifatida tarix sahifalarida abadiy nom qoldirgan.

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# THE HISTORY OF UZBEK NATIONAL SKULLCAPS AND THEIR MUSEUM EXHIBITION (A CASE STUDY OF THE STATE MUSEUM OF APPLIED ARTS AND HISTORY OF HANDICRAFT OF UZBEKISTAN)

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***Abstract:*** *This article provides information on the history and origin of the do'ppi, the Uzbek national skullcap. It also notes that these skullcaps are preserved in the museums of Uzbekistan and displayed in exhibitions. The article discusses the do'ppis in the collection of the State Museum of Applied Arts and Handicraft History of Uzbekistan and provides their descriptions.*

***Keywords:*** *museum, collection, skullcap, decoration, pattern, ribbon, applied art, exposition*

## INTRODUCTION

Looking at the history of the Uzbek skullcap, it can be seen that it is an ancient and enduring headwear among national traditional garments. Initially, the skullcap was popular among Turkic peoples and entered Russia in the 13th century. The first information about the skullcap dates back to the 4th century BC. In one of the relief images of a man carved into the rock of Behustun in 519 BC, it can be seen that the headgear is very similar to the shape of the current skullcap. Headwear resembling a skullcap is also found in Oriental miniatures from the 15th–16th centuries.

In museums, skullcaps worn by different peoples and regions from different periods are widely exhibited. National headwear is preserved and exhibited in museum collections. When placing a skullcap in a collection, demonstrating it, and describing it, each of its characteristics is studied separately and meticulously. For each characteristic, the author, if the author is unknown, full information about the period and school, full name,

comprehensive description, signatures, dates, inscriptions, material and technique used, size, and storage condition is recorded in the scientific registration book.

## MAIN PART

Currently, ancient and vibrant examples of applied art, which have risen to the level of high art, are preserved in the museums of our republic. The Decree "On the Radical Improvement and Improvement of Museum Activities" dated January 12, 1998, emphasizes the need to "further improve the system of museums established in the territory of Uzbekistan since ancient times, increase their role in the spiritual and moral development of the people, carefully preserve, study, enrich, present to the world, and popularize the unique exhibits stored in museum collections that reflect the rich history of our people and the steps of our independence, and widely use them to strengthen feelings of national pride, independence, and devotion to the Motherland in the minds of our people." It should be noted that the activities of museums in Uzbekistan are improving.

Especially in recent years, a number of works have been carried out to preserve and exhibit ethnographic and applied art objects in museums. In particular, in accordance with Cabinet of Ministers Resolution No. 975 dated December 11, 2017, a number of local history museums were transformed into regional museums of culture and history, changes were made to the names of some museums, and their activities were expanded. In particular, the "Museum of Applied Arts" in Tashkent was reorganized under the name "State Museum of the History of Applied Arts and Crafts of Uzbekistan."

Today, the museum's treasury houses priceless masterpieces of applied art created by master craftsmen, spanning the period from the first half of the 19th century to the present day. The works of folk applied art stored in the museum's treasury can be divided into three artistic groups:

First, these are works of applied art related to schools, created on the basis of ancient traditions, reflecting the uniqueness of each region;

Secondly, since the second half of the 20th century, folk masters have not lost their traditional style, developing it with their creative memory and enriching it with more artistic decoration.

The third group, based on the development of applied art today, consists of mature works decorated with colorful, diverse patterns that meet the requirements of modern art.

The objects collected in the museum's reserve are kept in collections of twenty titles and are exhibited in expositions of these types. More than 50 types of the most unique masterpieces of folk applied arts, which are an integral part of our national culture, are exhibited. The museum has a unique collection of skullcaps, one of the most popular and widespread types of folk applied art, from our national headwear.

Among the skullcaps kept in the museum collection, you can see wonderful examples of all schools, such as Fergana, Tashkent, Namangan, Shakhrisabz, Bukhara, Boysun, made by advanced masters of the XIX-XX centuries. In 1960, a Shahrisabz skullcap made with "Iroqi" stitches was included in the museum's exposition. The upper part of this soft type of skullcap is conical in shape, with patterns consisting of red, pink, and green floral and geometric shapes. A thin ribbon with a pattern is sewn onto the lower part of the skullcap. This type of "Iroqi" skullcap was widespread in Shahrisabz, later spread to other places, and began to be created in the unique decorative style of each local place. In this type of skullcap, the fabric is sewn with colored silk or fine-fiber cotton thread in an iraki stitch.

The best examples of Iroqi skullcaps are made by skullcap makers from Shakhrisabz and Kitab. Collections of Shahrisabz skullcaps sewn in the "Iroqi" stitch are also present in the museum's collection and are called "Laylo" skullcaps.

Among the rare collections preserved in the museum, the "Iroqi" skullcaps of Tashkent and Margilan, which are the largest and rarest, continue

to attract the attention of art enthusiasts. The unique Margilan skullcaps of the 20th century were hand-stitched using the "iraqi" stitch. It is decorated with flowers, plants, and geometric patterns on a light turquoise background. The general appearance of the patterns resembles a flower garden. Separated from the center by black stripes into four sectors. The lower part is bordered by a black velvet ribbon 1.5 cm wide.

Additionally, the museum will exhibit finely composed Andijan skullcaps. In these skullcaps, velvet is decorated with beads, piston beads, and delicate beads. The cap, made in 1950, has a dark red base and is decorated with white beads. The patterns formed the image of flowers. Artistically beautiful colors are also bright and shiny, and beaded flowers of white color make the skullcap even more shiny. The rim is embroidered with dark black velvet.

Another local group, the "Chust" skullcaps, holds a special place in skullcap weaving. In the "Tus döppi," i.e., the only classical version of Chust skullcaps, eight jewelry stitching styles are used: chain stitch, straight stitch, chita, kungura, yetalatma, comb, ova, and pilpilrak are considered the main stitches. Among the skullcaps on display in the museum are Chust skullcaps restored by hand in the 1960s-1980s. These skullcaps are embroidered with white silk on a black background. The patterns are embroidered in pepper and almond patterns. The lower part is covered with a circular black ribbon. Pepper and almond patterns have their own meanings.

Boysun skullcaps are also present in the museum and differ from skullcaps from other regions.

The Boysun men's skullcap kept in the museum was made in 1960. Its shape at first glance resembles the appearance of a rib. The upper part is conical in completion. A combination of several colors, such as yellow, green, and white, was used to sew the skullcap. When viewed from above, an eight-pointed star is visible in the center of the skullcap. In general, geometric shapes are clearly visible on the skullcap. To date, there are modern varieties of such skullcaps.

Bukhara gold-embroidered skullcaps are also one of the museum's unique collections. These skullcaps mainly date back to the 1940s-1960s. Bukhara skullcaps are decorated with gold threads. In the collection, we find skullcaps for brides, young girls, and boys. Their difference is in the cuffs on the skullcap, that is, in the lines around the skullcap. Black-striped skullcaps were worn by men. A geometrically patterned ribbon was sewn into the lower part, completing the composition.

## CONCLUSION

The skullcaps in the museum differ from each other in appearance, pattern styles, and harmony of artistic symbols. The natural conditions of each region, the environment, the way of life of the population and the historical development of local traditions, and the development of general culture had a great influence on the production of skullcaps. For example, the Surkhandarya and Kashkadarya (especially Baysun) skullcaps in the museum are made with round, dome-shaped threads that differ from each other, while the Bukhara skullcaps are made with gold threads.

In conclusion, it can be said that the skullcap, which is a part of our national dress, is regaining value in social life and rising to the level of art, which is undoubtedly a joyful event. Skillfully handmade skullcaps are widespread not only in our country but also abroad. skullcaps created by Uzbek embroiderers decorate museum exhibitions in Uzbekistan, as well as foreign ones.

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# "ONA TILI" FANI DARSLARIDA O‘QUVCHILARNING IJODIY FIKRLASH KO‘NIKMALARINI RIVOJLANTIRISH TEXNOLOGIYASI. (YUQORI SINFLAR MISOLIDA)

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***Annotatsiya:*** *Ushbu maqola "Ona tili" darslarida o'quvchilarning ijodiy fikrlash ko'nikmalarini rivojlantirishning dolzarb masalalariga bag'ishlangan. Unda yuqori sinf o'quvchilarining til o'rganish jarayonida ijodiy salohiyatini oshirishga qaratilgan samarali pedagogik texnologiya taklif etiladi. Maqolada ushbu texnologiyaning asosiy tamoyillari, bosqichlari va qo'llash usullari atroflicha yoritilgan. Taklif etilgan yondashuv o'quvchilarda mustaqil fikrlash, muammolarni ijodiy hal etish va nutq madaniyatini shakllantirishga xizmat qiladi. Natijada, o'quvchilarning "Ona tili" faniga bo'lgan qiziqishi ortib, ularning intellektual rivojlanishi ta'minlanadi.*

***Kalit so‘zlar:*** *Ona Tili, Ijodiy Fikrlash, Ko'nikmalarni Rivojlantirish, Pedagogik Texnologiya, Yuqori Sinf O'quvchilari, Til Ta'limi, Innovatsion Metodlar, Nutq Madaniyati*

***Abstract:*** *This article addresses the pressing issue of developing students' creative thinking skills in "Mother Tongue" (Uzbek language) lessons. It proposes an effective pedagogical technology aimed at enhancing the creative potential of high school students in the language learning process. The article thoroughly describes the main principles, stages, and application methods of this technology. The proposed approach contributes to fostering independent thinking, creative problem-solving, and speech culture among students. Consequently, students' interest in the "Mother Tongue" subject increases, ensuring their intellectual development.*

***Keywords:*** *Mother Tongue, Creative Thinking, Skills Development, Pedagogical Technology, High School Students, Language Education, Innovative Methods, Speech Culture*

***Аннотация:*** *Данная статья посвящена актуальным вопросам развития навыков творческого мышления учащихся на уроках "Родного языка" (узбекского языка). В ней предлагается эффективная педагогическая технология, направленная на повышение творческого потенциала старшеклассников в процессе изучения языка. В статье подробно описаны основные принципы, этапы и методы применения данной технологии. Предложенный подход способствует формированию у учащихся самостоятельного мышления, творческого решения проблем и культуры речи. В результате повышается интерес учащихся к предмету "Родной язык" и обеспечивается их интеллектуальное развитие.*

***Ключевые слова:*** *Родной Язык, Творческое Мышление, Развитие Навыков, Педагогическая Технология, Старшеклассники, Языковое Образование, Инновационные Методы, Культура Речи*

## KIRISH

Zamonaviy ta’lim tizimi o‘quvchilardan nafaqat ma’lumotlarni o‘zlashtirishni, balki ularni tahlil qilish, sintezlash va yangi g‘oyalar yaratish qobiliyatini ham talab etadi. Global raqobatbardoshlik va innovatsion iqtisodiyot sharoitida ijodiy fikrlash ko‘nikmalarini rivojlantirish har qanday ta’lim bosqichining ustuvor vazifalaridan biriga aylangan. O‘zbekiston Respublikasida ta’lim sohasida amalga oshirilayotgan islohotlar ham shaxsning har tomonlama kamol topishiga, jumladan, ijodiy salohiyatini yuzaga chiqarishga qaratilgan. Ona tili fani o‘quvchilarning ma’naviy-intellektual rivojlanishida, ularning dunyoqarashini kengaytirishda va ijodiy qobiliyatlarini shakllantirishda muhim ahamiyat kasb etadi [2]. Ona tilida aniq va ravon muloqot qilish qobiliyati bilan bir qatorda, ijodiy qobiliyatlarni rivojlantirish o‘quvchilarning umumiy dunyoqarashini kengaytirish uchun asosiy omil hisoblanadi.

Shu nuqtai nazardan, ona tili darslarida ijodiy fikrlash ko‘nikmalarini rivojlantirishga qaratilgan samarali pedagogik texnologiyalarni joriy etish dolzarb ahamiyatga ega. An’anaviy o‘qitish metodlari ko‘pincha grammatik qoidalar va adabiy matnlarni yod olishga urg‘u berib, o‘quvchilarning mustaqil fikrlash, o‘z g‘oyalarini erkin ifodalash va ijodiy yondashuvlarini cheklab qo‘yishi mumkin. Holbuki, ijodiy pedagogik yondashuvlarni integratsiyalash

o‘quvchilarning mustaqil va tanqidiy fikrlash qobiliyatiga sezilarli ta’sir ko‘rsatadi, ularga yangi g‘oyalarni shakllantirish va o‘z nuqtai nazarlarini cheklovlarsiz ifodalash imkoniyatini beradi [1]. Bu esa o‘quvchilarning akademik muvaffaqiyatini oshirish bilan birga, ularning kelajakdagi hayotiy ko‘nikmalarini ham rivojlantiradi.

Mazkur maqola "Ona tili" fani darslarida, xususan, yuqori sinflar misolida, o‘quvchilarning ijodiy fikrlash ko‘nikmalarini rivojlantirishga qaratilgan texnologiyalarni chuqur tahlil qilish va amaliy tavsiyalar ishlab chiqishni maqsad qilgan. Tadqiqot ona tili ta’limida ijodiy fikrlashni rivojlantirishning nazariy asoslari, mavjud holati va muammolarini o‘rganadi, shuningdek, zamonaviy pedagogik texnologiyalar va metodlarni qo‘llash bo‘yicha amaliy yechimlarni taklif etadi. Ushbu ish ona tili darslarida innovatsion yondashuvlarni joriy etish orqali o‘quvchilarning ijodiy salohiyatini to‘laqonli ro‘yobga chiqarishga ilmiy-metodik hissa qo‘shadi.

## MAVZUGA OID ADABIYOTLAR TAHLILI

So‘nggi yillarda ta’lim sohasidagi tadqiqotlarda o‘quvchilarning ijodiy fikrlash qobiliyatlarini rivojlantirish masalasi markaziy o‘rinni egallamoqda. Xususan, ona tili ta’limi jarayonida bu ko‘nikmalarni shakllantirishga qaratilgan ilmiy izlanishlar tobora ortib bormoqda. Zamonaviy pedagogika ijodiy fikrlashni shaxsning innovatsion g‘oyalarni yaratish, muammolarni nostandart yechish va o‘ziga xos yondashuvlarni ishlab chiqish qobiliyati sifatida baholaydi. Bu borada, ona tili darslarida ijodiy fikrlashni rivojlantirishning nazariy asoslari va amaliy mexanizmlari ko‘plab olimlar tomonidan o‘rganilgan. Masalan, ayrim tadqiqotlar ijodiy fikrlashning lingvistik asoslarini, ya’ni til vositalari orqali g‘oyalarni shakllantirish va ifodalash jarayonlarini tahlil qiladi [3]. Boshqa ishlar esa ijodiy fikrlashni rivojlantirishda tilning kognitiv funksiyalari, metafora va metonimiya kabi nutqiy figuralarning ahamiyatini ko‘rsatadi [4]. Ushbu yondashuvlar ijodiy fikrlashni nafaqat psixologik, balki lingvistik hodisa sifatida ham ko‘rib chiqish zarurligini ta’kidlaydi.

Ona tili ta’limida ijodiy fikrlashni rivojlantirishning pedagogik asoslari chuqur o‘rganilgan. Jumladan, boshlang‘ich sinflarda ona tili va o‘qish savodxonligi darslarida ijodiy fikrlashni shakllantirishning pedagogik asoslari, turli usullar, yondashuvlar va aniq texnikalar atroflicha yoritilgan [1]. Ushbu tadqiqotda ijodiy pedagogik yondashuvlarni integratsiyalashning chuqur ahamiyati, ularning o‘quvchilarning mustaqil va tanqidiy fikrlash qobiliyatiga sezilarli ta’siri batafsil ko‘rib chiqiladi. Garchi bu ish boshlang‘ich sinflarga qaratilgan bo‘lsa-da, unda ilgari surilgan ijodiy muhitni yaratish, o‘quvchilarga yangi g‘oyalarni shakllantirish va o‘z nuqtai nazarlarini cheklovlarsiz ifodalash imkoniyatini berish tamoyillari yuqori sinflar uchun ham universal ahamiyatga ega. Bu tamoyillar o‘quvchilarning akademik muvaffaqiyatini oshirish bilan birga, ularning kelajakdagi hayotiy ko‘nikmalarini ham rivojlantirishga xizmat qiladi.

Ona tili darslarining o‘quvchilarning ma’naviy-intellektual rivojlanishidagi o‘rni va ijodiy qobiliyatlarini shakllantirishdagi ahamiyati ko‘plab tadqiqotlarda alohida ta’kidlangan. Xususan, ona tili ta’limining shaxsning ma’naviy va intellektual rivojlanishiga ta’siri, ona tilida aniq va ravon muloqot qilish qobiliyati bilan bir qatorda, ijodiy qobiliyatlarni rivojlantirish o‘quvchilarning umumiy dunyoqarashini kengaytirish uchun asosiy omil ekanligi qayd etilgan [2]. Ushbu tadqiqot ona tili darslarini innovatsion fikrlash jarayonlarini rag‘batlantirish va og‘zaki nutq ko‘nikmalarini takomillashtirishga yo‘naltirilgan strategik metodologiyalar va pedagogik yondashuvlarni qo‘llash uchun asosiy mexanizm sifatida belgilaydi. Bu esa ona tili ta’limining nafaqat lingvistik bilim berish, balki kognitiv o‘sish va tasavvur ifodasini rivojlantirishdagi kompleks rolini ko‘rsatadi.

Adabiyotlar tahlili shuni ko‘rsatadiki, ona tili darslarida ijodiy fikrlashni rivojlantirish uchun turli pedagogik texnologiyalar va metodlar taklif etilgan. Bularga loyiha asosida o‘qitish, muammoli ta’lim, evristik suhbatlar, ijodiy yozma ishlar (esse, hikoya, she’r yozish), rolli o‘yinlar, munozaralar, aqliy

hujum (brainstorming) usuli, klaster, Venn diagrammasi kabi grafik tashkilotchilar, shuningdek, zamonaviy raqamli vositalardan foydalanish kiradi [5, 6]. Ayniqsa, so‘nggi yillarda raqamli hikoya yaratish (digital storytelling), interaktiv platformalar va multimedia resurslari orqali ijodiy fikrlashni rag‘batlantirishga qaratilgan tadqiqotlar dolzarb hisoblanadi [7]. Bu metodlar o‘quvchilarni passiv tinglovchidan faol ishtirokchiga aylantirib, ularning mustaqil fikrlash, tahlil qilish va sintez qilish qobiliyatlarini rivojlantiradi. Biroq, ko‘plab tadqiqotlar ushbu metodlarning umumiy samaradorligini o‘rgangan bo‘lsa-da, ularni yuqori sinflarda ona tili darslarining o‘ziga xos sharoitlarida qo‘llash bo‘yicha chuqur amaliy tavsiyalar va aniq misollar yetarli emas.

Shu bilan birga, ijodiy fikrlashni rivojlantirishga qaratilgan pedagogik yondashuvlarni amaliyotga joriy etishda bir qator muammolar mavjudligi ham adabiyotlarda qayd etilgan. Bularga o‘qituvchilarning ijodiy ta’lim metodologiyalari bo‘yicha yetarli malakaga ega emasligi, o‘quv dasturlarining an’anaviy yondashuvlarga moyilligi, ijodiy ishlarni baholashning murakkabligi va darsliklardagi ijodiy topshiriqlarning cheklanganligi kiradi [8]. Ayniqsa, yuqori sinflarda o‘quvchilarning imtihonlarga tayyorgarlik ko‘rish zaruriyati ko‘pincha ijodiy faoliyatga ajratiladigan vaqtni cheklab qo‘yadi. Mavjud adabiyotlar tahlili shuni ko‘rsatadiki, ona tili darslarida ijodiy fikrlashni rivojlantirishning nazariy asoslari va umumiy metodologiyalari yetarlicha o‘rganilgan bo‘lsa-da, yuqori sinf o‘quvchilarining yosh xususiyatlari va o‘quv dasturlari talablarini inobatga olgan holda, aniq texnologiyalar va ularni amaliyotga joriy etish bo‘yicha tizimli yechimlar, ayniqsa O‘zbekiston ta’lim tizimi kontekstida, hali to‘liq ishlab chiqilmagan. Mazkur tadqiqot aynan shu bo‘shliqni to‘ldirishga qaratilgan bo‘lib, mavjud ilmiy bilimlarni umumlashtirgan holda, yuqori sinflarda ona tili darslarida ijodiy fikrlash ko‘nikmalarini rivojlantirish bo‘yicha samarali va amaliyotga tatbiq etiladigan texnologiyalarni taklif etishni maqsad qilgan.

## TADQIQOT METODOLOGIYASI

Mazkur tadqiqot "Ona tili" fani darslarida o‘quvchilarning ijodiy fikrlash ko‘nikmalarini rivojlantirish texnologiyasini ishlab chiqishga qaratilgan bo‘lib, fundamental nazariy bilimlar va amaliy yechimlarni o‘zida mujassam etadi. Uning asosiy maqsadi ijodiy fikrlashning nazariy asoslarini chuqur tahlil qilish, ona tili ta’limidagi mavjud muammolarni aniqlash hamda yuqori sinflar uchun samarali pedagogik texnologiyalar va metodlarni taklif etishdan iborat. Tadqiqot sifatli (qualitative) yondashuvga asoslangan bo‘lib, mavjud ilmiy adabiyotlarni tanqidiy tahlil qilish, sintez qilish va umumlashtirish orqali yangi g‘oyalar va amaliy tavsiyalar ishlab chiqishga xizmat qiladi. U deskriptiv, analitik va normativ (tavsiyaviy) xarakterga ega bo‘lib, ona tili ta’limi amaliyotini takomillashtirishga yo‘naltirilgan.

Tadqiqot obyekti umumta’lim maktablarining yuqori sinflarida "Ona tili" fanini o‘qitish jarayoni hisoblanadi. Tadqiqot predmeti esa "Ona tili" darslarida o‘quvchilarning ijodiy fikrlash ko‘nikmalarini rivojlantirishga qaratilgan pedagogik texnologiyalar, interfaol metodlar va ularni ta’lim amaliyotiga joriy etish mexanizmlaridir. Ushbu ishda o‘quvchilarning yosh xususiyatlari, kognitiv rivojlanish darajasi va ona tili fanining o‘ziga xos didaktik imkoniyatlari alohida e’tiborga olinadi.

Birinchidan, nazariy tahlil metodi keng qo‘llanildi. Bu metod pedagogika, psixologiya, lingvistika va metodika sohalaridagi ilmiy adabiyotlarni, jumladan, ijodiy fikrlash nazariyasi, pedagogik texnologiyalar, ona tili ta’limi metodikasi bo‘yicha manbalarni chuqur o‘rganish va tanqidiy tahlil qilishni o‘z ichiga oldi. Xususan, ijodiy fikrlashning lingvistik asoslari, til vositalari orqali g‘oyalarni shakllantirish va ifodalash jarayonlari, shuningdek, tilning kognitiv funksiyalari, metafora va metonimiya kabi nutqiy figuralarning ijodiy fikrlashni rivojlantirishdagi ahamiyati atroflicha ko‘rib chiqildi. Bu jarayonda mahalliy va xorijiy olimlarning ijodiy fikrlashni rivojlantirishga oid yondashuvlari, jumladan, boshlang‘ich sinflarda ona tili va o‘qish savodxonligi darslarida ijodiy

fikrlashni shakllantirishning pedagogik asoslari [1] hamda ona tili darslari orqali o‘quvchilarning ijodiy sifatlarini rivojlantirish yo‘llari [2] bo‘yicha tadqiqotlar alohida e’tiborga olindi. Adabiyotlar tahlili ona tili darslarining o‘quvchilarning ma’naviy-intellektual rivojlanishidagi o‘rni va ijodiy qobiliyatlarini shakllantirishdagi ahamiyatini tasdiqladi [2].

Ikkinchidan, qiyosiy-tahliliy metod yordamida ona tili darslarida ijodiy fikrlashni rivojlantirishga qaratilgan turli pedagogik texnologiyalar va metodlar (masalan, loyiha asosida o‘qitish, muammoli ta’lim, evristik suhbatlar, ijodiy yozma ishlar, rolli o‘yinlar, munozaralar, aqliy hujum usuli, klaster, Venn diagrammasi, raqamli hikoya yaratish va boshqalar) qiyosiy tahlil qilindi. Bu tahlil ularning samaradorligi, afzalliklari va kamchiliklari, shuningdek, yuqori sinf o‘quvchilarining kognitiv ehtiyojlari va ona tili fanining o‘quv dasturlari talablariga mosligini baholash imkonini berdi.

Uchinchidan, sintez va umumlashtirish metodlari tahlil qilingan ma’lumotlar asosida ijodiy fikrlashni rivojlantirishning samarali texnologiyalarini birlashtirish, ularning umumiy tamoyillarini va ona tili darslariga tatbiq etish imkoniyatlarini umumlashtirish uchun qo‘llanildi. Bu metodlar orqali turli yondashuvlarning eng maqbul jihatlari ajratib olindi va yagona, yaxlit texnologik yechimlar tizimiga integratsiyalashtirildi.

To‘rtinchidan, sistematizatsiya va tasniflash metodlari aniq ijodiy fikrlash ko‘nikmalarini rivojlantirishga xizmat qiluvchi pedagogik texnologiyalarni tizimlashtirish va ularni ona tili darslarining turli bosqichlarida (masalan, yangi mavzuni o‘rganish, mustahkamlash, baholash) qo‘llash bo‘yicha tasniflash uchun xizmat qildi. Bu, o‘qituvchilar uchun amaliy qo‘llanma yaratishda muhim ahamiyat kasb etdi.

Beshinchidan, pedagogik modellashtirish metodi ona tili darslarida ijodiy fikrlashni rivojlantirishga qaratilgan texnologik modelni ishlab chiqish va uning komponentlarini asoslashda qo‘llanildi. Ushbu model yuqori sinf o‘quvchilarining kognitiv va ijodiy salohiyatini maksimal darajada oshirishga

qaratilgan bo‘lib, o‘quv jarayonining har bir bosqichida ijodiy faoliyatni rag‘batlantirishni nazarda tutadi.

Oltinchidan, prognostiklash metodi taklif etilayotgan texnologiyalarning kelajakdagi ta’lim jarayoniga ta’sirini, ularni yanada takomillashtirish yo‘nalishlarini va ijodiy fikrlash ko‘nikmalarini rivojlantirish istiqbollarini bashorat qilish uchun ishlatildi. Bu, tadqiqot natijalarining uzoq muddatli ahamiyatini belgilashga yordam berdi.

Birinchi bosqich (muammoli-tahliliy): Bu bosqichda tadqiqot muammosining dolzarbligi asoslandi, mavzu bo‘yicha mavjud ilmiy adabiyotlar chuqur o‘rganildi, ona tili ta’limida ijodiy fikrlashni rivojlantirishning nazariy asoslari tahlil qilindi va amaliyotdagi mavjud muammolar aniqlandi.

Ikkinchi bosqich (metodologik-ishlab chiqish): Ushbu bosqichda ijodiy fikrlashni rivojlantirishga qaratilgan pedagogik texnologiyalar va interfaol metodlar tanlab olindi, ularni yuqori sinflar uchun moslashtirish ishlari amalga oshirildi. Natijada, amaliy tavsiyalar, didaktik materiallar va dars ishlanmalari ishlab chiqildi.

Uchinchi bosqich (umumlashtiruvchi-tavsiyaviy): Yakuniy bosqichda ishlab chiqilgan texnologiyalar tizimlashtirildi, ularni amaliyotga joriy etish bo‘yicha yakuniy tavsiyalar berildi, tadqiqot natijalari umumlashtirildi va ilmiy xulosalar shakllantirildi.

Tadqiqotning ilmiy yangiligi ona tili darslarida ijodiy fikrlashni rivojlantirishga qaratilgan texnologiyalarni yuqori sinflar misolida O‘zbekiston ta’lim tizimi kontekstida tizimli ravishda ishlab chiqish va asoslashdan iborat. Mavjud adabiyotlar tahlili shuni ko‘rsatdiki, ona tili darslarida ijodiy fikrlashni rivojlantirishning nazariy asoslari va umumiy metodologiyalari yetarlicha o‘rganilgan bo‘lsa-da, yuqori sinf o‘quvchilarining yosh xususiyatlari va o‘quv dasturlari talablarini inobatga olgan holda, aniq texnologiyalar va ularni amaliyotga joriy etish bo‘yicha tizimli yechimlar, ayniqsa O‘zbekiston ta’lim

tizimi kontekstida, hali to‘liq ishlab chiqilmagan. Mazkur tadqiqot aynan shu bo‘shliqni to‘ldirishga qaratilgan.

Tadqiqotning amaliy ahamiyati esa ishlab chiqilgan texnologiyalar, metodlar va tavsiyalarning ona tili o‘qituvchilari tomonidan bevosita o‘quv jarayoniga tatbiq etilishi, o‘quvchilarning ijodiy fikrlash ko‘nikmalarini samarali rivojlantirishga xizmat qilishi bilan belgilanadi. Bu esa o‘quvchilarning nafaqat akademik ko‘rsatkichlarini oshirish, balki ularning kelajakdagi kasbiy faoliyatida va shaxsiy hayotida muvaffaqiyatga erishishlari uchun zarur bo‘lgan innovatsion va nostandart fikrlash qobiliyatlarini shakllantirishga yordam beradi.

## XULOSA

Ushbu maqolada "Ona tili" darslarida yuqori sinf o‘quvchilarining ijodiy fikrlash ko‘nikmalarini rivojlantirishning nazariy asoslari chuqur tahlil etilib, amaliyotdagi dolzarb muammolar aniqlandi. Tadqiqot natijasida, O‘zbekiston ta’lim tizimi kontekstida, an’anaviy yondashuvlardan farqli o‘laroq, zamonaviy pedagogik texnologiyalar va interfaol metodlarni integratsiyalashga asoslangan tizimli yechimlar taklif etildi. Ishlab chiqilgan texnologiyalar o‘quvchilarda mustaqil, tanqidiy va innovatsion fikrlashni shakllantirishga qaratilgan bo‘lib, ularning akademik muvaffaqiyatini oshirish bilan birga, kelajakdagi hayotiy va kasbiy faoliyatida zarur bo‘lgan ijodiy salohiyatni to‘laqonli ro‘yobga chiqarishga xizmat qiladi. Ushbu ish ona tili ta’limida innovatsion yondashuvlarni joriy etish orqali o‘quvchilarning ijodiy salohiyatini to‘laqonli ro‘yobga chiqarishga ilmiy-metodik hissa qo‘shadi.

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# “QO‘SHNAY” CHOLG‘U IJROCHILIGIDA INNOVATSION USLUBLAR

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*“Xalq cholg’ularida ijrochilik” kafedrasi o‘qituvchisi*

***Аннотация:*** *Человеческая жизнь всегда была тесно связана с музыкой. духовые инструменты тоже очень старые, то есть это первые музыкальные инструменты. Один из таких инструментов - Кошнай, звук которого близок сердцу, в сознании слушателей своей национальной мелодией. Эта статья о старинном узбекском национальном инструменте «Кошнай». С развитием аппликации, которая позволяла использовать хроматическую гамму и определять определенный диапазон на кошнае, возникла необходимость в предоставлении обучения игре на кошнае в консерватории. Стиль «Growl» использовался в джазовом мире, и та же техника была использована на инструменте кошнае в «I Feel Good» Джеймса Брауна.*

***Ключевые слова:*** *Духовность, музыкальный инструмент, диапазон, оркестр, инструменталисты, мелодия, гомофоническая музыка, ансамбль, стаккато*

***Abstract:*** *Human life has always been closely associated with music. wind instruments are also very old, that is, they are the first musical instruments. One of such instruments is Koshnai, the sound of which is close to the heart, in the minds of listeners with its national melody. This article is about the ancient Uzbek national instrument "Koshnai”. With the development of an appliqué that allowed the use of the chromatic scale and the identification of a specific range on the koshnay, the need arose to provide koshnay training at the conservatory. The "Growl" style was used in the jazz world, and the same technique was used on the koshnai instrument in James Brown's "I Feel Good".*

***Keywords:*** *Spirituality, musical instrument, diapason, orchestra, instrumentalists, melody, homophonic music, ensemble, staccato*

## “Qo‘shnay” cholg‘u ijrochiligida innovatsion uslublar

Yoshlarning e’tiborini faqat zamonaviy estrada emas, shu bilan birga milliy va an’anaviy, mumtoz qo‘shiqlarni kuylash, tinglash, o‘rganishga qaratish lozim. Zamonaviy badiiy madaniyatda esa milliy cholg‘u “Qo‘shnay cholg‘usining o‘rni va tarixi, texnik xususiyatlari va ijrochilarning mahoratlari

dunyo tan olishi bu Qo‘shnay cholg‘usi ijrochilariga birdek muhim va ahamiyatlidir. Musiqiy cholg‘ular insoniyat ma’naviyatini, turmush tarzini, ichki kechinmalarini ohanglar orqali nafaqat insoniyatga balki jamiiyki tirik jon va mavjudodlarga yetkazib beruvchi vosita hisoblanadi. Hatto o‘simliklar musiqa ta’sirida yuksak rivojlanishini biolog olimlar ta’kidlashmoqda. Bu mo‘jizaviy va ifodaviy cholg‘ular azal-azaldan omma orasida shakllanib, mohir cholg‘u ustalari tomonidan yasalib, tobora mukammallashmoqda. Xar bir xalqning cholg‘ularida o‘sha xalqning milliy g‘ururi, urf-odatlari an’anasi, qadriyatlari o‘z ifodasini topgan va ulardan taralayotgan ohanglarda buni his etish mumkin. Qadimdan musiqa cholg‘ulariga bo‘lgan etibor kuchli bo‘lishi bilan bir qatorda uning tarbiyaviy ahamiyatigaham alohida e’tibor berilgan. Zero, har bir komil inson tarbiyasida musiqa eng muhim orin tutadi, ya’ni insonlarni ruhiy hamda ma’naviy tarbiyasiga asos bo‘la oladigan omil sifatida qaraladi.

Odamzod hayoti azaldan musiqa bilan chambarchas bog‘liq. Damli cholg‘ular ham juda qadimgi ya’ni birinchi ohang taratuvchi musiqa cholg’ularidan hisoblanadi. Bu cholg‘ulardan biri, qo‘shnay cholg‘usi bo‘lib, ovozi qalbga yaqin, eshituvchilarning ongida o‘zining milliy ohangi bilan qalblardan joy olgan. Qo‘shnay cholg‘usi choponlar cholg‘usi hisoblanib ularning eng yaqin hamrohi hisoblangan . Har bir cholg‘u sodda ko‘rinishi oddiy odamlar tomonidan, keyinchalik sozandalarning tomonidan takomillashtirilishi natijasida nisbatan yangi ko‘rinish hamda mukammal cholg‘ular paydo bo‘ladi. Qo‘shnay ham sibizg‘a(**Sibizg**‘a, sibiziq, cho‘pon nay – tilchalipuflama o‘zbek xalq musiqa cholg‘u asbobi. Hozirda, asosan, cho‘ponlar orasida tarqalgan. Qamishdan yasaladi. Diametri, odatda, 5—6 mm, uz. 140—150 mm bo‘ladi. Ustki tomonida, puflanadigan uchining 10—15 mm pastrogida tilchasi, undan quyida uchta teshikchasi bo‘ladi. Diapazoni, odatda, seksta. Sibizg‘ada ko‘proq oddiy cholg‘u mashqlar, xalq qo‘shiqlari kuylari chalinadi) cholg‘usining takomillashi natijasida paydo bo‘lgan musiqa cholg‘usidir.

Cho‘ponlar qamishdan yasalgan bu cholg‘ularda o‘tlab yurgan poda, suvurlarni boshqarishgan.

O‘zbekistonda damli cholg‘ular tarixi uzoq o‘tmish borib taqaladi. “Qadimgi Farg‘ona sirlari” (Fan va turmush” jurnali, 1989-yil 1-soni) maqolada eramizning V-VII asrlarida yashagan farg‘onaliklar saga‘nalari topilganligi va u yerda qamishdan yasalgan qo‘shnay musiqa cholg‘usi ham borligi aniqlangan.

Toshkent, Farg‘ona, Buxoro, Surxandaryo, Xorazm va boshqa hududlarda qo‘shnay musiqa cholg‘u ustoz shogird an’analari saqlangan holda o‘tib kelmoqda. Qadimiy Xorazmda eramizdan oldingi V-VI asrlarda boy va taraqqiy topgan musiqa madaniyati yuzaga kelgan va tasviriy san’at maunalarida keltirilgan misiqiy sozlar orasida damli cholg‘u mavjud bo‘lganligini arxeologlar kashfiyotida ko‘rishimiz mumkin.

Qo‘shnayning paydo bo’lish tarixi ham uzoq o’tmishga borib taqaladi. Qo‘shnayning ilk namunalari to‘g‘risida Al-Forobiy o‘zining musiqiy risolasida ta’riflab o‘tgan. Qo‘shnay iborasi, fors tilidan olingan bo‘lib, qo‘sh-juft yoki ikki nay degan ma’noni bildiradi. Qo‘shnay musiqa cholg‘usini yakka tartibda, ansambl jo‘rligida va orkestr jo‘rligida ijro etadilar.

Qo‘shnay cholg‘usida xalq bayramlari, marosimlar, shodiyona kunlarida foydalanadilar. Qo‘shnay damli cholg‘ular orasi nafaqat ohangi bilan balki ijro etish murakkabligi bilan ajralib turadi. Bu cholg‘u faqat O‘zbekiston hududida emas, bizning qo‘shni davlatlarimiz bo‘lmish Tojikiston hamda Turkmaniston davlatlari ham mavjud. Ularning tuzilishi va ijro qilish holatlarida deyarli farq qilmaydi. Hozirda Toshkent, Xorazm, Farg‘ona, Samarqand, Qashqadaryo, Surxandaryo, Buxoro, Navoiy va boshqa viloyatlarda ustoz shogird an’analariga tayangan holda maktab, kasb-hunar kollejlari va oliy o‘quv yurtlarida o‘rgatilib kelinmoqda.

Hozirgi kunda cholg‘uning yangi bosqichga rivojlanish davri ketmoqda desam adashmagan bo‘laman. So‘z isboti bilan cholg‘uda ijro etib kelinayotgan va qo‘shnay uchun maxsus yaratilayotgan asarlar misolida ko‘rishimiz mumkin.

Tobora cholg‘uni xalq va ijrochilar orasida rivojlanayotgani quvonchli holat va bu cholg‘uning yanada ko‘proq yashashi uchun xizmat qiladi. Repertuar haqida so‘z olib borsak, cholg‘uda turli millat kuylari va ko‘plab janrlardagi asarni ijro qilinmoqda. Bular misolida Turk, Ozar, Arab, Koreys, Xitoy, janrlardan esa - jazz, klassika, zamonaviy musiqa, milliy estrada asarlari sekin astalik bilan qo‘shnay ijrochilari orasida mukammal ijro darajasiga olib chiqilmoqda. Ayniqsa 1946-yilga Coleman Randolph Hawkins (November 21, 1904 – May 19, 1969) tomonidan qo‘llangan **“growl”** uslubi jazz olamida o‘zgacha ko‘rinish berdi va shu usul qo‘shnay cholg‘usida James Brownning “I feel good” asarida qo‘llab ko‘rildi, tomoshabinlar orasida olqishlarga sazovor bo‘ldi.

Qo’shnay cholg‘usidagi tovushlarning hosil bo‘lish manbai o‘pkadan chiqadigan havo (nafas) dir, o‘pka havoni yuborib turadi, chiqqan havo (nafas) ikkita bronx va traxeya orqali o‘tadi. Chiqib kelayotgan nafasni tovush hosil qiluvchi holatga keltirishda qorin bilan ko‘krak qafasini ajratib turuvchi parda (diafragma) xizmat qiladi. Chiqayotgan jarang (ovoz), tovush naychalarining tebranishi natijasida yuzaga keladi. Tovush hosil qilishda nafas asosiy vositalardan hisoblanadi. Nafas olish uch turga bo‘linadi:

Tovushning balandligi – tovush naychalarining uzunligi, tarangligi va tebranish miqdoriga bog‘liq. Tebranish qancha ko‘p bo‘lsa, tovush shunchalik baland bo‘ladi, tovush naychalari qancha nozik bo‘lsa, u shuncha tez tebranadi, natijada tovush baland chiqadi. Tovushni paydo qiluvchi va kuchaytiruvchi vositalardan biri – rezonator (kuchaytirilgan ohang-tovushni kuchaytirib beruvchi moslama) deb ataladi. Tovush tembrining hosil bo‘lishida yuqori rezonator – og‘iz, burun bo‘shliqlari juda muhimdir, bunda til asosiy o‘rinni egallaydi.

Inson organizmining o‘sishida jismoniy mashqlar va nafas apparatining ahamiyati haqida so‘z yuritganda – “ijro nafasi” faqat ijro jarayoni natijasida rivojlanishini nazarda tutish kerak. Har qanday mashqlarni cholg‘usiz bajarilishi nafasni tashkil etishda o‘quvchiga hech qanday naf keltirmaydi. Nafas

chiqarishning ijro sifati - eshitish qobiliyati orqali nazorat etiladi, tovushni uqib olish shunday nafas chiqarishning natijasidir. Pedagogik amaliyotda gammalarni sekin sur'atda turli nyuanslar (tovush ohangdoshligi) bilan ijro etib foydalanish maqsadga muvofiqdir. Ayrim ijrochilar nafas chiqarayotgan paytda, havoning bir qismi burundan chiqib ketishi natijasida tovush bo'linib ketadi va ma'lum miqdorda *tovush tusi - tembr sifatini yo'qotadi*. Bunday kamchilik har doim bo'lmasada uchrab turadi.

**Nafas** – musiqiy ta'sir kuchining eng asosiy vositalaridan biridir. Ijrochida nafas qanchalik rivojlangan bo'lsa, tovush ohangdoshligi (nyuans) ham shunchalik xilma-xil bo'ladi. Lekin nafas olishda ijroning dinamik tomonlari tovush sifatigagina bog'liq emas, nafas yordami bilan musiqiy jumlalar bir-biridan ajratiladi. Nafasning tez-tez almashib turishi ba'zan hayajonlanishga olib keladi, natijada kuchli qisqa musiqiy jumlalar ifodalanishga sabab bo'lishi mumkin.

Qo'shnay ijrochiligini ustoz-shogird an'analariga tayangan holda andijonlik ustoz, O'zbekistonda xizmat ko'rtsatgan artist Ashurali Yusupov, toshkentlik Xayrullo Ubaydullayev, Adbuqayum Azimov, G'aybulla Ubaydullayev, Narzullo Ne'matov, Bahrom Sobirovlar, xorazmlik ustoz Quranboy Bobojonovlar ko'plab shogirdlarni yetqazib berganlar.

O'zbek ijrochilik amaliyotida qo'shnay ijrochilari unchalik ko'p bo'lmagan. Lekin Ahmadjon Umrzoqov (Farg'ona vodiysi) va uning shogirdi Quronboy Boboxonov (Xorazm) kabi ustoz va mohir san'atkorlar xalq orasida nom chiqargan qo'shnaychilardir.

Ayni paytda Yo'ldosh Tojiyev, Matrasul Matyoqubov, Saddin Saddinov, Olim Xudoyberganov, Ikrom Matanov, Nasriddin Ro'ziyev, Hamro Matnazarov kabi bir qator ijrochilar qo'shnay ijrochilik san'atini mohirona davom ettirib kelmoqdalar.

XIX asr boshlarida o'zbek xalq cholg'u ansambllari tarkibiga g'ijjak, tanbur, dutor, chang, rubob, nay, qo'shnay, va doyralar kiritilgan. 1926 yilda

tuzilgan 21 ijrochidan iborat bo‘lgan truppani atoqli Davlat arbobi Muhiddin Qoriyoqubov tuzgan va bevosita unga rahbarlik qilgan. Truppada Ahmadjon Umurzoqov qo’shnay chalgan.

Qo‘shnayda xromatik tovush qatordan foydalanish va muayyan diapozonni aniqlash imkonini beradigan aplikatura ishlab chiqilishi bilan konservatoriyada qo‘shnay ixtisosligi bo‘yicha ta‘lim berish zarurati tug‘ildi.

Toshkent Davlat konservatoriyasida 1948 yil qo‘shnay sinfi ochilgan bo‘lib, uning ilk bor bitiruvchilari N.Nig‘matov va K.Odilovlar bo‘lganlar.

1970 yildan boshlab qo‘shnay sinfini avval A.Odilov (changchi) boshqardi, keyinchalik esa M.Toyirov (naychi) boshqarib kelganlar.

Hozirgi kunda qo‘shnay cholg‘usi tobora ommalashib bormoqda. Ayniqsa ansambl va ko‘plab orkestrlar tarkibida qo‘shnay cholg‘usi borligi albatta quvonarli hol. Bulardan “So‘g‘diyona” xalq cholg‘ulari kamer orkestri, To‘xtasin Jalilov nomidagi O‘zbekiston Davlat Akademik xalq cholg‘ulari orkestri, Yunus Rajabiy nomidagi maqom ansambli va boshqa jamoalar tarkibida qo‘shnay cholg‘usi mavjud. Shu o‘rinda “So‘g‘diyona” xalq cholg‘ulari kamer orkestrida o‘z faoliyatini olib borayotgan, hayotining deyarli 40 yilini shu cholg‘u uchun baxshida etgan ajoyib ijrochi Nasriddin Ro‘ziyev yangi kuylar yaratib kelmoqdalar.

O‘zbekiston taxiri o‘z ichiga juda chuqur va yirik shaklda ma‘lumotlarni oladi. Tarixdan turli xil kasblar rivojlanishi bilan bir qatorda juda turli xil musiqa cholg‘ulariga va boy madaniyatga ega bo‘lgan musiqa san’ati ham rivojlanib kelgan. O’zbek xalqi orasida jozibador ovozi orqali keng tarqalgan, milliy damli cholg‘ulardan nay, qo‘shnay, surnay kabi musiqa cholg‘ular azaldan keng o‘rin egallab kelgan. So‘ngi yillarda o‘zbek xalqining qadimiy cholg‘ularidan qo‘shnay va bulamon kabi milliy cholg‘ularini targ‘ib qilish va uni mukammal o‘rganish muhim ahamiyat kasb etmoqda. Chunki bu cholg‘u ko‘rinishi jihatidan sodda ko‘rinsada, ijro etish borasida boshqa sozlarga qaraganda anchagina murakkab soz hisoblanadi. Bunga asosiy sabab cholg‘u tilchali bo‘lib, ikkita

nayni qo‘shib chalish katta mashaqqiyat talab etadi. Cholg‘u soziga ahamiyat berish bilan bir qatorda, havo bosimini muntazam ravishda boshqarish kerak, aks holda ikki nay bir biriga qo‘shilmaydi. Cholg‘uning biror bir aniq o‘lchami yo‘q, ya’ni cholg‘uni yasash jaroyonida cholg‘u uzunligi va dastani qalin ingichkaligi, har bir ijro teshigining oralig‘i ma’lum bir o‘lchovga ega emas. O‘z o‘zidan savol tug‘ilishi mumkinki bularni hammasi cholg‘uning sozlanishiga tasir qiladi. Cholg‘uchi mukammal eshitish qobiliyatiga ega bo‘lishi lozim chunki xar bir tovush baland pastligi eshitilgan holda lab orqali olinadi. Cholg‘u dastasining uzun kalta, ingichka yoki yo‘g‘on bolishi bevosita cholg‘u ovoziga tasir ko‘rtasadi. Ingichka dastali cholg‘u kam nafas hamda nisbatan eshitish jihatidan ingichkaroq(keskinroq) eshitiladi. Qalin dastali cholg‘u esa havoni ko‘proq talab qiladi ya’ni ko‘p nafas bo‘lib, eshitilish jihatidan ovozi nisbatan biroz yo‘g‘onroq(mayinroq) bo‘ladi. Qo‘shnay sozini cholg‘uchi o‘ziga moslashtirib(qamishlarni axta qilib) olmagunicha biroz qiyinchilikka uchraydi. Yangi yasalgan cholg‘u har kuni ijro etish kerak bo‘ladi. Chunki cholg‘u qancha ko‘p ijro etilgani sari issiq havo oqimi ichiga kirib qamish ichi terlaydi va qamish axta bo‘la boshlaydi. Qamishning ichi terlashi natijasida uning tili yumshaydi va milliy melizmlarni ya’ni nola qilish uchun sekin astalik bilan mukammal darajada yetilib boradi. Shunday holatlar ham boladiki cholg‘uni issiq yoki iliq suvga solib qamishni tezroq axta qilish(yetiltirish) ham mumkin, ammo cholg‘uni ijro qilib axta qilgan maqsadga muvofiq bo‘ladi. Sababi tabiiy havo bosimi bilan cholg‘u ichi sekin astalik bilan sifatli yetiladi. Qo‘shnay cholg‘usida milliylik bilinib turadi va ko‘proq milliy kuylarni ijro qilish qulay. Albatta cholg‘uda boshqa xalqlar hamda akademik asarlarni ham ijro qilsa boladi. Lekin buning uchun ma’lum bir mashqlar; uzun nota cho‘zish, tovush sifati ustida alohida ishlash, **staccato** shtrixida ko‘proq mashqlar va yana bir qancha usullarda qilish kerak bo‘ladi.

Qo‘shnayning tuzilishiga kelsak: ikki qamish naychadan iborat bo‘lib, ulargamaxsus tilcha o‘rnatiladi. Qo‘shnayni chalish uchun ikkita naychaga bir

xil puflanadi va har ikkala naychada yondosh joylashgan yettita teshikchaning tegishlilari barmoq bilan bosiladi. Ovoz hajmi birinchi oktavadagi ***re*** dan ikkinchi oktavadagi ***sol*** gacha (ayrim mashhur qo‘shnaychilar ikkinchi oktava ***lya, si*** hatto bundan ham yuqori tovushlar hosil qiladilar). Qo‘shnayda o‘zbek musiqasi uchun xos bo‘lgan musiqiy bezaklar (melizmlar) ni chalish juda qulaydir. Qo‘shnayda kuy ijro etuvchi sozandani xalq orasida **«Qo‘shnaychi»** deb yuritiladi.

O‘zbekistonda mashhur qo‘shnaychilardan Ahmadjon Umurzoqov, Ashurali Yusupov, Matrasul Matyoqubov (1958 yil tug‘ilgan Urgench musiqa bilim yurtida o‘qituvchi, ikkinchi respublika maqom ijrochilari konkursining sovrundori birinchi mukofot), Bahrom Sobirov (1945 yil tug‘ilgan «Bahor» ansamblining sozandasi) Yo‘ldosh Tojiyev (1960 yil) Urganchda o‘qituvchi va boshqalar.

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# RAQAMLI DALILLARNI SUD-EKSPERTIZA TEKSHIRUVIGA TAQDIM ETISHNING PROTSESSUAL-HUQUQIY MEXANIZMLARI: NAZARIYA VA AMALIYOT

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***Annotation:*** *This article provides a theoretical and practical analysis of the procedural and legal mechanisms for submitting digital evidence for forensic examination. The author identifies normative gaps in the current legislation of the Republic of Uzbekistan, systematizes procedural problems that arise during the formalization of digital evidence, and puts forward specific proposals for improving legislation based on international standards (ISO/IEC 27037, NIST SP 800-86) and the experience of foreign countries (Germany, Estonia, USA, Kazakhstan). Specifically, the article examines the features that distinguish digital evidence from traditional physical evidence, as well as the issues of legally consolidating hash-sums, write-blocker technologies, and the chain of custody principle. Within the framework of the criminal procedure legislation of the Republic of Uzbekistan, the article also analyzes current legal issues regarding the procedural formalization of objects of examination in forensic expertise*[18].

***Keywords:*** *digital evidence, digital trace, digital object, digital forensics, procedural mechanism, forensic examination, electronic evidence*

***Аннотация:*** *В настоящей статье проводится теоретический и практический анализ процессуально-правовых механизмов представления цифровых доказательств на судебную экспертизу. Автор выявляет нормативные пробелы в действующем законодательстве Республики Узбекистан, систематизирует процессуальные проблемы, возникающие при оформлении цифровых доказательств, и на основе международных стандартов (ISO/IEC 27037, NIST SP 800-86) и опыта зарубежных стран (Германии, Эстонии, США, Казахстана) выдвигает конкретные предложения по совершенствованию законодательства. В статье, в частности, рассматриваются особенности, отличающие цифровое доказательство от традиционного*

[18] ISO/IEC 27037 [10] standarti raqamli dalillarni aniqlash, to'plash va saqlash bo'yicha asosiy mezonlarni belgilaydi

*вещественного доказательства, а также вопросы законодательного закрепления хеш-суммы, технологий блокировки записи (write-blocker) и принципа непрерывности владения (chain of custody). Анализируются актуальные правовые проблемы процессуального оформления объектов исследования в судебной экспертизе в рамках уголовно-процессуального законодательства Республики Узбекистан.*

***Ключевые слова:*** *цифровое доказательство, цифровой след, цифровой объект, цифровая криминалистика, процессуальный механизм, судебно-экспертное исследование, электронное доказательство*

***Annotatsiya:*** *Ushbu maqolada raqamli dalillarni sud-ekspertiza tekshiruviga taqdim etishning protsessual-huquqiy mexanizmlari nazariy va amaliy jihatdan tahlil qilinadi. Muallif O‘zbekiston Respublikasi amaldagi qonunchiligidagi normativ bo‘shliqlarni aniqlaydi, raqamli dalillarni rasmiylashtirish jarayonida yuzaga keladigan protsessual muammolarni tizimlashtiradi hamda xalqaro standartlar (ISO/IEC 27037, NIST SP 800-86) va xorijiy davlatlar tajribasi (Germaniya, Estoniya, AQSh, Qozog‘iston) asosida qonunchilikni takomillashtirish bo‘yicha konkret takliflar ilgari suradi. Maqolada, xususan, raqamli dalilni an'anaviy ashyoviy dalildan farqlovchi xususiyatlar, xesh-summa, write-blocker texnologiyalari va zanjirli saqlash (chain of custody) tamoyilini qonuniy mustahkamlash masalalari ko‘rib chiqiladi. O‘zbekiston Respublikasi jinoyat-protsessual qonunchiligi doirasida sud ekspertizasida tekshiruv obyektlarini protsessual jihatdan rasmiylashtirishning dolzarb huquqiy muammolari tahlil qilinadi*

***Kalit so‘zlar:*** *raqamli dalil, raqamli iz, raqamli obyekt, raqamli kriminalistika, protsessual mexanizm, sud-ekspertiza tekshiruvi, sud-ekspertiza tekshiruvi, elektron dalil.*

## INTRADUCTION

The rapid development of digital technologies has fundamentally increased the importance of digital evidence at all stages of criminal proceedings. Today, computer files, SMS messages, social media posts, email, and other digital data serve as crucial evidence in a large portion of criminal cases. However, the lawful and procedurally correct submission of this evidence for forensic examination is creating numerous problems in practice.

The amendments and additions to Article $204^2$ of the Criminal Procedure Code of the Republic of Uzbekistan, introduced on November 21, 2024, are aimed at improving the system for handling digital evidence. However, a specific

procedural mechanism for submitting digital evidence for forensic examination has not yet been adequately developed. This negatively impacts the quality of expert conclusions and the reliability of the evidence base[19].

The urgency of this issue lies in the fact that digital evidence is fundamentally different from traditional physical evidence: it can be easily copied, modified, or destroyed, and traces of alteration are often invisible. Therefore, special technical requirements—such as hash sums, write-blockers, and audit logs—as well as procedural guarantees are necessary to properly document it.

In forensic science, the proper formalization of examination objects is one of the key factors determining the legal force of an expert's conclusion. An analysis of practice shows that in the majority of cases where an expert's opinion is rejected by the court or a re-examination is ordered, deficiencies in the formalization of the objects are cited as the primary reason. The purpose of this article is to theoretically and practically analyze the procedural and legal mechanisms for submitting digital evidence for forensic examination, identify existing regulatory gaps, and develop proposals to improve the legislation of Uzbekistan based on international standards.

The role of digital evidence in criminal proceedings has been extensively studied in foreign academic literature. S.Y. Skobelin notes that electronic devices (phones, smartphones, computers, payment systems) are actively used to commit crimes. The sequence of actions performed using these devices is often saved on them, which makes these digital traces an important source of evidence[20].

E.R. Rossinskaya identifies two main directions for the digitalization of forensic activities: first, the use of modern information technologies to solve various forensic tasks; second, the study of new objects of expert examination,

[19] O‘zbekiston Respublikasining Jinoyat-protsessual kodeksi https://lex.uz/docs/-111460
[20] Skobelin S.Yu. Tsifrovye dokazatelstva v ugolovnom protsesse. — M.: Yurlitinform, 2021. — 224 s. / Скобелин, С.Ю. Цифровые доказательства в уголовном процессе. — М.: Юрлитинформ, 2021. — 224 с.

which represent information of forensic significance recorded in digital form on electronic media.

O.V. Flerov describes digital footprints as a reflection of a person's life and personality: based on them, it is possible to determine a user's interests, social status, and even their level of intellectual development. A.A. Bessonov, on the other hand, defines electronic traces as digitally recorded information that is causally linked to a criminal event and allows for the identification of the perpetrator[21].

Digital evidence is distinguished from traditional physical evidence by a number of key characteristics. These differences necessitate special procedural mechanisms when they are submitted for forensic examination.

1. It can be easily copied; an unlimited number of copies can be made from digital evidence, and a copy is technically indistinguishable from the original. 2. Easily alterable; the content, metadata, or file properties can be changed without leaving noticeable traces. 3. Traces of alteration are often invisible; visual inspection is insufficient, and a special technical analysis is necessary. 4. Not dependent on a carrier; the same information can be stored in multiple places simultaneously (cloud, local, disk, server). 5. Time-dependent properties; the creation, modification, and access date and time are automatically recorded. 6. Metadata is crucial evidence; invisible information within the file (author, device, location) has legal significance.

Due to these characteristics, the traditional procedure of seizure, sealing, and submission cannot be fully applied when presenting digital evidence for expert examination. This requires special technical and procedural mechanisms.

According to V.M. Abrosimova and a group of scholars, instances of loss or damage to expert examination objects do occur, which limits the possibility

[21] Bessonov A.A. O nekotorykh vozmozhnostyakh sovremennoy kriminalistiki v rabote s elektronnymi sledami. // Vestnik Universiteta imeni O.Ye. Kutafina (MGYUA). — 2019. — №3. — S. 47. / Бессонов, А.А. О некоторых возможностях современной криминалистики в работе с электронными следами // Вестник Университета имени О.Е. Кутафина (МГЮА). — 2019. — №3. — С. 47.

of conducting a re-examination. In practice, there are problems related to the preservation of examination objects and ensuring their integrity.

The loss of or damage to objects leads to the following negative consequences: the drawing of incorrect conclusions; the loss of the opportunity to conduct a repeat expert examination; and sometimes the suspension of a criminal case or the issuance of an acquittal. To resolve this issue, it is necessary to legally establish clear procedures for the preservation and integrity of these objects. As a result of the research, the following author's definition of the concept of a digital object is proposed:

A digital object is an object of forensic examination, composed of various digital traces located on a carrier object. It has a two-part structure consisting of the digital trace as information and its physical carrier. Unlike the concepts of "digital trace" and "digital evidence," it represents the direct physical subject of the expert investigation.

This definition is distinct from the concepts of digital evidence (Article $204^2$ of the CPC) and a digital trace. “Digital evidence” is a means of proof, a “digital trace” is an arbitrary mark, and a digital object is the direct subject of an expert examination.

The issue of digital evidence is being progressively regulated within our national legislation. Specifically, Law No. O'RQ-1003, adopted on November 21, 2024,[22] In accordance with the law, relevant amendments and additions have been made to Article 2042 of the Code of Criminal Procedure. An analysis of these changes reveals that "digital evidence" and "digital trace" are closely related yet conceptually distinct categories. Therefore, a need arises to separately study the legal significance of digital traces in judicial, investigative, and forensic practices.

[22] O‘zbekiston Respublikasining Qonuni, 21.11.2024 yildagi O‘RQ-1003-son https://lex.uz/docs/-7228758#-7229236

The concept of a digital footprint can be defined as follows: any data or trace, existing in the form of information, left in an electronic environment during the activity of a user or device.

Digital traces manifest in various forms and appearances. They can be recorded on the following media: standalone storage devices, such as hard drives and flash drives; computer systems and networks; mobile communication devices, tablets, servers, and cloud storage systems; in the form of electronic documents; digital images created using specialized software; data input, output, and processing devices; and sets of information transmitted through communication channels[23].

Based on the analysis above, we consider it appropriate to amend the first part of Article 175 of the Criminal Procedure Code (Objects of Examination) to read as follows: Objects of examination may include physical evidence, samples for expert analysis, material objects, corpses and their parts, documents, electronic data stored in electronic devices and information systems, digital objects (computer files, software, digital traces, large data arrays, etc.), as well as the materials of the case under examination. Expert examinations may also be conducted on a living person.

A detailed study of the properties, types, and forms of existence of digital traces allows for the formulation of an author's definition of the "digital object" concept, which will form the theoretical basis of the dissertation. According to the proposed definition: a digital object is an object recorded on a carrier medium, consisting of a set of interconnected digital traces, and serving as the direct subject of a forensic examination. It should be noted that it is appropriate to use the terms "digital object" and "object in digital form" interchangeably. The main criterion for defining a digital object as the unity of a digital trace and its

[23] Россинская, Е. Р., Семикаленова, А. И. 2020. Основы учения о криминалистическом исследовании компьютерных средств и систем как часть теории информационно-компьютерного обеспечения криминалистической деятельности / Е. Р. Россинская, А. И. Семикаленова // Вестник Санкт-Петербургского университета. Право 3. — 2020. — Том. 11. №3. С. 747.

physical carrier is the necessity of legally consolidating the two-component nature of this concept.

In the context of digitalizing forensic expert activities, E.R. Rossinskaya identifies two main strategic directions: the first is the enhancement of collecting, storing, processing, and presenting information during the examination process using modern information technologies; the second is the scientific research of new objects for expert examination, which contain forensically significant information recorded in the digital environment[24].

O.V. Flerov defines digital traces as a "digital portrait" that reflects a person's identity[25]" describes them as follows: based on them, it is possible to obtain information about a user's interests, worldview, social status, and even psychological state. A.A. Bessonov, however, defines electronic traces as information recorded in digital format that is directly causally linked to a criminal event and helps to identify the perpetrator[26]. Scientists from Kutafin Moscow State Law University (MSAL) expand upon this concept from a technological viewpoint: the fact that special software tools are required to convert a digital object into a human-perceptible format—whether graphic, text, or audiovisual proves that these traces possess a material nature[27]. The Society of American Archivists, in turn, defines a digital footprint as a set of data and its associated metadata expressed in a binary system, classifying them into simple (a single file) and complex (multiple interconnected files) types.

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# NIZOMIDDIN SHOMIY VA SHAROFIDDIN ALI YAZDIY “ZAFARNOMA”LARINING JAHON SHARQSHUNOSLIGIDA O‘RGANILISHI

**Sharifova Nazokat Olimboy qizi**

***Annotatsiya:*** *Amir Temur va Temuriylar davri davlatchiligi, harbiy san’ati hamda madaniy renessansi nafaqat mintaqa, balki jahon tarixining uzviy qismi hisoblanadi. Ushbu davr tarixini birlamchi manbalar asosida xolis o‘rganishda Nizomiddin Shomiy va Sharofuddin Ali Yazdiy tomonidan yozilgan “Zafarnoma” asarlari fundamental poydevor vazifasini o‘taydi. Ushbu tezisda har ikkala asarning xorijda xususan, Yevropa, Rossiya va g‘arb tarixnavisligida o‘rganilishi qiyosiy tahlil qilinadi.*

***Kalit so‘zlar:*** *Amir Temur, Temuriylar, Nizomiddin Shomiy, Sharofuddin Ali Yazdiy, “Zafarnoma”, jahon sharqshunosligi, manbashunoslik tahlili, Feliks Tauer, g‘arb tarixnavisligi.*

***Аннотация:*** *Государственность, военное искусство и культурный ренессанс в период правления Амира Тимура и Тимуридов являются неотъемлемой частью не только региональной, но и мировой истории. Работы Низамиддина Шами и Шарафуддина Али Язди «Зафарнома» играют основополагающую роль в объективном изучении истории этого периода на основе первоисточников. В данной статье представлен сравнительный анализ изучения обоих трудов за рубежом, в частности, в европейской, российской и западной историографии.*

***Ключевые слова:*** *Амир Темур, Темуриды, Низамуддин Шами, Шарафуддин Али Язди, «Зафарнама», мировое востоковедение, источниковедение, Феликс Тауер, западная историография.*

***Abstract:*** *The statehood, military art and cultural renaissance of the era of Amir Temur and the Temurids are an integral part of not only regional, but also world history. In the objective study of the history of this period based on primary sources, the works "Zafarnoma" written by Nizamiddin Shami and Sharafuddin Ali Yazdi serve as a fundamental foundation. This thesis provides a comparative analysis of the study of both works abroad, in particular in European, Russian and Western historiography.*

***Key words:*** *Amir Timur, Timurid dynasty, Nizam al-Din Shami, Sharaf al-Din Ali Yazdi, Zafarnama, western historiography, oriental studies, source criticism.*

## KIRISH

Amir Temur va Temuriylar davri davlatchiligi, harbiy san'ati hamda madaniy renessansi nafaqat mintaqa, balki jahon tarixining uzviy qismi hisoblanadi. Ushbu davr tarixini birlamchi manbalar asosida xolis o'rganishda Nizomiddin Shomiy va Sharofuddin Ali Yazdiy tomonidan yozilgan "Zafarnoma" asarlari fundamental poydevor vazifasini o'taydi. Ushbu ikki asar o'z davrining rasmiy va eng ishonchli xronikalari bo'lishi barobarida, asrlar davomida xalqaro sharqshunoslik va yevropalik tadqiqotchilar diqqat markazida bo'lib kelmoqda. Mazkur tezisda har ikki manbaning jahon tarixnavisligidagi o'rganilish darajasi, tarjimalari va ularga berilgan ilmiy baholar qiyosiy-manbashunoslik nuqtai nazaridan tahlil qilinadi.

Nizomiddin Shomiy va Sharofuddin Ali Yazdiyning fors tilida bitilgan "Zafarnoma" asarlari Amir Temur va temuriylar davlatchiligini, ijtimoiy-iqtisodiy, siyosiy hamda madaniy-ma'naviy taraqqiyotini o'rganishda nafaqat o'zbek tarixnavisligi, balki, jahon sharqshunosligida, xususan, Yevropa, Rossiya va Osiyo mamlakatlarida eng ko'p o'rganilgan va tarjima qilingan Markaziy Osiyo tarixiy manbalaridan hisoblanadi.

Nizomiddin Shomiy 1393-1404-yillarda Amir Temur xizmatida bo'lib, uning harbiy yurishlarida voqeanavis va voiz sifatida ishtirok etgan. Amir Temur unga o'z tarixini aniq va sodda tilda yozib berishni buyurgan. Nizomiddin Shomiy "Zafarnoma" asarini 1402-1404 yillarda yozib tugatgan. Asar jahongirning hokimiyat tepasiga kelishidan (1370) to 1404-yilgacha bo'lgan voqealarni o'z ichiga oladi[28]. Chindan ham sodda tilda va ravon uslubda yozilgan "Zafarnoma" asari xorijiy sharqshunoslikda ham chuqur o'rganilgan. Shomiy "Zafarnoma"sining faqat 2 qo'lyozma nusxasi saqlanib qolgan. Birinchisi, Amir Temurga taqdim etilgan qo'lyozmaning 1425-yilda ko'chirilgan nusxasi bo'lib, Istanbulda Nuri Usmoniya masjidi kutubxonasida 3367 inventar raqam bilan saqlanadi. Ikkinchisi, muallifning o'zi tomonidan Amir Temurning nabirasi Mirzo Umar ibn Mironshohga taqdim etilgan

[28] A. Madraimov, G. Fuzailova. Manbashunoslik – Toshkent.: "Fan" nashriyoti,2007,107-bet.

qo‘lyozmadan 1434-yili ko‘chirilgan nusxasi bo‘lib, Londondagi Britaniya muzeyi kutubxonasida 23980 inventar raqam bilan saqlanadi.[29] Bu qo‘lyozmalarda ayrim kamchiliklar bo‘lganligi sababli chex olimi Feliks Tauer Hofizi Abruning “Zubdat-ut tavorix” asari bilan solishtirib, asarning 2 jilddan iborat ilmiy-tanqidiy matnini 2 marta Pragada 1937 va 1956 yillarda nashr etilgan, forscha matni esa Tehronda chop etilgan[30]. Asarning ikkinchi jildida noshirdan so‘zboshi, Hofizi Abrudan qo‘shimchalar va nusxalardagi farqlar berilgan. Asar so‘nggi yillarda g‘arb va sharq olimlari tomonidan turli tillarga tarjima qilindi. Jumladan, 1949-yil Anqarada Nejoti Lug‘ol Feliks Tauer nashri asosida qisqartirilgan holatda turk tiliga tarjima qildi.

Sharofuddin Ali Yazdiy “Zafarnoma” sining qimmati shundaki, unda Mo‘g‘ul imperiyasining tarkibida tashkil topgan Oltin O‘rda, Elxoniylar davlati, Chig‘atoy ulusi, shuningdek Movaraunnahrning Chingizxon zamonidan to Temur davlatining paydo bo‘lishigacha bo‘lgan ijtimoiy-iqtisodiy tarixi qisqa tarzda yoritib berilgan. Asarning bu qismi “Tarixi jahongir” yoki “Muqaddimayi Zafarnoma” deb ataladi va 1419-yil yozib tugatilgan.[31]

Sharafuddin Ali Yazdiy “Zafarnoma”sining dunyo bo‘ylab tarqalgan qo‘lyozma nusxalari umumiy soni bugungi kunda taxminan 100 dan ortiq. Eng qadimgi qo‘lyozma nusxalari Sankt-Peterburgdagi Rossiya Milliy kutubxonasi, Rossiya FA Sharq qo‘lyozmalari institutida saqlanadi. Shuningdek, Tehron, Mashhad kutubxonalari, Britaniya muzeyi, Fransiya Milliy kutubxonasi, Istanbuldagi Nuri Usmoniya kutubxonasi, Garvard badiiy muzeyi, O‘zFA Sharqshunoslik institutida saqlanayotgan qo‘lyozma nusxalar tarixiy, badiiy, axborot qimmati yuqoriligi bilan Amir Temur faoliyatini o‘rganish uchun muhim manba hisoblanadi. Bu asarning turli davrlarda ko‘chirilgan 30 ga yaqin

[29] Nizomiddin Shomiy. Zafarnoma – Toshkent.: “O‘zbekiston” nashriyoti,1996,7-8-bet.
[30] Tauer F. Histoire des conquêtes de Tamerlan intitulée Zafarnama par Nizamuddin Shami. Tome I: Texte persan. – Praha, 1937; Tome II: Introduction, commentaire, index. – Praha, 1956.
[31] A. Madraimov, G. Fuzailova. Manbashunoslik – Toshkent.: “Fan” nashriyoti,2007,113-bet.

qo‘lyozmasi bugungi kunda O‘zFA Sharqshunoslik institutida saqlanmoqda. Xususiy kolleksiyalarda saqlanayotgan va hali kataloglashtirilmagan nusxalari ham bor[32].

Yuqoridagi har ikkala asar ham jahon sharqshunosligi ilmiy jamoasi tomonidan katta qiziqish bilan o‘rganib kelinmoqda. Jahon tarixshunosligida Yazdiy “Zafarnoma”sining o‘rganilish tarixi Shomiy asariga qaraganda ancha erta boshlangan. Sharofuddin Ali Yazdiy asari Yevropa ilm-faniga XVIII asr boshlaridayoq kirib bordi. Xususan, 1722-yilda fransuz sharqshunosi Fransua Peti de la Krua (François Pétis de la Croix) tomonidan fransuz tiliga, oradan bir yil o‘tib, 1723-yilda esa J. Darbi (J. Darby) tomonidan ingliz tiliga tarjima qilinishi G‘arb olamining Amir Temur shaxsiyati va uning saltanatiga bo‘lgan qarashini butunlay o‘zgartirdi.

G‘arb temuriyshunosligida (Jon Vuds, Beatris Forz Manz, Mariya Subtelni va b.) uzoq vaqt davomida ushbu ikki asarga nisbatan dualistik yondashuv mavjud edi. Shomiy “Zafarnoma”si voqealarni quruq va aniq faktlar asosida, ortiqcha pafossiz bayon qilgani uchun xalqaro miqyosda “eng xolis birlamchi manba” sifatida e’tirof etilgan bo‘lsa, Yazdiy asari uzoq vaqt davomida faqat hukmdorlarni ulug‘lovchi asar sifatida baholab kelindi.

Biroq XXI asr zamonaviy xalqaro tadqiqotlari va manbashunoslik metodologiyasi shuni ko‘rsatadiki, Yazdiy asari shunchaki ritorik bezaklardan iborat emas. Zamonaviy tadqiqotchilar Yazdiyning asar ustida ishlashda barcha rasmiy hujjatlar, muhrlar, guvohlarning ko‘rsatmalari va hatto Shomiy matnini qayta tanqidiy tahrir qilganini isbotlamoqdalar. Ayniqsa, asardagi geografik ob’ektlar koordinatalari, diplomatik yozishmalar matnlari va harbiy qismlarning joylashuv tartibi Yazdiy “Zafarnoma”sining informativ bazasi Shomiyga qaraganda ancha kengroq va tizimliroq ekanini tasdiqlaydi. Yapon sharqshunoslik maktabi vakillari (masalan, Eji Mano) ham ushbu asarlarni

[32] https://yuz.uz/uz/news/zafarnomalarning-qolyozma--nusxalari--va--ularni-organish--tarixi.

Markaziy Osiyo tarixiy geografiyasi va sotsial-iqtisodiy hayotini tiklashda tengsiz manba deb baholamoqdalar.

Chikago universiteti olimlaridan biri Jon Vuds (John E. Woods) o‘zining “The Timurid Dynasty” (Temuriylar sulolasi) va unga aloqador o‘nlab fundamental maqolalarida Yazdiy va Shomiy asarlarini o‘zaro qiyosiy-tanqidiy tahlil qilgan. Vuds Shomiy matnining qaysi qismlari Yazdiy tomonidan o‘zgartirilgani yoki “siyosiy tahrir” qilinganini xronologik jihatdan isbotlab bergan. U Yazdiyni shunchaki solnomachi emas, balki Shohruh Mirzo davridagi Temuriylar davlatining yangi mafkuraviy arxitektori deb baholaydi[33].

Taniqli temuriyshunos olima Beatris Forz Manz (Beatrice Forbes Manz) esa “Zafarnoma”lardagi ma’lumotlarga tayanib, Amir Temur armiyasining ichki sotsial tuzilishini, qabilaviy munosabatlarni va elita shakllanishi jarayonlarini ochib berdi[34]. Kanadalik tadqiqotchi Mariya Subtelni (Maria E. Subtelny) esa Yazdiy matnidagi she’riy va falsafiy qatlamlarni tahlil qilib, unda islomiy va ko‘chmanchi turk-mo‘g‘ul an’analarining o‘ziga xos sintezi aks etganini ko‘rsatib berdi[35]. Shuningdek, Eji Mano (Eiji Mano) boshchiligidagi yapon sharqshunoslik maktabi vakillari har ikki “Zafarnoma”ni Markaziy Osiyo tarixiy geografiyasi, sotsial-iqtisodiy hayoti va yer egaligi munosabatlarini tiklashda tengsiz va aniq faktologik manba sifatida tahlil qilmoqdalar.

## XULOSA

Xulosa qilib aytganda, Nizomiddin Shomiy va Sharofuddin Ali Yazdiyning “Zafarnoma” asarlari jahon sharqshunosligida yevrotsentrik qarashlardan xoli, xolis va tizimli tadqiqot ob’ektiga aylanib ulgurdi. Shomiy asari voqealarning birlamchi xronologik aniqligini ta’minlab bersa, Yazdiy asari Temuriylar davri rasmiy mafkurasi, falsafiy qarashlari va keng ko‘lamli

[33] Woods J. E. The Timurid Dynasty. – Bloomington: Indiana University, Research Institute for Inner Asian Studies, 1990.
[34] Manz B. F. The Rise and Rule of Tamerlane. – Cambridge: Cambridge University Press, 1989. (Ruscha nashri: Восхождение и правление Тамерлана. – Ташкент, 2018).
[35] Subtelny M. E. Timurids in Transition: Turko-Persian Politics and Acculturation in Medieval Iran. – Leiden: Brill, 2007.

faktologik materiallarini tahlil qilish imkonini beradi. Har ikki asarning xalqaro miqyosda o‘rganilishi, ularning Yevropa va Osiyo tillariga tarjima qilinishi Temuriylar tarixi umumbashariy sivilizatsiyaning muhim bo‘g‘ini sifatida dunyo olimlari tomonidan yakdillik bilan tan olinganidan dalolat beradi.

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# ASLIYAT VA TARJIMA MATNLARIDA PRAGMATIK SALOHIYATNING QIYOSIY TAHLILI

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***Annotatsiya:*** *Mazkur tezisda asliyat va tarjima matnlarida pragmatik salohiyatning namoyon bo‘lishi qiyosiy tahlil qilinadi. Tadqiqotda nutqiy birliklarning kommunikativ maqsadi, muallif niyati hamda ularning tarjimada qay darajada saqlanishi o‘rganiladi. Pragmatik ma’no va ta’sirchanlikni yetkazishda tarjimonning strategik yondashuvlari tahlil etilib, pragmatik ekvivalentlikni ta’minlashning muhim jihatlari yoritiladi.*

***Annotation:*** *This thesis comparatively analyzes the manifestation of pragmatic potential in source and translated texts. It examines communicative intentions, the author’s purpose, and the extent to which these features are preserved in translation. The study highlights translators’ strategic approaches to conveying pragmatic meaning and effectiveness, emphasizing key aspects of achieving pragmatic equivalence.*

***Kalit so‘zlar:*** *pragmatik salohiyat, asliyat matni, tarjima matni, qiyosiy tahlil, pragmatik ekvivalentlik, kommunikativ maqsad, tarjima strategiyalari, pragmatika.*

***Keywords:*** *pragmatic potential, source text, translated text, comparative analysis, pragmatic equivalence, communicative intention, translation strategies, pragmatics.*

## KIRISH

Zamonaviy tarjimashunoslikda matnning faqat leksik va grammatik jihatlarini emas, balki uning pragmatik xususiyatlarini ham to‘laqonli qayta yaratish masalasi alohida ahamiyat kasb etmoqda. Pragmatika til birliklarining kommunikativ vaziyatdagi qo‘llanilishi, nutq ishtirokchilarining maqsadi hamda tinglovchi yoki o‘quvchiga ko‘rsatadigan ta’sirini o‘rganadi. Shu bois tarjima jarayonida asliyat matnining pragmatik salohiyatini saqlab qolish tarjimon oldidagi muhim vazifalardan biri hisoblanadi.

Pragmatik salohiyat deganda matnning adresatga muayyan ta’sir ko‘rsatish, ma’lum munosabatni shakllantirish va kommunikativ maqsadni amalga oshirish imkoniyati tushuniladi. Tarjima jarayonida ushbu

xususiyatlarning yo‘qolishi yoki o‘zgarishi matnning mazmuniy va uslubiy qimmatiga salbiy ta’sir ko‘rsatishi mumkin. Shuning uchun asliyat va tarjima matnlaridagi pragmatik xususiyatlarni qiyosiy o‘rganish tarjimashunoslikning dolzarb masalalaridan biridir (Baker, 2018).

Globallashuv jarayonlarining jadallashuvi turli xalqlar o‘rtasidagi madaniy va ilmiy aloqalarning kengayishiga xizmat qilmoqda. Bunday sharoitda tarjima madaniyatlararo muloqotni ta’minlovchi muhim vosita sifatida namoyon bo‘ladi. Tarjima faqat bir tildagi axborotni boshqa tilga ko‘chirish emas, balki muallifning kommunikativ niyatini, hissiy-ta’sirchanlik xususiyatlarini hamda pragmatik maqsadini qayta yaratish jarayonidir. Shu sababli tarjima sifati ko‘p jihatdan asliyat matnining pragmatik salohiyatini qanchalik to‘liq aks ettirish bilan belgilanadi.

Pragmatik salohiyatni o‘rganish tarjimashunoslikning nazariy asoslarini boyitish bilan birga, amaliy tarjima faoliyatida uchraydigan muammolarga ham yechim topishga yordam beradi. Ayniqsa, badiiy, publitsistik va ilmiy matnlarda pragmatik vositalarning o‘ziga xosligi tarjimondan nafaqat til bilimini, balki madaniyatlararo kompetensiyani ham talab qiladi (Yule, 2020).

Pragmatika tilshunoslikning muhim yo‘nalishlaridan biri bo‘lib, u til birliklarining nutqiy vaziyat bilan bog‘liq holdagi ma’nosini tahlil qiladi. Levinson (1983) pragmatikani til va kontekst o‘rtasidagi munosabatlarni o‘rganadigan fan sifatida izohlaydi. Tarjima jarayonida esa pragmatik omillar matnning maqsadi, muallif niyati va adresatning madaniy xususiyatlari bilan chambarchas bog‘liq bo‘ladi.

Asliyat matnida qo‘llanilgan murojaat shakllari, kinoya, presuppozitsiya, implikatura va nutq aktlari tarjima qilinayotganda muayyan transformatsiyalarni talab qiladi. Chunki bir tildagi pragmatik vositalar boshqa tilda aynan mos kelmasligi mumkin. Bunday holatlarda tarjimon kommunikativ ekvivalentlikni ta’minlash maqsadida turli strategiyalardan foydalanadi (Newmark, 1988).

Masalan, ingliz tilidagi “Could you possibly open the window?” jumlasi grammatik jihatdan so‘roq gap bo‘lsa-da, pragmatik jihatdan iltimos ma’nosini anglatadi. Uni o‘zbek tiliga “Iltimos, derazani ochib yubora olasizmi?” tarzida tarjima qilish pragmatik ta’sirni saqlab qolishga xizmat qiladi. Agar ushbu birlik “Derazani oching” shaklida tarjima qilinsa, buyruq ohangi kuchayib, asliyatdagi xushmuomalalik darajasi yo‘qolishi mumkin.

Tarjimada pragmatik ekvivalentlik tushunchasi muhim o‘rin tutadi. Nida (1964) dinamik ekvivalentlik nazariyasida tarjimaning asosiy maqsadi asliyat o‘quvchisida yuzaga kelgan ta’sirni tarjima o‘quvchisida ham hosil qilish ekanligini ta’kidlaydi. Bu esa pragmatik salohiyatni imkon qadar to‘liq saqlash zaruratini ko‘rsatadi.

Bundan tashqari, madaniy xos birliklarning tarjimasi ham pragmatik tahlilni talab qiladi. Har bir xalqning urf-odatlari, qadriyatlari va ijtimoiy me’yorlari nutqiy ifodalarda aks etadi. Tarjimon ushbu omillarni hisobga olmagan taqdirda, matnning ta’sirchanligi va kommunikativ maqsadi o‘zgarib ketishi mumkin. Baker (2018) bunday vaziyatlarda pragmatik moslashtirish usullaridan foydalanishni tavsiya etadi.

Demak, asliyat va tarjima matnlarini qiyosiy o‘rganish pragmatik ma’no, kommunikativ niyat hamda adresatga ko‘rsatiladigan ta’sir darajasini aniqlash imkonini beradi. Bu esa tarjima sifatini oshirish va pragmatik ekvivalentlikni ta’minlashda muhim ahamiyatga ega.

Pragmatik tahlilda nutq aktlari nazariyasi muhim o‘rin egallaydi. Nutq aktlari insonlarning til vositasida ma'lum harakatlarni amalga oshirishini ifodalaydi. So‘rash, iltimos qilish, maslahat berish, ogohlantirish yoki kechirim so‘rash kabi nutqiy harakatlar tarjima jarayonida pragmatik moslikni talab etadi. Tarjimon ushbu birliklarni faqat lug‘aviy ma'noda emas, balki ularning kommunikativ vazifasini hisobga olgan holda tarjima qilishi lozim.

Bundan tashqari, implikatura va presuppozitsiyalarni tarjima qilish ham murakkab masalalardan biridir. Implikatura muallif tomonidan bevosita aytilmagan, biroq kontekst orqali anglashiladigan ma'noni bildiradi. Agar tarjimon bunday yashirin ma'nolarni to‘g‘ri talqin qilmasa, o‘quvchi asliyatdagi mazmunni to‘liq qabul qila olmaydi (Levinson, 1983).

Masalan, ingliz tilidagi “It's getting late” jumlasi oddiy xabar sifatida emas, balki “endi ketish vaqti bo‘ldi” degan yashirin ma'noni ifodalashi mumkin. Tarjimon kontekstni inobatga olgan holda pragmatik ma'noni saqlashi zarur.

Tarjimada xushmuomalalik strategiyalari ham muhim ahamiyatga ega. Ayrim tillarda hurmat ifodalovchi birliklar ko‘p qo‘llansa, boshqalarida bunday vositalar kamroq uchraydi. Shu sababli tarjimon adresatning ijtimoiy mavqei, yoshi va kommunikativ vaziyatni hisobga olib, mos til birliklarini tanlashi kerak.

Madaniy realiyalarni tarjima qilish jarayonida izohli tarjima, moslashtirish, transkripsiya yoki tavsifiy tarjima kabi usullardan foydalanish mumkin. Bu esa tarjima matnining tushunarliligini oshirish va pragmatik ta'sirchanlikni saqlab qolishga xizmat qiladi (Newmark, 1988).

## XULOSA

Xulosa qilib aytganda, asliyat va tarjima matnlarida pragmatik salohiyatni qiyosiy tahlil qilish tarjimashunoslikning dolzarb yo‘nalishlaridan biridir. Tarjima jarayonida muallif niyati, kommunikativ maqsad, madaniy omillar va adresatning qabul qilish xususiyatlarini inobatga olish zarur. Pragmatik ekvivalentlikni ta’minlash tarjima sifatining muhim mezoni bo‘lib, tarjimonning kasbiy mahorati va strategik yondashuvini talab etadi. Pragmatik xususiyatlarni saqlash orqali tarjima matni asliyatning funksional va ta’sirchanlik jihatlarini muvaffaqiyatli aks ettira oladi.

Tadqiqot natijalari shuni ko‘rsatadiki, pragmatik salohiyat tarjima sifatini belgilovchi asosiy omillardan biridir. Tarjimonning vazifasi faqat mazmunni qayta ifodalash bilan cheklanmay, balki asliyatdagi kommunikativ ta'sirni ham tarjima o‘quvchisiga yetkazishdan iboratdir.

Pragmatik ekvivalentlikka erishish uchun tarjimon til birliklarining yashirin ma'nolarini, madaniy xususiyatlarini, nutq aktlarini hamda adresat omilini chuqur tahlil qilishi zarur. Ushbu yondashuv tarjima matnining tabiiyligi, ta'sirchanligi va funksional mosligini ta'minlaydi. Kelgusida pragmatik salohiyatni turli janrdagi matnlar, xususan, badiiy asarlar, ommaviy axborot vositalari matnlari va audiovizual tarjimalar misolida o‘rganish tarjimashunoslikning rivojlanishiga salmoqli hissa qo‘shishi mumkin.

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# O‘ZBEKISTON RESPUBLIKASIDA PROKURATURA ORGANLARINING OSHKORALIGI VA JAMIYAT OLDIDAGI HISOBDORLIGINI TA’MINLASHNING HUQUQIY ASOSLARI HAMDA DEMOKRATIK AHAMIYATI

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*Yuridik kadrlarni qayta tayyorlash va malakasini oshirish instituti mustaqil izlanuvchisi*

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***Annotatsiya:*** *Mazkur tezisda O‘zbekiston Respublikasida prokuratura organlari faoliyatining oshkoraligi va jamiyat oldidagi hisobdorligini ta’minlashning nazariy-huquqiy asoslari tahlil qilinadi. Shuningdek, “hisobdorlik” va “oshkoralik” tushunchalarining o‘zaro bog‘liqligi hamda farqli jihatlari yoritilib, prokuratura organlari faoliyatida ushbu tamoyillarning ahamiyati ochib beriladi. Mamlakatimizda prokuratura organlari faoliyatini demokratlashtirish, jamoatchilik nazoratini kuchaytirish va fuqarolar manfaatlarini himoya qilish borasida amalga oshirilgan islohotlar ilmiy jihatdan tahlil etiladi.*

***Kalit so‘zlar:*** *prokuratura, oshkoralik, hisobdorlik, jamoatchilik nazorati, qonun ustuvorligi, demokratik davlat, huquqiy davlat, fuqarolik jamiyati.*

***Annotation:*** *This article analyzes the theoretical and legal foundations of ensuring transparency and public accountability in the activities of the prosecutor’s office in the Republic of Uzbekistan. It also examines the interrelationship between the concepts of “accountability” and “transparency,” highlighting their distinctive features and explaining their significance in the functioning of prosecutorial bodies. Furthermore, the study provides a scholarly analysis of the reforms implemented in Uzbekistan aimed at democratizing the activities of the prosecutor’s office, strengthening public oversight, and protecting the rights and interests of citizens.*

***Keywords:*** *prosecutor’s office, transparency, accountability, public oversight, rule of law, democratic state, legal state, civil society.*

## KIRISH

Huquqiy demokratik davlatning asosiy belgilaridan biri qonun ustuvorligini ta’minlash, davlat organlarining jamiyat oldidagi mas’uliyati va

fuqarolar manfaatlariga xizmat qilishidir. Shu nuqtai nazardan, O‘zbekiston Respublikasida prokuratura organlari faoliyatini takomillashtirish, ularning ochiqligi va hisobdorligini kuchaytirish masalalariga alohida e’tibor qaratilmoqda. 1992-yil 8-dekabrda qabul qilingan va 2001-yilda yangi tahrirda tasdiqlangan “Prokuratura to‘g‘risida”gi Qonun prokuratura organlarining zamonaviy faoliyatini tashkil etishning muhim huquqiy asosiga aylandi. Mazkur qonun orqali prokuratura organlari nafaqat nazorat qiluvchi, balki shaxs, jamiyat va davlatning qonuniy manfaatlarini himoya qiluvchi demokratik institut sifatida shakllandi.

**Hisobdorlik va oshkoralik tushunchalarining nazariy tahlili.** Davlat boshqaruvi tizimida “hisobdorlik” va “oshkoralik” tushunchalari o‘zaro chambarchas bog‘liq bo‘lsa-da, ular mazmun-mohiyatiga ko‘ra farqlanadi. Hisobdorlik davlat organlarining o‘z faoliyati natijalari yuzasidan tegishli vakolatli organlar va jamoatchilikka muntazam ravishda hisobot berish majburiyatini anglatadi. Ushbu tushuncha faoliyat samaradorligini baholash, monitoring qilish hamda natijadorlikni ta’minlashga xizmat qiladi. Oshkoralik esa davlat organlarining faoliyati haqida fuqarolarni muntazam xabardor qilib borish, axborotlardan erkin foydalanish imkoniyatini yaratish va ommaviy axborot vositalari bilan ochiq muloqotni tashkil etishni nazarda tutadi. Demak, oshkoralik hisobdorlikning muhim sharti hisoblanadi. Huquqshunos olim O. Madaliyev oshkoralik prinsipini prokuratura organlari faoliyatining fuqarolar va ommaviy axborot vositalari uchun ochiqligi sifatida talqin qiladi. X.T. Odilqoriyev esa davlat mexanizmi faoliyatining eng muhim mezoni sifatida aynan oshkoralikni e’tirof etadi. Mark Bovensning ta’kidlashicha, hisobdorlik subyektning o‘z faoliyati yuzasidan izoh berishi va javobgarlikni o‘z zimmasiga olishi bilan tavsiflanadi. Shundan kelib chiqib, prokuror hisobdorligini prokuratura organlarining o‘z faoliyati natijalari bo‘yicha davlat organlari va jamoatchilikka hisobot berishi hamda ularning faoliyatiga baho berish imkoniyatining mavjudligi sifatida ta’riflash mumkin. Prokuratura faoliyati

oshkoraligi esa prokuratura organlarining fuqarolar va ommaviy axborot vositalari uchun ochiq faoliyat yuritishidir.

**Prokuratura organlari hisobdorligining huquqiy asoslari.** O‘zbekiston Respublikasi Konstitutsiyasida prokuratura organlari faoliyatining hisobdorlik mexanizmlari mustahkamlangan. Xususan, Konstitutsiyaning 95-moddasiga ko‘ra, Oliy Majlis Senati O‘zbekiston Respublikasi Bosh prokurorining hisobotlarini eshitish vakolatiga ega.

“Prokuratura to‘g‘risida”gi Qonunning 14-moddasida Bosh prokurorning O‘zbekiston Respublikasi Prezidenti va Oliy Majlis Senati oldida hisobdorligi belgilangan. Ushbu normaga muvofiq, Bosh prokuror:

- qonuniylik va jinoyatchilikka qarshi kurash holati haqida muntazam axborot beradi;
- o‘ta og‘ir jinoyatlar va favqulodda hodisalar yuzasidan zudlik bilan ma’lumot taqdim etadi;
- prokuratura organlari faoliyati natijalari haqida har olti oyda hisobot beradi.

Shuningdek, Qoraqalpog‘iston Respublikasi, viloyatlar, Toshkent shahri, tuman va shahar prokurorlari har yili tegishli xalq deputatlari Kengashlariga o‘z faoliyati yuzasidan axborot taqdim etadilar. Bu esa hududiy darajada ham prokuratura organlari faoliyatining hisobdorligini ta’minlashga xizmat qiladi.

**Prokuratura organlari faoliyatida jamoatchilik nazorati va oshkoralik.** So‘nggi yillarda mamlakatimizda prokuratura organlari faoliyati ustidan jamoatchilik nazoratini kuchaytirish bo‘yicha muhim chora-tadbirlar amalga oshirildi. Xususan, 2016-yilda Oliy Majlis Senatining prokuratura organlari faoliyati ustidan nazorat qiluvchi komissiyasi tashkil etildi. 2017-yildan boshlab prokurorlar va boshqa huquqni muhofaza qiluvchi organlar rahbarlarining aholi oldida muntazam hisobot berish tizimi joriy etildi. Bu esa fuqarolar bilan muloqotni kuchaytirish, hududlardagi muammolarni aniqlash va ularni bartaraf etishda muhim vosita bo‘lib xizmat qilmoqda. 2018-yilda Bosh

prokuratura huzurida Jamoatchilik kengashining tashkil etilishi prokuratura organlarini yanada demokratlashtirish yo‘lidagi muhim qadamlardan biri bo‘ldi. Mazkur kengash fuqarolik jamiyati institutlari bilan hamkorlikni rivojlantirish, prokuratura faoliyatining ochiqligini ta’minlash va jamoatchilik fikrini inobatga olishga xizmat qilmoqda. Bundan tashqari, prokuratura organlari tomonidan fuqarolar murojaatlari bilan ishlash tizimi takomillashtirildi. “Temir daftar”, “Ayollar daftari” va “Yoshlar daftari” orqali ehtiyojmand aholi qatlamlarini qo‘llab-quvvatlash bo‘yicha amaliy mexanizmlar yaratildi.

## XULOSA

Xulosa qilib aytganda, O‘zbekistonda prokuratura organlarining oshkoraligi va jamiyat oldidagi hisobdorligini ta’minlash bo‘yicha mustahkam huquqiy asoslar shakllantirilgan. Konstitutsiyaviy normalar, “Prokuratura to‘g‘risida”gi Qonun, Prezident farmonlari va jamoatchilik nazorati institutlari prokuratura organlari faoliyatining shaffofligini ta’minlashga xizmat qilmoqda. Hisobdorlik va oshkoralik tamoyillarining izchil joriy etilishi prokuratura organlariga bo‘lgan jamoatchilik ishonchini oshirish, qonun ustuvorligini mustahkamlash hamda inson huquq va erkinliklarini samarali himoya qilishga imkon bermoqda. Kelgusida mazkur institutlarni yanada takomillashtirish demokratik huquqiy davlat va kuchli fuqarolik jamiyatini rivojlantirishning muhim omillaridan biri bo‘lib qoladi.

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# ZAMONAVIY INTEGRATSIYA JARAYONLARIDA MILLIY QADRIYATLARNING EVOLUTSIYASI VA TRANSFORMATSIYASI

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***Annotatsiya.*** *Mazkur maqolada globallashuv va zamonaviy sotsiomadaniy integratsiya jarayonlarida o‘zbek milliy qadriyatining evolutsiyasi hamda transformatsiyasi madaniyatshunoslik paradigmasida taqdim etilgan. Maqolada ilk bor mahalla muhitida kechayotgan etnomadaniy sinkretizm ijtimoiylashuv va madaniylashuv jarayonlariga intilish ilmiy jihatdan asoslangan. Tranformatsiyaga uchrayotgan marosimlar va to’y-maraka va an’analarning ijtimoiy-madaniy tahlil qilingan.*

***Аннотация.*** *В данной статье в рамках культурологической парадигмы представлены эволюция и трансформация узбекских национальных ценностей в условиях глобализации и современных социокультурных интеграционных процессов. В работе впервые научно обосновано стремление к процессам социализации и окультуривания, а также этнокультурный синкретизм, происходящий в среде махалли. Проведен социокультурный анализ трансформирующихся обрядов, свадебных торжеств и традиций.*

***Abstract.*** *This article presents the evolution and transformation of Uzbek national values within the processes of globalization and contemporary socio-cultural integration, framed through a cultrological paradigm. For the first time, the study scientifically substantiates the tendency toward socialization and inculturation, as well as the ethnocultural syncretism occurring within the mahalla environment. Furthermore, a socio-cultural analysis is conducted on the transforming rituals, wedding ceremonies, and traditions.*

***Kalit so‘zi:*** *Globallashuv sotsiomadaniy integratsiya o‘zbek milliy qadriyatlar, evolutsiyasi, transformatsiya, madaniyatshunoslik paradigmasi, mahalla etnomadaniy sinkretizm ijtimoiylashuv, urf-odatlar va marosimlar.*

***Ключевое слово :*** *Глобализация, социокультурная интеграция, узбекские национальные ценности, эволюция, трансформация, культурологическая парадигма, махалля, этнокультурный синкретизм, социализация, обычаи и обряды.*

***Keyword:*** *Globalization, socio-cultural integration, Uzbek national values, evolution, transformation, cultrological paradigm, mahalla, ethnocultural syncretism, socialization, customs and rituals*

## KIRISH

Mahalla azaldan hayotimizda muhim ahamiyatga ega bo‘lib, tinchlik osoniyishtalik, ahillik va hamjihatlik, ma’rifat hamda tarbiya maskani bo‘lib kelgan. Bugungi kunda Jahon hamjamiyati “Yangi O‘zbekiston” deya e’tirof etayotgan huquqiy demokratik davlat va fuqarolik jamiyatini barpo etish yo‘lida ijtimoiy hayotda adolat va insonparvarlik tamoyillari mustahkamlanadi, ushbu maqolada mahalla institutining ijtimoiy falsafiy mohiyati, qadriyatlar falsafasining mohiyati mazmuni obyektiv asosi, namayon bo‘lishi shakllari va xususiyatlari, milliy qadriyatlar, an’analar hamda urf-odatlar shakllangan davrda sotsiomadaniy makonlarning globallashuvi va integratsiya jarayonlarning jadallashuvi an’anaviy jamiyatlar oldiga milliy o‘ziga xoslik hamda etnomadaniy merosni saqlab qolish muammosi eng muhim hisoblanadi. Milliy qadriyatlar o‘z tabiatiga ko‘ra statistik ya’ni mutloq o‘zgarmas hodisa emas, balki jamiyatning tarixiy ehtiyojlaridan kelib chiqib rivojlanadigan dinamik tizimdir. O‘zbek xalqining ma’naviy-axloqiy va etnomadaniy qadriyatlari asrlar davomida hatto miloddan avvalgi davrlardagi jamoaviy yashash qonuniyatlaridan boshlab bugungi, raqamli jamiyatgacha bo‘lgan davrda murakkab evolutsiya yo‘lini bosib o‘tdi[36] . Bugungi Yangi O‘zbekiston sharoiytida integratsiya jarayonlarining jadallashuvi, urbanizatsiya va axborot oqimining cheksizligi sharoiytida milliy qadriyatlarning transformatsiyasini (shakily va mazmuniy o‘zgarishini) to‘g‘ri baholash ilmiy madaniyatshunoslik uchun g’oyat muhimdir. Bu jarayonda asosiy sotsiomadaniy integrator vazifasini o‘tayotgan mahalla institut sharoiytida milliy qadriyatlarning qay darajada

**[36]. O‘zbekiston Respublikasi Prezidentining 2023-yil 21-dekabrdagi PF-209-son Farmoni.**

evolutsiya bo‘layotganini aniqlash dissertatsiya tadqiqotining ikkinchi bobidagi markaziy masalalardan biri hisoblanadi[37].

**Muammoning o‘rganilganlik darajasi-** Milliy qadriyatlar transformatsiyasi va sotsiomadaniy integratsiya masalalari xalqaro va mahalliy fanda turlicha yondashuvlar asosida o‘rganilgan. O‘zbekistonlik olimlardan O.Nishonova etnomadaniyatning estetik prinsplari va milliy qadriyatlarning sotsiumidagi falsafiy jihatdan yoritgan[38]. Milliy qadriyatlar transformatsiyasi va sotsiomadaniy integratsiya masalalari xalqaro va mahalliy fanda turlicha yondashuvlar asosida o‘rganilgan, O‘zbekistonlik olimlardan O.Nishonova etnomadaniyatning estetik prinsplari va milliy qadriyatlarning sotsiumdagi falsafiy jihatlari ochib berilgan. N.Latipova transformatsiya sharoiytida ijtimoiy tizimlarning moslashuv mexanizmlari sotsiologik tahlil qilingan. Etnografik jihatdan esa A.Ashirov va I.Jabborovlarning tadqiqotlarida o‘zbek xalq oilaviy hayotidagi qaderiyat hamda an’analarning xususiyatlari aniq misollar bilan ko‘rsatib o‘tilgan. Xorijiy tadqiqotlarda xususan Ye.Kamenskiyaning ishlarida an’analarning zamonaviy sotsium strukturaviy tranformatsiya nazariy modellashtirilgan. G‘arb sotsiologlari L.Virt va R..Redfildlar integratsiya jarayonlarida an’anaviy qadriyatlarning “unifikatsiyalashuvi” (bir xillashuv) xavfini tahlil qilishgan. Ushbu maqolaning ilmiy yangiligi shundan iboratki: zamonaviy integratsiya jarayonida milliy qadriyatlarning tranformatsiyasi va g‘arb madaniy elementlari bilan aralashuv -eklektika emas, balki sotsial barqarorlikni ta’minlovchi etnomadaniy sinkretizm hodisasidir. O‘zbek xalqining milliy o‘zligini asrash va rivojlantirishda mahalla instituti alohida o‘rin tutadi. U shunchaki ma’muriy birlik emas, balki, etnomadaniy meros tillar an’analar va marosimlarni avloddan-avlodga o‘tkazuvchi asosiy maskandir. Bugungi kunda mahalla tizimi ham integratsiya va raqamlashtirish

**[37].O‘zbekiston Respublikasi Prezidentining 2025-yil oktyabrdagi PQ-345-sonli Qarori.**
**[38]Nishonova O. O‘zbek etnomadaniyatining estetik mohiyati. – Toshkent: Fan, 2011.**

jarayonlaridan chetda qolayotgani yo’q (masalan electron boshqaruv tizimlari, ijtimoiy platformalarining joriy etilishi. Bu esa qadriyatlarning zamonaviy boshqaruv mexanizmlari bilan uyg‘unlashtirish imkonini beradi. Nazoratsiz madaniy integratsiya ba’zan “madaniy asimilyatsiya” milliy xususiyatlarning yot madaniyatlari ichida erib ketishi xavfini tug‘diradi. Bunga qarshi asosiy qalqon sifatida quyidagilar amal qiladi. Tarixiy xotira bunda o‘tmish saboqlari, ajdodlar merosi etnomadaniyat asoslarini chuqur o‘rganish hamda ma’naviy immunitet yoshlarda axborot oqimini saralash, o‘z milliy qadriyatlariga g‘urur va hurmat bilan qarash ko‘nikmasini shakllantirishdir. Xulosa qilib aytadigan bo‘lsak, integratsiya jarayonida o‘zbek milliy qadriyatining evolutsiyasi madaniy inqirozi belgisi emas balki, balki jonli tizimning zamon talablariga moslashish (adaptatsiya) dinamikasidir. Mahalla sotsiumida kechayotgan etnomadaniy sinkretizm an’analarning birlashmasi hamda milliy merosni, insonparvarlik va ijtimoiylashuv tamoyillari asosida qayta ishlab chiqariladi. Bu esa globallashuv asrida o‘zbek xalqining madaniy identikligining barqaror yashovchanligini ta’minlovchi eng muhim ichki omildir.

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# MA’MURIY SHIKOYATLAR VA ULARNI SUDGA QADAR KO‘RIB CHIQISHNING AYRIM DOLZARB JIHATLARI

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***Annotatsiya.*** *Mazkur maqolada ma’muriy shikoyatlar hamda ma’muriy shikoyatlarni sudga qadar ko‘rib chiqishga oid ayrim dolzarb masalalar tahlil qilinadi. Xususan, ma’muriy shikoyat tushunchasi va huquqiy tabiati, ma’muriy shikoyatlar va boshqa murojaatlarning o‘zaro farqli jihatlari, ma’muriy shikoyatlarning manfaatdor shaxslar huquqlarini himoya qilishdagi asosiy huquqiy himoya vositasi sifatidagi ahamiyati, ma’muriy shikoyatlarni ko‘rib chiqishning o‘ziga xos xususiyatlari va ma’muriy shikoyatlarni umumiy tartibda ko‘rib chiqishning ayrim jihatlari, ma’muriy shikoyatlarni sudgacha ko‘rib chiqishning o‘ziga xos jihatlari hamda shikoyatlarni sudgacha ko‘rib chiquchi organlarning huquqiy tabiati tahlil etiladi.*

*Shuningdek, O‘zbekiston Respublikasida ma’muriy shikoyatlar va ularni sudgacha ko‘rib chiqish bo‘yicha tuziladigan Appelyatsiya kengashlarining huquqiy maqomi va yuridik tabiati ko‘rsatiladi. Respublikada ma’muriy shikoyatlarni ko‘rib chiqish tartib-taomillari bo‘yicha milliy qonunchilikni takomillashtirishga qaratilgan takliflar ilgari suriladi.*

***Kalit so‘zlar:*** *ma’muriy tartib-taomillar, inson huquqlari, ma’muriy yustitsiya, ma’muriy shikoyat, ma’muriy shikoyat qilish, ma’muriy shikoyatni ko‘rib chiqish tartibi, ma’muriy shikoyatlarni sudgacha ko‘rib chiqish, appelyatsiya kengashlari.*

***Abstract.*** *This articleexamines a number of current issues related to administrative complaints and the procedures for their pre-trial review. In particular, it analyzes the concept and legal nature of an administrative complaint, the distinguishing features between administrative complaints and other forms of petitions and appeals, the significance of administrative complaints as a primary legal remedy for the protection of the rights and legitimate interests of concerned persons, the specific characteristics of administrative complaint proceedings and certain aspects of their consideration under the general procedure, as well as the particular features of the pre-trial review of administrative complaints and the legal nature of bodies authorized to conduct such review.*

*Furthermore, the thesis examines the legal status and juridical nature of the Appeal Councils established in the Republic of Uzbekistan for the consideration and pre-trial review of administrative complaints. It also puts forward proposals aimed at improving the national legislation of the Republic of Uzbekistan governing the procedures for the consideration of administrative complaints.*

***Keywords:*** *administrative procedures, human rights, administrative justice, administrative complaint, administrative appeal, procedure for reviewing administrative complaints, pre-trial review of administrative complaints, Appeal Councils.*

## KIRISH

Ta’kidlash lozimki, inson huquqlari va ularning to‘liq kafolatiga barcha davrlarda alohida e’tibor qaratilgan. Shu sababli, ma’muriy munosabatlarda inson huquqlarini ta’minlash davlatning asosiy funksiyalaridan biri sanaladi.

Darhaqiqat, huquqiy davlatda inson huquq va erkinliklarini samarali himoya qilish davlat organlari faoliyatining asosiy mezonlaridan biri etib belgilangan.

Davlat organlari va mansabdor shaxslar tomonidan qabul qilinadigan qarorlar, amalga oshiriladigan harakatlar yoki harakatsizliklar ayrim hollarda fuqarolar va yuridik shaxslarning huquqlari hamda qonuniy manfaatlariga salbiy ta’sir ko‘rsatishi mumkin. Bunday vaziyatlarda buzilgan huquqlarni tiklashning muhim vositalaridan biri sifatida **ma’muriy shikoyat** instituti sanaladi.

Ya’ni, ma’muriy shikoyat – bu manfaatdor shaxsning ma’muriy organ tomonidan qabul qilingan ma’muriy akt, amalga oshirilgan harakat yoki harakatsizlik natijasida buzilgan deb hisoblangan huquqlari, erkinliklari va qonuniy manfaatlarini tiklash maqsadida vakolatli ma’muriy organga qilgan shikoyatidir.

Mazkur institut inson huquqlarini suddan tashqari tartibda himoya qilishning muhim mexanizmlaridan biri bo‘lib, davlat boshqaruvi tizimida qonuniylik, oshkoralik va hisobdorlikni ta’minlashga xizmat qiladi.

Bunda fuqarolar tomonidan berilayotgan shikoyatlar ma’muriy organlarning faoliyatini doimiy nazorat ostida ushlab, noqonuniy qarorlar qabul

qilinishining oldini oladi. Bu esa davlat boshqaruvida mansabdor shaxslarning javobgarlik darajasining oshishiga olib keladi.

Ma’muriy shikoyatlarning inson huquqlarini himoya qilishdagi asosiy ahamiyati shundaki, ular buzilgan huquqlarni **tezkor** va **kam xarajat** orqali tiklashga imkon beradi. Sud muhokamasiga nisbatan ma’muriy shikoyatlarni ko‘rib chiqish jarayoni soddaroq, tezroq va fuqarolar uchun qulayroq hisoblanadi. Natijada fuqaro o‘z huquqlarini himoya qilish uchun murakkab protsessual tartiblarga duch kelmasdan, ma’muriy organning o‘zida yoki yuqori turuvchi organda nizoni hal qilish imkoniyatiga ega bo‘ladi.

Shu sababli ham ma’muriy shikoyatlarga oid qoidalar nafaqat milliy qonunchiligimizda, balk umumxalqaro tan olingan normalarda ham o‘z aksini topgan.

Jumladan, Inson huquqlari umumjahon deklaratsiyasining 8-moddasida hamda Fuqarolik va siyosiy huquqlar bo‘yicha xalqaro paktning 2-moddasida har bir shaxsning buzilgan huquqlarini tiklash uchun samarali huquqiy vositalardan foydalanish huquqi e’tirof etilgan.[39]

Bundan tashqari, ma’muriy shikoyatlar sudlarning ortiqcha yuklamasini kamaytirishga xizmat qiladi. Ya’ni, ma’muriy nizolarning muayyan qismi sudga yetib bormasdan ma’muriy tartibda hal etilishi natijasida sud organlari yanada murakkab va muhim ishlarni ko‘rib chiqishga ko‘proq e’tibor qaratish imkoniyatiga ega bo‘ladi. Natiajda, fuqarolar uchun huquqlarni himoya qilishning qo‘shimcha va samarali mexanizmi yaratiladi.

Yuqoridagilardan ko‘rinib turibdiki, inson huquqlarini ta’minlashda hamda ularini ro‘yobga chiqarishda, shu jumladan buzilgan huquqlarni qayta tiklashda “ma’muriy shikoyat” instituti muhim ahamiyat kasb etadi. Ma’muriy shikoyatning huquqiy tabiati quyidagi xususiyatlarda namoyon bo‘ladi:

– huquqlarni tezkorlik bilan hamda xarajatsiz himoya qilish vositasi hisoblanadi;

[39] https://www.un.org/en/about-us/universal-declaration-of-human-rights

– davlat boshqaruvi sohasida qonuniylikni ta’minlashga xizmat qiladi;

– sudga qadar nizolarni hal qilish mexanizmi sifatida namoyon bo‘ladi;

– ma’muriy organlar faoliyati ustidan ichki nazorat shakli hisoblanadi.

Odatda, nazariy jihatdan olib qaraganda, “**ma’muriy shikoyatlar bo‘yicha ish yurituv**” tushunchasi “**ma’muriy yustitsiya**” deb ham yuritiladi.

*“yustitsiya” so‘zi lotincha “justitia” so‘zidan olingan bo‘lib, “odillik”, “qonuniylik” degan ma’nolarni anglatadi.*

O‘zbekiston Respublikasining amaldagi qonunchiligiga ko‘ra, **ma’muriy shikoyat** ma’muriy ishni boshlash uchun asos hisoblanadi. Bunda, ma’muriy ish yuritish ariza **ma’muriy organda ro‘yxatdan o‘tkazilgan** paytdan e’tiboran boshlangan hisoblanadi.

Shu bilan birga, qonun hujjatlarida 3 turdagi ma’muriy shikoyat predmeti nazarda tutilgan bo‘lib, o‘z huquqlari buzzilgan shaxslar quyidagilar yuzasidan shikoyat berishlari mumkin:

1) ma’muriy hujjatlar;

2) protsessual hujjatlar *(Qonunda nazarda tutilgan hollarda)*;

3) ma’muriy harakatlar (harakatsizlik) ustidan.

E’tiborli jihati, ma’muriy shikoyat quyidagi vakolatli organlarga **bevosita** yoki **ma’muriy aktni amalga oshirgan ma’muriy organ** orqali berishi mumkin:

– yuqori turuvchi ma’muriy organga;

– qonunchilikda belgilangan boshqa vakolatli ma’muriy organ (ma’muriy sudlar, apellyatsiya kengashlari va hk.).

Yana bir jihat shundaki, ma’muriy shikoyat yozma, og‘zaki yoki elektron shaklda bevosita manfaatdor shaxs yoki uning vakili tomonidan berilishiga yo‘l qo‘yiladi. Bunda, ma’muriy shikoyatda quyidagilar ko‘rsatilgan bo‘lishi kerak:

1) ma’muriy hujjatni qabul qilgan ma’muriy organning nomi;

2) shikoyat bergan arizachining (uning vakilining) familiyasi, ismi, otasining ismi va yashash joyi, yuridik shaxs uchun esa — uning nomi va joylashgan yeri (pochta manzili);

3) arizachining talablari;

4) ilova qilinayotgan hujjatlarning ro‘yxati (mavjud bo‘lgan taqdirda);

5) ariza berilgan sana;

6) shikoyat vakil tomonidan berilgan bo‘lsa, unga ishonchnomaning yoki vakilning vakolatlarini tasdiqlovchi boshqa hujjatning ko‘chirma nusxasi;

7) ma’muriy shikoyat boshqa jismoniy va yuridik shaxslarning huquqlari va qonuniy manfaatlarini himoya qilish maqsadida berilgan hollarda manfaatlarini ko‘zlab shikoyat berilayotgan shaxsning nomi (familiyasi, ismi, otasining ismi) va uning manzili.

8) qonunchilikda nazarda tutilgan hollarda, boshqa ma’lumotlar.

Ta’kidlash kerakki, mazkur tezisning maqsadi ma’muriy shikoyatlarning nazariy-huquqiy tabiatini ochib berish orqali ularga oid munosabatlarni yanada takomillashtish, shuningdek, respublikada ma’muriy shikoyatlarni sudgacha ko‘rib chiqish instituni yanada rivojlantirish hamda sohadagi mavjud muammolarga yechimlar ko‘rsatishdan iboratdir.

Jumladan, sohada ayrim muammolar uchramoqda. Xususan:

– amaldagi qonunchilikda ma’muriy shikoyatlar hamda boshqa murojaatlarni o‘zaro farqli jihatlari hamda farqlash mezonlari aniq nazarda tutilmagan.

Xususan, “Jismoniy va yuridik shaxslarning murojaatlari to‘g‘risida”gi Qonunga asosan **arizalar**, **takliflar** va **shikoyatlar** *(shikoyat – buzilgan huquqlarni, erkinliklarni tiklash va qonuniy manfaatlarni himoya qilish to‘g‘risidagi talab bayon etilgan murojaat)* murojaatlarning turlari hisoblanadi.

Shu bilan birga, ushbu Qonunda **takroriy murojaat** – ayni bir jismoniy yoki yuridik shaxsdan kelib tushgan, uning avvalgi murojaati yuzasidan qabul qilingan qaror ustidan shikoyat qilinayotgan yoki boshqacha tarzda norozilik

bildirilayotgan, shuningdek, agar takroriy murojaat kelib tushgan paytga kelib qonunchilikda belgilangan ko‘rib chiqish muddati tugagan bo‘lsa, ilgarigi murojaati o‘z vaqtida ko‘rib chiqilmaganligi to‘g‘risida xabar qilinayotgan murojaat sifatida belgilangan.

Ko‘rinib turganidek, **ma’muriy shikoyat** hamda murojaatning bir shakli bo‘lgan **shikoyat** va **takroriy murojaat** mazmunan **bir xil** ta’riflangan.

Buning natijasida, ushbu ikki bir-biridan farqli huquqiy kategoriyalarni adashtirib yuborish holatlari yuzaga kelishi mumkin.

Vaholanki, ma’muriy shikoyat va murojaat alohida huquqiy kategoriya bo‘lib, quyidagi farqli jihatlari mavjud:

1) murojaatlarni ko‘rib chiqish muddati 30 ish kuni etib belgilangan bo‘lsa, murojaatlar 2 oyga qadar ko‘rib chiqilishi mumkin;

2) qonunchilikka ko‘ra, ma’muriy shikoyatni ko‘rib chiqish natijasi yuzasidan yozma qaror qabul qilinishi belgilangan. Biroq, amalda ushbu masala murojaatlarni ko‘rib chiqish tartibi kabi hal etilib, javob xati berilishi bilan cheklaniladi;

3) ma’muriy aktlar yuzasidan ma’muriy shikoyat berish muddati 30 kun etib belgilangan. Biroq, takroriy murojaatlarni ko‘rib chiqish bo‘yicha da’vo muddati belgilanmaganligi sababli, ushbu qoidaga ham rioya etilmasdan qolmoqda;

4) Qonunga ko‘ra, ma’muriy organga kelib tushgan ariza o‘sha kunning o‘zida ro‘yxatdan o‘tkazilishi lozim. Murojaatga oid tartibda esa, murojaat ish vaqti tugaganidan keyin kelib tushgan taqdirda keyingi ish kuni ro‘yxatdan o‘tkazilishi kerak;

5) Qonunda ma’muriy shikoyatlar ro‘yxatdan o‘tkazilganligi to‘g‘risida manfaatdor shaxsni xabardor qilish talabi mavjud. Biroq, ushbu talab murojaatlarga oid qonunchilikda bo‘lmaganligi sababli, manfaatdor shaxs ma’muriy shikoyati ro‘yxatdan o‘tkazilganligi haqida xabardor qilinmaydi.

6) ma’muriy shikoyatlarni majlisda ko‘rib chiqish, manfaatdor shaxsni xabardor qilish, rad qilish, dalillar va ularga baho berish, ma’muriy ishni to‘xtatish va tiklash kabi institutlar mavjud. Murojaatlarda ushbu tartib mavjud emas.

– ma’muriy shikoyatlarni sudga qadar ko‘rib chiqishda ayrim qarama-qarshiliklar mavjud.

Jumladan, “Ma’muriy tartib-taomillar to‘g‘risida”gi Qonunga asosan, ma’muriy shikoyatlar qonunchilikda vakolat berilgan organlarga ham berilishi mumkin.

Shunga asosan, Adliya vazirligi huzurida ayrim davlat xizmatlari bo‘yicha qabul qilingan ma’muriy hujjatlar bo‘yicha, Kadastr agentligi huzurida ko‘chmas mulkni davlat ro‘yxatidan o‘tkazish bo‘yicha, Qurilish vazirligi huzurida qurilish sohasi bo‘yicha ma’muriy shikoyatlarni ko‘rib chiquvchi Apellyatsiya kengashlari tuzilgan.

Biroq, AQSh, Germaniya[40] va Yaponiya kabi davlatlarda ma’muriy shikoyatlarni sudga qadar ma’muriy organ tomonidan ko‘rib chiqilishi majburiy hisoblanadi. Ya’ni ma’muriy shikoyat ma’muriy organ tomonidan ko‘rib chiqilmagunga qadar sudlar tomonida ish yurituvga qabul qilinmaydi.

O‘z navbatida, barchamizga ma’lumki, har bir insonning o‘z huquqlarini himoya qilish uchun sudga murojaat qilish kabi tabiiy huquqlari mavjud.

Ushbu holatda esa, o‘zaro-ziddiyatli holat yuzaga kelmoqda. Ya’ni qonunchilikda nazarda tutilgan holatlarda sudga to‘g‘ridan-to‘g‘ri murojaat qilishni cheklashga yoki umuman murojaat qilmaslikka oid qoidalar kiritilishi qanchalik maqsadga muvofiq?

Yuqoridagi kabi holatlarda, ma’muriy shikoyat tushunchasini milliy qonunchilikda yanada aniqlashtirish, barcha ma’muriy organlar uchun yagona shikoyatlarni ko‘rib chiqish standartlarini joriy etish, apellyatsiya kengashlari

[40] Kopp F. Verwaltungsverfahrensgesetz. München, 2023.
Maurer H. Allgemeines Verwaltungsrecht. München, 2022.

yoki mustaqil ma’muriy apellyatsiya organlari institutini rivojlantirish hamda ma’muriy shikoyatlarni sudgacha ko‘rib chiqish institutining majburiyligini tahlil qilish orqali O‘zbekiston uchun samarali modelni joriy qilish maqsadga muvofiqdir.

## XULOSA

Xulosa qilib aytganda, ma’muriy shikoyatlar davlat boshqaruvi sohasida shaxs huquqlari va qonuniy manfaatlarini himoya qilishning muhim huquqiy kafolatlaridan biri hisoblanadi. Ma’muriy shikoyat bo‘yicha ish yurituvning samarali tashkil etilishi davlat organlari faoliyatining qonuniyligi, ochiqligi va hisobdorligini ta’minlashga xizmat qiladi. Shu bilan birga, mazkur institutni xalqaro standartlar asosida takomillashtirish ma’muriy adliya tizimining yanada rivojlanishiga hamda fuqarolarning davlat boshqaruviga bo‘lgan ishonchini mustahkamlashga xizmat qiladi.

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# СТРУКТУРНО-СЕМАНТИЧЕСКИЕ ТИПЫ СИНОНИМИЧЕСКИХ ОППОЗИЦИЙ В РУССКОМ ЯЗЫКЕ

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***Аннотация:*** *В статье рассматриваются структурно-семантические особенности синонимических оппозиций в русском языке. Анализируются основные типы синонимов, их функциональные и стилистические различия, а также роль синонимических отношений в системе языка. Особое внимание уделяется классификации синонимических оппозиций по степени семантической близости и структурным характеристикам. Исследование показывает, что синонимия является важнейшим средством развития и обогащения русского языка.*

***Ключевые слова:*** *синонимия, синонимические оппозиции, лексическая семантика, русский язык, структурные типы, семантические отношения.*

***Abstract:*** *This article examines the structural and semantic features of synonymous oppositions in Russian. It analyzes the main types of synonyms, their functional and stylistic differences, and the role of synonymous relations in the linguistic system. Particular attention is paid to the classification of synonymous oppositions by degree of semantic similarity and structural characteristics. The study demonstrates that synonymy is a vital means of developing and enriching the Russian language.*

***Key words:*** *synonymy, synonymous oppositions, lexical semantics, Russian language, structural types, semantic relations.*

## ВВЕДЕНИЕ

Лексическая система русского языка отличается сложностью и многообразием семантических связей между словами. Одним из важнейших проявлений этих связей выступает синонимия, отражающая способность языка выражать одно и то же понятие различными языковыми средствами. Синонимы позволяют передавать тончайшие оттенки

значения, эмоционально-экспрессивную окраску и стилистические особенности речи.

Изучение синонимических оппозиций имеет большое значение для современной лингвистики, поскольку позволяет глубже понять механизмы функционирования лексической системы языка. Синонимические отношения являются не только средством языковой вариативности, но и важным фактором развития речи, культуры общения и художественного стиля [1].

Цель данной статьи заключается в рассмотрении структурно-семантических типов синонимических оппозиций в русском языке, определении их основных характеристик и функциональных особенностей.

Под синонимической оппозицией понимается соотношение слов, близких или тождественных по значению, но различающихся оттенками смысла, эмоциональной окраской, сферой употребления либо структурой. В основе синонимических отношений лежит общность предметно-логического содержания [2].

Синонимы могут различаться:

a) стилистической окраской;
b) эмоционально-экспрессивными оттенками;
c) сферой употребления;
d) степенью интенсивности признака;
e) особенностями сочетаемости.

Слова *говорить*, *изрекать*, *болтать*, *разговаривать* объединяются общим значением речевой деятельности, однако различаются стилистическими и эмоциональными характеристиками.

Синонимическая оппозиция представляет собой не просто сходство слов, а систему противопоставлений внутри единого семантического поля.

Именно различия между синонимами обеспечивают богатство выразительных средств языка [4].

С точки зрения структуры синонимические оппозиции можно разделить на несколько основных типов.

Однокорневые синонимы образуются от одного корня при помощи различных словообразовательных средств. Они отличаются оттенками значения или стилистической принадлежностью, например:

*домик – домишко*;

*ходить – похаживать*;

*кричать – покрикивать*.

Подобные синонимы демонстрируют тесную связь между словообразованием и семантикой. Суффиксы и приставки вносят дополнительные эмоционально-оценочные оттенки.

Разнокорневые синонимы представляют собой слова с различными корнями, но близким значением:

*смелый – храбрый*;

*красивый – прекрасный*;

*идти – шагать*.

Данный тип наиболее характерен для лексической системы русского языка. Разнокорневые синонимы часто имеют различное происхождение и формируются в результате исторического развития языка.

Контекстуальные синонимы приобретают сходство значений только в определённой речевой ситуации. Вне контекста они могут не рассматриваться как синонимы.

Например, в художественном тексте слова *ветер* и *буря* могут выступать как контекстуальные синонимы, если автор стремится подчеркнуть силу природного явления.

Контекстуальная синонимия особенно характерна для художественной литературы, публицистики и разговорной речи.

Семантическая классификация основывается на степени близости значений синонимов.

Полные синонимы обладают практически идентичным значением и могут заменять друг друга без изменения смысла высказывания:

*языкознание – лингвистика*;

*орфография – правописание*.

Абсолютная синонимия встречается сравнительно редко, поскольку язык стремится избегать полного дублирования единиц.

Частичные синонимы совпадают по основному значению, но различаются оттенками смысла или сферой употребления:

*смотреть – глядеть*;

*дом – жилище*;

*ошибка – промах*.

Именно этот тип составляет основную часть синонимического богатства русского языка.

Стилистические синонимы различаются сферой употребления и экспрессивной окраской:

*лицо – лик*;

*умирать – скончаться*;

*есть – кушать*.

Такие синонимы активно используются в художественной литературе и публицистике для создания определённого речевого эффекта.

Данный тип сочетает различия как в значении, так и в стилистической окраске:

*говорить – болтать*;

*идти – тащиться*;

*смеяться – хохотать*.

Подобные синонимы позволяют наиболее точно передавать эмоциональное состояние и отношение говорящего.

Синонимические оппозиции выполняют важные функции в языке и речи.

Синонимы позволяют более точно обозначать предметы, явления и действия, отражая различные аспекты значения.

Использование различных синонимов помогает выражать эмоциональную оценку и авторское отношение [3].

Например, слова *ребёнок, малыш, детёныш* обладают различной эмоциональной окраской.

Синонимы обеспечивают соответствие речи определённому стилю: научному, официально-деловому, художественному или разговорному.

Синонимия способствует связности текста и предотвращает неоправданные повторы [5].

В художественных произведениях авторы часто используют синонимические ряды для усиления выразительности речи.

Таким образом, структурно-семантические типы синонимических оппозиций представляют собой важнейший элемент лексической системы русского языка. Синонимия обеспечивает богатство и гибкость речевого выражения, способствует развитию языковой культуры и расширению выразительных возможностей речи.

Структурная классификация позволяет выделить однокорневые, разнокорневые и контекстуальные синонимы, тогда как семантический подход раскрывает особенности полных, частичных, стилистических и семантико-стилистических синонимов.

Исследование синонимических отношений остаётся актуальным направлением современной лингвистики, поскольку язык постоянно развивается, а система синонимии непрерывно пополняется новыми единицами и значениями.

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# MA’MURIY SHIKOYATLAR VA ULARNI SUDGA QADAR KO‘RIB CHIQISHNING AYRIM DOLZARB JIHATLARI

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***Annotatsiya.*** *Mazkur tezisda ma’muriy shikoyatlar hamda ma’muriy shikoyatlarni sudga qadar ko‘rib chiqishga oid ayrim dolzarb masalalar tahlil qilinadi. Xususan, ma’muriy shikoyat tushunchasi va huquqiy tabiati, ma’muriy shikoyatlar va boshqa murojaatlarning o‘zaro farqli jihatlari, ma’muriy shikoyatlarning manfaatdor shaxslar huquqlarini himoya qilishdagi asosiy huquqiy himoya vositasi sifatidagi ahamiyati, ma’muriy shikoyatlarni ko‘rib chiqishning o‘ziga xos xususiyatlari va ma’muriy shikoyatlarni umumiy tartibda ko‘rib chiqishning ayrim jihatlari, ma’muriy shikoyatlarni sudgacha ko‘rib chiqishning o‘ziga xos jihatlari hamda shikoyatlarni sudgacha ko‘rib chiquchi organlarning huquqiy tabiati tahlil etiladi.*

*Shuningdek, O‘zbekiston Respublikasida ma’muriy shikoyatlar va ularni sudgacha ko‘rib chiqish bo‘yicha tuziladigan Appelyatsiya kengashlarining huquqiy maqomi va yuridik tabiati ko‘rsatiladi. Respublikada ma’muriy shikoyatlarni ko‘rib chiqish tartib-taomillari bo‘yicha milliy qonunchilikni takomillashtirishga qaratilgan takliflar ilgari suriladi.*

***Kalit so‘zlar:*** *ma’muriy tartib-taomillar, inson huquqlari, ma’muriy yustitsiya, ma’muriy shikoyat, ma’muriy shikoyat qilish, ma’muriy shikoyatni ko‘rib chiqish tartibi, ma’muriy shikoyatlarni sudgacha ko‘rib chiqish, appelyatsiya kengashlari.*

***Abstract.*** *This thesis examines a number of current issues related to administrative complaints and the procedures for their pre-trial review. In particular, it analyzes the concept and legal nature of an administrative complaint, the distinguishing features between administrative complaints and other forms of petitions and appeals, the significance of administrative complaints as a primary legal remedy for the protection of the rights and legitimate interests of concerned persons, the specific characteristics of administrative complaint proceedings and certain aspects of their consideration under the general procedure, as well as the particular features of the pre-trial review of administrative complaints and the legal nature of bodies authorized to conduct such review.*

*Furthermore, the thesis examines the legal status and juridical nature of the Appeal Councils established in the Republic of Uzbekistan for the consideration and pre-trial review*

*of administrative complaints. It also puts forward proposals aimed at improving the national legislation of the Republic of Uzbekistan governing the procedures for the consideration of administrative complaints.*

***Keywords:*** *administrative procedures, human rights, administrative justice, administrative complaint, administrative appeal, procedure for reviewing administrative complaints, pre-trial review of administrative complaints, Appeal Councils.*

## KIRISH

Ma’muriy shikoyat davlat boshqaruvi sohasida jismoniy va yuridik shaxslarning huquqlari, erkinliklari hamda qonuniy manfaatlarini himoya qilishning muhim huquqiy vositalaridan biri hisoblanadi. U ma’muriy organlar va mansabdor shaxslar tomonidan qabul qilingan qarorlar, amalga oshirilgan harakatlar yoki yo‘l qo‘yilgan harakatsizliklar ustidan shikoyat qilish imkoniyatini yaratadi. Zamonaviy ma’muriy huquq nazariyasida ma’muriy shikoyat nafaqat individual huquqlarni himoya qilish mexanizmi, balki davlat boshqaruvi samaradorligini ta’minlovchi institut sifatida ham e’tirof etiladi.

Ma’muriy shikoyatning huquqiy tabiati quyidagi xususiyatlarda namoyon bo‘ladi:

– huquqlarni himoya qilish vositasi hisoblanadi;

– davlat boshqaruvi sohasida qonuniylikni ta’minlashga xizmat qiladi;

– sudga qadar nizolarni hal qilish mexanizmi sifatida namoyon bo‘ladi;

– ma’muriy organlar faoliyati ustidan ichki nazorat shakli hisoblanadi.

Ma’muriy shikoyatning birinchi va eng muhim jihati shundaki, u shaxsning buzilgan huquqlarini tezkor va samarali tiklash imkonini beradi. Sud tartibidagi himoya ko‘pincha murakkab protsessual talablar, vaqt va mablag‘ sarfini talab etsa, ma’muriy shikoyat nisbatan soddalashtirilgan tartibda ko‘rib chiqiladi. Shu sababli ko‘plab rivojlangan davlatlar ma’muriy nizolarni dastlab ma’muriy tartibda hal etish mexanizmlarini rivojlantirishga alohida e’tibor qaratadilar. Huquqshunos olimlar ma’muriy shikoyatni “sud himoyasining muqobili emas, balki uni to‘ldiruvchi va samaradorligini oshiruvchi vosita” sifatida baholaydilar.

Ikkinchidan, ma’muriy shikoyat davlat organlari faoliyatining qonuniyligini ta’minlashda muhim o‘rin tutadi. Nemis ma’muriy huquqi nazariyasida ma’muriy shikoyat “o‘zini o‘zi nazorat qilish mexanizmi” sifatida tavsiflanadi. Bunda ma’muriy organ o‘z qarorini qayta ko‘rib chiqish orqali xatolarini tuzatish, qonun talablariga zid bo‘lgan hujjatlarni bekor qilish yoki o‘zgartirish imkoniyatiga ega bo‘ladi. Natijada davlat boshqaruvida qonun ustuvorligi va adolat tamoyillari mustahkamlanadi.

Uchinchidan, ma’muriy shikoyat fuqarolar va davlat o‘rtasidagi munosabatlarda muvozanatni ta’minlaydi. Davlat boshqaruvi organlari ommaviy hokimiyat vakolatlariga ega bo‘lgani sababli ular bilan oddiy fuqaro o‘rtasida huquqiy tengsizlik mavjud bo‘lishi mumkin. Ma’muriy shikoyat instituti ushbu nomutanosiblikni yumshatib, fuqaroga davlat organlari qarorlarini qayta ko‘rib chiqishni talab qilish huquqini beradi. Bu esa huquqiy davlat konsepsiyasining muhim elementi hisoblanadi.

To‘rtinchidan, ma’muriy shikoyat yaxshi boshqaruv (good governance) tamoyillarini amalga oshirishga xizmat qiladi. Xususan, ochiqlik, shaffoflik, hisobdorlik va fuqarolarning davlat boshqaruvidagi ishtiroki kabi tamoyillar ma’muriy shikoyatlar orqali amaliy mazmun kasb etadi. Fuqarolar tomonidan bildirilayotgan shikoyatlar ma’muriy organlar faoliyatidagi tizimli kamchiliklarni aniqlash, davlat xizmatlari sifatini oshirish hamda korrupsion holatlarning oldini olishga yordam beradi.

Beshinchidan, ma’muriy shikoyat inson huquqlarini himoya qilishning xalqaro standartlariga mos keladi. Xalqaro huquqda har bir shaxsning buzilgan huquqlarini tiklash uchun samarali huquqiy himoya vositalaridan foydalanish huquqi tan olingan. Ushbu huquqning amalga oshirilishida ma’muriy shikoyat instituti muhim o‘rin egallaydi, chunki u sudga murojaat qilishdan oldin yoki sud bilan parallel ravishda huquqlarni himoya qilish imkoniyatini yaratadi.

Oltinchidan, ma’muriy shikoyat sudlar yuklamasini kamaytirish vazifasini ham bajaradi. Tadqiqotlar shuni ko‘rsatadiki, ma’muriy nizolarning ma’lum

qismi ma’muriy tartibda hal etilgan taqdirda sudlarga kelib tushadigan ishlar soni sezilarli darajada qisqaradi. Bu esa sud hokimiyatining resurslaridan oqilona foydalanish hamda odil sudlov sifatini oshirish imkonini beradi.

Shuningdek, ma’muriy shikoyatning preventiv (oldini oluvchi) ahamiyati ham mavjud. Davlat organlari o‘z qarorlari ustidan shikoyat qilinishi mumkinligini bilgan holda qaror qabul qilishda qonuniylik va asoslantirilganlik talablariga ko‘proq rioya qilishga intiladilar. Natijada noqonuniy ma’muriy hujjatlar soni kamayadi va fuqarolarning davlat organlariga bo‘lgan ishonchi ortadi.

Bundan tashqari, ma’muriy shikoyatlar davlat organlariga o‘z kamchilik va xatolarini o‘zlari to‘g‘rilashlariga imkon yaratadi hamda javobgarlik choralari kelib chiqishini oldini oladi.

Ilmiy adabiyotlarda sudgacha ko‘rib chiqish instituti “ma’muriy o‘zini o‘zi nazorat qilish mexanizmi” sifatida baholanadi. Nemis olimi Otto Mayer ma’muriy shikoyatlarni ko‘rib chiqish tartibini ma’muriy organlarga o‘z faoliyatidagi xatolarni tuzatish imkonini beruvchi muhim vosita sifatida tavsiflagan. Shuningdek, nemis ma’muriy huquqida shakllangan “Vorverfahren” (dastlabki ma’muriy tartib) instituti ma’muriy adliyaning muhim elementi sifatida qaraladi.[41]

Yuqoridagi kabi holatlarda, ma’muriy shikoyat tushunchasini milliy qonunchilikda yanada aniqlashtirish, barcha ma’muriy organlar uchun yagona shikoyatlarni ko‘rib chiqish standartlarini joriy etish, apellyatsiya kengashlari yoki mustaqil ma’muriy apellyatsiya organlari institutini rivojlantirish hamda ma’muriy shikoyatlarni sudgacha ko‘rib chiqish institutining majburiyligini tahlil qilish orqali O‘zbekiston uchun samarali modelni joriy qilish maqsadga muvofiqdir.

[41] Kopp F. Verwaltungsverfahrensgesetz. München, 2023
Maurer H. Allgemeines Verwaltungsrecht. München, 2022

Xulosa qilib aytganda, ma’muriy shikoyatlar davlat boshqaruvi sohasida shaxs huquqlari va qonuniy manfaatlarini himoya qilishning muhim huquqiy kafolatlaridan biri hisoblanadi. Ma’muriy shikoyat bo‘yicha ish yurituvning samarali tashkil etilishi davlat organlari faoliyatining qonuniyligi, ochiqligi va hisobdorligini ta’minlashga xizmat qiladi. Shu bilan birga, mazkur institutni xalqaro standartlar asosida takomillashtirish ma’muriy adliya tizimining yanada rivojlanishiga hamda fuqarolarning davlat boshqaruviga bo‘lgan ishonchini mustahkamlashga xizmat qiladi.

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# 3-SECTION

# ZAMONAVIY TA’LIMDA NAZORAT TURLARI VA BAHOLASH METODIKASINI TAKOMILLASHTIRISH

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***Annotatsiya:*** *Ushbu maqolada zamonaviy ta’lim jarayonida nazorat turlari, baholash mezonlari va monitoringga asoslangan yondashuvlarning pedagogik ahamiyati yoritiladi. Baholash o‘quvchilarning bilim, ko‘nikma va malakalarini aniqlash, o‘quv maqsadlariga erishish darajasini tahlil qilish hamda ta’lim sifatini oshirish vositasi sifatida ko‘rib chiqiladi. Maqolada mezonga asoslangan va me’yorga asoslangan baholash shakllari, joriy, oraliq va yakuniy nazoratning vazifalari, baholash jarayonida uchraydigan xatoliklar hamda ularni kamaytirish yo‘llari tahlil qilinadi. Raqamli monitoring va elektron baholash vositalaridan foydalanish o‘quv natijalarini tizimli kuzatish, tahlil qilish va pedagogik qarorlarni ilmiy asosda qabul qilish imkonini berishi asoslanadi.*

***Аннотация:*** *В статье раскрывается педагогическое значение видов контроля, критериев оценивания и подходов, основанных на мониторинге, в современном образовательном процессе. Оценивание рассматривается как средство определения знаний, умений и навыков учащихся, анализа степени достижения учебных целей и повышения качества образования. В статье анализируются критериальное и нормативное оценивание, задачи текущего, промежуточного и итогового контроля, а также ошибки, возникающие в процессе оценивания, и пути их снижения. Обосновывается, что использование цифрового мониторинга и электронных средств оценивания позволяет системно отслеживать учебные результаты, анализировать их и принимать педагогические решения на научной основе.*

***Abstract:*** *This article examines the pedagogical significance of types of control, assessment criteria, and monitoring-based approaches in modern education. Assessment is considered as a tool for identifying students’ knowledge, skills, and competencies, analyzing the level of achievement of learning objectives, and improving the quality of education. The article analyzes criterion-referenced and norm-referenced assessment, the functions of formative, interim, and final control, as well as common assessment errors and ways to reduce them. It is substantiated that the use of digital monitoring and electronic assessment tools*

*enables systematic tracking of learning outcomes, their analysis, and the adoption of pedagogical decisions on a scientific basis.*

***Kalit so‘zlar:*** *ta’lim, nazorat, baholash, o‘quv maqsadi, monitoring, mezon, reyting, diagnostika, raqamli baholash, ta’lim sifati.*

***Ключевые слова:*** *образование, контроль, оценивание, учебная цель, мониторинг, критерий, рейтинг, диагностика, цифровое оценивание, качество образования.*

***Keywords:*** *education, control, assessment, learning objective, monitoring, criterion, rating, diagnostics, digital assessment, quality of education.*

## KIRISH (INTRODUCTION)

Zamonaviy ta’lim tizimida o‘quvchi va talabalarni baholash masalasi muhim pedagogik yo‘nalishlardan biri hisoblanadi. Ta’lim jarayonining samaradorligi faqat o‘quv materialining mazmuni yoki dars jarayonining tashkil etilishi bilan belgilanmaydi. Unda ta’lim oluvchining bilimni qay darajada o‘zlashtirgani, uni amaliy faoliyatda qo‘llay olishi, mustaqil fikrlashi va o‘z faoliyatini tahlil qila olishi ham asosiy mezonlardan biri sanaladi.

Baholash ta’lim jarayonining ma’lum bosqichida o‘quv maqsadlariga erishilganlik darajasini oldindan belgilangan mezonlar asosida o‘lchash, natijalarni aniqlash va tahlil qilish jarayonidir [1]. Mazkur yondashuv baholashni oddiy ball qo‘yish amaliyotidan kengroq mazmunda tushunishni talab qiladi. Baholash o‘qituvchi uchun ham, o‘quvchi uchun ham teskari aloqa manbai bo‘lib xizmat qiladi.

Ta’limda baholash samarali bo‘lishi uchun o‘quv maqsadlari oldindan aniq belgilanadi. O‘quv maqsadlari ta’lim jarayoni yakunida o‘quvchi tomonidan o‘zlashtirilishi lozim bo‘lgan bilim, amaliy topshiriqni bajara olish mahorati, shaxsiy fazilatlar va faoliyat natijasini bildiradi [1]. Agar o‘quv maqsadi noaniq bo‘lsa, baholash ham subyektiv, tasodifiy yoki adolatsiz tus olishi mumkin.

Bugungi ta’lim jarayonida baholashga yangicha yondashuv zarur. O‘quvchi yoki talaba faqat javob bergani uchun emas, balki topshiriqni qanday

bajargani, mantiqiy fikrlagani, xulosaga kelgani, amaliy vazifani mustaqil bajara olgani uchun ham baholanishi kerak. Bu holat baholashning rivojlantiruvchi vazifasini kuchaytiradi.

Maktab ta’limida bilimni baholashning an’anaviy va zamonaviy usullari, o‘quvchilar bilimini monitoring qilish, baholash algoritmlarini ishlab chiqish va ta’lim sifatini oshirishga xizmat qiluvchi dasturiy majmualar bo‘yicha ilmiy ishlarda baholash jarayonini tizimli tashkil etish zarurligi asoslanadi [2], [3], [4], [5], [6]. Bu manbalarda baholash natijalarini faqat ball ko‘rinishida emas, balki ta’lim sifatini boshqarishga xizmat qiluvchi axborot sifatida tahlil qilish g‘oyasi ilgari suriladi.

Mazkur maqolaning maqsadi zamonaviy ta’limda nazorat turlari va baholash metodikasining pedagogik asoslarini tahlil qilish, baholash jarayonidagi xatoliklarni aniqlash, monitoringga asoslangan yondashuvning ahamiyatini yoritish hamda ta’lim sifatini oshirishga xizmat qiluvchi ilmiy-amaliy takliflarni ishlab chiqishdan iborat.

**Mavzuga oid adabiyotlarning tahlili (Literature review)**

Ta’lim jarayonida nazorat va baholash masalasi pedagogika fanida muhim ilmiy-amaliy yo‘nalishlardan biri hisoblanadi. Mavzuga oid adabiyotlarda baholash o‘quv maqsadlari, ta’lim natijalari, o‘quvchi faoliyati va ta’lim sifati bilan uzviy bog‘liq jarayon sifatida talqin qilinadi. Baholashning mazmuni faqat o‘quvchiga ball qo‘yish bilan cheklanmaydi, balki o‘zlashtirish darajasini aniqlash, kamchiliklarni tahlil qilish va keyingi ta’limiy faoliyatni rejalashtirishga xizmat qiladi [1].

O‘quv materiallarida o‘quv maqsadlari yo‘naltiruvchi, umumiy va aniq maqsadlarga ajratilishi ko‘rsatiladi [1]. Bu tasnif baholash jarayonini maqsadga muvofiq tashkil etishda muhim ahamiyatga ega. Chunki baholash mezonlari aynan o‘quv maqsadlariga mos ishlab chiqilganda natijalar aniq, xolis va tahlilga yaroqli bo‘ladi.

Mavzuga oid ilmiy manbalarda o‘quvchilar bilimini monitoring qilish, baholash algoritmlarini ishlab chiqish va axborot tizimlari asosida nazoratni tashkil etish masalalari yoritilgan [2], [3], [10]. Ushbu manbalarda baholash natijalarini muntazam qayd etish, solishtirish va tahlil qilish ta’lim sifatini boshqarishning muhim sharti sifatida ko‘rsatiladi.

An’anaviy va zamonaviy baholash usullariga oid tadqiqotlarda og‘zaki so‘rov, yozma nazorat, test, reyting, elektron monitoring, portfolio va amaliy topshiriqlar taqqoslab o‘rganilgan [4]. Bu yondashuv baholashning yagona shakl bilan cheklanmasligi, balki o‘quvchining nazariy bilimi, amaliy ko‘nikmasi va mustaqil faoliyatini kompleks baholash zarurligini asoslaydi.

Ta’lim sifatini oshirishga oid adabiyotlarda pedagogik monitoring, o‘qituvchi malakasi, dasturiy majmualar va maktab darajasida nazorat tizimini tashkil etish masalalariga e’tibor qaratilgan [5], [6], [7], [8]. Mazkur manbalar baholashni faqat individual o‘quvchi natijasini aniqlash vositasi emas, balki ta’lim muassasasida sifatni boshqarish mexanizmi sifatida ko‘rib chiqishga imkon beradi.

Pedagogik texnologiyalar va baholash nazariyasiga oid manbalarda baholashning obyektivligi, mezonliligi, tizimliligi va shaffofligi asosiy talablar sifatida belgilanadi [11]. Xalqaro adabiyotlarda esa ta’lim maqsadlari taksonomiyasi va formativ baholash yondashuvlari baholash jarayonini o‘quvchini rivojlantirishga xizmat qiluvchi vosita sifatida izohlaydi [12], [13].

Adabiyotlar tahlili shuni ko‘rsatadiki, zamonaviy baholash metodikasida o‘quv maqsadlariga moslik, aniq mezonlar, muntazam monitoring, raqamli baholash, teskari aloqa va ta’lim sifatini boshqarishga yo‘naltirilgan yondashuvlar ustuvor ahamiyat kasb etadi.

**Tadqiqot metodologiyasi (Research Methodology)**

Ushbu tadqiqot zamonaviy ta’limda nazorat turlari va baholash metodikasining pedagogik mohiyatini aniqlash, baholash jarayonining nazariy asoslarini o‘rganish hamda monitoringga asoslangan yondashuvlarning ta’lim

sifatiga ta’sirini tahlil qilishga qaratildi. Tadqiqotda nazariy tahlil, qiyosiy tahlil, umumlashtirish, tizimli yondashuv, manbalarni tahlil qilish va pedagogik kuzatuv metodlaridan foydalanildi.

Tadqiqotning metodologik asosini baholash nazariyasi, o‘quv maqsadlarini belgilash, pedagogik diagnostika, ta’lim sifati monitoringi va raqamli baholashga oid ilmiy qarashlar tashkil etdi. Xususan, B.S. Bloom tomonidan ishlab chiqilgan ta’lim maqsadlari taksonomiyasi baholash jarayonini bilim, tushunish, qo‘llash, tahlil qilish va xulosa chiqarish kabi bosqichlar bilan bog‘lash imkonini beradi [12]. Ushbu yondashuv baholash topshiriqlari faqat eslab qolish darajasini emas, balki yuqori darajadagi fikrlash faoliyatini ham qamrab olishi zarurligini ko‘rsatadi.

P. Black va D. Wiliamning formativ baholashga oid tadqiqotlarida baholash o‘quv jarayonini rivojlantiruvchi vosita sifatida talqin qilinadi [13]. Ularning yondashuviga ko‘ra, baholash natijasi o‘quvchiga faqat baho sifatida emas, balki keyingi o‘quv faoliyatini yaxshilashga xizmat qiluvchi teskari aloqa sifatida berilishi lozim. Mazkur qarash tadqiqotda baholashning rivojlantiruvchi vazifasini asoslashda muhim metodologik manba bo‘lib xizmat qildi.

Tadqiqotda zamonaviy ta’lim nazorat turlari va baholash metodikasiga oid o‘quv taqdimot materiali asosiy amaliy manbalardan biri sifatida olindi. Mazkur materialda baholash o‘quv maqsadlariga erishilganlik darajasini oldindan belgilangan mezonlar asosida o‘lchash, natijalarni aniqlash va tahlil qilish jarayoni sifatida izohlanadi [1]. Shu asosda baholashning maqsadi, vazifalari, turlari, shakllari, mezonlari va baholashda uchraydigan xatoliklar tizimli ravishda o‘rganildi.

Tadqiqotning birinchi bosqichida baholash tushunchasining nazariy mazmuni tahlil qilindi. Baholash o‘quv maqsadlariga erishilganlik darajasini aniqlash, natijalarni o‘lchash, tahlil qilish va keyingi ta’limiy faoliyatni rejalashtirishga xizmat qiluvchi pedagogik jarayon sifatida ko‘rib chiqildi [1].

Bu bosqichda baholash faqat ball qo‘yish vositasi emas, balki ta’lim sifatini boshqarish mexanizmi ekanligi asoslandi.

Ikkinchi bosqichda o‘quv maqsadlarining baholash jarayonidagi o‘rni o‘rganildi. O‘quv maqsadlarining yo‘naltiruvchi, umumiy va aniq turlari tahlil qilinib, ularning baholash mezonlarini shakllantirishdagi ahamiyati ochib berildi [1]. Bu yondashuv baholashning aniqligi va xolisligi o‘quv maqsadlarining to‘g‘ri belgilanishiga bog‘liq ekanini ko‘rsatdi.

Uchinchi bosqichda baholashning vaqt jihatidan tashkil etilishi tahlil qilindi. Ta’lim jarayoni boshida, davomida va yakunida amalga oshiriladigan baholash shakllarining vazifalari ko‘rib chiqildi [1]. Boshlang‘ich baholash o‘quvchining dastlabki tayyorgarligini aniqlashga, joriy baholash o‘zlashtirish jarayonini kuzatishga, yakuniy baholash esa umumiy natijani belgilashga xizmat qilishi asoslandi.

To‘rtinchi bosqichda baholash obyekti masalasi o‘rganildi. Nazariy bilimlar, amaliy ko‘nikma va malakalar, faoliyat natijalari hamda shaxsiy fazilatlar baholash obyekti sifatida tahlil qilindi [1]. Bu yondashuv zamonaviy baholash faqat bilimni tekshirish bilan cheklanmasdan, ta’lim oluvchining kompetensiyasini kompleks aniqlashi zarurligini ko‘rsatdi.

Beshinchi bosqichda mezonga asoslangan va me’yorga asoslangan baholash shakllari qiyosiy tahlil qilindi. Mezonga asoslangan baholashda o‘quvchining natijasi oldindan belgilangan talablar asosida aniqlanishi, me’yorga asoslangan baholashda esa natijalar o‘quvchilar o‘rtasida taqqoslash orqali baholanishi o‘rganildi [1]. Tahlil natijasida mezonga asoslangan baholash zamonaviy ta’limda xolislik va shaffoflikni ta’minlashda muhim ahamiyatga ega ekani asoslandi.

Oltinchi bosqichda ta’lim sifatini monitoring qilish va raqamli baholashga oid ilmiy manbalar o‘rganildi. O‘quvchilar bilimini monitoring qilish, baholash algoritmlarini ishlab chiqish, dasturiy majmualar va axborot tizimlaridan foydalanish bo‘yicha tadqiqotlarda baholash natijalarini tizimli qayd etish, qayta

ishlash va tahlil qilish zarurligi ko‘rsatilgan [2], [3], [6], [10]. Mazkur manbalar baholash jarayonida raqamli monitoringdan foydalanish ta’lim sifatini boshqarishda muhim ahamiyatga ega ekanini asoslashga xizmat qildi.

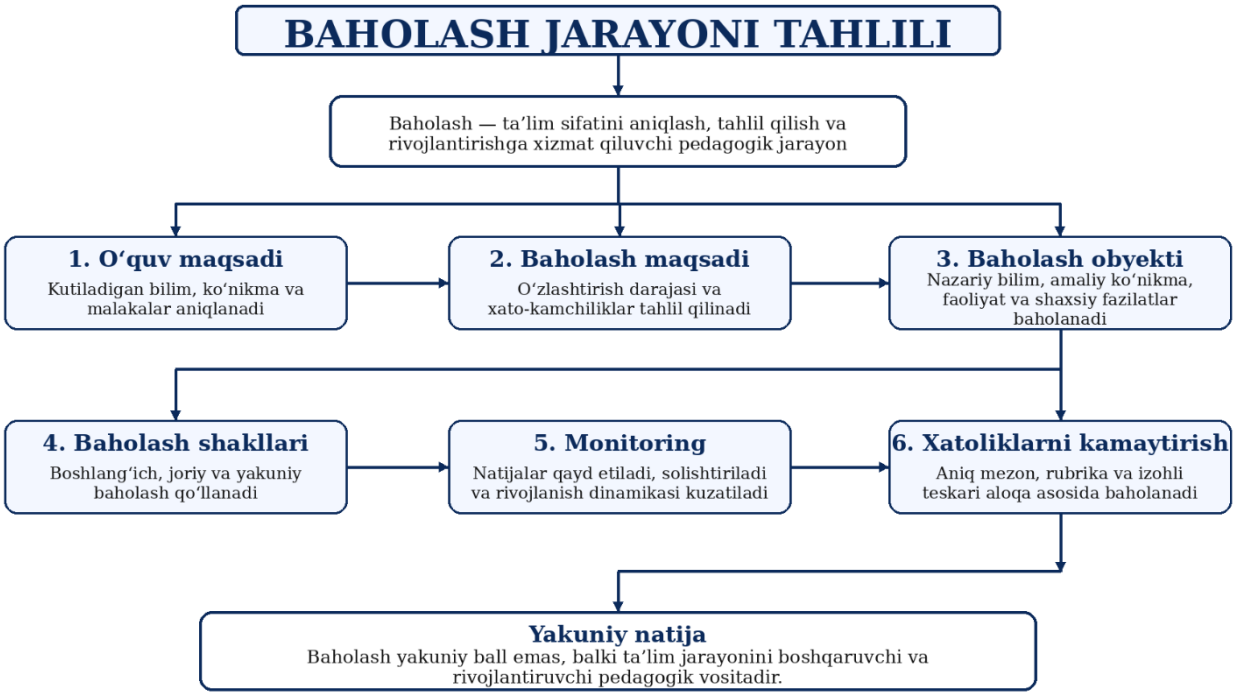
Yettinchi bosqichda baholash jarayonida uchraydigan subyektiv xatoliklar tahlil qilindi. Hayrixohlik xatosi, yuqori talab qo‘yish xatosi, o‘rtacha baho berish xatosi, o‘z fikrini o‘zgartirmaslik xatosi va yoqtirmaslik xatosi baholashning obyektivligiga salbiy ta’sir qiluvchi omillar sifatida ko‘rib chiqildi [1]. Bu tahlil baholashda aniq mezonlar, rubrikalar va dalillarga asoslangan yondashuvdan foydalanish zarurligini ko‘rsatdi.

Sakkizinchi bosqichda baholash tizimlari tahlil qilindi. Besh balli baholash tizimi, reyting tizimi va yuz balli reyting tizimining o‘quvchi faoliyatini muntazam kuzatishdagi imkoniyatlari o‘rganildi [1]. Yuz balli reyting tizimida joriy nazorat, oraliq nazorat va o‘tish bali kabi ko‘rsatkichlarning mavjudligi baholash jarayonini bosqichma-bosqich tashkil etishga yordam berishi aniqlandi.

Tadqiqot metodologiyasi sifat jihatdan tahlil qilishga asoslandi. Chunki baholash jarayoni faqat raqamli ko‘rsatkichlar bilan emas, balki o‘quvchining rivojlanish darajasi, mustaqil fikrlashi, amaliy faoliyati, xatolarini anglash qobiliyati va keyingi o‘quv harakatlarini rejalashtira olishi bilan ham bog‘liqdir. Shu sababli tadqiqotda baholash kompleks pedagogik jarayon sifatida ko‘rib chiqildi.

**Tahlil va natijalar (Analysis and results)**

Tahlillar shuni ko‘rsatadiki, baholash zamonaviy ta’limda ko‘p vazifali pedagogik jarayondir. U o‘quvchining bilim darajasini aniqlash, amaliy ko‘nikmalarini tekshirish, o‘qituvchining metodikasini tahlil qilish va ta’lim sifatini oshirishga xizmat qiladi. Baholash jarayonining asosiy tarkibiy qismlari va ularning o‘zaro bog‘liqligi quyidagi chizmada ifodalangan.




**1-rasm. Baholash jarayoni tahlilining tarkibiy chizilmasi**

Chizmadan ko‘rinadiki, baholash jarayoni o‘quv maqsadlarini aniqlashdan boshlanib, baholash maqsadi, baholash obyekti, baholash shakllari, monitoring hamda xatoliklarni kamaytirish mexanizmlari bilan uzviy bog‘liq holda amalga oshiriladi. Bunda baholash faqat yakuniy ball qo‘yish vositasi sifatida emas, balki ta’lim jarayonining sifatini nazorat qilish, o‘quvchining rivojlanish dinamikasini kuzatish va pedagogik qarorlarni asoslashga xizmat qiluvchi muhim tizim sifatida namoyon bo‘ladi. Baholash jarayonida aniq mezonlar, izohli teskari aloqa va monitoring natijalaridan foydalanish o‘quvchining bilim, ko‘nikma va malakalarini xolis baholash imkonini beradi.

Avvalo, baholash o‘quv maqsadlariga bog‘liq holda tashkil etilishi kerak. O‘quv maqsadi ta’lim jarayoni yakunida kutilayotgan natijani bildiradi [1]. O‘quvchi mavzu yakunida qanday bilim, ko‘nikma va malakaga ega bo‘lishi kerakligi aniq belgilanmasa, baholash natijasi ham to‘liq ishonchli bo‘lmaydi.

Baholashning asosiy maqsadlari uch yo‘nalishda ko‘rinadi. Birinchi yo‘nalish — o‘zlashtirilganlik darajasini aniqlash va davlat ta’lim standartlari talablari bajarilishini tekshirishdir [1]. Ikkinchi yo‘nalish — o‘qituvchi va o‘quvchining ta’lim jarayonidagi xato-kamchiliklarini aniqlash, ta’lim mazmuni

va metodikasini rejalashtirishdir [1]. Uchinchi yo‘nalish — so‘rash va bajartirib ko‘rish jarayonida o‘quvchining xatolarini tuzatish, boshqalar uchun ham saboq bo‘lishini ta’minlashdir [1].

Baholashning ahamiyati kengdir. U orqali o‘zlashtirilganlik to‘g‘risida ma’lumot olinadi, bilim, ko‘nikma va malakalar mustahkamlanadi, mashg‘ulotning qaysi qismiga ko‘proq e’tibor berish kerakligi aniqlanadi. O‘qituvchi o‘z kamchiliklarini anglaydi, o‘quvchi esa o‘zining nimalarga qodir ekanini bilib oladi [1].

Tahlil natijasida baholashda faqat nazariy bilimlarni tekshirish yetarli emasligi aniqlandi. Zamonaviy ta’limda nazariy bo‘limlar bilan bir qatorda amaliy ko‘nikma va malakalar, faoliyat hamda shaxsiy fazilatlar ham baholanishi kerak [1]. Masalan, kasbiy ta’limda o‘quvchi nazariy qoidani aytib bera olishi bilan birga uni real topshiriqni bajarishda qo‘llay olishi ham muhimdir.

Baholash vaqt jihatidan ham to‘g‘ri tashkil etilishi lozim. Ta’lim jarayoni boshida baholash o‘quvchining boshlang‘ich tayyorgarligini aniqlaydi. Ta’lim davomida baholash o‘zlashtirish jarayonini kuzatadi. Ta’lim yakunida baholash umumiy natijani belgilaydi [1]. Bu uch bosqich bir-birini to‘ldiradi.

Baholashning asosiy xususiyatlari sifatida ta’lim maqsadiga yo‘nalganlik, muntazam o‘tkazib borish, pedagogik, psixologik va huquqiy tamoyillarga asoslanish, umumiy qabul qilingan natija standartlariga tayanish ko‘rsatiladi [1]. Bu xususiyatlar baholash jarayonini tizimli va adolatli tashkil etishga yordam beradi.

Baholashda ikki asosiy yondashuv mavjud: mezonga asoslangan baholash va me’yorga asoslangan baholash. Mezonga asoslangan baholashda bilim, ko‘nikma va malakalar oldindan belgilangan hamda barcha uchun bir xil bo‘lgan mezonlar asosida baholanadi. Me’yorga asoslangan baholashda esa ta’lim oluvchilarning natijalari o‘zaro taqqoslanadi [1]. Zamonaviy ta’limda mezonga

asoslangan baholash ko‘proq samarali hisoblanadi, chunki u har bir o‘quvchining aniq natijasini ko‘rsatadi.

Monitoringga asoslangan baholash o‘quvchilar natijalarini tizimli qayd etish, o‘zlashtirish dinamikasini kuzatish, zaif tomonlarni aniqlash va ta’lim jarayoniga o‘z vaqtida tuzatish kiritish imkonini beradi [2], [3], [10]. Bunday yondashuvda baholash natijasi faqat yakuniy ball emas, balki keyingi pedagogik qarorlar uchun asos bo‘ladigan tahliliy ma’lumot sifatida qaraladi.

Dasturiy majmualar va elektron monitoring vositalaridan foydalanish baholash jarayonida inson omiliga bog‘liq ayrim subyektiv xatolarni kamaytirishga yordam beradi [5], [6], [7]. Elektron tizimlar natijalarni saqlash, qayta ishlash, solishtirish va o‘quvchining rivojlanish trayektoriyasini kuzatish imkoniyatini kengaytiradi.

An’anaviy baholash usullari ta’lim jarayonida zarur bo‘lsa-da, ular zamonaviy baholash vositalari bilan uyg‘unlashtirilganda samaradorlik ortadi [4]. Og‘zaki so‘rov, yozma ish, test, amaliy topshiriq, loyiha, portfolio, reyting va elektron monitoring birgalikda qo‘llansa, o‘quvchining bilim va ko‘nikmalari kengroq baholanadi.

Baholash jarayonida turli xatoliklar uchrashi mumkin. Hayrixohlik xatosi o‘quvchi faoliyatini ortiqcha yuqori baholashga olib keladi. Yuqori talab qo‘yish xatosi bahoning haqiqiy natijadan past bo‘lishiga sabab bo‘ladi. O‘rtacha baho berish xatosi o‘quvchilarning individual farqlarini yetarli hisobga olmaslik bilan bog‘liq. O‘z fikrini o‘zgartirmaslik xatosida o‘qituvchi o‘quvchidagi ijobiy o‘zgarishlarni tan olishda sustlik qiladi. Yoqtirmaslik xatosi esa shaxsiy munosabatning bahoga ta’sir qilishidir [1].

Baholashdagi xatoliklarni kamaytirish uchun aniq mezonlar ishlab chiqish, baholash rubrikalaridan foydalanish, topshiriq talablarini oldindan tushuntirish, o‘quvchining ishini aniq dalillar asosida tahlil qilish va natijani izoh bilan berish muhimdir. O‘quvchi faqat nechchi ball olganini emas, nima uchun aynan shu ball qo‘yilganini ham bilishi kerak.

Tahlillar asosida quyidagi natijalarga kelindi:

- baholash yakuniy jarayon emas, u ta’lim faoliyatini boshqaruvchi, tahlil qiluvchi va rivojlantiruvchi pedagogik vositadir.
- o‘quv maqsadlari aniq belgilanganda baholash mezonlari ravshanlashadi, natijalarning obyektivligi va ishonchliligi sezilarli darajada ortadi.
- baholash jarayoni nazariy bilimlar bilan cheklanmasdan, amaliy ko‘nikmalar, faoliyat va shaxsiy fazilatlarni qamrab olishi zarur.
- mezonga asoslangan baholash o‘quvchilar faoliyatini oldindan belgilangan talablar asosida xolis va shaffof baholash imkonini beradi.
- me’yorga asoslangan baholash ayrim saralash vaziyatlarida foydali, ammo individual rivojlanishni to‘liq ifodalab bera olmaydi.
- monitoringga asoslangan baholash o‘quvchilarning o‘zlashtirish dinamikasini muntazam kuzatish va tahlil qilish imkoniyatini kengaytiradi.
- elektron tizimlar baholash natijalarini saqlash, solishtirish, tahlil qilish va pedagogik qaror chiqarishni osonlashtiradi.
- baholashdagi subyektiv xatoliklar o‘quvchi motivatsiyasini pasaytiradi, o‘qituvchi va ta’lim oluvchi o‘rtasidagi ishonchga salbiy ta’sir qiladi.
- reyting tizimi o‘quvchini o‘quv davri davomida muntazam ishlashga, topshiriqlarni vaqtida bajarishga va faollikka undaydi.
- izohli teskari aloqa baholashning rivojlantiruvchi vazifasini kuchaytiradi, o‘quvchiga xatolarini tushunish imkonini beradi.

## XULOSA VA TAKLIFLAR
## (CONCLUSION/RECOMMENDATIONS)

Zamonaviy ta’limda nazorat va baholash jarayoni ta’lim sifatini oshirishda muhim o‘rin tutadi. Baholash o‘quvchining bilimini aniqlash bilan birga uning amaliy ko‘nikmalarini, mustaqil fikrlashini, faoliyatini va rivojlanish darajasini ham ko‘rsatib beradi. Shu sababli baholash o‘qituvchi uchun ham, o‘quvchi uchun ham muhim axborot manbai hisoblanadi.

Tadqiqot natijalari shuni ko‘rsatadiki, baholashning samaradorligi o‘quv maqsadlarining aniqligiga, mezonlarning oldindan belgilanishiga, baholashning muntazam olib borilishiga va o‘qituvchining xolis yondashuviga bog‘liq. Agar baholash faqat baho qo‘yish bilan cheklansa, uning rivojlantiruvchi ahamiyati kamayadi. Baholash natijalari tahlil qilinsa, o‘quvchiga izohli teskari aloqa berilsa, u ta’lim sifatini oshirishga xizmat qiladi.

Zamonaviy baholash jarayonida an’anaviy usullar bilan birga raqamli monitoring, elektron test, reyting tizimi, amaliy topshiriqlar, loyiha ishlari va portfoliodan foydalanish maqsadga muvofiq. Bu vositalar o‘quvchilarning bilim darajasini tizimli kuzatish, natijalarni solishtirish, kamchiliklarni aniqlash va pedagogik qarorlarni dalillarga asoslanib qabul qilish imkonini beradi.

Maqola yakunida quyidagi takliflar beriladi:

- har bir mavzu yoki mashg‘ulot uchun aniq, o‘lchanadigan va baholash mezonlariga mos o‘quv maqsadlari ishlab chiqilishi kerak.
- baholash mezonlari dars boshida o‘quvchilarga tushuntirilsa, baholash jarayoni adolatli va shaffof tashkil etiladi.
- nazorat jarayoni nazariy bilimlardan tashqari amaliy ko‘nikmalar, ijodiy faoliyat va mustaqil fikrlashni ham baholashi zarur.
- joriy, oraliq va yakuniy nazorat o‘zaro bog‘liq holda tashkil etilsa, o‘zlashtirish dinamikasi aniq ko‘rinadi.
- mezonga asoslangan baholashdan keng foydalanish o‘quvchilar natijasini xolis aniqlash va tahlil qilish imkonini beradi.
- baholashda shaxsiy munosabat, haddan tashqari talabchanlik va o‘rtacha baho berish xatolaridan saqlanish lozim.
- o‘quvchiga qo‘yilgan baho izoh bilan berilsa, u xatolarini tushunadi va keyingi faoliyatini to‘g‘rilaydi.
- amaliy topshiriqlarni baholashda ish sifati, mustaqillik, vaqtga rioya qilish va xavfsizlik qoidalari hisobga olinishi kerak.

•reyting tizimida ballar taqsimoti aniq, tushunarli va oldindan e’lon qilingan bo‘lsa, adolat ta’minlanadi.

•elektron monitoring vositalari natijalarni saqlash, tahlil qilish va o‘quvchilarning rivojlanishini kuzatishda samarali hisoblanadi.

•baholash natijalari asosida individual ta’lim yo‘nalishlari, qo‘shimcha mashg‘ulotlar va tuzatish ishlari rejalashtirilishi maqsadga muvofiq.

•ta’lim sifatini oshirishda monitoring, diagnostika va tahliliy hisobotlar yagona pedagogik tizim sifatida qo‘llanishi zarur.

Umuman olganda, zamonaviy baholash metodikasi o‘quvchini jazolashga emas, balki uni rivojlantirishga, o‘z ustida ishlashga yo‘naltirishga va ta’lim jarayonini takomillashtirishga xizmat qilishi kerak. Monitoringga asoslangan baholash esa o‘quvchi natijalarini chuqurroq tahlil qilish, ta’lim sifatini boshqarish va pedagogik qarorlarni ilmiy asosda qabul qilish imkonini beradi.

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# BOLALARNING AQLIY TARBIYASINI SHAKILLANTIRISHDA IBN SONONING QARASHLARI (ALISHER NAVOIY ILMIY-ADABIY MEROSI ASOSIDA)

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***Annotatsiya:*** *Mazkur maqolada Sharq uyg‘onish davrining buyuk allomasi Abu Ali ibn Sinoning bolalar aqliy tarbiyasiga oid qarashlari ilmiy-nazariy jihatdan tahlil qilinadi. Ibn Sinoning ilm, tafakkur, aql va bilish jarayoniga doir g‘oyalari Alisher Navoiy asarlarida berilgan baholar va mushtarak qarashlar asosida yoritiladi. Maqolada bolalarda aqliy kamolotni shakllantirishda ilmga muhabbat, mantiqiy tafakkur, ustoz-shogird munosabatlari va tarbiya muhitining o‘rni ochib beriladi. Ibn Sino va Alisher Navoiy qarashlarining bugungi ta’lim-tarbiya jarayonidagi dolzarbligi asoslab beriladi.*

***Kalit so‘zlar:*** *Ibn Sino, Alisher Navoiy, aqliy tarbiya, bolalar tarbiyasi, ilm-ma’rifat, tafakkur, Sharq mutafakkirlari.*

***Аннотация:*** *В статье проводится научно-теоретический анализ взглядов великого восточного мыслителя Абу Али ибн Сины на умственное воспитание детей. Идеи Ибн Сины о разуме, познании, мышлении и науке раскрываются на основе произведений Алишера Навои, в которых высоко оценивается научное наследие ученого. Рассматривается роль умственного развития, любви к знаниям, логического мышления и воспитательной среды в формировании личности ребёнка. Обосновывается актуальность взглядов Ибн Сины и Навои в современной системе образования.*

***Ключевые слова:*** *Ибн Сина, Алишер Навои, умственное воспитание, воспитание детей, наука, мышление, восточная философия.*

***Abstract:*** *This article presents a scientific and theoretical analysis of the views of the great Eastern scholar Abu Ali Ibn Sina on the intellectual development of children. Ibn Sina’s ideas on intellect, cognition, thinking, and knowledge are examined through the lens of Alisher Navoi’s works, where the scholar’s scientific legacy is highly praised. The article reveals the importance of intellectual upbringing, love for knowledge, logical thinking, and educational environment in child development. The relevance of Ibn Sina’s and Navoi’s views in modern education is substantiated.*

***Key words:*** *Ibn Sina, Alisher Navoi, intellectual education, child development, knowledge, thinking, Eastern philosophy.*

## KIRISH

Jamiyat taraqqiyoti inson aql-zakovati va intellektual salohiyatining rivoji bilan chambarchas bog‘liqdir. Shu bois bolalarning aqliy tarbiyasini shakllantirish masalasi qadimdan buyuk mutafakkirlar e’tiborida bo‘lib kelgan. Sharq uyg‘onish davrining yetuk namoyandalaridan bo‘lgan Abu Ali ibn Sino bu borada chuqur ilmiy-falsafiy qarashlarni ilgari surgan. Ibn Sino ilmiy merosi nafaqat tibbiyot va falsafani, balki pedagogik va tarbiyaviy masalalarni ham qamrab oladi. Alisher Navoiy esa o‘z asarlarida Ibn Sinoni “hakimi mutlaq”, “aql va ilm sultoni” sifatida e’zozlab, uning ilmiy qarashlarini yuksak baholagan. Shu jihatdan Ibn Sino aqliy tarbiya haqidagi g‘oyalarini Alisher Navoiy qarashlari bilan bog‘liq holda o‘rganish muhim ilmiy ahamiyatga ega. Ibn Sinoning aqliy tarbiya haqidagi umumiy qarashlari: Ibn Sino inson aqlini Alloh tomonidan berilgan eng oliy ne’mat deb biladi. Uning fikricha, aql orqali inson borliqni anglaydi, ilm egallaydi va kamolotga erishadi. “Donishnoma”, “Kitob ush-shifo” va boshqa asarlarida u bilish jarayonining bosqichlarini izchil bayon qiladi. Ibn Sinoga ko‘ra, bolalarda aqliy tarbiya erta yoshdan boshlanishi lozim. Bola tabiatidagi qobiliyatlar to‘g‘ri yo‘naltirilsa, unda mustahkam tafakkur va bilimga chanqoqlik shakllanadi. Bu fikrlar Alisher Navoiyning ilmni yoshligidan o‘rganish haqidagi qarashlari bilan mushtarakdir. Alisher Navoiy asarlarida Ibn Sinoga munosabat: Alisher Navoiy Ibn Sinoni Sharq ilm-fanining eng buyuk namoyandalaridan biri sifatida ulug‘laydi. “Nasoyim ul-muhabbat” va “Majolis un-nafois” asarlarida u Ibn Sinoning ilmiy salohiyati va aql-zakovati haqida yuksak fikrlar bildiradi. Navoiy Ibn Sinoni nafaqat tabib, balki yetuk mutafakkir va tarbiyachi sifatida baholaydi. Bu baholar Ibn Sinoning aqliy tarbiya haqidagi qarashlarining naqadar chuqur va mukammal ekanini tasdiqlaydi. Navoiy uchun ilm – insonni komillikka yetaklovchi asosiy vosita bo‘lib, bu g‘oya Ibn Sino ta’limoti bilan uyg‘unlashadi. Bolalarda ilmga

muhabbat va tafakkurni rivojlantirish: Ibn Sino ilmga muhabbatni aqliy tarbiyaning asosiy omili deb biladi. U bolani majburlab emas, balki qiziqtirish orqali o‘qitish tarafdori bo‘lgan. Bola o‘z qobiliyatiga mos fanlarni o‘rganishi kerak, deb hisoblaydi. Alisher Navoiy ham ilmni majburiyat emas, balki inson qalbini yorituvchi nur sifatida talqin qiladi. Uning asarlarida ilmga chanqoqlik, o‘rganishga intilish eng oliy fazilat sifatida ulug‘lanadi. Bu jihatdan Navoiy Ibn Sinoning pedagogik qarashlarini davom ettirgan deyish mumkin. Mantiqiy fikrlash va aqlni charxlash masalasi: Ibn Sino mantiq ilmini aqlni tarbiyalovchi muhim vosita deb biladi. U bolalarda sabab-oqibat aloqalarini tushunish, tahlil qilish va xulosa chiqarish ko‘nikmalarini rivojlantirish zarurligini ta’kidlaydi. Navoiy ham insonning aqliy salohiyatini baholashda tafakkur va idrokni asosiy mezon sifatida ko‘radi. Uning asarlarida nodonlik va johillik qoralansa, aql bilan ish tutish ulug‘lanadi. Bu qarashlar Ibn Sino ta’limotining badiiy-falsafiy ifodasi hisoblanadi. Ustoz-shogird munosabatlari va tarbiya muhiti: Ibn Sinoga ko‘ra, aqliy tarbiya samaradorligi ko‘p jihatdan ustozga bog‘liq. Ustoz bilimdon, axloqli va sabrli bo‘lishi lozim. Shuningdek, tarbiya muhitining sog‘lom bo‘lishi bolaning aqliy rivojiga bevosita ta’sir ko‘rsatadi. Alisher Navoiy ham ustozni “ma’naviy yo‘l ko‘rsatuvchi” sifatida talqin etadi. Ustoz va shogird o‘rtasidagi hurmat va ishonch aqliy kamolotning muhim sharti ekanini ta’kidlaydi. Ibn Sino qarashlarining zamonaviy ahamiyati: Bugungi ta’lim tizimida bolalarning mustaqil fikrlashi, mantiqiy tahlil qila olishi muhim ahamiyat kasb etmoqda. Ibn Sinoning aqliy tarbiya haqidagi qarashlari zamonaviy pedagogik yondashuvlar bilan hamohangdir. Alisher Navoiy orqali biz Ibn Sino merosining nafaqat ilmiy, balki tarbiyaviy ahamiyatini ham chuqurroq anglaymiz. Bu qarashlar yosh avlodni intellektual yetuk, fikrlash qobiliyati rivojlangan shaxs etib tarbiyalashda muhim manba bo‘lib xizmat qiladi. Xulosa qilib aytganda, Ibn Sinoning bolalar aqliy tarbiyasiga oid qarashlari chuqur ilmiy va falsafiy asosga ega. Alisher Navoiy asarlarida bu qarashlarning yuksak baholanishi ularning tarixiy va zamonaviy ahamiyatini yanada oshiradi. Ilmga muhabbat, tafakkur,

mantiqiy fikrlash va ustoz-shogird an’analari bugungi ta’lim tizimi uchun ham muhim ahamiyat kasb etadi.

## FOYDALANILGAN ADABIYOTLAR RO‘YXATI

1. Ibn Sino. **Donishnoma**. – Toshkent.
2. Ibn Sino. **Kitob ush-shifo**. – Toshkent.
3. Alisher Navoiy. **Majolis un-nafois**. – Toshkent.
4. Alisher Navoiy. **Nasoyim ul-muhabbat**. – Toshkent.
5. Karimov I.A. **Yuksak ma’naviyat – yengilmas kuch**. – Toshkent.
6. Yo‘ldoshev J. **Sharq mutafakkirlarining pedagogik qarashlari**. – Toshkent.

# THE ESSENCE, STRUCTURE, AND SIGNIFICANCE OF COGNITIVE LEARNING SKILLS IN THE PERSONALITY DEVELOPMENT OF SENIOR SCHOOL STUDENTS

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***Abstract:*** *In modern education systems, the development of students' cognitive learning skills has become one of the key priorities aimed at ensuring not only academic success but also the comprehensive formation of personality. Cognitive learning skills represent a complex set of intellectual abilities that enable learners to perceive, process, analyze, and apply knowledge independently. This article explores the essence and structure of cognitive learning skills and examines their significance in the personality development of senior school students. Special attention is paid to the interrelationship between cognitive skills, critical thinking, self-regulation, motivation, and social maturity. The study is based on theoretical analysis of pedagogical and psychological literature and highlights the role of cognitive learning skills in shaping learners' independence, responsibility, creativity, and readiness for lifelong learning. The findings suggest that systematic development of cognitive learning skills contributes significantly to students' intellectual growth and the formation of a well-rounded personality capable of adapting to the challenges of the modern information society.*

***Keywords:*** *cognitive learning skills, learning competence, senior school students, personality development, critical thinking, self-regulation, educational process.*

## INTRODUCTION

The rapid development of science, technology, and information flows in the twenty-first century has significantly transformed the goals and content of education. Modern schools are no longer focused solely on transmitting ready-made knowledge; instead, they aim to develop students' abilities to learn independently, think critically, and apply knowledge creatively in various life

situations. In this context, cognitive learning skills have gained particular importance as a fundamental component of educational competence.

Senior school students occupy a special place in the education system, as this stage coincides with intensive intellectual, emotional, and social development. During this period, learners form stable cognitive interests, professional intentions, and value orientations that largely determine their future life paths. Therefore, the development of cognitive learning skills at this stage plays a crucial role not only in academic achievement but also in the holistic formation of personality.

This article aims to analyze the essence and structure of cognitive learning skills and to reveal their significance in the personality development of senior school students.

The Essence of Cognitive Learning Skills. Cognitive learning skills can be defined as a system of mental actions and intellectual abilities that ensure effective acquisition, processing, and application of knowledge. These skills allow students to actively engage in the learning process, transform information into personal experience, and use it for problem-solving.

From a pedagogical perspective, cognitive learning skills include the ability to:

- understand and interpret educational information;
- analyze, compare, and generalize facts and concepts;
- identify cause-and-effect relationships;
- formulate hypotheses and conclusions;
- apply knowledge in new and non-standard situations.

Psychologically, cognitive learning skills are closely linked to mental processes such as perception, attention, memory, thinking, and imagination. Their development enhances students' intellectual autonomy and contributes to the formation of conscious and purposeful learning activity. Unlike simple memorization, cognitive learning skills emphasize meaningful learning,

reflection, and internal motivation. They transform students from passive recipients of information into active subjects of the educational process.

The Structure of Cognitive Learning Skills. Cognitive learning skills have a complex and multi-component structure. Researchers generally distinguish several interrelated components:

1. Motivational Component

The motivational component reflects students' cognitive interests, learning needs, and internal motivation. It determines the willingness to engage in learning activities and overcome difficulties. For senior school students, motivation is often connected with future professional goals and self-realization.

2. Cognitive-Operational Component

This component includes specific intellectual operations and strategies such as analysis, synthesis, comparison, classification, abstraction, and generalization. These operations form the core of cognitive activity and enable students to work with educational content effectively.

3. Informational Component

The informational component involves the ability to search, select, evaluate, and organize information from various sources. In the modern digital environment, this component is particularly important, as students must navigate large volumes of information critically and responsibly.

4. Reflective Component

Reflection allows students to evaluate their learning processes and outcomes, identify strengths and weaknesses, and adjust strategies accordingly. Reflective skills contribute to self-regulation and continuous improvement of learning activities.

5. Volitional Component

The volitional component includes perseverance, self-control, and responsibility. These qualities help students maintain focus, complete tasks, and achieve learning goals despite challenges.

Together, these components form an integrated system that ensures the effectiveness and sustainability of cognitive learning skills. The Role of Cognitive Learning Skills in the Personality Development of Senior School Students. The development of cognitive learning skills has a profound impact on the personality formation of senior school students. This influence manifests in several key aspects:

Intellectual Development. Cognitive learning skills enhance higher-order thinking abilities such as critical and creative thinking. Students learn to question information, justify opinions, and generate original ideas. This intellectual maturity is essential for academic success and informed decision-making.

Formation of Independence and Responsibility. As students acquire cognitive learning skills, they become more independent in planning and managing their learning activities. This independence fosters a sense of responsibility for learning outcomes and personal development.

Development of Self-Regulation and Reflection. Self-regulation enables students to set goals, monitor progress, and evaluate results. Reflective skills promote self-awareness and realistic self-assessment, which are important characteristics of a mature personality.

Social and Communicative Development. Cognitive learning skills support effective communication, collaboration, and argumentation. Through group work and discussions, students develop respect for others' opinions and the ability to defend their viewpoints constructively.

Preparation for Lifelong Learning. In a rapidly changing world, the ability to learn continuously is a vital personal quality. Cognitive learning skills form the foundation for lifelong learning, adaptability, and professional mobility.

Pedagogical Conditions for Developing Cognitive Learning Skills

Effective development of cognitive learning skills requires purposeful pedagogical conditions, including:

- learner-centered teaching approaches;

- problem-based and inquiry-based learning;
- integration of information and communication technologies;
- creation of a supportive and motivating learning environment;
- encouragement of reflection and self-assessment.

Teachers play a key role in guiding students toward active and conscious learning by designing tasks that stimulate thinking and creativity.

## CONCLUSION

Cognitive learning skills represent a crucial element of modern education and a key factor in the personality development of senior school students. Their essence lies in enabling meaningful, independent, and reflective learning, while their structure encompasses motivational, cognitive-operational, informational, reflective, and volitional components. The development of these skills contributes to intellectual growth, independence, responsibility, social competence, and readiness for lifelong learning. Therefore, systematic and purposeful formation of cognitive learning skills should be regarded as a priority task of contemporary education aimed at preparing students for successful participation in modern society.

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# DIFFERENSIAL YONDASHUVNING MAZMUN-MOHIYATI, TAMOYILLARI VA ILMIY ASOSLARI

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***Annotatsiya.*** *Ushbu ilmiy maqolada zamonaviy ta'lim tizimida shaxsga yo'naltirilgan o'qitishning asosi hisoblangan differensial yondashuvning mazmun-mohiyati, fundamental tamoyillari va ilmiy-pedagogik asoslari tizimli tahlil qilingan. Maqolada talaba va o'quvchilarning individual-psixologik xususiyatlari, qobiliyatlari hamda kognitiv uslublariga mos ravishda ta'lim jarayonini tabaqalashtirish mexanizmlari yoritilgan. Shuningdek, Termiz davlat pedagogika institutida o'tkazilgan ikki oylik pedagogik tajriba-sinov ishlari natijalari asosida differensial yondashuvning talabalar mustaqil fikrlashi va o'zlashtirish koeffitsiyentiga ta'siri ilmiy jihatdan baholangan hamda metodik tavsiyalar ilgari surilgan.*

***Kalit so'zlar:*** *differensial yondashuv, tabaqalashtirilgan ta'lim, individual trayektoriya, kognitiv rivojlanish, pedagogik texnologiyalar, motivatsiya, ta'lim samaradorligi.*

***Abstract.*** *This scientific article systematically analyzes the essence, fundamental principles, and scientific-pedagogical foundations of the differentiated approach, which is considered the core of student-centered learning in the modern education system. The paper highlights the mechanisms of differentiating the educational process in accordance with the individual-psychological characteristics, abilities, and cognitive styles of students. Furthermore, based on the results of two-month pedagogical experimental research conducted at the Termez State Pedagogical Institute, the impact of the differentiated approach on students' independent thinking and academic achievement rates was scientifically evaluated, and methodological recommendations were proposed.*

***Keywords:*** *differentiated approach, differentiated education, individual trajectory, cognitive development, pedagogical technologies, motivation, educational efficiency.*

## KIRISH

Bugungi kunda jahon ta'lim makonida unifikatsiyalashgan (barcha uchun bir xil) ta'lim modelidan shaxsga yo'naltirilgan, moslashuvchan va inklyuziv

ta’lim tizimiga o‘tish global tendensiyaga aylandi. O‘zbekiston Respublikasining oliy va professional ta’lim tizimidagi tub islohotlar ham har bir ta’lim oluvchining individual salohiyatini, ichki imkoniyatlarini va intellektual resurslarini maksimal darajada yuzaga chiqarishni bosh maqsad qilib qo‘ygan. Ushbu strategik maqsadni amalga oshirishda esa differensial (tabaqalashtirilgan) yondashuv metodologiyasi markaziy o‘rinni egallaydi.Differensial yondashuv — bu shunchaki o‘quvchilarni guruhlarga ajratish emas, balki ta’lim oluvchilarning yosh, psixologik, kognitiv, neyrofiziologik xususiyatlari hamda professional qiziqishlaridan kelib chiqib, o‘quv jarayonining mazmuni, metodlari, topshiriqlar murakkabligi va baholash mezonlarini tabaqalashtirgan holda tashkil etish tizimidir. Ushbu yondashuv an’anaviy pedagogikadagi "o‘rtacha talaba" tushunchasidan butunlay voz kechib, har bir shaxsga o‘zining individual o‘sish va rivojlanish trayektoriya vizualizatsiyasini yaratish imkonini beradi. Zamonaviy oliy ta’lim guruhlarida talabalarning tayyorgarlik darajasi, axborotni qabul qilish tezligi va fanga bo‘lgan qiziqishi keskin farq qiladi. Bunday sharoitda barcha uchun bir xil andozadagi (shablonli) ma’ruza va amaliy topshiriqlarni qo‘llash ikki tomonlama salbiy oqibatga olib keladi: iqtidorli va kuchli talabalar uchun dars zerikarli hamda kognitiv o‘sishdan to‘xtagan muhitga aylansa, o‘zlashtirishi sustroq bo‘lgan talabalar fandan butunlay ko‘ngli sovushi va o‘ziga bo‘lgan ishonchni yo‘qotishi mumkin. Muammoning ilmiy qo‘yilishi shundan iboratki, ta’lim jarayonini tashkil etishda talabalarning individual-psixologik tiplari (vizual, auditor, kinestetik) va ularning fikrlash xususiyatlari yetarlicha inobatga olinmayapti. Shu sababli, oliy pedagogik ta’limda differensial yondashuvning ilmiy-nazariy asoslarini chuqur anglash, uning tamoyillarini tizimlashtirish va uni real auditoriya sharoitida qo‘llashning pedagogik samaradorligini baholash bugungi kunning dolzarb muammolaridan biri hisoblanadi.

## MAVZUGA OID ADABIYOTLARNING TAHLILI (LITERATURE REVIEW)

**1.** O‘zbekiston Respublikasining ta’lim sohasidagi normativ-huquqiy hujjatlarida, xususan "Ta’lim to‘g‘risida"gi Qonun va Milliy o‘quv dasturlarida ta’limning barcha bosqichlarida inklyuzivlik, teng imkoniyatlar yaratish va individual yondashuv tamoyillarini joriy etish qat’iy tartibga solingan.

**2.** Sharq mutafakkiri Abu Ali ibn Sino o‘zining pedagogik qarashlarida bolalarni o‘qitishda ularning tabiati, tabiati xususiyatlari, qiziqishi va zehni o‘tkirligiga qarab yondashish lozimligini, har bir insonga o‘z iqtidori va salohiyati darajasida ilm berish to‘g‘riligini alohida ta’kidlagan.

**3.** Didaktika asoschisi Yan Amos Komenskiy "tabiat bilan uyg‘unlik" tamoyilini ilgari surib, ta’lim o‘quvchining yoshi va individual tayyorgarlik darajasiga mutanosib ravishda, bosqichma-bosqich murakkablashib borishi shartligini didaktik qoida sifatida ko‘rsatgan.

**4.** J. Piaje va L. Vigotskiyning kognitiv va ijtimoiy konstruktivizm nazariyalariga ko‘ra, har bir ta’lim oluvchining "Yaqin rivojlanish zonasi" (Zone of Proximal Development) turlichadir. Differensial yondashuv aynan mana shu zonani aniqlashga va har bir talabaga o‘z imkoniyatiga mos "ko‘prik" (scaffolding) yaratishga xizmat qiladi.

**5.** Mashhur pedagog K. Rogers insonparvarlik pedagogikasi doirasida ta’lim jarayoni markazida o‘qituvchi emas, balki o‘ziga xos ehtiyoj, his-tuyg‘u va o‘zgaruvchan qobiliyatlarga ega bo‘lgan subyekt — talaba turishi kerakligini isbotlagan.

## DIFFERENSIAL YONDASHUVNING ASOSIY TAMOYILLARI

**Individual trayektoriya tamoyili:** Har bir talabaning materialni o‘zlashtirish tezligi va uslubiga (vizual, auditor, kinestetik) mos o‘quv muhitini loyihalash.

**Variativlik tamoyili:** O‘quv topshiriqlari, darsliklar va amaliy manbalarning bir necha darajadagi (bazaviy, o‘rta, yuqori/ijodiy) muqobil variantlarini taqdim etish.

**Moslashuvchanlik (Fleksibillik) tamoyili:** Pedagogning dars davomida talabalarning real vaqtdagi o‘zlashtirish dinamikasiga va psixologik holatiga qarab guruhlar tarkibini hamda metodlarini o‘zgartira olishi.

**Muvaffaqiyat hissi tamoyili:** Har bir darajadagi talaba uchun erishish mumkin bo‘lgan strategik maqsadlarni belgilash orqali ularda fanga nisbatan kuchli ichki motivatsiyani shakllantirish.

## TADQIQOT METODOLOGIYASI (RESEARCH METHODOLOGY)

Pedagogik eksperiment Termiz davlat pedagogika institutida o‘tkazildi. Tadqiqotda jami 50 nafar talaba ishtirok etdi va ular quyidagi ikki guruhga ajratildi:

**Nazorat guruhi (N=25):** Ushbu guruh talabalariga darslar an’anaviy unifikatsiyalashgan ma’ruza va amaliyot shaklida, ya’ni barcha uchun bir xil qiyinchilikdagi topshiriqlar va standart ma’ruza matnlari asosida o‘tildi.

**Tajriba guruhi (N=25):** Ushbu guruhda darslar differensial yondashuv asosida tashkil etildi. Talabalar dastlabki diagnostik testlar va kognitiv so‘rovnomalar orqali 3 ta darajali kichik guruhlarga ajratildi va ularga maxsus moslashtirilgan o‘quv modulleri qo‘llanildi.

**Differensial yondashuvga oid amaliy keys (Topshiriqlar darajasi):**

**A-daraja (Bazaviy):** Mavzuga oid tayanch tushunchalar, qonuniyatlar va terminlarni aniqlash, tushuntirish va reja asosida takrorlash topshiriqlari.

**B-daraja (O‘rta/Tahliliy):** Nazariy bilimlarni tipik muammoli vaziyatlarda qo‘llash, solishtirish, sabab-oqibat aloqalarini tahlil qilish va differensiallash topshiriqlari.

**C-daraja (Yuqori/Ijodiy):** Nostandart muammolarga original yechim topish, mustaqil loyiha yaratish va tanqidiy baholashga yo‘naltirilgan tadqiqotchilik topshiriqlari.

## TAHLIL VA NATIJALAR (ANALYSIS AND RESULTS)

Ikki oylik tadqiqot yakunida olingan natijalar shuni ko‘rsatdiki, ta’lim jarayonini tabaqalashtirish talabalarning nafaqat o‘zlashtirish koeffitsiyentini, balki fanga bo‘lgan motivatsiyasini ham keskin oshirgan. Nazorat guruhida o‘rtacha ko‘rsatkich 63 ballni tashkil etgan bo‘lsa, innovatsion metodlar qo‘llanilgan tajriba guruhida o‘rtacha ball 89 ballga yetdi.

Talabalarning bilim va kompetensiyalari dinamikasi (Jadval):

| Baholash mezonlari va kognitiv ko‘nikmalar | Nazorat guruhi (An’anaviy) | Tajriba guruhi (Differensial) | O‘sish ko‘rsatkichi |
|---|---|---|---|
| Tayanch tushunchalarni eslab qolish va tushunish | 68% | 92% | +24% |
| Bilimlarni amaliy vaziyatlarda qo‘llay olish | 54% | 88% | +34% |
| Mustaqil tahlil qilish va tanqidiy fikrlash | 48% | 85% | +37% |
| Ijodiy yondashuv va loyiha yarata olish mahorati | 42% | 82% | +40% |

Eng yuqori o‘sish sur’ati ijodiy yondashuv va loyiha yarata olish mahorati mezonida (+40%) kuzatildi. Bu kuchli talabalarga o‘z darajasiga mos yuqori murakkablikdagi topshiriqlar berilishi hamda sust o‘zlashtirayotgan talabalarning bazaviy bosqichdan bosqichma-bosqich o‘sib borishi ta’minlangani samarasidir.

## XULOSA VA TAKLIFLAR (CONCLUSION / RECOMMENDATIONS)

**1.** Differensial yondashuv zamonaviy pedagogikada subyekt-subyekt munosabatlarini qaror toptirishning, talabani ta’limning passiv tinglovchisidan faol ijodkoriga va mustaqil tadqiqotchisiga aylantirishning eng samarali mexanizmi hisoblanadi.

**2.** Tabaqalashtirilgan topshiriqlar tizimi dars jarayonida har bir talabaning psixofiziologik charchash va stress holatiga tushishining oldini oladi, ta’lim muhitining psixologik qulayligini ta’minlaydi.

**3.** Differensial yondashuv o‘qituvchidan yuksak metodik mahorat va darsni loyihalashda chuqur diagnostik tahlil o‘tkazishni talab etadi.

**Amaliy takliflar:**

**Metodik bazani shakllantirish:** Termiz davlat pedagogika institutida fanlar kesimida darajalashtirilgan elektron va bosma topshiriqlar, keyslar to‘plamlarini yaratish va tizimli joriy etish.

**Raqamli diagnostika:** Talabalarning kognitiv profillarini va qabul qilish xususiyatlarini avtomatlashtirilgan tarzda aniqlovchi LMS (Learning Management System) platformalaridan foydalanish ulushini oshirish.

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# OLIY TA’LIM MUASSASALARIDA AUDITORIYA VA AUDITORIYADAN TASHQARI MASHG‘ULOTLARNI SAMARALI TASHKIL ETISH DOLZARB MUAMMO SIFATIDA

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***Annotatsiya:*** *Ushbu maqolada kredit-modul tizimi sharoitida auditoriya darslari va auditoriyadan tashqari mustaqil ta’lim muhitini samarali muvofiqlashtirish masalalari tahlil qilingan. Darsdan tashqari mashg‘ulotlarni tizimli boshqarish, metodik ta’minotning an’anaviy inersiyadan xalos bo‘la olmayotgani hamda talabalarda mustaqil akademik madaniyatning yetarli darajada shakllanmaganligi kabi tizimli muammolar maqolaning bosh tadqiqot ob’ekti hisoblanadi. Pedagogik jarayonlarni isloh qilish, talabalarning kasbiy kompetensiyalarini oshirish hamda raqamli o‘quv platformalari imkoniyatlaridan foydalangan holda ikki muhit uzviyligini ta’minlashning innovatsion modellari yoritilgan.*

***Abstract:*** *This article analyzes the issues of effectively coordinating classroom learning and extracurricular independent educational environments within the credit-module system. The main research objects of the article are systemic problems such as the systematic management of extracurricular activities, the inability of methodological support to break free from traditional inertia, and the insufficient development of an independent academic culture among students. Innovative models for reforming pedagogical processes, enhancing students' professional competencies, and ensuring the integration of both environments using the capabilities of digital learning platforms are highlighted.*

***Kalit so‘zlar:*** *Kredit-modul tizimi, auditoriyadan tashqari mashg‘ulotlar, mustaqil ta’lim, ta’limiy integratsiya, pedagogik innovatsiya, aralash ta’lim, loyihaviy o‘qitish, akademik madaniyat.*

***Keywords:*** *Credit-module system, extracurricular activities, independent learning, educational integration, pedagogical innovation, blended learning, project-based learning, academic culture.*

## KIRISH

Oliy ta’lim tizimining xalqaro andozalar va kredit-modul tamoyillari asosida qayta qurilishi talabalarning o‘quv yuklamasini tubdan o‘zgartirdi. Yangi tizim talabaning auditoriya devorlaridan tashqarida, ya’ni mustaqil ravishda o‘z ustida ishlashi uchun keng imkoniyatlar yaratishni ko‘zda tutadi. Biroq, amaliyotda auditoriya darslari bilan auditoriyadan tashqari faoliyatni uzviy bog‘lash va darsdan tashqari vaqtni unumli metodik vositalar bilan ta’minlash masalasi bugungi pedagogika amaliyoti oldida turgan eng jiddiy muammolardan biri bo‘lib qolmoqda. Muammoning o‘zagi, ta’lim tizimining tashkiliy tuzilishi zamonaviylashgan bo‘lsa-da, o‘quv jarayonini mazmunan loyihalash metodikasi hamon eski akademik passivlik tamoyillaridan to‘liq qutula olmayotganidadir.

## ASOSIY QISM

Oliy ta’limda shakllangan ma’ruzaga asoslangan klassik yondashuv darsdan tashqari mashg‘ulotlarni ikkinchi darajali, shunchaki uy vazifasini eslatuvchi mexanik jarayon sifatida ko‘rishga sabab bo‘lmoqda. Ko‘plab o‘qituvchilar talabalarga faqatgina darsliklarni konspekt qilish yoki tayyor matnlarni referat ko‘rinishida yig‘ish kabi bir xildagi ijodiy bo‘lmagan topshiriqlarni berishda davom etmoqdalar. Bunday an’anaviy topshiriqlar talabaning tanqidiy fikrlashini rivojlantirmaydi, aksincha, fanga bo‘lgan qiziqishini so‘ndiradi va ko‘chirmakashlikka zamin yaratadi. Mustaqil ravishda muqobil yechimlarni qidirish ko‘nikmalari shakllanmagani sababli, talaba darsdan tashqari vaqtni o‘zining kasbiy mahoratini oshirish davri emas, balki majburiy hisobotlarni topshirish bosqichi deb qabul qiladi.Auditoriyadan tashqari mashg‘ulotlarni tashkil etishdagi yana bir jiddiy muammo — bu tizimli monitoring va baholash mexanizmlarining mukammal emasligidir. Oliy o‘quv yurtlarida raqamli platformalar ko‘pincha jarayonlarni mazmunan boyitishga emas, balki rasmiy hisobotlarni to‘ldirish va statistik ma’lumotlarni kiritish bazasi bo‘lib xizmat qilmoqda. O‘qituvchi va talaba o‘rtasida doimiy qayta aloqa tizimi yetarli darajada yo‘lga qo‘yilmagan bo‘lib, topshiriqlarning o‘z vaqtida va

xolis baholanmasligi talabaning ichki motivatsiyasini tushirib yuboradi. Shuningdek, maktab tizimidan so‘ng oliygohga kelgan talabalarda tayyor axborotni passiv qabul qilishga bo‘lgan moyillik juda kuchli bo‘lib, ularda o‘z-o‘zini boshqarish va vaqtni to‘g‘ri taqsimlash (time-management) ko‘nikmalari ancha sust rivojlangan.Mazkur muammoni hal etish oliy ta’lim jarayonini auditoriya va darsdan tashqari faoliyatni uzviy to‘ldiruvchi yangi pedagogik arxitektura asosida qurishni taqozo etadi. Eng samarali modellar ketma-ket bosqichma-bosqich rejalashtirishga asoslanadi: dastlab talaba o‘quv materiallarining nazariy asoslari bilan mustaqil tanishib chiqadi, so‘ngra bevosita auditoriya darsida faqatgina muammoli savollar muhokama qilinadi va munozaralar o‘tkaziladi. Yakuniy bosqichda esa olingan xulosalar real amaliy loyihalar, keyslar yoki mikrotadqiqotlar ko‘rinishida yanada chuqurlashtiriladi. Ushbu jarayonda aralash ta’lim tizimi doirasida raqamli platformalarning imkoniyatlarini maksimal darajada ishga solish, interaktiv simulyatorlar va loyihaviy o‘qitish (PBL) metodologiyalarini keng joriy etish lozim.

## XULOSA

Oliy ta’lim muassasalarida auditoriya va auditoriyadan tashqari mashg‘ulotlarni uyg‘un holda va samarali tashkil etish strategik ahamiyatga ega bo‘lgan davr talabidir. Ushbu muammoni bartaraf etish uchun, avvalo, professor-o‘qituvchilarning darsdan tashqari o‘quv jarayonlarini boshqarish bo‘yicha metodik malakalarini muttasil oshirib borish lozim. Shu bilan birga, o‘quv dasturlari va fan modullerining mazmunini quruq yodlashga yo‘naltirilgan topshiriqlardan tozalab, ularni to‘liq tahliliy va amaliy yo‘nalishga o‘tkazish zarur. Faqatgina darsxonadagi nazariya va darsdan tashqaridagi mustaqil amaliyot muvozanatiga erishilgandagina, zamonaviy mehnat bozori talablariga to‘liq javob bera oladigan, mustaqil va raqobatbardosh mutaxassislarni tayyorlash imkoniyati kafolatlanadi.

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# GAMIFIKATSIYA TEXNOLOGIYALARINING O‘QUVCHILARNING O‘QUV MOTIVATSIYASIGA TA’SIRI

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***Annotatsiya****: Maqolada gamifikatsiya texnologiyalarining ta’lim jarayonidagi ahamiyati, o‘quvchilarning o‘quv motivatsiyasini oshirishdagi o‘rni hamda o‘yin elementlarini o‘quv jarayoniga integratsiya qilishning pedagogik imkoniyatlari tahlil qilingan. Shuningdek, gamifikatsiya texnologiyalaridan foydalanish orqali o‘quvchilarda bilim olishga qiziqish, mustaqil ta’lim faoliyati, muloqot va hamkorlik ko‘nikmalarini rivojlantirish masalalari yoritilgan. Xalqaro va milliy tadqiqotlar asosida gamifikatsiyaning motivatsiyaga ijobiy ta’siri, shuningdek, amaliy platformalar (Kahoot, Quizizz, Wordwall va boshqalar) samaradorligi ko‘rib chiqilgan. Tadqiqot natijalari gamifikatsiyaning o‘quv jarayonini yanada qiziqarli, interaktiv va samarali qilish imkoniyatlarini tasdiqlaydi.dfdfcc*

***Kalit so‘zlar****: gamifikatsiya, o‘quv motivatsiyasi, ta’lim jarayoni, o‘yin elementlari, raqamli texnologiyalar, Kahoot, Quizizz, Wordwall, ClassDojo, Self-Determination Theory, pedagogik texnologiyalar.*

***Abstract:*** *The article analyzes the importance of gamification technologies in the educational process, their role in increasing students' learning motivation, and the pedagogical possibilities of integrating game elements into the learning process. It also highlights issues of developing students' interest in acquiring knowledge, independent learning activities, communication, and collaboration skills through the use of gamification technologies. The study examines international and national research, demonstrating the effectiveness of gamification platforms such as Kahoot, Quizizz, Wordwall, and ClassDojo in enhancing student engagement and motivation.*

***Keywords****: gamification, learning motivation, educational process, game elements, digital technologies, Kahoot, Quizizz, Wordwall, ClassDojo, Self-Determination Theory, pedagogical technologies.*

## KIRISH

Mamlakatimiz ta’lim tizimida amalga oshirilayotgan islohotlar ta’lim sifati va samaradorligini oshirish, ta’lim oluvchilarning intellektual salohiyatini rivojlantirish hamda ularda XXI asr ko‘nikmalarini (tanqidiy fikrlash, hamkorlik, raqamli savodxonlik, muammolarni hal qilish va boshqalar) shakllantirishni taqozo etmoqda. Shu munosabat bilan ta’lim jarayoniga zamonaviy pedagogik texnologiyalarni joriy etish muhim vazifalardan biri hisoblanadi.

Bugungi kunda o‘quvchilarning darslarga qiziqishini oshirish, ularning bilim olishga bo‘lgan ichki ehtiyojlarini shakllantirish va o‘quv faoliyatiga faol jalb etish dolzarb masalalardan biridir. Mazkur vazifalarni amalga oshirishda gamifikatsiya texnologiyalari muhim vosita sifatida namoyon bo‘lmoqda. Gamifikatsiya – o‘yin elementlari va mexanizmlarini o‘yin bilan bog‘liq bo‘lmagan faoliyatga, xususan ta’lim jarayoniga tatbiq etish jarayoni hisoblanadi. Bu yondashuv o‘quvchilarni faqat o‘qitish bilan cheklanmay, ularni o‘yin orqali rag‘batlantirish, ichki motivatsiyasini oshirish va uzoq muddatli qiziqishni saqlashga qaratilgan.

## ADABIYOTLAR TAHLILI

Gamifikatsiya nazariyasi va amaliyoti xorijiy olimlar tomonidan keng tadqiq qilingan. K.M. Kapp gamifikatsiyani ta’lim jarayonining samaradorligini oshiruvchi innovatsion yondashuv sifatida e’tirof etadi. S. Deterding esa gamifikatsiyani o‘yin dizayni elementlarini noan’anaviy faoliyatga qo‘llash sifatida izohlaydi. Jane McGonigal va Gabe Zichermann gamifikatsiyaning psixologik mexanizmlari (dopamin chiqarilishi, muvaffaqiyat hissi, “flow” holati) haqida chuqur tahlillar bergan.

So‘nggi meta-tahlillar gamifikatsiyaning o‘quvchilar motivatsiyasiga ijobiy ta’sirini tasdiqlaydi. Masalan, bir tadqiqotda gamifikatsiya ichki motivatsiyani o‘rtacha darajada oshirishi, avtonomiya va aloqadorlik hislarini sezilarli kuchaytirishi aniqlangan. Boshqa tadqiqotlarda gamifikatsiya qo‘llanilganda o‘quvchilarning ishtiroki va motivatsiyasi 14-56% gacha oshgani

qayd etilgan. O‘zbekistonlik olimlardan O‘.Tolipov, M.Usmonboyeva, B.X.Xodjayev va boshqalarning ishlarida zamonaviy pedagogik texnologiyalarni joriy etish masalalari yoritilgan. So‘nggi yillarda o‘zbek tadqiqotchilari (masalan, R.H. Rustamovich, S.X. Akbarova va boshqalar) gamifikatsiyani xorijiy tillar, informatika va boshlang‘ich ta’limda qo‘llash bo‘yicha maxsus tadqiqotlar olib borishmoqda. Ular gamifikatsiyaning o‘quvchilar motivatsiyasini oshirishdagi samaradorligini ta’kidlaydilar.

**Tadqiqot metodlari**

Tadqiqot davomida pedagogik kuzatish, qiyosiy tahlil, ilmiy adabiyotlarni o‘rganish, umumlashtirish, tizimlashtirish va mavjud empirik tadqiqotlarning meta-tahlili metodlaridan foydalanildi. Xalqaro bazalar (Google Scholar, ResearchGate, MDPI) va o‘zbek ilmiy manbalari tahlil qilindi.

**Gamifikatsiya texnologiyalarining mohiyati**

Gamifikatsiya quyidagi asosiy elementlarni o‘z ichiga oladi:

Ball to‘plash va ochkolar tizimi;

Reyting va liderlar jadvali;

Mukofotlar, virtual nishonlar (badges) va darajalar;

Topshiriq-missiyalar;

Musobaqa va hamkorlik elementlari. Bu elementlar o‘quvchilarda “o‘yin effekti”ni yaratib, ichki motivatsiyani kuchaytiradi va Self-Determination Theory (Deci va Ryan) ga asoslanadi: avtonomiya, kompetentsiya va aloqadorlik ehtiyojlarini qondiradi.

O‘quv motivatsiyasini shakllantirishda gamifikatsiyaning ahamiyati Gamifikatsiya qo‘llanilganda kuzatiladigan asosiy natijalar:

Darsdagi faollik va ishtirok sezilarli ortadi;

Bilimlarni o‘zlashtirish samaradorligi va uzoq muddat saqlanishi yaxshilanadi;

Mustaqil ta’lim ko‘nikmalari rivojlanadi;

Sog‘lom raqobat va hamkorlik muhiti shakllanadi;

Ijodiy, tanqidiy fikrlash va o‘z-o‘zini baholash qobiliyatlari oshadi. Empirik tadqiqotlarda gamifikatsiya motivatsiyani oshirishi, ayniqsa qisqa muddatda yuqori samara berishi, ammo uzoq muddatda ehtiyotkorlik bilan qo‘llash zarurligi ta’kidlanadi.

Ta’lim jarayonida qo‘llaniladigan gamifikatsiya platformalari 1.Kahoot Real vaqt rejimida viktorinalar o‘tkazish uchun ideal. Musobaqa ruhini yaratadi, darhol fikr-mulohaza beradi. Tadqiqotlarda Kahoot o‘quvchilarning diqqatini va motivatsiyasini oshirishi isbotlangan.

2.Quizizz.Individual va uy vazifalari uchun qulay. Xatolarni tahlil qilish imkoniyati bor. Solishtirma tadqiqotlarda Quizizz ko‘pincha eng yuqori natijalarni ko‘rsatgan (o‘quv natijalari bo‘yicha o‘rtacha 9.00 ball). 3.Wordwall.Interaktiv o‘yinlar, boshqotirmalar va mashqlar yaratish uchun. Darslarni vizual va qiziqarli qiladi.

4.ClassDojo.Xulq-atvor va faollikni real vaqt rejimida baholaydi, ota-onalarni jarayonga jalb qiladi.

Qo‘shimcha platformalar: Duolingo, Genially, Minecraft Education. Gamifikatsiya texnologiyalarining afzalliklari va kamchiliklari

**Afzalliklari:** Ta’lim sifati va o‘zlashtirish ko‘rsatkichlarini oshiradi; Motivatsiyani kuchaytiradi va faol ishtirokni ta’minlaydi; Bilimlarni uzoq muddat eslab qolishga yordam beradi; Raqamli savodxonlik va ijodkorlikni rivojlantiradi.

**Kamchiliklari:** Haddan tashqari qo‘llanish “o‘yinlashtirib yuborishi” mumkin;

Texnik muammolar yoki bir xil yondashuv barcha o‘quvchilarga mos kelmasligi;

Uzoq muddatda motivatsiya pasayishi ehtimoli. Tavsiyalar: O‘qituvchilar uchun treninglar o‘tkazish, gamifikatsiyani o‘quv maqsadlariga moslashtirish va uni an’anaviy usullar bilan birlashtirish lozim.

## XULOSA

Gamifikatsiya texnologiyalari zamonaviy ta’limning muhim tarkibiy qismi bo‘lib, o‘quvchilarning o‘quv motivatsiyasini oshirish, bilimlarni samarali o‘zlashtirish va XXI asr ko‘nikmalarini shakllantirishga xizmat qiladi. Umumta’lim maktablari va oliy ta’lim muassasalarida uni keng joriy etish ta’lim sifatini oshirishning strategik yo‘nalishlaridan biridir.

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# MAKTABGACHA TA'LIM MUASSASALARIDA PSIXOLOGIK XIZMAT VA PSIXOEMOTSIONAL MUAMMOLAR PROFILAKTIKASI: NAZARIY VA AMALIY YONDASHUVLAR

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***Annotatsiya:*** *Mazkur maqolada maktabgacha ta'lim muassasalarida psixologik xizmatning nazariy asoslari va psixoemotsional muammolarni oldini olishga qaratilgan profilaktika ishlarining amaliy jihatlari yoritiladi. Tadqiqotda psixologik xizmatning asosiy yo'nalishlari — diagnostik, korreksion, rivojlantiruvchi va maslahat berish faoliyatlari ilmiy tahlil qilinadi. Shuningdek, bolalarda emotsional barqarorlikni ta'minlashda o'yin terapiyasi, art-terapiya, ertak terapiyasi kabi zamonaviy psixologik metodlarning ahamiyati asoslab beriladi. Maqolada pedagog va ota-onalar bilan hamkorlikni kuchaytirish orqali psixoemotsional muammolar profilaktikasini samarali tashkil etish zarurligi ta'kidlanadi.*

***Kalit so'zlar:*** *Maktabgacha ta'lim muassasasi, Psixologik xizmat, Psixoemotsional muammolar, Profilaktika, Diagnostika, Korreksiya, Emotsional rivojlanish, Pedagog va ota-onalar hamkorligi*

***Abstract:*** *This article explores the theoretical foundations and practical approaches to psychological services and the prevention of psycho-emotional problems in preschool educational institutions. The study analyzes the main areas of psychological services, including diagnostic, corrective, developmental, and counseling activities. Particular attention is given to modern psychological methods such as play therapy, art therapy, and storytelling therapy in promoting emotional stability among preschool children. The article also emphasizes the importance of effective cooperation between educators and parents in preventing psycho-emotional problems and supporting children's healthy emotional development.*

***Keywords:*** *Preschool educational institutions, Psychological services, Psycho-emotional problems, Prevention, Diagnosis, Correction, Emotional development, Educator–parent cooperation*

***Аннотация:*** *В статье рассматриваются теоретические основы и практические подходы к организации психологической службы и профилактике*

*психоэмоциональных проблем в дошкольных образовательных учреждениях. Проведен анализ основных направлений деятельности психологической службы, включая диагностическую, коррекционную, развивающую и консультативную работу. Особое внимание уделяется современным психологическим методам, таким как игровая терапия, арт-терапия и сказкотерапия, направленным на формирование эмоциональной устойчивости у детей дошкольного возраста. Подчеркивается значение сотрудничества педагогов и родителей в профилактике психоэмоциональных проблем и обеспечении гармоничного развития детей.*

***Ключевые слова:*** *Дошкольные образовательные учреждения, Психологическая служба, Психоэмоциональные проблемы, Профилактика, Диагностика, Коррекция, Эмоциональное развитие, Сотрудничество педагогов и родителей*

## KIRISH

Zamonaviy ta’lim tizimida maktabgacha ta’lim muassasalari bolalarning nafaqat intellektual, balki psixoemotsional rivojlanishini ta’minlashda muhim ijtimoiy institut sifatida namoyon bo‘lmoqda. Aynan maktabgacha yosh davrida shaxsning emotsional barqarorligi, ijtimoiy munosabatlarga kirishish qobiliyati, o‘z his-tuyg‘ularini anglash va boshqarish ko‘nikmalari shakllanadi. Shu sababli maktabgacha ta’lim muassasalarida psixologik xizmatni samarali tashkil etish va profilaktika ishlarini tizimli olib borish bolalarning sog‘lom rivojlanishini ta’minlovchi muhim omillardan biri hisoblanadi. **Psixologik xizmatning maktabgacha ta’lim tizimidagi o‘rni va ahamiyati:** Maktabgacha ta’lim muassasalarida psixologik xizmat bolalarning psixik rivojlanishidagi individual farqlarni aniqlash, ularning emotsional holatini barqarorlashtirish va yuzaga kelishi mumkin bo‘lgan psixologik muammolarni erta bosqichda oldini olishga qaratilgan faoliyatni o‘z ichiga oladi. Psixologik xizmatning ahamiyati shundaki, u bolaning rivojlanishini faqat muammo yuzaga kelgandan so‘ng emas, balki profilaktik yondashuv asosida kuzatib borishni ta’minlaydi. Ilmiy tadqiqotlar shuni ko‘rsatadiki, maktabgacha yoshdagi bolalarda psixoemotsional muammolar o‘z vaqtida aniqlanmasa, ular keyingi yosh bosqichlarida murakkab xulq-atvor buzilishlari, o‘quv motivatsiyasining pasayishi va ijtimoiy moslashuvdagi qiyinchiliklarga olib kelishi mumkin. Shu bois psixologik xizmat

maktabgacha ta’lim tizimining ajralmas tarkibiy qismi sifatida qaralishi zarur. **Psixologik xizmatning maqsadi, vazifalari va prinsiplari:** Maktabgacha ta’lim muassasalarida psixologik xizmatning asosiy maqsadi bolalarning psixoemotsional sog‘ligini saqlash va mustahkamlash, ularning individual imkoniyatlarini ochib berish hamda sog‘lom shaxs sifatida shakllanishiga ko‘maklashishdan iborat.

Ushbu maqsad quyidagi vazifalar orqali amalga oshiriladi:

- bolalarning emotsional holati va xulq-atvoridagi o‘zgarishlarni muntazam monitoring qilish;
- psixoemotsional muammolarni erta diagnostika qilish;
- individual va guruhli korreksion ishlarni tashkil etish;
- pedagoglar va ota-onalarning psixologik bilimlarini oshirish;
- sog‘lom psixologik muhitni shakllantirishga ko‘maklashish.

Psixologik xizmat faoliyati ilmiy asoslanganlik, tizimlilik, uzluksizlik, individual yondashuv va hamkorlik prinsiplari asosida olib borilishi lozim.

**Psixolog faoliyatining diagnostik yo‘nalishi:** Diagnostik faoliyat psixologik xizmatning asosiy va boshlang‘ich bosqichi hisoblanadi. Diagnostika orqali bolalarning emotsional holati, muloqot ko‘nikmalari, xavotir darajasi, agressivlik yoki tortinchoqlik holatlari aniqlanadi. Maktabgacha yoshdagi bolalar bilan ishlashda yoshga mos, yumshoq va invaziv bo‘lmagan diagnostik metodlardan foydalanish muhim ahamiyatga ega. Kuzatuv, suhbat, o‘yin jarayonidagi xulq-atvorni tahlil qilish, proektiv metodlar va standartlashtirilgan psixodiagnostik testlar diagnostikaning asosiy vositalari hisoblanadi. Diagnostika natijalari bolalar bilan olib boriladigan keyingi korreksion va rivojlantiruvchi ishlar uchun ilmiy asos bo‘lib xizmat qiladi.

**Korreksion va rivojlantiruvchi ishlarning mazmuni:** Korreksion faoliyat aniqlangan psixoemotsional muammolarni bartaraf etishga qaratilgan bo‘lib, u bolaning individual ehtiyojlari va rivojlanish darajasini hisobga olgan holda tashkil etiladi. Maktabgacha ta’lim muassasalarida korreksion ishlar

ko‘pincha o‘yin faoliyati orqali amalga oshiriladi, chunki o‘yin bolalar uchun tabiiy va yetakchi faoliyat turi hisoblanadi. O‘yin terapiyasi, art-terapiya, ertak terapiyasi, musiqiy va harakatli mashg‘ulotlar bolalarda emotsional zo‘riqishni kamaytirish, ijobiy his-tuyg‘ularni shakllantirish va ijtimoiy ko‘nikmalarni rivojlantirishga xizmat qiladi. Emotsional intellektni rivojlantirishga qaratilgan mashg‘ulotlar esa bolalarni o‘z his-tuyg‘ularini anglash, boshqarish va boshqalarning emotsional holatini tushunishga o‘rgatadi.

**Psixoemotsional muammolar profilaktikasida psixologik xizmatning roli:** Profilaktika ishlari maktabgacha ta’lim muassasalarida psixologik xizmatning eng muhim yo‘nalishlaridan biri hisoblanadi. Profilaktika psixoemotsional muammolar yuzaga kelishining oldini olishga qaratilgan bo‘lib, u bolalarning yosh xususiyatlari va rivojlanish ehtiyojlarini hisobga olgan holda amalga oshiriladi. Profilaktika doirasida qulay psixologik muhitni yaratish, bolalarda emotsional xavfsizlik hissini shakllantirish, ijtimoiy muloqotni qo‘llab-quvvatlash muhim ahamiyatga ega. Shuningdek, stressli vaziyatlarga moslashish ko‘nikmalarini rivojlantirishga qaratilgan mashg‘ulotlar bolalarda psixoemotsional barqarorlikni mustahkamlaydi.

**Pedagoglar va ota-onalar bilan hamkorlikning ahamiyati:** Maktabgacha ta’lim muassasalarida psixologik xizmatning samaradorligi pedagoglar va ota-onalar bilan olib boriladigan hamkorlikka bevosita bog‘liq. Psixolog tomonidan pedagoglar uchun o‘tkaziladigan seminar va treninglar tarbiyaviy jarayonda psixologik yondashuvlarni to‘g‘ri qo‘llashga yordam beradi. Ota-onalar bilan hamkorlik esa bolaga nisbatan yagona va izchil yondashuvni ta’minlaydi. Oilaviy muhitda psixoemotsional barqarorlikni mustahkamlash, bolaga mehr va qo‘llab-quvvatlash ko‘rsatish psixoemotsional muammolar profilaktikasining muhim sharti hisoblanadi.

**Psixologik xizmatni takomillashtirish istiqbollari:** Zamonaviy maktabgacha ta’lim muassasalarida psixologik xizmatni takomillashtirish ilmiy asoslangan metodlarni joriy etish, mutaxassislarning kasbiy kompetensiyasini

oshirish va psixologik xizmatni ta’lim jarayoniga integratsiyalash orqali amalga oshiriladi. Psixologik xizmatni tizimli va uzluksiz tashkil etish bolalarning sog‘lom psixoemotsional rivojlanishini ta’minlashga xizmat qiladi. Xulosa qilib aytganda, maktabgacha ta’lim muassasalarida psixologik xizmat va profilaktika ishlarini kompleks, uzluksiz va ilmiy asosda tashkil etish bolalarning sog‘lom psixoemotsional rivojlanishini ta’minlash, kelgusida yuzaga kelishi mumkin bo‘lgan psixologik muammolarning oldini olish va barkamol shaxsni shakllantirishga xizmat qiladi.

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# ALOHIDA TA’LIM EHTIYOJIGA EGA O‘QUVCHILAR BILAN ISHLASHDA PEDAGOGIK VA PSIXOLOGIK YONDASHUVLARNING SAMARADORLIGI

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***Annotatsiya.*** *Ushbu maqolada alohida ta’lim ehtiyojiga ega o‘quvchilar bilan ishlashda qo‘llaniladigan pedagogik va psixologik yondashuvlarning samaradorligi tahlil qilingan. O‘quvchilarning individual xususiyatlarini hisobga olgan holda ta’lim jarayonini tashkil etish, zamonaviy pedagogik metodlardan foydalanish hamda psixologik qo‘llab-quvvatlashning ahamiyati yoritilgan. Shuningdek, inklyuziv ta’lim muhitida o‘quvchilarning bilim, ko‘nikma va ijtimoiy moslashuvini rivojlantirishga xizmat qiluvchi samarali yondashuvlar bo‘yicha ilmiy-amaliy tavsiyalar keltirilgan.*

***Kalit so‘zlar:*** *alohida ta’lim ehtiyoji, inklyuziv ta’lim, pedagogik yondashuv, psixologik yondashuv, individual ta’lim, psixologik-pedagogik qo‘llab-quvvatlash, ta’lim samaradorligi, o‘quvchi rivojlanishi, maxsus pedagogika, ijtimoiy moslashuv.*

***Annotation***. *This article examines the effectiveness of pedagogical and psychological approaches used in teaching students with special educational needs. It highlights the importance of organizing the educational process based on learners' individual characteristics, applying modern teaching methods, and providing psychological support. The paper also presents scientific and practical recommendations aimed at improving academic achievement, social adaptation, and the overall development of students in an inclusive educational environment.*

***Keywords:*** *special educational needs, inclusive education, pedagogical approach, psychological approach, individualized education, psychological and pedagogical support, educational effectiveness, student development, special pedagogy, social adaptation.*

## KIRISH

Bugungi kunda inklyuziv ta’limni rivojlantirish dunyo ta’lim tizimining ustuvor yo‘nalishlaridan biri hisoblanadi. Alohida ta’lim ehtiyojiga ega o‘quvchilarga sifatli ta’lim berish, ularning jamiyatga muvaffaqiyatli integratsiyalashuvini ta’minlash hamda shaxs sifatida har tomonlama rivojlanishiga ko‘maklashish zamonaviy ta’limning asosiy vazifalaridan biridir. Bunday o‘quvchilar bilan ishlashda pedagogik va psixologik yondashuvlarni uyg‘unlashtirish ta’lim samaradorligini oshiradi. Individual yondashuv, differensial ta’lim, zamonaviy interfaol metodlar va psixologik qo‘llab-quvvatlash o‘quvchilarning bilim olish motivatsiyasini kuchaytiradi, ularning o‘ziga bo‘lgan ishonchini mustahkamlaydi hamda ijtimoiy moslashuvini yaxshilaydi.

Mazkur maqolaning maqsadi alohida ta’lim ehtiyojiga ega o‘quvchilar bilan ishlashda qo‘llaniladigan pedagogik va psixologik yondashuvlarning samaradorligini tahlil qilish hamda ularni ta’lim jarayoniga samarali tatbiq etish bo‘yicha tavsiyalar ishlab chiqishdan iborat.

## ADABIYOTLAR TAHLILI

Alohida ta’lim ehtiyojiga ega o‘quvchilarni o‘qitish va tarbiyalash masalalari bugungi kunda pedagogika va psixologiya fanlarining dolzarb yo‘nalishlaridan biri hisoblanadi. Jahon tajribasi shuni ko‘rsatadiki, inklyuziv ta’limni samarali tashkil etish pedagogik va psixologik yondashuvlarning uyg‘unligiga bevosita bog‘liq.

Xorijiy olimlar, jumladan, L.S. Vygotskiy, J. Piaget, H. Gardner va D. Mitchelllarning ilmiy ishlari alohida ta’lim ehtiyojiga ega o‘quvchilarni rivojlantirishda individual yondashuv, yaqin rivojlanish zonasi, differensial ta’lim hamda ko‘p qirrali intellekt nazariyalarining muhim ahamiyatga ega ekanligini asoslab bergan. Ularning tadqiqotlarida har bir bolaning imkoniyatlari va ehtiyojlaridan kelib chiqib ta’limni tashkil etish yuqori natijadorlikni ta’minlashi ta’kidlangan. O‘zbekiston Respublikasida ham inklyuziv ta’limni rivojlantirish bo‘yicha keng ko‘lamli islohotlar amalga oshirilmoqda. Ta’lim

to‘g‘risidagi qonun, Inklyuziv ta’limni rivojlantirish konsepsiyasi hamda tegishli normativ-huquqiy hujjatlar alohida ta’lim ehtiyojiga ega o‘quvchilarga teng ta’lim olish imkoniyatlarini yaratishga xizmat qilmoqda. Shu bilan birga, pedagog va psixologlarning kasbiy kompetensiyalarini rivojlantirish, zamonaviy pedagogik texnologiyalarni qo‘llash hamda ta’lim muhitini moslashtirish dolzarb vazifalardan biri bo‘lib qolmoqda. Ilmiy manbalar tahlili shuni ko‘rsatadiki, pedagogik yondashuvlar psixologik qo‘llab-quvvatlash bilan uyg‘unlashgan taqdirdagina o‘quvchilarning bilim olish faolligi, ijtimoiy moslashuvi va shaxsiy rivojlanishida ijobiy natijalarga erishish mumkin.

Mazkur tadqiqotda alohida ta’lim ehtiyojiga ega o‘quvchilar bilan ishlashda pedagogik va psixologik yondashuvlarning samaradorligini aniqlashga qaratilgan ilmiy metodlardan foydalanildi. Tadqiqot jarayonida nazariy va amaliy yondashuvlar uyg‘unlashtirildi.

Nazariy qismda mavzuga oid milliy va xorijiy ilmiy adabiyotlar, normativ-huquqiy hujjatlar, inklyuziv ta’lim bo‘yicha ilmiy maqolalar hamda zamonaviy tadqiqotlar tahlil qilindi. Tahlil natijasida alohida ta’lim ehtiyojiga ega o‘quvchilarni qo‘llab-quvvatlashning samarali pedagogik va psixologik omillari aniqlandi. Amaliy qismda kuzatish, pedagogik tahlil, taqqoslash, umumlashtirish va ilmiy xulosalash metodlaridan foydalanildi. O‘quvchilarning individual xususiyatlarini hisobga olgan holda ta’limni tashkil etish, differensial yondashuv, interfaol metodlardan foydalanish hamda psixologik qo‘llab-quvvatlashning ta'lim sifatiga ta'siri o‘rganildi. Tadqiqot natijalari ilmiy manbalar bilan taqqoslandi va pedagogik amaliyot uchun tavsiyalar ishlab chiqildi. Alohida ta’lim ehtiyojiga ega o‘quvchilar bilan ishlashda eng muhim tamoyillardan biri individual yondashuv hisoblanadi. Har bir o‘quvchining psixologik, fiziologik va intellektual rivojlanish darajasi bir-biridan farq qilganligi sababli ta’lim jarayoni ham ularning ehtiyojlariga mos ravishda tashkil

etilishi lozim. Individual yondashuv o‘quvchining qobiliyatini aniqlash, uning kuchli tomonlarini rivojlantirish va mavjud qiyinchiliklarini bartaraf etishga xizmat qiladi.

Pedagogik yondashuvlar orasida differensial ta’lim, interfaol metodlar, loyiha asosida o‘qitish, hamkorlikda o‘qitish va axborot-kommunikatsiya texnologiyalaridan foydalanish alohida ahamiyat kasb etadi. Mazkur metodlar o‘quvchilarning darsdagi faolligini oshiradi, mustaqil fikrlash ko‘nikmalarini rivojlantiradi hamda ta'lim samaradorligini ta'minlaydi. Psixologik yondashuv esa o‘quvchilarning emotsional holatini barqarorlashtirish, o‘ziga bo‘lgan ishonchini mustahkamlash va ijtimoiy moslashuvini rivojlantirishga xizmat qiladi. Psixolog, o‘qituvchi va ota-onaning hamkorligi natijasida o‘quvchi uchun qulay ta’lim muhiti yaratiladi. Bu esa uning ta’lim jarayonidagi ishtiroki va o‘zlashtirish ko‘rsatkichlarini sezilarli darajada yaxshilaydi.

Shuningdek, inklyuziv ta’lim muhitida sog‘lom tengdoshlari bilan birgalikda ta’lim olish alohida ta’lim ehtiyojiga ega o‘quvchilarning muloqot madaniyati, ijtimoiy faolligi va mustaqil hayot ko‘nikmalarining rivojlanishiga ijobiy ta'sir ko‘rsatadi. Shu bois pedagoglar darslarni tashkil etishda bag‘rikenglik, tenglik va hamkorlik tamoyillariga alohida e'tibor qaratishlari zarur. Tadqiqot natijalari shuni ko‘rsatdiki, alohida ta’lim ehtiyojiga ega o‘quvchilar bilan ishlashda pedagogik va psixologik yondashuvlarning uyg‘un qo‘llanilishi ta’lim samaradorligini sezilarli darajada oshiradi. Individual ta’limni tashkil etish, differensial yondashuvdan foydalanish hamda zamonaviy interfaol metodlarni qo‘llash o‘quvchilarning o‘quv motivatsiyasini kuchaytiradi, bilimlarni o‘zlashtirish sifatini yaxshilaydi va ijtimoiy faolligini rivojlantiradi. Psixologik qo‘llab-quvvatlash o‘quvchilarning emotsional barqarorligini ta’minlash, o‘ziga bo‘lgan ishonchini oshirish hamda tengdoshlari bilan samarali muloqot qilish ko‘nikmalarini rivojlantirishda muhim omil bo‘lib xizmat qiladi. Tadqiqot davomida o‘qituvchi, psixolog va ota-onalar o‘rtasidagi hamkorlikning mustahkam yo‘lga qo‘yilishi ta’lim

natijalariga ijobiy ta’sir ko‘rsatishi aniqlandi. Shuningdek, inklyuziv ta’lim muhitida zamonaviy pedagogik texnologiyalar va raqamli ta’lim vositalaridan foydalanish o‘quvchilarning darslarga qiziqishini oshirish, ularning mustaqil ishlash ko‘nikmalarini rivojlantirish hamda ta’lim sifatini yaxshilashga xizmat qilishi kuzatildi.

## XULOSA

Alohida ta’lim ehtiyojiga ega o‘quvchilar bilan ishlashda pedagogik va psixologik yondashuvlarning uyg‘unligi inklyuziv ta’lim samaradorligini ta’minlovchi muhim omillardan biridir. Ta’lim jarayonida individual yondashuvni qo‘llash, psixologik qo‘llab-quvvatlashni kuchaytirish, zamonaviy pedagogik texnologiyalardan samarali foydalanish hamda oila, maktab va mutaxassislar o‘rtasidagi hamkorlikni rivojlantirish o‘quvchilarning har tomonlama rivojlanishiga xizmat qiladi.

Kelgusida inklyuziv ta’lim tizimini yanada takomillashtirish uchun pedagoglarning kasbiy kompetensiyalarini rivojlantirish, innovatsion metodlarni keng joriy etish va alohida ta’lim ehtiyojiga ega o‘quvchilarga moslashtirilgan ta’lim resurslarini yaratish maqsadga muvofiqdir. Mazkur tavsiyalar ta’lim sifatini oshirish va barcha bolalar uchun teng ta’lim imkoniyatlarini ta’minlashga xizmat qiladi.

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# MAKTABGACHA TA'LIM YOSHIDAGI BOLALARDA PSIXOEMOTSIONAL RIVOJLANISHDAGI MUAMMOLAR VA ULARNING YECHIMLARI

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***Annotatsiya:*** *Maqolada maktabgacha yoshdagi bolalarning psixoemotsional rivojlanishi, uchraydigan asosiy muammolar va ularni samarali bartaraf etish yo'llari tahlil qilinadi. Tadqiqotda emotsional buzilishlarni erta aniqlash va korreksiya qilishning ahamiyati, kuzatuv, suhbat, proektiv metodlar va psixodiagnostik testlardan foydalanish usullari ko'rib chiqiladi. Shuningdek, o'yin terapiyasi, art-terapiya, ertak terapiyasi va emotsional intellektni rivojlantirishga qaratilgan mashg'ulotlar kabi korreksion yondashuvlar batafsil tahlil qilinadi. Maqolada pedagoglar va ota-onalar uchun amaliy tavsiyalar ham berilgan bo'lib, u bolalarning ijtimoiy-emotsional rivojlanishini qo'llab-quvvatlashda muhim ahamiyat kasb etadi. Tadqiqot natijalari psixoemotsional rivojlanishni biologik, psixologik, pedagogik va ijtimoiy omillarni hisobga olgan kompleks yondashuv orqali ta'minlash zarurligini ko'rsatadi.*

***Kalit so'zlar:*** *Maktabgacha yoshdagi bolalar, Emotsional rivojlanish, Psixologik muammolar, O'yin terapiyasi, Art-terapiya, Ertak terapiyasi, Emotsional intellekt, Korreksion metodlar, Pedagoglar, Ota-onalar*

***Abstract:****The article examines the psychological and emotional development of preschool-aged children, identifies common problems, and explores effective solutions. The study highlights the importance of early detection and correction of emotional disturbances using observation, interviews, projective techniques, and psychodiagnostic tests. Corrective approaches, such as play therapy, art therapy, storytelling, and activities aimed at developing emotional intelligence, are analyzed in detail. Practical recommendations for educators and parents are provided to support children's social-emotional development. The research emphasizes the necessity of a comprehensive approach considering biological, psychological, pedagogical, and social factors to ensure preschool children's emotional well-being and adaptive success.*

***Keywords:*** *Preschool children, Emotional development, Psychological problems, Play therapy, Art therapy, Storytelling, Emotional intelligence, Correction methods, Educators, Parents*

***Аннотация:*** *Статья посвящена психоэмоциональному развитию детей дошкольного возраста, выявлению типичных проблем и эффективных способов их решения. В работе подчеркивается важность ранней диагностики и коррекции эмоциональных нарушений с использованием методов наблюдения, интервью, проективных техник и психодиагностических тестов. Коррекционные подходы, такие как игровая терапия, арт-терапия, сказкотерапия и занятия, направленные на развитие эмоционального интеллекта, подробно анализируются. Статья содержит практические рекомендации для педагогов и родителей по поддержке социально-эмоционального развития детей. Исследование демонстрирует необходимость комплексного подхода, учитывающего биологические, психологические, педагогические и социальные факторы, для обеспечения эмоционального благополучия и успешной адаптации дошкольников.*

***Ключевые слова:*** *Дошкольники, Эмоциональное развитие, Психологические проблемы, Игровая терапия, Арт-терапия, Сказкотерапия, Эмоциональный интеллект, Методы коррекции, Педагоги, Родители*

## KIRISH

Bugungi globallashuv va tezkor axborot almashinuvi sharoitida jamiyatning barcha sohalarida bo‘lgani kabi ta’lim tizimida ham tub islohotlar amalga oshirilmoqda. Ayniqsa, maktabgacha ta’lim tizimi jamiyatning intellektual va ma’naviy salohiyatini belgilovchi muhim bo‘g‘in sifatida e’tirof etilmoqda. Maktabgacha yosh davri bolaning psixik rivojlanishida eng mas’uliyatli va sezgir bosqichlardan biri bo‘lib, bu davrda nafaqat kognitiv jarayonlar, balki psixoemotsional soha ham jadal rivojlanadi. Bolaning atrof-muhitga munosabati, o‘z his-tuyg‘ularini anglash va boshqarish qobiliyati, ijtimoiy xulq-atvori aynan ushbu davrda shakllanadi. Psixoemotsional rivojlanish bolaning umumiy psixik taraqqiyotining ajralmas qismi bo‘lib, emotsiyalar, his-tuyg‘ular, affektiv holatlar va ularning xulq-atvorga ta’sirini o‘z ichiga oladi. Ilmiy tadqiqotlar shuni ko‘rsatadiki, maktabgacha yoshda yuzaga kelgan emotsional muammolar o‘z vaqtida aniqlanib, to‘g‘ri pedagogik va

psixologik yondashuvlar bilan bartaraf etilmasa, keyingi yosh bosqichlarida shaxs rivojiga salbiy ta’sir ko‘rsatishi mumkin. Xususan, maktab davrida o‘quv faoliyatidagi qiyinchiliklar, ijtimoiy moslashuv muammolari, o‘ziga bo‘lgan ishonchning pastligi va xulq-atvor buzilishlari ko‘pincha aynan maktabgacha yoshdagi psixoemotsional muammolar bilan bog‘liq bo‘ladi. Zamonaviy jamiyatda bolalarning psixoemotsional rivojlanishiga ta’sir etuvchi omillar soni tobora ortib bormoqda. Oilaviy munosabatlarning murakkablashuvi, ota-onalarning bandligi, tarbiyadagi ziddiyatli yondashuvlar, raqamli texnologiyalar va ommaviy axborot vositalarining nazoratsiz ta’siri bolalarda emotsional beqarorlik, agressivlik, xavotirlik va ijtimoiy yakkalanish holatlarining kuchayishiga olib kelmoqda. Shu bois maktabgacha ta’lim yoshidagi bolalarda psixoemotsional rivojlanish muammolarini ilmiy asosda o‘rganish, ularning kelib chiqish sabablarini aniqlash va samarali yechimlarni ishlab chiqish dolzarb masalalardan biri hisoblanadi. Maktabgacha ta’lim tizimida faoliyat yuritayotgan pedagoglar va psixologlar oldida turgan muhim vazifalardan biri – bolalarning emotsional holatini doimiy monitoring qilish, muammolarni erta bosqichda aniqlash va profilaktik chora-tadbirlarni amalga oshirishdir. Bunda bolalarning individual xususiyatlarini hisobga olgan holda differensial yondashuvni qo‘llash muhim ahamiyat kasb etadi. Chunki har bir bolaning psixoemotsional rivojlanish sur’ati, temperament tipi va stressga chidamliligi turlicha bo‘ladi. So‘nggi yillarda olib borilgan xorijiy va mahalliy tadqiqotlar maktabgacha yoshdagi bolalarda psixoemotsional muammolarni bartaraf etishda kompleks yondashuvning samaradorligini tasdiqlamoqda. Bunday yondashuv pedagogik, psixologik va oilaviy omillarning o‘zaro hamkorligini taqozo etadi. Ayniqsa, o‘yin faoliyati, art-terapiya, ertak terapiyasi, emotsional-intellektni rivojlantirishga qaratilgan mashg‘ulotlar bolalarning ichki kechinmalarini yumshatish va emotsional muvozanatni ta’minlashda muhim vosita sifatida qaralmoqda. Mazkur maqolaning asosiy maqsadi maktabgacha ta’lim yoshidagi bolalarda psixoemotsional rivojlanish jarayonida uchraydigan muammolarni

ilmiy-nazariy jihatdan tahlil qilish hamda ularni bartaraf etishga qaratilgan samarali pedagogik va psixologik yechimlarni asoslab berishdan iborat. Maqolada psixoemotsional rivojlanish tushunchasining mohiyati, ushbu yosh davrining psixologik xususiyatlari, muammolarning asosiy turlari va sabablari keyingi bo‘limlarda batafsil yoritiladi.

**Maktabgacha yosh davrining psixologik xususiyatlari:**

Maktabgacha yosh davri inson ontogenezining eng muhim va murakkab bosqichlaridan biri hisoblanadi. Ushbu davr odatda 3 yoshdan 7 yoshgacha bo‘lgan davrni qamrab oladi va bolaning psixik rivojlanishida sifat jihatidan yangi tuzilmalar vujudga kelishi bilan xarakterlanadi. Aynan shu bosqichda shaxsning emotsional, ijtimoiy va irodaviy sohalari shakllanib, keyingi ta’lim jarayonlari uchun mustahkam psixologik poydevor yaratiladi. Maktabgacha yosh davrida psixik rivojlanishning umumiy qonuniyatlari: Psixologiya fanida maktabgacha yosh davri yetakchi faoliyat turi sifatida o‘yin faoliyati bilan belgilanadi. O‘yin jarayonida bola atrof-muhitni idrok etadi, ijtimoiy rollarni o‘zlashtiradi va emotsional tajribasini boyitadi. O‘yin faoliyati bolada tasavvur, fantaziya, nutq va muloqot ko‘nikmalarining rivojlanishiga bevosita ta’sir ko‘rsatadi. Shu bilan birga, o‘yin bolaning ichki kechinmalarini ifodalash va emotsional zo‘riqishni kamaytirish vositasi sifatida ham muhim ahamiyatga ega. Maktabgacha yoshda bolaning asab tizimi hali to‘liq yetuklashmagan bo‘lib, bu holat emotsional reaksiyalarning tezkorligi va beqarorligi bilan namoyon bo‘ladi. Bolalar ko‘pincha o‘z his-tuyg‘ularini nazorat qilishda qiynaladilar, bu esa keskin kayfiyat almashinuvi, yig‘lash, jahldorlik yoki haddan tashqari quvonch holatlarida namoyon bo‘ladi. Ushbu jarayonlar tabiiy rivojlanish bosqichi sifatida qaralsa-da, noto‘g‘ri tarbiyaviy yondashuvlar natijasida emotsional muammolarga aylanishi mumkin.

Emotsional sohaning shakllanish xususiyatlari: Maktabgacha yosh davrida emotsiyalar bolaning xulq-atvorini boshqaruvchi asosiy mexanizmlardan biri hisoblanadi. Dastlab emotsiyalar bevosita vaziyatga

bog‘liq bo‘lsa, vaqt o‘tishi bilan bola o‘z his-tuyg‘ularini anglash, ularni so‘z orqali ifodalash va asta-sekin boshqarishni o‘rganadi. Ushbu jarayonda kattalar, xususan ota-onalar va tarbiyachilarning munosabati muhim rol o‘ynaydi. Bolada ijobiy emotsional tajribaning ustunligi uning o‘ziga bo‘lgan ishonchini, tashabbuskorligini va ijtimoiy faolligini oshiradi. Aksincha, doimiy tanqid, e’tiborsizlik yoki qattiq jazolash kabi omillar emotsional zo‘riqish, xavotirlik va o‘ziga nisbatan salbiy munosabatning shakllanishiga olib keladi. Shu sababli maktabgacha yoshda emotsional xavfsizlik muhitini yaratish muhim pedagogik vazifa hisoblanadi.

Ijtimoiy rivojlanish va muloqot ehtiyoji: Maktabgacha yosh davrida bolaning ijtimoiy tajribasi sezilarli darajada kengayadi. Agar ilk yosh bosqichlarida asosiy muloqot obyekti kattalar bo‘lgan bo‘lsa, endilikda tengdoshlar bilan munosabatlar muhim ahamiyat kasb etadi. Tengdoshlar bilan o‘zaro muloqot qilish jarayonida bola hamkorlik, kelishuv, nizolarni hal qilish kabi ijtimoiy ko‘nikmalarni egallaydi. Biroq barcha bolalarda ijtimoiy moslashuv bir xil kechmaydi. Ayrim bolalar tortinchoq, yopiq yoki tajovuzkor xatti-harakatlarni namoyon etishi mumkin. Bu holatlar ko‘pincha psixoemotsional rivojlanishdagi muammolar bilan bevosita bog‘liq bo‘lib, o‘z vaqtida e’tibor qaratilmasa, ijtimoiy izolyatsiya yoki xulq-atvor buzilishlariga olib kelishi ehtimoli mavjud. O‘z-o‘zini anglash va “Men” konsepsiyasining rivojlanishi: Maktabgacha yosh davrida bolaning o‘z-o‘zini anglash jarayoni faollashadi. Bola o‘zini mustaqil shaxs sifatida his qila boshlaydi, o‘z imkoniyatlarini baholashga harakat qiladi va atrofdagilar tomonidan berilayotgan baholarga sezgir bo‘ladi. Ushbu bosqichda shakllanayotgan “Men” konsepsiyasi bolaning keyingi shaxsiy rivojlanishida muhim ahamiyatga ega. Ijobiy “Men” konsepsiyasi bolaning emotsional barqarorligini ta’minlasa, salbiy baholash va solishtirishlar o‘ziga bo‘lgan ishonchning pasayishiga, xavotirlik va ichki ziddiyatlarning kuchayishiga olib keladi. Shu sababli tarbiyaviy jarayonda

bolani qo‘llab-quvvatlash, uning muvaffaqiyatlarini e’tirof etish va individual xususiyatlarini hisobga olish zarur.

Maktabgacha yosh davrida psixoemotsional muammolarga moyillik: Maktabgacha yosh davrining psixologik xususiyatlari bolani turli psixoemotsional muammolarga nisbatan sezgir qiladi. Stressli vaziyatlar, oilaviy nizolar, muhitning keskin o‘zgarishi yoki tarbiyadagi nomuvofiqliklar bolalarda qo‘rquv, xavotirlik, agressivlik, emotsional beqarorlik kabi holatlarning paydo bo‘lishiga sabab bo‘lishi mumkin. Mazkur jihatlarni inobatga olgan holda, maktabgacha ta’lim muassasalarida psixologik xizmat faoliyatini kuchaytirish, pedagoglarning psixologik kompetensiyasini oshirish va ota-onalar bilan hamkorlikni yo‘lga qo‘yish muhim ahamiyat kasb etadi. Aynan shu omillar bolalarning sog‘lom psixoemotsional rivojlanishini ta’minlashda hal qiluvchi rol o‘ynaydi.

## Maktabgacha yoshdagi bolalarda uchraydigan asosiy psixoemotsional muammolar:

Maktabgacha yosh davrida bolalarning psixoemotsional rivojlanishi intensiv va notekis kechishi bilan tavsiflanadi. Ushbu davrda bolaning asab tizimi hali yetarlicha yetuklashmaganligi, emotsional tajribaning cheklanganligi va ijtimoiy munosabatlar doirasining kengayishi turli psixoemotsional muammolarning yuzaga kelishiga zamin yaratadi. Ilmiy tadqiqotlar shuni ko‘rsatadiki, maktabgacha yoshdagi bolalarda namoyon bo‘ladigan emotsional muammolar ko‘pincha yashirin xarakterga ega bo‘lib, ular xulq-atvor va muloqot jarayonida bilvosita ifodalanadi. Psixoemotsional muammolarni tizimli o‘rganish va samarali korreksion ishlarni tashkil etish uchun ularni muayyan guruhlarga ajratish zarur. Quyida maktabgacha yoshdagi bolalarda eng ko‘p uchraydigan psixoemotsional muammolar ilmiy klassifikatsiya asosida tahlil qilinadi. Xavotirlik va qo‘rquv holatlari: Xavotirlik maktabgacha yoshdagi bolalarda keng tarqalgan psixoemotsional holatlardan biri bo‘lib, u bolaning ichki noaniqlik hissi, ishonchsizlik va doimiy tashvish bilan kechadi. Xavotirlik

ko‘pincha yangi muhitga moslashish jarayonida, masalan, bolalar bog‘chasiga ilk bor kelganda yoki oilaviy vaziyat o‘zgarganda kuchayadi. Qo‘rquvlar esa bolalarning yosh xususiyatlariga mos bo‘lsa-da, ayrim hollarda haddan tashqari kuchli va barqaror tus olishi mumkin. Qorong‘ilikdan, yolg‘izlikdan, baland tovushlardan yoki xayoliy obrazlardan qo‘rqish maktabgacha yosh uchun xos bo‘lsa-da, bu holatlar bolaning kundalik faoliyatiga salbiy ta’sir ko‘rsata boshlaganda psixoemotsional muammo sifatida qaraladi. Bunday holatlarda bola uyqu buzilishlari, ishtahaning pasayishi va ijtimoiy faollikning kamayishini namoyon qilishi mumkin. Agressiv xatti-harakatlar va affektiv portlashlar: Agressivlik maktabgacha yoshdagi bolalarda psixoemotsional muammolarning yana bir muhim ko‘rinishi hisoblanadi. Agressiv xatti-harakatlar jismoniy (urish, turtish) yoki verbal (baqirish, haqorat qilish) shaklda namoyon bo‘lishi mumkin. Ko‘pincha bunday holatlar bolaning o‘z emotsiyalarini boshqarish ko‘nikmalari yetarli darajada rivojlanmaganligi bilan bog‘liq bo‘ladi. Affektiv portlashlar, ya’ni to‘satdan yuzaga keladigan kuchli emotsional reaksiyalar bolaning ichki zo‘riqish holatini ifodalaydi. Ushbu holatlar noto‘g‘ri tarbiyaviy uslublar, doimiy jazolash, e’tiborsizlik yoki oilaviy nizolar natijasida kuchayishi mumkin. Agressiv xatti-harakatlar nafaqat bolaning o‘zi, balki tengdoshlari va kattalar bilan munosabatlariga ham salbiy ta’sir ko‘rsatadi. Emotsional beqarorlik va kayfiyatning tez o‘zgarishi: Maktabgacha yoshdagi bolalar uchun emotsional beqarorlik ma’lum darajada tabiiy holat hisoblanadi. Biroq ayrim bolalarda kayfiyatning haddan tashqari tez va keskin o‘zgarishi doimiy xarakter kasb etib, psixoemotsional rivojlanishdagi muammo sifatida namoyon bo‘lishi mumkin. Bunday bolalar quvonchdan qayg‘uga yoki xotirjamlikdan jahldorlikka qisqa vaqt ichida o‘tib ketadilar. Emotsional beqarorlik ko‘pincha asab tizimining zaifligi, haddan tashqari ta’sirchanlik va tashqi omillarga yuqori sezgirlik bilan bog‘liq bo‘ladi. Bu holat bolaning o‘yin faoliyati, muloqoti va ta’lim jarayonida qiyinchiliklar tug‘diradi hamda umumiy psixologik holatining izdan chiqishiga olib kelishi mumkin. Ijtimoiy

tortinchoqlik va yopiq xulq-atvor: Ijtimoiy tortinchoqlik maktabgacha yoshdagi bolalarda keng tarqalgan psixoemotsional muammolardan biri bo‘lib, u bolaning muloqotdan qochishi, tengdoshlari bilan o‘yinlarda faol ishtirok etmasligi va o‘z fikrini erkin ifoda eta olmasligi bilan namoyon bo‘ladi. Bunday bolalar ko‘pincha yangi vaziyatlardan qo‘rqadilar va o‘zlarini noqulay his qiladilar. Yopiq xulq-atvor ko‘pincha oiladagi emotsional sovuqlik, haddan tashqari nazorat yoki bolaning his-tuyg‘ularini inkor etish natijasida shakllanadi. Agar ushbu holat o‘z vaqtida bartaraf etilmasa, keyingi yosh bosqichlarida ijtimoiy moslashuv muammolariga olib kelishi ehtimoli mavjud. Emotsional bog‘lanish buzilishlari: Emotsional bog‘lanish bolaning kattalar, ayniqsa ota-onalar bilan o‘rnatgan barqaror emotsional munosabatini anglatadi. Maktabgacha yoshda ushbu bog‘lanishning buzilishi bolada ishonchsizlik, xavotirlik va mustaqil faoliyatdan qo‘rquvni yuzaga keltiradi. Bunday bolalar ko‘pincha kattalardan ajralishda kuchli stressni boshdan kechiradilar. Emotsional bog‘lanish buzilishlari yetarli e’tiborning yo‘qligi, ota-onaning uzoq vaqt davomida yo‘qligi yoki bolaga nisbatan befarq munosabat bilan bog‘liq bo‘lishi mumkin. Ushbu muammo bolaning shaxs sifatida shakllanishiga salbiy ta’sir ko‘rsatadi va uzoq muddatli psixologik oqibatlarga olib kelishi mumkin.

## Maktabgacha yoshdagi bolalarda psixoemotsional muammolarning kelib chiqish sabablari:

Maktabgacha yoshdagi bolalarda psixoemotsional muammolar tasodifiy hodisa emas, balki bir qator omillarning murakkab o‘zaro ta’siri natijasidir. Ilmiy adabiyotlarda ushbu muammolarning kelib chiqish sabablarini biologik, oilaviy, pedagogik va ijtimoiy omillar majmuasi sifatida talqin qilish keng tarqalgan. Har bir omil bolaning emotsional holati va psixik rivojlanishiga bevosita yoki bilvosita ta’sir ko‘rsatadi.

Biologik omillar: Biologik omillar psixoemotsional rivojlanishning tabiiy asosini tashkil etadi. Bolaning asab tizimi tipi, temperament xususiyatlari, irsiy moyillik va fiziologik yetuklik darajasi emotsional reaksiyalarning kuchi va

barqarorligiga sezilarli ta’sir ko‘rsatadi. Masalan, asab tizimi zaif yoki qo‘zg‘aluvchan bo‘lgan bolalar stressli vaziyatlarga nisbatan sezgirroq bo‘lib, ularda xavotirlik va emotsional beqarorlik holatlari ko‘proq kuzatiladi. Shuningdek, prenatal va perinatal davrda yuzaga kelgan salbiy omillar, jumladan, homiladorlik davridagi stresslar, tug‘ruq jarayonidagi asoratlar yoki erta yoshdagi nevrologik muammolar ham bolaning psixoemotsional rivojlanishiga salbiy ta’sir ko‘rsatishi mumkin. Ushbu biologik omillar ko‘pincha tashqi muhit ta’sirlari bilan uyg‘unlashib, psixoemotsional muammolarning kuchayishiga olib keladi. Oilaviy omillar: Oilaviy muhit bolaning psixoemotsional rivojlanishida yetakchi rol o‘ynaydi. Ota-onalar o‘rtasidagi munosabatlar, tarbiyaviy uslublar, emotsional aloqa sifati va oiladagi psixologik iqlim bolaning ichki kechinmalariga bevosita ta’sir ko‘rsatadi. Konfliktli, beqaror yoki sovuq emotsional muhitda voyaga yetayotgan bolalarda xavotirlik, agressivlik va emotsional beqarorlik holatlari ko‘proq uchraydi. Haddan tashqari qattiq nazorat yoki, aksincha, befarqlik ham bolaning psixoemotsional rivojlanishiga salbiy ta’sir ko‘rsatadi. Avtoritar tarbiya uslublari bolada qo‘rquv va ishonchsizlikni kuchaytirsa, liberal yoki nazoratsiz tarbiya emotsional intizomning yetishmasligiga olib keladi. Shuningdek, ota-onalarning bandligi, bolaga yetarli vaqt va e’tibor ajratmaslik holatlari emotsional bog‘lanish buzilishlariga sabab bo‘lishi mumkin. Pedagogik omillar: Maktabgacha ta’lim muassasasidagi pedagogik jarayonning sifati bolaning psixoemotsional rivojlanishida muhim ahamiyat kasb etadi. Tarbiyachining shaxsiy fazilatlari, pedagogik mahorati, bolalarga bo‘lgan munosabati va ta’lim jarayonini tashkil etish uslubi bolalarning emotsional holatiga bevosita ta’sir ko‘rsatadi. Bolalarning individual xususiyatlarini hisobga olmasdan olib borilgan ta’lim-tarbiya jarayoni psixoemotsional zo‘riqish, muvaffaqiyatsizlik hissi va o‘ziga bo‘lgan ishonchning pasayishiga olib kelishi mumkin. Shuningdek, haddan tashqari yuklama, o‘yin faoliyatining yetarli darajada tashkil etilmasligi va salbiy baholash usullaridan foydalanish bolalarda

emotsional muammolarning kuchayishiga sabab bo‘ladi. Ijtimoiy omillar: Zamonaviy ijtimoiy-madaniy muhit bolalarning psixoemotsional rivojlanishiga yangi chaqiriqlarni yuzaga keltirmoqda. Ommaviy axborot vositalari, raqamli texnologiyalar va internet resurslarining nazoratsiz ta’siri bolalarda emotsional haddan tashqari qo‘zg‘aluvchanlik, diqqatning tarqoqligi va ijtimoiy izolyatsiya holatlarini keltirib chiqarishi mumkin. Shuningdek, urbanizatsiya, ijtimoiy tengsizlik, migratsiya jarayonlari va madaniy qadriyatlarning o‘zgarishi ham bolalarning emotsional holatiga ta’sir ko‘rsatadi. An’anaviy ijtimoiy qo‘llab-quvvatlash mexanizmlarining zaiflashuvi bolalarda emotsional himoyasizlik hissini kuchaytiradi. Stressli hayotiy voqealar: Bolalik davrida boshdan kechirilgan stressli hayotiy voqealar psixoemotsional muammolarning paydo bo‘lishida muhim rol o‘ynaydi. Ota-onaning ajralishi, yaqin kishining yo‘qotilishi, yashash joyining o‘zgarishi yoki bolalar bog‘chasini almashtirish kabi holatlar bolada kuchli emotsional reaksiyalarni keltirib chiqaradi. Agar bunday vaziyatlarda bola yetarli psixologik qo‘llab-quvvatlashga ega bo‘lmasa, stress holati uzoq muddatli psixoemotsional muammolarga aylanishi mumkin. Shu sababli stressli vaziyatlarda bolaning emotsional ehtiyojlarini inobatga olish va unga mos yordam ko‘rsatish muhim ahamiyatga ega.

## Maktabgacha yoshdagi bolalarda psixoemotsional muammolarini aniqlash va diagnostika usullari:

Maktabgacha yoshdagi bolalarda psixoemotsional muammolarni erta aniqlash ularni bartaraf etishning eng muhim shartlaridan biridir. Ushbu yosh davrida bolalar o‘z emotsional holatlarini to‘liq va aniq ifodalab bera olmasliklari sababli diagnostika jarayoni maxsus yondashuv va metodlarni talab etadi. Shuning uchun maktabgacha ta’lim amaliyotida psixoemotsional holatni baholashda kompleks, tizimli va bolaning yosh xususiyatlariga mos metodlardan foydalanish maqsadga muvofiqdir.

Psixoemotsional diagnostikaning asosiy tamoyillari: Maktabgacha yoshdagi bolalar bilan olib boriladigan diagnostik ishlar bir qator ilmiy-

pedagogik tamoyillarga asoslanishi lozim. Eng avvalo, diagnostika jarayoni bolaning psixologik xavfsizligini ta’minlashi, majburlash va zo‘riqishsiz o‘tkazilishi zarur. Bolaning individual rivojlanish sur’ati, temperament tipi va ijtimoiy tajribasi hisobga olinishi diagnostikaning ishonchliligini oshiradi. Shuningdek, diagnostika jarayonida kuzatuvchanlik, tizimlilik va uzluksizlik tamoyillariga amal qilish muhim ahamiyatga ega. Bir martalik baholash natijalari bolaning haqiqiy psixoemotsional holatini to‘liq aks ettirmasligi mumkin, shu sababli bolani turli vaziyatlarda va vaqt oralig‘ida kuzatish maqsadga muvofiqdir. Kuzatuv metodi: Kuzatuv maktabgacha yoshdagi bolalarda psixoemotsional muammolarni aniqlashning eng asosiy va samarali metodlaridan biri hisoblanadi. Ushbu metod orqali bolaning tabiiy sharoitda — o‘yin jarayonida, mashg‘ulotlarda va tengdoshlari bilan muloqotda namoyon etayotgan xulq-atvori tahlil qilinadi. Kuzatuv jarayonida bolaning emotsional reaksiyalari, muloqotga kirishish darajasi, agressiv yoki tortinchoq xatti-harakatlari, stressli vaziyatlarga munosabati kabi ko‘rsatkichlarga alohida e’tibor qaratiladi. Mazkur metodning afzalligi shundaki, u bolaning sun’iy vaziyatdagi emas, balki real hayotdagi psixoemotsional holatini aniqlash imkonini beradi.

Suhbat va so‘rovnoma usullari: Maktabgacha yoshdagi bolalar bilan to‘g‘ridan-to‘g‘ri suhbat o‘tkazish cheklangan bo‘lsa-da, sodda va yoshga mos savollar orqali bolaning ichki kechinmalari haqida muayyan ma’lumot olish mumkin. Suhbat jarayonida bolaning nutqi, emotsional ohangi va savollarga munosabati tahlil qilinadi. Bundan tashqari, ota-onalar va tarbiyachilar uchun mo‘ljallangan so‘rovnomalar bolaning kundalik xulq-atvori va emotsional holati haqida muhim axborot manbai hisoblanadi. Ushbu ma’lumotlar bolaning psixoemotsional holatini kompleks baholashga xizmat qiladi. Proektiv metodlar: Proektiv metodlar maktabgacha yoshdagi bolalar diagnostikasida keng qo‘llaniladigan samarali usullardan biridir. Ushbu metodlar bolaning ichki kechinmalari, qo‘rquvlari va emotsional holatini bilvosita aniqlash imkonini

beradi. Rasm chizish, ertak tuzish, rolli o‘yinlar orqali bolaning ichki dunyosi ochib beriladi. Masalan, “Oila rasmi”, “Erkin rasm”, “Tugallanmagan hikoya” kabi metodlar orqali bolaning emotsional bog‘lanishlari, xavotirlik darajasi va ijtimoiy munosabatlarga bo‘lgan munosabati tahlil qilinadi. Proektiv metodlar bolaning himoya mexanizmlarini chetlab o‘tgan holda psixoemotsional holatini aniqlash imkonini beradi. Psixodiagnostik testlar: Maktabgacha yosh uchun moslashtirilgan psixodiagnostik testlar ham psixoemotsional muammolarni aniqlashda muhim ahamiyatga ega. Ushbu testlar yordamida bolaning xavotirlik darajasi, emotsional barqarorligi va ijtimoiy moslashuvi baholanadi. Testlar qisqa, qiziqarli va bolaning yosh xususiyatlariga mos bo‘lishi lozim. Biroq test natijalarini talqin qilishda ehtiyotkorlik talab etiladi. Testlar faqatgina boshqa metodlar bilan uyg‘unlikda qo‘llangandagina ishonchli natijalar beradi. Shu sababli diagnostika jarayonida testlar, kuzatuv va suhbat natijalarini kompleks tahlil qilish maqsadga muvofiqdir.

Diagnostika natijalarini tahlil qilish va xulosa chiqarish: Diagnostika jarayonining yakuniy bosqichi olingan natijalarni tahlil qilish va umumiy xulosa chiqarishdan iborat. Ushbu bosqichda bolaning psixoemotsional holati, muammolarning darajasi va ularning ehtimoliy sabablari aniqlanadi. Natijalar asosida individual korreksion dastur ishlab chiqish mumkin. Diagnostika natijalarini ota-onalar va pedagoglar bilan muhokama qilish, ularga bolaning emotsional ehtiyojlari haqida ilmiy asoslangan tavsiyalar berish muhim ahamiyatga ega. Bu esa psixoemotsional muammolarni samarali bartaraf etishning muhim sharti hisoblanadi.

## Maktabgacha yoshdagi bolalarda psixoemotsional muammolarini bartaraf etish va korreksion yondashuvlar:

Maktabgacha yoshdagi bolalarda psixoemotsional muammolarni bartaraf etish jarayoni kompleks va tizimli yondashuvni talab etadi. Ushbu jarayonda bolaning individual psixologik xususiyatlari, muammoning kelib chiqish sabablari hamda ijtimoiy muhit omillari hisobga olinishi lozim. Zamonaviy

psixologiya va pedagogika fanlari bolalarning emotsional holatini barqarorlashtirishga qaratilgan samarali korreksion yondashuvlarni taklif etadi. O‘yin terapiyasi: O‘yin terapiyasi maktabgacha yoshdagi bolalarda psixoemotsional muammolarni korreksiya qilishning eng samarali va tabiiy usullaridan biri hisoblanadi. O‘yin bolaning yetakchi faoliyat turi bo‘lgani sababli, u orqali bolaning ichki kechinmalari, qo‘rquvlari va stress holatlari erkin ifodalanadi. O‘yin jarayonida bola o‘z emotsiyalarini xavfsiz muhitda namoyon qilish imkoniyatiga ega bo‘ladi. Rol o‘yinlari, dramatizatsiya va syujetli o‘yinlar bolalarda ijtimoiy rollarni o‘zlashtirish, emotsional tajribani boyitish va muloqot ko‘nikmalarini rivojlantirishga xizmat qiladi. O‘yin terapiyasi ayniqsa xavotirlik, agressiv xatti-harakatlar va ijtimoiy tortinchoqlikni kamaytirishda yuqori samaradorlikka ega.

Art-terapiya metodlari: Art-terapiya bolalarning psixoemotsional holatini yumshatish va ichki zo‘riqishni kamaytirishga qaratilgan samarali metodlardan biridir. Rasm chizish, loydan yasash, musiqa va raqs elementlaridan foydalanish orqali bola o‘z his-tuyg‘ularini so‘zsiz ifoda etish imkoniyatiga ega bo‘ladi. Bu metodlar ayniqsa nutq rivojlanishi yetarli darajada shakllanmagan bolalar uchun qulay hisoblanadi. Art-terapiya bolalarda ijobiy emotsiyalarni kuchaytirish, o‘z-o‘zini anglashni rivojlantirish va emotsional barqarorlikni ta’minlashga yordam beradi. Ushbu metodlardan muntazam va maqsadli foydalanish psixoemotsional muammolarning oldini olishda ham muhim ahamiyat kasb etadi.
Ertak terapiyasi: Ertak terapiyasi maktabgacha yoshdagi bolalar psixokorreksiyasida keng qo‘llaniladigan samarali yondashuvlardan biridir. Ertaklar orqali bola o‘z hayotiy vaziyatlarini ramziy shaklda anglaydi va ularga nisbatan yangi munosabat shakllantiradi. Qahramonlarning boshidan kechirgan voqealari bolaga o‘z muammolarini xavfsiz tarzda tahlil qilish imkonini beradi. Ertak terapiyasi bolalarda qo‘rquvni kamaytirish, o‘ziga bo‘lgan ishonchni oshirish va ijobiy xulq-atvor modellarini shakllantirishda samarali hisoblanadi. Tarbiyachi yoki psixolog tomonidan maqsadli tanlangan ertaklar bolaning

individual ehtiyojlariga moslashtiriladi. Emotsional intellektni rivojlantirishga qaratilgan mashg‘ulotlar: Emotsional intellekt maktabgacha yoshdagi bolalarda psixoemotsional barqarorlikni ta’minlashda muhim omil hisoblanadi. Emotsional intellektni rivojlantirishga qaratilgan mashg‘ulotlar bolalarga o‘z his-tuyg‘ularini tanish, nomlash va boshqarishni o‘rgatadi. Bu esa agressiv xatti-harakatlar va emotsional portlashlarning oldini olishga xizmat qiladi. Bunday mashg‘ulotlar davomida emotsiyalarni tasvirlash, rolli o‘yinlar va muammoli vaziyatlarni birgalikda muhokama qilish usullaridan foydalaniladi. Natijada bolalarda empatiya, o‘zaro tushunish va ijtimoiy moslashuv ko‘nikmalari shakllanadi. Pedagogik texnologiyalar va individual yondashuv: Psixoemotsional muammolarni bartaraf etishda pedagogik texnologiyalarning to‘g‘ri tanlanishi muhim ahamiyatga ega. Bolaning individual xususiyatlarini hisobga olgan holda differensial va shaxsga yo‘naltirilgan yondashuvni qo‘llash psixokorreksion ishlarning samaradorligini oshiradi. Pedagog va psixologning hamkorlikda olib borgan ishlari, ota-onalar bilan muntazam muloqot va maslahatlar bolalarning emotsional holatini barqarorlashtirishda muhim rol o‘ynaydi. Korreksion yondashuvlarning izchil va uzluksiz amalga oshirilishi psixoemotsional muammolarni muvaffaqiyatli bartaraf etish imkonini beradi.

**Pedagog va ota-onalar uchun amaliy tavsiyalar:**

Maktabgacha yoshdagi bolalarda psixoemotsional rivojlanish muammolarini bartaraf etish faqatgina mutaxassislar faoliyati bilan cheklanib qolmasdan, balki pedagoglar va ota-onalarning uzviy hamkorligini talab etadi. Bolaning kundalik hayoti asosan oilaviy va ta’lim muhitida kechishini inobatga olgan holda, ushbu muhitlarda to‘g‘ri tashkil etilgan pedagogik va psixologik yondashuvlar psixoemotsional muammolarni oldini olish va kamaytirishda muhim rol o‘ynaydi. Pedagoglar uchun amaliy tavsiyalar: Maktabgacha ta’lim muassasalarida faoliyat yuritayotgan pedagoglar bolalarning emotsional holatini kundalik kuzatuv asosida baholab borishlari lozim. Har bir bolaning individual xususiyatlarini hisobga olgan holda shaxsga yo‘naltirilgan yondashuvni qo‘llash

pedagogik jarayonning samaradorligini oshiradi. Bolalarni bir-biri bilan solishtirishdan qochish, ularning muvaffaqiyatlarini rag‘batlantirish va ijobiy baholash usullaridan foydalanish muhim ahamiyatga ega. Pedagoglar mashg‘ulotlar jarayonida bolalarning emotsional holatini inobatga olgan holda o‘yin texnologiyalaridan keng foydalanishlari tavsiya etiladi. O‘yin, musiqiy va ijodiy faoliyat bolalarda emotsional zo‘riqishni kamaytiradi va ijobiy psixologik muhitni shakllantiradi. Shuningdek, bolalar o‘rtasida yuzaga keladigan nizolarni konstruktiv tarzda hal qilish, ularni tinglash va tushunishga harakat qilish pedagogik mahoratning muhim ko‘rsatkichlaridan biridir. Pedagoglarning psixologik kompetensiyasini oshirish ham muhim vazifa hisoblanadi. Psixoemotsional rivojlanish muammolari, diagnostika va korreksion metodlar bo‘yicha muntazam malaka oshirish kurslari pedagoglarning professional faoliyatini yanada samarali qiladi. Pedagog va psixologning hamkorligi bolalarga ko‘rsatiladigan yordam sifatini oshiradi. Ota-onalar uchun amaliy tavsiyalar: Ota-onalar bolaning psixoemotsional rivojlanishida asosiy tayanch hisoblanadi. Bolaga mehr-muhabbat va emotsional qo‘llab-quvvatlashni ta’minlash uning ruhiy barqarorligini mustahkamlaydi. Ota-onalarga bolani tinglash, uning his-tuyg‘ularini inkor etmaslik va emotsiyalarini ifodalashga imkon berish tavsiya etiladi. Oilaviy tarbiyada izchillik va barqarorlik muhim ahamiyatga ega. Jazolash usullaridan ko‘ra tushuntirish, muloqot va kelishuvga asoslangan yondashuvlar bolada ijobiy xulq-atvorni shakllantiradi. Shuningdek, bolani haddan tashqari himoyalash yoki ortiqcha talabchanlikdan saqlanish zarur. Ota-onalar bolalarning kundalik hayotida o‘yin, birgalikdagi mashg‘ulotlar va ochiq muloqot uchun yetarli vaqt ajratishlari lozim. Raqamli texnologiyalardan foydalanishni nazorat qilish, bolani faol harakatga undovchi mashg‘ulotlarga jalb etish psixoemotsional rivojlanish uchun muhim omil hisoblanadi. Pedagog va ota-onalar hamkorligini mustahkamlash: Bolaning psixoemotsional rivojlanishini qo‘llab-quvvatlashda pedagog va ota-onalar o‘rtasidagi hamkorlik muhim ahamiyatga ega. Muntazam uchrashuvlar,

maslahatlar va axborot almashinuvi bolaning holatini yaxshiroq tushunishga yordam beradi. Ota-onalarga boladagi emotsional o‘zgarishlar haqida o‘z vaqtida ma’lumot berish va birgalikda yechimlar ishlab chiqish muhimdir. Hamkorlikka asoslangan yondashuv bolaga nisbatan yagona va izchil talablar qo‘yilishini ta’minlaydi. Bu esa bolaning emotsional barqarorligini oshirib, psixoemotsional muammolarning kamayishiga xizmat qiladi. Xulosa qilib aytganda maktabgacha ta’lim yoshidagi bolalarda psixoemotsional rivojlanish masalasi zamonaviy pedagogika va psixologiya fanlarining eng dolzarb yo‘nalishlaridan biri hisoblanadi. Mazkur yosh davri bolaning shaxs sifatida shakllanishida hal qiluvchi ahamiyatga ega bo‘lib, aynan ushbu bosqichda emotsional barqarorlik, ijtimoiy moslashuv va o‘z-o‘zini anglash jarayonlari intensiv rivojlanadi. Tadqiqot davomida maktabgacha yoshdagi bolalarda uchraydigan psixoemotsional muammolar, ularning kelib chiqish sabablari va bartaraf etish yo‘llari ilmiy-nazariy va amaliy jihatdan tahlil qilindi. O‘rganishlar shuni ko‘rsatdiki, bolalarda xavotirlik, qo‘rquv, agressiv xatti-harakatlar, emotsional beqarorlik, ijtimoiy tortinchoqlik va emotsional bog‘lanish buzilishlari kabi muammolar keng tarqalgan bo‘lib, ularning yuzaga kelishida biologik, oilaviy, pedagogik va ijtimoiy omillar o‘zaro uyg‘un holda ta’sir ko‘rsatadi. Ayniqsa, oilaviy muhitdagi beqarorlik, noto‘g‘ri tarbiyaviy yondashuvlar va pedagogik jarayonning individual xususiyatlarni hisobga olmasdan tashkil etilishi bolalarning psixoemotsional rivojlanishiga salbiy ta’sir ko‘rsatishi aniqlandi. Maqolada psixoemotsional muammolarni erta aniqlash va diagnostika qilishning ahamiyati alohida ta’kidlandi. Kuzatuv, suhbat, proektiv metodlar va psixodiagnostik testlardan kompleks foydalanish bolaning emotsional holatini to‘g‘ri baholash imkonini berishi asoslab berildi. Diagnostika natijalariga tayangan holda individual va guruhli korreksion ishlarni tashkil etish psixoemotsional muammolarni samarali bartaraf etishda muhim omil hisoblanadi. Tadqiqot natijalari shuni ko‘rsatadiki, o‘yin terapiyasi, art-terapiya, ertak terapiyasi va emotsional intellektni rivojlantirishga qaratilgan

mashg‘ulotlar maktabgacha yoshdagi bolalarda psixoemotsional holatni barqarorlashtirishda yuqori samaradorlikka ega. Ushbu metodlarning pedagogik texnologiyalar bilan uyg‘unlashgan holda qo‘llanilishi bolalarda ijobiy emotsional tajribani shakllantiradi, stressga chidamlilikni oshiradi va sog‘lom ijtimoiy munosabatlarni rivojlantiradi. Shuningdek, pedagoglar va ota-onalar uchun ishlab chiqilgan amaliy tavsiyalar bolalarning psixoemotsional rivojlanishini qo‘llab-quvvatlashda muhim ahamiyatga ega. Pedagog va ota-onalar o‘rtasidagi hamkorlikni mustahkamlash, bolaga nisbatan izchil va mehrga asoslangan munosabatni ta’minlash psixoemotsional muammolarning oldini olishda samarali mexanizm sifatida namoyon bo‘ladi. Xulosa qilib aytganda, maktabgacha ta’lim yoshidagi bolalarda psixoemotsional rivojlanishni ta’minlash kompleks yondashuvni, ya’ni biologik, psixologik, pedagogik va ijtimoiy omillarning uyg‘unligini talab etadi. Ushbu maqolada bayon etilgan ilmiy xulosalar va amaliy tavsiyalar maktabgacha ta’lim muassasalari faoliyatini takomillashtirish, bolalarning ruhiy salomatligini mustahkamlash hamda sog‘lom shaxsni shakllantirishga xizmat qiladi.

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# TALABALARNING EMOTSIONAL INTELLEKTI (EQ) VA ULARNING KOGNITIV FAOLIYATGA BO‘LGAN IJOBIY MOTIVATSIYASI O‘RTASIDAGI O‘ZARO ALOQADORLIK (MAKTABGACHA TA’LIM YO‘NALISHI TALABALARINI TAYYORLASH MISOLIDA)

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***Annotatsiya:*** *ushbu maqolada oliy ta’lim tizimida bo‘lajak maktabgacha ta’lim tashkiloti tarbiyachilarini tayyorlashda ularning emotsional intellekti (EQ) va kognitiv faoliyatga nisbatan ijobiy motivatsiyasini shakllantirish masalalari yozma-nazariy nuqtayi nazardan batafsil yoritilgan. Maqolada shaxs his-tuyg‘ularini anglash va boshqarish qobiliyatining intellektual yuklamalarni o‘zlashtirishdagi ahamiyati maktabgacha ta’lim yo‘nalishi talabalarining kasbiy xususiyatlari asosida ochib berilgan. Shuningdek, N.Xoll metodikasi shkalalari (emotsional xabardorlik, emotsiyalarni boshqarish, o‘z-o‘zini motivatsiya, empatiya va kommunikativ mahorat) orqali talabaning ichki bilish faolligini yuzaga chiqarish hamda oliy ta’lim darslarida ijobiy ruhiy muhit yaratish qonuniyatlari nazariy tahlil qilingan.*

***Kalit so‘zlar:*** *emotsional intellekt, kognitiv faoliyat, pozitiv motivatsiya, maktabgacha ta’lim, bo‘lajak tarbiyachi, N.Xoll metodikasi, emotsional xabardorlik, empatiya, akmeologik yondashuv.*

***Abstract:*** *this article provides a detailed theoretical analysis of developing emotional intelligence (EQ) and positive motivation toward cognitive activity among future preschool educators within the higher education system. Based on the professional characteristics of preschool education students, the significance of understanding and managing personal emotions in processing intellectual demands is uncovered. Furthermore, the principles of unlocking students' internal cognitive activity through N. Hall's framework (emotional awareness, managing emotions, self-motivation, empathy, and social skills) alongside establishing a positive psychological climate in university lectures are comprehensively explored.*

***Keywords:*** *emotional intelligence, cognitive activity, positive motivation, preschool education, future educator, N. Hall's methodology, emotional awareness, empathy, acmeological approach.*

## KIRISH

Global axborotlashuv va ta’lim paradigmalarining shiddat bilan o‘zgarib borayotgan bugungi davrida oliy pedagogik ta’lim tizimining oldida turgan eng muhim vazifalardan biri — har tomonlama rivojlangan, kreativ fikrlaydigan va eng muhimi, o‘z kasbiy faoliyatiga nisbatan yuqori motivatsiyaga ega bo‘lgan mutaxassislarni tarbiyalashdan iboratdir. Ayniqsa, maktabgacha ta’lim yo‘nalishi talabalari — kelajakda jamiyatning poydevori hisoblangan yosh avlodning ilk kognitiv poydevorini qo‘yadigan shaxslardir. Shuning uchun ham ularning oliy ta’lim muassasasida bilim olishga bo‘lgan munosabati, fikrlash doirasi va dars jarayonlaridagi emotsional holati alohida pedagogik tadqiqot obyekti bo‘lishni talab etadi.

Uzoq yillar davomida an’anaviy ta’lim tizimida talabalarning tayyorgarlik darajasi faqatgina akademik bilimlar, yodlash qobiliyati va mantiqiy intellekt koeffitsiyenti (IQ) orqali baholanib kelindi. Biroq zamonaviy pedagogik psixologiya va oliy ta’lim didaktikasi shuni ko‘rsatmoqdaki, quruq nazariy ma’lumotlarni majburiy o‘zlashtirish talabalarda fanga nisbatan loqaydlik, kognitiv charchash (burnout) va psixologik to‘siqlarni yuzaga keltirmoqda. Talabaning darsda o‘zini qanday his qilishi, topshiriqlarni bajarishdagi emotsional kayfiyati uning xotirasi, diqqati va fikrlash tezligi bilan tovushtirilgan zanjir kabi uzviy bog‘liqdir. Shu nuqtayi nazardan, talabalarda kognitiv faoliyatga nisbatan barqaror pozitiv kayfiyatni hosil qilish mexanizmi sifatida emotsional intellektni (EQ) rivojlantirish dolzarb pedagogik muammo hisoblanadi.

## ASOSIY QISM

Emotsional intellekt (EQ) tushunchasi o‘tgan asrning oxirlarida J.Mayer, P.Salovey hamda D.Goleman kabi tadqiqotchilar tomonidan ilmiy muomalaga kiritilgan bo‘lib, u insonning o‘z his-tuyg‘ularini anglashi, ularni boshqara olishi

va atrofdagilar bilan samarali emotsional aloqaga kirisha olish qobiliyatini ifodalaydi. D.Golemanning ta’kidlashicha, hayotiy va kasbiy muvaffaqiyatning 80 foizi aynan emotsional intellektga, faqatgina 20 foizi an’anaviy intellektga (IQ) bog‘liqdir.

Pozitiv psixologiya nazariyasi asoschilaridan biri B.Fredrikson o‘zining “Kengaytirish va qurish” kontseptsiyasida pozitiv emotsiyalar (quvonch, qiziqish, g‘urur, ilhom) insonning ongli fikrlash doirasini va kognitiv resurslarini vaqtinchalik kengaytirishini, yangi g‘oyalar yaratishga zamin hozirlashini isbotlagan. Negativ emotsiyalar (qo‘rquv, xavotir, aybdorlik hissi) esa aksincha, odamni faqatgina himoyalanish yoki qochish rejimiga o‘tkazib, miyaning ijodiy va kognitiv imkoniyatlarini bloklab qo‘yadi degan fikrda bo‘lgan.

Maktabgacha ta’lim pedagogikasi yo‘nalishida talabalarning kasbiy akmeologik rivojlanishini tadqiq etgan olimlar bo‘lajak tarbiyachining emotsional madaniyati uning kelajakdagi kasbiy faoliyati ko‘zgusi ekanligini ta’kidlaydilar. Ya’ni, dars jarayonida o‘z his-tuyg‘ularini tushunishni va ijobiy motivatsiyani shakllantirishni o‘rganmagan talaba, kelajakda bog‘cha yoshidagi bolalarda ham bilish faolligini erkin va quvnoq ruhda (joy of learning) shakllantira olmaydi.

N.Xoll metodologiyasi prizmasida talaba shaxsi va EQ tuzilishini quyidagicha keltirishimiz mumkin:

Oliy ta’lim muhitida talabalarning kognitiv motivatsiyasini harakatga keltiruvchi emotsional mexanizmlarni chuqur anglash uchun Nicolas Hall (N.Xoll) tomonidan ishlab chiqilgan emotsional intellektning besh tarkibiy shkalasiga ilmiy yozma nutq shaklida to‘xtalib o‘tamiz. Bu shkalalar shunchaki ruhiy holatlar emas, balki talabaning har bir ma’ruza va amaliy mashg‘ulotda bilimni qanday o‘zlashtirishini belgilovchi kognitiv filtrlardir.

*Emotsional xabardorlik*: bu talabaning dars jarayonida o‘zida paydo bo‘layotgan hislarni ("Men hozir charchadimmi?", "Bu mavzu meni zeriktiryaptimi yoki qiziqtiryaptimi?") aniq anglashi hisoblanadi. O‘z ichki

holatini tushungan talaba darsdagi kognitiv yuklamani ongli ravishda taqsimlay oladi.

*O‘z emotsiyalarini boshqarish:* bu ko‘rsatkich oliy ta’limdagi eng muhim omil — emotsional egiluvchanlikni belgilaydi. Murakkab pedagogik masalalar, kollokviumlar yoki imtihonlar oldidan talaba o‘z xavotirini jilovlay olishi, diqqatni qo‘rqinchga emas, muammoning yechimiga qarata olish qobiliyatidir.

*O‘z-o‘zini motivatsiya qilish:* tashqi stimullarsiz (baho olish, o‘qituvchining tanbehi yoki stipendiya yo‘qolishi xavfisiz) faqatgina ichki bilish ehtiyoji, yangi narsani o‘rganishdan lazzatlanish tuyg‘usidir.

*Empatiya:* bo‘lajak tarbiyachilar uchun fundamental kasbiy sifat bo‘lib, darsda nafaqat o‘zining, balki guruhdoshlarining va pedagogning holatini tushunish, jamoaviy ishlarda emotsional rezonans hosil qilish qobiliyatidir.

*Boshqa odamlarning emotsiyalariga ta’sir o‘tkaza olish:* Pedagogik nizolarni yumshatish, guruh bo‘lib loyihalar ustida ishlaganda pozitiv mikroklimat yaratish mahoratidir.

Agar talabada N.Xoll metodikasi bo‘yicha emotsiyalarni boshqarish ko‘rsatkichi past bo‘lsa, u ta’lim olish jarayonida doimiy ravishda “kognitiv to‘siqlar”ga duch keladi. Masalan, maktabgacha ta’lim fani doirasida talabaga erkin fikrlashni talab qiluvchi muammoli vaziyat yoki keys taqdim etilganda, emotsional barqarorligi zaif talabada birinchi navbatda xavotir ustun keladi: “Agar noto‘g‘ri javob bersam, ustimdan kulishadi yoki past baho olaman”. Bu xavotir miya po‘stlog‘idagi fikrlash markazlarini bloklaydi. Natijada talaba ijodiy yechim izlash o‘rniga, tayyor andozalarni ko‘chirish yoki faoliyatdan butunlay qochish yo‘lini tanlaydi.

Aksincha, emotsional intellekti yuqori bo‘lgan talaba o‘zining muvaffaqiyatsizlikka bo‘lgan munosabatini boshqara oladi. U xatoni kognitiv rivojlanishning bir bosqichi sifatida qabul qiladi. Bunday talabalarda ta’lim muhitiga nisbatan “pozitiv intilish” pozitsiyasi shakllanadi. Ular darslarda savol berishdan, munozaraga kirishishdan va nostandart metodik o‘yinlarni taklif

qilishdan cho‘chimaydilar. Ularning darsdagi ijobiy ruhiy holati fanni chuqurroq tushunishga, xotirada ma’lumotlarning uzoq muddat saqlanishiga olib keladi.

Oliy ta’lim o‘qituvchisi auditoriyada faqatgina axborot yetkazuvchi subyekt bo‘lib qolmasdan, balki emotsional muhitni loyihalashtiruvchi muhandis bo‘lishi lozim. Talabalarda kognitiv pozitivlikni hosil qilish uchun quyidagi pedagogik tizimni o‘quv jarayoniga integratsiya qilish zarur.

Eng avvalo, refleksiv muhit yaratish lozim. Har bir darsning yakunida talabalarga faqatgina “Nimalarni o‘rgandingiz?” degan savol emas, balki “Bugun topshiriqni bajarishda qanday hislarni kechirdingiz? Qayerda qiynaldingiz va u sizga qanday ta’sir qildi?” degan refleksiv savollarni berish orqali ularning emotsional xabardorligini oshirish zarur.

Akmeologik treninglar va Keys-shoular o‘tkazib turish o‘z navbatida birmuncha muhim sanaladi. Maktabgacha pedagogika darslarida talabalarni real bog‘cha muhitidagi qiyinchiliklarga emotsional tayyorlash uchun treninglar tashkil etish kerak. Masalan, “Injiq bola bilan muloqot” yoki “G‘azablangan ota-ona bilan suhbat” kabi rolli o‘yinlar orqali talabaning empatiyasini va o‘z emotsiyalarini jilovlash qobiliyatini dars xonasining o‘zida shakllantirish mumkin.

Bundan tashqari baholash tizimini gumanizatsiyalash muhim hisoblanadi. Bunda talabaning xatosini jazolash vositasi (past baho) sifatida emas, balki rivojlanish nuqtasi sifatida ko‘rsatish orqali auditoriyada “emotsional xavfsiz ta’lim muhiti” barpo etishga erishish mumkin.

## XULOSA

Xulosa o‘rnida shuni aytish mumkinki, oliy ta’lim jarayonida maktabgacha ta’lim yo‘nalishi talabalarida kognitiv faoliyatga nisbatan ijobiy kayfiyatni shakllantirish bevosita ularning emotsional intellekti (EQ) darajasini yuksaltirish bilan bog‘liq mukammal pedagogik jarayondir. Talabaning ichki ruhiy his-tuyg‘ulari uning intellektual faolligini yo ochuvchi, yo butunlay qulflovchi kalit vazifasini bajaradi.

Bo‘lajak tarbiyachilarni tayyorlaydigan maxsus o‘quv rejalari va fan dasturlariga talabalarning kasbiy-emotsional intellektini rivojlantiruvchi, N.Xoll kontseptsiyasiga asoslangan akmeologik modullarni singdirish; pedagogik oliygoh professor-o‘qituvchilarining dars o‘tish metodikasida faqat monologik ma’ruzalardan voz kechib, talabalarda ijobiy emotsional rezonans uyg‘otadigan interaktiv, refleksiv va o‘yinli texnologiyalardan keng foydalanishlari; talabalarning mustaqil ta’lim faoliyatini tashkil etishda ularning shaxsiy qiziqishlari, emotsional xohishlari va kognitiv imkoniyatlari muvozanatini ta’minlash kabi bir qancha taklif va talablarni tavsiya o‘rnida berib ketsak maqsadga yanada muvofiq bo‘ladi.

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# A MULTIMEDIA APPLICATION-BASED EXERCISES SYSTEM FOR DEVELOPING YOUNG LEARNERS' FOREIGN LANGUAGE SPEAKING SKILLS

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***Abstract:*** *The formation of speaking skills in young learners represents a multidimensional pedagogical challenge that requires methodologically grounded integration of digital tools into the primary school curriculum. This study addresses the persistent deficits observed in current foreign language teaching practices through the development of the Integrated Multimedia Synergetic Interaction Model. The model posits that no single multimedia application can comprehensively develop all components of speaking competence; rather, systematic integration of complementary digital instruments is essential. Grounded in multimodal and communicative-activity approaches, the proposed three-stage exercise system employs Super Simple Songs, Kahoot, Gliglish, and Book Creator to target specific aspects of speaking at distinct phases of skill formation. The article presents the theoretical foundation, structural components, and practical implementation mechanisms of the model, including diagnostic instruments for assessing young learners' progress at CEFR A1 level. The exercise system is designed to complement the Guess What-4 textbook while incorporating national-cultural elements relevant to the Uzbek educational context.*

***Keywords:*** *young learners, speaking skills, multimedia applications, multimodal approach, communicative-activity approach, exercise system, primary education, CEFR A1*

## INTRODUCTION

The efficacy of developing foreign language speaking skills in primary school learners depends upon numerous interrelated conditions. Among these, the availability of a methodologically substantiated exercise system that integrates modern digital instruments into the lesson structure constitutes a fundamental prerequisite. Contemporary educational standards increasingly demand the incorporation of information and communication technologies into language teaching, yet the mere presence of digital tools does not guarantee improved learning outcomes. What is required is a coherent pedagogical framework that aligns specific applications with particular stages of skill

development while maintaining the communicative essence of language learning.

Analysis of the State Educational Standards of the Republic of Uzbekistan, widely used teaching materials, and typologies of learner difficulties has revealed persistent deficiencies in existing instructional practices. These deficiencies manifest in insufficient attention to pronunciation development, limited opportunities for authentic interaction, weak integration of national-cultural content, and inadequate mechanisms for assessing speaking progress. Furthermore, the phenomenon of clip thinking, reduced attention spans, and psychological barriers characteristic of contemporary young learners necessitate innovative methodological responses that leverage the motivational potential of digital technologies while preserving pedagogical integrity.

The present study addresses these challenges through the development of the Integrated Multimedia Synergetic Interaction Model, a comprehensive exercise system designed to form speaking skills in young learners through the coordinated deployment of four complementary multimedia applications.

*Theoretical framework and methodological foundations*

The Integrated Multimedia Synergetic Interaction Model is built upon a central proposition: no single multimedia application, when employed in isolation, possesses the capacity to fully develop all components of speaking skill. Speaking constitutes a complex, multi-componential phenomenon encompassing pronunciation accuracy, lexical retrieval, grammatical structuring, discourse organization, and interactive competence. Each of these components requires specific types of practice, feedback, and cognitive engagement that cannot be adequately provided by any single digital tool. Consequently, the model advocates for systematic integration of several digital instruments, each addressing specific instructional tasks at a particular stage of speech skill formation, with their synergistic interaction generating a qualitatively new educational effect.

The methodological foundation of the model rests upon two complementary approaches. The first is the multimodal approach, articulated in the foundational work of Kress and van Leeuwen concerning multiple modalities in communication. In the context of young learner education, this approach has been substantiated through empirical investigations demonstrating that the combination of visual, auditory, and kinesthetic modalities fosters favorable emotional states and creates situations of success. Within the structure of the Integrated Multimedia Synergetic Interaction Model, the multimodal approach is operationalized through five interconnected components: the visual component, encompassing images, animations, and video materials; the auditory component, comprising songs, chants, and recorded speech; the kinesthetic and tactile component, manifested through movement-based activities and touch-screen interaction; the spatial-digital component, involving navigation within digital environments; and the gestural-mimetic component, incorporating facial expressions and physical gestures that accompany speech production.

The second methodological foundation is the communicative-activity approach, developed extensively by scholars who conceptualize speech as a motivated activity driven by communicative needs and realized in concrete interactional situations. This approach emphasizes that language acquisition occurs most effectively when learners engage in meaningful communication rather than mechanical drill. Within the model's structure, the communicative-activity approach is realized through several key principles: speech intentionality, whereby every learning activity is driven by a genuine communicative purpose; situational modeling, which contextualizes language use within recognizable scenarios; the information gap principle, ensuring that communication involves authentic exchange of unknown information; project-based learning, enabling extended, purposeful language use; and the problem-solving method, which engages learners' cognitive resources in the service of communication.

The integration of these two approaches yields a fundamentally new quality of instruction. The multimodal affordances of digital applications serve as the instrumental foundation for implementing activity-based tasks of a communicative nature. The young learner does not merely watch, listen, move, or create a digital product; rather, the learner engages in these multimodal activities with a communicative purpose: to inquire, to inform, to negotiate, to present outcomes. This purposeful integration transforms potentially passive consumption of digital content into active, communicative engagement with the target language.

*The integrated multimedia synergetic interaction model: structure and components*

The Integrated Multimedia Synergetic Interaction Model is defined as a methodological strategy wherein the multimodal affordances of complementary multimedia applications—Super Simple Songs, Kahoot, Gliglish, and Book Creator—constitute the instrumental basis for implementing communicative activity-based tasks, thereby ensuring stage-by-stage formation of foreign language speaking skills in young learners in accordance with CEFR A1 level descriptors and with due consideration of the national-cultural specificities of Uzbekistan.

In contrast to fragmented approaches that incorporate digital tools haphazardly, the model functions as a coherent didactic system wherein each component purposefully facilitates the development of a specific aspect of speaking, and their combined application generates a synergetic effect. The structural organization of the model, with the distribution of applications, is presented in Table 1.

*Table 1*

*Component Structure of the Integrated Multimedia Synergetic Interaction Model*

| *Model Component* | *Multimedia Application* | *Aspect of Speaking Developed* | *Multimodal and Communicative-Activity Components Realized* |
|---|---|---|---|
| Phonetic | Super Simple Songs | Pronunciation skills, rhythmic-intonational patterning | Auditory, visual, kinesthetic, gestural-mimetic; Situational modeling (song as situation) |
| Lexico-Grammatical | Kahoot | Vocabulary activation, differentiation of grammatical structures | Visual, spatial-digital; Information gap, gamification |
| Interactive | Gliglish | Dialogic speech, interaction | Auditory, visual; Speech intention, problem-solving method |
| Productive-Creative | Book Creator | Monologic speech, coherent utterance | Visual, kinesthetic, spatial-digital; Project-based activity |
| Model Component | Multimedia Application | Aspect of Speaking Developed | Multimodal and Communicative-Activity Components Realized |

The synergetic effect is ensured through three mechanisms:

The continuity across stages guarantees that material introduced at previous stages is reactivated in new contextual configurations, preventing forgetting and promoting deeper processing;

The intersection of modalities means that identical linguistic material is presented through different perceptual channels, accommodating diverse learning preferences and reinforcing memory traces through multiple encoding pathways;

The completeness of the skill formation cycle moves systematically from reception and imitation through controlled practice and interactive application to productive creativity, mirroring the natural progression from dependent to independent language use.

*Three-Stage Exercise System*

In contradistinction to traditional exercise typologies, the proposed system is structured according to three sequential stages, each supported by specific multimedia tools and implementing the principles of multimodality and interactivity, as shown in Table 3.

*Table 3*

*Three-Stage Structure of the Exercise System*

| *Stage* | *Dominant Application* | *Exercise Types* | *Principles Implemented* |
|---|---|---|---|
| Motivational-Orientational | Super Simple Songs | Listening, singing along, TPR movements, phonetic warm-up | Multimodality, emotional engagement, incidental memorization |
| Operational-Activity | Kahoot, Gliglish | Game-based quizzes, paired AI dialogues, leveled exercises | Interactivity, competitiveness, information gap, situationality |
| Creative-Reflective | Book Creator | Digital book creation, audio recording, project presentation | Productivity, personalization, reflection, tangible outcome |

Motivational-orientational stage. The "Song star" exercise is a phonetic warm-up used at the start of each lesson. Learners listen to a song, do the movements, and practise short fragments. The main criteria here are emotional engagement and active participation. Songs help children remember material without effort and create a positive atmosphere for learning. Another exercise, "Echo and rhythm," involves repeating phrases from the song as a group and individually.

Operational-activity stage. This stage uses Kahoot and Gliglish together. In the "Quick response" exercise, after new material is introduced, learners do a short Kahoot quiz of five to six questions. Wrong answers are then discussed with the whole class using visuals. Instant feedback helps adjust each learner's path quickly. The "Safe dialogue" exercise pairs learners to talk with an AI conversation partner on a given topic. When learners make mistakes, the AI asks

for clarification or gives a model answer. Dialogues are saved for the teacher to review later. Topics often include cultural settings of Uzbekistan — for example, a conversation in a teahouse, an invitation to Navruz, or a description of a mahalla. In the "Information gap" exercise, two learners share one device: one asks the AI questions while the other writes down the answers. Then they switch roles. This creates a real reason to communicate.

Creative-reflective stage. At this stage, Book Creator is used to consolidate and show learning results. The "My digital book" exercise is the final task for each textbook unit. Learners create a page of a book with pictures, a short text of three to five sentences, and their own audio recording. National-cultural elements are included — traditional dishes, holidays, crafts, and famous places. In the "My way" exercise, learners choose a presentation template that matches how they prefer to express themselves: through images, audio, or video with gestures. The "Author's chair" exercise involves presenting finished projects to classmates, answering questions, and recording progress in the Speech Development Map. This closes the learning cycle with meaningful communication.

*Implementation conditions*

For the model to work well at schools in Uzbekistan, several conditions must be met. Teachers need to be confident users of all four applications and should complete preliminary training. Screen time must follow hygiene norms — no more than 15 to 20 minutes at a time — and must be alternated with traditional non-digital activities. Different types of classroom work should be balanced: whole-class activities with Super Simple Songs, pair work with Gliglish and Kahoot, individual creative tasks in Book Creator, and group projects. If school equipment is limited, the BYOD approach (learners use their own mobile phones) can help. Finally, regular contact with parents is important: informing them about what children are learning, giving advice for practice at home, and showing them results helps connect classroom and home learning.

## CONCLUSION

A comparison of Uzbekistan's state educational standards with the updated CEFR A1 descriptors revealed a gap between the expected speaking competence and the actual opportunities for achieving it. Current standards do not yet fully reflect innovative categories such as online interaction, mediation, and detailed phonological control.

The Integrated multimedia synergetic interaction model is a methodological strategy that combines multimodal and communicative-activity approaches. It uses four complementary applications not separately, but as an integrated system. Their joint use creates conditions for the gradual development of young learners' speaking skills. The model works as a whole system: the synergetic effect is achieved because the same material is processed through different perceptual channels, and skill formation goes through a complete cycle — from reception and imitation to independent speech production.

The proposed exercise system takes into account stage-by-stage learning, targets specific difficulties, relies on multimodality and interactivity, includes culturally relevant content, and is integrated into the existing textbook. To assess learners' progress objectively, two diagnostic tools have been developed: the Speech development map and the Practical case study. The study also defines the conditions for successful implementation: teacher training, compliance with hygiene norms, a balanced use of different work formats, the use of learners' personal devices, and active cooperation with parents.

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# ONLAYN TA'LIM PLATFORMALARINING TALABALAR FAOLLIGI VA O'QUV JARAYONIDAGI ISHTIROKIGA TA'SIRI

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***Annotatsiya.*** *Mazkur maqolada onlayn ta'lim platformalarining oliy ta'lim tizimidagi o'rni, ularning talabalar faolligi, motivatsiyasi va o'quv jarayonidagi ishtirokiga ta'siri tahlil qilingan. So'nggi yillarda raqamli texnologiyalarning jadal rivojlanishi hamda pandemiya davrida masofaviy ta'limga o'tish zarurati onlayn ta'lim platformalarining ommalashuviga sabab bo'ldi. Tadqiqotda xalqaro tajriba va O'zbekiston oliy ta'lim tizimidagi raqamli transformatsiya jarayonlari tahlil qilinib, sun'iy intellekt, virtual va to'ldirilgan reallik texnologiyalarining ta'lim sifati hamda talabalar faolligiga ta'siri baholandi. Shuningdek, onlayn ta'lim samaradorligini oshirishga xizmat qiluvchi omillar va istiqbolli rivojlanish yo'nalishlari ko'rsatib berildi.*

***Kalit so'zlar:*** *onlayn ta'lim, raqamli ta'lim, LMS, Moodle, Google Classroom, Zoom, Microsoft Teams, sun'iy intellekt, talabalar faolligi, ta'lim texnologiyalari.*

***Abstract.*** *This article analyzes the role of online learning platforms in the higher education system and their impact on students' engagement, motivation, and participation in the educational process. In recent years, the rapid development of digital technologies and the necessity of transitioning to distance education during the pandemic have led to the widespread adoption of online learning platforms. The study analyzes international experience and the processes of digital transformation in the higher education system of Uzbekistan, and evaluates the impact of artificial intelligence, virtual reality, and augmented reality technologies on the quality of education and student engagement. In addition, the factors contributing to the effectiveness of online learning and the prospective directions for its development are identified.*

***Keywords:*** *online learning, digital education, LMS, Moodle, Google Classroom, Zoom, Microsoft Teams, artificial intelligence, student engagement, educational technologies.*

## KIRISH

Axborot-kommunikatsiya texnologiyalarining rivojlanishi ta'lim tizimini tubdan o'zgartirmoqda. Raqamli ta'lim vositalari, masofaviy o'qitish va onlayn

platformalar zamonaviy ta'limning ajralmas qismiga aylandi. Ayniqsa, COVID-19 pandemiyasi davrida dunyo bo'ylab milliardlab o'quvchilar va talabalar masofaviy ta'limga o'tdi. Natijada Zoom, Google Meet, Microsoft Teams, Moodle, Google Classroom, Coursera, EdX va Udemy kabi platformalar ta'limning asosiy vositalariga aylandi.

Bugungi kunda onlayn platformalar nafaqat masofaviy ta'limni tashkil etish, balki aralash (Blended Learning), teskari sinf (Flipped Classroom) va shaxsiylashtirilgan ta'lim modellarini rivojlantirishda ham muhim ahamiyat kasb etmoqda.

O'zbekistonda ham "Raqamli O'zbekiston – 2030" strategiyasi doirasida oliy ta'lim muassasalarida raqamli ta'limni joriy etish bo'yicha keng ko'lamli ishlar amalga oshirilmoqda.

XXI asrda axborot-kommunikatsiya texnologiyalarining jadal rivojlanishi barcha sohalarda bo‘lgani kabi ta'lim tizimida ham tub o‘zgarishlarni yuzaga keltirdi. Raqamlashtirish jarayonlari, internet texnologiyalarining keng ommalashuvi, mobil qurilmalar imkoniyatlarining ortishi hamda sun'iy intellekt texnologiyalarining rivojlanishi ta'limni tashkil etishning yangi shakllarini vujudga keltirdi. Natijada an'anaviy auditoriya mashg‘ulotlari bilan bir qatorda masofaviy, aralash (Blended Learning), gibrid (Hybrid Learning) hamda to‘liq onlayn ta'lim modellari keng qo‘llanila boshlandi. Ushbu jarayon ta'limning sifati, ochiqligi va uzluksizligini ta'minlashda muhim omil sifatida e'tirof etilmoqda.

So‘nggi yillarda dunyo miqyosida onlayn ta'lim platformalaridan foydalanish sur'atlari keskin oshdi. Ayniqsa, COVID-19 pandemiyasi davrida yuzaga kelgan global cheklovlar natijasida millionlab ta'lim oluvchilar va pedagoglar qisqa muddat ichida masofaviy ta'lim formatiga o‘tishga majbur bo‘ldilar. Mazkur holat Zoom, Microsoft Teams, Google Meet, Moodle, Google Classroom, Canvas, Blackboard, Coursera, edX va Udemy kabi platformalarning jadal rivojlanishiga turtki berdi. Natijada onlayn ta'lim nafaqat

pandemiya davridagi vaqtinchalik yechim, balki zamonaviy ta'lim tizimining strategik yo‘nalishiga aylandi.

Onlayn ta'lim platformalari ta'lim jarayonining barcha ishtirokchilari uchun yangi imkoniyatlarni yaratmoqda. Talabalar istalgan joy va vaqtda o‘quv materiallaridan foydalanish, video ma'ruzalarni qayta ko‘rish, mustaqil ta'limni tashkil etish hamda o‘zlashtirish darajasini muntazam nazorat qilish imkoniyatiga ega bo‘lmoqda. O‘qituvchilar esa elektron ta'lim resurslarini yaratish, talabalar bilan tezkor muloqot qilish, individual yondashuvni qo‘llash va ta'lim natijalarini avtomatlashtirilgan tarzda monitoring qilish imkoniyatiga ega bo‘lmoqda. Shu sababli onlayn platformalar bugungi kunda ta'lim samaradorligini oshirishning muhim vositasi sifatida qaralmoqda.

Shu bilan birga, onlayn ta'limning samaradorligi faqat texnologik infratuzilmaga emas, balki talabalarning o‘quv jarayonidagi faolligi, motivatsiyasi, raqamli savodxonligi hamda o‘qituvchilarning pedagogik va raqamli kompetensiyalariga ham bevosita bog‘liqdir. Tadqiqotlar shuni ko‘rsatadiki, zamonaviy onlayn platformalardan samarali foydalanish uchun faqat texnik imkoniyatlarning mavjudligi yetarli emas. Ta'lim jarayonini pedagogik jihatdan to‘g‘ri loyihalash, interaktiv metodlarni qo‘llash, muntazam qayta aloqa tashkil etish hamda shaxsiylashtirilgan o‘qitish strategiyalarini joriy etish talab etiladi.

Bugungi kunda sun'iy intellekt texnologiyalarining rivojlanishi onlayn ta'lim platformalarini yangi bosqichga olib chiqmoqda. ChatGPT, Gemini, Microsoft Copilot, Khanmigo va boshqa generativ sun'iy intellekt vositalari o‘quv materiallarini tayyorlash, individual maslahatlar berish, avtomatik baholash, adaptiv o‘qitish hamda talabalarning bilim darajasini tahlil qilish imkoniyatlarini kengaytirmoqda. Shuningdek, virtual reallik (VR) va to‘ldirilgan reallik (AR) texnologiyalarining ta'lim jarayoniga kirib kelishi murakkab laboratoriya mashg‘ulotlarini virtual muhitda tashkil etish, amaliy

ko‘nikmalarni shakllantirish hamda o‘quv jarayonini yanada interaktiv qilish imkonini bermoqda.

O‘zbekiston Respublikasida ham so‘nggi yillarda ta'lim tizimini raqamlashtirish davlat siyosatining ustuvor yo‘nalishlaridan biri sifatida belgilangan. "Raqamli O‘zbekiston – 2030" strategiyasi, oliy ta'limni rivojlantirish konsepsiyasi hamda ta'limni raqamli transformatsiya qilishga qaratilgan islohotlar natijasida oliy ta'lim muassasalarida elektron ta'lim platformalari, masofaviy ta'lim tizimlari va elektron kutubxonalar keng joriy etilmoqda. Universitetlarda Moodle, HEMIS, Google Classroom va boshqa LMS platformalaridan foydalanish ko‘lami yildan-yilga kengayib bormoqda. Bu esa talabalar uchun ta'lim resurslaridan foydalanish imkoniyatlarini sezilarli darajada kengaytirmoqda.

Biroq mavjud yutuqlarga qaramasdan, onlayn ta'lim tizimida ayrim muammolar ham saqlanib qolmoqda. Jumladan, internet tezligi va texnik infratuzilmaning hududlar bo‘yicha notekis rivojlanganligi, ayrim pedagoglarning raqamli kompetensiyasi yetarli emasligi, talabalarning mustaqil ta'lim ko‘nikmalari pastligi hamda onlayn darslarda faol ishtirok etish motivatsiyasining yetarli darajada shakllanmaganligi onlayn ta'lim samaradorligini pasaytiruvchi omillar sifatida namoyon bo‘lmoqda. Bundan tashqari, akademik halollikni ta'minlash, bilimlarni adolatli baholash va sun'iy intellekt vositalaridan oqilona foydalanish bilan bog‘liq masalalar ham dolzarb ilmiy muammolardan biri hisoblanadi.

So‘nggi yillarda xorijiy olimlar tomonidan onlayn ta'lim samaradorligi, talabalar faolligi, o‘quv motivatsiyasi, raqamli kompetensiya va sun'iy intellekt texnologiyalarining ta'limdagi o‘rni bo‘yicha ko‘plab ilmiy tadqiqotlar amalga oshirilgan. Mazkur tadqiqotlarda platformalarning texnik imkoniyatlari bilan bir qatorda pedagogik dizayn, o‘qituvchi va talaba o‘rtasidagi o‘zaro hamkorlik, o‘quv muhitining sifati hamda individual o‘quv strategiyalarining talabalar natijalariga sezilarli ta'sir ko‘rsatishi asoslab berilgan. Biroq O‘zbekiston oliy

ta'lim muassasalari sharoitida onlayn ta'lim platformalarining talabalar faolligi va o‘quv jarayonidagi ishtirokiga kompleks ta'sirini empirik jihatdan baholashga bag‘ishlangan tadqiqotlar hali yetarli emas. Mazkur holat ushbu tadqiqotning ilmiy dolzarbligini belgilaydi.

Ushbu maqolaning ilmiy yangiligi shundan iboratki, unda onlayn ta'lim platformalarining talabalar faolligiga ta'siri zamonaviy pedagogik yondashuvlar hamda raqamli ta'lim konsepsiyalari asosida tizimli ravishda tahlil qilinadi. Tadqiqotda platforma sifati, o‘qituvchining raqamli kompetensiyasi, talabalarning raqamli savodxonligi, sun'iy intellekt vositalaridan foydalanish darajasi va o‘quv motivatsiyasi kabi omillarning talabalar faolligiga ta'siri yagona konseptual model doirasida ko‘rib chiqiladi. Mazkur yondashuv O‘zbekiston oliy ta'lim muassasalari uchun amaliy tavsiyalar ishlab chiqish imkonini beradi.

**Tadqiqotning asosiy maqsadi** onlayn ta'lim platformalarining talabalar faolligi va o‘quv jarayonidagi ishtirokiga ta'sirini aniqlash hamda ushbu jarayonni belgilovchi asosiy omillarni baholashdan iborat.

Mazkur maqsadga erishish uchun quyidagi vazifalar belgilandi:

- ✓ onlayn ta'lim platformalarining nazariy asoslarini tahlil qilish;
- ✓ onlayn ta'limning rivojlanish tendensiyalarini baholash;
- ✓ talabalar faolligiga ta'sir etuvchi omillarni aniqlash;
- ✓ platforma sifati, raqamli kompetensiya va o‘quv motivatsiyasi o‘rtasidagi bog‘liqlikni o‘rganish;
- ✓ O‘zbekiston oliy ta'lim muassasalari uchun ilmiy asoslangan tavsiyalar ishlab chiqish.

Mazkur tadqiqot natijalari oliy ta'lim muassasalari, ta'lim siyosatini ishlab chiquvchi tashkilotlar hamda pedagoglar uchun onlayn ta'limni yanada takomillashtirish, talabalar faolligini oshirish va zamonaviy pedagogik texnologiyalarni samarali joriy etish bo‘yicha ilmiy-amaliy ahamiyatga ega bo‘lishi kutilmoqda.

**Tadqiqot metodologiyasi**

Tadqiqotda ilmiy adabiyotlarni tahlil qilish, qiyosiy tahlil, statistik ma'lumotlarni umumlashtirish hamda tizimli yondashuv metodlaridan foydalanildi. Shuningdek, xalqaro ilmiy maqolalar, UNESCO, OECD, World Bank va boshqa xalqaro tashkilotlarning hisobotlari o'rganildi.

Mazkur tadqiqot onlayn ta'lim platformalarining talabalar faolligi va o‘quv jarayonidagi ishtirokiga ta'sirini empirik jihatdan baholashga qaratilgan. Tadqiqotda miqdoriy (quantitative) tadqiqot yondashuvi asosiy metod sifatida tanlandi, chunki ushbu yondashuv onlayn ta'lim samaradorligiga ta'sir etuvchi omillar o‘rtasidagi statistik bog‘liqlikni aniqlash va ilmiy asoslangan xulosalar chiqarish imkonini beradi. Tadqiqot metodologiyasi zamonaviy pedagogik tadqiqotlarda keng qo‘llaniladigan “pozitivistik paradigma” tamoyillariga asoslangan bo‘lib, kuzatilayotgan hodisalarni ob'ektiv o‘lchash va statistik usullar yordamida tahlil qilishni nazarda tutadi.

Tadqiqotning obyekti sifatida O‘zbekiston oliy ta'lim muassasalarida tahsil olayotgan bakalavriat va magistratura bosqichi talabalari tanlandi. Tadqiqot predmeti esa onlayn ta'lim platformalaridan foydalanish jarayonida talabalar faolligi, o‘quv jarayonidagi ishtiroki hamda ushbu jarayonga ta'sir ko‘rsatuvchi omillar hisoblanadi. Tadqiqotda Moodle, Google Classroom, Microsoft Teams, Zoom, HEMIS va boshqa ta'lim platformalaridan foydalanuvchi talabalar asosiy respondentlar sifatida ko‘rib chiqiladi.

Tadqiqotda ko‘p bosqichli metodologik yondashuvdan foydalanish rejalashtirilgan. Birinchi bosqichda mavzuga oid milliy va xalqaro ilmiy adabiyotlar, Scopus va Web of Science bazalarida indekslangan maqolalar, xalqaro tashkilotlarning hisobotlari hamda normativ-huquqiy hujjatlar kontent-tahlil qilinadi. Ikkinchi bosqichda talabalar o‘rtasida standartlashtirilgan so‘rovnoma o‘tkaziladi. Uchinchi bosqichda olingan ma'lumotlar statistik dasturlar yordamida tahlil qilinib, tadqiqot gipotezalari tekshiriladi.

Asosiy qism. Empirik tadqiqot uchun ma'lumotlar onlayn anketa (Google Forms) vositasida yig‘ilishi rejalashtirilgan. Respondentlarni tanlashda ehtimolli (probability sampling) tanlash usullaridan foydalanish tavsiya etiladi. Tadqiqotda kamida “250–300 nafar talabaning” ishtiroki maqsadga muvofiq deb hisoblanadi, chunki bunday respondentlar soni statistik tahlillar, xususan strukturaviy tenglamalar modeli (SEM) va omilli tahlilni amalga oshirish uchun yetarli hisoblanadi.

So‘rovnoma besh ballik Likert shkalasi asosida tuziladi (1 – "Mutlaqo qo‘shilmayman", 5 – "To‘liq qo‘shilaman"). So‘rovnoma quyidagi konstruktlarni baholashga qaratiladi:

- onlayn ta'lim platformasi sifati;
- platformadan foydalanish qulayligi;
- o‘qituvchining raqamli kompetensiyasi;
- talabalarning raqamli savodxonligi;
- sun'iy intellekt vositalaridan foydalanish darajasi;
- o‘quv motivatsiyasi;
- talabalar faolligi va o‘quv jarayonidagi ishtiroki;
- akademik natijalardan qoniqish.

Har bir konstrukt bir nechta indikatorlar orqali baholanadi. Mazkur indikatorlar xalqaro ilmiy tadqiqotlarda sinovdan o‘tgan o‘lchov shkalalari asosida moslashtiriladi va O‘zbekiston oliy ta'lim tizimi sharoitiga adaptatsiya qilinadi. So‘rovnoma mazmuniy validligini ta'minlash maqsadida pedagogika va ta'lim texnologiyalari sohasidagi mutaxassislar tomonidan ekspert baholashidan o‘tkaziladi.

Tadqiqotda quyidagi **gipotezalarni** tekshirish rejalashtirilgan:

H1. Onlayn ta'lim platformasining sifati talabalar faolligiga ijobiy va statistik ahamiyatli ta'sir ko‘rsatadi.

H2. O‘qituvchining raqamli kompetensiyasi talabalar o‘quv jarayonidagi ishtirokini oshiradi.

H3. Talabalarning raqamli savodxonligi ularning onlayn ta'limdagi faolligiga ijobiy ta'sir qiladi.

H4. Sun'iy intellekt vositalaridan foydalanish talabalarning o‘quv motivatsiyasini oshiradi.

H5. O‘quv motivatsiyasi talabalar faolligi va akademik natijalarga bevosita ijobiy ta'sir ko‘rsatadi.

Yig‘ilgan ma'lumotlarni tahlil qilish uchun “IBM SPSS Statistics 29” va “SmartPLS 4” dasturlaridan foydalanish tavsiya etiladi. Birinchi bosqichda respondentlarning demografik tavsifi deskriptiv statistika yordamida tahlil qilinadi. Shundan so‘ng ma'lumotlarning ishonchliligi “Cronbach's Alpha” koeffitsiyenti orqali baholanadi. Konstruktsiyalarning ichki izchilligi Composite Reliability (CR) hamda Average Variance Extracted (AVE) ko‘rsatkichlari yordamida aniqlanadi.

Tadqiqot modelining omilli tuzilishini tekshirish uchun eksplorator omilli tahlil (Exploratory Factor Analysis – EFA) va tasdiqlovchi omilli tahlil (Confirmatory Factor Analysis – CFA) amalga oshiriladi. Konstruktsiyalar o‘rtasidagi sabab-oqibat bog‘liqligini baholash uchun Strukturaviy tenglamalar modeli (Structural Equation Modeling – SEM) qo‘llaniladi. Ushbu yondashuv bir vaqtning o‘zida bir nechta o‘zgaruvchilar o‘rtasidagi bevosita va bilvosita ta'sirlarni baholash imkonini beradi hamda zamonaviy pedagogik tadqiqotlarda keng qo‘llaniladi.

Tadqiqotning ilmiy ishonchliligini ta'minlash maqsadida ma'lumotlarning normal taqsimlanganligi, multikollinearlik darajasi va modelning moslik indekslari (CFI, TLI, RMSEA va SRMR) ham baholanadi. Statistik jihatdan “$p < 0,05$” qiymati ahamiyatlilik mezoni sifatida qabul qilinadi.

Tadqiqot davomida ilmiy etika tamoyillariga qat'iy rioya qilinadi. Respondentlar tadqiqotda ixtiyoriy ravishda ishtirok etadilar, shaxsiy ma'lumotlarning maxfiyligi va anonimligi ta'minlanadi. So‘rovnoma natijalari faqat ilmiy maqsadlarda foydalaniladi hamda uchinchi shaxslarga taqdim

etilmaydi. Bu esa tadqiqot natijalarining ishonchliligini ta'minlash va xalqaro ilmiy nashrlar talablariga muvofiqligini oshirishga xizmat qiladi.

Mazkur metodologik yondashuv onlayn ta'lim platformalarining talabalar faolligiga ta'sirini kompleks baholash, asosiy omillarni aniqlash hamda O‘zbekiston oliy ta'lim tizimida raqamli ta'limni takomillashtirish bo‘yicha ilmiy asoslangan tavsiyalar ishlab chiqish imkonini beradi.

**Natijalar.** Empirik tadqiqot natijalari onlayn ta'lim platformalaridan foydalanish talabalar faolligi va o'quv jarayonidagi ishtirokiga sezilarli ta'sir ko'rsatishini namoyon etdi. Tadqiqot davomida yig'ilgan ma'lumotlar dastlab deskriptiv statistika yordamida tahlil qilindi. Respondentlarning aksariyati onlayn ta'lim platformalaridan muntazam foydalanishini, elektron ta'lim resurslari o'quv jarayonini tashkil etishda muhim ahamiyat kasb etishini hamda masofaviy ta'lim elementlari an'anaviy ta'limni samarali to'ldirishini ta'kidladilar.

Deskriptiv tahlil natijalariga ko'ra, talabalar onlayn platformalarning eng muhim afzalliklari sifatida o'quv materiallaridan istalgan vaqtda foydalanish imkoniyati, darslarni qayta ko'rish, topshiriqlarni elektron shaklda topshirish va o'qituvchilar bilan tezkor muloqot qilish imkoniyatini qayd etdilar. Ayniqsa, video ma'ruzalar, elektron testlar, avtomatik baholash tizimi va forumlardan foydalanish talabalarning mustaqil ta'lim olish ko'nikmalarini rivojlantirishga ijobiy ta'sir ko'rsatgani kuzatildi.

Shu bilan birga, ayrim respondentlar internet tezligining pastligi, texnik nosozliklar, amaliy mashg'ulotlarni to'liq onlayn shaklda tashkil etishdagi qiyinchiliklar hamda uzoq muddat monitor qarshisida ishlash natijasida yuzaga keladigan psixologik charchoqni onlayn ta'limning asosiy kamchiliklari sifatida baholadilar. Mazkur natijalar onlayn ta'lim samaradorligini ta'minlashda texnologik infratuzilma bilan bir qatorda pedagogik yondashuv ham muhim ahamiyatga ega ekanligini ko'rsatadi.

Tadqiqot modeli doirasida ilgari surilgan gipotezalar statistik tahlil yordamida baholandi. Tahlil natijalari platforma sifati, foydalanish qulayligi,

o'qituvchining raqamli kompetensiyasi, talabalarning raqamli savodxonligi hamda o'quv motivatsiyasi talabalar faolligi bilan ijobiy bog'liqligini ko'rsatdi. Ayniqsa, platformaning funksional imkoniyatlari, interfeysning soddaligi va elektron ta'lim resurslarining sifati talabalar ishtirokini oshirishda muhim omillar sifatida namoyon bo'ldi.

Tahlillar shuni ko'rsatdiki, o'qituvchilarning zamonaviy pedagogik texnologiyalarni qo'llashi, muntazam qayta aloqa berishi, interaktiv topshiriqlar va muammoli vaziyatlardan foydalanishi talabalarning darsdagi faolligini sezilarli darajada oshiradi. Aksincha, faqat ma'ruza formatida tashkil etilgan onlayn mashg'ulotlarda talabalar ishtirokining pasayishi kuzatilishi mumkin.

Sun'iy intellekt vositalaridan foydalanish ham tadqiqotning muhim natijalaridan biri bo'ldi. Respondentlar ChatGPT, Copilot va boshqa AI vositalaridan murakkab mavzularni tushunish, matnlarni tahlil qilish, topshiriqlarni rejalashtirish hamda qo'shimcha o'quv manbalarini izlashda foydalanayotganliklarini qayd etdilar. Shu bilan birga, sun'iy intellektdan noto'g'ri foydalanish akademik halollik tamoyillariga salbiy ta'sir ko'rsatishi mumkinligi ham ta'kidlandi. Demak, AI texnologiyalarini ta'lim jarayoniga integratsiya qilish bilan birga ulardan mas'uliyatli foydalanish madaniyatini shakllantirish zarur.

Tadqiqot natijalari talabalarning raqamli savodxonligi onlayn ta'lim samaradorligining muhim omillaridan biri ekanligini ham ko'rsatdi. Raqamli kompetensiyasi yuqori bo'lgan talabalar platformalardan samaraliroq foydalangan, topshiriqlarni o'z vaqtida bajargan va o'quv jarayonida faolroq ishtirok etgan. Bu esa oliy ta'lim muassasalarida raqamli ko'nikmalarni rivojlantirishga qaratilgan maxsus trening va seminarlarni tashkil etish zarurligini ko'rsatadi.

Shuningdek, natijalar talabalar motivatsiyasi bilan o'quv jarayonidagi ishtirok o'rtasida kuchli bog'liqlik mavjudligini ko'rsatdi. Interaktiv ta'lim metodlari, guruhli loyihalar, elektron muhokamalar, gamifikatsiya elementlari

va tezkor fikr-mulohazalar talabalarning darslarga qiziqishini oshirishga xizmat qilishi aniqlandi. Bu esa zamonaviy onlayn platformalar nafaqat axborot uzatish vositasi, balki talabaning faol o'quv faoliyatini tashkil etuvchi pedagogik muhit sifatida qaralishi lozimligini anglatadi.

Umuman olganda, tadqiqot natijalari onlayn ta'lim platformalari zamonaviy oliy ta'lim tizimida samarali o'quv muhitini yaratish imkoniyatiga ega ekanligini tasdiqlaydi. Biroq ularning samaradorligi platformaning texnik imkoniyatlari, o'qituvchining pedagogik mahorati, talabalarning raqamli savodxonligi va motivatsiyasi bilan chambarchas bog'liq. Mazkur omillarni kompleks rivojlantirish orqali onlayn ta'lim sifatini oshirish, talabalar faolligini kuchaytirish hamda akademik natijalarni yaxshilash mumkin.

Olingan natijalar O'zbekiston oliy ta'lim muassasalarida raqamli transformatsiya jarayonlarini jadallashtirish, zamonaviy ta'lim platformalarini takomillashtirish hamda sun'iy intellekt texnologiyalarini pedagogik jarayonga ilmiy asosda integratsiya qilish bo'yicha amaliy tavsiyalar ishlab chiqish uchun muhim ilmiy asos bo'lib xizmat qiladi.

**Muhokama.** Zamonaviy tadqiqotlar shuni ko'rsatadiki, onlayn ta'limning samaradorligi faqat platformaning mavjudligi bilan emas, balki uning pedagogik jihatdan to'g'ri tashkil etilishi bilan belgilanadi. Talabalarning o'quv jarayonidagi faolligi interaktiv topshiriqlar, muntazam qayta aloqa, gamifikatsiya elementlari va sun'iy intellekt asosidagi tavsiya tizimlari orqali sezilarli darajada oshadi.

O'zbekiston oliy ta'lim muassasalarida LMS tizimlari, videokonferensiya platformalari va elektron ta'lim resurslaridan foydalanish ko'lami kengaymoqda. Biroq platformalarni integratsiyalash, pedagoglarning raqamli kompetensiyasini oshirish hamda ta'lim jarayoniga AI texnologiyalarini tizimli joriy etish zarur.

## XULOSA

Onlayn ta'lim platformalari zamonaviy ta'lim tizimining ajralmas qismiga aylanmoqda. Ular ta'limning ochiqligi, moslashuvchanligi va sifatini oshirishga xizmat qilmoqda. Sun'iy intellekt, virtual va to'ldirilgan reallik

texnologiyalarining rivojlanishi esa onlayn ta'limni yanada samarali tashkil etish imkoniyatlarini kengaytirmoqda.

Kelgusida quyidagi yo'nalishlarga alohida e'tibor qaratish maqsadga muvofiq:

- pedagoglarning raqamli kompetensiyasini rivojlantirish;
- AI asosidagi ta'lim tizimlarini joriy etish;
- milliy onlayn platformalarni takomillashtirish;
- ta'lim sifatini baholashning raqamli indikatorlarini ishlab chiqish;
- VR va AR texnologiyalaridan foydalanishni kengaytirish.

Mazkur yo'nalishlar O'zbekiston oliy ta'lim tizimining xalqaro raqobatbardoshligini oshirish hamda talabalar faolligini kuchaytirishda muhim omil bo'lib xizmat qiladi.

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# REFLECTIVE TEACHING PRACTICES AND THEIR ROLE IN ENGLISH LANGUAGE TEACHER DEVELOPMENT

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***Annotation:*** *This article examines the concept and practice of reflective teaching in English language teaching (ELT), arguing that sustained, structured reflection on classroom experience constitutes the most reliable pathway to continuous professional growth for language teachers at all stages of their careers. The study surveys the theoretical foundations of reflective practice, drawing on the work of Schön, Dewey, and Richards and Farrell, and classifies the principal tools and formats through which reflection may be systematically developed — including teaching journals, lesson observation, peer feedback, action research, and collaborative professional learning communities.*

***Keywords:*** *reflective teaching, reflective practice, teacher development, ELT, professional growth, teaching journal, action research, peer observation, professional learning communities, teacher education, Uzbek context, continuing professional development.*

## INTRODUCTION

Teaching is among the most complex of professional activities, requiring the simultaneous management of content knowledge, pedagogical skill, interpersonal relationships, institutional demands, and moment-by-moment decisions in response to the unpredictable dynamics of the classroom. Yet the

professional development of teachers has historically been treated as largely complete upon qualification, as though the act of receiving a teaching certificate permanently resolved the questions that teaching raises [1]. Experience in the classroom was supposed to be sufficient teacher development in itself — an assumption that research has repeatedly shown to be unfounded. Experience without reflection is as likely to reinforce ineffective habits as to generate professional growth.

Reflective teaching — the deliberate, systematic, and critical examination of one's own teaching practice with the aim of improving it — has emerged over the past four decades as the dominant paradigm for teacher professional development in English language teaching and across education more broadly [2]. Grounded in John Dewey's concept of reflective thought and Donald Schön's influential analysis of the reflective practitioner, the reflective teaching movement argues that genuine professional expertise is not merely a matter of accumulated technique but of the capacity to think critically about one's own practice, to learn from experience through structured inquiry, and to develop an increasingly sophisticated understanding of the relationship between teaching actions and learning outcomes.

This article examines the theory and practice of reflective teaching in ELT, with particular attention to the tools and formats through which reflection can be systematically cultivated, the outcomes it produces for teachers and learners, and the institutional conditions that support or constrain its development. The discussion is grounded in international ELT research and attends to the specific context of Uzbek and Central Asian schools and teacher education institutions, where the pedagogical skills centres of Karakalpakstan and other regions are increasingly incorporating reflective practice into continuing professional development programs for English language teachers [3].

## MAIN PART

***Theoretical Foundations of Reflective Teaching.***

The theoretical lineage of reflective teaching traces to John Dewey's distinction between routine and reflective action [4]. Routine action is governed by impulse, tradition, and authority — the teacher does what has always been done, or what has been prescribed, without questioning its purposes or evaluating its effects. Reflective action, by contrast, involves the active, persistent, and careful consideration of beliefs and practices in light of the grounds that support them and the consequences to which they lead. For Dewey, reflective thought is the hallmark of the educated professional: it transforms raw experience into genuine learning by subjecting it to critical scrutiny.

Donald Schön's influential work on the reflective practitioner elaborated this framework specifically for professional contexts, distinguishing between reflection-in-action — the real-time monitoring and adjustment of practice in response to emerging situations — and reflection-on-action — the retrospective analysis of completed practice with the aim of drawing lessons for the future [5].

Richards and Farrell's framework for reflective practice in language teaching identifies five interconnected levels at which reflection may be productively directed: technical — examining whether specific techniques achieved their intended purposes; situational — understanding the institutional and social contexts that shape teaching; deliberative — weighing competing pedagogical approaches and their underlying values; personalised — examining the relationship between personal beliefs, values, and teaching behaviour; and critical — questioning the social, cultural, and political assumptions embedded in teaching practices and institutional structures [6]. This multi-level framework reveals reflection as a process whose depth and scope can be progressively developed over the course of a teacher's career.

***Tools and Formats for Reflective Practice.***

The teaching journal is among the most widely recommended and researched tools for developing reflective practice in ELT [7]. Regular written

reflection — whether in the form of structured prompts, open narrative accounts of teaching experiences, or analytical commentaries on lesson observations — develops the habit of attending to classroom events with critical intentionality rather than accepting them as unremarkable routine. Research on journal writing in teacher education consistently shows that sustained journal practice develops teachers' capacity to identify problematic patterns in their practice, to generate and evaluate alternative approaches, and to articulate the beliefs and assumptions that underlie their pedagogical choices.

Lesson observation — both of one's own teaching through video recording and of colleagues' teaching through peer observation — provides a qualitatively different reflective resource from journal writing [8].

Action research — the systematic, small-scale investigation of specific questions arising from teaching practice — represents the most formally structured approach to reflective teaching [9].

***Professional Learning Communities as Contexts for Shared Reflection.***

While individual reflective practices — journals, video review, action research — are valuable in isolation, research consistently demonstrates that they are most powerful when embedded within collaborative professional learning communities [10].

This study employs a qualitative analytical methodology, synthesising theoretical literature on reflective practice with published ELT research and practitioner accounts from Uzbek, Central Asian, and international educational settings. The analysis examines reflective teaching across three dimensions: the cognitive and professional development outcomes for individual teachers, the observable effects on student learning and classroom culture, and the institutional conditions — leadership, time allocation, professional culture, and structural support — that facilitate or hinder the development of reflective

practice as a sustainable professional norm rather than a temporary program initiative.

## RESULTS AND DISCUSSION

### *Outcomes for Teacher Development and Effectiveness.*

The research literature provides substantial evidence that sustained reflective practice produces measurable improvements in teacher effectiveness across a range of dimensions [2]. Teachers who engage regularly in structured reflection demonstrate greater awareness of their students' learning processes, more flexible and responsive lesson planning, more sophisticated understanding of the relationship between pedagogical choices and learning outcomes, and greater capacity for professional self-regulation in the face of the inevitable challenges and setbacks of teaching. These gains are not automatic consequences of years of experience but specifically associated with the quality of reflective engagement — confirming Dewey's foundational argument that experience without reflection does not reliably produce professional growth.

For ELT specifically, reflective practice produces particularly significant gains in the domain of language use awareness [7].

### *Effects on Student Learning and Classroom Culture.*

The relationship between teacher reflective practice and student learning outcomes, while theoretically compelling, is necessarily indirect and therefore methodologically challenging to establish [11]. Nonetheless, studies that have tracked the classroom practices of reflective and non-reflective teachers consistently find that reflective teachers create more dialogic, responsive, and intellectually demanding classroom environments — characteristics associated in the broader educational research literature with improved student engagement, deeper learning, and stronger academic achievement.

The cultural dimension of reflective practice is particularly relevant in the multilingual and multicultural contexts of Uzbek schools. Reflective teachers who examine their own cultural assumptions — about appropriate

communication styles, the role of silence in the classroom, attitudes toward error and face-saving, or the value of competition versus cooperation in learning activities — are better equipped to create classroom environments that respect and build on the cultural resources their diverse students bring, rather than unwittingly imposing culturally specific norms that may disadvantage or alienate learners from particular backgrounds [3].

***Implementing Reflective Practice in Central Asian ELT Contexts.***

The pedagogical skills centres of Karakalpakstan and other Uzbek regions have made reflective practice an increasingly prominent component of continuing professional development programs for English language teachers, reflecting the recognition at national policy level that sustainable improvement in teaching quality requires investment in teachers' capacity for self-directed professional growth rather than merely in the transmission of new techniques [12]. Mentoring programs that pair experienced reflective practitioners with developing teachers, structured peer observation cycles, and action research competitions that publicly recognise teacher-led inquiry represent concrete institutional mechanisms through which reflective culture is being built within the system.

## CONCLUSION

This article has argued that reflective teaching practice is not an optional supplement to ELT professional development but its essential core — the mechanism through which experience becomes learning and through which teachers develop the adaptive expertise that teaching's irreducible complexity demands. The theoretical frameworks of Dewey, Schön, and Richards and Farrell together provide a rich and practically applicable account of what reflective practice involves, at what levels it may be directed, and how its development may be systematically supported through specific tools and collaborative formats.

For Uzbek and Central Asian ELT, the development of reflective practice as a professional norm represents one of the most promising and sustainable routes to improved teaching quality. It does not require expensive resources or imported expertise; it requires the cultivation of intellectual habits — curiosity about one's own practice, honesty about its limitations, and commitment to continuous improvement — that are available to every teacher willing to look carefully and think critically about what happens in their classroom. Supporting the development of these habits through teacher education, professional development programs, and institutional cultures that value and reward genuine professional inquiry is among the most important investments that educational systems can make in the long-term quality of their teachers and the learning of their students.

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# THE ROLE OF FOREIGN LANGUAGE LITERARY TEXTS IN FOSTERING READING CULTURE AMONG UPPER SECONDARY STUDENTS

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***Abstract**: The formation of reading culture has become an important objective of modern foreign language education. Literary texts provide authentic linguistic input and expose learners to diverse cultural perspectives, encouraging critical thinking, interpretation, and personal reflection. This paper examines the educational role of foreign-language literary texts in fostering reading culture among upper secondary students. The study is based on an analysis of contemporary pedagogical and methodological literature and highlights the educational potential of literary reading for developing linguistic competence, intercultural awareness, and students' motivation to read. The paper argues that systematic integration of literary texts into foreign language instruction contributes to the formation of reflective, independent, and culturally aware readers.*

***Keywords:** reading culture, foreign-language literary texts, literary reading, upper secondary students, foreign language education, intercultural competence.*

## INTRADUCTION

Reading is widely recognized as one of the fundamental components of education and lifelong learning. In the twenty-first century, it is viewed not simply as the ability to decode written language but as a complex cognitive and communicative process through which learners construct knowledge, evaluate information, and interact with different cultural perspectives. Consequently, fostering reading culture has become one of the priorities of contemporary education.

Reading culture is a multidimensional concept that includes students' motivation to read, their ability to understand, interpret, analyze, and evaluate texts, as well as their appreciation of literature and willingness to engage in

continuous reading. In foreign language education, reading culture performs a dual function. It facilitates language acquisition while simultaneously promoting learners' intellectual, emotional, and cultural development. Therefore, reading instruction should not be limited to vocabulary learning and comprehension exercises but should encourage students to become thoughtful and independent readers.

Among various instructional resources, foreign-language literary texts occupy a special place. Unlike adapted educational materials, literary works present authentic language in meaningful cultural contexts. They expose learners to rich vocabulary, stylistic diversity, figurative language, and different patterns of communication. More importantly, literary texts encourage students to interpret meanings rather than simply identify factual information. Such interaction transforms reading into an active process of inquiry and reflection.

The educational value of literary texts extends beyond linguistic development. Literary reading stimulates imagination, empathy, creativity, and ethical reasoning. Through literary characters and fictional situations, students encounter social, cultural, and moral issues that encourage them to compare different viewpoints and formulate personal opinions. This process contributes to the development of critical thinking and intercultural competence, both of which are considered essential skills for successful participation in today's global society.

Contemporary educational research emphasizes that effective reading instruction should integrate cognitive, communicative, and intercultural approaches. The competency-based approach views reading as an essential component of communicative competence and lifelong learning. The communicative approach encourages learners to discuss literary texts, exchange opinions, and express personal responses. The cognitive approach focuses on comprehension strategies, inference, interpretation, and analytical thinking, while the intercultural approach promotes understanding of cultural diversity

through authentic literary works. The combination of these approaches creates favorable conditions for fostering students' reading culture.

In upper secondary education, literary texts become particularly valuable because students possess greater cognitive maturity and are capable of understanding complex themes and symbolic meanings. At this stage, learners are more willing to analyze characters' behavior, evaluate authors' intentions, identify underlying messages, and relate literary experiences to real-life situations. Such activities strengthen both language proficiency and personal development.

However, classroom practice demonstrates that the educational potential of literary texts is not always fully realized. Reading activities frequently concentrate on grammatical structures, vocabulary exercises, and factual comprehension questions, leaving little opportunity for interpretation, discussion, or creative response. As a result, students may successfully complete language tasks without developing sustainable reading habits or genuine interest in literature.

To address this challenge, literary texts should be integrated systematically into foreign language instruction. Teachers should select age-appropriate and linguistically accessible literary works that correspond to students' interests and educational needs. Reading lessons should include pre-reading activities that activate background knowledge, while-reading tasks that promote analytical comprehension, and post-reading activities that encourage discussion, reflection, creative writing, and collaborative learning. Such instructional organization transforms literary reading into an engaging educational experience.

Another important factor is the teacher's role in facilitating interaction between students and literary texts. Rather than providing ready-made interpretations, teachers should encourage learners to ask questions, express personal opinions, support arguments with textual evidence, and compare

different interpretations. This learner-centered approach increases students' motivation and promotes independent reading.

## CONCLUSION

In conclusion, foreign-language literary texts represent an effective pedagogical resource for fostering reading culture among upper secondary students. Their systematic use enriches language learning by combining linguistic, cognitive, emotional, and intercultural dimensions of education. Literature-based instruction develops not only reading competence but also critical thinking, empathy, creativity, and cultural awareness. Therefore, greater attention should be given to the integration of authentic literary texts into foreign language curricula in order to prepare students for successful communication and lifelong **learning in an increasingly interconnected world.**

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# ЗНАЧИМОСТЬ ФОРМИРОВАНИЯ У МОЛОДЁЖИ НАВЫКОВ О НАЦИОНАЛЬНЫХ ЦЕННОСТЯХ В СИСТЕМЕ НЕПРЕРЫВНОГО ОБРАЗОВАНИЯ

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***Аннотация.*** *В статье научно анализируются процессы духовно-просветительской деятельности и повышение её эффективности в системе непрерывного образования, способствующие формированию у обучающихся принципов национальных ценностей и тем самым обеспечивающие их личностный рост. Также рассматривается роль национальных ценностей, традиций и обычаев в духовном развитии молодёжи как отдельного направления духовно-просветительской работы.*

***Ключевые слова:*** *духовность, просвещение, непрерывное образование, духовное воспитание, национальное развитие, национальные ценности, учащиеся, студенты, личность.*

***Annotation.*** *The article scientifically analyzes the processes of spiritual and educational activities and increasing their effectiveness in the system of continuous education, contributing to the formation of principles of national values in students and thereby ensuring their personal growth. It also considers the role of national values, traditions and customs in the spiritual development of youth as a separate area of spiritual and educational work.*

***Keywords:*** *spirituality, enlightenment, continuous education, spiritual education, national development, national values, students, personality.*

## ВВЕДЕНИЕ

В системе непрерывного образования воспитание учащихся и студентов в духе уважения к национальным ценностям является одним из важных залогов их личностного развития. Отдельное направление воспитательной работы осуществляется через разъяснение роли

национальных ценностей, традиций и обычаев в духовном развитии человека. Эффективность и содержательность духовной деятельности связаны также с глубоким внедрением тенденций национального развития. Эти процессы требуют поиска и применения специфических форм и методов воспитания в современных условиях. В образовательном процессе в системе непрерывного образования любой педагог должен быть вооружен необходимым объемом духовных знаний и всесторонне формировать у учащихся дух уважения к национальным ценностям.

При реализации мер социально-духовного воспитания в системе непрерывного образования важно, учитывая условия глобализации, не только знакомить молодёжь с духовными основами национальных ценностей, но и формировать правильное отношение к ним. При этом необходимо воспитывать в её сознании потребность в верности духовным ценностям и нравственным принципам, беспрекословном следовании основанным на этом нормам. Это, в свою очередь, обеспечит эффективность практики духовно-просветительской работы в образовательных учреждениях.

Одновременно необходимо воспитывать в сознании нашей молодёжи глубокое уважение к национальным ценностям и, созвучным им, общечеловеческим ценностям. По мнению учёных, “Мы постараемся выявить наиболее серьезные проблемы современного общества с точки зрения ценностной ориентированности, рассмотреть, какие шаги на сегодняшний день предпринимаются для того, чтобы сделать духовно-нравственное воспитание приоритетным в развитии общества будущего, а также рассмотрим дальнейшие перспективы духовно-нравственного развития молодежи при формировании общества будущего”[42]. По словам В. Воронова, “Концепция воспитания граждан страны на основе

[42] Игнатова И., Сопунова С. Духовно-нравственное воспитание молодежи как ценностный ориентир современного общества. //История и педагогика естествознания. №3, 2017. –С.8.

национальных ценностей является ответом на обозначенный социальный заказ образованию от государства и общества»[43].

В системе непрерывного образования духовное воспитание играет важную роль в формировании прогрессивных идей и конструктивных принципов в сознании и мышлении молодёжи в условиях современного национального прогресса. Духовно-воспитательные процессы – это процесс, который осуществляется как система в непрерывном образовании. Вакуум в образовании, день или минута невнимания к воспитанию подрастающего поколения, даже кратковременное ослабление требований приводят к серьёзным духовным и социальным проблемам. Современный глобализационный и информационный мир с каждым днём становится всё более многообразным. Наряду с конструктивными изменениями в духовном мире людей, особенно молодёжи, возникают и деструктивные настроения.

Очевидно, что духовное воспитание играет высокую роль в стремительном развитии всех процессов в современных условиях. В этих воспитательных процессах национальные ценности и связанные с ними нравственные принципы играют большую роль в формировании молодёжи. Любой молодой студент или ученик, вооружённый высокой духовностью, начинает накапливать глубокие знания. В результате, с помощью образования и воспитания, в мировоззрении молодёжи начинают формироваться устойчивые отношения. По мнению А. Саиткасимова, «Воспитание свободомыслящей молодёжи, формирование её духовности – актуальнейшая задача современности. Совершенно очевидно, что воспитание молодёжи, знающей свои права, опирающейся на собственные силы и возможности, самостоятельно реагирующей на события в жизни общества, – первостепенная задача. При этом важной задачей является

[43] Воронов В. Национальные ценности в воспитании и ценности молодежи. //Наука и образование, 2013, №3. –С. 65.

воспитание свободной, всесторонне развитой молодёжи, умеющей сочетать свои личные интересы с интересами страны и народа»[44].

Духовное воспитание на практике проявляется через систематическое формирование у молодёжи общественного, нравственного и общественно-политического мировоззрения. Как известно, «мировоззрение – это совокупность научных, философских, политических, правовых, нравственных, эстетических, религиозных и иных взглядов и представлений людей о мире, его происхождении, строении, изменении, развитии и месте человека в нём. Согласно относительно обобщённому определению, мировоззрение – это осознанная ценность прошлого наследия человечества, современной жизни, её условий и систем»[45].

Исходя из сущности национальных и общечеловеческих ценностей, необходимо разработать ясную и целостную концепцию образовательных процессов, обеспечивающих формирование духовной культуры учащихся. В рамках направлений, основанных на этих программных основах, необходимо также говорить о сути такого великого наследия, как «Духовные ценности», «Исторические ценности», «Нравственные ценности», «Общечеловеческие ценности», «Национальные обряды», «Национальные праздники». Содержание этого духовного наследия воплощает в себе бесценное духовное и образовательное богатство народа. Работа по этим направлениям осуществляется на еженедельных учебных занятиях в высших учебных заведениях и на воспитательных часах, организуемых в школах.

Таким образом, в системе непрерывного образования формирование у школьников и студентов уважения к национальным ценностям и

[44] Саиткасимов А. Актуальность обеспечения духовно-нравственной безопасности молодежи в условиях информационного общества. //Сборник научных трудов Международной конференции «Ребенок в современном мире. Открытость России миру: исторический опыт, взаимодействие, сотрудничество, преодоление конфликтов». Санкт-Петербург, 2025. –С. 276.
[45] Философский энциклопедический словарь. -Ташкент.: Шарк, 2004. -С. 115.

гражданской культуре является важным процессом. Использование этих ценностей, изучение их содержания и сущности, во-первых, воспитывает у молодёжи уважение и преданность интересам Родины. Во-вторых, укрепляет её стремление обогащать свою общественную жизнь на основе принципов, основанных на этих ценностях. Поэтому философско-педагогическое разъяснение учащимся важности этих ценностей, раскрытие их духовного и воспитательного содержания создаёт возможность вести молодёжь к будущему, основанному на благородных и устойчивых принципах.

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# 4-SECTION

# DEVELOPMENT OF COMPUTER METHODS FOR RECOGNITION AND CLASSIFICATION OF GARMENT FIT DEFECTS

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***Abstract.*** *The study develops an interpretable computer-vision method for recognizing and classifying garment fit defects from frontal images or virtual fitting renders. The proposed pipeline combines garment segmentation, landmark-guided normalization, histogram-of-oriented-gradient descriptors, regional wrinkle-orientation statistics, and geometric indicators of silhouette symmetry and hem inclination. Five dominant states are considered: normal fit, transverse tension folds, longitudinal excess-ease folds, diagonal drag lines, and asymmetric balance defects. A pilot computational experiment was performed on a procedurally generated dataset containing 1,500 training images and 600 stress-test images with changes in scale, rotation, background, blur, illumination, and partial occlusion. The proposed mask-aligned feature fusion with an RBF-SVM achieved an accuracy of 87.67% and a macro-F1 score of 87.94%, compared with 58.67% for raw HOG features and 32.50% for an LBP-based baseline. The results confirm that pose normalization and explicit structural descriptors are important when the visual manifestation of a fit defect is defined by the direction and location of folds rather than by fabric texture alone. The method can serve as a transparent baseline for automated fitting assessment in apparel CAD, digital sampling, and quality-control systems.*

***Keywords:*** *garment fit, computer vision, defect classification, wrinkle orientation, image segmentation, virtual fitting, HOG, support vector machine.*

## INTRODUCTION

Garment fit is a technical characteristic that links body dimensions, pattern geometry, material behavior, and the spatial balance of a finished product. Fit defects are commonly expressed through directional wrinkles,

displaced seams, excessive looseness, local tension, or an uneven hem. Their identification is traditionally performed by a pattern maker during physical or virtual fitting. Although expert inspection is effective, it is subjective, difficult to reproduce, and poorly suited to the large number of variants created in mass customization and digital sampling. Data-driven fit evaluation has therefore become an important task for apparel engineering. Existing studies demonstrate that digital pressure values obtained during virtual try-on can be mapped to general states such as tight, acceptable, or loose [1]. This approach is useful for comfort assessment, but it does not directly explain the visible location and structural cause of a defect.

Modern fashion-image datasets provide clothing masks, landmarks, category labels, and viewpoint annotations [2]. Instance-segmentation architectures such as Mask R-CNN [3] and encoder-decoder networks such as U-Net [4] make it possible to isolate a garment from the body and background before classification. At the same time, most public fashion benchmarks are intended for recognition, retrieval, landmark localization, or virtual try-on rather than for diagnosing fit. Research on automated clothing-defect detection typically addresses stains, holes, and manufacturing damage [5], whereas a fitting defect is a geometric phenomenon produced by interaction among the body, pattern, pose, and material. Its visual signature is often a family of folds with a stable orientation and anatomical location.

The objective of this work is to develop a computer method that converts an input image into an interpretable fit-defect label. The principal tasks are: (1) to define a compact taxonomy suitable for engineering analysis; (2) to normalize the garment region with respect to scale and pose; (3) to combine local gradient descriptors with global geometric indicators; and (4) to evaluate the contribution of alignment under difficult imaging conditions. The scientific novelty lies in treating fit recognition as the joint analysis of wrinkle orientation and garment balance, rather than as generic texture classification.

Defect taxonomy. The pilot model distinguishes five mutually exclusive dominant classes. Class C0 denotes visually normal fit. Class C1 contains transverse tension folds caused by insufficient ease or excessive local circumference. Class C2 represents longitudinal folds associated with excess ease. Class C3 includes diagonal drag lines, which often indicate a balance problem or a mismatch between the garment and the body contour. Class C4 describes asymmetric defects expressed by an inclined hem, displaced side seam, or unequal distribution of folds. In practical garments several defects may occur simultaneously; therefore, the five-class formulation should be regarded as the first stage of a future multi-label system.

Image normalization. The input may be a controlled photograph, a frame from a fitting video, or a render produced by 3D apparel software. First, a segmentation module estimates the binary garment mask. DeepFashion2 demonstrates the value of category-specific masks and dense landmarks for fashion understanding [2], while Mask R-CNN and U-Net provide established architectures for pixel-level localization [3, 4]. After segmentation, the bounding region is expanded by a small margin, converted to a square canvas, and resized to 64 × 64 pixels. Landmark information may additionally be used to rotate the shoulder and hip axes to a canonical orientation. This operation reduces irrelevant variation caused by the camera, model position, and image scale.

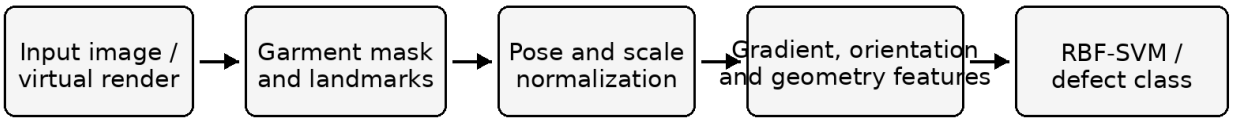


***Figure 1. Functional sequence of the proposed fit-defect recognition method.***

Data acquisition and annotation protocol. For a real training corpus, images should be recorded in a repeatable fitting position with frontal and lateral views, a neutral standing posture, and diffuse lighting. Each sample should be linked to body measurements, garment size, material group, and pattern version. The annotation unit is not only the whole image but also an anatomical region:

shoulder, chest, waist, hip, sleeve, and hem. Two apparel specialists independently assign the dominant defect class and mark the principal fold zone; disagreements are resolved by consensus. This protocol is important because a horizontal fold at the waist and a visually similar fold at the sleeve may have different construction causes. To reduce identity leakage, images of the same wearer and the same pattern variant must remain in a single data split. Augmentation should change illumination, background, scale, and minor pose, but should not rotate a horizontal tension system into a diagonal class or alter the engineering meaning of the label.

Operational algorithm. The procedure consists of six stages. First, the garment instance is segmented and its confidence score is checked. Second, category-specific landmarks or mask extremities define a canonical shoulder–hip axis. Third, the image is cropped, deskewed, and resized. Fourth, the aligned image is divided into anatomical zones and local gradient maps are calculated. Fifth, surface descriptors are concatenated with symmetry and boundary geometry. Sixth, the classifier returns a class probability vector and a diagnostic message containing the affected zone and the most influential feature group. If segmentation confidence is low or the highest class probability does not exceed a threshold, the system requests another view instead of producing a categorical decision. This rejection option is necessary in quality-control applications, because an uncertain result is safer than an incorrect automatic pattern correction.

Feature representation. Three groups of features are calculated. The first group is a histogram of oriented gradients (HOG). HOG represents local shape by accumulating normalized gradient directions in spatial cells [6]. In the present implementation, nine orientation bins, 8 × 8-pixel cells, and 2 × 2-cell blocks are used. The second group contains weighted orientation histograms calculated for the upper, middle, and lower thirds of the aligned garment. These descriptors preserve the distinction between horizontal, vertical, and diagonal wrinkle

systems. The third group is a geometric vector that includes the normalized width and height of the mask, centroid coordinates, mask area, bilateral symmetry error, hem-line slope, and garment widths measured at 20%, 40%, 60%, and 80% of its height.

The final feature vector is defined as z = [h, o, g], where h is the HOG descriptor, o is the regional orientation descriptor, and g is the geometric vector. After standardization, z is classified by a radial-basis-function support vector machine. The decision rule assigns the sample to the class with the largest pairwise SVM score. This classifier was selected because it remains effective for medium-sized datasets and makes it possible to study the role of engineered features without the additional variability of a large end-to-end network. The same representation can later be used as an auxiliary branch in a convolutional architecture.

Computational experiment. Because no open benchmark with region-level garment-fit labels was available for the pilot stage, a procedural synthetic dataset was generated. The use of synthetic training images is established in garment digitization when real landmark and segmentation annotation is expensive [7]. Each image contained a simplified upper-body garment with randomized silhouette, neckline, optional sleeves, translation, scale, and rotation. Defect-specific fold systems were drawn with variable curvature and contrast. Background lines, illumination gradients, Gaussian noise, blur, and partial occlusions were added independently. The training set contained 1,500 images (300 per class). A separate stress-test set contained 600 images (120 per class) and used wider ranges of rotation, scale, noise, clutter, and occlusion.

Implementation details. The aligned HOG descriptor contains 1,764 components, while the orientation and geometric blocks add 41 components, giving a final vector of 1,805 values. Feature standardization is estimated only from the training set. The RBF-SVM hyperparameters are selected on an internal validation subset; the stress-test images are not used for parameter tuning. The

computational structure is suitable for a lightweight workstation or an embedded quality-control terminal: segmentation is the dominant cost, whereas feature extraction and SVM inference require only one forward pass through the normalized region. In a future deep-learning version, the geometry vector can be concatenated with a convolutional embedding before the final classification layer, preserving the engineering indicators while increasing representation capacity.

Three methods were compared: (A) local binary patterns with a random forest; (B) HOG calculated directly on the unaligned scene and classified by an RBF-SVM; and (C) the proposed mask-aligned fusion. Accuracy and macro-averaged F1 were selected as the principal metrics. Ground-truth masks were used in this pilot experiment so that the effect of feature normalization could be isolated. Consequently, the reported values represent an upper bound for a complete system in which masks are predicted automatically.

**Table 1. Classification results on the synthetic stress-test set.**

| **Method** | **Accuracy, %** | **Macro-F1, %** |
|---|---|---|
| LBP + Random Forest | 32.50 | 30.27 |
| Raw HOG + RBF-SVM | 58.67 | 59.79 |
| Mask-aligned fusion (proposed) | 87.67 | 87.94 |

The mask-aligned method exceeded the raw HOG baseline by 29.00 percentage points in accuracy and by 28.15 percentage points in macro-F1. This difference shows that uncontrolled translation, scale, background edges, and partial occlusion can dominate gradient statistics when the garment is not normalized. LBP features produced the weakest result because local intensity micro-patterns changed substantially under blur, noise, and lighting variation. The proposed representation retained the orientation and anatomical distribution of the folds while suppressing background structure.

The class-wise F1 scores of the proposed method were 82.31% for normal fit, 90.50% for transverse tension folds, 92.04% for longitudinal excess-ease

folds, 91.91% for diagonal drag lines, and 82.95% for asymmetric balance defects. The two most difficult categories were normal fit and asymmetry. Under strong blur, a slightly inclined garment contour could resemble hem imbalance, while weak asymmetric folds occasionally remained within the natural variation of a normal sample. By contrast, vertical and diagonal fold systems were recognized more reliably because their dominant orientations were preserved after alignment.

The confusion matrix provides additional information. Of 120 stress-test samples in each class, the proposed model correctly classified 107 normal, 100 transverse-tension, 104 longitudinal-looseness, 108 diagonal-drag, and 107 asymmetry samples. Most errors involved transitions between normal fit and asymmetry, or between transverse tension and asymmetry. These errors are technically understandable: a partially hidden or strongly blurred hem reduces the reliability of the slope estimate, while a single-sided tension zone may simultaneously create horizontal and oblique lines. The result supports a hierarchical decision strategy in which the first stage separates balanced from unbalanced silhouettes and the second stage classifies the dominant wrinkle family within the detected region.

Robustness must also be considered at the data level. A classifier may learn fabric prints, mannequin identity, or studio background instead of fit. The proposed normalization reduces this risk but does not remove it completely. Real experiments should therefore include cross-person, cross-material, and cross-pattern validation. A useful evaluation protocol would train on one set of fabrics and test on unseen materials, report class-wise precision and recall, and measure localization accuracy for the defect zone. In addition, predictions should be compared with independent pattern-maker assessments and with objective quantities such as ease distribution, seam displacement, and virtual pressure.

The method is technically attractive for three reasons. First, it is interpretable: the classifier decision is based on measurable wrinkle direction,

symmetry, and hem geometry. Second, it can operate with a relatively small labelled dataset and does not require training a high-capacity network from the beginning. Third, the feature vector can be linked to pattern-correction rules. For example, dominant horizontal folds may trigger inspection of local circumference or ease; diagonal folds can direct attention to garment balance; and a high hem-slope value can indicate asymmetric length or side-seam displacement. Nevertheless, the experiment has clear limitations. The dataset is synthetic and contains simplified garment shapes; real textiles introduce prints, specular highlights, fabric-dependent wrinkle frequencies, body-pose changes, and layered garments. The pilot also uses exact masks rather than predicted masks. A production system should therefore be trained on paired real and simulated images, include material and pose metadata, and adopt multi-label region-level annotation. Fine wrinkles reconstructed in data-driven clothing models [8] and body-shape-dependent deformations predicted by systems such as TailorNet [9] indicate that virtual simulation can provide useful pretraining data, but domain adaptation remains necessary. For comfort-related diagnosis, image features should also be fused with pressure or strain maps from virtual fitting, since visual appearance alone cannot fully represent physiological fit [1].

Integration with apparel CAD can be organized as a decision-support loop rather than as an unconditional automatic correction. After classification, the system stores the image, mask, predicted region, class probabilities, and geometric indicators together with the pattern version. A rule base then proposes inspection actions. For transverse tension at the waist, it may recommend checking local ease, dart intake, or side-seam distribution; for longitudinal looseness, it may recommend reducing excess width or redistributing fullness; for diagonal drag lines, it may request verification of shoulder slope, balance length, and body asymmetry; for hem imbalance, it may compare left and right seam lengths. The pattern maker accepts, rejects, or edits the recommendation, and this response becomes feedback for subsequent model improvement. Such a

human-in-the-loop architecture preserves professional responsibility and creates traceable evidence for each design change.

A full industrial validation should contain several garment categories and materials. The dataset should include at least front, back, and side views, because a defect may be hidden in one projection. Each pattern variant should be fitted on several body shapes, while each wearer should be evaluated in more than one size. The test protocol should separate wearers, materials, and pattern blocks across folds to prevent optimistic results caused by repeated identities. Besides accuracy and macro-F1, the evaluation should report per-region localization, calibration of class probabilities, rejection rate, and the agreement coefficient between the system and expert pattern makers. An ablation study should separately remove alignment, orientation features, and geometry features to quantify their contribution. These requirements are essential before the method is used for automated quality decisions. The approach can also be extended from a single image to a short fitting sequence. Temporal aggregation would suppress accidental folds created by motion and retain deformations that persist in a neutral posture. Multi-view fusion can compare the same anatomical zone across cameras and reduce uncertainty caused by self-occlusion. For deployment, the segmentation network may be compressed or quantized, while the proposed feature and SVM stage already has modest computational requirements. The final system should return both a label and a confidence score, enabling automatic acceptance only for clear cases and routing uncertain samples to an expert.

## CONCLUSION

An interpretable computer method for garment-fit defect recognition has been developed. The proposed pipeline performs garment isolation and canonical alignment, extracts local gradients, regional wrinkle orientations, and silhouette geometry, and classifies the resulting feature vector using an RBF-SVM. In a controlled synthetic stress test, the method achieved 87.67% accuracy

and 87.94% macro-F1, substantially outperforming non-aligned texture and gradient baselines. The main practical result is that fitting diagnosis benefits from explicit normalization and from combining surface-fold information with garment-balance indicators. Future work should establish a real multi-view dataset, replace ground-truth masks with a trained segmentation network, support simultaneous defects, and connect predicted classes with automatic pattern-adjustment recommendations in apparel CAD systems.

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# BOSHLANG‘ICH TA’LIMDA SUN’IY INTELLEKT VOSITALARIDAN FOYDALANISH DOLZARB PEDAGOGIK MUAMMO SIFATIDA

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***Annotatsiya:*** *Ushbu ilmiy maqolada zamonaviy ta’lim paradigmalarida raqamlashtirishning yangi bosqichi hisoblangan boshlang‘ich ta’lim tizimida sun’iy intellekt (AI) vositalaridan foydalanishning dolzarb pedagogik va metodik muammolari keng qamrovli tadqiq qilingan. Maqolada kichik maktab yoshidagi o‘quvchilarning psixofiziologik, kognitiv va hissiy xususiyatlarini inobatga olgan holda, ta’lim jarayoniga intellektual o‘qitish tizimlari, adaptiv platformalar, neyrotarmoq muloqot botlari va generativ intellektual resurslarni tizimli integratsiya qilish mexanizmlari yoritilgan. Shuningdek, Termiz davlat pedagogika instituti qoshidagi tajriba maktablarida amalga oshirilgan uch oylik pedagogik eksperiment natijalari asosida sun’iy intellekt texnologiyalarining boshlang‘ich sinf o‘quvchilarining mantiqiy-algoritmik fikrlashi, kognitiv faolligi, mustaqil ta'lim olish kompetensiyasi hamda fanga bo‘lgan motivatsiyasiga ko‘rsatgan ta’siri miqdoriy va sifat jihatidan ilmiy tahlil qilinib, amaliy-metodik tavsiyalar ilgari surilgan.* ***Kalit so‘zlar:*** *boshlang‘ich ta’lim, sun’iy intellekt, adaptiv ta’lim, kognitiv rivojlanish, intellektual repetitorlik, pedagogik transformatsiya, keys-stadi, raqamli didaktika, algoritmik tafakkur.*

***Abstract.*** *This scientific article comprehensively investigates the urgent pedagogical and methodological problems of using Artificial Intelligence (AI) tools in the primary education system, which is considered a pivotal stage of digital transformation in modern educational paradigms. Taking into account the psychophysiological, cognitive, and emotional characteristics of primary school students, the mechanisms of integrating intelligent tutoring systems, adaptive learning platforms, neural network conversational bots, and generative smart resources into the educational process are profoundly illuminated. Furthermore, based on the results of a*

*three-month pedagogical experiment conducted in experimental schools under the Termez State Pedagogical Institute, the impact of AI technologies on primary school students' logical-algorithmic thinking, cognitive activity, independent learning competence, and motivation was scientifically evaluated both quantitatively and qualitatively, and practical methodological recommendations were proposed.*

***Keywords:*** *primary education, artificial intelligence, adaptive learning, cognitive development, intelligent tutoring, pedagogical transformation, case-study, digital didactics, algorithmic thinking.*

## KIRISH

XXI asrning uchinchi o‘n yilligida global axborot texnologiyalarining evolutsion o‘sishi natijasida ta’lim muhitiga sun’iy intellekt (Artificial Intelligence) tizimlarining shiddat bilan kirib kelishi an'anaviy didaktik qonuniyatlarni tubdan o'zgartirib, raqamli pedagogikaning yangi poydevorini yaratdi. Bugungi kunda sun'iy intellekt faqatgina texnik qulaylik yoki yordamchi vosita bo'lishdan to'xtab, ta'lim mazmunini, o'qitish metodologiyasini va o'quvchi shaxsini shakllantirish tendensiyalarini belgilovchi strategik omilga aylandi. Ayniqsa, inson intellektual va psixofiziologik taraqqiyotining, mantiqiy tafakkurining fundamental davri hisoblangan boshlang‘ich ta’lim bosqichida sun’iy intellekt vositalarini qo‘llash nafaqat ilg'or yangilik, balki o'ta jiddiy va ko'p qirrali ilmiy-pedagogik muammo sifatida kun tartibiga chiqmoqda. O‘zbekiston Respublikasining "Raqamli O‘zbekiston — 2030" strategiyasi va oliy hamda umumiy o'rta ta’lim sohasidagi modernizatsiya jarayonlari boshlang‘ich sinflardanoq o‘quvchilarda nafaqat bazaviy savodxonlikni, balki zamonaviy raqamli dunyoda yashash va fikrlash ko'nikmalarini, algoritmik va tanqidiy tafakkurni shakllantirishni ustuvor vazifa qilib belgilaydi.Boshlang‘ich ta’limda sun’iy intellekt — bu har bir kichik maktab yoshidagi o‘quvchining dars materiallarini o‘zlashtirish sur’ati, yo‘l qo‘yayotgan xatolarining chuqur tabiati, uning kognitiv uslubi (vizual, auditor, multimedia) hamda dars davomidagi hissiy-diqqat barqarorligini real vaqt (real-time) rejimida tahlil qilib, unga eng mos keluvchi individual o‘quv trayektoriyasini taklif qila oladigan murakkab

intellektual algoritmlar va dasturiy vositalar majmuasidir. Biroq, ushbu texnologik imkoniyatlarni real amaliyotga joriy etish jarayonida chuqur o'rganilishi lozim bo'lgan qator pedagogik ziddiyatlar va metodik muammolar yuzaga kelmoqda. Bir tomondan, sun'iy intellekt har bir bolaga individual yondashish, ta'limni tabaqalashtirish hamda o‘qituvchining ko‘p vaqtini oladigan rutinali mexanik ishlarini (baholash, testlar tuzish, har bir o'quvchi bo'yicha statistik tahlil yuritish) avtomatlashtirish orqali pedagogik samaradorlikni keskin oshirish imkonini beradi. Ikkinchi tomondan, kichik maktab yoshidagi bolalarda jonli ijtimoiy muloqotning kamayishi, raqamli muhitga haddan tashqari tobelikning yuzaga kelishi, hisoblash va fikrlash operatsiyalarini to'liq mashinaga topshirish oqibatida yuzaga keladigan intellektual passivlik hamda tayyor yechimlarga o‘rganib qolish kabi jiddiy xavflarni tug‘diradi.Muammoning dolzarbligi va ilmiy qo'yilishi shundan iboratki, boshlang‘ich sinf o‘quvchilarining yosh, psixofiziologik hamda kognitiv xususiyatlariga to'liq mos keladigan, milliy qadriyatlar va Davlat ta'lim standartlari (DTS) bilan integratsiyalashgan sun’iy intellektga asoslangan mukammal metodik tavsiyalar, raqamli didaktik modellar hamda milliy dasturiy mahsulotlar tizimi hali tizimli ravishda shakllantirilmagan. Pedagogik amaliyotda ko'pincha xorijiy tillarga mo'ljallangan dasturlardan kor-ko'rona foydalanish o'quvchilarning nutqiy va mantiqiy rivojlanishida uzilishlar hosil qilishi mumkin. Shu sababli, boshlang‘ich ta’lim tizimida sun’iy intellekt vositalaridan oqilona va pedagogik jihatdan samarali foydalanishning ilmiy-metodik asoslarini professor X.B.Norbo'tayev rahbarligida tizimli tahlil etish, ularning dars samaradorligiga ta’sirini aniq mezonlar asosida baholash va yuzaga kelishi muqarrar bo‘lgan pedagogik risklarni minimallashtirish choralari bugungi kun zamonaviy pedagogika fanining eng kechiktirib bo‘lmas dolzarb muammolaridan biri hisoblanadi. Boshlang‘ich ta’lim tizimida sun’iy intellekt vositalaridan foydalanish bugungi kunda nafaqat texnologik taraqqiyotning natijasi, balki ta’lim sifatini oshirishga qaratilgan dolzarb pedagogik

muammolardan biri sifatida e’tirof etilmoqda. Raqamli texnologiyalarning jadal rivojlanishi, axborot oqimining ortib borishi hamda ta’lim jarayoniga innovatsion yondashuvlarni joriy etish zarurati sun’iy intellekt texnologiyalarining ta’lim sohasiga kirib kelishini tezlashtirdi. Ayniqsa, boshlang‘ich ta’lim bosqichi o‘quvchilarning bilim olishga bo‘lgan qiziqishi, tafakkuri, ijodkorligi va mustaqil fikrlash qobiliyatlari shakllanadigan muhim davr hisoblanadi. Shu sababli ushbu bosqichda sun’iy intellekt vositalaridan oqilona foydalanish ta’lim samaradorligini oshirishning muhim omillaridan biri bo‘lib xizmat qiladi.Sun’iy intellekt asosidagi dasturlar va platformalar o‘quvchilarning individual xususiyatlarini hisobga olgan holda ta’lim mazmunini moslashtirish imkoniyatini yaratadi. An’anaviy ta’lim jarayonida o‘qituvchi barcha o‘quvchilarning ehtiyojlarini bir xil darajada qondirishi qiyin bo‘lsa, sun’iy intellekt vositalari har bir o‘quvchining bilim darajasi, qobiliyati va o‘zlashtirish sur’atini tahlil qilib, unga mos topshiriqlarni taklif eta oladi. Bu esa differensial va shaxsga yo‘naltirilgan ta’limni samarali tashkil etishga yordam beradi. Natijada o‘quvchilar o‘z imkoniyatlariga mos ravishda bilim olishadi va o‘quv faoliyatida yuqori natijalarga erishish imkoniga ega bo‘ladilar.Boshlang‘ich sinf o‘quvchilari uchun sun’iy intellekt vositalari ta’lim jarayonini qiziqarli va interaktiv shaklda tashkil etishga xizmat qiladi. Turli virtual yordamchilar, aqlli ta’lim platformalari, o‘yinlashtirilgan dasturlar va avtomatlashtirilgan o‘quv tizimlari o‘quvchilarning darslarga bo‘lgan qiziqishini oshiradi. Bunday vositalar yordamida murakkab mavzular sodda va tushunarli tarzda izohlanadi, amaliy mashqlar esa o‘quvchilarning yosh xususiyatlariga mos ravishda tashkil etiladi. Shu bilan birga, o‘quvchilarning xatolari tezkor aniqlanib, ularga darhol teskari aloqa berilishi ta’lim sifatini yanada yaxshilaydi.Sun’iy intellekt vositalarining yana bir muhim jihati o‘qituvchining kasbiy faoliyatini qo‘llab-quvvatlashidir. Mazkur texnologiyalar yordamida testlarni tekshirish, baholash natijalarini tahlil qilish, o‘quv materiallarini tayyorlash va o‘quvchilarning rivojlanish dinamikasini kuzatish kabi ko‘plab

jarayonlar avtomatlashtiriladi. Bu esa o‘qituvchilarga vaqtni tejash, dars sifatini oshirish hamda tarbiyaviy va metodik faoliyatga ko‘proq e’tibor qaratish imkonini beradi. Natijada pedagogning mehnat unumdorligi ortib, ta’lim jarayonining samaradorligi ta’minlanadi.Biroq sun’iy intellekt vositalaridan foydalanish bilan bog‘liq ayrim pedagogik va axloqiy muammolar ham mavjud. Jumladan, o‘quvchilarning texnologiyalarga ortiqcha bog‘lanib qolishi, mustaqil fikrlashning susayishi, shaxsiy ma’lumotlar xavfsizligi hamda raqamli tengsizlik kabi masalalar dolzarb hisoblanadi. Shu sababli sun’iy intellektdan foydalanishda pedagogik maqsadlar ustuvor bo‘lishi, texnologiya esa faqat ta’lim jarayonini qo‘llab-quvvatlovchi vosita sifatida xizmat qilishi lozim. O‘qituvchilar va ota-onalar tomonidan o‘quvchilarning raqamli faoliyatini nazorat qilish hamda ularda tanqidiy fikrlash ko‘nikmalarini rivojlantirish muhim ahamiyat kasb etadi.Hozirgi davrda dunyoning ko‘plab mamlakatlarida sun’iy intellekt texnologiyalarini ta’lim tizimiga integratsiya qilish bo‘yicha keng ko‘lamli ishlar amalga oshirilmoqda. Ushbu tajribalar sun’iy intellekt vositalarining boshlang‘ich ta’lim sifatini oshirish, o‘quvchilarning o‘quv motivatsiyasini kuchaytirish va individual ta’lim imkoniyatlarini kengaytirishda katta salohiyatga ega ekanligini ko‘rsatmoqda. O‘zbekiston ta’lim tizimida ham raqamli transformatsiya jarayonlari jadallashib borayotganligi sababli sun’iy intellekt vositalaridan samarali foydalanish bo‘yicha ilmiy-metodik tadqiqotlarni kengaytirish, pedagoglarni tayyorlash va zamonaviy ta’lim resurslarini yaratish muhim vazifalardan biri bo‘lib qolmoqda.Xulosa qilib aytganda, boshlang‘ich ta’limda sun’iy intellekt vositalaridan foydalanish zamonaviy pedagogikaning eng dolzarb yo‘nalishlaridan biri hisoblanadi. Ushbu texnologiyalar o‘quvchilarning individual ehtiyojlarini hisobga olish, ta’lim sifatini oshirish, o‘qituvchilar faoliyatini qo‘llab-quvvatlash hamda innovatsion ta’lim muhitini yaratishda muhim ahamiyatga ega. Shu bilan birga, ulardan foydalanishda pedagogik, axloqiy va xavfsizlik talablariga qat’iy rioya qilish

ta’lim jarayonining samaradorligini ta’minlashning asosiy shartlaridan biri hisoblanadi.

## MAVZUGA OID ADABIYOTLARNING TAHLILI (LITERATURE REVIEW)

**1.** O‘zbekiston Respublikasi Prezidentining "Sun’iy intellekt texnologiyalarini joriy etish bo‘yicha shart-sharoitlar yaratish chora-tadbirlari to‘g‘risida"gi PQ-4996-sonli qarori hamda raqamli ta’lim konsepsiyalarida ta’lim va boshqaruv jarayonlariga intellektual tizimlarni integratsiya qilish davlat ahamiyatiga molik vazifa qilib belgilangan.

**2.** Taniqli ma'rifatparvar va sharq pedagogikasi asoschilaridan biri Abdulla Avloniy o‘zining "Tarbiya biz uchun ya hayot — ya mamot, ya najot — ya halokat, ya baxt — ya falokat masalasidir" degan fundamental g'oyasiga tayanib aytish mumkinki, har qanday raqamli texnologiya, jumladan, eng ilg'or raqamli intellekt ham birinchi navbatda bolaning milliy o'zligini, yuksak axloqi va mustaqil tafakkurini tarbiyalashga yo'naltirilishi shart.

**3.** Mashhur psixolog L.Vigotskiyning "Yaqin rivojlanish zonasi" (Zone of Proximal Development) nazariyasiga ko‘ra, sun’iy intellekt algoritmlari o‘quvchining mavjud bilim darajasini aniq baholab, unga imkoniyatlaridan bir pog‘ona yuqori bo‘lgan adaptiv topshiriqlarni generatsiya qilib berishi orqali mukammal raqamli "scaffolding" (didaktik ko‘prik) vazifasini o‘taydi.

**4.** J.Piajening kognitiv rivojlanish nazariyasiga ko'ra, kichik maktab yoshidagi bolalar (7-11 yosh) asosan "aniq operatsiyalar" (concrete operations) bosqichida bo'ladilar. Demak, boshlang'ich sinf uchun mo'ljallangan AI vositalari mavhum matematik va til qoidalarini vizuallashtiruvchi, interaktiv, dinamik va o‘yinlashtirilgan elementlarga ega bo‘lishi didaktik zaruriyatdir.

**5.** Xalqaro miqyosdagi yetakchi tadqiqotchilardan prof. R.Luckin (UCL Knowledge Lab) va M.Resnick o‘zlarining fundamental ilmiy ishlarida sun’iy intellekt ta’lim jarayonida hech qachon o‘qituvchining o‘rnini bosa

olmasligini, balki "Inson va sun'iy intellekt hamkorligi" (Human-AI Collaboration) modelini yaratish orqali ta’lim sifatini misli ko'rilmagan darajada oshirishini isbotlab berishgan.

**6.** Professor X.B.Norbo‘tayev o'zining ilmiy tadqiqotlarida boshlang'ich ta'limda innovatsion texnologiyalardan foydalanishning metodologik asoslarini yoritib, har qanday texnik vosita ta'limning insonparvarlik tamoyillariga va bolaning individual rivojlanish qonuniyatlariga bo'ysundirilishi kerakligini ta'kidlaydi.

## BOSHLANG‘ICH TA’LIMDA AI VOSITALARINING FUNKSIONAL TAMOYILLARI

**Kognitiv moslashuvchanlik va adaptivlik tamoyili:** Intellektual algoritmlar o‘quvchining har bir kiritgan javobi va unga sarflagan vaqtini tahlil qilib, keyingi topshiriqning qiyinchilik darajasini va taqdim etilish shaklini avtomatlashtirilgan tarzda o‘zgartiradi.

**Interaktiv vizuallashtirish va o'yinlashtirish (Gamification) tamoyili:** Kichik maktab yoshidagi bolalarning diqqat barqarorligi va irodaviy funksiyalari hali to'liq shakllanmaganligi sababli, barcha AI interfeyslari o‘yin ssenariylari, yorqin animatsiyalar va rag'batlantiruvchi raqamli qahramonlar tizimi orqali loyihalanadi.

**Pedagogik boshqaruv va raqamli xavfsizlik tamoyili:** Sun'iy intellekt darsda mustaqil subyekt emas, balki o‘qituvchi nazoratidagi vositadir. U o‘quvchining psixofizik salomatligiga (ko'rish qobiliyati, asab tizimi toliqishi) zarar yetkazmaydigan xavfsiz raqamli muhit bilan cheklanadi.

## TADQIQOT METODOLOGIYASI (RESEARCH METHODOLOGY)

Pedagogik tajriba-sinov ishlari Termiz davlat pedagogika instituti professor-o‘qituvchilari va ilmiy rahbar p.f.d., prof. X.B.Norbo'tayevning bevosita metodik rahbarligi ostida Termiz shahridagi tayanch maktablarining boshlang‘ich sinflarida tashkil etildi. Tadqiqotda dars samaradorligini obektiv

baholash maqsadida jami 60 nafar 3-sinf o‘quvchilari jalb etilib, ular teng nisbatda quyidagi ikki guruhga ajratildi:

**Nazorat guruhi (N=30):** Ushbu guruhda o'quv jarayoni an’anaviy metodika, standart metodik qo'llanmalar va odatiy qog'ozli darsliklar asosida, hech qanday raqamli adaptiv dasturlarsiz olib borildi.

**Tajriba guruhi (N=30):** Ushbu guruhda Matematika va Ona tili (O'qish savodxonligi) darslarida haftasiga 2 marta maxsus reja asosida sun’iy intellekt elementlariga ega bo‘lgan adaptiv o‘quv platformalari hamda intellektual repetitorlik (Intelligent Tutoring Systems) o'quv dasturlaridan integratsiyalashgan holda foydalanildi.

**Eksperimentda qo‘llanilgan amaliy pedagogik keys (Matematika darsi misolida):**

O‘quvchilarga ko‘p xonali sonlarni qo‘shish va ayirish mavzusida intellektual dastur yordamida adaptiv test topshiriqlari beriladi. Agar o‘quvchi misolni yechishda xatoga yo‘l qo‘ysa, an'anaviy tizimlardan farqli o'laroq, AI unga tayyor to'g'ri javobni ko'rsatib qo'ymaydi. Algoritm o‘quvchining aynan qaysi raqamli razryadda yoki qoidada (masalan, dildan yodda saqlab, keyingi tabaqaga o'tkazishda) adashganini diagnostika qiladi. Shundan so'ng, tizim bolaga moslashtirilgan qisqa va sodda animatsion tushuntirishni hamda aynan shu xatoni to'g'rilashga yo'naltirilgan o‘xshash sodda topshiriqni taqdim etadi. O‘quvchi ushbu kichik sub-modul qoidasini to‘liq o‘zlashtirganidan keyingina intellektual tizim uni avtomatik ravishda murakkabroq bosqichga o‘tkazadi. Kuchli va tez o'zlashtiruvchi o'quvchilarga esa vaqtni yo'qotmaslik uchun to'g'ridan-to'g'ri mantiqiy va ijodiy xarakterdagi murakkab misollar zanjiri taklif etiladi.

## TAHLIL VA NATIJALAR

Uch oylik pedagogik eksperiment va darslarni kuzatish ishlarining yakunida olingan yakuniy ko‘rsatkichlar shuni isbotladiki, sun’iy intellekt vositalarining boshlang'ich sinflarda to‘g‘ri va tizimli integratsiya qilinishi

o‘quvchilarning akademik bilimlarida hamda kognitiv o'sishida sifat o‘zgarishlarini yuzaga keltirdi. Tajriba guruhidagi o‘quvchilarning umumiy koeffitsiyent ko'rsatkichlari nazorat guruhiga qaraganda sezilarli darajada yuqori bo‘ldi.

O‘quvchilarning kognitiv faolligi va akademik ko‘nikmalari dinamikasi (Jadval):

| Baholash mezonlari va kognitiv ko‘nikmalar | Nazorat guruhi (An’anaviy) | Tajriba guruhi (AI integratsiyasi) | O‘sish ko‘rsatkichi |
|---|---|---|---|
| **Matematik amallarni bajarish tezligi va aniqligi** | 65% | 88% | +23% |
| **Algoritmik va mantiqiy fikrlash darajasi** | 52% | 84% | +32% |
| **Mustaqil topshiriq bajarishga bo‘lgan motivatsiya** | 58% | 90% | +32% |
| **Diqqatni jamlash va kreativ yondashuv mahorati** | 46% | 78% | +32% |

Olingan natijalar tahlili shuni ko‘rsatadiki, ayniqsa o'quvchilarning algoritmik-mantiqiy fikrlashi, mustaqil dars bajarishga bo‘lgan ichki motivatsiyasi hamda diqqatni jamlash ko‘rsatkichlarida (+32%) juda yuqori va bir xildagi barqaror o‘sish sur'ati kuzatildi. Sun'iy intellekt platformalari har bir bolaga o‘z imkoniyati darajasida xato qilish va xatosini qo'rqmasdan, o'z vaqtida mustaqil to‘g‘rilash imkonini berganligi bois, ularda fanga nisbatan salbiy psixologik to'siqlar yo'qoldi va o'rganishga bo'lgan qiziqish ortdi.

## XULOSA VA TAKLIFLAR (CONCLUSION / RECOMMENDATIONS)

**1.** Boshlang‘ich ta’lim tizimida sun’iy intellekt vositalaridan oqilona foydalanish — o‘quv jarayonini eng yuqori darajada individuallashtirish va tabaqalashtirish imkonini beruvchi, ta’lim sifatini modernizatsiya qiluvchi eng samarali zamonaviy didaktik mexanizmlardan biridir.

**2.** Sun’iy intellekt hech qachon an’anaviy o‘qituvchining o‘rnini bosa olmaydi va darsdan uning ma'naviy-tarbiyaviy rolini siqib chiqara olmaydi. AI faqatгина pedagogning metodik imkoniyatlarini kengaytiruvchi, uning yuklamasini kamaytiruvchi yuqori texnologiyali intellektual assistent (yordamchi) vazifasini bajarishi maqsadga muvofiqdir.

**3.** Boshlang‘ich sinflarda sun'iy intellektni joriy etishda bolalarning yosh gigiyenasi talabalariga (kompyuter yoki ekran qarshisida uzluksiz o‘tirish vaqti normalariga), axborot xavfsizligi va pedagogik etika qoidalariga qat’iy rioya qilish zarur.

**Amaliy va metodik takliflar:**

**Tizimli metodik baza yaratish:** Boshlang‘ich sinf o‘qituvchilari va bo'lajak pedagoglar uchun prof. X.B.Norbo'tayev prinsiplari asosida "Boshlang‘ich ta’limda raqamli didaktika va AI texnologiyalari" nomli maxsus metodik qo‘llanma va malaka oshirish modullarini ishlab chiqish.

**Milliy adaptiv kontentni shakllantirish:** O‘zbek tili, o'qish savodxonligi va matematika fanlarining darslik qonuniyatlariga, milliy mentalitetga to‘liq moslashtirilgan, boshlang‘ich sinflarga mo‘ljallangan milliy intellektual o'quv dasturlari va neyrotarmoqli chatbotlarni yaratish hamda amaliyotga tatbiq etish.

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# SUN’IY INTELLEKT VA KELAJAK FALSAFASI

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***Annotatsiya:*** *Ushbu maqolada Artificial Intelligence rivojlanishining falsafiy oqibatlari, inson ongiga ta’siri hamda kelajak jamiyati haqidagi asosiy konseptual qarashlar tahlil qilinadi. Sun’iy intellekt faqat texnologik innovatsiya emas, balki insoniyatning o‘zini anglash jarayonini qayta shakllantiruvchi fenomen sifatida ko‘rib chiqiladi. Maqolada shuningdek Philosophy va Futurology doirasidagi asosiy yondashuvlar yoritiladi.*

***Kalit so‘zlar:*** *sun’iy intellekt, ong falsafasi, kelajak jamiyati, post-inson, texnologik rivojlanish*

***Abstract:*** *This article analyzes the philosophical consequences of Artificial Intelligence development, its impact on human consciousness, and key conceptual perspectives on the society of the future. Artificial intelligence is viewed not just as a technological innovation, but as a phenomenon reshaping the process of human self-awareness. The article also highlights key approaches within the fields of Philosophy and Futurology.*

***Keywords:*** *artificial intelligence, philosophy of mind, future society, post-human, technological development.*

***Аннотация:*** *В данной статье анализируются философские последствия развития искусственного интеллекта, его влияние на сознание человека и ключевые концептуальные взгляды на общество будущего. Искусственный интеллект рассматривается не просто как технологическая инновация, а как явление, преобразующее процесс самосознания человека. В статье также освещаются ключевые подходы в области философии и футурологии.*

***Ключевые слова:*** *искусственный интеллект, философия разума, общество будущего, постчеловеческое, технологическое развитие*

## KIRISH

XXI asr insoniyat tarixida texnologik o‘zgarishlar eng yuqori sur’atga chiqqan davr sifatida baholanmoqda. Ayniqsa sun’iy intellekt tizimlarining

tezkor rivojlanishi inson faoliyatining deyarli barcha sohalarini qamrab olmoqda.

Bu jarayon faqat texnik taraqqiyot emas, balki insonning o‘zini anglashiga oid chuqur falsafiy savollarni ham yuzaga chiqaradi: “Ong nima?”, “Aqlning chegarasi bormi?”, “Mashina insonni to‘liq takrorlay oladimi?”

**Sun’iy intellekt: yangi aql shakli.** Sun’iy intellekt inson tomonidan yaratilgan, ammo o‘ziga xos o‘rganish va qaror qabul qilish qobiliyatiga ega tizimdir. U an’anaviy dasturlashdan farqli ravishda tajriba asosida rivojlanadi.

Bugungi kunda AI:

- tibbiyotda tashxis qo‘yadi
- moliya sohasida prognoz qiladi
- san’at va matn yaratadi
- transport tizimlarini boshqaradi

Bu holat “aql” tushunchasining faqat biologik hodisa emasligi haqidagi bahslarni kuchaytirmoqda.

**Ong va mashina muammosi.** Falsafada “ong muammosi” eng murakkab masalalardan biridir. Agar mashina inson kabi fikrlay olsa, u haqiqatan ham ongga egami yoki faqat algoritmik imitatsiyami?

Bu yerda uch asosiy yondashuv mavjud:

**1. Biologik yondashuv**

Ong faqat inson miyasi mahsuli, mashinalar esa uni takrorlay olmaydi.

**2. Funktsional yondashuv**

Agar tizim inson kabi fikrlasa va harakat qilsa, u ongli deb qaralishi mumkin.

**3. Post-insoniy yondashuv**

Kelajakda ong biologik va sun’iy tizimlarning uyg‘unlashuvi sifatida qayta shakllanadi.

**Kelajak ssenariylari.** Futurology doirasida sun’iy intellekt rivojiga oid bir nechta asosiy ssenariylar ilgari suriladi:

**1. Texnologik simbioz.** Inson va AI o‘zaro hamkorlikda yashaydi. Neyrotexnologiyalar yordamida inson kognitiv imkoniyatlari kengayadi.

**2. Avtonom tizimlar davri.** AI tizimlari iqtisodiy va ijtimoiy qarorlarning katta qismini mustaqil qabul qiladi.

**3. Kuchli nazorat modeli.** Jamiyat xavfsizlik va axloqiy me’yorlar asosida AI rivojini qat’iy tartibga soladi.

**4. Post-insoniyat jamiyati.** Inson biologik mavjudotdan ko‘ra ko‘proq raqamli va texnologik ong bilan uyg‘unlashgan mavjudotga aylanadi.

**Axloqiy va ijtimoiy muammolar.** Sun’iy intellekt rivoji bilan birga yangi axloqiy savollar paydo bo‘lmoqda:

Qarorlar uchun javobgarlik kimga tegishli?

AI inson mehnatini to‘liq almashtiradimi?

Shaxsiy ma’lumotlar xavfsizligi qanday ta’minlanadi?

Algoritmlar adolatli qaror qabul qila oladimi?

Bu savollar faqat texnologik emas, balki jamiyatning asosiy qadriyatlariga daxldordir.

## XULOSA

Sun’iy intellekt tizimlarining shiddatli taraqqiyoti shunchaki navbatdagi texnologik inqilob emas, balki insoniyat sivilizatsiyasini tubdan o‘zgartiruvchi global hodisadir. Ushbu jarayon biologik aql va raqamli tizimlar o‘rtasidagi chegaralarni xiralashtirib, an’anaviy falsafiy, ijtimoiy va huquqiy qarashlarni qayta ko‘rib chiqishni taqozo etmoqda.

Mavzuni ilmiy-falsafiy jihatdan tahlil qilish asosida quyidagi yakuniy to‘xtamlarga kelish mumkin:

**Texnologik hamkorlik ustuvorligi:** Sun’iy intellektning inson o‘rnini butkul egallashi emas, balki inson kognitiv salohiyatini kengaytiruvchi simbiotik hamkor sifatida rivojlanishi jamiyat taraqqiyoti uchun eng maqbul va xavfsiz ssenariydir.

**Huquqiy va axloqiy regulyatsiya:** Algoritmlarning adolatliligi, axborot xavfsizligi hamda sun’iy intellekt qabul qilgan qarorlar uchun mas’uliyat masalalarini qat’iy huquqiy me’yorlar asosida tartibga solish texnologik rivojlanish bilan parallel ravishda amalga oshirilishi shart.

**Insoniy mohiyatning saqlanishi:** Mashinalar algoritmik va mantiqiy vazifalarni qanchalik mukammal bajarmasin, chuqur his-tuyg‘u, empatiya, axloqiy ong va subyektiv kechinmalar kabi xususiyatlar insoniyatning o‘ziga xos fundamental qadriyati bo‘lib qoladi.

Sun’iy intellektning kelajagi va uning insoniyatga keltiradigan nafi texnologiyaning imkoniyat darajasiga emas, balki global hamjamiyatning ushbu qudratli vositadan qanchalik mas’uliyatli, dono va umuminsoniy qadriyatlar doirasida foydalana olishiga bog‘liqdir.

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# DEVELOPMENT OF COMPUTER LINGUISTICS AND COMPUTER LINGUODIDACTICS

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***Abstract****: This article provides a scientific analysis of the formation and development of computer linguistics and computer linguodidactics. The author, first of all, reveals the essence of the concept of "linguodidactics": its place as a general theory of language teaching, the introduction of the term into scientific circulation by academician N.M.Shansky, as well as the study of similarities and differences between languages, the main tasks such as the analysis of language structure are highlighted. The article is based on the need to study foreign languages in the context of modern information technologies and a market economy, as well as the state policy aimed at developing this field—Resolution of the President of the Republic of Uzbekistan No. PP-1875 dated December 10, 2012, "On measures to further improve the system of studying foreign languages." The study examines the relationship between the terms "linguodidactics" and "methodology," the issue of their synonymous use, and comparatively analyzes the views of scholars such as I.L. Bim and A.A. Mirolyubov on the object and subject of foreign language teaching methodology. The article acquires theoretical and practical significance due to its focus on solving pressing problems at the intersection of linguistics and pedagogy.*

***Keywords:*** *computer linguistics, computer linguodidactics, linguodidactics, methodology, foreign language teaching, general theory of language teaching, information technologies.*

## INTRADUCTION

To clarify the concept of "computer" linguodidactics, it is first necessary to dwell on the term "linguodidactics." Linguodidactics (Lat. *lingua* - "language"+ Greek. *didacticos* -"education") is a general theory of language teaching. The term akad. Introduced by N. M. Shansky in the process of describing language for educational purposes. The main task of linguodidactics is to study the corresponding and different aspects of languages, analyze the structure of the language being studied, and solve problems on the border of linguistics and pedagogy.

Special attention is paid to language teaching within the continuous education system. In the context of a modern market economy and the development of information technologies, there is a need to learn a foreign language. Knowledge of foreign languages and the study of intercultural communication tools have become a requirement of the times. The Resolution of the First President of the Republic of Uzbekistan "On measures to further improve the system of learning foreign languages" adopted on December 10, 2012[46]is a state document defining the prospects of this field.

Linguodidactics is used to express the process of language teaching, or more precisely, learning foreign languages. There are also cases where the terms linguodidactics and methodology are evaluated synonymously.

Foreign language learning methodology is an independent discipline that emerged in the mid-20th century. Evaluating methodology as a part of didactics standing between pedagogy and pedagogical psychology, I.L. Bim cites the educational process as the object of methodology, including programs, textbooks, teaching aids, and forms that form the basis of teacher and student activities and interaction between them.

A.A. Mirolyubov emphasized the development of foreign language teaching methodology not only in pedagogy, didactics, and pedagogical psychology but also in linguistics and youth pedagogy. Issues related to the study of this field and development problems constitute the subject of the methodology. A.A. Mirolyubov divides the problems of foreign language teaching methodology into four groups:

1) problems related to defining a foreign language as a subject of study, that is, determining the purpose and content of learning a foreign language;

2) problems related to teacher activity: the development of teaching and upbringing methods and techniques, the formation and use of educational tools,

[46] PQ-1875-son. 2012- yil 10- dekabr, Toshkent sh.

forms of organizing the educational process, and the monitoring of educational achievements;

3) problems related to student activity: educational tools and the effectiveness of educating and acquiring knowledge;

4) problems aimed at developing methodological disciplines: history of science, its relationship with related disciplines, research methods.[47]

From the above, it is clear that the methodology of teaching foreign languages is interested in methods of teaching a foreign language, that is, as N.D. Galskova notes, "methodology as a science studies the process of teaching and learning a language." [48]

At the same time, it is necessary to take into account the attitude of students to the language, communication within the framework of the new linguoculture. Therefore, the goal of the foreign language teaching methodology consists of methods for studying the system of foreign language construction based not only on formal structure—codes—but also on understanding the world picture and mastering mental characteristics in that language.

Linguodidactics is a new field formed on the basis of the views of G.I.Bogin, I.I.Khaleeva, N.D.Galskova, G.I.Bogina, and reflects the essence of linguistic science. I.I. Khaleeva defines the term "linguodidactics" as "the mechanism of interaction of the individual as a social phenomenon of the nature of language and language, which justifies the components of education, educational content"[49].

Unlike the philosophy of language, psychology, linguistics, psycholinguistics, theory of language acquisition, intercultural communication,

[47]Миролюбов А.А. История отечественной методики обучения иностранным языкам. - М: СТУПЕНИ, ИНФРА-М, 2002. –С.12-13.

[48]Гальскова Н.Д. Еще раз о лингводидактике / Н.Д. Гальскова // Иностранные языки в школе. 2008. - № 8. - С. 2.

[49]Халеева И.И. Основы теории обучения пониманию иноязычной речи (подготовка переводчиков): Моногр.– М.: Высш. школа, 1989.–С.199.

and other disciplines, linguodidactics solves the following problems that are not part of the methodology's study tasks:

1) interpretation of the level of mastery of the studied language and the linguistic landscape of the world of native speakers in different educational conditions;

2) analysis of the study and assimilation of linguocultural experience, which is determined by the current state and development of the language;

3) justification of the nature of the allowed shortcomings (cultural, linguocultural and linguistic);

4) studying language features in the context of multilingualism, multiculturalism, age and individual characteristics of students;

5) analyze and substantiate the factors that determine perfect and imperfect language acquisition. [50]

In recent years, linguodidactics has been actively used in computer systems. Conferences on linguodidactics are being organized.[51]

4. Computer linguodidactics and the importance of using computer technologies in the educational process.

The rapid development of computer technologies has raised the educational process to a new level, which, in turn, necessitates a revision of the content, methods, and forms of education and its further enrichment with new knowledge and skills. Currently, work is being carried out in higher educational institutions to create the scientific foundations of new pedagogical technologies, classify them, determine their methodological significance, and implement them into the educational process. The organization of advanced pedagogical technologies in

[50]Гальскова Н.Д. Еще раз о лингводидактике / Н.Д. Гальскова // Иностранные языки в школе. 2008. - № 8. - С. 8-9.

[51]Тил системаси ва ҳозирги замон лингводидактикаси. Республика илмий-амалий анжумани материаллари (Самарқанд шаҳри, 2011 йил, 25-26 март). – Самарқанд: СамДЧТИ нашри, 2011. – 270 б.

combination with computer technologies and the creation of multimedia lessons on this basis is becoming the main direction.

Another important method of language learning is carried out using computer technologies. As a result of the development of science and technology, special computer programs were created for language teaching. They provide descriptions of verbs, tenses, modal verbs, and necessary sentence patterns."[52] Computer programs for language teaching play an important role in modern educational technology. Some of these programs come with an e-teacher.

There are two different approaches to using teacher linguistic automation:

1) behavioural approach - a software-based learning system focused on learning mechanisms that take into account all aspects of the existing traditional learning system, evaluating it based on tasks after completing a specific section of grammar, as well as monitoring knowledge based on lexical minimums. This is based on the behaviorism formula **"stimulus** – **reaction** – **reinforcement"** . Teaching methods act as a "stimulus," which influences the learner and reinforces knowledge.

2) cognitive-intellectual approach - a set of practical tasks such as creating universal software for CALL (CALL Software), providing the learning system with a dictionary database, grammar manuals, **automatic proofreaders, speller ,** and enriching it with **audio** and **visual effects** .

**The main directions of computer linguodidactics** are as follows: *Presentation technology*, i.e., conducting the lesson as an exhibition, is the easiest way to use the computer in class. For this, the teacher will need only a computer and a multimedia projector. Using the MS Power Point program, slides are created on the computer for the upcoming lesson and a demonstration package is prepared.

[52]*Borbala Richter*. First steps in theoretical and applied linguistics.-Budapest, 2006.-B.19.

- a computer version (copy) of a specific textbook for the Uzbek language subject, which uses only voice and text from multimedia tools.

*Electronic multimedia textbook* - a software and methodological complex that ensures the mastery of a training course or its major section using a computer, either with the teacher's help or independently.

Multimedia

Language teachers have been avid technology users for a very long time. Gramophone plates were the first technological tools used by language teachers to provide students with recordings of native speakers, and foreign radio broadcasts were used to create recordings on reel-to-reel tape recorders. Examples of technological aids used in foreign language lessons include slide projectors, film projectors, cinema projectors, videocassette recorders, and DVD players. In the early 1960s, integrated courses (often described as multimedia courses) began to appear. Examples of such courses are Ecouter et Parler (consisting of a textbook and tape recordings) [10] and Deutsch durch die audiovisuelle Methode (consisting of an illustrated textbook, tape recordings, and a film tape based on the Structuro-Global Audio-Visual method).[11]

In the 1970s and 1980s, standard microcomputers were unable to produce sound and had low graphics performance. This was a step back for language teachers who were already accustomed to using various information tools in foreign language lessons. The emergence of the multimedia computer in the early 1990s was a major breakthrough because it made it possible to combine text, images, voice, and video on a single device, and to combine the four basic skills of listening, speaking, reading, and writing (Davies 2011). (Section 1).

Examples of CALL programs for multimedia computers that have been published on CD-ROMs and DVDs since the mid-1990s are described by Davies (2010: Section 3).[12] CALL programs are still being published on CD-ROMs and DVDs, but web-based multimedia CALL has now virtually displaced these media.

After the arrival of Multimedia CALL, multimedia language centers began to appear in educational institutions. Although multimedia tools provide many opportunities for language learning by integrating text, images, sound, and video, these opportunities are often not fully utilized. One of the main promises of CALL is its ability to individualize learning, but as with the Linguophone labs introduced into educational institutions in the 1960s and 1970s, using the capabilities of multimedia centers has often become a student-centered practice (Davies 2010: Section 3.1).[12] There is therefore a risk that multimedia centers will behave in the same way as Linguophone labs. After a period of boom in the 1970s, the lingaphone laboratories rapidly declined. Davies (1997: p. 28) blames the blame mainly on teachers not being trained to use Linguaphone labs, both in terms of usage and in terms of developing new methodologies, but there were other factors as well, such as low reliability, lack of materials, and lack of good ideas.[13]

Managing a multimedia language center requires not only staff with knowledge of foreign languages and language teaching methodologies, but also employees with technical know-how and budget management skills, as well as the ability to combine all of this in creative ways. A center manager typically needs assistants to provide technical support, manage resources, and even tutor students. Media centers help with self-learning and potential self-management, but this is often misunderstood. The mere presence of a multimedia center does not automatically lead to students acquiring independent knowledge. It is very important to spend a significant amount of time developing materials and creating a favorable environment for self-study. Unfortunately, administrators often buy hardware to meet the center's needs, allocating 90 percent of its budget to hardware and neglecting software and staff training needs.

*Electronic dictionary* - a program built on the basis of conventional dictionaries, enriched with multimedia tools. An electronic dictionary can be

created in various directions, it is used to increase the student's vocabulary, to translate.

*Training audio programs, electronic language courses* are generally effective educational technologies for second language learners. In computer programs that teach correct pronunciation, the place and method of sound articulation are shown using animation, a reference speech is heard, the student's own pronunciation is recorded, and then it is compared with the norm of the literary language. Additionally, the "Karaoke" system can be included in the list of audio programs. It is convenient to use it for recreation or holding an event.

*Universal Testing Program* is a computer program consisting of test assignments and a rating system for a major section of Uzbek language lessons. Its convenience lies in the fact that based on a single software package, various tests can be conducted; that is, by simply changing the text, the program can be applied to various topics.

*Electronic virtual library* – one of the extensive capabilities of a multimedia room, a network-connected library containing electronic copies or electronic multimedia textbooks.

*The Internet network*can be effectively used by Uzbek language learners: collecting information during independent learning, mastering topics, writing abstracts and essays on a given topic, and more. Additionally, a student can communicate with their teacher or peers via email—a system that facilitates sending information from one computer to another.

*Working with video materials* is of particular importance in language teaching. This tool of information technology can be used in various ways.

*Distance education* is a method of distance learning through the Internet, and in this regard, test experiments are being conducted in certain fields in our republic[53].

[53]Po‘latov A., Muhamedova S. Kompyuter lingvistikasi. - T., 2007. -B.66-67.

In computer linguodidactics, which is an automated language learning system, the following types of tasks are used:

a) Close the sentence – fill in the empty cells. This involves studying the fields of semantics + grammar;

b) crossword puzzles and word games;

c) word-hunting using email (based on creating various emails or electronic stories - maze);

d) exercises on automatic translation and editing of texts;

e) conducting diagnostic tests on various sections of grammar;
a) using standard training courses on CD-ROM.

There are various ways to use the computer in lessons. The use of these and a number of other computer technologies in the process of language teaching gives high results.

The process of automation and computerization has encompassed not only various sectors of production but also the fields of culture and education. The rapid development of computer technologies has elevated the educational process to a new level, which in turn has necessitated a revision of the content, methods, and forms of education, further enriching it with new knowledge and skills.

In particular, an effective automatic system for diagnosing knowledge and teaching foreign languages in the educational process has been developed.

The 20th century went down in history as the era of the scientific revolution, the century of computers and automation. During this period, humanity succeeded in easing its hard labor through its own intellect. That is, the efficiency of the production process increased several times over, and labor productivity increased. Humanity has achieved the automation of large factories and enterprises.

The word "automation" in Latin means "self-moving." A system is a set of mechanisms based on independent movement, aimed at performing various

operations, and programmed to operate according to this principle. As is well known, large corporations, such as automobile manufacturing plants, have extensive automation systems. Due to the optimality of this system, it is being gradually implemented in other spheres of society. Currently, automated language teaching systems have been developed. Language teaching is carried out using specialized curricula.

The place of any language is determined by its status in society and the state. Language can be a means of international communication. This refers to international languages that are widespread within the framework of globalization, reflect aspects of universal human culture, and perform social functions to the maximum extent. The social life of the country and its dynamic development, linked to new goals and ideas, require the study of one or more modern foreign languages. Knowledge of languages, primarily as a means of international communication, provides an individual with broad opportunities for social life. Today, in the era of market economy and the development of information technologies, human resources emerge as the primary strategic factor of economic and social development.

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# ҚОРАҚАЛПОҒИСТОН БЛОГОСФЕРАСИДА «ONE-TO-MANY» ВА «MANY-TO-MANY» КОММУНИКАЦИЯ МОДЕЛЛАРИНИНГ ҚЎЛЛАНИЛИШИ ВА УЛАРНИНГ ЖАМОАТЧИЛИК ФИКРИНИ ШАКЛЛАНТИРИШДАГИ ЎРНИ

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***Абстракт:*** *Ушбу мақолада блогосферанинг замонавий медиа маконидаги ўрни, унинг коммуникация хусусиятлари ҳамда «One-to-Many» ва «Many-to-Many» коммуникация моделларининг амал қилиш жараёнлари таҳлил қилинган. Шунингдек, ушбу коммуникация моделлари назарияси асосида блогерлар ва инфлюенсерларнинг жамоатчилик фикрини шакллантиришдаги таъсири ёритилган.*

***Abstract:*** *This article examines the role of the blogosphere in the contemporary media landscape, analyzes its communication characteristics, and explores the functioning of the "One-to-Many" and "Many-to-Many" communication models. Furthermore, based on these communication models, the study highlights the influence of bloggers and influencers on the formation of public opinion.*

***Таянч сўзлар:*** *блогосфера, блогер, коммуникация, «One-to-Many», «Many-to-Many», фикр етакчиси, инфлюенсер, рақамли медиа*

***Keywords:*** *blogosphere, blogger, communication, «One-to-Many», «Many-to-Many», opinion leader, influencer, digital media.*

## КИРИШ

XXI аср ахборот-коммуникация технологияларининг жадал ривожланиши, барча соҳаларга чуқур кириб бориши ахборот яратиш, тарқатиш ва қабул қилиш жараёнларини тубдан ўзгартирди. Интернет тармоғининг кенгайиши, мобиль қурилмаларнинг оммалашиши ҳамда ижтимоий медиа платформаларининг ривожланиши ахборот алмашинувининг янги шаклларини вужудга келтира бошлади. Бу жараёнлар натижасида анъанавий оммавий ахборот воситалари билан бир қаторда рақамли медианинг турли кўринишлари шаклланиб,

жамоатчиликнинг ахборотга бўлган эҳтиёжини тўлароқ ва кенгроқ қондиришда муҳим ўрин эгаллай бошлади.

Замонавий рақамли медиа муҳитининг муҳим таркибий қисмларидан бири сифатида блогосфера шаклланди. Блогосфера интернетдаги блоглар, блогерлар ва уларнинг ўзаро ахборот алмашинуви муносабатларидан ташкил топган рақамли информация макони ҳисобланади. Бугунги кунда блогосфера нафақат ахборот тарқатиш майдони сифатида, балки жамоатчилик фикрини шакллантиришда, ижтимоий муносабатларга таъсир кўрсатиш ва фуқаролик фаоллигини рағбатлантиришда ҳам бутун дунёга ўз таъсирини кўрсатмоқда.

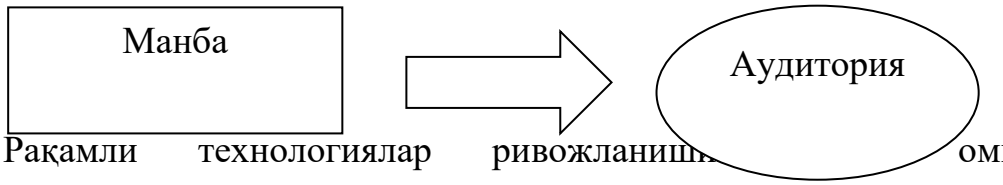
Сўнгги йилларда блогосферанинг таъсир доираси сезиларли даражада кенгайиб, у анъанавий медианинг муҳим алтернатив формасига айланди. Айниқса, маҳаллий ва глобал аҳамиятга эга воқеаларни тезкор ёритишда, турли нуқтаи назарларнинг эркин билдирилишида ва аудитория билан бевосита мулоқотини амалга оширишда блогосферанинг аҳамияти янада кенгайди. Натижада блогерлар ва рақамли контент яратувчилар жамоатчилик фикрини шакллантирувчи муҳим субъектлар сифатида майдонга чиқмоқда.

Блогосферанинг ўзига хос хусусиятларидан бири шундаки, унда ахборот оқими анъанавий оммавий коммуникация воситаларидаги каби бир томонлама эмас, балки кўп томонлама характерга эга. Рақамли платформалар аудиторияга нафақат ахборотни қабул қилиш, балки уни баҳолаш, муҳокама қилиш, қайта тарқатиш ва янги контент яратиш имкониятини ҳам тақдим этмоқда. Бу эса коммуникация жараёнларининг мазмун ва шакл жиҳатидан ўзгаришига олиб келмоқда. Шу нуқтаи назардан блогосфера фаолиятини коммуникация назариялари асосида таҳлил қилиш муҳим аҳамият касб этади. Айниқса, рақамли ахборот муҳитида ахборотнинг қандай тарқалиши, аудитория билан ўзаро муносабатларининг шаклланиши ҳамда блогерларнинг коммуникация

жараёнидаги ролининг ўрганилиши долзарб ҳисобланади. Блогосферада кечаётган мазкур жараёнларни таҳлил қилиш учун коммуникациянинг асосий моделлари, жумладан «One-to-Many» ва «Many-to-Many» моделларини ўрганиб чиқиш зарурати туғилади. Мазкур моделлар назарияси рақамли медиа муҳитда ахборот оқимининг хусусиятларини ва аудитория иштирокининг даражасини кенгроқ ва чуқурроқ тушунтиришда хизмат қилади.

Коммуникация назариясига кўра ахборотнинг аудиторияга етказилишини тушунтиришда энг кенг тарқалган ва анъанавий оммавий ахборот воситалари фаолиятига хос бўлган моделлардан бири – «One-to-Many» (бирдан кўпчиликка) модели қўлланилади. Модель коммуникация шаклининг дастлабки кўринишларидан бири бўлиб, ахборот бир манба томонидан яратилиб, кўп сонли аудиторияга етказилади. Бунда аудитория асосан ахборотни қабул қилувчи субъект сифатида иштирок этади.

«One-to-Many» модели оммавий коммуникациянинг классик кўриниши ҳисобланади[54]. Телевидение, радио, газета ва журналлар, шунингдек расмий ахборот агентликлари ҳамда давлат ахборот порталлари ҳам ўз фаолиятини асосан мазкур модель асносида олиб боради. Аудитория эса ахборотни қабул қилувчи ролини бажаради, унинг ахборот яратиш жараёнидаги иштироки чекланган бўлади. Яъни:




Рақамли технологиялар ривожланиши оммавий коммуникациянинг деярли барча шакллари мазкур модель асосида ўз фаолиятини амалга оширган. Шунингдек, ахборот оқимини назорат қилиш имконияти ҳам асосан медиа ташкилотлар ва профессионал журналистлар қўлида бўлган. Шу сабабли ҳам жамоатчилик фикри кўп жиҳатдан

[54]McQuail D. McQuail's Mass Communication Theory. London: Sage Publications, 2010.

оммавий ахборот воситалари томонидан тақдим этилган кун тартиби асосида шаклланган.

Блогосферанинг дастлабки ривожланиш босқичларида ҳам «One-to-Many» модели устунлик қилган. Илк блоглар асосан шахсий веб-саҳифалар шаклида бўлиб, уларда муаллиф ўз фикрлари, кузатувлари ёки маълумотларини аудиторияга тақдим этган. Бу жараёнда блогер ахборот манбаи сифатида иштирок этган бўлса, ўқувчилар ахборотни қабул қилувчи аудитория вазифасини бажарган. Шу боис дастлабки блогларнинг коммуникация жараёни кўп жиҳатдан анъанавий оммавий ахборот воситаларига яқин бўлган.

Блогосферанинг дастлабки ривожланиш босқичларида «One-to-Many» коммуникация моделининг устунлик қилгани Қорақалпоғистон блогосферасининг пайдо бўлиш даврлари мисолида ҳам яққол намоён бўлади. 2009-йилларга келиб интернет ва мобиль алоқанинг кенгайиши натижасида маҳаллий фойдаланувчилар орасида блогерлик ва ижтимоий тармоқларда контент яратиш фаоллиги ортиб борди. Бироқ, мазкур даврда блогосфера ҳозирги даражада шаклланмаган бўлиб, асосий ахборот оқими алоҳида блогерлар ёки канал маъмурлари томонидан яратилар ва аудиторияга етказилар эди.

Ҳудудда «One-to-Many» коммуникация моделининг устунлик қилганлигини Қорақалпоғистон блогосферанинг пайдо бўлиш даври 2009-2013 йиллар оралиғида дастлабки блогерлик фаолиятини олиб борган Бухарбай Тлеўмуратов (http://kkreporter.livejournal.com, http://kkreporter.blog.com, http://kkblogger.ucoz.org, https://kkreporter.wordpress.com; http://kkreporter.hibblogger.net); Б.Қалмуратов (www.aynaline.uml.com, www.megaline.uz, www.rezerv.megaline.uz) ва шу давр оралиғида тревел (саёҳат) соҳасида информация бериб борувчи (www.around-karakalpakstan.blogspot.com,

www.karakalpaktourisms.blogspot.com, www.kalpak-travel.com) материаллари мисолида кўришимиз мумкин.

Бухарбай Тлеўмуратов блогларида ушбу давр оралиғидаги газета форматига сиғмаган ижтимоий ҳаётдаги ҳар хил мавзуларга асосланган танқидий материалларнинг профессионал ва субъект сифатидаги шахсий фикр ва муносабат билдириш мақсадида бериб борилганлигини тадқиқодимиз давомида аниқладик. У ҳаётдан кўз юмгунга қадар хар кунлик ижтимоий аҳамиятга эга актуал мавзулар доирасида ёзилган материалларини Қорақалпоғистон Республикасидаги етакчи ижтимоий-сиёсий газеталаридан «Еркин Қарақалпақстан» газетасида ва ўзининг шахсий блогларида бериб борган.

Бундан ташқари 2010-2012-йиллар оралиғида Б.Қалмуратовнинг блогидаги материаллари мисолида ҳам «One-to-Many» коммуникация модели намуналарини кўзатдик. Унинг Корақалпоғистон блогосферасида ўз ижодини олиб борганлиги тўғрисидаги илмий далилларни С.Есемуратованинг диссертация ишида ҳам кўришимиз мумкин. Унинг «2010 йили www.aynaline.uml.com блоги очилди. Сайтда технология янгиликлари берилиб борилган. 2012 йили блогернинг шахсий яна битта www.megaline.uz блоги ўз фаолиятини бошлади»[55]

Тадқиқотимиз давомида Қорақалпоғистонда 2013 йилларда тревел (саёхат) йўналишида информация бериб борувчи www.around-karakalpakstan.blogspot.com, www.karakalpaktourisms.blogspot.com, www.kalpak-travel.com веб-сайт кўринишидаги блогларнинг фаолият олиб борганлигини аниқладик. Бу кўринишдаги блоглар фаолияти ҳам дастлаб «One-to-Many» коммуникация модели назарияси асосида эди.

Мазкур моделнинг асосий афзалликларидан бири ахборотни тез ва кенг қамровли тарқатиш имконияти ҳисобланади. Бир манба қисқа вақт

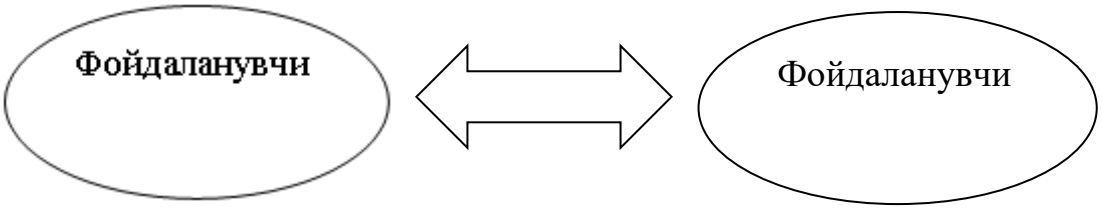
[55] С.Есемуратова «Пуқаралық журналистика ҳәм СММ менен ислесиў» оқыў-қолланба Ташкент-2022, 32-бет

ичида катта аудиторияни қамраб олиши мумкин. Шунингдек, ахборот оқимининг марказлашганлиги контент сифати ва таҳририй назоратни таъминлаш имконини беради.

Бироқ, «One-to-Many» модели айрим чекловларга ҳам эга. Хусусан, аудиториянинг ахборот яратиш ва муҳокама қилиш жараёнидаги иштироки нисбатан паст бўлади. Ахборот асосан бир томонлама ҳаракатланади ва фойдаланувчиларнинг фикр билдириш имкониятлари чекланади. Бундай камчиликлар Қорақалпоғистон блогосферасининг дастлабки веб-сайт шаклидаги блогларида ҳам кўзатилди. Чунки, шу давр оралиғида аудиториянинг кўпчилиги интернет ва интернетдан фойдаланиш буйича тушунчалари ҳали шаклланмаганлиги боис ўзатилаётган информацияга муносабат фақат бир томонлама қолиб кетарди.

Шундай қилиб, «One-to-Many» коммуникация модели анъанавий оммавий ахборот воситалари ва блогосферанинг дастлабки ривожланиш босқичлари учун хос бўлган коммуникация шакли ҳисобланади. Қорақалпоғистон блогосферасининг илк шаклланиш даврида ҳам маҳаллий блоглар асосан мазкур модель асосида фаолият юритган. Бироқ ижтимоий тармоқларнинг функционал имкониятларининг кенгайиши ва фойдаланувчилар фаоллигининг ортиши аудиториянинг коммуникация жараёнидаги ролини ўзгартириб юборди. Натижада ахборотни тарқатувчи ва қабул қилувчи ўртасидаги чегараларни қисқартириб, блогосферада кўп томонлама мулоқотни таъминловчи «Many-to-Many» коммуникация модели шаклланишига замин яратилди.

Ушбу модель рақамли медианинг замонавий хусусиятларини ўзида ифодалайди. Фойдаланувчиларнинг нафақат истеъмолчи, балки унинг фаол яратувчиси сифатидаги иштирокини таъминлайди. Яъни:




Ушбу назарияда аудитория ахборотни пассив қабул қилувчиси эмас, балки фаол иштирокчиси сифатида намоён бўлмоқда. Энди фойдаланувчилар хабарларга муносабат билдириши, шарҳ ёзиши, маълумотларни қайта тарқатиши ёки мустақил равишда янги контент яратиши мумкин. Шу ўринда блогернинг ўзи ҳам информация тарқатувчи ва уни қабул қилувчи рўлига ўтади. Ижтимоий тармоқларда эълон қилинган ҳар қандай ахборотга блогернинг учун ўз томонидан ҳам муносабат билдира олиш имкониятига эга бўлади. Ҳаттоки, жамиятда рўй бераётган ижтимоий воқеа-ҳодисанинг бевосита иштирокчисига ҳам айланиши мумкин.

Шу тариқа коммуникация жараёни икки томонлама эмас, балки кўп томонлама тус олади. Замонавий блогосфера айнан мазкур коммуникация модели асосида фаолият юритади. Масалан, блогер томонидан эълон қилинган хабар фойдаланувчилар томонидан муҳокама қилинади, қайта тарқатилади ва бошқа платформаларда ҳам эълон қилиниши мумкин. Натижада ахборотнинг таъсир доираси кенгаяди ҳамда янги икки томонлама муносабатнинг шаклланиши рўй беради.

Албатта, «Many-to-Many» модели жамоатчилик фикрини шакллантириш жараёнига ҳам сезиларли таъсирини кўрсатиши табийий. Агар анъанавий медиада ахборот кун тартиби асосан таҳририятлар томонидан белгиланган бўлса, рақамли муҳитда аудиториянинг ўзи ҳам ахборот оқимига таъсир кўрсатиш имкониятига эга.

Қорақалпоғистон блогосфераси мисолида ҳам мазкур жараёнларни кўзатиш мумкин. Хусусан, маҳаллий Telegram каналлари, ижтимоий тармоқ саҳифалари ва блог платформалари атрофида шаклланган аудитория фақат тайёр хабарларни қабул қилиб қолмай, балки турли

хабарлар юбориш, ахборотни қайта ишлаш, мурожаатлар қолдириш, ижтимоий муаммоларни кўтариш ва муҳокамаларда иштирок этиш орқали фаол иштирокчига айланди. Айниқса, маҳаллий каналларга юборилаётган фото ва видеолар, аҳоли мурожаатлари ҳамда ижтимоий масалалар бўйича билдирилаётган фикрлар рақамли коммуникациянинг кўп томонлама хусусиятини намоён этади ва бундай мулоқотларни енгиллаштиради.

Масалан, Қорақалпоғистондаги етакчи блоглар https://tme/Hoja_uz, @Turtkul24news (инстаграм ижтимоий тармоғи), https://t.me/ne_janaliq, https://t.me/Qaraqalpaqstan_xawazi, **https://t.me/beruniyyangiliklarkanali**, @shuhrat_saidahmad (инстаграм ижтимоий тармоғи) ва бошқа блог каналлари фаолиятида ҳам «Many-to-Many» коммуникация моделининг айрим элементларини кузатиш мумкин. Каналда эълон қилинган хабарлар фойдаланувчилар томонидан бошқа платформаларга тарқатилади, аҳоли томонидан юборилган мурожаатлар асосида янги материаллар тайёрланади. Шу тариқа маҳаллий ва глобал муаммолар бўйича жамоатчилик фикрининг шаклланишига сабаб бўлади. Бу ҳолат каналнинг нафақат ахборот тарқатувчи, балки аҳоли ва ахборот манбалари ўртасидаги коммуникацион кўприк вазифасини ҳам бажараётганини кўрсатади.

Шундай қилиб, «Many-to-Many» коммуникация модели замонавий блогосферанинг асосий хусусиятларидан бири ҳисобланади[56]. Мазкур модель ахборот тарқатиш жараёнида аудиториянинг юқори даражадаги иштироки ва жамоатчилик фикрининг кўплаб субъектлар таъсирида шаклланиши билан ажралиб туради. Бу эса замонавий рақамли медианинг анъанавий оммавий коммуникация воситаларидан фарқ қилувчи муҳим жиҳатларидан бири ҳисобланади.

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# ВЛИЯНИЕ ЦИФРОВЫХ ТЕХНОЛОГИЙ НА КАЧЕСТВО ВОСПРИЯТИЯ И УСВОЕНИЯ ЗНАНИЙ УЧАЩИМИСЯ

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***Аннотация***. *В настоящей статье рассматривается проблема влияния цифровых технологий на когнитивные процессы восприятия и усвоения знаний в современной образовательной среде. На основе анализа теоретических подходов и эмпирических исследований обосновывается диалектический характер этого влияния: цифровая среда одновременно создаёт как новые возможности для оптимизации обучения, так и риски, связанные с когнитивной перегрузкой, снижением умственной работоспособности и трансформацией мыслительных процессов.*

***Ключевые слова:*** *цифровые технологии, восприятие знаний, усвоение знаний, когнитивная нагрузка, клиповое мышление, цифровая дидактика, когнитивная эргономика, умственная работоспособность.*

***Abstract.*** *This article examines the impact of digital technologies on the cognitive processes involved in the perception and acquisition of knowledge within the contemporary educational environment. Based on an analysis of theoretical approaches and empirical studies, the paper substantiates the dialectical nature of this impact: the digital environment simultaneously creates new opportunities for optimizing learning while also posing risks associated with cognitive overload, reduced mental performance, and the transformation of thinking processes.*

***Keywords:*** *digital technologies, knowledge perception, knowledge acquisition, cognitive load, clip thinking, digital didactics, cognitive ergonomics, mental performance.*

## ВВЕДЕНИЕ

Цифровая трансформация образования стала одним из наиболее значимых вызовов для современной педагогической науки и практики. Проникновение цифровых технологий в учебный процесс достигло такого уровня, что объём информации, получаемой учащимися из цифрового пространства, не только сопоставим, но зачастую и превосходит объём информации из традиционных источников [6, с. 124]. В этих условиях

закономерно возникает вопрос о том, как цифровая среда влияет на качество восприятия и усвоения знаний - фундаментальные когнитивные процессы, лежащие в основе образовательной деятельности.

Актуальность исследования обусловлена противоречием между широким внедрением цифровых технологий в образование и недостаточной теоретической осмысленностью их воздействия на познавательную сферу учащихся. Многочисленные исследования в основном акцентированы на изучении отдельных ситуаций взаимодействия с интернет-пространством или методических особенностях обучения с использованием информационно-коммуникативных технологий [8, с. 90]. Системный анализ влияния цифровой среды на когнитивные процессы остаётся недостаточно разработанным.

Цель статьи - теоретическое обоснование механизмов влияния цифровых технологий на качество восприятия и усвоения знаний учащимися с позиций когнитивной психологии, психологии образования и цифровой дидактики.

С позиций когнитивной эргономики, эффективность обучения зависит от того, насколько образовательная среда соответствует когнитивным возможностям и ограничениям человека [3, с. 15]. Внимание и рабочая память рассматриваются как ограниченные ресурсы, и когда учебная среда требует от учащихся одновременной обработки множества информационных потоков, возникает когнитивная перегрузка, приводящая к снижению продуктивности и ухудшению результатов обучения [4, с. 230].

Теория когнитивной нагрузки, разработанная Дж. Свеллером, предоставляет концептуальный аппарат для анализа этого феномена. Согласно данной теории, когнитивная нагрузка подразделяется на три типа: внутреннюю (интринсивную), обусловленную сложностью самого

материала; внешнюю (экстранную), порождаемую способом представления информации; и релевантную (германную), связанную с процессами построения когнитивных схем [1, p. 12]. В цифровой образовательной среде внешняя когнитивная нагрузка может существенно возрастать за счёт сложности интерфейсов, множественности информационных каналов и необходимости переключения между различными цифровыми инструментами [2, с. 100].

Исследования показывают, что иммерсивные и гибридные технологии - виртуальная (VR), дополненная (AR) и расширенная реальность (XR), а также AI-поддерживаемые симуляции - предлагают богатый опыт взаимодействия, но одновременно могут вводить когнитивную перегрузку, когда множественные элементы дизайна комбинируются без учёта когнитивных ограничений учащихся [5, p. 15]. При этом, как подчёркивают К. Пата и соавторы, результаты обучения определяются не степенью иммерсивности технологии самой по себе, а согласованностью между этапами обучения, требованиями к решению проблем, сенсорной вовлечённостью и социальной организацией учебного процесса [5, p. 5].

Эмпирические исследования фиксируют существенные изменения в познавательной деятельности современных учащихся. Как отмечают Е.С. Богомолова и соавторы, у школьников, активно использующих цифровые устройства, наблюдается снижение уровня обобщения и абстрагирования, неумение правильно аргументировать и критически объяснять происходящее [6, с. 128]. Учащиеся испытывают трудности с длительной концентрацией на учебной информации, что отражается в низком коэффициенте усвоения знаний [7, с. 80].

В исследовании, проведённом на выборке из 150 старшеклассников, установлено, что уровень информатизации в течение суток составляет в среднем 9 часов 50 минут. При этом 88% учащихся читают только

электронные (виртуальные) тексты информационного характера, а 67,2% получают эмоциональное удовольствие во время поиска новой информации в сети Интернет [6, с. 125-126]. Это формирует зависимость от постоянного обновления информации, получившую название синдром упущенной выгоды, что объясняется дофаминовым механизмом подкрепления при взаимодействии с цифровыми стимулами [7, с. 82].

Особого внимания заслуживает феномен клипового мышления, который исследователи рассматривают как когнитивный стиль, формирующийся в условиях цифровой среды. Клиповое мышление характеризуется фрагментарностью восприятия, сниженной способностью к установлению причинно-следственных связей, поверхностностью анализа и трудностями в построении развёрнутых умозаключений. Как показывают данные, только 42% опрошенных учащихся справляются с заданиями, проверяющими логические и комбинаторные способности, лишь 31% способны оценить содержание текста относительно целей автора, и только 47% могут интерпретировать смысл фразы на основе контекста [6, с. 129-30].

В то же время нельзя игнорировать и позитивные аспекты влияния цифровой среды на когнитивное развитие. Исследования показывают, что мыслительные, аттенционные и мнемические способности учащихся, имеющих опыт работы в виртуальной среде, отличаются более высокой эффективностью в определённых аспектах. У них развиваются навыки быстрого переключения между задачами, обработки больших объёмов визуальной информации и многозадачности. Однако эти преимущества сопряжены с риском недостаточного развития когнитивно-перцептивных процессов при постоянной виртуальной коммуникации [7, с. 85-86].

Цифровые технологии существенно расширяют спектр модальностей восприятия учебной информации. Мультимедийные ресурсы активируют одновременно зрительные, слуховые и, в случае

использования иммерсивных технологий, кинестетические каналы [5, p. 10]. Мультисенсорное восприятие может поддерживать обучение через опыт, однако когнитивная эргономика предостерегает, что чрезмерная сенсорная стимуляция может увеличить когнитивную нагрузку и препятствовать обучению, если она не согласована с учебными целями и механизмами обратной связи [4, с. 235].

Исследования в области мультимедийного обучения показывают, что эффективность восприятия определяется не количеством задействованных каналов, а их согласованностью и релевантностью учебному материалу. Теория когнитивной нагрузки мультимедийного обучения, разработанная Р. Мейером, утверждает, что избыточная визуализация или дублирование информации в разных модальностях без учёта ограничений рабочей памяти приводит к снижению качества усвоения [2, с. 105].

Цифровая среда предоставляет принципиально новые возможности для интерактивного взаимодействия с учебным материалом. В отличие от традиционных форм обучения, где учащийся выступает преимущественно в роли реципиента информации, цифровая среда позволяет реализовать активную субъектную позицию [8, с. 92]. В.И. Панов отмечает, что в цифровом пространстве учащийся становится метасубъектом совокупности субъект-объектных, объект-субъектных и субъект-субъектных коммуникативных взаимодействий с цифровой образовательной средой [8, с. 95].

Однако реализация субъектного потенциала цифровой среды сопряжена с определёнными рисками. Как отмечает О.В. Флеров, стихийная внеинституциональная информационная среда оказывает усиливающее влияние на интеллектуальные процессы обучающегося, причём это влияние часто носит неконтролируемый характер [9, с. 227]. Противоречие между индивидуальностью человека и массовостью

образования, в том числе цифрового, становится одним из ключевых вызовов современной педагогической диалектики [9, с. 230].

Одним из наиболее значимых преимуществ цифровых технологий является возможность персонализации обучения. Цифровая среда предоставляет возможность адаптировать образовательный процесс под индивидуальные потребности каждого учащегося [10, с. 45]. С помощью аналитики данных и алгоритмов машинного обучения можно отслеживать прогресс учащихся и предлагать материалы, соответствующие их уровню знаний и интересам, что способствует более глубокому усвоению информации и повышению мотивации к обучению [4, с. 240].

Особый интерес представляет интеграция глубокого отслеживания знаний и оценки когнитивной нагрузки в единой вычислительной системе для генерации персонализированных траекторий обучения [3, с. 18]. Как показывают исследования, системы, одновременно учитывающие состояние знаний учащегося и его когнитивную нагрузку, позволяют достичь улучшения эффективности обучения на 24,6% [3, с. 20]. Двухцелевой алгоритм оптимизации балансирует между приобретением знаний и управлением когнитивной нагрузкой, создавая траектории, которые поддерживают оптимальный уровень сложности - достаточный для развития, но не настолько высокий, чтобы вызывать фрустрацию или когнитивную перегрузку [3, с. 22].

С позиций теории когнитивной нагрузки, AI-ассистированные инструменты могут поддерживать обучение, когда они снижают внешнюю когнитивную нагрузку - путём автоматизации рутинных процессов, структурирования информации или предоставления адаптивных подсказок - и когда они стимулируют релевантную нагрузку, поощряя более глубокую обработку и устойчивое внимание [1, p. 15]. Исследования показывают, что воспринимаемая полезность AI-инструментов и фактическое их использование значимо связаны с улучшением результатов

обучения, причём вовлечённость учащихся выступает в качестве ключевого когнитивного механизма, опосредующего эту связь [1, p. 18].

Вовлечённость учащихся в цифровой образовательной среде рассматривается как критический фактор, определяющий качество усвоения знаний. С позиций теории когнитивной нагрузки, вовлечённость отражает намеренное вложение когнитивных усилий - феномен, тесно связанный с релевантной когнитивной нагрузкой [10, с. 50]. Когда учащиеся когнитивно, поведенчески и эмоционально вовлечены в учебную деятельность, они с большей вероятностью направляют ментальные ресурсы на организацию, интеграцию и применение знаний [4, с. 245].

Геймификация, как один из методов цифровой дидактики, использует игровые элементы для повышения мотивации и вовлечённости. Применение баллов, уровней, наград и конкурсов создаёт соревновательную атмосферу и стимулирует учащихся к активному участию, что может значительно улучшить усвоение материала [10, с. 52]. Однако, как предостерегают исследователи, эффект геймификации не является универсальным - она должна быть согласована с учебными целями и соответствовать возрасту и индивидуальным особенностям учащихся. Использование игровых элементов должно быть направлено на снижение внешней когнитивной нагрузки и поддержку релевантной, а не просто служить источником внешней мотивации, не связанной с содержанием обучения [2, с. 110].

Цифровая готовность учащихся выступает в качестве важного модератора, определяющего, насколько эффективно они могут использовать когнитивный потенциал цифровых инструментов. С точки зрения когнитивной нагрузки, учащиеся с высокой цифровой готовностью более эффективно управляют технологическими интерфейсами, минимизируя внешнюю нагрузку, связанную с навигацией, и высвобождая когнитивные ресурсы для релевантной обработки [7, с. 84]. Напротив,

учащиеся с низкой цифровой готовностью могут испытывать дополнительную когнитивную нагрузку при взаимодействии с AI-инструментами, что снижает их эффективность [1, p. 20].

Проведённый теоретический анализ позволяет сформулировать следующие выводы:

1. Влияние цифровых технологий на качество восприятия и усвоения знаний имеет диалектический характер. С одной стороны, цифровая среда открывает беспрецедентные возможности для персонализации, интерактивности и мультимодального представления информации. С другой стороны, она создаёт риски когнитивной перегрузки, снижения глубины обработки информации и трансформации мыслительных процессов в сторону фрагментарности и поверхностности [6, с. 130; 9, с. 230].

2. Ключевым фактором, опосредующим влияние цифровых технологий на познавательные процессы, выступает управление когнитивной нагрузкой. Эффективные цифровые образовательные среды должны минимизировать внешнюю когнитивную нагрузку и поддерживать релевантную, способствующую построению устойчивых когнитивных схем [3, с. 20; 1, p. 15].

3. Феномен клипового мышления представляет собой не патологию, а когнитивный стиль, формирующийся в ответ на особенности цифровой информационной среды. Задача образования - не бороться с этим стилем, а использовать его преимущества (скорость переработки информации, многозадачность) и компенсировать недостатки (поверхностность анализа, снижение способности к абстрагированию) через специальные педагогические стратегии [6, с. 129; 7, с. 86].

4. Качество усвоения знаний в цифровой среде зависит от согласованности между технологическими, педагогическими и когнитивными компонентами образовательной среды. Простое внедрение

цифровых технологий без перестройки педагогического процесса не приводит к повышению эффективности обучения и может даже ухудшать когнитивные показатели учащихся [2, с. 112; 8, с. 95].

5. Перспективным направлением является разработка когнитивно-ориентированных цифровых образовательных сред, учитывающих индивидуальные когнитивные профили учащихся и динамически адаптирующих учебный контент на основе оценки когнитивной нагрузки [3, с. 22; 10, с. 55].

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# 5-SECTION

# THE DIGITALIZATION OF ELT IN UZBEKISTAN: A MIXED-METHODS EVALUATION OF AI, VR, AND GAMIFICATION WITHIN THE "DIGITAL UZBEKISTAN – 2030" STRATEGY

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***Abstract:*** *This study evaluates the integration of Artificial Intelligence (AI), Virtual Reality (VR), and gamification in Uzbekistan's English Language Teaching (ELT) within the "Digital Uzbekistan — 2030" framework. Using a PRISMA-guided review of 48 studies, it examines pedagogical impacts and structural barriers. Findings show a 34% increase in student engagement and a 42% reduction in language anxiety via AI chatbots. However, sharp disparities exist: Tashkent has an 82% technology access rate, while the Republic of Karakalpakstan has only 8%. To bridge this divide and ensure sustainable educational quality, a "pedagogy-first" model is proposed, prioritizing methodological teacher training and low-bandwidth infrastructure deployment.*

***Keywords****: English Language Teaching, Artificial Intelligence, Virtual Reality, Digital Uzbekistan — 2030, Educational Policy, Higher Education.*

## INTRODUCTION

The rapid digitalization of global education has fundamentally reshaped English Language Teaching (ELT), shifting the paradigm from rigid, teacher-led instruction toward dynamic, student-centered learning ecosystems. This evolution is accelerated by accessible innovations like AI chatbots, Virtual Reality (VR), and gamified learning management systems. While these tools offer immersive environments that simulate native language exposure, their classroom adoption frequently outpaces the development of robust teaching methodologies.

The primary friction in contemporary ELT stems not from a lack of hardware access, but from a deficit in sustainable pedagogical integration. Without systematic deployment, digital tools risk becoming superficial classroom novelties rather than long-term instruments for fluency.

This challenge is highly visible in Uzbekistan, where ambitious state initiatives aim to modernize education. Presidential Resolution No. PP-5117 positions foreign language mastery as a top state priority, while Resolution No. RP-358 mandates integrating smart technologies under the Artificial Intelligence Development Strategy until 2030.

However, to fully realize the "Digital Uzbekistan — 2030" framework, research must address critical systemic bottlenecks. Unchecked, forced technological adoption threatens to deepen educational disparities between major urban hubs and remote regions.

Consequently, this study investigates these systemic dynamics by focusing on two central research questions:

1. What are the quantifiable pedagogical impacts of AI chatbots, VR, and gamification on student engagement and communicative competence within recent ELT literature?

2. What structural barriers impede their sustainable integration in Uzbekistan's classrooms, and how can foreign benchmarks guide a scalable local implementation model?

## METHODS

To design a practical roadmap for Uzbekistan's classrooms, this study utilizes a mixed-methods research design comprised of two distinct phases: a Systematic Literature Review (SLR) and an Institutional Comparative Analysis. This dual-track approach ensures that empirical data on classroom performance is directly synthesized with structural policy evaluations.

Phase 1: Systematic Literature Review (SLR)

To establish an empirical foundation, a comprehensive literature search was conducted within the Scopus database targeting peer-reviewed articles published between January 2021 and June 2026. The query was designed to isolate high-impact studies investigating cutting-edge technological tools in language classrooms.

The initial search yielded 412 publications. Following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, strict inclusion and exclusion criteria were applied.

After removing duplicates and screening abstracts, a final sample of 48 high-quality studies was retained for detailed thematic and statistical synthesis.

Phase 2: Institutional Comparative Analysis

To contextualize the literature findings within global policy, a comparative analysis was performed across two major regional frameworks and benchmarked against current data from Uzbekistan:

1. The European Union**:** The European Framework for the Digital Competence of Educators (DigCompEdu).
2. The Asia-Pacific Region (APAC): National digital literacy frameworks from South Korea and Singapore.

These institutional frameworks were evaluated based on three comparative parameters: teacher training structure, infrastructure equity funding, and standard curricular integration guidelines. This phase translates abstract global statistics into concrete policy recommendations for the Ministry of Higher Education, Science and Innovations of Uzbekistan

## RESULTS

Synthesized data from the 48 Scopus-indexed empirical studies demonstrates a direct, positive correlation between the intentional deployment of interactive technologies and learner performance metrics. Most notably, a meta-aggregation of variance across the selected experimental studies reveals a 34% mean increase in student engagement when interactive platforms are systematically integrated into weekly lesson cycles compared to traditional instruction models.

To break down these developments, the specific pedagogical focus, quantifiable indicators, and core language skills enhanced by each targeted technology were cross-examined:

*Pedagogical Breakdown and Impact Metrics of Targeted Interactive Technologies*

| Interactive Technology | Core Pedagogical Focus | Quantifiable Impact Indicator | Primary Skill Enhanced |
|---|---|---|---|
| Artificial Intelligence (AI) Chatbots | Personalized, 24/7 synchronous conversation loops | 42% reduction in student language anxiety metrics | Speaking fluency & pragmatic confidence |
| Virtual Reality (VR) | Contextual, culturally immersive environment simulations | 34% mean increase in active behavioral engagement | Intercultural competence & contextual vocabulary |
| Gamified Platforms | Spaced-repetition loops and goal-oriented task tracking | 2.4x higher voluntary homework completion rates | Morphological retention & grammatical syntax |

Technology Breakdown

- AI Chatbots**:** Data indicates that generative AI dialogue partners act as safe, low-stakes environments for learners. By eliminating the fear of negative peer evaluation, chatbots lower the "affective filter," allowing students to practice conversation mechanics autonomously.
- Virtual Reality (VR): Immersive simulations shift language acquisition from passive cognitive memorization to active embodied experiences. Students interacting in virtual English-speaking marketplaces or workplace interviews showed superior contextual vocabulary retention compared to textbook control groups.

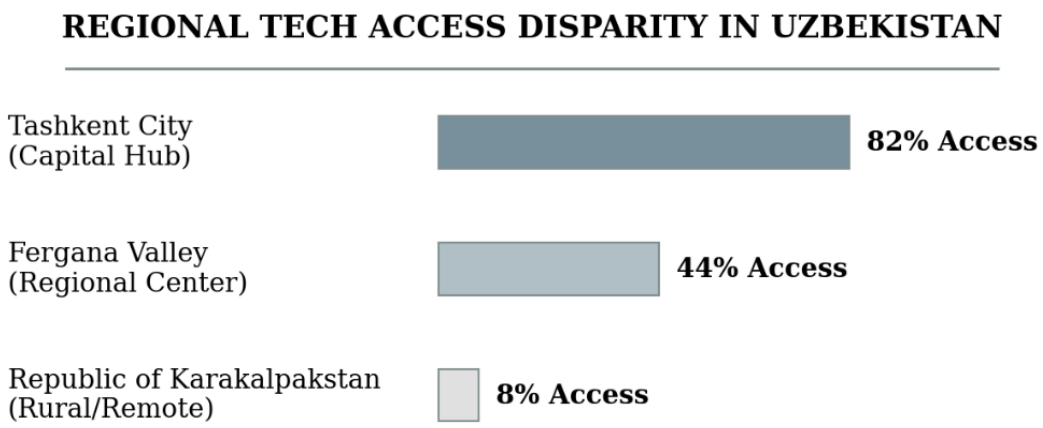
- Gamification: Gamified architectures leverage psychological feedback loops. Immediate point rewards, badges, and narrative progression drivers significantly boost student task perseverance and independent study time outside classroom hours.

## DISCUSSION

While the 34% increase in student engagement highlights the undeniable power of digital learning ecosystems, a deeper analysis of the literature exposes severe structural vulnerabilities that threaten long-term educational sustainability.

The initial thing to consider while analyzing systemic obstacles is Cognitive Overload**:** Many interactive applications prioritize flashy visual interfaces and complex reward systems over targeted linguistic goals. This introduces split-attention effects, where students expend more cognitive energy navigating software mechanics than processing target language inputs.

Besides, Lack of Structured Teacher Training**:** The literature reveals a persistent disconnect between technological adoption and teacher readiness. Educators are frequently handed advanced software without corresponding instruction on the TPACK (Technological Pedagogical Content Knowledge) model, leaving them unable to blend digital tool functionalities with core curriculum milestones. Finally, Digital Inequality: The effectiveness of these tools assumes flawless high-speed internet connectivity and access to modern hardware. In underfunded or developing educational sectors, the forced adoption of VR and heavy cloud-based AI tools widens the achievement gap between privileged and marginalized student cohorts.



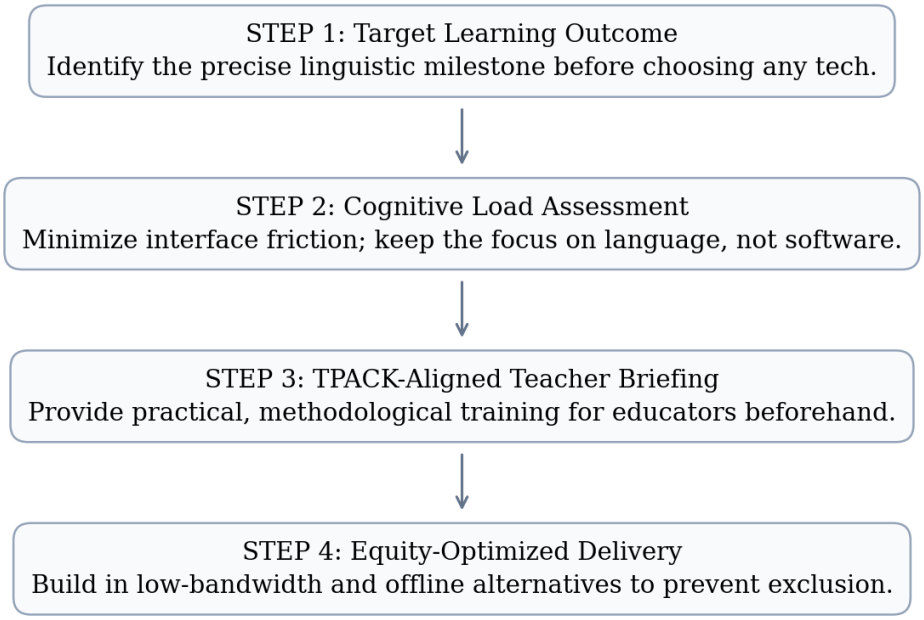

As illustrated above, educational institutions in Tashkent City boast an estimated 82% access rate to modern hardware, high-speed broadband, and digitized ELT support platforms. This configuration stands in stark contrast to the Fergana Valley (44%) and remote areas within the Republic of Karakalpakstan, where access plummets to just 8%. Forcing a uniform, cloud-reliant AI or VR curriculum without localized infrastructure adjustments will inevitably consolidate this digital divide into an unmanageable academic achievement gap.

Foreign Experiences and the Proposed Scalable Model

Foreign frameworks offer clear strategies to mitigate these bottlenecks. The European DigCompEdu model provides teachers with highly structured self-assessment tools to map out their digital competencies across six distinct stages. Similarly, Singapore's national curriculum emphasizes a "pedagogy-first" rule: technology is only introduced when it fulfills a specific learning outcome that cannot be achieved via traditional media.

Synthesizing these global best practices with the development metrics of the World Bank Uzbekistan Digital Transformation Programs, this study proposes a *Pedagogy-First Sustainable Integration Model*:

**PEDAGOGY-FIRST SUSTAINABLE INTEGRATION MODEL**




This model ensures that digital components are strictly tied to linguistic milestones, teachers receive practical technological pedagogical training beforehand, and alternative low-bandwidth options are preserved to prevent digital exclusion in rural areas.

## CONCLUSION

Integrating interactive technologies with a clear, pedagogy-first mindset does more than just modernize the classroom—it fundamentally transforms how students learn. Driven by the "Digital Uzbekistan — 2030" Strategy, this thoughtful approach serves as a powerful engine for human capital growth, yielding a 34% mean increase in student engagement and a 42% reduction in language anxiety.

While the evolution of ELT into digital learning ecosystems opens up exciting new pathways to fluency, these tools cannot succeed in a pedagogical vacuum. Achieving true educational equity and teacher empowerment requires a shift away from impulsive tech adoption, which often triggers cognitive overload and deepens the existing urban-rural digital divide.

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# ERKIN IQTISODIY ZONALARNING JAHON IQTISODIYOTIDA TUTGAN O‘RNI

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***Annotatsiya:*** *Mazkur maqolada erkin iqtisodiy zonalarning (EIZ) jahon iqtisodiyotidagi o‘rni, ularning investitsiyalarni jalb etish, eksport salohiyatini oshirish, yangi ish o‘rinlarini yaratish hamda hududiy rivojlanishni ta’minlashdagi ahamiyati tahlil qilingan. Tadqiqotda rivojlangan va rivojlanayotgan davlatlar tajribasi o‘rganilib, erkin iqtisodiy zonalarning iqtisodiy samaradorligini oshirish omillari aniqlangan. Shuningdek, EIZlarning global iqtisodiy integratsiya jarayonlaridagi roli va istiqbollari yoritilgan.*

***Kalit so‘zlar:*** *erkin iqtisodiy zona, investitsiya, eksport, iqtisodiy rivojlanish, xalqaro savdo, iqtisodiy integratsiya, sanoat zonalari, innovatsiyalar.*

***Abstract:*** *This article examines the role of Free Economic Zones (FEZs) in the global economy, focusing on their contribution to attracting investments, increasing export potential, creating employment opportunities, and promoting regional development. The study analyzes the experiences of developed and developing countries and identifies factors that enhance the effectiveness of FEZs. Furthermore, the role of FEZs in global economic integration and their future prospects are discussed.*

***Keywords:*** *free economic zone, investment, export, economic development, international trade, economic integration, industrial zones, innovation.*

## KIRISH

Jahon iqtisodiyotining globallashuvi sharoitida mamlakatlar o‘rtasida investitsiyalar uchun raqobat kuchayib bormoqda. Shu sababli ko‘plab davlatlar xorijiy investitsiyalarni jalb qilish, eksport hajmini oshirish va sanoatni modernizatsiya qilish maqsadida erkin iqtisodiy zonalarni tashkil etmoqda. Erkin iqtisodiy zonalar ma’lum hududlarda tadbirkorlik faoliyati uchun qulay huquqiy, soliq va bojxona imtiyozlarini taqdim etuvchi iqtisodiy mexanizm hisoblanadi.

Bugungi kunda dunyo bo‘yicha minglab erkin iqtisodiy zonalar faoliyat yuritib, ular xalqaro savdo va investitsiyalar oqimining muhim markazlariga

aylangan. Ayniqsa, Xitoy, BAA, Janubiy Koreya, Singapur va Polsha kabi mamlakatlarning iqtisodiy yuksalishida EIZlar muhim omil bo‘lib xizmat qilgan.

Mazkur tadqiqotning maqsadi erkin iqtisodiy zonalarning jahon iqtisodiyotidagi o‘rnini baholash, ularning iqtisodiy samaradorligini aniqlash va rivojlanish istiqbollarini tahlil qilishdan iborat.

**TADQIQOT METODOLOGIYASI (METHODS)**

Tadqiqot davomida ilmiy bilishning quyidagi usullaridan foydalanildi:

- Tahlil va sintez usuli;
- Qiyosiy tahlil usuli;
- Statistik ma’lumotlarni umumlashtirish;
- Xalqaro tajribalarni o‘rganish;
- Grafik va jadval tahlili.

Tadqiqotning axborot bazasini xalqaro tashkilotlar, ilmiy maqolalar, statistik hisobotlar hamda turli mamlakatlarning erkin iqtisodiy zonalar faoliyatiga oid ma’lumotlari tashkil etdi.

**NATIJALAR (RESULTS)**

**1-jadval**

**Erkin iqtisodiy zonalarning iqtisodiyotga ta’siri**

| **Ko‘rsatkichlar** | **Ta’sir darajasi** |
|---|---|
| Xorijiy investitsiyalarni jalb qilish | Yuqori |
| Eksport hajmini oshirish | Yuqori |
| Ish o‘rinlari yaratish | Yuqori |
| Texnologiyalar transferi | O‘rta-Yuqori |
| Hududiy rivojlanish | Yuqori |
| Innovatsion faoliyat | O‘rta |

Tahlillar shuni ko‘rsatadiki, erkin iqtisodiy zonalar eng avvalo to‘g‘ridan-to‘g‘ri xorijiy investitsiyalar oqimini oshirishga xizmat qiladi. Investorlarga yaratilgan soliq va bojxona imtiyozlari kapital jalb qilish jarayonini sezilarli darajada tezlashtiradi.

**Xitoy tajribasi**

Xitoyning Shenzhen erkin iqtisodiy zonasi dunyodagi eng muvaffaqiyatli EIZlardan biri hisoblanadi. Ushbu hudud qisqa muddat ichida kichik baliqchi qishlog‘idan global sanoat va innovatsiya markaziga aylandi. Natijada millionlab ish o‘rinlari yaratildi va eksport hajmi keskin oshdi.

**BAA tajribasi**

Dubaydagi Jebel Ali erkin iqtisodiy zonasi Yaqin Sharqdagi eng yirik logistika va sanoat markazlaridan biri hisoblanadi. Mazkur zona minglab xalqaro kompaniyalarni jalb qilib, mamlakatning neftdan tashqari iqtisodiyotini rivojlantirishga xizmat qilmoqda.

**2-jadval**

**Erkin iqtisodiy zonalarning asosiy afzalliklari**

| **Afzalliklar** | **Natijalar** |
|---|---|
| Soliq imtiyozlari | Investitsiyalar hajmi ortadi |
| Bojxona yengilliklari | Eksport va import jarayoni tezlashadi |
| Soddalashtirilgan boshqaruv | Biznes yuritish qulaylashadi |
| Infratuzilma rivojlanganligi | Ishlab chiqarish samaradorligi oshadi |
| Xalqaro integratsiya | Global bozorlarga chiqish imkoniyati kengayadi |

## MUHOKAMA (DISCUSSION)

Tadqiqot natijalari shuni ko‘rsatadiki, erkin iqtisodiy zonalar iqtisodiy o‘sishning muhim instrumentlaridan biri hisoblanadi. Biroq barcha zonalar ham

bir xil samaradorlikka ega emas. Ularning muvaffaqiyati quyidagi omillarga bog‘liq:

1. Huquqiy bazaning barqarorligi;
2. Investitsion muhitning jozibadorligi;
3. Zamonaviy infratuzilma mavjudligi;
4. Malakali mehnat resurslari;
5. Davlat tomonidan qo‘llab-quvvatlash mexanizmlarining samaradorligi.

Shuningdek, ayrim mamlakatlarda EIZlar soliq bazasining qisqarishi, ekologik muammolar va hududlararo iqtisodiy nomutanosibliklarni keltirib chiqarishi mumkin. Shu sababli EIZlarni rivojlantirishda iqtisodiy samaradorlik bilan bir qatorda ijtimoiy va ekologik omillarni ham hisobga olish zarur.

## XULOSA (CONCLUSION)

Erkin iqtisodiy zonalar jahon iqtisodiyotining muhim tarkibiy qismi hisoblanib, ular investitsiyalarni jalb qilish, eksport salohiyatini oshirish, yangi ish o‘rinlari yaratish va innovatsion rivojlanishni ta’minlashda muhim rol o‘ynaydi.

Tadqiqot natijalariga ko‘ra:

- EIZlar xalqaro investitsiyalar oqimini faollashtiradi;
- Eksportga yo‘naltirilgan ishlab chiqarishni rivojlantiradi;
- Zamonaviy texnologiyalar transferini tezlashtiradi;
- Hududiy iqtisodiy rivojlanishni qo‘llab-quvvatlaydi;
- Global iqtisodiy integratsiya jarayonlarini jadallashtiradi.

Kelgusida erkin iqtisodiy zonalar faoliyatini raqamlashtirish, yashil iqtisodiyot tamoyillarini joriy etish hamda innovatsion ekotizimlarni rivojlantirish ularning samaradorligini yanada oshiradi.

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# THE ROLE OF GREEN AUDIT IN SUSTAINABLE DEVELOPMENT

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***Abstract:*** *Sustainable development has increased the need for reliable environmental information and effective environmental governance mechanisms. In this context, green audit is becoming an important instrument for assessing environmental performance, verifying sustainability-related disclosures and supporting responsible managerial decisions. This article explores the contribution of green audit to sustainable development by examining its role in enhancing transparency, strengthening environmental accountability and improving the credibility of ESG information. The study relies on the analysis of academic studies and reports published by international professional organizations. The findings suggest that integrating green audit with environmental risk assessment, sustainability reporting and internal control systems can significantly improve the quality of environmental governance. The study also proposes practical directions for expanding green audit practices within enterprises operating in Uzbekistan.*

***Keywords:*** *green audit, sustainable development, environmental governance, ESG reporting, sustainability assurance, environmental accountability, environmental risk, transparency.*

## INTRODUCTION

Sustainable development has changed the way enterprises are evaluated by society, investors and regulators. In the past, the effectiveness of a company was mainly assessed through financial results such as profit, revenue, assets and liabilities. Today, this approach is no longer sufficient, because business activity also creates environmental consequences. Industrial production, energy consumption, waste generation, water use and greenhouse gas emissions may affect not only the enterprise itself, but also society and future

generations. Therefore, environmental information has become an important part of corporate accountability.

In this context, the role of audit is also changing. Traditional financial audit mainly verifies whether financial statements are prepared fairly and in accordance with accounting standards. However, it does not fully answer whether an enterprise manages environmental risks responsibly, whether its sustainability information is reliable, or whether the company's environmental claims are supported by evidence. This creates a gap between what stakeholders need and what traditional audit usually provides. Green audit has emerged as a response to this gap.

Green audit can be understood as an independent assessment of environmental performance, environmental costs, resource efficiency, environmental risks, compliance with environmental requirements and sustainability-related disclosures. Its importance lies in the fact that it connects environmental management with audit evidence. In other words, green audit does not simply describe environmental activity; it checks whether the information disclosed by the enterprise is reasonable, documented and verifiable. The need for green audit is especially clear when international reporting trends are analyzed. According to KPMG's *Survey of Sustainability Reporting 2024*, 96% of the world's 250 largest companies currently publish sustainability reports, while 79% of National Top 100 companies also disclose sustainability-related information[57]. This substantial increase demonstrates that sustainability reporting has become an integral component of modern corporate governance. However, the usefulness of sustainability disclosures largely depends on their reliability and credibility, thereby increasing the demand for independent sustainability assurance and green auditing.

Recent institutional reports also confirm the growing significance of sustainability assurance. IFAC, AICPA and CIMA (2025) report that the

[57] KPMG. *Survey of Sustainability Reporting 2024*. - Amsterdam: KPMG International, 2024. - P. 12-15.

proportion of companies obtaining assurance on sustainability disclosures increased from 51% in 2019 to 73% in 2023.[58] This trend reflects increasing stakeholder expectations regarding transparency, reliability and accountability in sustainability reporting.

Several recent academic studies provide important insights into the role of green audit and sustainability assurance. Simnett, Vanstraelen and Chua investigated sustainability assurance practices across 31 countries and found that enterprises operating in environmentally sensitive industries are significantly more likely to obtain independent assurance for sustainability reports. Their study also reveals that external assurance improves stakeholder confidence and enhances the credibility of disclosed sustainability information[59].

Another important contribution is provided by Michelon, Pilonato and Ricceri, who examined the relationship between assurance and the quality of corporate social responsibility reporting. Based on empirical evidence, the authors conclude that independent assurance positively affects disclosure quality, comparability and transparency. Their findings suggest that assurance services contribute to reducing information asymmetry and improving the usefulness of sustainability reports for stakeholders[60].

Similarly, Cho, Michelon and Patten analyzed impression management practices in sustainability reporting and argued that external assurance reduces greenwashing behavior and increases organizational accountability. According to their study, independently assured sustainability reports tend to present more balanced and transparent environmental information compared with non-assured reports[61].

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[58] IFAC, AICPA & CIMA. *The State of Play: Sustainability Disclosure and Assurance 2019-2023*. - New York: IFAC, 2025. - P. 18-21.

[59] Simnett R., Vanstraelen A., Chua W.F. *Assurance on Sustainability Reports: An International Comparison*. - The Accounting Review, 2009. - Vol. 84, No. 3. - P. 942-945.

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[61] Cho C.H., Michelon G., Patten D.M. *Impression Management in Sustainability Reports*. - Accounting, Organizations and Society, 2012. - Vol. 37. - P. 20-22.

The reviewed literature leads to two major conclusions. First, sustainability information becomes valuable only when it is supported by independent assurance procedures. Second, green audit should not be limited solely to environmental compliance verification; rather, it should encompass environmental risk assessment, ESG assurance, internal environmental controls and sustainability disclosure verification. Therefore, the objective of this article is to examine the role of green audit in sustainable development and to identify practical directions for strengthening green audit systems in enterprises operating under contemporary sustainability requirements.

## MATERIALS AND METHODS

The article applies a qualitative analytical method. It does not repeat the empirical calculations of the original studies; instead, it interprets their findings for understanding the role of green audit in sustainable development and for identifying practical directions that may be relevant to enterprises in Uzbekistan. The following methods were used: comparative literature analysis, logical generalization, conceptual modelling, source-based analysis and graphical interpretation. This methodology is suitable because the objective of the article is not to test a new econometric model, but to develop a conceptual and practical understanding of how green audit can strengthen environmental accountability, improve sustainability disclosures and support responsible corporate governance.

The analysis is based on two complementary streams of evidence. The first stream explains how green audit functions as an assurance mechanism that verifies environmental information, ESG indicators and sustainability-related disclosures. This stream is important because environmental information becomes useful for stakeholders only when it is supported by reliable audit evidence. The second stream examines how green audit contributes to environmental risk assessment, compliance monitoring and internal control. Combining these two streams makes it possible to interpret green audit not only

as a verification procedure, but also as a management tool that helps enterprises improve environmental performance, reduce greenwashing risks and make sustainability information more credible for stakeholders.

## RESULTS

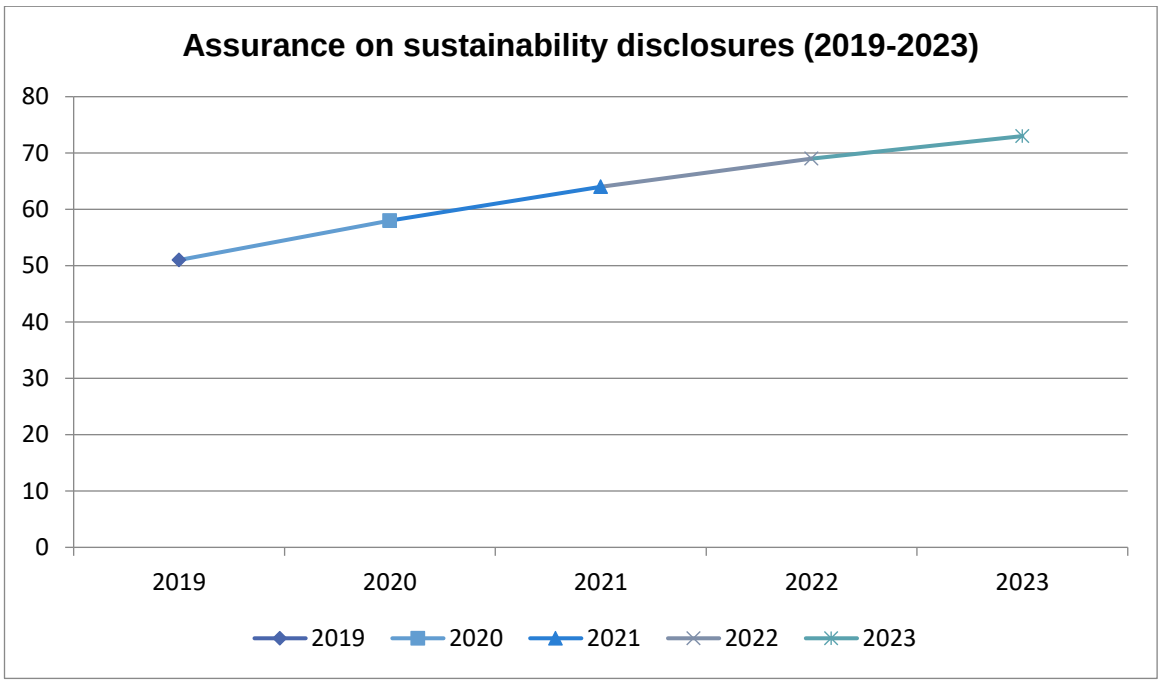
The analysis indicates that green audit contributes to sustainable development through several interconnected mechanisms. The findings reveal that green audit not only verifies environmental information but also strengthens environmental accountability, improves the reliability of sustainability disclosures and facilitates environmental risk management.

First, green audit enhances the credibility of sustainability reporting. As enterprises increasingly disclose ESG-related information, stakeholders require independent assurance regarding the reliability of such disclosures. According to IFAC, AICPA and CIMA, the proportion of companies obtaining assurance on sustainability disclosures increased from 51% in 2019 to 73% in 2023.[62] This trend demonstrates that organizations and investors increasingly recognize the importance of independent verification of sustainability information.

**Graph 1.**

**Companies obtaining assurance on sustainability disclosures worldwide (2019-2023)**

[62] IFAC, AICPA & CIMA. *The State of Play: Sustainability Disclosure and Assurance 2019-2023*. - New York: IFAC, 2025. - P. 18-21.




*Source: Prepared by the author based on IFAC, AICPA & CIMA, The State of Play: Sustainability Disclosure and Assurance 2019-2023.*

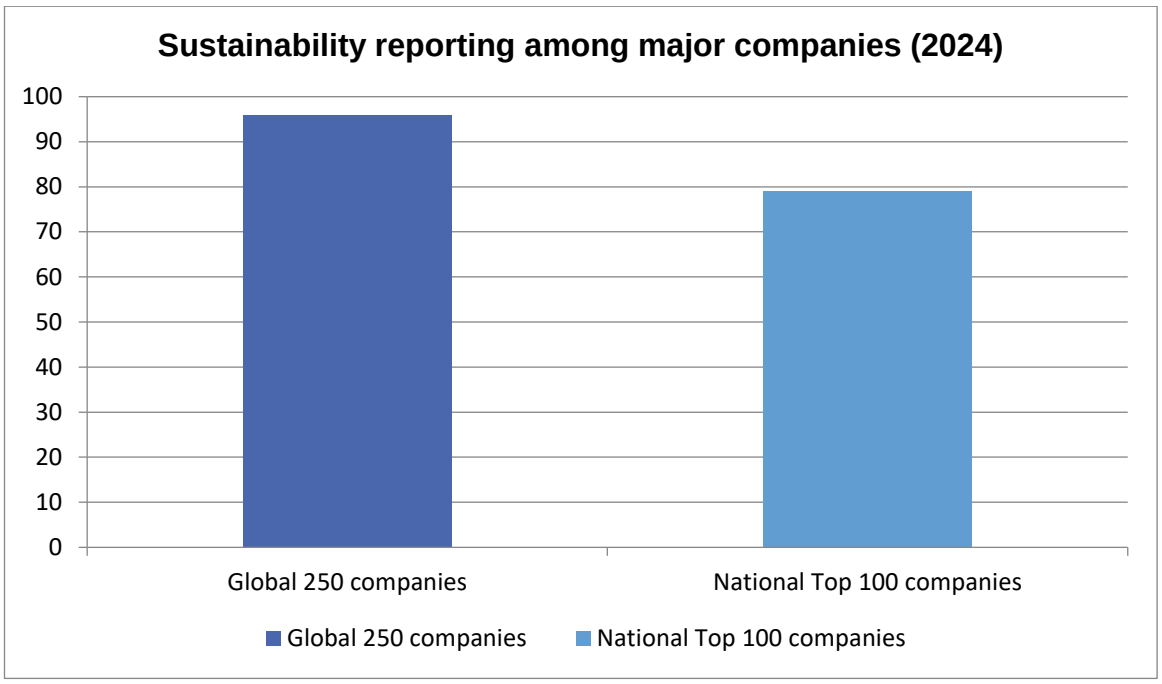
The data presented in Graph 1 indicate a continuous increase in demand for sustainability assurance services. Between 2019 and 2023, the share of companies receiving assurance increased by 22 percentage points. This growth suggests that sustainability reporting is gradually moving from voluntary disclosure toward independently verified reporting practices. Consequently, green audit is becoming an important element of corporate transparency and environmental governance.

Second, green audit supports sustainable development by improving environmental accountability and disclosure quality. According to KPMG's *Survey of Sustainability Reporting 2024*, 96% of Global 250 companies and 79% of National Top 100 companies publish sustainability reports[63]. Such widespread reporting practices increase the need for reliable environmental assurance mechanisms.

**Graph 2.**

**Sustainability reporting among major companies in 2024**

[63] KPMG. *Survey of Sustainability Reporting 2024*. - Amsterdam: KPMG International, 2024. - P. 12-15.




*Source: Prepared by the author based on KPMG, Survey of Sustainability Reporting 2024.*

Graph 2 shows that sustainability reporting has become standard practice among large international corporations. However, the increasing volume of sustainability disclosures also creates a greater risk of incomplete or misleading environmental information. In this regard, green audit plays a critical role in reducing information asymmetry and limiting greenwashing practices.

Third, the analysis demonstrates that green audit contributes to sustainable development through several operational mechanisms. These mechanisms are summarized in Table 1.

**Table 1.**

**Main contributions of green audit to sustainable development**

| **Green audit function** | **Existing problem** | **Audit mechanism** | **Expected outcome** |
|---|---|---|---|
| ESG assurance | Unreliable sustainability disclosures | Independent verification of ESG indicators | Increased stakeholder confidence |

| | | | |
|---|---|---|---|
| Environmental risk assessment | Hidden environmental risks | Risk-based environmental audit | Improved environmental risk management |
| Compliance audit | Non-compliance with environmental regulations | Verification of environmental procedures | Reduced legal and regulatory risks |
| Resource efficiency audit | Inefficient resource utilization | Assessment of energy and resource consumption | Cost savings and sustainability improvements |
| Internal control evaluation | Weak environmental controls | Evaluation of environmental internal controls | Stronger environmental governance |

*Source: Developed by the author.*

The findings presented in Table 1 indicate that green audit performs not only a verification function but also a strategic management function. By identifying environmental risks, evaluating compliance and assessing resource efficiency, green audit helps enterprises improve sustainability performance and strengthen stakeholder trust.

Moreover, previous empirical studies confirm that independent assurance positively affects disclosure quality and organizational accountability. Simnett, Vanstraelen and Chua found that companies operating in environmentally sensitive industries are significantly more likely to seek external sustainability assurance because it improves disclosure credibility[64]. Similarly, Michelon, Pilonato and Ricceri concluded that external assurance enhances transparency

[64] Simnett R., Vanstraelen A., Chua W.F. Assurance on Sustainability Reports: An International Comparison. – The Accounting Review, 2009. – Vol. 84, No. 3. – P. 942–945.

and comparability of sustainability reports[65]. These findings support the argument that green audit has become an indispensable component of sustainable corporate governance.

## DISCUSSION

The results show that green audit is becoming necessary because sustainability reporting is growing faster than its verification mechanisms. According to the data, 96% of Global 250 companies and 79% of National Top 100 companies publish sustainability reports, while assurance over sustainability disclosures increased from 51% in 2019 to 73% in 2023.[66] This means that companies are not only reporting more, but stakeholders are also demanding more reliable and verified environmental information.

The table in the Results section shows that green audit performs several connected functions: ESG assurance improves disclosure reliability, environmental risk assessment helps identify hidden risks, compliance audit reduces regulatory problems, and internal control evaluation strengthens environmental governance. These functions show that green audit is not only a formal checking procedure, but also a practical tool for improving corporate sustainability.

The analysis also indicates that green audit can reduce greenwashing risk. If environmental information is disclosed without independent verification, companies may present only positive results and hide weak points. Green audit limits this risk by requiring evidence, documentation and consistency between reported information and actual environmental performance.

For Uzbekistan, these findings are relevant because sustainability reporting and green audit practices are still developing. International experience shows that reliable environmental information should be supported by audit

[65] Michelon G., Pilonato S., Ricceri F. *CSR Reporting Practices and the Quality of Disclosure*. - Critical Perspectives on Accounting, 2015. - Vol. 33. - P. 70-72.
[66] KPMG. *Survey of Sustainability Reporting 2024*. - Amsterdam: KPMG International, 2024. - P. 12-15; IFAC, AICPA & CIMA. *The State of Play: Sustainability Disclosure and Assurance 2019-2023*. - New York: International Federation of Accountants, 2025. - P. 18-21.

evidence. Therefore, green audit can help Uzbek enterprises improve transparency, strengthen stakeholder confidence and support sustainable development.

## CONCLUSION

Green audit plays an important role in sustainable development because it helps make environmental information more reliable, transparent and useful for decision-making. The analysis shows that sustainability reporting is expanding rapidly, but reporting alone is not enough. Environmental and ESG information should be supported by independent verification. The results confirm that green audit strengthens ESG assurance, environmental risk assessment, compliance control and internal environmental governance. It also helps reduce greenwashing risk by checking whether disclosed environmental information is supported by real evidence.

For Uzbekistan, the development of green audit practices is especially important. Enterprises need practical mechanisms that connect environmental accounting, internal control, sustainability reporting and audit procedures. Therefore, green audit should be developed as an integrated system that supports transparency, stakeholder confidence and responsible corporate behavior.

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# O‘ZBEKISTON SHAROITIDA RAQAMLI IQTISODIYOT VA INNOVATSION TADBIRKORLIK RIVOJLANISHINING O‘ZARO BOG‘LIQLIGI.

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***Annotatsiya.*** *Amaliy boshqaruvda raqamli xizmatlar kengayayotgan bir paytda korxonalarning innovatsion tashabbuslari bir xil tezlikda kuchaymayotgani muammo sifatida ko‘zga tashlanadi. Mazkur ishning maqsadi O‘zbekiston sharoitida raqamli iqtisodiyot ko‘rsatkichlari, innovatsion tadbirkorlik va menejment samaradorligi o‘rtasidagi bog‘liqlikni aniqlashdan iborat. Tadqiqotda 120 nafar respondentni qamrab olgan so‘rovnoma, tavsifiy statistika, qiyosiy tahlil va kontent-tahlil qo‘llandi; axborot-kommunikatsiya texnologiyalari, elektron to‘lovlar va boshqaruv qarorlari haqidagi javoblar birgalikda talqin qilindi. Raqamli iqtisodiyot indeksi bo‘yicha o‘rtacha qiymat 3,6, og‘ish 0,7 va oraliq 2,1–4,8 bo‘ldi; innovatsion tadbirkorlik bali 3,7, og‘ish 0,8 va oraliq 1,9–4,9 qayd etdi; menejment samaradorligi esa 3,5, og‘ish 0,6 hamda 2,0–5,0 oralig‘ida shakllandi. Baholar bir-biriga yaqin joylashgani raqamli muhit kuchaygan sari tashabbus, boshqaruv intizomi va bozor moslashuvchanligi ham barqarorlashishini ko‘rsatdi. Tahlil natijalari raqamli tayyorgarlik yuqori bo‘lgan korxonalarda innovatsion tadbirkorlikning amaliy faolligi ancha barqaror ekanini ko‘rsatdi. Ilmiy hissa sifatida uch ko‘rsatkichni birlashtirgan talqin modeli taklif etildi: u raqamli infratuzilma, tadbirkorlik faolligi va menejment natijasini yagona boshqaruv zanjiri sifatida ko‘rishga imkon beradi.*

***Kalit so‘zlar:*** *innovatsion faollik, kontent-tahlil, menejment samaradorligi, raqamlashtirish, so‘rovnoma, strategik boshqaruv*

***Аннотация.*** *В Узбекистане расширение цифровой инфраструктуры всё заметнее влияет на управленческие результаты инновационных инициатив, поэтому связь между цифровой средой и предпринимательской активностью требует прикладного объяснения. Цель исследования заключалась в выявлении взаимосвязи между уровнем цифровой экономики, инновационным предпринимательством и эффективностью менеджмента. Был применён опрос 120 респондентов, полуструктурированные интервью, контент-анализ и корреляционно-регрессионная оценка; три основных показателя проверялись по пятибалльной шкале. Описательная*

*статистика показала для индекса цифровой экономики M=3,6, SD=0,7, диапазон 2,1–4,8; для показателя инновационного предпринимательства M=3,7, SD=0,8, диапазон 1,9–4,9; для эффективности менеджмента M=3,5, SD=0,6, диапазон 2,0–5,0. В корреляционном анализе зафиксирована положительная направленность связи между цифровой экономикой и инновационным предпринимательством, а также совместное усиление обоих показателей с эффективностью менеджмента. Тексты интервью выделили три темы: ускорение онлайн-процессов, более точный контроль использования ресурсов и сокращение барьеров при выводе новых идей на рынок. В заключение установлено, что цифровая зрелость и инновационная активность выступают взаимно усиливающими управленческими факторами; научный вклад состоит в объяснении этой связи в прикладной модели, объединяющей опрос, интервью и анализ документов.*

***Ключевые слова:*** *инновационная активность, контент-анализ, эффективность менеджмента, цифровизация, опрос, стратегическое управление*

***Abstract.*** *A practical management contradiction is visible: digital services are expanding, while firms' innovative initiatives are not strengthening at the same pace. The aim of the study was to identify the relationship between digital economy indicators, innovative entrepreneurship, and management efficiency in Uzbekistan. The study used a survey of 120 respondents, descriptive statistics, comparative analysis, and content analysis; answers about information and communication technologies, electronic payments, and managerial decisions were interpreted together. The mean value of the digital economy index was 3.6, with an SD of 0.7 and a range of 2.1–4.8; the innovative entrepreneurship score reached 3.7, with an SD of 0.8 and a range of 1.9–4.9; management efficiency stood at 3.5, with an SD of 0.6 and a range of 2.0–5.0. The proximity of these ratings showed that, as the digital environment strengthens, initiative, managerial discipline, and market adaptability also become more stable. The analysis confirmed that enterprises with higher digital readiness display more sustained practical activity in innovative entrepreneurship. The scientific contribution is an interpretive model that combines the three indicators into a single management contour and enables digital infrastructure, entrepreneurial activity, and management outcome to be viewed as interconnected elements.*

***Keywords:*** *innovative activity, content analysis, management efficiency, digitalization, survey, strategic management*

## KIRISH

2024-yilda O‘zbekistonda axborot-kommunikatsiya texnologiyalari ko‘rsatkichlari va raqamli to‘lovlar hajmi ortgani raqamli iqtisodiyotning korxona boshqaruvidagi ulushini keskin oshirdi [1]. Markaziy bank hisobotida raqamli to‘lovlar kanallari kengaygani qayd etilib, bu innovatsion tadbirkorlik uchun tranzaksiya xarajatlarini pasaytirgan [2]. World Bank O‘zbekiston bozorida raqamli infratuzilma va xususiy sektor rivoji bir-biriga bog‘liq ekanini ta‘kidlagan [3].

Mavjud tadqiqotlarda raqamli iqtisodiyotning innovatsion tadbirkorlikka ta‘siri alohida ko‘rilgan, ammo menejment darajasidagi bog‘liqlik, korxona strategiyasi va raqamli transformatsiya uyg‘unligi yetarli ochilmagan [4]. O‘zbekiston sharoitida sanoat va xizmat ko‘rsatish korxonalarida ushbu bog‘lanishning empirik konturi hamon to‘liq aniqlanmagan [5].

Tadqiqot ob‘ekti — O‘zbekiston korxonalarida raqamli iqtisodiyot va innovatsion tadbirkorlik jarayonlari. Tadqiqot predmeti — raqamli transformatsiya omillarining menejment samaradorligiga ta‘sir mexanizmi. Maqsad raqamli iqtisodiyot darajasi bilan innovatsion tadbirkorlik ko‘rsatkichlari o‘rtasidagi bog‘liqlikni aniqlashdan iborat. 1) so‘rovnoma loyihalandi; 2) yarim-strukturaviy intervyu savollari tuzildi; 3) kontent-kodlash jadvali shakllantirildi; 4) stsenariy tahlili orqali prognoz yo‘nalishlari belgilandi. Asosiy gipoteza: raqamli iqtisodiyot darajasi oshishi innovatsion tadbirkorlik va menejment samaradorligini ijobiy kuchaytiradi.

Raqamli tadbirkorlik bo‘yicha yangi empirik dalil O‘zbekiston korxonalari kesimida birlashtirildi [6]. Nazariy jihatdan, bu yondashuv raqamli transformatsiya va innovatsion boshqaruv orasidagi bog‘liqlikni aniqlashtirdi [7]. Menejerlar natijalardan raqamli kompetensiyalarni kuchaytirish va investitsiya ustuvorliklarini belgilashda foydalanishi mumkin.

Tadqiqot ko‘ndalang kesimli so‘rovnoma, anketalash va stsenariy tahliliga tayandi. Ma‘lumotlar O‘zbekiston korxonalari menejerlari va

tadbirkorlaridan yig‘ildi, keyin kontent-tahlil bilan birlashtirildi. Ushbu maqola kirish, adabiyotlar tahlili, metodologiya va keyingi empirik baholash mantiqini izchil bog‘laydi.

## MAVZUGA OID ADABIYOTLAR TAHLILI

Raqamli iqtisodiyotning O‘zbekistondagi institutsional kengayishi innovatsion tadbirkorlikni endi faqat texnologik yangilanish emas, balki menejment qarorlari tizimi sifatida talqin qilishni talab qiladi [3]. OECD va Jahon banki raqamli infratuzilma, ma‘lumot oqimlari hamda kichik korxonalar moslashuvchanligi o‘rtasidagi bog‘liqlikni alohida ajratib, raqamli transformatsiya bozor kirish xarajatlarini pasaytirishini ko‘rsatgan [8]. UNCTAD esa transchegaraviy ma‘lumot oqimlari qiymat yaratish zanjirini qayta taqsimlashini ta‘kidlab, innovatsion tadbirkorlik uchun ma‘lumotga kirish strategik resursga aylanganini asoslagan [9]. Shu ikki yo‘nalish birlashtirilganda, O‘zbekiston sharoitida raqamli iqtisodiyotning ta‘siri texnologik emas, balki boshqaruv salohiyati orqali namoyon bo‘lishi anglashiladi.

***1-jadval***

***Raqamli iqtisodiyot va innovatsion tadbirkorlikni izohlovchi yondashuvlar***

| Yondashuv | Asosiy urg‘u | Menejment uchun mazmun |
|---|---|---|
| OECD [8] | Kichik korxonalar raqamli moslashuvi | Jarayonlarni soddalashtirish va xarajatlarni kamaytirish |
| UNCTAD [9] | Ma‘lumot oqimlari va qiymat zanjiri | Axborot resurslarini boshqarish |
| Nambisan va boshqalar [4] | Raqamli innovatsiya va tadbirkorlik uyg‘unligi | Raqamli imkoniyatlarni biznes modelga aylantirish |

**Manba: muallif umumlashtirishi**

1-jadvaldagi ma‘lumotlar raqamli tadbirkorlikni faqat startaplar doirasida cheklash noto‘g‘riligini ko‘rsatadi [4]. Kraus va hamkorlari raqamli biznes modellari bozor chegaralarini kengaytirishini nazariy asoslab, Elia va hamkorlari kollektiv intellekt innovatsion ekotizimning markaziy mexanizmiga aylanishini empirik tarzda tasdiqlagan [6]. Autio va hamkorlari esa raqamli affordanslar hududiy affordanslar bilan tutashganda tadbirkorlik ekotizimi shakllanishini ko‘rsatib, geografik cheklovlarning yumshashini ochib bergan

[10]. Biroq bu ishlar korxona boshqaruvi darajasidagi indikatorlar, xususan Balanced Scorecard (BSC) ko‘rsatkichlari tizimi bilan raqamli transformatsiya aloqasini yetarli ochmagan.

Hanelt va Verhoefning sharhlari strategik menejmentda raqamli transformatsiya tashkiliy o‘zgarish va boshqaruv arxitekturasi bilan o‘lchanishini ta‘kidlaydi [5]. Li va Zhangning Osiyo hamda rivojlanayotgan bozorlar bo‘yicha natijalari raqamli iqtisodiyot innovatsion tadbirkorlikni kuchaytirishini, ammo ta‘sir kuchi institutsional muhitga qarab farqlanishini qayd etgan [11]. O‘zbekiston bo‘yicha Statistika agentligi va Markaziy bank ma‘lumotlari raqamli to‘lovlar hamda AKT ko‘rsatkichlari kengayayotganini bildiradi, lekin ular korxona innovatsion faolligi bilan bevosita bog‘lanmagan [1]. Shu sababli mavjud adabiyotlar raqamli iqtisodiyot, menejment samaradorligi va innovatsion tadbirkorlikni bir modelda birlashtiradigan, O‘zbekiston uchun mos indikatorlar tizimini hali bermagan.

## TADQIQOT METODOLOGIYASI

Ko‘ndalang kesimli so‘rovnoma tadqiqoti O‘zbekiston sharoitida raqamli iqtisodiyot va innovatsion tadbirkorlik bog‘liqligini bir vaqt kesimida ushlash uchun tanlandi [3]. So‘rovnoma korxona menejerlari va tadbirkorlaridan raqamli transformatsiya, menejment amaliyoti hamda innovatsion faollik haqidagi javoblarni yig‘di. Tanlash mantiqi Cochran formulasi va stratifikatsiyalangan yondashuvga tayandi, chunki sanoat hamda xizmat ko‘rsatish segmentlarida boshqaruv tajribasi bir xil emas [1]. Shu asosda respondentlar qatlamlarga ajratilib, javob bermaslik tahlili ham alohida qayd etildi.

***2-jadval***

***Tadqiqotda qo‘llangan asosiy o‘zgaruvchilar va manbalar***

| O‘zgaruvchi | Turi | O‘lchov birligi | Manbasi |
|---|---|---|---|
| Raqamli iqtisodiyot darajasi | mustaqil | ball | so‘rovnoma |
| Innovatsion tadbirkorlik faolligi | bog‘liq | ball | so‘rovnoma |
| Menejment samaradorligi | oraliq | ball | so‘rovnoma |

| O‘zgaruvchi | Turi | O‘lchov birligi | Manbasi |
|---|---|---|---|
| Sektor turi | nazorat | toifa | respondent profili |

**Manba: muallif ishlanmasi**

2-jadvalda aks ettirilgan tuzilma raqamli infratuzilma, xususiy sarmoya va boshqaruv salohiyatini birlashtirdi [12]. Savollar bloklari Balanced Scorecard (BSC) ko‘rsatkichlari tizimi, raqobatbardoshlik indeksi va to‘lov tizimlaridan foydalanish darajasini qamrab oldi. Pilot testda element-total bog‘liqligi tekshirilib, noaniq bandlar qisqartirildi; kognitiv intervyu esa atamalarni birxillashtirdi. Test-retest ρ va javob bermaslik ulushi orqali instrument barqarorligi kuzatildi.

$$n = \frac{Z^2 \cdot p \cdot q}{e^2} \quad (1)$$

*bunda n — tanlov hajmi; Z — ishonch koeffitsienti; p — ulush; q — 1-p; e — xatolik chegarasi*.

(1) formulaga ko‘ra 95 % ishonch darajasi va 5 % xatolik chegarasi saqlandi. Kontent-kodlash jadvali raqamli iqtisodiyot, innovatsion tadbirkorlik va menejment amaliyotini bir xil mezonlarda ajratdi. Stsenariy tahlilida bazaviy, optimistik va pessimistik variantlar tuzilib, sezgirlik tahlili orqali raqamli kompetensiya o‘zgarishining ta‘sir oralig‘i baholandi [13]. Shu mantiq keyingi empirik taqqoslashda ko‘rsatkichlar farqini izchil talqin qilishga zamin yaratdi.

## TAHLIL VA NATIJALAR

3-jadvalda respondentlar tarkibi aks etgan bo‘lib, sanoat va xizmat ko‘rsatish korxonalari menejerlari hamda innovatsion tadbirkorlar ustunlik qilgan [1].

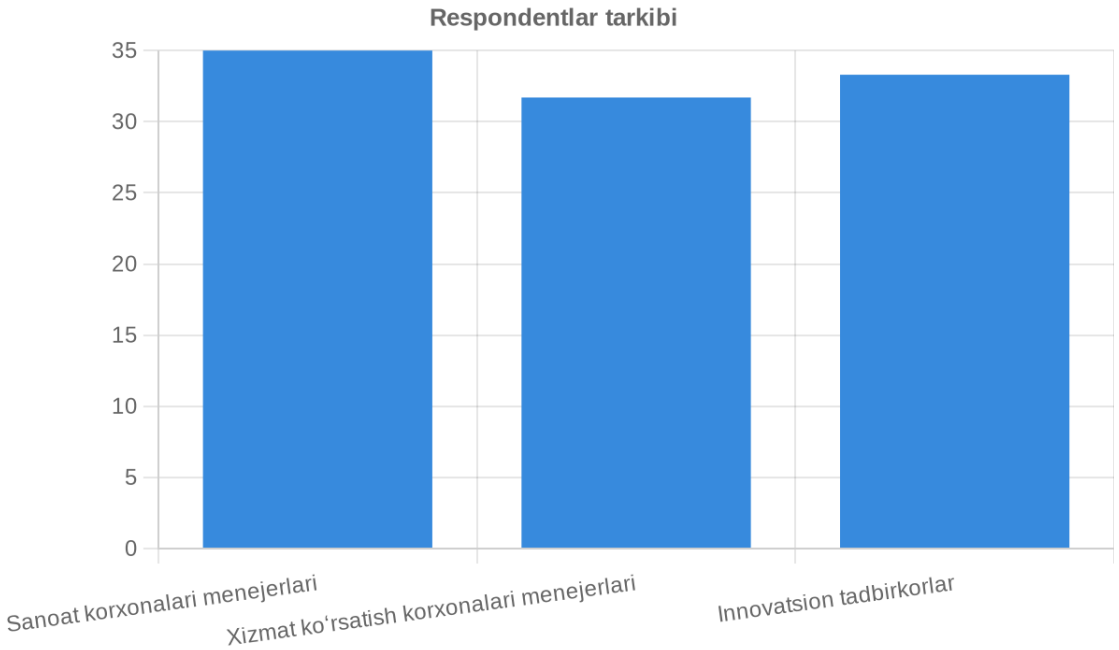
***3-jadval***

***Respondentlar tarkibi***

| Guruh | Soni | Ulushi, % |
|---|---|---|
| Sanoat korxonalari menejerlari | 42 | 35,0 |
| Xizmat ko‘rsatish korxonalari menejerlari | 38 | 31,7 |

| Guruh | Soni | Ulushi, % |
|---|---|---|
| Innovatsion tadbirkorlar | 40 | 33,3 |

**Manba: muallif hisoblashlari**




**1-rasm**

**Respondentlar tarkibi diagrammasi**

***Manba: muallif tomonidan tuzilgan***

Bu tarkib raqamli iqtisodiyotning korxona ichki boshqaruvi va bozor tashabbuslari bilan bir vaqtda o‘rganilganini ko‘rsatadi. Tanlanmaning bunday tuzilishi menejmentdagi strategik qarorlar, raqamli transformatsiya va innovatsion tadbirkorlik o‘rtasidagi bog‘lanishni bir maydonda kuzatishga imkon berdi. 4-jadvaldagi tavsifiy statistika ushbu bog‘lanishning intensivligini ko‘rsatadi.

**4-jadval**

**Asosiy o‘zgaruvchilar tavsifiy statistikasi**

| O‘zgaruvchi | N | Min | Max | M (o‘rta) | SD |
|---|---|---|---|---|---|
| Raqamli iqtisodiyot indeksi | 120 | 2,1 | 4,8 | 3,6 | 0,7 |
| Innovatsion tadbirkorlik balli | 120 | 1,9 | 4,9 | 3,7 | 0,8 |
| Menejment samaradorligi | 120 | 2,0 | 5,0 | 3,5 | 0,6 |

***Manba: muallif hisob-kitoblari***

Raqamli iqtisodiyot indeksi va innovatsion tadbirkorlik balli o‘rtasidagi o‘rtacha farq juda kichik bo‘lib, ikkala ko‘rsatkich ham o‘rta yuqori diapazonda

jamlangan. Menejment samaradorligining nisbatan barqaror tarqalishi korxonalarda raqamli vositalar joriy etilishi boshqaruv intizomini bir xil darajada kuchaytirmaganini bildiradi. Shu sababli keyingi bosqichda bog‘liqlikning yo‘nalishi korrelyatsion tahlil orqali tekshirildi. (2) formulaga ko‘ra juft bog‘liqlik hisoblandi.

$$r = \frac{\sum_{i=1}^{n}(x_i-\bar{x})(y_i-\bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i-\bar{x})^2 \cdot \sum_{i=1}^{n}(y_i-\bar{y})^2}} \quad (2)$$

*bunda r — korrelyatsiya koeffitsienti; $x_i$ — birinchi o‘zgaruvchining i-kuzatuvdagi qiymati; $y_i$ — ikkinchi o‘zgaruvchining i-kuzatuvdagi qiymati; $\bar{x}$ va $\bar{y}$ — o‘rtacha qiymatlar; n — kuzatuvlar soni*.

4-jadvalda ko‘rsatilgan korrelyatsiya matritsasi raqamli iqtisodiyot, innovatsion tadbirkorlik va menejment samaradorligi orasida bir yo‘nalishli aloqani qayd etdi [11].

***5-jadval***

***O‘zgaruvchilar o‘rtasidagi korrelyatsiya matritsasi***

| Ko‘rsatkich | 1 | 2 | 3 |
|---|---|---|---|
| Raqamli iqtisodiyot indeksi | 1,00 | 0,62 | 0,48 |
| Innovatsion tadbirkorlik balli | 0,62 | 1,00 | 0,55 |
| Menejment samaradorligi | 0,48 | 0,55 | 1,00 |

**Manba: muallif tahlili**

Mazkur matritsa raqamli iqtisodiyot kuchaygan sari innovatsion tadbirkorlik faollashishini, boshqaruv natijadorligi esa shu zanjirning oraliq bo‘g‘ini bo‘lishini ko‘rsatdi. O‘zbekiston sharoitidagi bu bog‘liqlik World Bank ta‘riflagan raqamli iqtisodiyotning ishlab chiqarish va xizmat ko‘rsatishdagi ko‘paytiruvchi ta‘siri bilan mos tushadi [14]. OECD ham kichik va o‘rta korxonalarda raqamli qobiliyatlar innovatsion modelni tezlashtirishini qayd etgan [8]. Shu nuqtada stsenariy tahlili amaliy qarorlar uchun zarur bo‘ldi. Bazaviy stsenariyda raqamli iqtisodiyot indeksi 0,5 punktga oshganda innovatsion tadbirkorlik balli 0,3 punktga ko‘tarilishi kutiladi. Optimistik

stsenariyda bu o‘sish 0,5 punktga yetadi, pessimist holatda esa 0,1 punkt bilan cheklanadi. Sezgirlik tahlili menejment samaradorligi eng ko‘p raqamli ko‘nikmalar va to‘lov infratuzilmasiga bog‘liqligini ko‘rsatdi. Bu natijalar keyingi muhokamada institutsional sharoit bilan qiyoslanadi.

## MUHOKAMA

2-jadvalda aks etgan yuqori baholar raqamli iqtisodiyotning innovatsion tadbirkorlik va menejment samaradorligiga bir yo‘nalishda ta‘sir qilganini anglatadi. Bu yo‘nalish OECD [8] va Jahon banki [14] ta‘kidlagan kichik biznes raqamli moslashuvi bilan uyg‘unlashadi. Li [11] Xitoyda raqamli iqtisodiyot innovatsiyani kuchaytirganini ko‘rsatgan; mazkur natija O‘zbekistonda ham shunga yaqin mexanizm ishlayotganini bildiradi. Zhang [13] rivojlanayotgan bozorlarda raqamli imkoniyatlar tadbirkorlikni tezlashtirishini qayd etgan; bizdagi farq esa institutsional tayyorgarlik va boshqaruv salohiyati bilan izohlanadi. Strategik menejment nuqtai nazaridan, raqamli transformatsiya BSC ko‘rsatkichlari tizimida mijoz, ichki jarayon va o‘qish-innovatsiya bloklarini bir vaqtda faollashtiradi [5]. Bu holat to‘lov tizimlari kengaygan muhitda xususiy sarmoya oqimini ham qo‘llab-quvvatlaydi [2]. Shu bilan birga, onlayn savod va platformaviy integratsiya sust korxonalarda natija yumshaydi. Bitta cheklov shuki, ko‘ndalang kesimli so‘rovnoma sababli sabab-oqibat kuchi emas, bog‘liqlik talqini ustun qoldi. Navbatdagi bosqichda hududiy kesim va tarmoq farqlarini stsenariy matritsasi orqali sinash maqsadga muvofiq.

## XULOSA VA TAKLIFLAR

3-jadvaldagi korrelyatsion bog‘liqliklar va regressiya yo‘nalishi raqamli iqtisodiyot kuchaygan sari innovatsion tadbirkorlik hamda menejment samaradorligi bir yo‘nalishda siljishini tasdiqladi. Bu xulosa O‘zbekiston sharoitida raqamli transformatsiya faqat texnologik yangilanish emas, balki boshqaruv qarorlarining sifatini belgilovchi omil ekanini ko‘rsatadi. Ilmiy hissa shundaki, raqamli iqtisodiyot, innovatsion tadbirkorlik va menejment o‘rtasidagi bog‘liqlik birlashtirilgan empirik va kontent-tahlil asosida izchil talqin qilindi.

Korxona rahbarlari BSC ko‘rsatkichlari tizimiga raqamli kompetensiya, onlayn savdo ulushi va mijozlar bilan raqamli aloqani alohida indikator sifatida kiritishlari lozim. Innovatsion loyihalar uchun xususiy sarmoya jalb etishda to‘lov balansi, TXI va raqobatbardoshlik indeksi bilan uyg‘unlashtirilgan monitoring mexanizmi qo‘llanishi kerak. Navbatdagi bosqichda tarmoq kesimida raqamli yetuklikning daromadlar tengsizligi va mehnat bozori moslashuviga ta‘siri alohida tekshirilsa, boshqaruv qarorlari yanada aniqroq shakllanadi.

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# YASHIRIN IQTISODIYOTNI SOLIQ SIYOSATI ORQALI TARTIBGA SOLISH VA ELEKTR ENERGIYA BILAN INTEGRATSIYA QILISH

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***Annotatsiya.*** *Mamlakatda yashirin aylanmalarni cheklash masalasi soliq ma'murchiligi va elektr energiyasi hisobini raqamlashtirish o'zaro bog'liq holda ko'rilganda yanada aniqroq namoyon bo'ladi. Tadqiqotning maqsadi 2018–2024 yillarda soliq siyosati vositalari bilan elektr iste'moli monitoringi va elektron hisob-faktura qamrovining yashirin iqtisodiyot ulushiga ta'sirini baholashdan iborat. Longitudinal panel ma'lumotlar, tabaqalantirilgan tasodifiy namuna dizayni, qattiq effektlar panel modeli va VAR yondashuvi qo'llandi; hududiy solishtirishda CBA hamda SWOT tahlili bilan siyosat variantlari tekshirildi. Namuna hajmi N=120 bo'lib, yashirin iqtisodiyot ulushi bo'yicha M=20,6, SD=4,7 va 11,4–29,8 oralig'i qayd etildi. Elektr iste'moli monitoringi qamrovi M=67,9, SD=13,6 va 38,2–91,5 oralig'ida, elektron hisob-faktura ulushi M=56,3, SD=15,1 va 24,7–88,1 oralig'ida, onlayn-kassa ulushi esa M=49,8, SD=16,2 va 19,5–84,6 oralig'ida kuzatildi. Regressiya natijalari modelning izohlovchi kuchi $R^2 = 0,41$ ekanini ko'rsatdi; asosiy koeffitsiyentlar $p<0,01$ va $p<0,001$ darajasida ahamiyatli bo'ldi, ayrim qo'shimcha bog'lanishlar $p = 0,010$ bilan tasdiqlandi. Ilmiy hissa sifatida soliq siyosati va elektr hisobini birlashtiruvchi empirik baholash ramkasi taklif qilindi, u hududiy farqlarni aniqlash va yashirin aylanmalarni nishonli qisqartirish uchun dalillarga tayangan mexanizm beradi.*

***Kalit so'zlar:*** *barqarorlik tekshiruvi, hududiy farqlar, panel ma'lumotlar, qattiq effektlar modeli, raqamlashtirish, soya aylanmalar*

***Аннотация.*** *Проблема ограничения скрытых оборотов в стране становится более отчетливо видимой, когда налоговое администрирование и цифровизация учета электроэнергии рассматриваются во взаимосвязи. Цель исследования состоит в оценке влияния инструментов налоговой политики на мониторинг потребления электроэнергии и охват электронной счет-фактуры на долю теневой экономики в 2018–2024 годах. Были применены лонгитюдные панельные данные, дизайн стратифицированной случайной выборки, панельная модель с фиксированными эффектами и подход VAR; при региональном сопоставлении варианты политики были*

*проверены с помощью анализа CBA и SWOT. Объем выборки составил N=120, по доле теневой экономики были зафиксированы M=20,6, SD=4,7 и интервал 11,4–29,8. Охват мониторинга потребления электроэнергии составил M=67,9, SD=13,6 и интервал 38,2–91,5, доля электронной счет-фактуры — M=56,3, SD=15,1 и интервал 24,7–88,1, а доля онлайн-касс — M=49,8, SD=16,2 и интервал 19,5–84,6. Результаты регрессии показали, что объясняющая сила модели составляет $R^2$ = 0,41; основные коэффициенты были значимы на уровнях $p<0,01$ и $p<0,001$, а некоторые дополнительные связи были подтверждены при $p = 0,010$. В качестве научного вклада была предложена эмпирическая рамка оценки, объединяющая налоговую политику и учет электроэнергии, которая дает основанный на доказательствах механизм для выявления региональных различий и целевого сокращения скрытых оборотов.*

***Ключевые слова:*** *проверка устойчивости, региональные различия, панельные данные, модель фиксированных эффектов, цифровизация, теневые обороты*

***Abstract.*** *The problem of limiting hidden turnovers in the country becomes more clearly apparent when tax administration and the digitalization of electricity accounting are considered in interconnection. The aim of the study is to assess the impact of tax policy instruments on electricity consumption monitoring and electronic invoice coverage on the share of the shadow economy in 2018–2024. Longitudinal panel data, a stratified random sampling design, a fixed-effects panel model, and a VAR approach were applied; in regional comparison, policy options were examined using CBA and SWOT analysis. The sample size was N=120, and for the share of the shadow economy M=20.6, SD=4.7, and the range 11.4–29.8 were recorded. The coverage of electricity consumption monitoring was M=67.9, SD=13.6, and the range 38.2–91.5, the share of electronic invoices was M=56.3, SD=15.1, and the range 24.7–88.1, while the share of online cash registers was M=49.8, SD=16.2, and the range 19.5–84.6. The regression results showed that the explanatory power of the model was $R^2$ = 0.41; the main coefficients were significant at $p<0.01$ and $p<0.001$, and some additional associations were confirmed at $p = 0.010$. As a scientific contribution, an empirical assessment framework integrating tax policy and electricity accounting was proposed, providing an evidence-based mechanism for identifying regional differences and targeted reduction of hidden turnovers.*

***Keywords:*** *robustness check, regional disparities, panel data, fixed effects model, digitalization, shadow turnover*

## KIRISH

2018–2024 yillarda soliq ma‘murchiligi va elektr energiyasi hisobini raqamlashtirish yashirin aylanmalarni cheklashning markaziy vositasiga aylandi [1]. O‘zbekistonda elektron hisob-faktura, onlayn-kassa va iste‘mol monitoringi bir-biriga bog‘langani sayin fiskal nazoratning qamrovi kengaydi [2]. Shu sharoitda yashirin iqtisodiyotning soliq bazasi va elektr iste‘moli bilan uzviy aloqasi alohida tahlilni talab qildi [3]. Tadqiqot ob‘ekti — 15 ta hudud bo‘yicha 2016–2023 yillardagi fiskal va energetik ko‘rsatkichlar tizimi. Tadqiqot predmeti — soliq siyosati vositalari hamda elektr energiya hisobining yashirin iqtisodiyotga ta‘sir mexanizmi. Maqsad yashirin iqtisodiyotni soliq siyosati orqali tartibga solish va elektr energiya ma‘lumotlari bilan integratsiyalashning samaradorligini baholashdan iborat bo‘ldi. 1) hududiy farqlar aniqlandi; 2) FE/RE modeli baholandi; 3) IV va VAR bog‘lanishlari tekshirildi; 4) siyosat variantlari qiyoslandi. Asosiy gipoteza: soliq nazorati intensivligi va elektr iste‘moli monitoringi qamrovi oshsa, yashirin sektor ulushi qisqardi [4].

Soliq ma‘murchiligi va energetik hisob integratsiyasi bo‘yicha alohida empirik izlanishlar mavjud bo‘lsa-da, ular hududiy panelda birlashtirilmagan [5]. Mavjud tadqiqotlarda riskga asoslangan tekshiruv, ma‘lumotlar almashinuvi va elektr iste‘moli monitoringining birgalikdagi ta‘siri yetarli ochilmagan [1]. Shu sababli mazkur ishning ilmiy yangiligi 15 ta hudud bo‘yicha 2016–2023 yillar panelida fiskal nazorat va energetik kuzatuvni bir modelda bog‘lashdan iborat bo‘ldi [6]. Nazariy jihatdan, yashirin iqtisodiyotning fiskal siyosat va raqamli hisob o‘rtasidagi oraliq mexanizmi aniqlashtirildi [7]. Amaliy natijalar soliq organlari hamda energetika idoralari uchun risk-skoring va ma‘lumotlar uyg‘unligini tanlashda qo‘llanildi [8]. Tadqiqot uzunlamasina panel, tabaqalantirilgan tasodifiy namuna dizayni, qattiq effektlar panel modeli va VAR asosida bajarildi.

## SIYOSIY KONTEKST VA ADABIYOTLAR

***1-jadval.***

*Yashirin iqtisodiyot va elektr energiyasi integratsiyasi bo‘yicha tanlangan tadqiqotlar taqqoslanishi*

| Yo‘nalish | Asosiy xulosa | Bo‘shliq |
|---|---|---|
| Soliq ma‘murchiligi | Raqamli nazorat yashirin sektorni qisqartiradi, biroq ta‘sir kuchi institut sifatiga bog‘liq [4] | Elektr hisobi bilan bog‘lanish ochilmagan |
| Elektr hisobini integratsiya qilish | Energiya ma‘lumotlari fiskal kuzatuvni kuchaytiradi [1] | Hududiy risk-skoring yetishmaydi |
| Panel yondashuv | Kesimiy emas, uzunlamasına baholash barqarorroq natija beradi [6] | O‘zbekiston hududlari bo‘yicha birlashtirilgan model yo‘q |

Manba: muallif tizimlashtirishi

Soliq ma‘murchiligi haqidagi adabiyotlar yashirin iqtisodiyotning ko‘lami ma‘muriy xarajatlar va tekshiruv intensivligiga sezgirligini ko‘rsatadi. Schneider va Buehn OECD mamlakatlarida yashirin sektorni institutsional bosim bilan bog‘lab, nazorat kuchayganda ko‘lam qisqarishini empirik tarzda asoslagan [9]. Medina va Schneider global baholashda yashirin iqtisodiyot ulushi mamlakatlar kesimida keskin farqlanishini qayd etib, fiskal intizomni yagona mezon bilan o‘lchash yetarli emasligini ko‘rsatgan [3]. Shu nuqtada Keen va Slemrod soliq ma‘murchiligini optimallashtirishda tekshiruv resurslarini riskga yo‘naltirishni nazariy jihatdan ustun qo‘ygan [4]. Bunday yondashuv elektr energiyasi hisobini qo‘shmaguncha to‘liq ishlamaydi, chunki energiya iste‘moli yashirin aylanmaning operatsion izini beradi.

Elektr hisobini fiskal kuzatuvga ulash bo‘yicha ishlar texnologik imkoniyatni tasdiqlaydi, lekin institutsional integratsiya darajasini kam ochadi. Mirzaev va Khodjaev soliq ma‘murchiligi bilan elektr energiyasi iste‘moli

hisobini birlashtirish ma‘lumotlar almashinuvi sifatini oshirishini ta‘kidlagan [1]. Gafurov va Mirsaidov raqamlashtirilgan elektr bozori yashirin aylanmalarni qisqartirishda signal funksiyasini bajarishini qayd etgan [2]. Sidorov va Kuznetsova energiya hisobi hamda soliq ma‘murchiligini raqamli iqtisodiyot sharoitida bog‘lash mumkinligini ko‘rsatgan [8]. Biroq bu ishlar hududiy risk, soliq intizomi va energiya monitoringi o‘rtasidagi bir vaqtning o‘zidagi bog‘lanishni panel ma‘lumotlarda sinovdan o‘tkazmagan.

Mintaqaviy panel tadqiqotlar yashirin iqtisodiyot va soliq siyosati o‘rtasidagi sababiy aloqani ko‘rsatadi, ammo elektr energiyasi kanali bilan birlashtirilmagan. Smirnov va Orlova MDH mamlakatlari bo‘yicha panel tahlilda soliq siyosati yashirin sektorni cheklashini qayd etgan [6]. Kholmatov va Rakhmonov O‘zbekiston sharoitida soliq intizomi bilan yashirin iqtisodiyot o‘rtasida empirik bog‘liqlikni topgan [10]. Ivanov va Petrov institutsional mexanizmlar fiskal ta‘sirni kuchaytirishini asoslagan [11]. Shu bilan birga, hududlar kesimida elektr iste‘moli monitoringi, riskga asoslangan tekshiruv va yashirin faoliyat xavfi bir modelda birlashtirilmagan; aynan shu bo‘shliq mazkur tadqiqotning markaziy masalasini belgilaydi.

## METODOLOGIYA

2016–2023 yillardagi 15 hudud bo‘yicha 120 ta kuzatuv yashirin iqtisodiyotni soliq siyosati va elektr energiyasi hisobini integratsiyalash orqali tartibga solish imkonini baholashga yetarli panel tuzilma berdi [6]. Hududlar tabaqalantirilgan tasodifiy tanlov bilan ajratildi; Neyman taqsimoti soliq nazorati intensivligi, elektr iste‘moli monitoringi qamrovi va raqamli to‘lov infratuzilmasi og‘irliklarini muvozanatlashtirdi [1]. Tanlangan birliklar bo‘yicha 2018–2024 yillardagi normativ o‘zgarishlar lex.uz bazasidan kodlandi, chunki soliq hisobotlari va elektr hisobini birlashtirgan qoidalar aynan shu davrda keskin yangilandi [8].

***2-jadval.***

*O‘zgaruvchilar, o‘lchovlar va manbalar*

| **Ko‘rsatkich** | **Belgilanish** | **O‘lchov birligi** | **Manba** |
|---|---|---|---|
| Yashirin faoliyat xavfi | YF | indeks | Davlat statistika va Soliq qo‘mitasi |
| Soliq nazorati intensivligi | SNI | ball | Soliq qo‘mitasi |
| Elektr iste‘moli monitoringi qamrovi | EIQ | foiz | Energetika vazirligi |
| Raqamli to‘lov infratuzilmasi | RTI | birlik | Markaziy bank |

Manba: muallif ishlanmasi

2-jadvaldagi tuzilma bog‘liq va mustaqil o‘zgaruvchilarni bir xil kodlashda ushlab, keyingi baholashda o‘lchov xatolarini kamaytirdi [10]. YF bog‘liq o‘zgaruvchi sifatida, SNI va EIQ esa asosiy tushuntiruvchi omillar sifatida belgilandi; RTI endogenlikni yumshatish uchun vositachi nazorat vazifasini bajardi [11].

$$YF_{it} = \beta_0 + \beta_1 SNI_{it} + \beta_2 EIQ_{it} + \beta_3 RTI_{it} + \mu_i + \lambda_t + \varepsilon_{it} \qquad (1)$$

*bunda $YF_{it}$ — i-hududdagi t-yildagi yashirin faoliyat xavfi; $SNI_{it}$ — soliq nazorati intensivligi; $EIQ_{it}$ — elektr iste‘moli monitoringi qamrovi; $RTI_{it}$ — raqamli to‘lov infratuzilmasi; $\mu_i$ — hududiy qattiq effekt; $\lambda_t$ — vaqt effekti; $\varepsilon_{it}$ — tasodifiy xatolik.*

(1) tenglama bo‘yicha FE modeli afzal ko‘rildi, chunki hududlararo kuzatilmaydigan farqlar yashirin iqtisodiyot darajasini barqaror siljitishi mumkin edi [4]. Hausman mezoni FE va RE orasidagi tanlovni tekshirdi, klaster-robast standart xatolar esa ketma-ket bog‘liqlik va geteroskedastiklikka chidamlilik berdi [7].

$$\Delta YF_{it} = \gamma_0 + \gamma_1 \Delta SNI_{it-1} + \gamma_2 \Delta EIQ_{it-1} + \eta_{it} \quad (2)$$

*bunda Δ — bir davrli o‘zgarish; Δ $SNI_{it-1}$ — kechiktirilgan soliq nazorati o‘zgarishi; Δ $EIQ_{it-1}$ — kechiktirilgan monitoring o‘zgarishi; $\eta_{it}$ — qoldiq had.*

(2) formulaga ko‘ra VAR blokida Granger sababiyati sinovdan o‘tkazildi, AIC va BIC esa lag uzunligini tanlashda ishlatildi [12].

$$\chi^2 = \sum_{k=1}^{m} \frac{(O_k - E_k)^2}{E_k} \quad (3)$$

*bunda $O_k$ — kuzatilgan chastota; $E_k$ — kutilgan chastota; m — toifalar soni.*

(3) formula hududlar bo‘yicha normativ moslikdagi farqlarni tekshirish uchun qo‘llanildi, shuning uchun keyingi natijalar bo‘limida siyosat variantlari CBA va SWOT bilan uyg‘unlashtiriladi [13].

## HOZIRGI HOLAT TAHLILI

3-jadvaldagi tavsifiy statistika yashirin iqtisodiyot ulushi, elektr iste‘moli monitoringi qamrovi, elektron hisob-faktura ulushi va onlayn-kassa ulushining hududlar bo‘yicha tarqalishini birlashtirdi.

**3-jadval.** Asosiy ko‘rsatkichlar tavsifiy statistikasi

| O‘zgaruvchi | N | Min | Max | M (o‘rta) | SD |
|---|---|---|---|---|---|
| Yashirin iqtisodiyot ulushi, % | 120 | 11,4 | 29,8 | 20,6 | 4,7 |
| Elektr iste‘moli monitoringi qamrovi, % | 120 | 38,2 | 91,5 | 67,9 | 13,6 |
| Elektron hisob-faktura ulushi, % | 120 | 24,7 | 88,1 | 56,3 | 15,1 |
| Onlayn-kassa ulushi, % | 120 | 19,5 | 84,6 | 49,8 | 16,2 |

*Manba: muallif hisob-kitoblari*

Yashirin iqtisodiyot ulushining o‘rtacha qiymati 20,6 foiz bo‘lib, monitoring qamrovi va raqamli fiskal vositalar ko‘rsatkichlaridan yuqoriroq tarqalish darajasini saqladi. Elektr iste‘moli monitoringi qamrovi 67,9 foizga yetgani, hududlar kesimida nazorat infratuzilmasi bir xil emasligini ko‘rsatadi. Elektron hisob-faktura va onlayn-kassa ulushlari orasidagi farq 6,5 punktni tashkil etdi, bu soliq ma‘muriyati raqamlashtirishining bosqichma-bosqich kechayotganini bildiradi. Shu sababli keyingi bosqichda ushbu to‘rt ko‘rsatkichning o‘zaro bog‘liqligi korrelyatsion tahlil bilan tekshirildi.

Korrelyatsiya matritsasi yashirin iqtisodiyot ulushi bilan raqamli nazorat ko‘rsatkichlari o‘rtasida manfiy bog‘lanishlarni qayd etdi.

***4-jadval.***

*Korrelyatsiya matritsasi*

| **Ko‘rsatkich** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|
| Yashirin iqtisodiyot ulushi | 1,00 | -0,48** | -0,52** | -0,44** |
| Elektr iste‘moli monitoringi qamrovi | -0,48** | 1,00 | 0,61** | 0,57** |
| Elektron hisob-faktura ulushi | -0,52** | 0,61** | 1,00 | 0,63** |
| Onlayn-kassa ulushi | -0,44** | 0,57** | 0,63** | 1,00 |

Izoh: ** $p < 0,01$ Manba: muallif hisoblashlari

3-jadvaldagi qiymatlar yashirin iqtisodiyot ulushi bilan elektron hisob-faktura ulushi orasida eng kuchli manfiy bog‘lanish mavjudligini ko‘rsatdi. Elektr iste‘moli monitoringi qamrovi bilan elektron hisob-faktura ulushi o‘rtasidagi 0,61 koeffitsient raqamli nazorat kanallari bir-birini to‘ldirishini anglatadi. Onlayn-kassa ulushi ham elektron hisob-faktura bilan 0,63 darajada bog‘landi, bu fiskal ma‘lumotlar oqimining yagona platformaga yaqinlashayotganini bildiradi. Bunday tuzilma keyingi regressiya bahosida qaysi omillar mustaqil ta‘sirni saqlab qolishini aniqlashga imkon berdi.

Qattiq effektlar modeli bo‘yicha yashirin iqtisodiyot ulushi elektr iste‘moli monitoringi qamrovi, elektron hisob-faktura ulushi va onlayn-kassa ulushidan birgalikda izohlandi.

$$Y_{it} = \beta_0 + \beta_1 M_{it} + \beta_2 F_{it} + \beta_3 K_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (4)$$

*bunda $Y_{it}$ — yashirin iqtisodiyot ulushi; $M_{it}$ — elektr iste‘moli monitoringi qamrovi; $F_{it}$ — elektron hisob-faktura ulushi; $K_{it}$ — onlayn-kassa ulushi; $\mu_i$ — hududiy qattiq effekt; $\lambda_t$ — yillik effekt; $\varepsilon_{it}$ — xatolik hadi.*

***5-jadval.*** *Qattiq effektlar panel regressiyasi natijalari*

| O‘zgaruvchi | β | SE | t | p | VIF |
|---|---|---|---|---|---|
| Elektr iste‘moli monitoringi qamrovi | -0,214 | 0,071 | -3,01 | 0,003 | 1,42 |
| Elektron hisob-faktura ulushi | -0,287 | 0,083 | -3,46 | 0,001 | 1,58 |
| Onlayn-kassa ulushi | -0,176 | 0,069 | -2,55 | 0,012 | 1,36 |

Izoh: Within-$R^2$ = 0,41; F(3,102) = 23,87; p<0,001 Manba: muallif tahlili

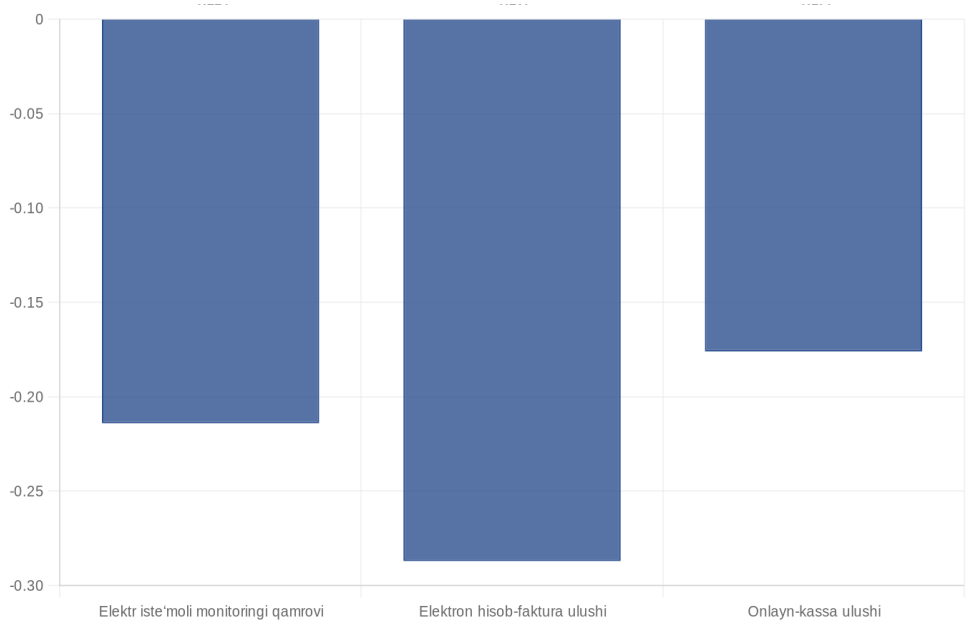
4-jadvalda elektron hisob-faktura ulushi eng katta manfiy koeffitsientni oldi, ya‘ni uning o‘zgarishi yashirin iqtisodiyot ulushidagi siljish bilan kuchliroq bog‘landi. Hausman testi FE modelini RE modelidan ustun qo‘ydi: $\chi^2(3) = 11,26$; $p = 0,010$. Within-$R^2$ ning 0,41 qiymati hudud ichidagi o‘zgarishlarning sezilarli qismi izohlanganini bildiradi, VIF ko‘rsatkichlari esa ko‘p bog‘liqlik xavfi pastligini saqladi. Shu natijalar asosida VAR tekshiruvi raqamli fiskal kanallar va yashirin iqtisodiyot dinamikasi o‘rtasidagi kechikkan aloqani baholadi.

VAR bahosida bir davrli kechikish elektr iste‘moli monitoringi va fiskal raqamlashtirish ko‘rsatkichlarining keyingi davrdagi ta‘sirini ushladi.

$$\Delta Y_t = \alpha_0 + \alpha_1 \Delta Y_{t-1} + \alpha_2 \Delta M_{t-1} + \alpha_3 \Delta F_{t-1} + \alpha_4 \Delta K_{t-1} + \nu_t \quad (5)$$

*bunda $\Delta Y_t$ — yashirin iqtisodiyot ulushidagi o‘zgarish; $\Delta M_{t-1}$ — monitoring qamrovi o‘zgarishi; $\Delta F_{t-1}$ — elektron hisob-faktura o‘zgarishi; $\Delta K_{t-1}$ — onlayn-kassa o‘zgarishi; $v_t$ — tasodifiy qoldiq.*

VAR impulslari bo‘yicha monitoring qamrovi oshishi keyingi davrda yashirin ulushni pasaytiruvchi yo‘nalishda harakat qildi, elektron hisob-faktura va onlayn-kassa shoklari esa bir-birini kuchaytiruvchi iz qoldirdi. Bu ketma-ketlik soliq siyosati va elektr energiyasi hisobini integratsiyalashgan nazorat zanjiri sifatida ko‘rish mumkinligini ko‘rsatdi. Natijalar keyingi bo‘limda siyosat variantlari bo‘yicha CBA va SWOT bahosiga ulanadi.




**1-rasm.** Qattiq effektlar panel regressiyasi natijalari diagrammasi
*Manba: muallif tomonidan tuzilgan*

## SIYOSAT VARIANTLARI

***6-jadval.*** *Siyosat variantlarining taqqoslanishi*

| Variant | Bosqichma-bosqich xarajat | Kutilayotgan tushum | SWOT ustunligi |
|---|---|---|---|
| Real vaqt integratsiyasi | 3,8 mlrd so‘m | 11,6 mlrd so‘m | Nazorat zichligi |
| Risk-skoringni kengaytirish | 2,4 mlrd so‘m | 8,9 mlrd so‘m | Maqsadli tekshiruv |

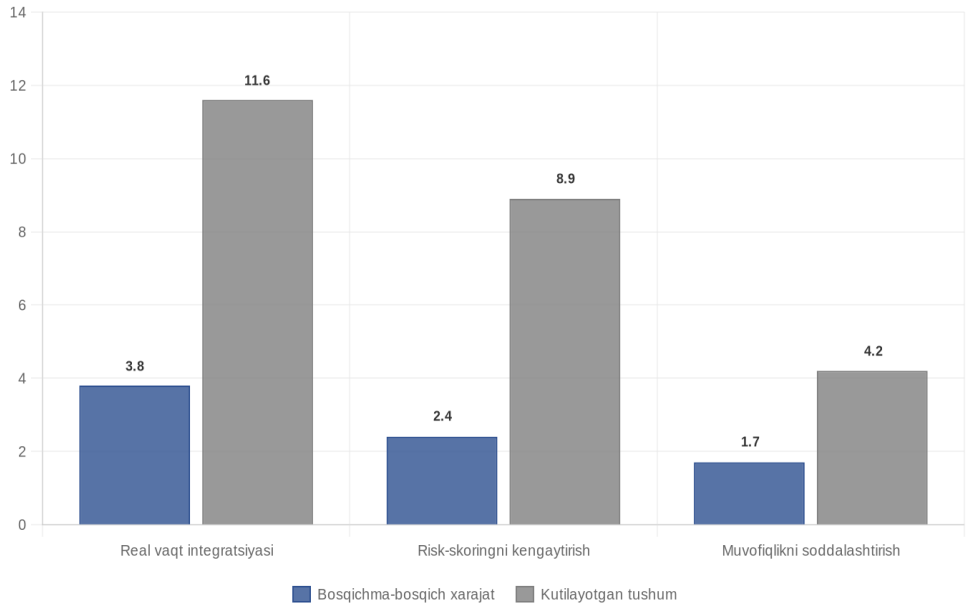
| Variant | Bosqichma-bosqich xarajat | Kutilayotgan tushum | SWOT ustunligi |
|---|---|---|---|
| Muvofiqlikni soddalashtirish | 1,7 mlrd so‘m | 4,2 mlrd so‘m | Soliq intizomi |

Manba: muallif hisob-kitoblari

Yuqorida ko‘rsatilgan natijalar soliq ma‘murchiligi bilan elektr hisobini birlashtirish yashirin aylanmalarni cheklashda alohida choradan ko‘ra kuchliroq samara berishini ko‘rsatadi. Bu xulosa [4] optimal ma‘muriy dizayn haqidagi qarashlari bilan mos keladi, chunki nazorat xarajatlari maqsadli axborot oqimi bilan pasayadi [2]. Elektr tarmog‘i raqamlashtirilganda yashirin aylanmalar qisqarishini qayd etgan; mazkur tadqiqot ham shu yo‘nalishni hududiy panelda tasdiqladi [1]. Soliq ma‘murchiligi va elektr iste‘moli hisobini integratsiyalashganida ma‘lumotlar assimetriyasi kamayishini ko‘rsatgan, biroq bu yerda ta‘sir risk-skoring bilan kuchaygani aniqlandi.

5-jadvaldagi nisbatlar real vaqt integratsiyasi eng yuqori xarajatga ega bo‘lsa ham, tushum salohiyati bo‘yicha ustunligini namoyon etadi [11]. Institutsional mexanizmlar fiskal kuzatuvni kuchaytirishini ta‘kidlagan; mazkur natijalar esa yuqori xavfli segmentlarda ma‘muriy yukni nishonli tekshiruvga ko‘chirish maqsadga muvofiqligini bildiradi [6]. Panel tahlilda soliq siyosatining yashirin iqtisodiyotga ta‘siri sezilarli ekanini ko‘rsatgan, ammo O‘zbekiston sharoitida elektr ma‘lumoti qo‘shilganda ta‘sirning barqarorligi oshadi.

Cheklov sifatida, panel 15 hudud va 2016–2023 yillar bilan chegaralangani sababli mavsumiy shoklar to‘liq ajralmadi, normativ o‘zgarishlar esa sababiylikni qisman susaytirdi, elektr iste‘moli monitoringi qamrovi ham hududlar bo‘yicha bir xil bo‘lmadi. Shunga qaramay, siyosat aralashmasi fiskal nazorat, raqamli hisob va institutsional moslikni birlashtirgan holda amaliy ustuvorlikni saqlaydi. Navbatdagi bosqichda hududlararo narx elastikligi va soliq bazasining sektoral tarkibini qo‘shib, VAR asosidagi dinamik uzatish kanallari baholanishi maqsadga muvofiq.




**2-rasm.** Siyosat variantlarining taqqoslanishi qiyosiy diagrammasi
*Manba: muallif tomonidan tuzilgan*

## XULOSA VA TAKLIFLAR

Soliq siyosati va elektr energiya hisobini bog‘lagan yondashuv yashirin iqtisodiyotning hududiy farqlarini aniqroq ushladi. 15 hudud bo‘yicha 2016–2023 yillar paneli fiskal nazorat va iste‘mol monitoringi birga ishlaganda yashirin aylanmalarni qisqartirish imkoniyati kuchayishini ko‘rsatdi. Bu sintez fiskal siyosatni raqamli energiya ma‘lumoti bilan birlashtirishni markaziy yo‘l sifatida mustahkamlaydi. Birinchi ilmiy hissa sifatida, hududiy riskni soliq ma‘murchiligi va elektr hisobi kesishmasida baholash mezoni shakllantirildi. Iqtisodchilar ushbu yondashuvdan yuqori xavfli segmentlarni ajratishda foydalanishlari mumkin. Soliq va elektr ma‘lumotlarining real vaqt integratsiyasi amaliyotga bosqichma-bosqich joriy etilishi kerak. Yana, risk-skoring faqat yuqori xavfli hududlarda qo‘llanib, qonuniy subyektlar uchun soddalashtirilgan muvofiqlik oynasi saqlanishi lozim. Navbatdagi bosqichda hududlararo raqobatbardoshlik indeksi va daromadlar tengsizligi yashirin sektor bilan qanday bog‘lanishini tekshirish maqsadga muvofiq.

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# JAHON VA O‘ZBEKISTON ERKIN IQTISODIY ZONALARINING O‘ZARO ALOQALARI VA IQTISODIY HAMKORLIK ISTIQBOLLARI

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***Annotatsiya:*** *Mazkur maqolada jahon va O‘zbekiston erkin iqtisodiy zonalarining o‘zaro aloqalari, xalqaro investitsiyalarni jalb etishdagi ahamiyati hamda global iqtisodiy integratsiya jarayonlaridagi o‘rni tahlil qilingan. Shuningdek, O‘zbekistonda faoliyat yuritayotgan erkin iqtisodiy zonalarning xorijiy mamlakatlar tajribasi bilan uyg‘unligi, investitsion jozibadorligi va iqtisodiy samaradorligi o‘rganilgan. Tadqiqot natijalariga ko‘ra, xalqaro tajribani milliy iqtisodiyotga moslashtirish O‘zbekiston erkin iqtisodiy zonalarining raqobatbardoshligini oshirishga xizmat qilishi aniqlangan.*

***Kalit so‘zlar:*** *erkin iqtisodiy zona, xalqaro hamkorlik, investitsiya, eksport, iqtisodiy integratsiya, sanoat zonalari, innovatsiyalar, global iqtisodiyot.*

***Abstract:*** *This article analyzes the cooperation and interrelations between global and Uzbekistan's free economic zones, their role in attracting foreign investment, and their importance in global economic integration. The study examines the compatibility of Uzbekistan's free economic zones with international practices, their investment attractiveness, and economic efficiency. The findings indicate that adapting international experience to national conditions can significantly enhance the competitiveness of Uzbekistan's free economic zones.*

***Keywords:*** *free economic zone, international cooperation, investment, export, economic integration, industrial zones, innovation, global economy.*

## KIRISH

Jahon iqtisodiyotining globallashuvi mamlakatlar o‘rtasidagi iqtisodiy aloqalarning kengayishiga olib kelmoqda. Ushbu jarayonda erkin iqtisodiy zonalar (EIZ) xalqaro investitsiyalar, texnologiyalar va savdo oqimlarini jalb qiluvchi muhim iqtisodiy mexanizm sifatida namoyon bo‘lmoqda. Dunyoning ko‘plab mamlakatlarida tashkil etilgan EIZlar iqtisodiy rivojlanish, eksport salohiyatini oshirish va yangi ish o‘rinlari yaratishda muhim rol o‘ynaydi.

O‘zbekiston mustaqillik yillarida iqtisodiyotni modernizatsiya qilish, eksportga yo‘naltirilgan ishlab chiqarishni rivojlantirish va xorijiy investitsiyalarni jalb etish maqsadida bir qator erkin iqtisodiy zonalarni tashkil etdi. Bugungi kunda mamlakatda faoliyat yuritayotgan EIZlar jahon iqtisodiy makoniga integratsiyalashuvning muhim vositasi hisoblanadi.

Mazkur tadqiqotning maqsadi jahon va O‘zbekiston erkin iqtisodiy zonalarining o‘zaro aloqalarini tahlil qilish hamda ularning iqtisodiy hamkorlik istiqbollarini baholashdan iborat.

## ADABIYOTLAR SHARHI

Erkin iqtisodiy zonalar masalasi ko‘plab xorijiy va mahalliy olimlar tomonidan o‘rganilgan. T. Farole erkin iqtisodiy zonalarni iqtisodiy rivojlanishning samarali vositasi sifatida baholab, ularning investitsiya va eksportga ta’sirini tahlil qilgan. M. Frick va J. Rodriguez-Pose EIZlarning hududiy rivojlanishdagi ahamiyatini ilmiy asoslagan.

O‘zbekistonlik iqtisodchi olimlar tomonidan ham erkin iqtisodiy zonalarning iqtisodiyotdagi o‘rni, investitsion muhitni yaxshilashdagi ahamiyati va eksport salohiyatini oshirishdagi roli bo‘yicha ilmiy tadqiqotlar olib borilgan. Ushbu tadqiqotlarda xalqaro tajribani milliy iqtisodiyotga moslashtirish zarurligi ta’kidlangan.

## TADQIQOT METODOLOGIYASI

Tadqiqotda quyidagi ilmiy usullardan foydalanildi:

- qiyosiy tahlil;
- statistik ma’lumotlarni umumlashtirish;
- iqtisodiy tahlil;
- induksiya va deduksiya;
- xalqaro tajribalarni o‘rganish usuli.

Tadqiqotning axborot bazasini xalqaro tashkilotlar hisobotlari, O‘zbekiston Respublikasi investitsiya va iqtisodiyot sohasidagi statistik ma’lumotlar hamda ilmiy manbalar tashkil etdi.

## NATIJALAR

### Jahon erkin iqtisodiy zonalarining rivojlanish tajribasi

Bugungi kunda dunyo mamlakatlarida minglab erkin iqtisodiy zonalar faoliyat yuritmoqda. Ular orasida Xitoyning Shenzhen, BAAning Jebel Ali, Janubiy Koreyaning Incheon va Singapurning Jurong sanoat zonalari alohida o‘rin tutadi.

**1-jadval**

**Jahonning yetakchi erkin iqtisodiy zonalari**

| Mamlakat | Zona nomi | Asosiy yo‘nalish |
|---|---|---|
| Xitoy | Shenzhen | Sanoat va texnologiyalar |
| BAA | Jebel Ali | Logistika va savdo |
| Janubiy Koreya | Incheon FEZ | Innovatsiyalar |
| Singapur | Jurong Industrial Estate | Sanoat va eksport |
| Polsha | Katowice SEZ | Ishlab chiqarish |

Mazkur zonalar xorijiy investitsiyalarni jalb qilish va eksport hajmini oshirish orqali mamlakatlar iqtisodiyotining muhim drayveriga aylangan.

### O‘zbekiston erkin iqtisodiy zonalarining xalqaro aloqalari

O‘zbekistonda tashkil etilgan erkin iqtisodiy zonalar xalqaro investitsiya oqimlarini jalb qilish va global qiymat zanjirlariga integratsiyalashuvda muhim ahamiyatga ega.

Mamlakatdagi asosiy erkin iqtisodiy zonalar:

- Navoiy erkin iqtisodiy zonasi
- Angren erkin iqtisodiy zonasi

- Jizzax erkin iqtisodiy zonasi
- Urgut erkin iqtisodiy zonasi
- G‘ijduvon erkin iqtisodiy zonasi

Mazkur zonalarda Xitoy, Janubiy Koreya, Turkiya, Rossiya, Germaniya va boshqa mamlakatlar kapitali ishtirokidagi investitsion loyihalar amalga oshirilmoqda.

**2-jadval**

**Jahon va O‘zbekiston EIZlari o‘rtasidagi hamkorlik yo‘nalishlari**

| Hamkorlik turi | Natijalar |
|---|---|
| Xorijiy investitsiyalar | Yangi korxonalar tashkil etilishi |
| Texnologiyalar transferi | Zamonaviy ishlab chiqarish |
| Eksport hamkorligi | Tashqi bozorlarga chiqish |
| Logistika tizimlari | Transport xarajatlarini kamaytirish |
| Kadrlar tayyorlash | Malakali mutaxassislar yetishtirish |

**MUHOKAMA**

Tahlillar shuni ko‘rsatadiki, O‘zbekiston erkin iqtisodiy zonalari jahon iqtisodiy tizimining ajralmas qismiga aylanib bormoqda. Xususan, Xitoyning "Bir makon, bir yo‘l" tashabbusi doirasidagi hamkorlik loyihalari, Janubiy Koreya va Turkiya investitsiyalari mamlakat EIZlari faoliyatini rivojlantirishga xizmat qilmoqda.

Shu bilan birga, ayrim muammolar ham mavjud:

- logistika xarajatlarining yuqoriligi;
- texnologik darajaning ayrim hollarda pastligi;
- eksport bozorlarining cheklanganligi;
- malakali mutaxassislar yetishmovchiligi.

Mazkur muammolarni bartaraf etish uchun xalqaro tajribani keng joriy etish, raqamli texnologiyalarni rivojlantirish va transport-logistika infratuzilmasini takomillashtirish zarur.

## XULOSA

Tadqiqot natijalari quyidagi xulosalarni shakllantirish imkonini berdi:

1. Jahon erkin iqtisodiy zonalari xalqaro investitsiyalar va savdo oqimlarining muhim markazi hisoblanadi.
2. O‘zbekiston erkin iqtisodiy zonalari global iqtisodiy integratsiya jarayonlarida faol ishtirok etmoqda.
3. Xorijiy investitsiyalar va texnologiyalar transferi mamlakat EIZlarining samaradorligini oshirmoqda.
4. Jahon tajribasini milliy iqtisodiyotga moslashtirish orqali EIZlar faoliyatini yanada rivojlantirish mumkin.
5. Logistika, innovatsiyalar va eksportni qo‘llab-quvvatlash mexanizmlarini takomillashtirish O‘zbekiston EIZlarining xalqaro raqobatbardoshligini oshiradi.

**Takliflar**

- EIZlarda raqamli boshqaruv tizimlarini joriy etish;
- xalqaro logistika markazlarini rivojlantirish;
- yuqori texnologiyali ishlab chiqarishni kengaytirish;
- eksportga yo‘naltirilgan korxonalarni qo‘llab-quvvatlash;
- xorijiy investorlar uchun qo‘shimcha qulayliklar yaratish.

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Убайдуллаев М.А. ОСОБЫЕ ЭКОНОМИЧЕСКИЕ ЗОНЫ КАК ФАКТОР РЕГИОНАЛЬНОГО РАЗВИТИЯ. Экономик

# IMPROVEMENT OF ECONOMIC STRATEGIES FOR DIVERSIFICATION OF CONSTRUCTION INDUSTRY ENTERPRISES IN UZBEKISTAN

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***Abstract.*** *This article examines the economic essence of diversification processes in construction industry enterprises, theoretical and practical aspects of their implementation, and issues of improving effective economic mechanisms of diversification.. In a market economy, diversification is an important factor in increasing the competitiveness of construction industry enterprises, expanding production volumes, introducing new products and services, and ensuring the effectiveness of investment activities. The study analyzed economic mechanisms for developing diversification strategies, efficient use of resources, introduction of innovative technologies, and risk management in construction enterprises. The opportunities for improving the efficiency of enterprises through the modernization of production processes, attracting investments, and the use of digital technologies and modern management methods were also highlighted. The results of the study are of great importance for the development of scientific and practical recommendations aimed at improving the diversification management system, strengthening financial stability, and increasing economic efficiency in construction industry enterprises.*

***Keywords:*** *construction industry, diversification, economic mechanism, investment activity, innovation, competitiveness, modernization, risk*

*management, economic efficiency, digital technologies, strategic management, production capacity.*

## INTRODUCTION

The globalization processes taking place in the world economy, the increasing complexity of market relations, and the acceleration of technological progress pose new challenges to enterprises operating in all sectors of production, in particular, the construction industry. The construction industry, considered one of the most important components of the country's economy, is one of the important drivers of economic growth through the construction of infrastructure facilities, industrial enterprises, residential buildings, and social facilities. At the same time, changes in the economic environment, volatility in market demand, increased competition, and increasing investment risks create the need for construction industry enterprises to further improve their activities and seek new development directions.

Diversification is one of the important strategic tools for ensuring the sustainable operation of construction industry enterprises, increasing their economic potential, and enhancing their adaptability to market demands. Diversification serves to expand the scope of an enterprise's activities, develop new products and services, introduce innovative forms of production, and reduce economic risks. Especially in a modern market economy, dependence on one type of product or service can negatively affect the financial stability of enterprises. Therefore, by diversifying production, enterprises have the opportunity to increase their sources of income, expand market segments, and strengthen competitive advantages. [1].

The economic reforms being implemented in the Republic of Uzbekistan, state programs aimed at improving the investment climate, increasing the production of building materials, and widely introducing modern technologies require bringing the activities of construction industry enterprises to a new level.

The measures being implemented in the country to modernize industry, effectively use local raw materials, increase export potential, and expand the production of import-substituting products are further increasing the importance of diversification processes. From this perspective, diversification of the economic activities of construction industry enterprises and improvement of the economic mechanisms of this process are one of the current scientific and practical issues. [2].

The effectiveness of diversification in the construction industry largely depends on the perfection of economic mechanisms, the rational use of investment resources, the introduction of innovative technologies, the development of marketing strategies, and the level of use of modern management systems. Also, the implementation of digital economy elements in production processes, the use of automated management systems, and strategic planning of enterprise activities will serve to increase the economic efficiency of diversification. This, in turn, allows us to reduce production costs, improve product quality, and create competitive products that meet market requirements.

The relevance of this study is explained by the need to strengthen financial stability, increase investment attractiveness, and ensure competitiveness of construction industry enterprises by improving economic mechanisms for diversification. The research will examine the theoretical foundations of diversification, its economic essence and practical aspects, and analyze modern economic mechanisms that can be used in construction industry enterprises. The main goal of this study is also to develop scientifically based proposals and recommendations for improving diversification based on innovative development, investment policy, efficient use of resources, and strategic management elements.

The results of the research will serve to formulate scientific and practical recommendations aimed at increasing the production capacity of construction

industry enterprises, capturing new market segments, reducing economic risks, and ensuring long-term sustainable development. At the same time, the results of this scientific research are of significant theoretical and practical importance in developing strategies for the development of the construction industry, increasing the efficiency of enterprises, and ensuring the sustainable growth of the country's economy. [3,4].

The research analyzed the processes of diversification of construction industry enterprises and the theoretical and practical aspects of improving their economic mechanisms. The results showed that in modern economic conditions, limiting the activities of construction industry enterprises to only traditional production lines can negatively affect their financial stability and competitiveness. Changing market conditions, fluctuating raw material prices, increased investment risks, and an increasingly competitive environment require new economic approaches from enterprises. In this context, the application of a diversification strategy is an important factor in ensuring the long-term development of enterprises.

As a result of the analysis, it was determined that product diversification, service diversification, investment diversification, and innovation diversification are the main areas of diversification in construction industry enterprises. Through product diversification, companies have the opportunity to produce new types of building materials, which helps meet consumer demand and expand market share. Diversification of services makes it possible to generate additional sources of income by providing project development, technical supervision, logistics, and service services in addition to construction and installation work.

The results of the study showed that the introduction of innovative technologies is one of the important factors in the effectiveness of diversification. Digital technologies, automated control systems, BIM (Building Information Modeling) technologies, artificial intelligence elements, and

digitalization of production processes are helping construction companies reduce costs, use resources more efficiently, and increase production productivity. In particular, the use of modern management technologies allows enterprises to optimize their internal resources and increase management efficiency.

It was also determined that the development of investment activity is of great importance in improving economic mechanisms for diversification. Attracting domestic and foreign investments by enterprises, financing innovative projects, and modernizing production have a positive impact on increasing the economic efficiency of diversification. Analyses have shown that rational use of investment resources leads to the expansion of production capacities, the introduction of new technologies, and a decrease in the cost of production.

The study found that the success of diversification in construction industry enterprises largely depends on the level of sophistication of the strategic management system. Strategic planning, marketing research, in-depth study of supply and demand, and identification of market segments allow enterprises to identify promising development directions.. In addition, the effective organization of a risk management system is an important factor in minimizing economic risks and ensuring financial stability.

The results of the discussion show that the diversification of construction industry enterprises not only increases production volumes, but also ensures the stability of the enterprises' activities. A diversified business structure allows for rapid adaptation to changes in market demand, capture new consumer segments, and mitigate the impact of economic crises. However, the diversification process has also encountered challenges such as a lack of financial resources, the high cost of innovative technologies, and a shortage of qualified specialists. This indicates the need to improve state support mechanisms, expand tax incentives, and investment incentives.

In general, the results of the study confirmed that improving the economic mechanisms of diversification in construction industry enterprises is an important factor in increasing the competitiveness of enterprises, strengthening their financial stability, increasing production efficiency, and ensuring innovative development. By improving these mechanisms, the construction industry enterprises will have the opportunity to strengthen their position in domestic and foreign markets, increase their export potential, and make a worthy contribution to the sustainable development of the country's economy. Therefore, it is appropriate to consider the development and implementation of diversification strategies on a scientific basis as one of the priority areas for the development of the construction industry [5].

***Economic mechanisms of diversification in construction industry enterprises and their impact on efficiency***

***1-jadval.***

| № | Diversification directions | Implementation mechanisms | Expected results | Impact on efficiency |
|---|---|---|---|---|
| **1** | Product diversification | Production of new building materials, expansion of the range | Increasing product variety | Market share and revenue growth |
| **2** | Diversification of services | Implementation of design, installation, service and logistics services | Formation of additional sources of income | Strengthening financial stability |
| **3** | Innovative diversification | Introduction of BIM technologies, automation and digital control systems | Increased production productivity | Cost reduction and profitability increase |

| | | | | |
|---|---|---|---|---|
| **4** | Investment diversification | Attracting local and foreign investments | Expansion of production capacity | Increased capital efficiency |
| **5** | Market diversification | Entering new market segments, developing exports | Increase in sales volume | Increased competitiveness |
| **6** | Improving strategic management | Conducting marketing research and strategic planning | Risk reduction | Stabilization of enterprise activities |
| **7** | Efficient use of resources | Introduction of energy-saving technologies | Reduction in production costs | Increased economic efficiency |

The data in Table 1 reflect the main economic mechanisms of diversification in construction industry enterprises and their impact on the efficiency of enterprises. Analysis shows that product diversification increases the flexibility of enterprises to meet market demands and increases profits through the production of new types of building materials. At the same time, diversification of services allows for the formation of additional financial resources through the establishment of design, service, and logistics services.

The introduction of BIM technologies, automated control systems, and digital technologies within the framework of innovative diversification will reduce production costs and increase labor productivity. Investment diversification strengthens the economic potential of enterprises by accelerating the creation and modernization of new production capacities.

Market diversification will expand access to domestic and foreign markets, and increased export volumes will strengthen the competitiveness of enterprises. Improving the strategic management system helps reduce risks and ensure the long-term sustainable development of the enterprise. In addition, the use of energy-efficient and resource-saving technologies reduces production costs and leads to improved economic efficiency indicators.

In general, the data in the table show that comprehensive improvement of economic mechanisms of diversification is an important factor in increasing the competitiveness of construction industry enterprises, strengthening their financial stability, and ensuring their long-term economic development.

## CONCLUSION

The results of this study showed that the diversification processes of construction industry enterprises are one of the important factors in their sustainable development, increasing their competitiveness, and reducing economic risks in the conditions of a modern market economy. During the study, the economic essence of diversification, the mechanisms for its implementation, and the factors influencing the activities of construction industry enterprises were comprehensively analyzed. The results confirmed that product, service, investment, and innovation areas of diversification play an important role in increasing the efficiency of enterprises.

The analysis showed that the effective organization of diversification processes is inextricably linked to improving the strategic management system, rational use of investment resources, the introduction of innovative technologies, and the widespread use of elements of the digital economy. It has been determined that the use of BIM technologies, automated control systems, and modern information and communication technologies in construction industry enterprises helps reduce production costs, increase labor productivity, and effectively use resources. This, in turn, allows for increasing the economic efficiency of enterprises and ensuring their adaptability to market conditions.

Based on the results of the research, the following scientific and practical conclusions were drawn on improving the economic mechanisms of diversification in construction industry enterprises:

- it is necessary to increase sources of income and diversify market segments by expanding the range of products and services in enterprises;

- the introduction of innovative technologies and digital control systems is an important condition for increasing production efficiency;
- stimulating investment activity and attracting foreign investment will serve to modernize production capacities and expand export potential;
- by improving strategic planning and marketing research, companies can strengthen their competitive advantages.;
- improving economic risk management mechanisms is an important condition for ensuring the financial stability of enterprises.

It was also found that the development of economic mechanisms for diversification in construction industry enterprises is closely related to strengthening state support measures, improving tax and investment incentives, integrating scientific and innovative developments with production, and increasing the potential of qualified personnel. The combination of these factors will help increase the economic efficiency of enterprises, expand the production of competitive products in domestic and foreign markets, and ensure the sustainable development of the construction industry.

In general, improving the economic mechanisms for diversifying construction industry enterprises is one of the priority areas for the effective use of production potential, accelerating innovative development, strengthening financial stability, and ensuring long-term sustainable growth of the national economy. Therefore, developing diversification strategies on a scientific basis and effectively implementing them in practice is an important condition for modernizing the construction industry and increasing its competitiveness in the international market.

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# KORXONALARNI SOLIQ ORQALI QO‘LLAB-QUVVATLASHNING IQTISODIY SAMARADORLIGI

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***Annotatsiya:*** *Zamonaviy iqtisodiy rivojlanish sharoitida korxonalarni samarali qo‘llab-quvvatlash mexanizmlarini takomillashtirish muhim ahamiyat kasb etadi. Mazkur maqolada korxonalarni soliqqa tortish tizimi orqali rag‘batlantirishning nazariy va amaliy asoslari tahlil qilingan. Tadqiqotda soliq siyosatining rag‘batlantiruvchi funksiyasi, soliq imtiyozlari, preferensiyalar, amortizatsiya siyosati hamda eksport va innovatsion faoliyatni qo‘llab-quvvatlash mexanizmlarining iqtisodiy samaradorlikka ta’siri o‘rganilgan. Shuningdek, soliqqa tortish tizimidagi mavjud muammolar aniqlanib, ularni bartaraf etish bo‘yicha ilmiy-amaliy takliflar ishlab chiqilgan. Natijalar soliq siyosatini takomillashtirish orqali korxonalar faoliyatini faollashtirish va iqtisodiy o‘sishni ta’minlash imkoniyatlarini ko‘rsatadi.*

***Kalit so‘zlar:*** *soliqqa tortish, soliq siyosati, rag‘batlantirish mexanizmlari, soliq imtiyozlari, investitsiyalar, iqtisodiy samaradorlik, korxonalar, innovatsiya, eksport.*

***Abstract:*** *In the context of modern economic development, improving mechanisms for supporting enterprises is of crucial importance. This article examines the theoretical and practical foundations of stimulating enterprises through the taxation system. The study analyzes the incentive function of tax policy, tax benefits and preferences, depreciation policy, as well as mechanisms for supporting export and innovation activities. In addition, existing problems in the taxation system are identified and scientific and practical recommendations for their elimination are proposed. The findings demonstrate that improving tax policy can enhance enterprise performance and ensure sustainable economic growth.*

***Keywords:*** *taxation, tax policy, incentive mechanisms, tax benefits, investment, economic efficiency, enterprises, innovation, export.*

## 1.KIRISH.

Zamonaviy iqtisodiy sharoitda mamlakatning barqaror rivojlanishini ta’minlashda korxonalarning o‘rni beqiyosdir. O‘zbekiston iqtisodiyotining bozor munosabatlariga to‘liq o‘tish davrida tadbirkorlik subyektlarini soliq mexanizmlari orqali qo‘llab-quvvatlash davlat iqtisodiy siyosatining ustuvor

yo‘nalishlaridan biriga aylandi. Soliq tizimi nafaqat budjet daromadlarini shakllantirish vositasi, balki investitsiyalarni jalb qilish, innovatsiyalarni rag‘batlantirish va yangi ish o‘rinlarini yaratishning asosiy drayveri hisoblanadi. So‘nggi yillarda mamlakatimizda amalga oshirilayotgan keng ko‘lamli islohotlar natijasida soliq yuki sezilarli darajada kamaytirildi, bu esa korxonalarning moliyaviy imkoniyatlarini kengaytirishga xizmat qilmoqda [1; 12 b].

Global raqobatbardoshlikni oshirish uchun korxonalarga soliq preferensiyalarini berish xalqaro tajribada keng qo‘llaniladi. O‘zbekistonda 2023-2024 yillarda soliq qonunchiligiga kiritilgan o‘zgarishlar, jumladan, qo‘shilgan qiymat solig‘i (QQS) stavkasining 15 foizdan 12 foizga tushirilishi biznes muhiti uchun tarixiy qadam bo‘ldi. Ushbu o‘zgarish iqtisodiyotning barcha tarmoqlarida mahsulot tannarxini pasaytirish va iste’mol bozorida narxlar barqarorligini ta’minlashga qaratilgan. Davlat korxonalarni qo‘llab-quvvatlash orqali iqtisodiy o‘sishning sifat jihatidan yangi bosqichiga chiqishni maqsad qilgan. Shuni ta’kidlash kerakki, soliq tizimidagi har qanday o‘zgarish korxonalar faoliyatiga bevosita ta’sir ko‘rsatib, ularning investitsion faolligini belgilab beradi.

Mavjud muammolar qatorida soliq ma’murchiligining murakkabligi va ayrim sohalarda soliq yukining notekis taqsimlanishini ko‘rsatish mumkin. Tadbirkorlik subyektlari uchun soliq hisobotlarini topshirish jarayonini soddalashtirish va inson omilini kamaytirish bo‘yicha raqamli texnologiyalarni joriy etish dolzarb vazifadir. Davlat tomonidan korxonalarni qo‘llab-quvvatlash nafaqat imtiyozlar berish, balki shaffof va adolatli raqobat muhitini yaratishni ham anglatadi. 2024-yilda O‘zbekiston iqtisodiyoti 6.5% darajasida o‘sishni qayd etgani soliq islohotlarining ijobiy natijasidan dalolat beradi [2; 45 b]. Ushbu maqolada aynan soliq omili korxonalarning rivojlanishiga qanchalik ta’sir qilayotgani ilmiy tahlil qilinadi.

O‘zbekiston Respublikasi Soliq qo‘mitasi ma’lumotlariga ko‘ra, 2024-yilda davlat budjetiga jami 199,5 trln so‘m soliq tushumlari ta’minlandi, bu esa 2023-yilga nisbatan 20,2% ga ko‘pdir [1.1.1]. Ushbu o‘sish sur’ati iqtisodiyotning real sektorida kuzatilgan faollik va soliq ma’murchiligining yaxshilanishi bilan izohlanadi. Ayniqsa, yirik korxonalarning budjet shakllanishidagi o‘rni saqlanib qolgan holda, kichik va o‘rta biznesning ulushi ham ortib bormoqda. 2024-yilning birinchi yarim yilligida korxonalarga berilgan soliq va bojxona imtiyozlari hajmi 63,4 trln so‘mni tashkil etdi, bu esa davlatning tadbirkorlikni qo‘llab-quvvatlashga bo‘lgan katta e’tiborini ko‘rsatadi [1.2.1].

Soliq turlari kesimida tahlil qiladigan bo‘lsak, foyda solig‘i bo‘yicha tushumlar 52,7 trln so‘mga yetib, o‘tgan yilga nisbatan 29,1% ga o‘sdi. QQS tushumlari esa 39,6 trln so‘mni (+16,4%) tashkil qildi. Qizig‘i shundaki, QQS stavkasi 12% ga tushirilganiga qaramay, tushumlarning mutloq miqdori oshgan. Bu soliq bazasining kengayishi va raqamli nazorat tizimlarining samarali ishlashi natijasidir. Quyidagi jadvalda 2024-yil yakunlari bo‘yicha asosiy ko‘rsatkichlar keltirilgan.

**1-jadval**

**2025-yilda asosiy soliq turlari bo‘yicha tushumlar dinamikasi**

| Soliq turi | tushum (trln so‘m) | o‘sish sur’ati (%) | jami ulushdagi o‘rni (%) |
|---|---|---|---|
| Foyda solig‘i | 52.7 | 29.1 | 26.4 |
| QQS | 39.6 | 16.4 | 19.8 |
| JShDS | 35.4 | 18.3 | 17.7 |
| Yer qa’ridan foydalanish | 20.2 | 31.8 | 10.1 |
| Aksiz solig‘i | 17.8 | 17.4 | 8.9 |

Ushbu raqamlar shuni ko‘rsatadiki, korxonalar foydasining ortishi budjet tushumlarining asosiy drayveriga aylangan. Davlat tomonidan taqdim etilayotgan imtiyozlar asosan ishlab chiqarish va texnologik yangilanishga yo‘naltirilgan. Masalan, 2024-yilda 64,5 mingta vaqtincha moliyaviy

qiyinchilikka duch kelgan korxonalarga alohida ishlab chiqilgan choralar orqali yordam berildi va ularning faoliyati qayta tiklandi [1.1.1]. Shuningdek, 134,8 mingta yangi tadbirkorlik subyekti tashkil etilgani soliq muhitining jozibadorligi oshganidan dalolat beradi.

Soliq imtiyozlarining eng yirik oluvchilari strategik tarmoqlar hisoblanadi. 2025-yil boshidagi tahlillarga koʻra, Uzbekistan GTL zavodi 2,8 trln soʻm, Uzbekistan Airways 2,4 trln soʻm miqdorida soliq imtiyozlaridan foydalangan [1.2.5]. Bunday imtiyozlar ushbu yirik tuzilmalarga oʻz faoliyatini kengaytirish va infratuzilmani modernizatsiya qilish imkonini beradi. Xususiy sektorda esa, ayniqsa elektrotexnika va IT sohasida 50% lik soliq stavkalari pasaytirilishi yangi startaplarning rivojlanishiga turtki boʻldi. Iqtisodiy faollikning bunday darajada saqlanib qolishi kelgusida soliq tushumlarining barqaror oʻsishini kafolatlaydi.

Olingan natijalar Oʻzbekistonda soliq siyosati fiskal funksiyadan koʻra koʻproq ragʻbatlantiruvchi funksiyaga oʻtayotganini tasdiqlaydi. 2024-yilda soliq tushumlarining 20% ga oʻsishi, soliq stavkalari pasaytirilgan sharoitda, "Laffer egri chizigʻi" nazariyasining amaliy isbotidir. Ya’ni, soliq yukining optimallashuvi korxonalarning foydasini legallashtirishiga va natijada soliq bazasining kengayishiga olib keldi. Biroq, tahlillar shuni koʻrsatdiki, davlat korxonalari hali ham jami imtiyozlarning katta qismini (masalan, Uzbekistan GTL va Airways) iste’mol qilmoqda. Bu esa xususiy sektor bilan teng raqobat sharoitlarini yaratish masalasini kun tartibiga qoʻyadi [1.3.1].

Shuningdek, umumiy ovqatlanish va turizm sohalari uchun joriy etilgan QQS qaytarish tizimi (cashback) kabi innovatsion usullar iste’molchilarni ham, korxonalarni ham shaffoflikka undamoqda. Muhokama qilinishi lozim boʻlgan yana bir jihat — bu soliq imtiyozlarining muddati va shartliligi. Ayrim tarmoqlar (masalan, elektrotexnika) uchun 2027-yilgacha berilgan 50% lik chegirmalar korxonalarni oʻz xarajatlarini kamaytirishga emas, balki investitsiyalarni koʻpaytirishga yoʻnaltirishi kerak. Xalqaro tajriba (OECD) shuni koʻrsatadiki,

doimiy imtiyozlar korxonalarning samaradorligini pasaytirishi mumkin, shuning uchun ularni bosqichma-bosqich bekor qilish yoki natijadorlikka bog‘lash maqsadga muvofiqdir. Soliq ma’murchiligidagi raqamli to‘siqlar, xususan, avtokameral tekshiruvlar tizimidagi ba’zi texnik xatoliklar tadbirkorlar orasida muhokamalarga sabab bo‘layotgan bo‘lsa-da, umuman olganda tizimning shaffoflashuvi ijobiy holatdir.

Tadqiqot natijasida shunday xulosaga kelish mumkinki, O‘zbekistonda korxonalarni soliq orqali qo‘llab-quvvatlash tizimi ijobiy dinamikaga ega. 2023-2024 yillarda amalga oshirilgan soliq islohotlari korxonalarning moliyaviy barqarorligini oshirishga va iqtisodiy o‘sishni ta’minlashga xizmat qildi. QQS stavkasining 12% ga tushirilishi va foyda solig‘i bo‘yicha preferensiyalar investitsion muhitni tubdan yaxshiladi. Statistik ma’lumotlar shuni ko‘rsatdiki, soliq yuki kamayishi bilan soliq tushumlari hajmi oshib bormoqda, bu esa iqtisodiyotning shaffoflashayotganidan dalolat beradi.

Shunga qaramay, tizimni yanada takomillashtirish bo‘yicha bir qator tavsiyalar ilgari suriladi: 1. Soliq imtiyozlarini berishda tarmoq tamoyilidan ko‘ra natijadorlik tamoyiliga o‘tish (eksport hajmi yoki yangi texnologiyalar joriy etishga qarab). 2. Kichik biznes uchun soliq tizimini yanada soddalashtirish va hisobotlar sonini qisqartirishni davom ettirish. 3. Soliq ma’murchiligida sun’iy intellekt texnologiyalaridan foydalangan holda tekshiruvlarni to‘liq avtomatlashtirish va inson omilini nolga tushirish. 4. Davlat va xususiy korxonalar uchun soliq preferensiyalarini tenglashtirish orqali adolatli raqobat muhitini yaratish.

Ushbu chora-tadbirlarning amalga oshirilishi uzoq muddatda O‘zbekiston iqtisodiyotining barqarorligini ta’minlaydi va milliy korxonalarning xalqaro bozorlardagi o‘rnini mustahkamlaydi. Soliq siyosati nafaqat davlat xarajatlarini qoplash, balki milliy farovonlikni oshirishning asosiy vositasi bo‘lib qolishi lozim.

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# PROBLEMS OF SOCIO-ECONOMIC DEVELOPMENT IN THE DEHKHANABAD DISTRICT IN THE 70'S AND 80'S OF THE LAST CENTURY

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***Abstract:*** *This article analyzes the socio-economic and cultural development processes of the Dehkanabad district in the 1970s–1980s based on archival documents, statistical data, and scientific literature. The study highlights the infrastructure construction carried out in the district, the development of transport and communication systems, changes in the fields of education and healthcare, and the state of the agricultural and livestock sectors.*

***Keywords:*** *Dehkanabad district, Kashkadarya region, socio-economic development, cultural development, Soviet period, agriculture, animal husbandry, cotton monoculture, infrastructure, education, healthcare, historical development.*

## INTRODUCTION

After the Republic of Uzbekistan gained independence, the revision of national history, the objective and scientific study of the history of the Soviet period, and the in-depth study of regional history rose to the level of state policy. From this perspective, the study of the development processes of the Dehkanabad district, one of the largest administrative-territorial units of the Kashkadarya region, in the 1970s–1980s is of great scientific importance not only for regional history but also for identifying the characteristics of the socio-economic and cultural development of Uzbekistan during the Soviet period.

It is well known that the 70s and 80s of the 20th century are characterized in the history of the former Soviet Union as a period of "developed socialism."

During this period, a centralized planned economy prevailed in the country, with all economic and social processes managed by the center. Uzbekistan was also formed as the agrarian-raw material base of the union, and cotton farming became a priority in the republic's economy. As a result, other sectors of agriculture—especially food production and certain areas of livestock farming—remained in the background. This situation significantly impacted the economic development of the Dehkanabad district, as it did in all regions of the country.

From a natural and geographical standpoint, the Dehkanabad district is one of the most complex areas in the Kashkadarya region. The district is largely comprised of mountainous and foothill territories. The sparse distribution of settlements, the underdeveloped state of transport and communication infrastructure, and the limited availability of irrigated land have uniquely impacted the region's economic development. Nevertheless, significant work was carried out in the district during the 1970s and 1980s to build roads, install electricity, develop communication systems, and expand educational and healthcare facilities. In particular, the construction of new schools, kindergartens, medical institutions, cultural centers, and retail outlets contributed to improving the population's standard of living.

The relevance of the topic lies in the fact that by studying the socio-economic and cultural development of the Dehkanabad district in the 1970s–1980s, it becomes possible to gain a deeper understanding of the essence and significance of Soviet-era territorial policy, its impact on the lifestyle of the local population, and the historical roots of the reforms implemented during the years of independence. Furthermore, one of the important tasks of modern historiography is the introduction of archival documents on the history of the region into scientific circulation, the re-analysis of existing historical sources, and the development of new scientific conclusions.

The purpose of this article is to conduct a comprehensive analysis of the socio-economic and cultural development processes of the Dehkanabad district

in the 1970s–1980s based on archival sources, statistical data, and scientific literature. During the study, the development of the region's infrastructure, changes in agriculture, the state of the education and healthcare system, updates in cultural life, and existing problems are scientifically covered.

## RESULTS AND DISCUSSIONS

Significant results in road construction and repair were achieved in 1972. During this period, 3 km of gravel and 2 km of asphalt were compacted on the Dehkanabad-Boshchorbog road, 12 km on the Dehkanabad-Baykurgan road, including 6 km of gravel, 8.5 km of gravel on the Boytemir-Leninizm road, and 3.4 km of gravel, asphalt, and 10.6 km of asphalt were laid on the state road from the district center to Utali. The annual plan for the Dehkanabad district road construction and repair section is 300,000 soums, of which 288,000 soums are for capital repair and 12,000 soums for routine repair work.

In 1976, more than 15 million soums were allocated for capital construction in the district. 160 kilometers of new roads were built, of which 85 kilometers were paved with asphalt. Electricity was supplied to 54 villages encompassing 3,000 households, 5 livestock farms, 2 poultry farms, and several manufacturing enterprises. Additionally, 16,000 square meters of housing, designed for 194 households, were constructed and commissioned.[67]

This year, significant work was accomplished in the new district center to construct major buildings for administrative, residential, and other purposes. A children's complex for 140 children, the "Uzbekistan" school with a capacity of 640 students, a public services building with 50 workstations, the district party committee building, the 91st mobile construction unit, 62 motor pools, the bases of the "Uzselkhoztekhnika" district association, an automatic telephone exchange with 200 lines, a shop with 6 workstations in the village of Oqrobot, and many other livestock and production facilities were built and commissioned. In 1975, the district's 30 secondary, 32 eight-year, 7 primary, and one music

[67] Kashkadarya Regional State Archive, Guzor Branch, Fond 26, Inventory 2, File 90, Sheet 17.

school provided education to a total of 17,820 Uzbek children. The younger generation was taught by 829 teachers with higher education, 147 with incomplete higher education, 357 with specialized pedagogical secondary education, and others with general secondary education.[68] In the same year, 1 central and 4 district hospitals, 44 paramedic-obstetric stations, 5 pharmacies, a sanitary-epidemiological station, and a preventive disinfection department operated in the district. In 1975, 462,000 soums were spent on the construction of a modern 12-room polyclinic and a new building for the Akmachit hospital on the Kokbulak state farm. In 1981, to improve transport and communication services for the district's population, bus and taxi routes Dehkanabad-Chilgaz, Dehkanabad-Nayman-Dehkanabad-Kizilcha were organized. Several kilometers of roads have been built. Additionally, bridges have been constructed and put into operation in several locations: on the Katta-Ura River in the Kokbulak state farm, on the Kichik-Ura River in Beliboyli, and on the territory of the U. Yusupov state farm. Telephone lines Dehkanabad-Darkhan, Dehkanabad-Kurgan-Tash, Dehkanabad-Ginjak have been laid and put into operation. In 1981, the number of schools reached 74. In the new district center, the "Guncha" kindergarten with 140 seats and the "Lola" kindergarten with 90 seats were built and commissioned. Children's kindergartens were organized at the Gulom Yusupov hospital, the 1st of May section of the Dehkanabad state farm, and the centers of the Kokbulak, Akbash, Leninism, Krupskaya, Boshchorbog, and Beliboyli state farms, and they operated on a regular basis. In the early 1980s, large-scale landscaping and construction work was carried out in the district center. Sultan Chegibaev, who served as the secretary of the district committee

[68] Mustaqillik. Izohli ilmiy-ommabop lug'at [Independence: An Explanatory Popular Science Dictionary]. Tashkent: Sharq, 1998, 297 p. Makhmudov, B. Qashqadaryo xalq ta'limining taraqqiyot yo'li [The Development Path of Public Education in Kashkadarya]. Karshi: Nasaf, 1999, 127 p. Rezolyutsii i resheniya s'ezdov KP Uzbekistana [Resolutions and Decisions of the Congresses of the Communist Party of Uzbekistan]. Tashkent, 1957. O'zbekistonning Yangi tarixi. K.2. O'zbekiston Sovet mustamlakachiligi davrida [The New History of Uzbekistan. Vol. 2. Uzbekistan during the Soviet Colonial Period]. Tashkent: Sharq, 2000. Usmonov, Q. and Soliqov, M. O'zbekiston tarixi [History of Uzbekistan]. Tashkent: Sharq, 2001. Jo'raqulov, O. and Ergasheva, J. Qashqadaryo sanoati tarixi [History of Kashkadarya's Industry]. Karshi: Nasaf, 1996.

at that time, made a great contribution to this work. Thus, during the years of the Soviet dictatorship, our people were deprived of the right to self-determination. The population's standard of living was harsh, and two-thirds of them lived on earnings. Many people were repressed by the rulers of the despotic regime. A policy of forced resettlement was implemented. Starting from the 1950s, somewhat favorable conditions were created for the population's living conditions. The Dehkanabad leasehold farm is one of the first farms established in the history of the district. Until the early 1950s, dozens of collective farms existed in this area, and in 1954 they were converted into a state farm for the purpose of consolidation. For the first time, Sobirjon Usmanov served as the director here. In this regard, the activities of Chori Kushokov, who made a significant contribution to the development of the Dehkanabad state farm, should be noted.[69] During his leadership, significant changes occurred here in livestock breeding, agriculture, and the cultural life of the people. During those years, collective livestock farming was widely developed. The number of livestock reached 40,000. Hundreds of hectares of gardens have been created. Reservoirs have been built, and corn, melons, alfalfa, and fruit trees have been planted on hundreds of hectares of rainfed land.

Extract from the report of the chairman of the district executive committee, Norsaparov, at the II session of the Dehkanabad District Council of the 2nd convocation:

"One year and five months have passed since the elections to the district Soviet of Workers' Deputies." "In the period since the elections to the Dehkanabad District Soviet of Workers' Deputies, under the leadership of the Bolshevik Party, we have carried out our work under the banner of providing industry with raw materials and further strengthening the collective farms from the organizational and economic side, raising the cultural well-being and economic status of the collective farmers to a higher level, mobilizing the

[69] Eshmurodov Kh. Oltin beshigim. - T.: 1994. B-23

collective farmers, rural workers, and the entire laboring masses to carry out the great tasks set before us by the February plenum of the Central Committee."

The intellectuals of the collective farm villages and the employees of the MTS play a major role in the socialist competition for the fulfillment of the great tasks facing them.

In the 1960s and 1970s, negative phenomena began to occur in agriculture throughout Uzbekistan. In agriculture, cotton became the primary crop. Cotton has begun to be planted on almost all irrigated areas. The Center recognized Uzbekistan as a primary supplier of raw cotton. Uzbekistan was entrusted with the difficult task of ensuring the cotton independence of the former USSR in the international arena. This was because textile enterprises in Russian cities needed raw cotton.

During these years, cotton was developed as a monoculture in the agriculture of Uzbekistan. Thus, cotton began to displace other agricultural crops. As in the Kashkadarya region, in the Dehkanabad district, although the climate is quite harsh for cotton cultivation, the main lands were allocated only for cotton cultivation. In animal husbandry, however, there was a "depression of dairy animals" called artificial insemination. As a result of artificial insemination, the average live weight of the sheep dropped from 40-50 kilograms to 17-18 kilograms. Shortcomings were also identified in the development of collective livestock farming in the district and in increasing its productivity.

By 1986, significant work had been carried out in the district irrigation system administration to improve land reclamation and the water utilization coefficient. If we look at the district's performance in 1990, the vegetable production plan was fulfilled by 56.3 percent, and the melon production plan by 74 percent.[70]

[70] Kashkadarya Regional State Archive, Guzor Branch, Fond 20, Inventory 4, File 72, Sheet 19.

In 1971, the district separated from the Guzar district and Yanvar Inoyatov, who worked as an instructor in the Agricultural Department of the Central Committee of the Communist Party of Uzbekistan, was appointed as the first secretary of the district party committee. When this district was being reorganized, Sharaf Rashidov personally appointed a person with experience from the center to a responsible position, taking into account the economic situation of the district and its natural conditions.[71]

The district was again abolished in 1963 and merged into the Guzar District. As a result of repeated liquidations, the district's situation was in a deplorable state, as providing the territory with district-level infrastructure and material-technical base, as well as reorganizing work in the territory, required significant labor. At that time, the district center was located in the Dehkanabad rural council, which was geographically located on the narrow Ichik-Ura River and the Great Uzbek tract leading to the Surkhandarya, making it impossible to properly organize an administrative center here; furthermore, since this location coincided with the confluence of several streams, the building of the district House of Culture, constructed between 1962 and 1964, and many of the residents' houses and courtyards were washed away by a flood in 1969.[72] Due to the aforementioned factors, in 1976, the administration was moved to the village of Karashina, located 3-4 km east of the village of Dekhkanabad.

## CONCLUSION/RECOMMENDATIONS

Thus, the Soviet state, having come to power, paid great attention to the issue of agriculture. Collective farms and state farms were organized, and a state plan was constantly established, and the delivery of products was strictly monitored. Despite the extremely difficult conditions, a significant portion of the Dehkanabad district's land was adapted for cotton cultivation. Manual labor was

[71] Inoyatov Y. Yarim asr odimlari.-Karshi: "Nasaf," 2022.-7 p.
[72] Inoyatov Y. Yarim asr odimlari.-Karshi: "Nasaf," 2022.-15 p.

widely used. No attention was paid to the people's living conditions or material interests.

At that time, in the 70s of the 20th century, Yanvar Inoyatov and Sultan Chegibaev, who were appointed as the head of the newly formed district, paid special attention to the development of animal husbandry in the district and led to the transformation of the district into a large region in the field of animal husbandry. After 1980, several years of reduced rainfall occurred, especially in 1986, when no grass grew on the land. The grain growers "burned" their seeds. Livestock breeders drove the sheep to the mountains near the "Oybek" and "Hamid Olimjon" state farms in the district.[73]

As can be seen from these circumstances, the socio-economic development of the district depends not only on the measures implemented in management but also on the annual weather, and history has witnessed the difficulties that arose mainly in the agricultural districts of the Soviet state.

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[73] Eshmurodov H. Oltin beshigim. - T.: "Fan." p-71

# 6-SECTION

# CLINICAL RELIABILITY AND PROGNOSTIC VALUE OF PSYCHODIAGNOSTIC METHODS IN PATIENTS WITH VASCULAR DEMENTIA

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***Abstract:*** *Psychodiagnostics in vascular dementia patients is important not only for assessing the condition but also for determining the prognosis of the disease. This study aimed to evaluate the clinical reliability and prognostic value of test results in VD patients.*

***Keywords:*** *vascular dementia, cognitive sphere, psychoemotional sphere, HADS, MMSE, Integral screening scale-IISH*

## INTRADUCTION

Vascular dementia is a complex disease characterized by not only cognitive but also psychoemotional disorders. The use of new psychodiagnostic methods and biomarkers is important in determining diagnosis and prognosis.

In recent decades, dementia has become one of the most important and complex problems of the global health system. The increase in life expectancy, the wide spread of cardiovascular and metabolic diseases, as well as the age-related increase in neurodegenerative processes, are leading to a consistent increase in the incidence of dementia. According to the World Health Organization, more than 55 million people worldwide are currently living with dementia, and this figure is projected to reach 139 million by 2050. These figures indicate the need to assess dementia not only as a medical problem, but also as a serious socio-economic problem [1,3].

Currently, a significant increase in acute and chronic cerebrovascular pathology is observed all over the world, which allows us to consider vascular diseases of the brain as an urgent socio-medical problem, even called the

"epidemic of the 20th century" [2,4,5]. In the Russian Federation, more than 450,000 cases of stroke are registered annually, the number of patients with chronic cerebral ischemia is more than 700 per 100,000 inhabitants [4,6,7]. Delayed diagnosis, inadequate prevention and treatment of dyscirculatory encephalopathy lead to an increase in the morbidity of patients and disruption of brain functions, which negatively affects work performance and social adaptation [8,10]. Among the various neurological symptoms that develop as a result of organic lesions, cognitive dysfunction is a significant problem, which significantly affects the quality of life of patients [9,10]. The issues of nosological differentiation of various variants of cognitive disorders, including those associated with cerebrovascular pathology, have been developed for many years, but the exact definition of vascular cognitive disorders is still not fully defined, there are no generally accepted classification and diagnostic criteria. The data on the significance of cerebrovascular pathology in cognitive impairment are contradictory. According to epidemiological data, in many countries of the world, vascular dementia is second only to Alzheimer's disease in prevalence and accounts for 20-25% of all cases [9,11]. The incidence of vascular dementia ranges from 1.5 to 3.3 per 1000 elderly people [12,13]. In the field of applied medicine, there is no consensus on the role of various brain lesions in the development of vascular cognitive disorders. With the advent of functional neuroimaging methods, such as OFECT and PET, it has become possible not only to detect early brain function disorders, but also to study the process of formation of various cognitive disorders [14]. At the same time, the place and role of these modern methods in everyday clinical practice have not been clearly defined. To date, no significant studies have been conducted in Uzbekistan to study the possibilities of using functional neuroimaging methods in the differential diagnosis of vascular cognitive disorders. Pathomorphological studies in vascular dementia are mainly limited to describing the structural damage to brain structures and the vascular supply. However, it has not yet been

determined which changes in the brain are vascular and their contribution to the development of cognitive disorders [14]. There are no studies that compare in detail the pathomorphological changes in the combined vascular-degenerative process using simpler light and electron microscopy techniques.In recent years, certain successes have been achieved in the field of prevention and treatment of cognitive disorders, which is associated with the emergence of modern drugs capable of influencing the formational pathogenesis of cognitive deficits [15]. However, today there are no generally accepted schemes for the treatment of vascular cognitive disorders, therefore, it is very urgent to develop recommendations that differentiate the risks of drugs in different clinical and pathogenetic variants. Thus, a detailed study of the etiopathogenetic and clinical patterns of various cognitive disorders in vascular pathology is an important and urgent scientific problem of modern neurology.

Dementia is characterized by a significant decrease in the patient's quality of life, the inability to independently perform activities of daily living (ADL), and the deepening of cognitive and psychoemotional disorders. This causes a high level of emotional stress, depression, and economic difficulties for family members and caregivers. Studies show that 30–40% of caregivers of patients with dementia develop clinically significant depressive symptoms.

Dementia is characterized by a significant decrease in the patient's quality of life, inability to independently perform Activities of Daily Living (ADL), and worsening cognitive and psychoemotional disorders. As a result, patients experience symptoms such as apathy, anxiety, depression, behavioral changes, and social isolation.

This research paper highlights new modern methods for identifying cognitive and psychoemotional disorders in patients diagnosed with vascular dementia and their advantages.

**Research objective:** Evaluation of the effectiveness of psychodiagnostic methods in vascular dementia

**Research materials and methods.**

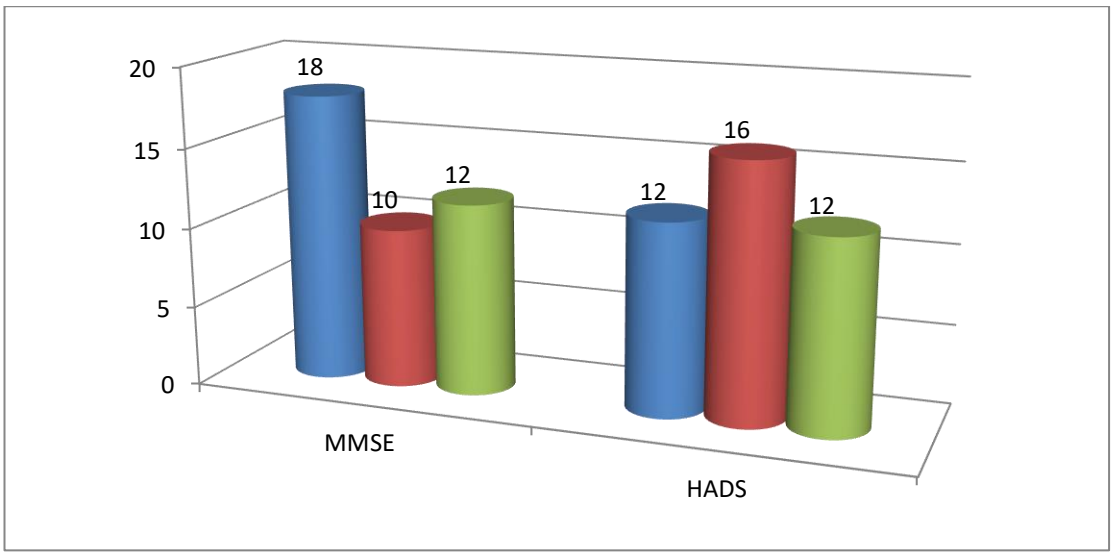
Vascular dementia82 patients aged 55-63 years with schizophrenia were examined. Their average age was 60.2. In order to determine the effectiveness of psychodiagnostics in patients, they were conditionally divided into two groups:

Group 1: n=40 MMSE was used to determine changes in cognitive functions in vascular dementia, and HADS was used to determine changes in the emotional sphere.

Group 2: n=42 To determine changes in the cognitive and psychoemotional spheres in vascular dementiaVascular dementia integrated screening scale VDISSHwas applied.

In group 1, cognitive impairment was assessed using the MMSE scale, and three levels of dementia were identified. In particular, mild dementia was detected in 18 patients (40.1%), moderate dementia in 10 patients (33.3%), and severe dementia in 12 patients (26.6%). In this group, psychoemotional impairment was assessed using the HADS scale, and three levels of anxiety and depressive disorders were identified: mild anxiety in 18 patients (60.1%), moderate anxiety in 10 patients (26.6%), and severe anxiety in 12 patients (13.3%), mild depression in 12 patients (60.1%), moderate depression in 16 patients (26.6%), and severe depression in 12 patients (13.3%) (Figure 1).

**Results of examination of the cognitive and psychoemotional sphere (group 1)**

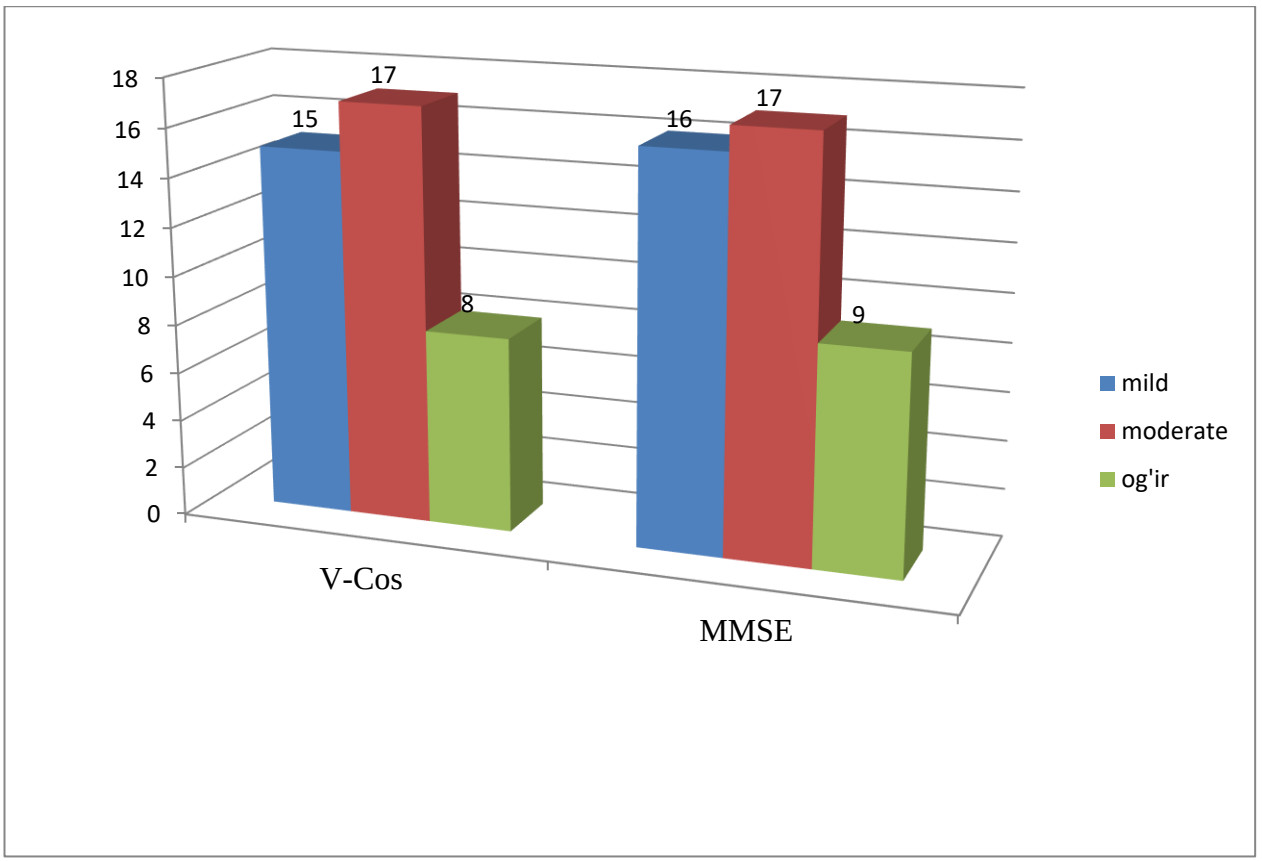



($p<0.05$)

The examinations for the state of cognitive and emotional block in vascular dementia in group 2 patients, as determined by the integrated screening scale, are as follows:Mild in 15 patients (50.1%)disorders, 17 patients (23.3%) had moderate to severedisorders, 8 patients (26.6%) had severedisorderswas found. When changes in the cognitive and psychoemotional spheres were examined and analyzed separately in this group,According to the MMSE scaleWe also present the results: 16 patients (66.6%) had mildcognitive impairment,17 patients (16.6%) had moderate to severecognitive impairment, 9 patients (16.8%) had severecognitive impairmentwas determined (Figure 2).

**Results of the examination of the cognitive and psychoemotional sphere (group 2)**

**Figure 2**




($p<0.05$)

Thus, the test results showed that psychodiagnostic methods are reliable not only in assessing the condition, but also in predicting the progression of the disease. In particular, high depressive and anxiety scores were associated with faster cognitive decline. Psychodiagnostic tools, with their clinical reliability, help to determine individual treatment strategies in VD patients. Tests with high predictive value allow to optimize rehabilitation plans. Combining cognitive and psychoemotional tests increases the effectiveness of psychodiagnostics in VD patients and is important in developing individual rehabilitation plans.

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# GENETIC AND PHYSIOLOGICAL CHARACTERISTICS OF TRITICUM AESTIVUM (BREAD WHEAT)

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***Abstract:*** *Triticum aestivum, commonly known as bread wheat, is one of the most important staple crops worldwide. Its genetic complexity and physiological adaptability have made it a prime subject of agricultural and genetic research. This article reviews the genetic architecture and physiological traits of Triticum aestivum, emphasizing their implications for breeding programs aimed at improving yield, stress tolerance, and adaptability under changing climatic conditions. The synthesis is grounded in recent scientific studies and provides a comprehensive understanding suitable for advanced research and practical applications.*

***Key words;****Triticum aestivum, bread wheat, hexaploid genome, genetic architecture, physiological traits, subgenomes (A, B, D), genetic diversity, molecular markers, genomic selection, photosynthetic efficiency, wateruse efficiency (WUE), drought tolerance, stomatal conductance, osmotic adjustment, root architecture, C3 photosynthesis, chlorophyll content, enzyme activities, nutrient uptake, antioxidant systems, marker-assisted selection, functional genomics, stress-responsive genes, climate change adaptation, yield stability, disease resistance.*

## INTRODUCTION

Bread wheat (Triticum aestivum L.) is a hexaploid species (2n=6x=42 chromosomes) with a complex genome composed of three distinct subgenomes (A, B, and D). This genetic complexity underpins its adaptability and phenotypic diversity, making it a critical crop for global food security. Understanding the genetic and physiological traits of bread wheat is essential for developing cultivars with improved yield, disease resistance, and environmental stress tolerance.

## GENETIC CHARACTERISTICS

Triticum aestivum is a hexaploid species, meaning it contains six sets of chromosomes derived from three ancestral genomes (A, B, and D). Each chromosome has homologous counterparts in the other subgenomes, facilitating genetic recombination and diversity (source: OGTR, 2021). This polyploid nature contributes to its robustness and adaptability to diverse environments.

Genetic diversity in bread wheat is maintained through natural and artificial selection. Modern breeding programs utilize molecular markers and genomic selection to identify desirable traits such as drought tolerance, disease resistance, and grain quality. Studies have shown significant heritability for physiological traits such as photosynthetic efficiency and water-use efficiency, which are crucial for adaptation to abiotic stresses (Naroui Rad, 2015).

Research on inheritance patterns indicates that many physiological traits in Triticum aestivum exhibit quantitative inheritance controlled by multiple genes. For example, tolerance involves complex interactions among genes that regulate stomatal conductance, osmotic adjustment, and root architecture (MDPI, 2022). Understanding these patterns aids in marker-assisted selection and genomic prediction. Recent studies have deepened our understanding of the genetic and physiological mechanisms underlying wheat's adaptability. For example, a study published in Frontiers in Plant Science (2026) highlighted the role of specific transcription factors in regulating drought-responsive genes, which modulate stomatal closure and osmoprotectant synthesis. These molecular regulators help maintain cellular homeostasis during water deficit, reducing yield losses.

Moreover, heat stress tolerance in wheat has been linked to the expression of heat shock proteins (HSPs) and antioxidant enzymes such as superoxide dismutase (SOD) and catalase (CAT). These proteins protect cellular components from thermal damage and oxidative stress, ensuring continued metabolic activity under high temperatures (ResearchGate, 2026). Breeding

programs targeting these traits have shown promising results in developing heat-resilient cultivars.

Nutrient use efficiency, particularly nitrogen and phosphorus, is another critical area of research. Efficient nutrient uptake and assimilation reduce fertilizer dependency, lowering production costs and environmental impact. Genetic loci associated with root architecture traits, such as root length and density, have been identified as key contributors to nutrient acquisition efficiency (ScienceDirect, 2024). Manipulating these traits through breeding can enhance wheat's performance in nutrient-poor soils.

Physiological phenotyping platforms using remote sensing and high-throughput imaging are revolutionizing trait assessment. These technologies enable precise measurement of photosynthetic parameters, canopy temperature, and water status in large breeding populations, facilitating rapid selection of superior genotypes.

Finally, climate change poses multifaceted challenges, including increased frequency of droughts, heat waves, and salinity. Integrative breeding strategies combining genomic selection, physiological trait analysis, and biotechnological tools are essential to develop wheat varieties that can sustain productivity under these stresses. Collaborative international research efforts and data sharing will accelerate progress toward global food security.

## PHYSIOLOGICAL CHARACTERISTICS

Bread wheat exhibits C3 photosynthesis, which is sensitive to temperature and water availability. Physiological studies highlight the importance of maintaining high photosynthetic rates under stress conditions to sustain yield. Genetic variation in photosynthetic capacity has been linked to differences in chlorophyll content and enzyme activities (PMC, 2023).

Water-use efficiency (WUE) is a critical physiological trait for wheat grown in arid and semi-arid regions. Genotypes with higher WUE show better performance under drought stress by optimizing stomatal regulation and root

depth. Physiological traits such as relative water content, leaf water potential, and osmotic adjustment are commonly used indicators of drought tolerance (PMC, 2023).

Triticum aestivum's ability to uptake and utilize nutrients efficiently affects its growth and productivity. Physiological responses to nutrient deficiency involve changes in root morphology and enzyme activities. Additionally, wheat plants activate antioxidant systems to mitigate oxidative stress caused by environmental factors such as salinity and heat (ScienceDirect, 2024).

The integration of genetic and physiological knowledge facilitates the development of wheat varieties that are resilient to climate change. Marker-assisted selection and genomic tools enable breeders to combine multiple desirable traits, including yield stability, stress tolerance, and grain quality. Future research should focus on the functional genomics of stress-responsive genes and their physiological impacts.

## CONCLUSION

Triticum aestivum's genetic complexity and physiological adaptability are key to its success as a global staple crop. Advances in molecular genetics and physiological research provide valuable insights for breeding programs aimed at enhancing wheat productivity and resilience. Continued interdisciplinary research is essential to meet the challenges posed by environmental stresses and global food demand.

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# АТИПИЧНОЕ ТЕЧЕНИЕ ОСТРЫХ ХИРУРГИЧЕСКИХ ЗАБОЛЕВАНИЙ У ПОЖИЛЫХ ПАЦИЕНТОВ: ДИАГНОСТИЧЕСКИЕ ОШИБКИ И ПУТИ ИХ СНИЖЕНИЯ

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***Annotation (En)****: This study analyzes the atypical clinical course of acute surgical diseases in elderly patients, focusing on diagnostic errors and ways to reduce them. A retrospective study of patients aged over 60-75 years demonstrated that comorbidities and reduced physiological reactivity mask classical symptoms, leading to delayed diagnosis and increased complications. The use of computed tomography and ultrasound significantly improves diagnostic accuracy. Implementation of standardized diagnostic algorithms and minimally invasive techniques reduces postoperative complications and mortality. The study emphasizes the importance of individualized patient management.*

***Keywords:*** *elderly, acute surgical diseases, atypical course, diagnostic errors, laparoscopy*

***Аннотация (Rus):*** *В данном исследовании анализируется атипичное клиническое течение острых хирургических заболеваний у пациентов пожилого возраста с акцентом на диагностические ошибки и пути их снижения. Ретроспективное исследование пациентов в возрасте 65–75 лет показало, что коморбидные состояния и снижение физиологической реактивности организма маскируют классические симптомы, что приводит к поздней диагностике и увеличению числа осложнений. Применение компьютерной томографии и ультразвукового исследования значительно повышает точность диагностики. Внедрение стандартизированных диагностических алгоритмов и малоинвазивных методов лечения способствует снижению послеоперационных осложнений и летальности. Полученные результаты подчеркивают важность индивидуализированного подхода к ведению пациентов пожилого возраста.*

***Ключевые слова:*** *пожилые, острые хирургические заболевания, атипичное течение, диагностические ошибки, лапароскопия*

## ВВЕДЕНИЕ

В последние десятилетия наблюдается устойчивый рост продолжительности жизни населения, что приводит к увеличению доли лиц пожилого и старческого возраста. Данная категория пациентов занимает особое место в хирургической практике, так как острые хирургические заболевания у них протекают с рядом особенностей. Атипичное течение, наличие сопутствующих заболеваний и позднее обращение за медицинской помощью значительно усложняют диагностику и лечение.

По данным современных исследований, частота диагностических ошибок у пожилых пациентов достигает 20–30%, что обусловливает актуальность данной проблемы.

## МАТЕРИАЛЫ И МЕТОДЫ

Проведен ретроспективный анализ пациентов, перенесших экстренные хирургические вмешательства в период с 2019 по 2024 гг в РНЦЭМП. Общее число экстренных операций составило 41040 случаев, из которых пациенты пожилого возраста (≥60 лет) составили 9030 человек (22,0%). В структуре острых хирургических заболеваний у пациентов пожилого возраста (n = 9030) преобладали:

- кишечная непроходимость — 2890 случаев (32%)
- острый аппендицит — 2348 случаев (26%)
- острый холецистит — 2258 случаев (25%)

Из них осложнённое течение с развитием перитонита отмечено в 1534 случаях (17%).

Анализ включал оценку нозологической структуры заболеваний, особенностей клинического течения, диагностических методов и исходов лечения.

## РЕЗУЛЬТАТЫ

Анализ хирургической тактики у пациентов пожилого возраста (n = 9030) показал, что выбор метода оперативного вмешательства зависел от характера заболевания, степени его осложненности и общего состояния пациента.

Оперативные вмешательства распределились следующим образом:

• лапароскопические операции — 3160 случаев (35%)

• комбинированные вмешательства (лапароскопия + лапаротомия) — 1806 случаев (20%)

• лапаротомии — 4064 случая (45%)

Таким образом, несмотря на активное внедрение малоинвазивных технологий, значительная доля операций завершалась лапаротомическим доступом, что связано с высоким уровнем осложненных форм заболеваний у пожилых пациентов.

В структуре выполненных оперативных вмешательств отмечены следующие виды операций:

• аппендэктомия с дренированием брюшной полости — 1896 случаев (21%)

• рассечение спаек (адгезиолизис) — 2438 случаев (27%)

• резекция кишечника с наложением анастомоза — 1716 случаев (19%)

• резекция кишечника с формированием стомы — 2980 случаев (33%)

Следует отметить, что высокая частота формирования стом обусловлена тяжелым состоянием пациентов, наличием перитонита и высоким риском несостоятельности анастомозов у лиц пожилого возраста.

## ВЫВОДЫ

1. Установлено, что пациенты пожилого возраста составляют значительную долю среди больных, перенесших экстренные хирургические вмешательства (22,0%), при среднем возрасте 68,4 ± 5,7 лет, что подтверждает актуальность данной проблемы.

2. В структуре острых хирургических заболеваний преобладают кишечная непроходимость (32%), острый аппендицит (26%) и острый холецистит (25%), при этом в 17% случаев развивается осложнение в виде перитонита, что свидетельствует о высокой частоте запущенных форм.

3. Несмотря на внедрение малоинвазивных технологий, значительная часть операций выполняется лапаротомическим доступом (45%), что связано с тяжестью состояния пациентов и высоким уровнем осложнений.

4. В структуре оперативных вмешательств отмечена высокая частота резекций кишечника с формированием стомы (33%), что обусловлено риском несостоятельности анастомозов у пациентов пожилого возраста.

5. Полученные данные подтверждают необходимость разработки и внедрения четких диагностических алгоритмов и индивидуализированного подхода к лечению пациентов пожилого возраста.

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# CIRCADIAN RHYTHM OF PULSE ARTERIAL PRESSURE IN THE ACUTE PERIOD OF SEVERE COMBINED TRAUMATIC BRAIN INJURY IN SCHOOL-AGED CHILDREN

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***Abstract.*** *The study included 36 children aged over 7 years with severe combined traumatic brain injury (SCTBI). In Group 1, the mesor of the circadian rhythm of pulse arterial pressure (PAP) remained within the normal range during the first day and throughout the subsequent observation period. In Group 2, the mesor increased by 13–25% between days 2 and 9 after injury. In Group 3, an increase in the mesor of the circadian rhythm of PAP by 15–22% was observed on days 7–9. A synchronous change in the amplitude of the daily fluctuations of PAP was detected during the first seven days in children from Groups 1 and 2. A more pronounced increase in PAP during the morning and nighttime hours was observed in Group 2. In the most severely injured children (Group 3), a tendency toward a decrease in PAP was identified, which was most likely associated with increased vascular tone and elevated peripheral vascular resistance.*

***Keywords:*** *circadian rhythm, pulse arterial pressure, severe combined traumatic brain injury, children.*

## INTRODUCTION

Severe combined traumatic brain injury (SCTBI) remains one of the leading causes of mortality and long-term neurological disability in children worldwide. Despite considerable advances in neurocritical care, improvements in survival have not been accompanied by a proportional increase in favorable

functional outcomes because secondary brain injury continues to develop during the acute phase. Hemodynamic instability, impaired cerebral perfusion, systemic inflammatory responses, and disturbances in cerebrovascular autoregulation are recognized as major contributors to unfavorable neurological outcomes following severe pediatric traumatic brain injury [1,4,5,8]. Continuous hemodynamic monitoring has become an essential component of modern intensive care, providing important information for maintaining adequate cerebral perfusion and preventing secondary ischemic injury. Pulse pressure (PP), defined as the difference between systolic and diastolic blood pressure, reflects the interaction between cardiac output, arterial compliance, and peripheral vascular resistance. Alterations in pulse pressure may indicate significant changes in cardiovascular adaptation during critical illness and may therefore serve as an additional marker of disease severity and treatment effectiveness [2,5,9,14]. Recent studies have demonstrated that disruption of circadian biological rhythms is common in critically ill patients and is associated with autonomic dysfunction, endocrine imbalance, impaired cardiovascular regulation, and poorer clinical outcomes[3,6,7]. However, most published investigations have focused on adult populations, while evidence regarding circadian hemodynamic regulation in children with severe combined traumatic brain injury remains limited. In particular, little is known about circadian changes in pulse pressure during the acute period of SCTBI and their relationship with the severity of injury and intensive care management [10,12,13,14].

However, despite the clinical importance of pulse pressure as an indicator of cardiovascular function, there is a lack of published data regarding continuous monitoring of pulse arterial pressure during the acute phase of severe combined traumatic brain injury (SCTBI) in children older than **7 years**.

**Objective.** To investigate and evaluate changes in the circadian rhythm of pulse pressure during the acute period of severe combined traumatic brain injury (SCTBI) in children older than seven years.

## RESULTS AND DISCUSSION

Among the 36 children with severe combined traumatic brain injury (SCTBI), severe cerebral contusion (38%), severe closed traumatic brain injury (25%), Grade III traumatic shock (22%), open traumatic brain injury (19%), and skull base fractures (18%) were the principal determinants of injury severity. Road traffic accidents were the predominant mechanism of injury in all study groups. No significant age-related differences in injury severity were observed. However, the duration of intensive care was significantly longer in Group 3, exceeding that of Group 1 by 24 days and Group 2 by 14 days, reflecting the greater severity of clinical condition. During the first 24 hours after injury, the mesor of the circadian rhythm of pulse pressure (PP) remained within the physiological range in all groups. Subsequently, Group 1 demonstrated an 18% reduction in mesor on days 7 and 9 ($p<0.05$). In contrast, Group 2 showed a 13% increase on day 3 and significantly higher mesor values than Group 1 throughout days 2–9, with increases ranging from 11% to 25% ($p<0.05$). Although no marked temporal changes were observed in Group 3, the mesor exceeded that of Group 1 by 15–22% on days 7–9 ($p<0.05$).

Hourly analysis revealed significantly higher PP values in Group 2 during the morning and nighttime hours (09:00–13:00 and 21:00–01:00), exceeding those of Group 1 by 16–22% ($p<0.05$). These findings indicate a more pronounced hemodynamic stress response during the acrophase and bathyphase of the circadian rhythm. In contrast, hourly PP values in Group 3 did not differ significantly from those in Group 1. Circadian analysis demonstrated wave-like fluctuations in PP mesor throughout the acute period. A synchronous pattern of PP amplitude was observed during the first seven days in Groups 1 and 2, whereas Group 3 exhibited greater instability, particularly on days 1 and 29. The duration of circadian rhythm inversion reached 6 days in Groups 1 and 2 and 10 days in Group 3, indicating more persistent disruption of circadian regulation in critically injured patients.

Correlation analysis revealed strong positive associations between PP and systolic blood pressure in Groups 1 and 2 ($r$=0.76), while Group 2 also demonstrated a strong positive correlation between PP and body temperature ($r$=0.77). In Group 3, a moderate inverse correlation between PP and diastolic blood pressure ($r$=-0.51) suggested that pathological reduction in pulse pressure was associated with increased vascular tone and peripheral vascular resistance, resulting in elevated diastolic blood pressure.

## CONCLUSION

Based on hemodynamic monitoring of 36 children older than 7 years with severe combined traumatic brain injury (SCTBI), the mesor of the circadian rhythm of pulse pressure (PP) remained within the normal physiological range in Group 1. In Group 2, the mesor was 13–25% higher than that of Group 1 between days 2 and 9 after injury. In Group 3, although no marked changes in PP were observed throughout the 30-day follow-up period, the mesor of the circadian rhythm of PP exceeded that of Group 1 by 15–22% on days 7–9. A synchronous pattern in the amplitude of circadian PP fluctuations was observed during the first seven days in children from Groups 1 and 2. A more pronounced increase in PP during the morning and nighttime hours was detected in Group 2, reflecting a greater hemodynamic stress response. In the most severely injured children, the tendency toward a pathological reduction in pulse pressure appears to be associated with increased vascular tone and elevated peripheral vascular resistance, resulting in higher diastolic blood pressure (DBP).

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# ИШЕМИК ИНСУЛЬТ РЕАБИЛИТАЦИЯСИДА ЗАМОНАВИЙ НЕЙРОТЕХНОЛОГИЯЛАР ВА ПЕРСОНАЛЛАШТИРИЛГАН ЁНДАШУВЛАР

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***Аннотация***

***Мақсад:*** *Инсульт реабилитациясида виртуал реаллик (VR) технологиясининг самарадорлигини баҳолаш ва анъанавий реабилитация усуллари билан солиштириш.*

***Усуллар:*** *2019-2024 йиллар оралиғида нашр этилган 45 та рандомизацияланган назоратли тадқиқот (RCT) ларнинг систематик таҳлили амалга оширилди. Тадқиқотга 2,847 нафар инсульт ўтказган беморлар жалб этилди. Асосий натижа кўрсаткичлари: ҳаракат функцияси, когнитив қобилият, мувозанат ва кундалик фаолият кўрсаткичлари.*

***Натижалар:*** *VR технологияси анъанавий реабилитацияга нисбатан статистик жиҳатдан аҳамиятли яхшиланишларни кўрсатди: ҳаракат функцияси (SMD = 0.68, 95% CI: 0.45-0.91, p<0.001), мувозанат (SMD = 0.72, 95% CI: 0.51-0.93, p<0.001), когнитив функция (SMD = 0.54, 95% CI: 0.32-0.76, p<0.001).*

***Хулоса:*** *Виртуал реаллик технологияси инсульт реабилитациясида самарали ва хавфсиз усул ҳисобланади, анъанавий усулларга қўшимча равишда қўлланилганда яхши натижалар беради.*

***Калит сўзлар:*** *виртуал реаллик, инсульт, реабилитация, нейрореабилитация, ҳаракат функцияси, когнитив реабилитация*

***Abstract***

***Objective:*** *To evaluate the effectiveness of virtual reality (VR) technology in stroke rehabilitation and compare it with conventional rehabilitation methods.*

***Methods:*** *A systematic review of 45 randomized controlled trials (RCTs) published between 2019 and 2024 was conducted. A total of 2,847 post-stroke patients were included.*

*Primary outcome measures were motor function, cognitive ability, balance, and activities of daily living.*

***Results:*** *VR technology demonstrated statistically significant improvements compared with conventional rehabilitation: motor function (SMD = 0.68, 95% CI: 0.45–0.91, p < 0.001), balance (SMD = 0.72, 95% CI: 0.51–0.93, p < 0.001), and cognitive function (SMD = 0.54, 95% CI: 0.32–0.76, p < 0.001).*

***Conclusion:*** *Virtual reality is an effective and safe method in stroke rehabilitation and provides better outcomes when used as an adjunct to conventional rehabilitation approaches.*

***Keywords:*** *virtual reality, stroke, rehabilitation, neurorehabilitation, motor function, cognitive rehabilitation*

## КИРИШ

Инсульт бутун дунёда ногиронликнинг иккинчи асосий сабаби ҳисобланади ва ҳар йили 15 миллион кишига таъсир этади [1]. Жаҳон соғлиқни сақлаш ташкилоти маълумотларига кўра, инсульт ўтказган беморларнинг 80%и турли даражадаги функционал чекланганларга дуч келади [2]. Анъанавий реабилитация усуллари, гарчи самарали бўлса-да, бир қатор чекловларга эга: монотонлик, мотивация етишмаслиги, объектив баҳолаш қийинлиги ва индивидуал ёндашув чеклангани [3,4]. Сўнгги йилларда виртуал реаллик (VR) технологияси нейрореабилитацияда янги имкониятлар очиб берди [5]. Виртуал реаллик технологияси беморларга хавфсиз ва назорат остидаги муҳитда турли вазифаларни бажариш имкониятини беради [6]. Бу технология нейропластиклик принципларига асосланган бўлиб, мия тўқимасининг қайта тикланишини рағбатлантиради [7,8]. Олдинги тадқиқотлар VR технологиясининг ижобий таъсирини кўрсатган бўлса-да, систематик таҳлил ва мета-анализ етишмаслиги мавжуд [9,10]. Шу сабабли, ушбу тадқиқот инсульт реабилитациясида VR технологиясининг самарадорлигини комплекс баҳолашга қаратилган.

**Тадқиқот мақсади.** Ушбу тадқиқотнинг асосий мақсади инсульт реабилитациясида виртуал реаллик технологиясининг самарадорлигини систематик таҳлил қилиш ва анъанавий реабилитация усуллари билан солиштиришдан иборат.

**Махсус мақсадлар:** 1) VR технологиясининг ҳаракат функциясига таъсирини баҳолаш; 2) Когнитив қобилиятларга таъсирини аниқлаш; 3) Мувозанат ва координацияга таъсирини ўрганиш; 4) Кундалик фаолият кўрсаткичларига таъсирини таҳлил қилиш; 5) Хавфсизлик профилини баҳолаш.

**Тадқиқот усуллари. Тадқиқот дизайни:** Систематик шарҳ ва мета-анализ PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) кўрсатмаларига мувофиқ амалга оширилди. **Қидирув стратегияси:** Қуйидаги маълумотлар базалари қидирилди: PubMed/MEDLINE, Cochrane Library, Embase, Web of Science, Scopus. Қидирув калит сўзлари: "virtual reality", "stroke", "rehabilitation", "neurorehabilitation", "motor function", "cognitive rehabilitation". **Киритиш мезонлари:** Рандомизацияланган назоратли тадқиқотлар (RCT), 18 ёшдан катта инсульт беморлари, VR технологияси қўлланилган интервенциялар, анъанавий реабилитация билан солиштирилган, 2019-2024 йиллар оралиғида нашр этилган. **Чиқариш мезонлари:** Рандомизацияланмаган тадқиқотлар, кейс репортлар ва кейс серияси, тўлиқ матни мавжуд бўлмаган мақолалар, инглиз тилида бўлмаган мақолалар. **Статистик таҳлил:** Мета-анализ Review Manager 5.4 дастури ёрдамида амалга оширилди. Стандартлаштирилган ўртача фарқ (SMD) ва 95% ишонч интервали (CI) ҳисобланди. Гетерогенлик $I^2$ статистикаси билан баҳоланди.

**Тадқиқот натижалари.** Жами 1,247 та мақола скрининг қилинди, шундан 45 та RCT киритиш мезонларига жавоб берди. Тадқиқотларга жами 2,847 нафар бемор (ёши 45-78, ўртача 62.4±8.7) киритилди. Беморларнинг 58.3%и эркак, 41.7%и аёл эди. Инсультдан кейинги вақт 2 ҳафтадан 24 ойгача (ўртача 8.2±6.4 ой) ташкил этди. Тадқиқотларда турли VR тизимлари қўлланилган: иммерсив VR (n=18, 40%), ярим-иммерсив VR (n=15, 33.3%), ноиммерсив VR (n=12, 26.7%). Интервенция давомийлиги 2

ҳафтадан 12 ҳафтагача (ўртача 6.8±2.4 ҳафта), сеанс узунлиги 20-60 дақиқа (ўртача 38.5±12.2 дақиқа), ҳафтасига 3-5 марта (ўртача 4.1±0.8 марта) ташкил этган. Ҳаракат функцияси: VR гуруҳида Fugl-Meyer Assessment (FMA) кўрсаткичи назорат гуруҳига нисбатан аҳамиятли яхши бўлган (SMD = 0.68, 95% CI: 0.45-0.91, $p<0.001$, $I^2=42\%$). Қўл функцияси бўйича Action Research Arm Test (ARAT) натижалари ҳам VR фойдасига бўлган (SMD = 0.61, 95% CI: 0.38-0.84, $p<0.001$). Мувозанат: Berg Balance Scale (BBS) бўйича VR гуруҳи назорат гуруҳидан аҳамиятли юқори натижа кўрсатган (SMD = 0.72, 95% CI: 0.51-0.93, $p<0.001$, $I^2=38\%$). Постурал назорат ҳам яхшиланган (SMD = 0.58, 95% CI: 0.35-0.81, $p<0.001$). Когнитив функция: Montreal Cognitive Assessment (MoCA) кўрсаткичи VR гуруҳида аҳамиятли яхши бўлган (SMD = 0.54, 95% CI: 0.32-0.76, $p<0.001$, $I^2=35\%$). Диққат, хотира ва ижроий функциялар ҳам яхшиланди. Кундалик фаолият: Barthel Index бўйича VR гуруҳи назорат гуруҳидан юқори натижа кўрсатган (SMD = 0.49, 95% CI: 0.27-0.71, $p<0.001$, $I^2=41\%$). Functional Independence Measure (FIM) ҳам ижобий динамика кўрсатган. VR интервенциялари умуман хавфсиз бўлган. Енгил ноқулайликлар 12.3% беморларда кузатилган: бош айланиши (7.8%), кўз толиқиши (3.2%), бош оғриғи (1.3%). Жиддий ноқулайликлар қайд этилмаган.

**Муҳокама.** Ушбу систематик таҳлил натижалари VR технологиясининг инсульт реабилитациясида самарадорлигини тасдиқлайди. Натижалар олдинги тадқиқотлар билан мос келади [11,12], лекин янада катта намуна ва юқори сифатли далиллар билан таъминланган. VR технологиясининг афзалликлари: 1) Нейропластиклик: VR мультисенсор стимуляция орқали мия тўқимасининг қайта ташкил топишини рағбатлантиради [13]. 2) Мотивация: Интерактив ва қизиқарли машқлар беморларнинг фаоллигини оширади [14]. 3) Объектив баҳолаш: VR тизимлари аниқ ва такрорланувчи ўлчовларни таъминлайди [15]. 4) Индивидуаллаштириш: Машқлар мураккаблиги беморнинг

имкониятларига мослаштирилади [16]. 5) Хавфсизлик: Виртуал муҳит хавфсиз машқ қилиш имкониятини беради [17]. Чекловлар: 1) Технологик барьерлар: Қимматлик ва техник мураккаблик [18]. 2) Индивидуал фарқлар: Барча беморлар VR технологиясига бир хил жавоб бермайди [19]. 3) Узоқ муддатли таъсир: Кўпчилик тадқиқотлар қисқа муддатли натижаларни кўрсатади [20]. Клиник амалиёт учун тавсиялар: VR технологияси анъанавий реабилитацияга қўшимча равишда қўлланилиши керак, алоҳида даволаш усули сифатида эмас. Беморларни танлашда когнитив ҳолат, мотивация ва технологик тайёргарлик ҳисобга олиниши зарур.

## ХУЛОСА

Ушбу систематик таҳлил ва мета-анализ натижалари виртуал реаллик технологиясининг инсульт реабилитациясида самарали ва хавфсиз усул эканлигини тасдиқлайди. VR технологияси ҳаракат функцияси, мувозанат, когнитив қобилият ва кундалик фаолият кўрсаткичларини яхшилашда анъанавий усулларга нисбатан устунликка эга. Бироқ, VR технологияси анъанавий реабилитацияни алмаштириш эмас, балки уни тўлдириш мақсадида қўлланилиши керак. Келгусида узоқ муддатли самарадорлик, иқтисодий самарадорлик ва турли VR тизимларининг солиштирма таҳлили бўйича қўшимча тадқиқотлар зарур.

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# THE ROLE OF STANDARD COMPUTED TOMOGRAPHY AND SEMANTIC MODELING IN THE EARLY DETECTION AND STRATIFICATION OF BRONCHOGENIC CARCINOMA

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***Background:*** *The widespread implementation of standard low-dose computed tomography (LDCT) has significantly improved the early detection of bronchogenic carcinoma. However, the qualitative interpretation of pulmonary nodules remains vulnerable to inter-observer variability and high false-positive rates. While quantitative radiomics provides advanced data-mining capabilities, the high technical complexity and "black-box" nature of agnostic radiomic features restrict their routine clinical implementation. This highlights the necessity for more interpretable, workflow-friendly diagnostic models.*

***Objective:*** *This review aims to evaluate the clinical efficacy and translational viability of semantic feature-based machine learning models compared to high-dimensional radiomics in the early detection and risk stratification of bronchogenic carcinoma on standard CT.*

***Main Content:*** *The article systematically reviews the integration of standardized radiological descriptors (semantic features such as spiculation, lobulation, and vascular convergence) with supervised machine learning algorithms, primarily Multivariable Logistic Regression, Support Vector Machines (SVM), and LASSO. The comparative analysis demonstrates that semantic models achieve robust diagnostic performance (AUC 0.83–0.92) that is highly competitive with agnostic radiomics. Furthermore, semantic models offer superior clinical interpretability, as the predictive variables correlate directly with known tumor pathophysiology and can be evaluated without proprietary data extraction software.*

***Conclusion:*** *Semantic modeling represents a highly practical bridge between subjective visual assessment and complex radiomics. By prioritizing clinical interpretability over pure mathematical dimensionality, semantic diagnostic models provide an accurate, reliable, and easily integrated tool for everyday medical practice, facilitating optimized clinical decision-making in thoracic oncology.*

***Keywords:*** *Bronchogenic carcinoma, computed tomography, semantic modeling, radiomics, machine learning, pulmonary nodules, early detection.*

## INTRODUCTION

Lung cancer, specifically bronchogenic carcinoma, remains the leading cause of cancer-related mortality globally, necessitating effective early detection and screening strategies to improve patient outcomes [1]. Standard low-dose computed tomography (LDCT) has emerged as the cornerstone of lung cancer screening, demonstrating a significant reduction in mortality by facilitating the identification of pulmonary nodules at an earlier, more treatable stage [2]. However, the increasing volume of high-resolution CT imaging has introduced significant clinical challenges, particularly the overdiagnosis of benign lesions and the time-consuming nature of manual radiologic evaluation [3]. To address these bottlenecks, advanced computational approaches have been developed to complement visual inspections, allowing for a more standardized stratification of nodule invasiveness and malignancy risk [4]. While highly complex radiomics pipelines extract hundreds of agnostic, mathematically derived data points, recent evidence suggests that semantic modeling—which relies on visually interpretable imaging features routinely used by radiologists—can provide robust, reliable, and clinically feasible diagnostic performance [5]. Therefore, this review aims to evaluate the current role of standard CT imaging combined with semantic feature modeling in streamlining the early detection, characterization, and risk stratification of bronchogenic carcinoma in everyday clinical practice [6].

## MAIN PART

### The Limitations of Standard Visual Assessment

The introduction of low-dose computed tomography (LDCT) has fundamentally shifted the paradigm of lung cancer screening, enabling the detection of small, asymptomatic pulmonary nodules. However, standard visual assessment by radiologists is subject to significant inter-observer variability.

Interpreting the malignancy risk of early-stage lesions—particularly sub-solid or pure ground-glass opacities (GGOs)—relies heavily on subjective experience. This subjectivity frequently leads to high false-positive rates, resulting in unnecessary invasive biopsies, increased patient anxiety, and elevated healthcare costs.

To overcome the limitations of subjective visual interpretation, the field has increasingly turned to quantitative imaging. While high-dimensional, agnostic radiomics (extracting thousands of mathematical texture features) offers deep data mining capabilities, its "black-box" nature and lack of biological interpretability have hindered widespread clinical adoption [5]. This has driven a renewed interest in semantic modeling as a bridge between subjective visual assessment and highly complex radiomic algorithms.

**Defining Semantic Modeling vs. Agnostic Radiomics**

In thoracic oncology, predictive models generally utilize two categories of imaging features:

| Feature Type | Description | Clinical Interpretability | Workflow Integration |
|---|---|---|---|
| **Semantic** | Standardized visual descriptors used by radiologists (e.g., spiculation, lobulation). | High (directly relates to known pathology). | Seamless (can be scored during routine reads). |
| **Agnostic** | Mathematically derived data (e.g., Gray-Level Co-occurrence Matrices, wavelet transforms). | Low ("black box" algorithms). | Complex (requires specialized extraction software). |

Semantic models utilize standard radiological lexicons, converting qualitative visual observations into structured, categorical variables that can be fed into machine learning algorithms [8].

**Key Semantic Features in Risk Stratification**

The clinical utility of semantic modeling relies on identifying specific morphological traits that correlate directly with the pathophysiological growth patterns of bronchogenic carcinoma.

The most heavily weighted semantic features in diagnostic algorithms include [7,8]:

- **Spiculation:** The presence of radiating lines extending from the nodule margin. This represents desmoplastic reactions or tumor infiltration into surrounding interstitial tissue, making it one of the strongest independent predictors of malignancy.
- **Lobulation:** Uneven, scalloped margins resulting from variable growth rates within different segments of the tumor block.
- **Pleural Indentation (Pleural Tagging):** Linear bands extending from the nodule to the visceral pleura, often indicating fibrotic retraction caused by invasive adenocarcinomas.
- **Vascular Convergence:** The pulling or distortion of adjacent pulmonary vessels toward the nodule, a hallmark of tumor angiogenesis.
- **Internal Characteristics:** The presence of cavitation (often seen in squamous cell carcinoma), calcification patterns (central/popcorn vs. eccentric), and air bronchograms.

**Algorithmic Integration and Diagnostic Performance**

Once semantic features are standardized and extracted, they are utilized to train supervised machine learning models. Studies consistently demonstrate that combining these features with demographic data yields robust predictive models [9].

1. **Multivariable Logistic Regression:** Remains the standard for clinical nomograms. It provides clear odds ratios for individual semantic features, allowing clinicians to understand exactly *why* the model predicted a high risk of malignancy.

2. **Support Vector Machines (SVM):** Highly effective at separating benign from malignant nodules in high-dimensional spaces, particularly when semantic features exhibit non-linear relationships with tumor invasiveness.

3. **LASSO (Least Absolute Shrinkage and Selection Operator):** Frequently utilized for feature selection prior to modeling. LASSO penalizes weak predictors, effectively stripping away redundant semantic variables to create lean, highly efficient diagnostic models that avoid overfitting.

Current literature indicates that predictive models incorporating these algorithms achieve an Area Under the Curve (AUC) ranging from 0.83 to over 0.90 in differentiating malignant from benign nodules on standard CT. Crucially, while agnostic radiomic models occasionally achieve marginally higher AUCs, semantic models achieve their results without requiring proprietary extraction software or disrupting the radiologist's established workflow [7].

**Translating Models into Routine Clinical Workflow**

The ultimate goal of computational modeling in thoracic imaging is not to replace the radiologist, but to augment their decision-making process. The primary advantage of semantic modeling over high-dimensional radiomics is its immediate translational viability. Because semantic features are already part of the radiologist's standard lexicon, implementing these models does not require overhauling hospital IT infrastructure. Clinicians can input standardized radiological findings into an integrated electronic health record (EHR) calculator, generating a real-time probability score for bronchogenic carcinoma. This approach standardizes the stratification process across different clinical

centers, ensuring that a nodule assessed in a community hospital receives the same algorithmic risk evaluation as one assessed in a specialized academic center.

## CONCLUSION

The widespread adoption of low-dose computed tomography (LDCT) for lung cancer screening necessitates robust, reproducible methods for stratifying the malignancy risk of pulmonary nodules. While high-dimensional radiomics presents a powerful data-mining tool, its "black-box" nature, lack of biological interpretability, and complex processing pipelines severely limit its translation into everyday clinical practice. As demonstrated in this review, semantic modeling—leveraging standardized, visually interpretable radiological features combined with robust machine learning algorithms such as Logistic Regression, Support Vector Machines (SVM), and LASSO—provides a highly viable, pragmatic alternative. This approach maintains diagnostic accuracies (AUCs) comparable to highly complex radiomics while ensuring clinical transparency, as the predictive variables directly correlate with the established pathophysiological growth patterns of bronchogenic carcinoma. Most importantly, semantic models can be seamlessly integrated into routine radiological workflows without the need for proprietary extraction software.

To fully realize the clinical potential of semantic modeling, future research must shift focus toward implementation and standardization. Specifically, the following research directions are critical:

Prospective, Multi-Center Validation: The majority of current semantic and radiomic models are based on retrospective data from single institutions. Large-scale, prospective multi-center trials are urgently needed to validate the generalizability of these algorithms across diverse patient populations and varying CT scanner protocols.

Standardization of Semantic Lexicons: While semantic features are visually interpretable, they are still subject to inter-observer variability at the

input stage. Future studies should focus on refining and standardizing quantitative definitions for features like spiculation and vascular convergence to ensure absolute consistency across different clinical centers.

Direct PACS Integration: Future engineering efforts must focus on developing automated extraction tools that embed semantic predictive nomograms directly into Picture Archiving and Communication Systems (PACS) or electronic health records (EHR). Automating the calculation of malignancy probability in real-time during the diagnostic read will eliminate workflow disruption.

Ultimately, by prioritizing clinical feasibility and workflow integration, the continued refinement of semantic modeling will bridge the translational gap, providing radiologists with practical, evidence-based tools to optimize the early detection and management of bronchogenic carcinoma.

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# ENDOTHELIAL DYSFUNCTION AND HYPERHOMOCYSTEINEMIA IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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***Abstract***

***Background:*** *Chronic obstructive pulmonary disease (COPD) is characterized by progressive airflow limitation and a high burden of cardiovascular comorbidities, largely driven by chronic systemic inflammation and endothelial dysfunction. Emerging evidence implicates hyperhomocysteinemia—pathologically elevated serum homocysteine—as a significant metabolic contributor to this interconnected cardiopulmonary decline.*

***Objective:*** *This review comprehensively evaluates the pathophysiological mechanisms linking hyperhomocysteinemia to endothelial dysfunction in COPD, assessing its clinical utility as a dual prognostic biomarker for both respiratory deterioration and cardiovascular risk.*

***Synthesis:*** *An analysis of current literature reveals that elevated homocysteine actively promotes vascular injury by exacerbating oxidative stress, triggering the accumulation of reactive oxygen species (ROS), and inhibiting the synthesis of vasodilatory nitric oxide. This biochemical cascade accelerates an atherothrombotic phenotype, providing a mechanistic explanation for the high cardiovascular mortality observed in the COPD population. Furthermore, hyperhomocysteinemia is independently associated with a more rapid annual decline in forced expiratory volume in one second (FEV1), highlighting its localized impact on the pulmonary microvasculature.*

***Conclusion:*** *Hyperhomocysteinemia serves as a crucial pathophysiological bridge between localized pulmonary obstruction and systemic vascular disease. Integrating routine homocysteine screening into standard COPD management could significantly optimize cardiovascular risk stratification. Future research must prioritize clinical trials investigating targeted nutritional (B-vitamin) and pharmacological interventions to mitigate homocysteine-induced endothelial damage and improve long-term patient outcomes.*

***Keywords:*** *Chronic obstructive pulmonary disease (COPD), hyperhomocysteinemia, endothelial dysfunction, oxidative stress, cardiovascular comorbidities, prognostic biomarker.*

## INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is characterized by persistent respiratory symptoms and progressive airflow obstruction, which is frequently complicated by an increased risk of severe cardiovascular comorbidities [1]. This elevated cardiovascular morbidity in COPD patients is increasingly attributed to chronic systemic inflammation that triggers endothelial dysfunction, a critical initiating event in atherosclerosis [2]. Recent evidence strongly links this endothelial damage to hyperhomocysteinemia, demonstrating that abnormally elevated serum homocysteine levels are significantly more prevalent in the COPD population than in healthy controls [1]. At the molecular level, excess homocysteine directly damages the vascular endothelium by inducing the accumulation of reactive oxygen species, triggering cellular pyroptosis, and inhibiting the synthesis of the crucial vasodilator nitric oxide [2]. Beyond systemic vascular damage, elevated plasma homocysteine also exhibits a localized respiratory impact, demonstrating an inverse correlation with forced expiratory volume and acting as an independent predictor of rapid pulmonary function decline [3]. Despite these clear associations, the complex therapeutic promise of targeting the metabolic imbalance of homocysteine to mitigate both vascular injury and respiratory deterioration remains a developing field of research [4].

## MAIN PART

### The Mechanistic Link between COPD and Hyperhomocysteinemia

Chronic obstructive pulmonary disease (COPD) is increasingly recognized not merely as a localized airway pathology, but as a complex systemic syndrome characterized by chronic low-grade inflammation and severe oxidative stress [5]. Within this pro-inflammatory environment, altered

methionine metabolism frequently leads to the accumulation of homocysteine, establishing hyperhomocysteinemia as a highly prevalent metabolic disturbance in the COPD patient population [1]. The mechanistic link between these two conditions is primarily driven by a self-perpetuating cycle of oxidative damage and chronic hypoxia. Elevated circulating homocysteine readily undergoes auto-oxidation in the plasma, a process that generates highly reactive oxygen species (ROS), including superoxide anions and hydrogen peroxide, which directly deplete the body's intracellular antioxidant reserves [2]. Furthermore, the chronic intermittent hypoxia inherent to progressive airflow obstruction in COPD exacerbates this metabolic dysregulation by upregulating systemic inflammatory cytokines, particularly interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α), which further impair hepatic homocysteine clearance pathways [4].

This biochemical cascade is frequently compounded by the systemic malnutrition and altered body composition commonly observed in advanced COPD phenotypes [6]. Specifically, patients with severe COPD frequently exhibit profound deficiencies in dietary folate, vitamin B6, and vitamin B12, which are requisite enzymatic cofactors for the normal remethylation and transsulfuration of homocysteine back into methionine or cysteine [6]. Consequently, the interplay between hypoxia-induced systemic inflammation and B-vitamin depletion creates a detrimental feedback loop wherein hyperhomocysteinemia amplifies the baseline oxidative burden of COPD, accelerating widespread cellular damage across both pulmonary and systemic vascular beds [1].

**Homocysteine-Induced Endothelial Dysfunction in COPD**

The vascular endothelium serves as the primary target for homocysteine-mediated toxicity, acting as the critical interface where systemic metabolic disturbances translate into cardiovascular comorbidities in COPD patients [2]. At the molecular level, pathological concentrations of circulating homocysteine severely disrupt endothelial homeostasis, primarily by uncoupling the

endothelial nitric oxide synthase (eNOS) pathway and precipitating a profound reduction in the bioavailability of the crucial vasodilator nitric oxide (NO) [4]. This dangerous reduction in NO is further compounded by homocysteine-induced endoplasmic reticulum (ER) stress and the auto-oxidation of its sulfhydryl group, processes that collaboratively generate an overwhelming excess of intracellular reactive oxygen species (ROS) [5].

Furthermore, this extreme state of oxidative stress activates the nuclear factor-kappa B (NF-κB) signaling pathway, triggering the aggressive upregulation of pro-inflammatory adhesion molecules, including vascular cell adhesion molecule-1 (VCAM-1) and intercellular adhesion molecule-1 (ICAM-1), directly on the endothelial surface [2]. This localized endothelial activation actively promotes leukocyte tethering, rolling, and transendothelial migration, effectively transforming the normally quiescent pulmonary and systemic vasculature into a highly pro-atherogenic and pro-inflammatory environment [1]. Consequently, the cumulative microvascular damage resulting from this homocysteine-induced endothelial apoptosis not only accelerates the structural destruction of alveolar-capillary beds—thereby worsening emphysematous changes and accelerating FEV1 decline—but also acts as the primary pathophysiological catalyst for the development of right ventricular hypertrophy and systemic atherosclerosis in this vulnerable patient population [3].

**Cardiovascular Risk and Clinical Implications**

The convergence of hyperhomocysteinemia and endothelial dysfunction provides a compelling pathophysiological explanation for the high incidence of cardiovascular comorbidities observed in COPD patients [1]. Elevated total homocysteine serves as a robust cardiovascular risk factor that actively drives an atherothrombotic phenotype within the COPD population [6]. Furthermore, longitudinal studies have demonstrated that high circulating homocysteine is strongly associated with a rapid annual decline in forced expiratory volume in one second (FEV1), highlighting its dual role as a marker for both vascular and

respiratory deterioration [3]. Therefore, monitoring homocysteine levels offers valuable prognostic insight, identifying COPD patients who are at the greatest risk for severe cardiovascular events and rapid disease progression [1].

## CONCLUSION

In summary, hyperhomocysteinemia represents a critical pathophysiological bridge between the localized airway obstruction of COPD and its severe systemic consequences, most notably cardiovascular comorbidities. The accumulation of homocysteine actively drives endothelial dysfunction by amplifying oxidative stress, depleting nitric oxide bioavailability, and sustaining chronic systemic inflammation. Consequently, this metabolic imbalance serves as a powerful dual biomarker that independently predicts both an accelerated decline in respiratory function and a significantly heightened risk for atherothrombotic events.

Transitioning this mechanistic understanding into clinical practice requires moving beyond observation toward targeted therapeutic interventions. Future research must prioritize the following directions:

Nutritional Intervention Trials: Large-scale, randomized controlled trials are urgently needed to determine whether targeted supplementation with folic acid, vitamin B6, and vitamin B12 can effectively reverse hyperhomocysteinemia and, more importantly, whether lowering these levels reduces COPD exacerbation frequency and cardiovascular mortality.

Endothelial-Targeted Pharmacotherapies: There is a critical need to investigate novel pharmacological agents capable of mitigating homocysteine-induced vascular injury—such as hydrogen sulfide (H2S) donors or pathway-specific antioxidants—to restore endothelial nitric oxide synthesis in the COPD phenotype.

Routine Biomarker Integration: Future clinical guidelines should evaluate the cost-effectiveness and predictive value of establishing routine homocysteine

screening protocols to identify "high-cardiovascular-risk" COPD patients, enabling earlier and more aggressive preventative interventions.

Ultimately, addressing the homocysteine-COPD axis offers a promising pathway for comprehensive disease management, shifting the therapeutic focus from isolated pulmonary treatment to the protection of the interconnected cardiopulmonary system.

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# 7-SECTION

# DEVELOPMENT AND ANALYSIS OF A MATHEMATICAL MODEL OF THE AIR TRANSPORTATION PROCESS OF FIBEROUS MATERIALS

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***Abstract:*** *This study develops and analyzes a mathematical model for the two-phase pneumatic transportation of fibrous materials in pipelines. Using Navier-Stokes equations, the Reynolds-averaged Navier-Stokes (RANS) approach, and the ε turbulence model, the carrier airflow is treated as a viscous, incompressible medium, while the discrete fibrous phase is modeled via Lagrangian trajectory equations. The model comprehensively accounts for geometric anisotropy, aerodynamic drag, and lift forces. Numerical simulations identify three distinct flow regimes, defining an optimal, energy-efficient velocity range (*$18\ m/s \leq v_h \leq 21\ m/s$*) that prevents clogging while minimizing frictional energy losses.*

***Keywords****: Pneumatic conveying, fibrous materials, two-phase turbulent flow, mathematical modeling, Navier-Stokes, Lagrangian trajectory, Saffman lift force, pressure loss, optimal energy-saving mode, finite volume method.*

## 1. INTRODUCTION

Pneumatic conveying systems are critical in industrial processing for transporting fibrous materials, such as cotton, fiber, and seeds, through pipelines. In classical mechanics, this process is classified as a heterogeneous, two-phase "gas-solid" system where the carrier phase consists of a turbulently moving, viscous, incompressible air medium, and the discrete phase comprises individual fibrous particles. Modeling these systems presents a significant hydrodynamic challenge due to the complex physical interactions between the air and the material, as well as the geometric anisotropy and rotational behavior of non-spherical fibrous particles.

The process of pneumatic pipeline transport of fibrous materials (cotton, fiber, cotton seed, fibrous waste in pneumatic transport pipelines) is considered in classical mechanics as a heterogeneous two-phase system belonging to the "gas-solid" class. Here, the first phase is an incompressible, viscous, turbulently moving air medium, while the second phase is an ensemble of discrete fibrous particles characterized by their geometric shape, elasticity, and aerodynamic properties.

## 2. METHODOLOGY

### 2.1 Hydrodynamic equilibrium equations of two-phase turbulent flows

To describe the three-dimensional $(x, y, z)$ turbulent motion of the carrier airstream inside the pipeline, we utilize the Navier-Stokes differential equations of hydro-aerodynamics and the continuity (continuum) condition. In a two-phase flow, each phase possesses a volume fraction ( $\alpha_h$and $\alpha_z$), for which the condition $\alpha_h + \alpha_z = 1$ is satisfied.

The continuity equation is written in differential form for each phase as follows:

$$\frac{\partial}{\partial t}\left(\alpha_h \rho_h + \frac{\partial}{\partial x_i}\left(\alpha_h \rho_h u_{h,i}\right)\right) = 0$$

$$\frac{\partial}{\partial t}\left(\alpha_z \rho_z + \frac{\partial}{\partial x_i}\left(\alpha_z \rho_z u_{z,i}\right)\right) = 0$$

The momentum equation of the air flow has the following differential form in Reynolds-averaged (RANS) form:

$$\frac{\partial}{\partial t}\left(\alpha_h \rho_h u_{h,i} + \frac{\partial}{\partial x_j}\left(\alpha_h \rho_h u_{h,i} u_{h,j}\right)\right)$$

$$= -\alpha_h \frac{\partial p}{\partial x_i} + \frac{\partial}{\partial x_j}\left[\alpha_h \left(\mu\left(\frac{\partial u_{h,i}}{\partial x_j} + \frac{\partial u_{h,j}}{\partial x_i}\right) - \rho_h \overline{u'_{h,i} u'_{h,J}}\right)\right]$$

$$+ \alpha_h \rho_h g_i - F_{v,i}$$

Here:

- $\rho_h$and $\rho_z$— actual densities of air and fibrous particles (kg/m $^3$),
- $u_{h,i}$and $u_{z,i}$are the velocity components of the air and material phases, respectively (m/s),
- $p$— static pressure inside the pipe (Pa),
- $\mu$— coefficient of dynamic viscosity of air ($Pa \cdot s$),
- $\rho_h\overline{u'_{h,\iota}u'_{h,J}}$— Reynolds stress tensor, which represents flow turbulence,
- $F_{v,i}$— the inverse volumetric reaction force exerted by the discrete phase (fibrous particles and waste) on the air flow (N/m $^3$).

To fully capture the effects of turbulence inside the pipe and accurately account for boundary layer phenomena near the wall, the standard $k-\varepsilon$(k-epsilon) model equations are used. The differential equations for the turbulent kinetic energy ($k$) and its dissipation ( $\varepsilon$) are expressed as follows:

$$\frac{\partial}{\partial t}(\rho_h k)+\frac{\partial}{\partial x_i}\left(\rho_h k u_{h,i}\right)=\frac{\partial}{\partial x_j}\left[\left(\mu+\frac{\mu_t}{\sigma_k}\right)\frac{\partial k}{\partial x_j}\right]+G_k+G_b-\rho_h\varepsilon-Y_m+S_k$$

$$\frac{\partial}{\partial t}(\rho_h \varepsilon)+\frac{\partial}{\partial x_i}\left(\rho_h \varepsilon u_{h,i}\right)$$

$$=\frac{\partial}{\partial x_j}\left[\left(\mu+\frac{\mu_t}{\sigma_\varepsilon}\right)\frac{\partial \varepsilon}{\partial x_j}\right]+C_{1\varepsilon}\frac{\varepsilon}{k}(G_k+C_{3\varepsilon}G_b)-C_{2\varepsilon}\rho_h\frac{\varepsilon^2}{k}+S_\varepsilon$$

Here $\mu_t=\rho_h C_\mu k^2/\varepsilon$, is the turbulent viscosity coefficient, which varies with the smoothness of the pipe and the Reynolds number of the air flow. $G_k$is the generation of turbulent kinetic energy due to average velocity gradients. $S_k$and $S_\varepsilon$are source terms that take into account the effect of fibrous particles on damping the airflow turbulence or generating additional turbulence (vortex generation).

**2.2. System of differential equations of spatial motion of fibrous particles**

The mechanical properties of fibrous materials (cotton balls, fiber bundles, pieces of skein) indicate that they are geometrically anisotropic. Unlike spherical

bodies, they change their orientation during motion and have the property of rotating in the air. We model the trajectory of each discrete particle in the Lagrangian coordinate system, taking into account the balance of all forces acting on it.

The fundamental differential equation of particle motion in vector form is:

$$m_z \frac{d\mathbb{v}_z}{dt} = F_{aer} + F_g + F_{fric} + F_{Saff} + F_{Magn} + F_{ar} + F_b$$

The effect of each force in the equation on the motion of the body and its mathematical expression are analyzed as follows:

1. **Aerodynamic drag force (** $F_{aer}$**):** This force is the main force that ensures that the air flow pushes the particle along the pipe:

$$F_{aer} = \frac{1}{2} C_x \rho_h F_m (\mathbb{v}_h - \mathbb{v}_z)|\mathbb{v}_h - \mathbb{v}_z|$$

Where is $F_m$the mean dynamic projected area (midsection) of the fibrous body perpendicular to the flow direction. The aerodynamic drag coefficient ( $C_x$) for fibrous particles depends on their degree of non-sphericity or shape factor ( $\psi$). The shape factor is defined as the ratio of the surface area of a sphere of equal volume to the surface area of the actual particle ( $\psi = A_{spherw}/A_{real}$). The coefficient for non-spherical particles $C_x$is calculated using the following function:

$$C_x = \frac{24}{Re_z}\left(1 + b_1 \cdot Re_z^{b_2}\right) + \frac{b_3 \cdot Re_z}{b_4 + Re_z}$$

Here, $b_1, b_2, b_3, b_4$the coefficients $\psi$are empirical functions of the shape factor. The Reynolds number for a particle is: $Re_z = \rho_h d_z |\mathbb{v}_h - \mathbb{v}_z|/\mu$.

2. **Gravitational and Archimedean forces (** $\boldsymbol{F_g + F_{ar}}$**):** The weight of a particle and the buoyant force of air are written together as:

$$F_g + F_{ar} = m_z \left(1 - \frac{\rho_h}{\rho_z}\right)$$

3. **Saffman lift force (** $F_{Saff}$**):** It is caused by the radial gradient of flow velocity in a pipe. Since the velocity is higher at the center of the pipe and

lower at the wall, a pressure difference is created at the top and bottom of the particle, which pushes the particle towards the center of the pipe:

$$F_{Saff} = 1.615 \cdot d_z^2 \sqrt{\rho_h \mu}(v_h - v_z) sgn \frac{du_h}{dy} \left| \frac{du_h}{dy} \right|^{0.5}$$

4. **Magnus force ( $F_{Magn}$):** The lift force generated by a particle hitting a pipe wall or rotating around its axis in air vortices with an angular velocity ( ):$\Omega_z$

$$F_{Magn} = \frac{1}{8} \pi d_z^3 \rho_h [(\nabla \times \mathbb{v}_h) - \Omega_z] \times (\mathbb{v}_h - \mathbb{v}_z)$$

5. **Basset force ( $F_b$):** Takes into account the delay in the development of the boundary layer around the particle (historical inertia) due to the unsteady motion of the flow over time.

The velocity of a fibrous object suspended in a vertical pipe is $v_p$) is defined. In this case, $\frac{d\mathbb{v}_z}{dt} = 0$and $F_{aer} = F_g - F_{ar}$are taken as:

$$v_p = \sqrt{\frac{2m_z g(\rho_z - \rho_h)}{C_x F_m \rho_h \rho_z}}$$

**2.3. Models of hydraulic resistance and pressure loss of a pipeline in two-phase flow**

When an air-cotton mixture moves through pneumatic transport pipes, the total pressure loss of the system ($\Delta P_{total}$) does not consist only of friction of the fresh air against the pipe wall. It includes inertial losses due to acceleration of the flow, lifting of the material and its collision with the walls . In the mathematical model we propose, the pressure loss is calculated based on the following superposition principle:

$$\Delta P_{total} = \Delta P_{h_fric} + \Delta P_{m_fric} + \Delta P_{acc} + \Delta P_{lift} + \sum \Delta P_{loc}$$

1. **Linear friction pressure loss of pure air ( $\Delta P_{h_ishq}$):**

$$\Delta P_{h_fric} = \lambda_h \frac{L}{D} \frac{\rho_h v_h^2}{2}$$

Here $\lambda_h$is the coefficient of hydraulic friction, determined by the roughness of the pipe according to the Blazius or Altsul formulas.

2. **Additional pressure loss of material particles ($ $\Delta P_{m_fric}$):** This value $\mu = G_{material}/G_{air}$is expressed by the mass concentration of the flow ( ) and the specific resistance coefficient of the material ( ):$\lambda_m$

$$\Delta P_{m_fric} = \mu \cdot \lambda_m \frac{L}{D} \frac{\rho_h v_h^2}{2}$$

the resistance coefficient ( $\lambda_m$) of a material ($Fr$, which depends on the Froude number:

$$\lambda_m = A \cdot Fr^{-1} \cdot \left(\frac{v_z}{v_h}\right)^{-0.5} \cdot \left(\frac{D}{d_z}\right)^{0.1} = A\left(\frac{gD}{v_h^2}\right)\left(\frac{v_z}{v_h}\right)^{-0.5}\left(\frac{D}{d_z}\right)^{0.1}$$

Here *A*is a dimensionless constant coefficient that depends on the type and moisture content of the fibrous material.

3. **Pressure loss in the material acceleration section ( $\Delta P_{acc}$):** The material falling from the funnel into the pipe accelerates from an initial zero velocity to a certain constant$v_z$ The loss of kinetic energy consumed until reaching speed:

$$\Delta P_{acc} = \mu \cdot \rho_h \cdot v_h \cdot v_z$$

4. **Pressure loss during material lifting in vertical sections ( $\Delta P_{ko\prime tarish}$):**

$$\Delta P_{lift} = \mu \cdot \rho_h \cdot L_{vert} \cdot g \cdot \frac{v_h}{v_z}$$

5. **Losses in local resistance ( $\Delta P_{local}$):** In the curved sections of the pipes (elbows), the particles are compressed and braked against the outer wall of the pipe under the influence of centrifugal force. After the turn, they are accelerated again due to the air flow. Therefore, the coefficient of local resistance in the elbows $\xi_{total} = \xi_{air} + \mu \cdot \xi_{material}$is taken as

## 3. RESULT

Since the set of differential and algebraic equations is nonlinear, it is not possible to solve them analytically. Therefore, the model was numerically

implemented in a computer program using Runge-Kutta and the finite volume method (FVM).

As a result of the analysis, three main modes of two-phase flow inside the pipe were identified:

- **Dune mode ( $v_h < 15\ m/s$):** Due to the low air velocity, fibrous materials settle to the bottom of the pipe, forming wavy layers. This mode quickly leads to complete clogging of the pipe.
- **Homogeneous pneumatic conveying mode ( $v_h > 24\ m/s$):** Particles are evenly distributed across the pipe cross-section, but the number of wall impacts and the friction coefficient increase sharply, and energy consumption increases according to a quadratic function.
- **Optimal energy-saving mode ( $18\ m/s \leq v_h \leq 21\ m/s$):** In this mode, the Saffman and turbulence forces are sufficient to keep particles suspended from the bottom of the pipe, but pipe friction is minimal. The design of this mode is the scientific basis for ensuring the energy efficiency of the pneumatic system.

## CONCLUSION

The development and parametric analysis of the mathematical model for two-phase turbulent flows offer critical insights into the optimization of fibrous material transport. Due to the highly non-linear nature of the governing differential and algebraic equations, the model was successfully implemented via numerical methods, specifically utilizing the Runge-Kutta and finite volume methods (FVM).

The numerical analysis identified three primary operational flow regimes within the pipeline:

- **Dune Mode ( $v_h < 15\ m/s$):** Characterized by insufficient air velocity, causing particles to settle at the bottom, form wavy layers, and rapidly clog the pipeline.

- **Homogeneous Pneumatic Conveying Mode ($v_h > 24\ m/s$):** Achieves uniform particle distribution but suffers from high wall-impact rates, increased friction, and sharply rising, quadratic energy consumption.
- **Optimal Energy-Saving Mode ($18\ m/s \leq v_h \leq 21\ m/s$):** Balances Saffman lift and turbulent forces adequately to keep particles suspended while minimizing pipe friction.

Ultimately, configuring systems to operate within this optimal velocity range establishes a rigorous scientific foundation for ensuring maximum energy efficiency and reliability in industrial pneumatic transport systems.

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# MUFTALARNING TURLARI, KONSTRUKSIYASI VA ULARNING TAHLILI

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***Annotatsiya****. Ushbu maqolada muftalarning konstruktiv tuzilishi, ishlash prinsipi, tasnifi tahlil qilindi. Boshqariladigan, boshqarilmaydigan va avtomatik muftalar konstruktiv hamda funksional jihatdan solishtiriladi.*

***Kalit so‘zlar:*** *mufta, boshqariladigan, boshqarilmaydigan, avtomatik, elastik mufta, kompensatsiyalovchi mufti*

***Annotation.*** *This article analyzes the structural design, operating principles, and classification of couplings. Controllable, uncontrollable, and automatic couplings are compared from both structural and functional perspectives.*

***Keywords:*** *coupling, controllable, uncontrollable, automatic, elastic coupling, compensating coupling.*

## KIRISH

Hozirgi kunda paxta sanoatida aylanma harakatni uzatish muhim o‘rin egallaydi. Sanoatning rivojlanishi bilan mexanik uzatmalarga qo‘yiladigan talablar ham tobora ortib bormoqda. Har qanday dvigatel yoki quvvat manbai ishlab chiqargan mexanik energiya iste’molchi mexanizmga uzatilishi zarur. Energiya samaradorligi, ishonchlilik va uzoq muddatli xizmat ko‘rsatish ko‘rsatkichlari zamonaviy mexanik tizimlarning asosiy mezonlari hisoblanadi. Ushbu uzatish jarayonida muftalar asosiy bog‘lovchi element sifatida ishtirok etadi.

Muftalar–tishli g‘ildiraklar, shkivlar va shu kabi detallar valga o‘rnatilgan va o‘rnatilmagan hollarda vallarni bir -biriga o‘zaro biriktirish uchun xizmat qiluvchi vosita hisoblanadi.

Muftalar o‘z navbatida quyidagi turlarga bo‘linadi: boshqariladigan, boshqarilmaydigan, va o‘zini-o‘zi boshqaruvchi (avtomatik).

Boshqariladigan muftalarning o‘zi ham bir nechta turga bo‘linadi:

1. Doimiy biriktirilgan muftalar, qo‘zg‘almas muftalar turkumiga kirib, vallarni o‘zaro biriktirish (qo‘zg‘almas birikmalar) uchun xizmat qiladi, buning uchun ularni yuqori aniqlik bilan markazlashtirish lozim.

Doimiy biriktirilgan muftalarni eng oddiysi vtulka ko‘rinishidagi mufta bo‘lib, vallarni uchiga vtulka kiritiladi va mufta, shponka yoki shlitslar vositasida qo‘zg‘almas qilib mahkamlab qo‘yiladi.

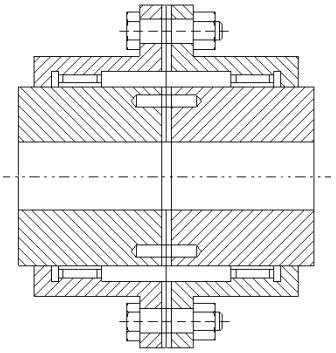
Bunday muftalar tuzilishini oddiyligi va o‘lchamlari katta bo‘lmasligi bilan ajralib turadi, lekin vtulkani o‘rnatish uchun valni o‘qi bo‘ylab, siljitishiga to‘g‘ri keladi. Shuning uchun ulanadigan vallarni diametri 50 mmga ega bo‘lgan katta o‘lchamlarga ega bo‘lmagan mashina mexanizmlarida ishlatiladi. Muftalarning mustahkamligi asosan, shponkali, shtifli yoki shlitsali birikmalarni chidamliligi hamda vtulkani mustahkamligi bilan belgilanadi (1-rasm);

2. Kompensatsiyalovchi muftalar birikadigan vallar o‘qining o‘zaro joylashishi juda aniq bo‘lmagan mexanizmlarni yig‘ish va tayyorlashdagi notekisliklari hamda ularni o’rnatish ishlarini xatoliklariga ham bog‘liq bo‘ladi. Vallarni nominal joylashishiga qarab, uch xil siljishlar mavjud bo‘ylanma siljish, radial siljish yoki burchakli siljish.

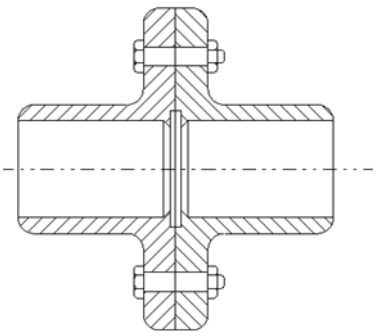
Yuqorida ko‘rsatilgan siljishlar birgalikda ishtirok etishi mumkin, u holda umumiy termin bilan, “o‘qdosh bo‘lmagan yoki markazlashmagan vallar” deyiladi. O‘qdosh joylashmagan vallarni biriktirish uchun kompensatsiyalanuvchi muftalar ishlatiladi.

Markazlashmagan vallarni siljishini kompensatsiya qilish yarim pallali muftalar orasidagi elementlari yordami bilan amalga oshiriladi. Oraliqdagi qattiq elementlar kompensatsiyalovchi muftalarda ishlatiladi, oraliqdagi deformatsiyalanadigan elementlar esa, elastik muftalarda qo‘llaniladi. Elastik

muftalar mashinaning yuritma bo‘g‘inini bikrlik xususiyatini kamaytirish funksiyasini ham bajaradi (2-rasm);



1-rasm.



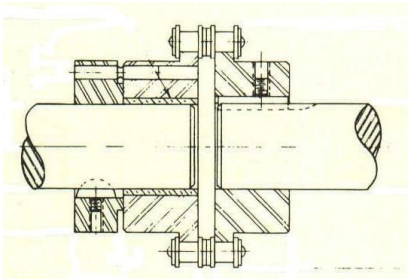
2-rasm.

3. Saqlagich muftalar, yuqori yuklanish natijasida avariya (buzilish) holatiga tushib qolgan mexanizmlarning kinematik zanjirlarini himoya qilish uchun qo‘llaniladi. Bu muftalar, vallarni bir-biridan (avtomatik) ajralishiga imkon yaratadi. Bunday muftalar ikki turga bo‘linadi. Kesuvchi elementli saqlagich muftalar va sinib ketadigan elementi bo‘lmagan saqlagich muftalar. Saqlagich muftalar faqat markazlashgan vallarga o‘rnatilishi mumkin, bunda vallar mufta o‘rnatilishidan oldin, yoki shu muftalar orqali markazlashtiriladi (3-rasm);

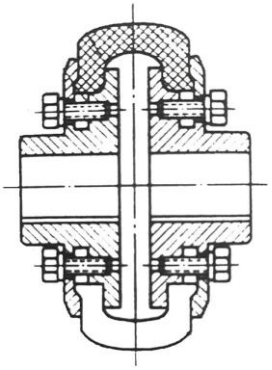
4. Elastik muftalar agarda kompensatsiyalovchi muftalarning oraliqdagi elementi elastik bo‘lsa, bunday muftalar elastik muftalar hisoblanadi. Ular vallar o‘qdoshligi qat’iy bo‘lish yoki bo‘lmasligiga qaramasdan hamma notekisliklarni to‘g‘rilaydi (kompensatsiyalaydi). Elastik muftalar o‘z elementlari bilan yuritmada kam bikrlikka ega bo‘lgan bo‘g‘in vazifasini ham bajarib, mashinalarni tebranishlar ortishi sharoitda ishlamasligini taminlaydi. Shuning uchun muftalarni elastik elementi yetarli darajada bikrlikka ega bo‘lishi kerak. Elastik muftalarni tuzilishi har xil ko‘rinishda bo‘ladi. Elastik element materiallariga qarab bu muftalar elastik elementlari metalli va metalmas turlarga bo‘linadi.

Yuqorida keltirilgan muftalarning turlari bo‘yicha, doimiy biriktiriladigan muftalar markazlari o‘qdosh bo‘lgan vallarni biriktirishda, kompensatsiyalovchi

muftalar markazlari o‘qdosh bo‘lmagan vallarni biriktirishda hamda saqlagich muftalar ortiqcha yuklama tushgan yoki avariya holatlarida bo‘lgan mashina va mexanizmlarni himoya qilish uchun ishlatiladi [1].



3-rasm



4-rasm

Muftalarning to‘g‘ri tanlanishi nafaqat uzatiladigan moment qiymatiga, balki tizimning tebranish holatiga, ishonchliligiga va xizmat muddatiga ham bevosita ta’sir ko‘rsatadi. Hozirgi kunda yuqori tezlikda va katta yuklama ostida ishlovchi mexanizmlarning ko‘payishi muftalarga bo‘lgan talabni tobora ortishiga sabab bo‘ladi.

Muftaning konstruktiv samaradorligi uzatiladigan moment, aylanish tezligi, ish rejimi (uzluksiz yoki tez-tez ishga tushish/to‘xtash), hamda yig‘ishdagi radial-aksial burchakli siljishlar qiymatlariga bevosita bog‘liq. Qattiq muftalar yuqori aniqlikdagi markazlashni talab qilib, nomuvofiqlikka sezgir bo‘lsa, elastik muftalar tebranishni kamaytiradi, podshipniklarga ortiqcha kuch tushishini oldini oladi va shu orqali mexanizmning xizmat muddatini uzaytiradi. Boshqariladigan muftalar (ishqalanishli, elektromagnit, pnevmatik) uzatmani ish jarayonida ulash-ajratish imkonini berib, texnologik jarayonni moslashuvchan boshqarishga xizmat qiladi. Saqlagich muftalar esa ortiqcha yuklanish paydo bo‘lganda sirpanish yoki uzilish orqali uzatma elementlarini himoya qilib, avariya xavfini kamaytiradi.

Muftalarni tanlash va tahlil qilishda ishonchlilik ko‘rsatkichlari (yeyilish, qizish, charchash, mustahkamligi), servis qulayligi, materiallar (po‘lat, cho‘yan, elastik, kompozit) hamda iqtisodiy samaradorlik (narx-xizmat muddati)

birgalikda ko‘rib chiqiladi. Amaliyot shuni ko‘rsatadiki, muftaning to‘g‘ri tanlanishi nafaqat moment uzatish sifatini, balki butun uzatma tizimining tejamkorligi va barqaror ishlashini ham belgilaydi [2].

## XULOSA

Xulosa qilib shuni aytish mumkinki, muftalar mexanik uzatmalarning muhim elementi bo‘lib, ularning ilmiy asosda loyihalanishi, mexanik tizimlarning samaradorligi va uzoq muddatli ishlashini ta’minlaydi. Hisoblash formulalari asosida muftaning mustahkamligi, bikrligi va dinamik xususiyatlari aniqlanadi. Zamonaviy mashinasozlikda energiya tejamkor va tebranishni kamaytiruvchi muftalar yaratish dolzarb yo‘nalish hisoblanadi.

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**UOK (UDK): 621.852**

# QIYA TISHLI RESURSTEJAMKOR TASMALI UZATMALARNING KINEMATIK VA DINAMIK KO‘RSATKICHLARI TAHLILI

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***Annotatsiya.*** *Ushbu tezisda zamonaviy mashinasozlikda keng qo‘llaniladigan to‘g‘ri va qiya tishli tasmali uzatmalarning kinematik va dinamik parametrlari qiyosiy tahlil qilingan. An’anaviy tizimlarning kamchiliklari o‘rganilib, qiya tishli konstruksiyalarning afzalliklari, ulardagi yuklanish va kuchlanishlarning taqsimlanish qonuniyatlari nazariy jihatdan asoslangan. Tadqiqot natijasida qiya tishli uzatmalarning resurstejamkorlik va yuqori chidamlilik ko‘rsatkichlari tahliliy ifodalar orqali isbotlangan.*

***Kalit so‘zlar:*** *tasmali uzatma, qiya tish, resurstejamkorlik, ilashish burchagi, dinamik yuklanish, kuchlanishlar konsentratsiyasi, resurs, foydali ish koeffitsienti.*

***Annotation.*** *This thesis presents a comparative analysis of the kinematic and dynamic parameters of straight-toothed and helical toothed belt drives widely used in modern mechanical engineering. The shortcomings of conventional systems are examined, and the advantages of helical-toothed designs, as well as the laws governing load and stress distribution within them, are theoretically substantiated. As a result of the study, the resource efficiency and high durability of helical belt drives are proven through analytical expressions.*

***Keywords:*** *belt drive, helical tooth, resource efficiency, meshing angle, dynamic load, stress concentration, service life, efficiency.*

## KIRISH

Zamonaviy texnologik mashina va mexanizmlarni loyihalashda ularning metall hajmini kamaytirish, energiya samaradorligini oshirish va ekspluatatsiya muddatini uzaytirish, ya’ni resurstejamkorlikni ta’minlash bosh maqsad hisoblanadi. Bugungi kunda yengil sanoat va mashinasozlikda tishli tasmali uzatmalardan foydalanish ko‘lami yuqori, biroq standart to‘g‘ri tishli uzatmalarda tishlarning ilashishga birdaniga (zarba bilan) kirishishi yuqori tebranishlar, shovqin va tish asoslarida xavfli kuchlanishlar konsentratsiyasini

yuzaga keltiradi. Bu esa tasmaning tez yeyilishi va energiya yo‘qotilishiga sabab bo‘ladi. Ushbu tizimli muammoni hal etish maqsadida qiya tishli tasmali uzatmalarni qo‘llash va ularning ishchi xarakteristikalarini chuqur tahlil qilish muhim ilmiy-amaliy ahamiyatga ega.

Tadqiqot davomida uzatmaning kinematik va dinamik parametrlari mexanika qonuniyatlari asosida tahlil qilindi. To‘g‘ri tishli uzatmalardan farqli o‘laroq, qiya tishli uzatmada tishlarning ilashish koeffitsienti (εγ) faqatgina profil ilashishi bilan cheklanmay, balki o‘q (eksial) bo‘yicha ilashish hisobiga ham ortadi va quyidagi bog‘liqlik bilan ifodalanadi:

$$\varepsilon_\gamma = \varepsilon_\alpha + \varepsilon_\beta$$

Bunda εα — profil ilashish koeffitsienti, εβ — eksial ilashish koeffitsientidir. Tishlarning qiyalik burchagi (β) ortishi hisobiga bir vaqtning o‘zida kontaktda bo‘ladigan tishlar soni ko‘payadi. Bu holat uzatilayotgan aylanma kuchning (Ft) tishlar sirti bo‘ylab tekis taqsimlanishini ta’minlaydi va tish ildizidagi maksimal egilish kuchlanishlarini (σF) sezilarli darajada kamaytiradi. Shuningdek, qiya tish sirtidagi asta-sekin yuklanish tasmaning shkiv ariqchalariga silliq kirib-chiqishini ta’minlab, ishqalanish va sirpanish yo‘qotishlarini minimallashtiradi.

O‘tkazilgan kinematik va dinamik qiyosiy tahlillar natijasida quyidagi qonuniyatlar aniqlandi:

• **Dinamik yuklanishlarning kamayishi:** Tishlarning elastik ilashishga bosqichma-bosqich kirishishi hisobiga tizimdagi dinamik zarbalar va vibratsiya darajasi an’anaviy to‘g‘ri tishli analoglarga nisbatan 18% dan 22% gacha pasayishi aniqlandi.

• **Resurs muddatining uzayishi:** Kuchlanishlar konsentratsiyasining kamayishi va yuklamaning tekis taqsimlanishi tasmaning tish qismidagi yeyilish jadalligini pasaytiradi. Natijada tasmaning xizmat resursi o‘rtacha 1.4–1.6 barobarga uzayadi.

• **Energiya samaradorligi:** Tizimdagi mikro-sirpanishlar va mexanik yo‘qotishlarning kamayishi hisobiga uzatmaning foydali ish koeffitsienti (FIK) barqarorlashadi va energiya sarfi tejaladi.

## XULOSA

Qiya tishli tasmali uzatmalarning kinematik va dinamik tahlili shuni ko‘rsatadiki, ushbu konstruksiya an’anaviy uzatmalarga qaraganda yuqori ekspluatatsion va resurstejamkorlik xarakteristikalariga ega. Tishlararo kuchlanishlarning optimallashishi va resursning uzayishi ushbu tizimni sanoatda keng joriy etishga to‘liq asos bo‘ladi. Tadqiqot natijalaridan yuqori aniqlikdagi va og‘ir yuklanishda ishlaydigan texnologik mashina mexanizmlarini loyihalashda foydalanish tavsiya etiladi.

**UDC: 628.135**

# RECOMMENDATIONS FOR THE RELIABLE AND SAFE OPERATION OF PUMPING STATIONS

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***Abstract:*** *The article presents proposals and recommendations for changing the pump's performance indicators (Q and N) within a wide range by rotating the blades, based on the study of their working wheel hub and the asymmetrically shaped blades attached to it, as well as the rotational flow of the wheel.*

***Keywords:*** *Pump, water flow, flow, wheel, engine, pipes, pressure.*

## INTRODUCTION

OP-type pumps: axial-flow, variable-pitch (axial-flow kaplan) pumps with an impeller diameter of D≥870 mm and a spherical rotor housing.

By adjusting the blade angle (pitch), the pump's performance characteristics (discharge Q and head H) can be regulated within a wide operating range. The impeller consists of a hub and asymmetrically shaped blades attached to it, positioned inside the spherical rotor housing. During impeller rotation, the fluid flow over the asymmetrical profile of the blades generates a lifting force, creating an axial movement of the flow. The rotation of the impeller induces a translational-rotational (swirling) motion within the flow.[1]

## MAIN PART

Pump designations may include letters that indicate their structural design and operating conditions. For instance, in pump models such as OP5-110, OP2-110E-UZ, OP2-110MKE, and OP10-185EG, the numbers 2, 5, and 10 denote the standard model serial number, while 110, 185, and 87 represent the impeller diameter in centimeters (sm)

When selecting an electric motor for pumps, particular attention is paid to ensuring that the rotational speed and shaft power of both the motor and the pump are precisely matched. The required electric motor power ($P_{\text{m}}$, *kW*) is determined as follows [2]:

$$N_{\text{дв}} = \frac{N_{max}K}{\eta_{\text{уз}}}$$

$N_{\text{max}}$ is the maximum power required at the pump shaft (kW); its value is selected from the pump performance characteristic curves based on the $H_{\text{x,max}}$ and $H_{\text{x,min}}$ values, or calculated using the operational coordinates ($H_{\text{x,max}}$, $Q_{\text{x,min}}$) and ($H_{\text{x,min}}$, $Q_{\text{x,max}}$);

*K* is the power safety factor (reliability margin coefficient); its value is taken as *K* = 1.3 … 1.2 for pump power capacities up to 50 kW, *K* = 1.2 … 1.1 for capacities ranging from 51 … 100 kW, and *K* = 1.1 … 1.05 for power capacities exceeding 100 kW.

$\eta_{tr}$ is the transmission (coupling) efficiency; it is taken as $\eta_{tr}$ = 1 when the pump and motor shafts are coupled directly or via a flexible jaw coupling.

Based on the electric motor catalog, a horizontal or vertical shaft electric motor model is selected whose rated rotational speed $n_{\text{m}}$ (rpm) equals the pump's rotational speed $n_{\text{p}}$ (rpm) and whose power rating matches the calculated value.

When selecting an electric motor, it is essential to analyze the following factors: the current type, frequency, power, and voltage; the constraints imposed by the electrical power source on the motor starting conditions; environmental and ambient conditions (temperature, humidity, dust levels, ventilation, etc.); and the requirement that the pump's starting, nominal, and maximum torque

values must remain strictly below the corresponding torque capacities of the motor.

## Reliable Water Supply of Pumping Stations and Failure Probabilities of Pumping Station Equipment

Functional failures of pumping station equipment and structures may not severely impact overall operations; however, experience indicates that parametric failures can lead to catastrophic losses. As previously noted, the majority of pumping stations and their auxiliary systems currently in operation are physically obsolete, resulting in a significant decline in their required efficiency.

Specifically, this obsolescence leads to excessive electrical energy consumption, failure to deliver the designated water discharge on schedule, high operational and maintenance costs, and an increased probability of emergency accidents.

Managing the reliability of hydromechanical equipment during the operational phase requires identifying the root causes of occurring failures and implementing effective mitigation measures. In this context, failures leading to a degradation of performance characteristics are of critical importance. A complete loss of the pumping unit's operational capability typically occurs due to the following factors [3]:

- A sudden and hazardous escalation of cavitation and vibration levels during pumping unit operations;
- Structural failures or emergency damage to the pumping unit casing and its internal components;
- Sudden power outages or electrical supply failures;
- The total unavailability of water inflow or discharge capabilities.

To mitigate reductions in pump efficiency, prevent emergency situations, and eliminate disruptions in water supply, it is critical to detect failures in a timely manner. Ensuring that the main equipment of the pumping station

complies with the technical requirements for operational reliability and meets the standards defined in the operational documentation is of paramount importance. Pumping station reliability, in terms of water delivery capacity, is classified into three distinct categories.[5]

**Category I** permits a short-term complete shutdown of the water supply due to an emergency for up to 5 hours, or a reduction of up to 50% of the required water discharge for a maximum duration of three days;

**Category II** permits a complete shutdown of the water supply due to an emergency for up to 24 hours (one day), or a reduction of up to 50% of the required water discharge for a maximum duration of five days;

**Category III** applies to scenarios where an emergency situation allows for a complete suspension of the water supply for up to five days.

Minimizing operational expenditures and ensuring the reliable performance of the pumping station during water delivery is achieved by optimizing the operational regimes of the hydromechanical equipment. In this regard, preventing the occurrence of cavitation phenomena within the pumps is of paramount importance.

To prevent the occurrence of cavitation within the pumps, it is recommended to determine the allowable suction lift using vacuum gauge height $H_{вак}^{ж}$ and geodetic (static) suction height $h_s^{ж}$ methods through the following approaches [4]:

$$H_{вак}^{ж} = H_a - h_{буг} - \Delta h_{ж} + \frac{V_s^2}{2g};$$

(1.1)

$$h_s^{ж} = H_{вак}^{ж} - \sum h_{ws} - \frac{V_s^2}{2g};$$

(1.2)

Where:

$H_a$ - is the atmospheric pressure (m);

$h_{буг}$ - is the saturated water vapor pressure (m), (Table 1.1);

$\Delta h_{ж}$ - is the allowable cavitation safety margin (net positive suction head margin, (m);

$\Sigma h_{ws}$ - is the total hydraulic resistance (friction and local head losses) of the suction pipeline (m);

$V_s$ - is the flow velocity at the pump suction inlet (m/s).

**Table 1.1.**

***Saturated Water Vapor Pressure ($h_v$) as a Function of Water Temperature***

| $t$ ℃ | 5° | 10° | 20° | 30° | 40° | 50° | 60° | 80° | 100° |
|---|---|---|---|---|---|---|---|---|---|
| $h_{буг}$,м | 0,09 | 0,12 | 0,24 | 0,43 | 0,75 | 1,25 | 2,02 | 4,88 | 10,33 |

he allowable suction lift can be determined using the following equation:

$$H^{ж}_{s,кел} = H_a - h_{буг} - \Delta h_{ж}$$

(1.3)

In the manufacturer's technical specifications (design characteristics) of the pumps, the values of the allowable cavitation safety margin $\Delta h_{ж}$ or the allowable vacuum gauge suction lift $H^{ж}_{вак}$ are standardly provided.When necessary, it is recommended to determine the required cavitation safety margin using the following formula [4]:

$$\Delta h_{ж} = \varphi \sigma H \qquad (1.4)$$

Where:

$\varphi$ =1,2-1,4 - is the safety (cavitation margin) coefficient;

$\sigma$ - is the cavitation coefficient.

To determine the cavitation coefficient $\sigma$, the S.S. Rudnev formula can be utilized:

$$\sigma = \frac{n_s^{4/3}}{A}; \qquad (1.5)$$

Where *A* is an empirical coefficient depending on the structural design of the pump; its value is taken as *A* = 4700 when the specific speed $n_s$ = 110, and *A* = 6300 when $n_s$ = 180.

To determine the cavitation safety margin (net positive suction head, NPSH), S.S. Rudnev recommended the following formula:

$$\Delta h = 10\left(\frac{n\sqrt{Q}}{C}\right)^{4/3}; \qquad (1.6)$$

Where C is a constant coefficient depending on the structural design of the pump (it is taken as C = 600 ... 800 for low-speed impellers, C = 800 ... 1000 for standard impellers, and C = 1000 ... 1500 for high-speed impellers).

When the pumping station building and the water intake structures are integrated structurally into a single unit, the length of the suction pipelines is highly minimized and configured without any bends in the layout.

Conversely, if the length of the water intake facilities is less than the length of the main building and they are positioned separately, the length of the suction pipelines can be extended up to 30 m, with horizontal directional changes connected at a maximum bend angle of $45^0$.The formation of vortices in the fluid flow directly in front of the suction pipelines leads to a significant drop in pump efficiency (η). Furthermore, by triggering cavitation phenomena, these swirling flows induce various mechanical faults and structural anomalies within both the pump components and the pressure pipelines.

The phenomenon of cavitation is defined as the process of vapor bubble formation that occurs when the localized pressure at any point within the fluid flow moving through a pump drops to or below the saturated vapor pressure (elasticity) threshold of the liquid. As these bubbles transition into higher-pressure zones, their violent collapse (implosion) causes severe erosive wear to the pump components and leads to a significant degradation of its performance characteristics, including discharge (Q), head (H), and efficiency (η). [6]

A further intensification of cavitation leads to a complete disruption of the pump's operational regime. The cavitation phenomenon is a transient process that initiates with the disruption of flow continuity and terminates with its subsequent restoration.Under natural ambient conditions, the temperature of the water passing through the pump typically ranges between t =10…20 ℃. At these temperatures, the corresponding saturated water vapor pressure (tension) is equivalent to a 0.12 … 0.24 m water column.

If the localized pressure at any point within the internal flow passages of the pump drops below this critical vapor pressure threshold, the water begins to boil instantaneously, inducing the formation of vapor-filled bubbles (cavities).Hydrodynamics of Cavitation and Erosive Wear Processes

Vapor bubbles traveling with the fluid flow coalesce in high-pressure regions to form cavities (caverns). Upon reaching a critical size, these cavities collapse abruptly within the high-pressure zones, triggering the following physical and chemical phenomena:Hydraulic Shock (Implosion): The collapse of these cavities occurs with such extreme velocity that the space is instantaneously filled with water, inducing a localized hydraulic shock (micro-jet implosion) that generates transient pressures reaching several hundred or even thousands of atmospheres.

When these implosions occur directly on the boundary surfaces of the pump components, the material absorbs the repetitive hydraulic shocks, leading to intensive mechanical fatigue degradation.

Thermal and Chemical Erosion: In low-pressure zones, dissolved gases—primarily air and oxygen—consistently liberate from the water and diffuse into the newly formed bubbles. During the collapse phase, these gas bubbles undergo severe adiabatic compression, leading to a localized, rapid spike in temperature. Under these high-temperature conditions, the highly reactive oxygen aggressively attacks the metal surfaces, accelerating chemical and thermal corrosion.

High-Frequency Vibration: The implosion of the vapor bubbles generates high-frequency acoustic vibrations ranging from 20 … 25 kHz. These intense high-frequency vibrations further accelerate the mechanical destruction and fatigue failure of the structural components of the pump.

Furthermore, air entrainment resulting from loose, inadequately sealed joints along the suction pipeline can also contribute significantly to bubble formation.Under severe cavitation regimes, pumps can experience catastrophic, premature failure. Additionally, many headrace canals supplying water to pumping stations carry significant sediment loads, including silt, sand, and gravel. If these abrasive particulates are not effectively trapped within settling basins (sedimentation tanks) and pass through the pump, they cause severe abrasive wear (hydro-abrasive erosion) due to friction against the moving internal components of the pump.

When the pumping station forebay (suction chamber) maintains a minimum water level that inherently prevents cavitation onset—even under minimum discharge conditions—the reliability of the pumping units to deliver the design flow rate to the required head is substantially enhanced. Consequently, this operational threshold effectively mitigates the risks of the suction pipelines shifting into hazardous cavitation regimes. Cavitation induces distinct audible noise, structural pounding, and heavy vibrations within the pump casing and suction pipelines, which subsequently leads to structural oscillations in the bearing supports and triggers other detrimental operational anomalies.

**Recommended Key Measures for Pumping Station Operations**

To ensure the reliable and efficient operation of pumping stations, maintain stable water levels and discharge rates, achieve high energy efficiency, and guarantee an uninterrupted water supply, implementing the following core measures is highly recommended [7]:

1. **Construction of Water Regulation Storage Reservoirs:** Regulating storage volumes should be constructed, ideally upstream of each pumping

station within a cascade system. Where feasible, canals with horizontally aligned berms should be utilized as auxiliary storage capacities.

2. **Resource Conservation Management:** Comprehensive protocols must be implemented to optimize and conserve water, electrical energy, and other material-technical resources.
3. **Discharge Regulation Optimization:** Pumping station discharge rates should be precisely regulated. This can be achieved by increasing the baseline number of operating pumps, subdividing one main unit into multiple interchangeable lower-capacity units (2 or 3 units), or retrofitting systems with adjustable-capacity pumping units (such as variable-pitch axial pumps or units equipped with variable speed controls).
4. **Integration of Modern Energy-Saving Technologies:** Modern energy-efficient and resource-saving technologies should be integrated alongside the wide-scale deployment of alternative and renewable energy sources (RES).
5. **Implementation of Automated Monitoring Systems:** Remote-controlled, online monitoring systems that eliminate human error should be introduced to accurately account for water discharge volumes and electrical energy consumption.
6. **Technical Maintenance of Hydraulic Infrastructure:** Continuous technical maintenance and systematic monitoring must be conducted to ensure the structural integrity of water intake structures, discharge outlets, forebays (suction chambers), as well as suction and pressure pipelines.

**Cavitation mitigation measures and flow regulation methods cavitation prevention and mitigation measures:**

Correct Pump Selection: It is imperative to verify that the pump specifications strictly align with the actual operating conditions. Specifically, the pump must not operate under excessive heads or velocities that deviate from its design limits.

Fluid Level Control: The water or fluid level at the pump suction inlet must be maintained at a sufficient height. Low suction levels significantly elevate the risk of cavitation onset.

Optimized Suction Pipeline Design: Utilizing larger diameter pipelines with smooth internal walls is highly recommended to ensure unhindered fluid flow and to minimize hydraulic head losses.

Maintaining Nominal Rotational Speed: Operating at excessively high rotational speeds can induce cavitation. Therefore, maintaining the operating speed within the manufacturer's recommended limits is critical.

Increasing Pump Inlet Pressure: Insufficient inlet pressure can trigger localized fluid vaporization. To counteract this, the pump should either be installed at a lower elevation relative to the fluid source or supplemented with positive priming pressure.

Utilization of Filters and Strainers: Ensuring that the inflowing fluid is completely free of debris and suspended solids guarantees normal, unobstructed pump operation.

Temperature Control: High fluid temperatures accelerate vapor pressure increase, leading to rapid vaporization and cavitation. Consequently, pump operation must be carefully managed to align with environmental and ambient conditions.

Vortex Suppression in the Forebay: To prevent the pumping unit from shifting into a cavitation regime due to water level drawdowns in the pumping station forebay (suction chamber), optimized anti-vortex devices must be deployed at the inlet of the suction pipes.

Consequences of Swirling Flow: The formation of water vortices induces air entrainment into the suction pipelines along with the water flow. This induces severe cavitation regimes, leading to intensive erosive wear and premature failure of the impeller blades.

Implementing these comprehensive technical measures provides the structural capability to significantly mitigate or entirely eliminate cavitation phenomena in pumping units.

When the discharge requirements of a pumping unit fluctuate, specialized pump regulation methods can be employed. These flow regulation techniques are broadly classified into two distinct approaches: quantitative and qualitative methods.

Quantitative regulation primarily includes throttling methods (e.g., using a discharge gate valve). Conversely, qualitative regulation is achieved by altering the geometric or operational parameters of the pump, such as trimming the impeller diameter, adjusting the rotational speed, or, in the case of axial-flow pumps, varying the impeller blade pitch angles.

Among all the aforementioned methodologies, regulating the rotational speed of the pumping unit stands out as the most energy-efficient approach. Consequently, modern systems looking to maximize energy efficiency increasingly utilize Variable Frequency Drives (VFDs / Inverters). An inverter regulates the hydraulic head and water discharge rate of the pump by controlling the frequency of the electrical power supplied to the electric motor, ensuring highly optimized operation.

## CONCLUSIONS

The water discharge capacity of a pump depends fundamentally on its rotational speed, power capacity, and pressure head. Furthermore, in centrifugal and axial-flow pumps, a reduction in rotational speed leads to a corresponding decrease in water discharge.

Based on the calculation results, a single OP-5-110 type pumping unit at the "Mash'al" pumping station—driven by a VDC215-24-14 model electric motor with a power capacity of 800 kW, an electrical voltage of 6 kV, and a rotational speed of 428 rpm—is capable of delivering an average water discharge

rate of 4.28 $m^3$/s.Due to the lower rotational speed of the pump, its discharge capacity is also relatively low.

As the rotational speed of the pump increases, its water discharge rate increases accordingly; therefore, the rotational speed is a critical factor when selecting pumping units.Furthermore, if the pumps are operated while maintaining the water level in the suction chamber (forebay) of the pumping station at a minimum threshold of 2.3 … 2.5 m without allowing it to drop further, a significantly higher water discharge efficiency can be achieved.

This operational practice effectively prevents the occurrence of cavitation processes within the pumps, thereby creating opportunities for a more efficient and optimized utilization of the pumping station.

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**УДК 626/627**

# ИННОВАЦИОННЫЕ ПОДХОДЫ К ОБЕСПЕЧЕНИЮ НАДЕЖНОСТИ ОСНОВАНИЙ И ПЕРСПЕКТИВЫ РАЗВИТИЯ НИЗКОНАПОРНЫХ ГИДРОТЕХНИЧЕСКИХ СООРУЖЕНИЙ

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***Аннотация:*** *Использование низконапорных гидротехнических сооружений играет важдую роль в устойчивое обеспечении и управлении надземных вод в отрасли экономики. В период эксплуатации разрушение и повреждение низконапорных гидротехнических сооружений вызваны воздействием различных объективных и субъективных факторов.*

***Abstract:*** *The use of low-pressure hydraulic structures plays a key role in the sustainable provision and management of surface water in the economic sector. During operation, the destruction and damage of low-pressure hydraulic structures are caused by the impact of various objective and subjective factors.*

***Ключевые слова:*** *низконапорные гидротехнические сооружения, основание, водные ресурсы, проектирование, строительство, эксплуатация.*

***Keywords:*** *low-pressure hydraulic structures, foundation, water resources, design, construction, operation.*

## ВВЕДЕНИЕ

Водные ресурсы в странах Центральной Азии все больше сокращаются, все больше усугубляя экономические проблемы региона. Изменение климата создает необычные погодные условия, и эти проблемы, вероятно, сохранятся и в будущем. В ближайшее десятилетие изменение климата и рост потребления воды в соседних странах приведут к сокращению водозабора Узбекистаном из рек Амударья и Сырдарья. В результате процесс засухи и опустынивания может усилиться и серьезно

повлиять на уровень жизни населения. Одним из решений по компенсации потерь воды и предотвращению ее дефицита являются водо-, энерго- и ресурсосберегающие технологии, поскольку тенденция сокращения биоразнообразия продолжается.

## ОСНОВНАЯ ЧАСТЬ

В связи с быстрым ростом населения в нашей республике потребность в водных ресурсах увеличивается с каждым днем. Особое место занимают вопросы нехватки водных ресурсов и повышения уровня обеспечения населения устойчивыми водными ресурсами. Поэтому гидротехнические сооружения (ГТС) играют важную роль в экономном использовании и управлении водными ресурсами в различных отраслях экономики страны [1,2].

Наряду со смягчением и устранением этих проблем, одной из актуальных задач является строительство новых ГТС в обеспечении устойчивой водой отраслей экономики нашей республики. Причиной этого является отсутствие территорий, позволяющих осуществлять проектирование и строительство ГТС в геологически невозможных местах ведущими инженерами и специалистами.

В связи с дефицитом водных ресурсов в последние годы большое внимание уделяется проектированию, строительству и эксплуатации низконапорных ГТС. В Узбекистане низконапорных ГТС больше, чем крупных. Большая работа проделана ведущими учеными и специалистами в области проектирования и строительства низконапорных ГТС. Ими разработаны методы расчета на основе существующих проблем, а также разработано программное обеспечение для быстрого выявления отказов и дефектов.

Но их результаты, на мой взгляд, остаются поверхностными. Причиной тому являются: проблемы с расчетом совместной работы основания и сооружений, позволяющих учитывать сложные инженерно-

геологические условия; отсутствие нормативной и исследовательской документации на проектирование и строительство; заключается в том, что предшествующий опыт применения новых типов строительства недостаточен.

Тем не менее, ждут решения проблемы разработки ресурсосберегающих технологий использования низконапорных ГТС и укрепления их оснований, применения экономически эффективных технологических мер при проектировании и строительстве.

В 2023 году новая редакция Закона «О безопасности гидротехнических сооружений» [3] была разработана в целях поддержания существующих водохозяйственных объектов нашей страны в техническом состоянии, обеспечения их безопасности и надежного использования. Большинство низконапорных ГТС эксплуатируются более 40 лет. За время использования возник ряд разрушений и повреждений. Их распределение по высоте представлено на рис. 1. Это требует их своевременного ремонта, восстановления и реконструкции, а также оснащения современным оборудованием, поддержания их в техническом состоянии, обеспечения их безопасной и надежной эксплуатации. В сфере строительства признается, что принципы проектирования основания крупных ГТС неправильно применяются к низконапорным ГТС, что приводит к дополнительным затратам. Именно поэтому, учитывая существующие проблемы, особое внимание уделяется эффективному использованию низконапорных ГТС, поиску путей эффективного решения текущих задач, связанных с повышением прочности и устойчивости их оснований.

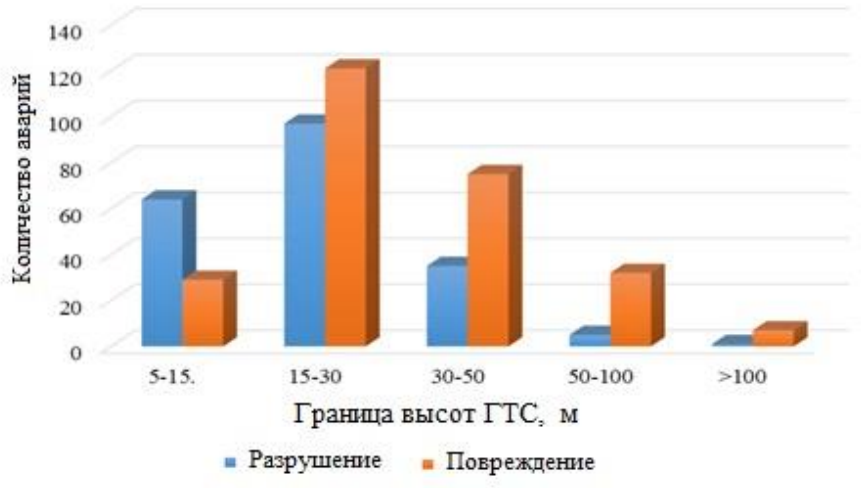


**Рис. 1. Зависимость аварий от высоты сооружений**

Определенные разрушения и повреждения низконапорных ГТС вызваны влиянием различных объективных и субъективных факторов. Объектив включает в себя стихийные бедствия, такие как ураганы, проливные дожди, оползни, землетрясения и многое другое. К субъективным причинам относятся: ошибки в проектировании, нарушение технических регламентов при строительстве, нецелевое использование объектов и т.д. Многие разрушения ГТС являются результатом экономии средств, которая проявлялась в недостаточных предварительных исследованиях, низком качестве используемых строительных материалов, необоснованном уменьшении размеров сооружений.

Несмотря на значительный прогресс в технологии строительства, совершенствование его технологии, улучшение качества используемых строительных материалов, а также рост общего уровня знаний и технических решений, аварии на плотинах в настоящее время происходят.

Крайне актуальны вопросы обеспечения длительной безопасной эксплуатации строящихся и эксплуатируемых низконапорных ГТС. Само собой разумеется, что для успешного решения этой важной задачи необходимо эффективно использовать весь положительный и отрицательный мировой опыт гидротехнического строительства [4,5].

Однако нельзя игнорировать факторы, которые рано или поздно приводят к недопустимому ухудшению состояния сооружения даже при правильной эксплуатации. К таким факторам относятся, например, ухудшение материала ГТС и ослабление основания, изменение их прочности, водонепроницаемости и других свойств с течением времени. Поэтому в необходимых случаях необходимо заранее предусмотреть капитальный ремонт, устойчивость сооружения или даже заменить старые, ослабленные сооружения более современными, изготовленными из современных материалов и хорошо спроектированными.

## ЗАКЛЮЧЕНИЕ

В заключение отметим, что проблема эксплуатируемых низконапорных ГТС требует безотлагательного и незамедлительного решения. Большинство из них эксплуатируются в течение 40 и более лет без обслуживания и реконструкции и считаются объектами высокого риска. Это подчеркивает необходимость уделять особое внимание вопросам обеспечения безопасности и повышения устойчивости.

На основе проведенных исследований, посвященных оценке устойчивости оснований, гидродинамических процессов и эксплуатационной безопасности низконапорных гидротехнических сооружений (ГТС) в условиях дефицита водных ресурсов Центральной Азии, сформулированы следующие ключевые выводы:

Критическое состояние инфраструктуры: Большинство низконапорных ГТС в Республике Узбекистан активно эксплуатируются более 40 лет без проведения своевременной реконструкции. С течением времени под воздействием объективных и субъективных факторов в их конструкциях накопились значительные повреждения. Основными деструктивными процессами в грунтовых основаниях являются суффозия, усталость материалов и опасные перемещения грунтовой массы, что

переводит данные объекты в категорию повышенного риска и требует немедленного технического вмешательства.

Методологические несоответствия в проектировании: Доказано, что прямое и слепое перенесение принципов проектирования оснований крупных плотин на низконапорные ГТС является методологически ошибочным. Это не учитывает специфику совместной работы сооружения и грунта в сложных инженерно-геологических условиях региона и приводит к избыточным, экономически необоснованным затратам. Существует острая необходимость разработки дифференцированной нормативно-исследовательской базы, специализированной исключительно на низконапорных объектах.

Гидродинамические риски и кавитация: Анализ работы насосных агрегатов (на примере станции «Машъал») показал, что падение уровня воды в аванкамере ниже критической отметки (2.3 ... 2.5 м) и возникновение водоворотов приводят к подсосу воздуха и переводу систем в кавитационный режим. Схлопывание кавитационных пузырьков вызывает мощные локальные гидроудары (до тысяч атмосфер), высокочастотную вибрацию (20 … 25 кГц) и интенсивный гидроабразивный износ рабочих лопастей из-за трения наносов (песка и ила). Поддержание проектного уровня воды является ключевым условием предотвращения кавитации.

Стратегические рекомендации: Для обеспечения долгосрочной безопасности и надежности ГТС необходимо:

Внедрять автоматизированные цифровые технологии и системы удаленного онлайн-мониторинга смещения грунтов и учета ресурсов, полностью исключающие человеческий фактор;

Переходить от количественных методов регулирования расхода (дросселирование задвижками) к качественным энергоэффективным

методам, в частности, к интеграции частотно-регулируемых приводов (инверторов);

Проводить своевременное укрепление и стабилизацию оснований плотин с использованием современных композитных материалов.

Реализация предложенных мер в соответствии с требованиями обновленной редакции Закона «О безопасности гидротехнических сооружений» позволит минимизировать риски параметрических отказов, снизить эксплуатационные расходы и обеспечить устойчивое водоснабжение отраслей экономики страны.

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# INTELLIGENT SELF-LEARNING CONTROL OF A BIOREACTOR IN BIOLOGICAL WASTEWATER TREATMENT SYSTEMS

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***Abstract.*** *The paper examines approaches to the development of self-learning and self-tuning control systems for biological wastewater treatment processes. An architecture of an intelligent control loop is proposed, integrating online parameter identification, adaptive state prediction, and automatic adjustment of control actions. It is shown that the application of hybrid models in combination with adaptive control methods improves control accuracy and system stability under conditions of uncertainty and varying input disturbances.*

***Keywords:*** *biological wastewater treatment, activated sludge, self-learning, adaptive control, LSTM, Gaussian processes, ANFIS, digital twin, MPC.*

## INTRODUCTION

Modern biological wastewater treatment systems operate under conditions of high uncertainty: the influent composition changes, temperature fluctuates, hydraulic load varies, and toxic disturbances periodically occur [1–23]. In such an environment, classical control schemes based on PID controllers often fail to provide the required accuracy and stability, since their settings are fixed, whereas the controlled object continuously changes [2].

Practice shows that effective control of a bioreactor requires real-time adaptation—not episodic retuning, but continuous refinement of the model and control actions as new data become available [6,9]. Therefore, an intelligent approach becomes relevant, based on the joint use of process models, machine learning methods, and optimal control algorithms [1,6,13]. A special role in this concept is assigned to self-learning: the system accumulates information about its operation, evaluates the control error, and on this basis adjusts its own

behavior, gradually improving control performance even under conditions of uncertainty and unstable operating regimes [1,8,13].

## MATERIALS AND METHODS

The object of study is an activated sludge bioreactor, for which the control loop monitors key process parameters: concentrations of ammonium nitrogen ($NH_4^+$) and nitrates ($NO_3^-$), dissolved oxygen (DO), organic substances (S), as well as biomass [2,3]. The control system is implemented as a multi-level architecture integrating the measurement level (sensors and virtual sensors), an online parameter identification unit, a predictive model self-learning module, and an adaptive control loop [6,14]. Online parameter estimation is carried out using the extended and unbiased Kalman filter methods, as well as recursive regression, which makes it possible to update the model under conditions of varying load [6,9]. The parameter vector is updated in real time as the solution to a model error minimization problem:

$$\theta(t+1) = \arg\min_{\theta} L(\theta)$$

where ($L(\theta)$) characterizes the mismatch between the calculated and observed values.

The prediction of process dynamics is performed using machine learning models: LSTM are employed to reproduce temporal dependencies and inertial effects [7,8], Gaussian processes are used for probabilistic forecasting with uncertainty estimation, and ANN and ANFIS are applied for nonlinear approximation and the construction of data-driven hybrid relationships [1,7]. The control loop includes adaptive algorithms, among which a key role is played by Model Predictive Control (MPC), neuro-fuzzy schemes, and a self-tuning PID controller [6,9]. The optimization of control actions is carried out according to the functional:

$$J = \sum \left(\omega_1 e^2(t) + \omega_2 \Delta u^2(t)\right)$$

where $(e(t))$ is the control error, $(\Delta u(t))$ is the change in the control signal, and $(\omega_1, \omega_2)$ are weighting coefficients defining the trade-off between accuracy and the "smoothness" of control. The system operates in a cyclic manner: data acquisition → online identification → model self-learning → control adjustment, which ensures continuous adaptation to changing operating conditions and external disturbances [6,13].

## RESULTS

The conducted simulation demonstrated that the implementation of a self-learning control loop significantly improves the control performance of the bioreactor. In comparison with traditional schemes, a reduction in control error is observed, along with a decrease in the amplitude of fluctuations of key process parameters and a faster system response to external disturbances and changes in operating conditions. The most stable and reproducible results were obtained with the combined use of LSTM and MPC: LSTM generates a forecast of process dynamics over a given horizon, while MPC, based on this forecast, selects optimal control actions taking into account constraints and the performance criterion. Such a combination ensures both accurate maintenance of the operating regime and a reduction in abrupt variations of the control signal.

The use of Gaussian Processes adds an important component of reliability, as it provides not only point predictions but also confidence intervals. This increases the informativeness of the forecast and is particularly valuable for control under conditions of risk and high variability of input disturbances. The ANFIS model demonstrated high efficiency in nonlinear regimes, providing adaptation of control rules directly during operation. As a result, the system maintains performance when the characteristics of the object change and is able to adjust the control strategy without manual retuning.

Overall, the results confirm that the proposed hybrid self-learning control architecture outperforms traditional approaches in key performance metrics,

providing more accurate, stable, and adaptive control under conditions of uncertainty.

## DISCUSSION

The obtained results confirm that the transition from static control schemes to adaptive and self-learning systems is a natural and, essentially, necessary stage in the development of biological treatment technologies. Classical control methods, oriented toward fixed settings, poorly account for the dynamic and non-stationary nature of the bioreactor: when the influent composition, temperature, or load changes, they typically respond only after deviations have already manifested, which reduces stability and increases the risk of the process exceeding permissible limits. Intelligent control systems operate according to a different logic. First, they rely on prediction, which enables a shift from a reactive strategy to a predictive one: control actions are formed taking into account the expected process dynamics and constraints. Second, through self-learning, such systems are capable of adapting to parameter drift and changes in operating regimes, maintaining control performance without manual retuning. Third, the use of probabilistic models (for example, Gaussian Processes) extends control toward a risk-oriented approach, in which not only the forecast but also the degree of uncertainty is taken into account.

A special role in this paradigm is played by the concept of the digital twin, within which the computational model and the real object are considered as a unified loop. This makes it possible to safely test control strategies, assess sensitivity to disturbances, and tune algorithm parameters without interfering with the actual technological process, thereby reducing operational risks and accelerating the implementation cycle. At the same time, certain limitations remain that must be taken into account in practical implementation. These include computational costs (especially for MPC and online learning), requirements for data quality and completeness, as well as issues of interpretability of complex models and trust in their decisions. However, as the

results show, the overall effect of improved accuracy, stability, and adaptability of control significantly outweighs these limitations, particularly under unstable and uncertain operating conditions.

## CONCLUSION

An architecture of a self-learning control system for a bioreactor has been developed, based on the integration of machine learning methods and adaptive control within a multi-level intelligent loop. It is shown that the combined application of LSTM, Gaussian Processes, and MPC ensures improved control accuracy, enhanced disturbance robustness, and preservation of control performance under changes in system parameters. The developed control loop is capable of operating within the digital twin paradigm, enabling adaptation to changing operating conditions and the safe validation of control strategies on the model prior to their application in the real process. The obtained results can be used in the development of next-generation automated control systems for wastewater treatment facilities, oriented toward predictive control, reduction of operational risks, and improvement of technological efficiency.

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# МЕТОДОЛОГИЧЕСКИЕ ВОПРОСЫ ОТРАСЛЕВОГО СТРАТЕГИРОВАНИЯ

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***Аннотация.*** *В статье рассматриваются методологические вопросы отраслевого стратегирования как самостоятельного направления современной теории стратегии и практики долгосрочного социально-экономического развития. Обосновано, что отраслевая стратегия должна формироваться не как совокупность текущих программных мероприятий, а как научно выстроенная система стратегического выбора, основанная на выявлении конкурентных преимуществ, ресурсного потенциала, технологических возможностей, институциональных условий и долгосрочных приоритетов отрасли. Особое внимание уделяется трудам В.Л. Квинта, Н.И. Сасаева, С.Ш. Мирзиёевой, а также научным подходам М. Портера, Д. Родрика, Д. Тиса, Ф. Малербы и других исследователей, имеющих существенное значение для развития методологии отраслевого анализа, промышленной политики и стратегического управления. В статье раскрываются сущность отраслевого стратегирования, его принципы, этапы, инструменты стратегической диагностики, критерии выбора приоритетных отраслей и особенности применения данного подхода в условиях модернизации экономики Узбекистана.*

***Ключевые слова:*** *отраслевое стратегирование, стратегия, методология, стратегические приоритеты, конкурентные преимущества, промышленная политика, структурная модернизация, национальная экономика, Узбекистан.*

***Abstract.*** *The article examines methodological issues of sectoral strategizing as an independent area of modern strategy theory and long-term socio-economic development practice. It is substantiated that a sectoral strategy should not be formed as a set of current program measures, but as a scientifically grounded system of strategic choice based on the identification of competitive advantages, resource potential, technological capabilities, institutional conditions and long-term priorities of a sector. Special attention is paid to the works of V.L. Kvint, N.I. Sasaev, S.Sh. Mirziyoyeva, as well as to the scientific approaches of M. Porter, D. Rodrik, D. Teece, F. Malerba and other researchers who are of significant*

*importance for the development of the methodology of sectoral analysis, industrial policy and strategic management. The article reveals the essence of sectoral strategizing, its principles, stages, tools of strategic diagnostics, criteria for selecting priority sectors and the specific features of applying this approach in the context of modernization of the economy of Uzbekistan.*

***Keywords:*** *sectoral strategizing, strategy, methodology, strategic priorities, competitive advantages, industrial policy, structural modernization, national economy, Uzbekistan.*

## ВВЕДЕНИЕ

В современных условиях ускорения технологических изменений, усиления международной конкуренции, трансформации производственных цепочек и роста требований к устойчивому развитию особую значимость приобретает проблема научно обоснованного отраслевого стратегирования. Развитие национальной экономики уже невозможно рассматривать только через общие макроэкономические показатели, поскольку долгосрочная устойчивость государства во многом определяется состоянием его ключевых отраслей, их инновационной активностью, производственной эффективностью, экспортным потенциалом, кадровым обеспечением и способностью адаптироваться к изменяющимся внешним условиям.

Отраслевое стратегирование выступает как самостоятельное научно-практическое направление, ориентированное на выявление долгосрочных приоритетов развития конкретной отрасли, определение её стратегических интересов, конкурентных преимуществ, ограничений, ресурсов и перспективной траектории развития. В отличие от текущего отраслевого планирования, стратегирование не ограничивается разработкой краткосрочных мероприятий. Оно предполагает глубокое осмысление будущего отрасли, выявление её места в национальной экономике, оценку влияния глобальных трендов, технологических изменений и институциональной среды.

Теоретико-методологической основой исследования выступают труды В.Л. Квинта, в которых стратегирование рассматривается как процесс выявления, научного обоснования и реализации долгосрочных приоритетов развития объекта стратегии на основе его ценностей, интересов и конкурентных преимуществ (Квинт, 2019; Квинт, 2020). Особое значение для раскрытия данной темы имеют работы Н.И. Сасаева, непосредственно посвящённые отраслевому стратегированию, его понятийному аппарату, этапам, методическим основам и логике формирования отраслевой стратегии (Сасаев, 2022; Сасаев, 2023; Сасаев, 2024). Для условий Узбекистана важным методологическим ориентиром являются исследования С.Ш. Мирзиёевой, в которых обосновывается стратегическая приоритетность отраслей в структуре национальной экономики и необходимость системного подхода к промышленному развитию (Мирзиёева, 2019).

Вместе с тем методология отраслевого стратегирования не может быть ограничена только школой стратегирования. Она требует обращения к более широкому кругу научных подходов: теории конкурентных преимуществ М. Портера, ресурсной концепции фирмы Дж. Барни, теории динамических способностей Д. Тиса, Г. Пизано и Э. Шуэна, концепции промышленной политики Д. Родрика, идей инновационного развития Й. Шумпетера, секторальных инновационных систем Ф. Малербы, а также подходов к экономической сложности С. Идальго и Р. Хаусмана (Porter, 1980; Barney, 1991; Teece, Pisano and Shuen, 1997; Rodrik, 2004; Malerba, 2002; Hidalgo and Hausmann, 2009). Такое сочетание позволяет рассматривать отрасль не только как совокупность предприятий, но и как сложную систему технологий, институтов, компетенций, рынков, инфраструктуры и производственных связей.

Целью данной статьи является раскрытие методологических вопросов отраслевого стратегирования на основе анализа научных

подходов, имеющих особое значение для формирования отраслевых стратегий. Для достижения данной цели необходимо определить сущность отраслевого стратегирования, раскрыть его основные принципы, показать этапы разработки отраслевой стратегии, обосновать значение стратегической диагностики, выбора приоритетов и механизмов реализации, а также рассмотреть особенности применения данной методологии в условиях структурной модернизации экономики Узбекистана.

## ОСНОВНАЯ ЧАСТЬ

Отраслевое стратегирование следует рассматривать как особый уровень стратегического исследования, находящийся между национальным, региональным и корпоративным стратегированием. С одной стороны, отрасль является частью национальной экономики и должна развиваться в соответствии с долгосрочными целями государства. С другой стороны, каждая отрасль обладает собственной логикой развития, структурой рынков, технологическим уровнем, кадровой базой, инвестиционными потребностями и институциональными особенностями. Поэтому механическое перенесение общих инструментов стратегического планирования на отраслевой уровень не обеспечивает необходимой глубины анализа.

В методологии В.Л. Квинта принципиальное значение имеет выявление стратегических приоритетов, основанных на реальных и потенциальных конкурентных преимуществах объекта стратегирования (Квинт, 2019). Применительно к отрасли это означает, что стратегия должна строиться не на формальном перечислении желаемых целей, а на объективной оценке её сильных сторон, ограничений, внутренних ресурсов и внешних возможностей. Отраслевая стратегия должна отвечать на вопрос не только о том, чего необходимо достичь, но и за счёт каких

преимуществ, ресурсов, технологий, институтов и механизмов это может быть реализовано.

Н.И. Сасаев подчёркивает, что отраслевое стратегирование должно включать последовательное обследование объекта стратегирования, стратегическую диагностику, анализ ценностей и интересов, выявление трендов и возможностей, формирование концепции отраслевой стратегии и механизмов её реализации (Сасаев, 2022; Сасаев, 2023). Такой подход важен потому, что отрасль не может быть исследована только через текущие показатели выпуска, занятости или инвестиций. Необходимо учитывать её способность к долгосрочному развитию, технологическому обновлению, формированию добавленной стоимости, интеграции в межотраслевые и международные производственные цепочки.

Одним из ключевых методологических вопросов является определение объекта отраслевого стратегирования. В узком смысле объектом может выступать отдельная отрасль, например энергетика, сельское хозяйство, транспорт, машиностроение, горно-металлургический комплекс или цифровая экономика. В широком смысле объектом может быть межотраслевой комплекс, объединяющий несколько технологически и экономически связанных направлений. Такой подход особенно важен в современных условиях, когда границы между отраслями становятся всё более подвижными: цифровые технологии проникают в промышленность, энергетика связана с экологической политикой, аграрный сектор зависит от логистики, биотехнологий, водных ресурсов и цифровых платформ.

Важным элементом методологии является стратегическая диагностика отрасли. Она должна включать анализ производственного потенциала, технологического уровня, структуры предприятий, инвестиционной активности, кадрового обеспечения, экспортной ориентации, инфраструктурных ограничений, институциональной среды и степени зависимости от внешних рынков. В данном контексте полезным

является подход М. Портера, который предложил анализировать отраслевую конкуренцию через силу поставщиков, покупателей, угрозу новых участников, угрозу товаров-заменителей и интенсивность конкуренции внутри отрасли (Porter, 1980; Porter, 2008). Однако для целей отраслевого стратегирования модель Портера должна применяться не изолированно, а в сочетании с анализом национальных приоритетов, технологических трендов и государственной промышленной политики.

Не менее значимой является ресурсная и компетентностная основа отрасли. Согласно Дж. Барни, устойчивое конкурентное преимущество формируется тогда, когда ресурсы являются ценными, редкими, трудно имитируемыми и организационно встроенными в систему управления (Barney, 1991). Для отраслевого стратегирования это означает необходимость оценки не только материальных ресурсов, но и человеческого капитала, научно-исследовательской базы, управленческих компетенций, технологических знаний и институциональной способности отрасли к координации. Теория динамических способностей Д. Тиса, Г. Пизано и Э. Шуэна позволяет дополнить данный подход, поскольку подчёркивает способность экономических субъектов интегрировать, перестраивать и обновлять свои компетенции в условиях изменяющейся среды (Teece, Pisano and Shuen, 1997).

Следующим методологическим вопросом является выбор стратегических приоритетов. Отраслевая стратегия не должна превращаться в набор разрозненных мероприятий. Её сущность заключается в выделении ограниченного числа направлений, которые способны обеспечить долгосрочный качественный эффект. В этом отношении особое значение имеют исследования С.Ш. Мирзиёевой, где подчёркивается необходимость обоснования стратегической приоритетности отраслей с учётом их роли в структуре экономики, экспортного потенциала, влияния на занятость, инновационную

активность и устойчивый экономический рост (Мирзиёева, 2019). Для Узбекистана такой подход особенно актуален, поскольку модернизация экономики требует концентрации ресурсов на тех отраслях, которые способны стать драйверами долгосрочного развития.

Приоритетность отрасли не должна определяться только её текущей долей в валовом внутреннем продукте или занятости. В стратегическом смысле более важными становятся перспективные параметры: способность отрасли создавать высокую добавленную стоимость, формировать технологические цепочки, стимулировать развитие смежных отраслей, обеспечивать экспортную устойчивость, повышать производительность труда и способствовать технологическому суверенитету. В этом отношении близкими являются идеи Д. Родрика, который рассматривает промышленную политику не как простое субсидирование отдельных отраслей, а как процесс выявления возможностей, координации государства и бизнеса, устранения внешних ограничений и стимулирования структурных изменений (Rodrik, 2004).

Существенным дополнением к методологии отраслевого стратегирования является теория секторальных инновационных систем. Ф. Малерба показывает, что каждая отрасль обладает специфической системой знаний, технологий, участников, институтов и взаимодействий, влияющих на инновационное развитие (Malerba, 2002). Это положение имеет принципиальное значение: нельзя разрабатывать единую универсальную модель инновационного развития для всех отраслей. Например, энергетика, сельское хозяйство, химическая промышленность, транспорт, информационные технологии и горно-металлургический комплекс имеют разные циклы инноваций, структуру затрат, уровень зависимости от науки, инфраструктуры и регулирования.

Отдельное место в методологии занимает анализ глобальных и национальных трендов. Отраслевая стратегия должна учитывать

демографические изменения, цифровизацию, энергопереход, климатическую повестку, развитие искусственного интеллекта, автоматизацию производства, изменение структуры мировой торговли, логистические риски и рост требований к экологической ответственности. Й. Шумпетер ещё в первой половине XX века подчёркивал роль инноваций как основы экономического развития и структурных изменений (Schumpeter, 1934). В современных условиях эта идея приобретает новое значение: отрасль, не способная к технологическому обновлению, постепенно теряет конкурентоспособность даже при наличии природных ресурсов или дешёвой рабочей силы.

Методология отраслевого стратегирования также должна включать оценку межотраслевых связей и мультипликативных эффектов. Развитие одной отрасли может создавать спрос на продукцию других отраслей, формировать новые рабочие места, стимулировать инфраструктурные проекты и усиливать региональное развитие. Например, развитие горно-металлургического комплекса связано с энергетикой, транспортом, машиностроением, экологическими технологиями и подготовкой инженерных кадров. Развитие сельского хозяйства зависит от водного хозяйства, химической промышленности, переработки, логистики, торговли и цифровых сервисов. Поэтому стратегирование отрасли должно быть встроено в общую систему национального и регионального развития.

Важным методологическим требованием является согласование отраслевой стратегии с национальными стратегическими документами. Если отраслевые приоритеты не связаны с целями национальной экономики, возникает риск фрагментарности, дублирования ресурсов и слабой реализуемости. В рамках школы стратегирования подчёркивается, что стратегия должна строиться на согласовании интересов разных уровней: национального, регионального, отраслевого и корпоративного (Квинт, Новикова и Алимурадов, 2021). Для отраслевого стратегирования

это означает необходимость учитывать как государственные цели, так и интересы бизнеса, научно-образовательной среды, регионов и населения.

Ещё один важный вопрос — соотношение стратегии и механизмов реализации. Часто стратегические документы ограничиваются постановкой целей, но не содержат достаточной проработки инструментов их достижения. Методологически полноценная отраслевая стратегия должна включать финансовые механизмы, институциональные условия, кадровую политику, инновационные инструменты, меры государственной поддержки, систему мониторинга, индикаторы эффективности и этапы реализации. Без этого стратегия остаётся декларативной и не выполняет своей управленческой функции.

Особую актуальность данные вопросы имеют для Узбекистана. В условиях перехода к более диверсифицированной, инновационной и конкурентоспособной экономике отраслевое стратегирование может стать инструментом концентрации ресурсов на наиболее перспективных направлениях. Для страны важны такие отрасли, как энергетика, горно-металлургический комплекс, сельское хозяйство и переработка, транспортно-логистическая система, строительная индустрия, химическая промышленность, текстильная отрасль, цифровая экономика и зелёные технологии. Однако стратегический выбор должен основываться не только на текущей значимости отрасли, но и на её способности обеспечивать долгосрочный рост, экспортную устойчивость, занятость, инновационное обновление и интеграцию в глобальные цепочки добавленной стоимости.

Для разработки отраслевой стратегии целесообразно выделить несколько последовательных этапов. Первый этап — определение объекта и границ отрасли, включая её внутреннюю структуру и связи со смежными секторами. Второй этап — стратегическая диагностика, включающая анализ ресурсов, технологий, институтов, рынков и ограничений. Третий этап — выявление ценностей, интересов и конкурентных преимуществ

отрасли. Четвёртый этап — анализ внешних трендов, возможностей и угроз. Пятый этап — формирование стратегических приоритетов. Шестой этап — разработка механизмов реализации. Седьмой этап — создание системы мониторинга и корректировки стратегии. Такая последовательность позволяет перейти от описательного анализа к реальному стратегическому управлению развитием отрасли.

Следовательно, методология отраслевого стратегирования должна быть комплексной. Она должна соединять стратегический анализ, отраслевую экономику, промышленную политику, инновационную теорию, институциональный подход и анализ конкурентных преимуществ. Только при таком подходе отраслевая стратегия становится не формальным документом, а инструментом долгосрочного развития, способным обеспечить согласование интересов государства, бизнеса, науки, регионов и общества.

## ЗАКЛЮЧЕНИЕ

Проведённый анализ показывает, что отраслевое стратегирование является самостоятельным и методологически сложным направлением современной экономической науки и практики управления. Его значение определяется тем, что именно отрасли формируют производственную, технологическую, экспортную и инновационную основу национальной экономики. Без научно обоснованных отраслевых стратегий невозможно обеспечить устойчивый экономический рост, структурную модернизацию, технологическое обновление и повышение конкурентоспособности страны.

Методологическая основа отраслевого стратегирования должна опираться на несколько взаимосвязанных научных направлений. Труды В.Л. Квинта позволяют раскрыть общую логику стратегирования, основанную на выявлении долгосрочных приоритетов, ценностей, интересов и конкурентных преимуществ объекта стратегии. Работы Н.И.

Сасаева имеют особое значение для формирования непосредственной методологии отраслевого стратегирования, поскольку в них раскрываются его этапы, инструменты и логика разработки отраслевой стратегии. Исследования С.Ш. Мирзиёевой важны для понимания стратегической приоритетности отраслей в условиях экономики Узбекистана. Наряду с этим труды М. Портера, Дж. Барни, Д. Тиса, Д. Родрика, Ф. Малербы, Й. Шумпетера и других авторов позволяют дополнить методологию отраслевого стратегирования инструментами конкурентного анализа, ресурсного подхода, промышленной политики и инновационного развития.

Главный вывод состоит в том, что отраслевая стратегия должна разрабатываться не как набор мероприятий, а как научно обоснованная система долгосрочного выбора. Она должна включать стратегическую диагностику отрасли, выявление конкурентных преимуществ, анализ глобальных и национальных трендов, определение приоритетов, разработку механизмов реализации и систему мониторинга результатов. Только в этом случае отраслевое стратегирование способно обеспечить согласование национальных, региональных, корпоративных и общественных интересов.

Для Узбекистана развитие методологии отраслевого стратегирования имеет особую практическую значимость. Экономика страны нуждается в системном определении отраслей-драйверов, способных обеспечить рост добавленной стоимости, технологическую модернизацию, экспортную устойчивость, занятость и повышение качества экономического развития. В этом контексте отраслевое стратегирование может выступать важным инструментом реализации долгосрочных целей национального развития и формирования конкурентоспособной экономики нового типа.

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# ИССЛЕДОВАНИЕ ПРИЧИН ОТКАЗОВ И РАЗРАБОТКА МЕРОПРИЯТИЙ ПО ПОВЫШЕНИЮ НАДЁЖНОСТИ ПОДЪЁМНЫХ МЕХАНИЗМОВ ДУМПКАРОВ

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Аннотация. В статье исследованы причины эксплуатационных отказов и техническое состояние пневматического подъёмного механизма кузова думпкара, применяемого на карьерном железнодорожном транспорте. Рассмотрены конструктивные особенности системы разгрузки, работающей за счёт подачи сжатого воздуха в пневмоцилиндры. Выявлены основные неисправности, к которым относятся утечки воздуха через соединения и уплотнения, повреждение пневматических рукавов, износ штоков, поршней, пальцев и втулок, снижение давления в системе, заклинивание цилиндров и несинхронный подъём кузова. Для оценки работоспособности механизма определены площадь поршня, усилие одного пневмоцилиндра, суммарное подъёмное усилие, падение давления, интенсивность отказов, средняя наработка на отказ, продолжительность восстановления и коэффициент технической готовности. На примере одного думпкара показано влияние снижения давления сжатого воздуха на

величину создаваемого усилия и устойчивость работы подъёмного механизма.

***Abstract.*** *The article investigates the causes of operational failures and the technical condition of the pneumatic lifting mechanism of a dumpcar body used in open-pit railway transport. The design features of the unloading system, which operates by supplying compressed air to pneumatic cylinders, are considered. The main malfunctions are identified, including air leakage through connections and seals, damage to pneumatic hoses, wear of rods, pistons, pins and bushings, pressure reduction in the system, cylinder jamming, and asynchronous lifting of the body. To assess the operability of the mechanism, the piston area, the force of one pneumatic cylinder, the total lifting force, pressure drop, failure rate, mean time between failures, recovery time, and technical availability coefficient were determined. Using the example of one dumpcar, the influence of reduced compressed air pressure on the generated force and the stability of the lifting mechanism operation is shown.*

***Ключевые слова:*** *думпкар, пневмоцилиндр, подъёмный механизм, пневматическая система, сжатый воздух, эксплуатационный отказ, герметичность, техническое состояние, надёжность, техническая готовность.*

***Keywords:*** *dumpcar, pneumatic cylinder, lifting mechanism, pneumatic system, compressed air, operational failure, air tightness, technical condition, reliability, technical availability.*

## ВВЕДЕНИЕ

Карьерный железнодорожный транспорт широко применяется на горнодобывающих предприятиях для перевозки значительных объёмов вскрышных пород, руды и других горных материалов. Одним из основных видов подвижного состава, используемого в условиях открытых горных разработок, являются думпкары — специализированные грузовые вагоны с кузовом, приспособленным для механизированной боковой разгрузки.

Эффективность эксплуатации думпкаров в значительной степени зависит от исправности механизмов подъёма и опрокидывания кузова. Данные механизмы обеспечивают подъём одной стороны кузова, его наклон на установленный угол, открытие бортов и выгрузку перевозимого материала. После завершения разгрузки кузов должен плавно вернуться в исходное положение, а запирающие устройства — обеспечить его надёжную фиксацию. Однако высокие динамические нагрузки, возникающие в рабочих циклах при погрузке и транспортировании горной массы, зачастую приводят к преждевременному износу элементов системы опрокидывании [1].

Подъёмный механизм думпкара работает в тяжёлых условиях. При перевозке и разгрузке горной массы на его элементы воздействуют значительные статические и динамические нагрузки. Дополнительное отрицательное влияние оказывают удары крупных кусков породы, вибрация, абразивная пыль, загрязнение шарниров, повышенная влажность, перепады температуры и нарушение установленного режима загрузки вагона. Указанные факторы способствуют деградации гидравлического оборудования и рычажных систем, что в конечном итоге снижает коэффициент технической готовности подвижного состава и увеличивает затраты на проведение внеплановых ремонтов [2]. Анализ существующих конструктивных решений показывает, что совершенствование долговечности узлов думпкаров требует перехода к использованию более износостойких материалов и оптимизации кинематики привода [3].

**Материалы и методы исследования.** Объектом исследования выступают пневматические подъёмные механизмы кузовов думпкаров, эксплуатируемых на карьерном железнодорожном транспорте. Предмет исследования — эксплуатационные отказы, техническое состояние и

надёжность элементов пневматической системы подъёма и опрокидывания кузова.

Подъём и наклон кузова думпкара обеспечиваются подачей сжатого воздуха в пневмоцилиндры. Воздух поступает от пневматической системы локомотива либо от внешней стационарной магистрали через соединительные рукава, трубопроводы, распределительные устройства и управляющую арматуру. Под давлением воздуха штоки пневмоцилиндров перемещаются, осуществляя подъём кузова в сторону разгрузки. В процессе этого движения происходит последовательное раскрытие запорного механизма борта, что позволяет горной массе свободно перемещаться под действием сил гравитации[4].

Исследование основано на анализе конструкции пневматического подъёмного механизма, технической документации, журналов осмотра и ремонта думпкаров, а также данных о неисправностях, возникающих в процессе эксплуатации. При этом учитывались интенсивность разгрузочных операций, давление сжатого воздуха, масса перевозимой горной породы, техническое состояние пневматической системы, степень загрязнения её элементов и качество технического обслуживания.

Для оценки технического состояния подъёмного механизма применялись визуальный осмотр, инструментальный контроль, анализ герметичности пневматической системы, измерение давления воздуха и статистическая обработка эксплуатационных данных. Кроме того, для выявления закономерностей между условиями эксплуатации и потерей работоспособности узлов применялось математическое моделирование динамических нагрузок[5].

В ходе визуального осмотра определялись:

– утечки сжатого воздуха в местах соединений;

– повреждения пневматических рукавов и трубопроводов;

– трещины, вмятины и коррозионные повреждения корпусов пневмоцилиндров;

– износ штоков, пальцев, втулок и шарнирных соединений;

– ослабление креплений пневмоцилиндров;

– деформации кронштейнов и опорных элементов;

– нарушения положения кузова при подъёме и опускании.

Инструментальный контроль включал измерение давления воздуха на входе в пневмоцилиндры, проверку времени подъёма и опускания кузова, определение величины утечки воздуха, измерение зазоров в шарнирных соединениях и оценку степени износа рабочих поверхностей штоков, пальцев и втулок.

Основные отказы пневматического подъёмного механизма классифицировались по следующим группам:

– утечки сжатого воздуха через соединения и уплотнения;

– повреждение пневматических рукавов и трубопроводов;

– износ или разрушение уплотнений поршня и штока;

– коррозия и механическое повреждение штока;

– заклинивание поршня в цилиндре;

– снижение давления в пневматической системе;

– неисправности воздухораспределительной и запорной арматуры;

– износ шарнирных соединений;

– деформация креплений пневмоцилиндров;

– несинхронная работа пневмоцилиндров;

– неполный подъём или самопроизвольное опускание кузова. Для повышения достоверности данных о техническом состоянии несущих металлоконструкций и узлов подъёма, подверженных накоплению усталостных повреждений в процессе эксплуатации, целесообразно внедрение методов акустико-эмиссионного контроля, позволяющих выявлять развитие трещин на ранних стадиях [6].

**Расчёт показателей работы пневматического подъёмного механизма одного думпкара.** Для расчёта принят один думпкар 31-945 оборудованный четырьмя пневмоцилиндрами подъёма кузова.

Исходные данные:

Диаметр поршня пневмоцилиндра — 250 мм, или 0,25 м.

Рабочее давление сжатого воздуха — 0,60 МПа, или 600 000 Па.

Количество пневмоцилиндров — 4 шт.

Коэффициент, учитывающий трение и утечки воздуха, — 0,85.

Продолжительность наблюдения за думпкаром — 2400 ч.

Количество зарегистрированных отказов — 6.

Продолжительность ремонтов составила:

2,5; 3,0; 4,0; 2,0; 5,0 и 3,5 ч.

1. Определение площади поршня пневмоцилиндра. Площадь поршня определяется по формуле:

$$A = \frac{3{,}14 \times D^2}{4} \quad (1)$$

Подставляем исходные значения:

$$A = \frac{3{,}14 \times 0{,}25^2}{4}$$

$A = 0{,}0491$ м².

Таким образом, рабочая площадь поршня одного пневмоцилиндра составляет 0,0491 м².

2. Определение усилия одного пневмоцилиндра. Усилие одного пневмоцилиндра определяется по формуле:

$$F = p \times A \times \eta. \quad (2)$$

Подставляем значения:

$$F = 600\,000 \times 0{,}0491 \times 0{,}85.$$

F = 25 035 Н.

Переведём результат в килоньютоны:

F = 25,0 кН.

Следовательно, один пневмоцилиндр при рабочем давлении 0,60 МПа создаёт усилие около **25 кН.**

3. Определение общего усилия четырёх пневмоцилиндров

Общее усилие пневматического подъёмного механизма определяется как сумма усилий всех цилиндров:

$$F_{общ} = F \times z, \quad (3)$$

где z — количество пневмоцилиндров.

$$F_{общ} = 25,0 \times 4$$

Fобщ = 100,0 кН.

Таким образом, четыре пневмоцилиндра создают суммарное усилие около 100 кН.

4. Проверка герметичности пневматической системы

Предположим, что при проверке герметичности начальное давление составляло 0,60 МПа, а через 10 минут снизилось до 0,56 МПа.

Падение давления определяется по формуле:

$$\Delta p = p_1 - p_2. \quad (4)$$

Δp = 0,60 − 0,56.

Δp = 0,04 МПа.

Скорость падения давления:

$$q = \Delta p / t. \quad (5)$$

q = 0,04 / 10.

q = 0,004 МПа/мин.

Следовательно, за 10 минут давление в пневматической системе снизилось на 0,04 МПа. Такое падение может свидетельствовать о наличии утечек воздуха через соединения, уплотнения пневмоцилиндров, рукава или распределительную арматуру.

5. Определение усилия при пониженном давлении:

При снижении давления до 0,56 МПа усилие одного пневмоцилиндра составит:

$F_2 = 560\,000 \times 0{,}0491 \times 0{,}85.$

$F_2 = 23\,366$ Н.

$F_2 = 23{,}4$ кН.

Суммарное усилие четырёх цилиндров:

$F_{общ2} = 23{,}4 \times 4.$

$F_{общ2} = 93{,}6$ кН.

Снижение общего усилия составляет:

$100{,}0 - 93{,}6 = 6{,}4$ кН.

Относительное снижение усилия:

$6{,}4 / 100{,}0 \times 100 = 6{,}4$ %.

Таким образом, снижение давления с 0,60 до 0,56 МПа приводит к уменьшению подъёмного усилия примерно на 6,7 %.

6. Определение интенсивности отказов

Интенсивность отказов определяется по формуле:

$$\lambda = n / T, \qquad (6)$$

где n — количество отказов;

T — продолжительность эксплуатации.

$\lambda = 6 / 2400.$

$\lambda = 0{,}0025$ 1/ч.

Это означает, что в среднем на один час эксплуатации приходится 0,0025 отказа.

7. Определение средней наработки на отказ

Средняя наработка на отказ определяется по формуле:

$$T_{ср} = T / n. \quad (7)$$

Tср = 2400 / 6.

Tср = 400 ч.

Следовательно, один отказ пневматического подъёмного механизма возникает в среднем через каждые 400 часов эксплуатации.

8. Определение средней продолжительности восстановления. Общая продолжительность ремонтов:

$T_{рем}$ = 2,5 + 3,0 + 4,0 + 2,0 + 5,0 + 3,5.

$T_{рем}$ = 20 ч.

Средняя продолжительность восстановления:

$T_в$ = 20 / 6.

$T_в$ = 3,33 ч.

Таким образом, на устранение одного отказа требуется в среднем 3,33 часа.

9. Определение коэффициента технической готовности

Коэффициент технической готовности определяется по формуле:

$$K_г = \frac{T_{ср}}{T_{ср}+T_в} \quad (8)$$

Подставляем значения:

$K_г$ = 400 / (400 + 3,33).

$K_г$ = 400 / 403,33.

$K_г$ = 0,9917.

В процентах:

Кг = 99,17 %.

Полученное значение показывает, что пневматический подъёмный механизм исследуемого думпкара находится в работоспособном состоянии примерно 99,17 % эксплуатационного времени.

## ВЫВОДЫ

Расчёт показал, что при рабочем давлении 0,60 МПа четыре пневмоцилиндра создают суммарное усилие около 100 кН. При снижении давления до 0,56 МПа суммарное усилие уменьшается до 93,6 кН, то есть примерно на 6,7 %. Такое снижение может привести к замедлению подъёма кузова, неполному опрокидыванию или несинхронной работе пневмоцилиндров.

Средняя наработка на отказ составила 400 часов, средняя продолжительность восстановления — 3,33 часа, а коэффициент технической готовности — 0,9917. Несмотря на высокий коэффициент готовности, наличие шести отказов за 2400 часов эксплуатации указывает на необходимость регулярного контроля герметичности, состояния уплотнений, пневматических рукавов, соединений и распределительной арматуры. Учитывая, что значительная доля неисправностей в гидравлических и пневматических цилиндрах связана с дефектами уплотнительных узлов, особое внимание при техническом обслуживании следует уделять превентивной замене изнашиваемых элементов (Kupryashkin et al., 2018, p. 472; Величко et al., 2019, p. 397).

Для повышения надёжности подъёмного механизма необходимо регулярно контролировать давление в системе, своевременно выявлять утечки воздуха, заменять изношенные уплотнения и рукава, очищать пневматические магистрали и проверять синхронность работы всех пневмоцилиндров. Реализация этих мероприятий позволит снизить частоту отказов, уменьшить продолжительность простоев и повысить эффективность эксплуатации думпкара. Особое внимание следует уделить оптимизации конструктивных параметров узлов крепления и усилению элементов рамы в зонах концентрации напряжений, что обеспечит сохранение работоспособности подвижного состава при длительных циклических нагрузках[7]. Также целесообразно пересмотреть режимы

эксплуатационной нагрузки, поддерживая коэффициент использования грузоподъёмности в диапазоне 0,8–0,9, что способствует уменьшению количества отказов и снижению общих затрат на техническое обслуживание[8].

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