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MINTAQALARARO IQTISODIY TAFOVUTLARNI QISQARTIRISHNING ILG'OR XORIJIY DAVLATLAR TAJRIBASI

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Annotatsiya. Ushbu tadqiqotda mamlakatlararo mintaqaviy ijtimoiy-iqtisodiy tafovutlarning sabablari va oqibatlari tahlil qilingan. Unda tengsizliklar daromad darajasi, ta'lim va sog'liqni saqlash ko'rsatkichlarida qanday aks etishi ta'kidlangan. Mintaqaviy nomutanosiblikni kamaytirishga qaratilgan siyosatni tushunish uchun Germaniya, Xitoy va Janubiy Koreya tajribalari o'rganildi. Tadqiqotda mintaqaviy tafovutlarni qisqartirish barqaror iqtisodiy o'sish va ijtimoiy barqarorlik uchun juda muhim degan xulosaga kelindi.

Kalit so'zlar: mintaqaviy tengsizlik, iqtisodiy rivojlanish, daromadlar tafovuti, infratuzilma, bandlik, innovatsiya, iqtisodiy siyosat.

Abstract. This study analyzes the causes and consequences of regional socio-economic disparities between countries. It highlights how inequalities are reflected in income levels, education, and health indicators. The experiences of Germany, China, and South Korea were studied to understand policies aimed at reducing regional disparities. The study concluded that reducing regional disparities is crucial for sustainable economic growth and social stability.

Keywords: regional inequality, economic development, income disparities, infrastructure, employment, innovation, economic policy.

Аннотация. В данном исследовании анализируются причины и последствия региональных социально-экономических различий между странами. Подчеркивается, как неравенство отражается на уровнях доходов, образования и показателях здравоохранения. Для понимания политики, направленной на сокращение региональных различий, были изучены опыт Германии, Китая и Южной Кореи. В результате исследования сделан вывод о том, что сокращение региональных различий имеет решающее значение для устойчивого экономического роста и социальной стабильности.

Ключевые слова: региональное неравенство, экономическое развитие, неравенство доходов, инфраструктура, занятость, инновации, экономическая политика.

Ko'plab mamlakatlarda iqtisodiy faoliyat samaradorligi va aholi turmush darajasida sezilarli hududiy tafovutlar mavjud bo'lib, bu holat daromadlar, ta'lim darajasi hamda

sogʻliqni saqlash koʻrsatkichlaridagi farqlar orqali namoyon boʻladi¹. Hududlar oʻrtasidagi ijtimoiy-iqtisodiy farqlar adolat tamoyillariga zid holatlarni yuzaga keltirib, mamlakat miqyosida tengsizlikning chuqurlashuviga olib keladi. Bunday tafovutlar avloddan avlodga oʻtuvchi imkoniyatlar farqi orqali namoyon boʻlib, aholining taʼlim, bandlik va ijtimoiy yuksalish imkoniyatlarini cheklaydi. Shu bilan birga, hududiy nomutanosibliklar iqtisodiyotning umumiy samaradorligiga ham salbiy taʼsir koʻrsatadi, chunki ayrim mintaqalarda mavjud insoniy va iqtisodiy salohiyat yetarli darajada ishga solinmaydi. Natijada, resurslardan toʻliq foydalanilmasligi milliy iqtisodiy oʻsish surʼatlarining sekinlashishiga sabab boʻladi.

Kengroq maʼnoda olganda, hududiy tafovutlar, jumladan shahar va qishloq oʻrtasidagi farqlar, jamiyatda ijtimoiy keskinlik va salbiy holatlarning kuchayishiga olib kelishi mumkin. Bunday tafovutlar siyosiy qutblashuvni ragʻbatlantiradi (Wilkinson, 2019)², populistik kayfiyatlarning kuchayishiga hamda shahar elitalariga nisbatan norozilik va qarshiliklarning ortishiga sabab boʻladi (Rodríguez-Pose, 2018; Kessler, 2018; Muro va Liu, 2016; Shearer, 2016)³. Natijada, mamlakatlarning ijtimoiy tuzilmasi va milliy birdamligiga jiddiy tahdid yuzaga keladi hamda hududiy tafovutlar etnik, irqiy, lingvistik yoki diniy boʻlinishlar bilan uygʻunlashgan hollarda, ular keskin mojarolarga ham olib kelishi mumkin.

Iqtisodiy faoliyat va farovonlik darajalari mamlakat ichidagi hududlar boʻyicha sezilarli darajada farq qiladi, bu nafaqat rivojlangan, balki rivojlanayotgan iqtisodiyotlarda ham kuzatiladi. Ushbu tengsizlikni ishlab chiqarish yoki daromad koʻrsatkichlariga qarab aniqlash mumkin. Rivojlangan iqtisodiyotlarda yetakchi hududlardagi aholi boshiga real YaIM (YaIM – yalpi ichki mahsulot) oʻrtacha hisobda orqada qolgan hududlarga nisbatan 70 foizga yuqoridir. Rivojlanayotgan iqtisodiyotlarda esa hududlararo farqlar yanada kattaroq boʻlib, rivojlangan davlatlardagiga nisbatan taxminan ikki baravar kattadir. Bunday hududlararo farqlar mehnat bozori koʻrsatkichlarida ham namoyon boʻladi (masalan, mehnat unumdorligi, bandlik darajasi va ish haqi) va inson rivojlanishi indikatorlarida (masalan, taʼlim va sogʻliq koʻrsatkichlari) ham aks etadi. Tadqiqotda ilgʻor xorijiy mamlakatlar tajribasidan namuna sifatida Germaniya, Xitoy va Janubiy Koreya olingan.

1. Germaniya, taxminan 84,4 million aholiga ega boʻlgan, yuqori daromadli va kuchli iqtisodiyotga ega mamlakatdir. Biroq mamlakatda hududlararo tafovutlar mavjud

¹ <https://pdfs.semanticscholar.org/37e6/f8ed05447ff2dbef9172e8db2a6f1089d2da.pdf>

² Wilkinson, R. (2019). *The Political Power of Inequality*

³ Rodríguez-Pose, A. (2018). *The revenge of the places that don't matter (and what to do about it)*. Cambridge Journal of Regions, Economy and Society. Kessler, S. (2018). *Populism and regional inequality*. Journal of Economic Geography. Muro, M., & Liu, S. (2016). *Digitalization and regional divides*. Brookings Institution. Shearer, E. (2016). *Urban–rural divides and political behavior*. Pew Research Center.

bo‘lib, ular ayniqsa iqtisodiy jihatdan rivojlangan g‘arbiy va janubiy hududlar bilan nisbatan kam rivojlangan sharqiy federal yerlar o‘rtasida yaqqol namoyon bo‘ladi⁴. So‘nggi 20 yil davomida Germaniya tobora ko‘p madaniyatli mamlakatga aylanib bormoqda, bu asosan sof immigratsiya hajmining sezilarli darajada oshgani bilan izohlanadi. 2023-yilda aholining qariyb 30 foizi o‘zi yoki ota-onasi orqali migratsion kelib chiqishga ega bo‘lgan⁵. 2024-yil noyabriga qadar bo‘lgan 12 oy davomida sof immigratsiya hajmi 431 342 kishiga yetdi, bu asosan Ukraina va Suriyadan kelgan qochqinlar hisobiga yuz berdi⁶. Aholining bunday tobora ortib borayotgan xilma-xilligi jamiyatni boyitadi, biroq bir vaqtning o‘zida ayrim muammolarni ham keltirib chiqaradi, xususan, xizmatlardan foydalanish imkoniyatlaridagi tengsizliklar va migrantlar o‘rtasida ishsizlik darajasining nisbatan yuqoriligi hisobiga bo‘lishi mumkin.

Germaniya hukumati ushbu jarayonlarning salbiy oqibatlarini yumshatish maqsadida keng ko‘lamli mintaqaviy siyosat choralari amalga oshirmoqda. Bu borada fiskal tenglashtirish mexanizmlari, past rivojlangan hududlarni maqsadli qo‘llab-quvvatlash dasturlari, infratuzilma loyihalariga investitsiyalarni jalb qilish, innovatsion klasterlarni rivojlantirish, ilm-fan va ishlab chiqarish kooperatsiyasini kengaytirish alohida ahamiyat kasb etadi⁷.

1-jadval

Germaniyada hududlararo tafovutlarni kamaytirish siyosatining asosiy yo‘nalishlari

№	Siyosat yo‘nalishi	Mazmuni
1	Fiskal tenglashtirish tizimi	Yuqori daromadli hududlardan past daromadli hududlarga byudjet mablag‘larini qayta taqsimlash orqali hududlarning fiskal quvvatini tenglashtirish, ijtimoiy infratuzilma, bandlik va ta‘lim xizmatlarini hududlar bo‘yicha barqaror taqsimlash ⁸

⁴ Immel L, Peichl A. Regional Inequality in Germany: Where Do the Rich Live and Where Do the Poor Live? ifo Schnelldienst. 2020;73(05):43-7

⁵ Statistisches Bundesamt (Federal Statistical Office) Destatis. Statistical Report - Microcensus - Population by Migration Background - First Results 2023. Available from: <https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Migration-Integration/Publikationen/Downloads-Migration/statistischer-bericht-migrationshintergrund-erst-2010220237005.html>.

⁶ Destatis. Migration across Germany’s borders, by selected citizenships and months. Destatis. Available from: <https://www.destatis.de/EN/Themes/Society-Environment/Population/Migration/Tables/migration-month-02.html#fussnote-1-1176396>.

⁷ German Federal Ministry of Finance (BMF, 2023)

⁸ OECD (2020); German Federal Ministry of Finance (2023); Heinemann & Janeba (2014)

2	“Solidarity Pact” dasturlari va Sharqiy Germaniyaning rivojlantirish	“Solidarpakt I” va “Solidarpakt II” doirasida Sharqiy Germaniya hududlarini iqtisodiy tiklash, infratuzilma modernizatsiyasi, ishlab chiqarish salohiyatini oshirish, bandlikni yaxshilash va ijtimoiy sohani rivojlantirish ⁹
3	Innovatsion klasterlar va sanoat modernizatsiyasi	Innovatsion iqtisodiyotga o'tish, yuqori texnologiyali tarmoqlarni rivojlantirish, ilm-fan va ishlab chiqarish integratsiyasi, “Mittelstand” siyosati orqali kichik va o'rta biznesni qo'llab-quvvatlash, klaster siyosatini kuchaytirish ¹⁰
4	Infratuzilma modernizatsiyasi va inson kapitaliga sarmoya	Transport-logistika, energetika va raqamli infratuzilmani rivojlantirish, ta'lim tizimi va kasb-hunar tayyorlovini kuchaytirish, mehnat bozorining moslashuvchanligini ta'minlash orqali hududiy tafovutlarni yumshatish

Germaniyada hududlararo tafovutlarni kamaytirish siyosati asosan hududlar moliyaviy imkoniyatlarini tenglashtirish, iqtisodiy jihatdan sust mintaqalarga qo'shimcha yordam berish va ularning infratuzilmasini modernizatsiya qilishga qaratilgan. Sharqiy Germaniya hududlarini rivojlantirish dasturlari orqali sanoat, bandlik va ijtimoiy soha barqaror tiklandi. Innovatsion klasterlar yaratilib, yuqori texnologiyali ishlab chiqarish va kichik biznes faol qo'llab-quvvatlandi. Transport, energetika va raqamli infratuzilma yangilandi, ta'lim va kasb-hunar tizimi kuchaytirildi. Natijada iqtisodiy imkoniyatlar mintaqalar bo'yicha nisbatan barqaror va adolatli taqsimlanishiga erishildi.

2. 25 yil avval Xitoyning ko'plab jihatlari Osiyodagi boshqa rivojlanayotgan mamlakatlarga o'xshash edi: aholining juda ko'pligi, jon boshiga daromadning pastligi va aholi soniga nisbatan resurslarning taqchilligi. Umuman olganda, rivojlanayotgan Osiyo mamlakatlari yaxshi o'sishga erishdi, biroq Xitoyning natijalari ayniqsa ajralib turadi. Masalan, 1990–2005-yillar davomida Xitoyda jon boshiga o'sish sur'ati o'rtacha 8,7 foizni tashkil etdi. Hindistonda bu ko'rsatkich 4 foiz, Xitoy va Hindistondan tashqari rivojlanayotgan Osiyo mamlakatlarida esa 2,7 foiz atrofida bo'ldi.

⁹ BMWK (2020); European Commission (2017); Burda & Hunt (2011)

¹⁰ OECD (2019); BMWK (2022); Porter (2003)

Xo'sh, nega aynan Xitoy Osiyodagi boshqa rivojlanayotgan mamlakatlarga qaraganda ancha tez o'sdi? Bu albatta ko'plab omillar bilan bog'liq murakkab savol, biroq uchta asosiy omilni alohida ta'kidlash mumkin:

Birinchidan, Xitoy qo'shni davlatlarga nisbatan inson kapitali jihatidan yaxshiroq boshlang'ich bazaga ega edi.

Ikkinchidan, bu davr mobaynida Xitoy Hindiston va ko'plab boshqa Osiyo mamlakatlariga qaraganda tashqi savdo hamda xorijiy investitsiyalar uchun ancha ochiq bo'ldi.

Uchinchidan, Xitoy xususiy sektor uchun Hindistonga nisbatan yaxshiroq investitsiya muhitini yaratdi. Albatta, "o'rtacha hisobda" degan ibora muhim, chunki masalan, Tailand ham juda yaxshi investitsiya muhitiga ega bo'lgan va tez o'sgan, biroq u hudud jihatidan ancha kichik bo'lib, Indoneziya, Bangladesh va Pokiston kabi yirik davlatlar bilan solishtirganda hajman kichikdir¹¹.

Prognozlashtirish va makroiqtisodiy tadqiqotlar instituti (PMTI) ekspertlari maxsus iqtisodiy zonalarini rivojlantirish bo'yicha Xitoy tajribasini o'rganganda, Xitoydagi maxsus iqtisodiy zonalar (MIZ) xorijiy investitsiyalar va texnologiyalarni imtiyozlar orqali jalb qilib, "iqtisodiy o'sish" o'choqlarini barpo qilish uchun mo'ljallangan. Xitoy maxsus iqtisodiy zonalarida YaIM ning 22 foizi yaratiladi. Mamlakatga kirib kelayotgan to'g'ridan-to'g'ri xorijiy investitsiyalarning 45 foizi va eksportning 60 foizi aynan maxsus iqtisodiy zonalarining ulushiga to'g'ri keladi.

1984-yildan dastlab dengiz sohillari yaqinida joylashgan 15 ta shahar hamda 4 ta yirik shaharda, 2020-yildan boshlab esa mamlakatning barcha yirik va o'rtacha kattalikdagi shaharlarida 15 ta erkin savdo zonasi, 32 ta makroiqtisodiy va texnologik rivojlanish zonasi, 53 ta yuqori texnologiyali sanoatni rivojlantirish zonasi tashkil etildi. Natijada bu maxsus iqtisodiy zonalar iqtisodiy rivojlanish sur'atini tezlashtiruvchi "akselerator" rolini o'ynay boshladi¹².

Tadqiqot natijalariga ko'ra, Xitoyda maxsus iqtisodiy zonalarining jadal rivojlanishiga quyidagi omillar turtki bo'lgani aniqlandi¹³:

- maxsus iqtisodiy zonalar direksiyasiga markaziy hukumatning rozilgisiz infratuzilmani rivojlantirish bo'yicha mustaqil qarorlarni qabul qilishga ruxsat berildi;
- maxsus iqtisodiy zonalaridagi korxonalar o'zlarining investitsiya, innovasiya, ishlab chiqarish va marketing qarorlarining katta qismini mustaqil qabul qiladi;

¹¹ <https://documents1.worldbank.org/curated/en/182041468241155669/pdf/wps4253.pdf>

¹² <https://aniq.uz/uz/yangiliklar/maxsus-iqtisodiy-zonalarini-rivojlantirish-buyicha-xitoy-tajribasi>

¹³ <https://openknowledge.worldbank.org/entities/publication/89a96c23-9c3c-5f2d-8b4a-1a1ccbc91945>

Zeng, Douglas Zhihua (2015). Building Engines for Growth and Competitiveness in China: Experience with Special Economic Zones and Industrial Clusters.

- maxsus iqtisodiy zonalarga xorijiy investisiyalar uchun maxsus soliq imtiyozlari berilgan va ularning mahsulotlari asosan eksportga yo'naltirilgan;
- maxsus iqtisodiy zonalarda iqtisodiy faoliyat asosan bozor tamoyillari asosida boshqariladi va ularga xalqaro savdoda katta mustaqillik berilgan;
- 2019-2020 yillarda Xitoyda 24 ta yangi transchegaraviy elektron-tijorat zonolari ochildi;
- Xitoydagi maxsus iqtisodiy zonalar asosan yuqori texnologiyali sanoat mahsulotlarini ishlab chiqarishga yo'naltirilgan.

Ushbu omillarni inobatga olgan holda, O'zbekistonda maxsus iqtisodiy zonalarini rivojlantirishda mahalliy hokimiyat organlariga savdo, investisiyalar, innovasiyalar va infratuzilma masalalari bo'yicha mustaqil qarorlarni qabul qilish vakolatini, shuningdek, soliq va bojxona imtiyozlarini berish hamda hududlararo tizimli joylashtirish kabi jihatlarga e'tibor qaratishni tavsiya etish mumkin.

3. Janubiy Koreyada mintaqalar o'rtasidagi iqtisodiy tafovutlarni kamaytirish masalasi uzoq yillardan beri davlat siyosatining muhim yo'nalishlaridan biri hisoblanadi. Poytaxt Seul va uning atrofidagi hududlar bilan chekka mintaqalar o'rtasida sanoat rivoji, bandlik va daromad darajasida sezilarli farqlar mavjud. Shu sababli hukumat hududiy muvozanatni ta'minlashga qaratilgan maxsus dastur va strategiyalarni ishlab chiqqan. Infratuzilmani rivojlantirish, davlat institutlarini hududlarga ko'chirish va sanoat klasterlarini yaratish ana shunday choralar jumlasidandir. Ushbu yondashuvlar mintaqalarning iqtisodiy salohiyatini oshirishga xizmat qilmoqda. Janubiy Koreya tajribasi mintaqalararo tafovutlarni qisqartirishda faol davlat ishtirokining muhimligini ko'rsatadi.

OECD statistik ma'lumotlariga ko'ra, 2022-yilda Janubiy Koreya tashkilotga a'zo mamlakatlar ichida nisbiy qashshoqlik eng yuqori bo'lgan davlat sifatida qayd etilgan bo'lib, aholining qariyb oltidan biri qashshoqlik chegarasidan past sharoitda yashaydi. Yoshlar orasida ishsizlik muammosi doimiy tus olgan, mehnat bozorida band aholining 30 foizidan ortig'i barqaror bo'lmagan, vaqtinchalik yoki kafolatsiz ish o'rinlarida faoliyat yuritmoqda.

Bundan tashqari, ayollar va erkaklar o'rtasidagi ish haqi tafovuti OECD davlatlari orasida eng yuqori ko'rsatkichlardan biri bo'lib qolmoqda. Demografik vaziyat ham jiddiy tashvish uyg'otmoqda: 2025-yilda tug'ilish ko'rsatkichi 0,75 darajasida saqlanib qolgan bo'lib, bu 2023-yildagi 0,72 ga nisbatan biroz o'sishni bildirsa-da, iqtisodiy

noaniqlik va ijtimoiy harakatchanlikning cheklanganligi bilan bog‘liq xavotirlar hanuz dolzarbligicha qolmoqda¹⁴.

Ko‘plab rivojlangan mamlakatlar singari, Janubiy Koreyada daromadlar notekisligi so‘nggi o‘n yilliklar davomida sezilarli dinamikani namoyon etdi. Rasmiy davlat ma‘lumotlariga asoslanadigan bo‘lsak, daromadlar o‘rtasidagi tafovut 1990-yillarning boshlaridan boshlab kengaya boshlagan. Ushbu jarayon 1998-yilda yuz bergan Osiyo moliyaviy inqirozidan keyin yanada keskinlashgan. Qisqa muddatli barqarorlashuvdan so‘ng, tengsizlik ko‘rsatkichi izchil ravishda oshishda davom etib, 2008-yilga kelib eng yuqori darajaga yetgan. Keyinchalik esa, 2010-yillar davomida daromadlar tengsizligi ma‘lum darajada qisqarish tendensiyasini ko‘rsatgan (Lee va boshq., 2020)¹⁵.

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¹⁴ <https://thedi diplomat.com/2025/07/beyond-the-miracle-inequality-in-south-koreas-new-economy/#:~:text=According%20to%20Statistics%20Korea%2C%20the,estate%20gains%20at%20the%20top.>

¹⁵ <https://www.sciencedirect.com/science/article/pii/S0276562423001269>

**MILLIY HARAKATLI O'YINLAR ORQALI MAKTAB
O'QUVCHILARINING SPORTGA QIZIQISHINI OSHIRISH**

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ANNOTATSIYA

Ushbu maqolada maktab yoshdagi bolalarda harakatli o'yinlarni qo'llash orqali jismoniy jihatlarni tarbiyalashda jismoniy tarbiya vositasi sifatida harakatli o'yinlardan foydalanish va shu asosida Umumiy o'rta ta'lim maktablari sharoitida bolalarning harakat faoliyatini rivojlantirish texnologiyasining nazariy asoslari va usuliy yo'llarini aniqlash, hamda maqsadga erishish jarayonida Umumiy o'rta ta'limlari sharoitida bolalarning harakat faoliyatini rivojlantirish uchun olib borilayotgan jismoniy tarbiya va ommaviy sog'lomlashtirish tadbirlari tashkillashtirib tadqiqot olib borish ko'zda tutilgan.

Kalit so'zlar: harakatli o'yin, harakat faoliyati, harakat sifati, jismoniy tarbiya, jismoniy rivojlanish, jismoniy sifat, sog'lomlashtirish, qobiliyat, fiziologik omillar, mushak, vegetativ organlar faoliyati.

Umumiy ta'lim maktablarida tarbiyani insonparvarlashtirish uni yangilash jarayonining asosi hisoblanadi. Olimlar, amaliyotchi mutaxassislarning tobora ko'proq qismi maktabgacha yoshdagi va maktab yoshidagi bolalarni jismoniy tarbiyalash tizimi shaxsga majmual, insoniy ta'sir o'tkazishi, har bir bolaning muntazam va imkon qadar to'la jismoniy rivojlanish huquqi amalga oshirilishini ta'minlashi kerak, degan xulosaga kelmoqdalar. Bolalarni o'rab turgan muhit o'zgarib bormoqda. Oddiy, sodda o'yinlar o'rniga kompyuter o'yinlari va turli ijtimoiy tarmoq videolari kirib keldi. Bolani aqliy, estetik rivojlantirish ustuvorlik kasb etmoqda. Ularni ahamiyatini inkor etmagan holda aytish kerakki, harakatli o'yinlar, sayrlar, tengdoshlari bilan muloqot qilishga bolaning vaqti tobora kamayib ketyapti. O'yin bilan bola faoliyatining boshqa turlari, o'yinlarning har xil turlari orasidagi muvozanatning buzilishi (harakatli va o'tirib o'ynaydigan, alohida va birgalikdagi) maktab yoshidagi bolalar salomatligida ham, harakat qobiliyatlarining rivojlanish darajasida ham o'z salbiy aksini topadi.

Maktab yoshidagi bolalarni jismoniy rivojlantirish muammolarini hal etishning yangi yo'llarini izlash, birinchidan, ko'rsatilgan ziddiyatlarni hal etish zarurati bilan, ikkinchidan, o'sib kelayotgan yosh avlodning jismoniy tayyorgarligi rivoji jarayonini

takomillashtirish qonuniyatlarini, metodologik va usuliy sharoitlarini o'rganish zarurati bilan bog'liq.

Shunga ko'ra, maktab yoshidagi bolalarni jismonan sog'lomlashtirish, bolaning harakat sohasini rivojlantirish, chaqqon, kuchli, jasur bo'lishdek hayotiy ehtiyojlar asosida harakatga bo'lgan qiziqishini kuchaytirishning samarali vositalarini izlab topish va asoslab berish dolzarb masala hisoblanadi. Mazkur muammoning yechimi, bizningcha, yaxlit tarbiya jarayonini, bolaning har tomonlama mutanosib, jumladan, jismoniy va shaxsiy rivojini ta'minlovchi ijtimoiy-pedagogik sharoitlar birligini yaratishdadir desak mubalag'a bo'lmaydi. Bunda bolalarning harakat faoliyatini tashkil etishning o'yin shakllari eng qimmatli sanaladi. Biroq harakatli o'yinlar asosida maktab yoshidagi bolalarning jismoniy sifatlari va psixik jarayonlarini maqsadli rivojlantirish masalasi xususida ayrim ishlarda to'xtalib o'tilgan bo'lsa ham, batafsil so'z yuritilmagan. Shuning uchun bu mavzu yuzasidan ish olib borishdan maqsad jismoniy tarbiya vositasi sifatida harakatli o'yinlardan foydalanish asosida Umumiy o'rta ta'lim maktablari sharoitida bolalarning harakat faoliyatini rivojlantirish texnologiyasining nazariy asoslari va usuliy yo'llarini aniqlashdan iboratdir. Maqsadga erishish jarayonida Umumiy o'rta ta'lim maktablari sharoitida bolalarning harakat faoliyatini rivojlantirish uchun olib borilayotgan jismoniy tarbiya va ommaviy sog'lomlashtirish tadbirlari tashkillashtirib tadqiqot olib borish yuqorida keltirilgan muommoni yechishiga zamin yaratadi.

Umumiy o'rta ta'lim maktablari sharoitida bolalarning harakat faoliyatini rivojlantirish texnologiyasini yaratishning nazariy asoslari mazmuni, shakli, vositalari hamda uslubiyatini yangilash ishning predmeti hisobida amalga oshiriladi. Shu predmetni qo'lash jarayonida quyidagi farazni ilgari surish maqsadga muvofiqdir, jumladan Umumiy o'rta ta'lim maktablari sharoitida bolalar harakat faoliyatini rivojlantirish jarayonini nazariy asoslash haqidagi taxminlarga asoslanadi. Shuningdek, bolalar jismoniy tarbiyasidagi bu yo'nalishni amalga oshirish an'anaviy vositalar, xususan, harakatli o'yinlardan ham bolalar harakat faoliyatini rivojlantirish maqsadida foydalanish ta'sirini jiddiy yaxshilashga yordam berishi mumkin.

Ishni amaliy va nazariy ahamiyati shundan iboratki, tadqiqotlar jarayonida qo'lga kiritilgan ilmiy ma'lumotlar Umumiy o'rta ta'lim maktablari sharoitida o'quv jarayonini takomillashtirish muammolariga ta'lluqli jismoniy tarbiya nazariyasi va uslubiyatining qonuniyatlarini oydinlashtiradi. Umumiy o'rta ta'lim maktablari sharoitida bolalarning harakat faoliyatini rivojlantirish texnologiyasi ishlab chiqiladi va nazariy jihatdan asoslandi.

Bolalar va o'smirlar harakat faolligi sifat jihatlarini rivojlantirishning fiziologik

omillari mushaklar hamda vegetativ organlar faoliyatining boshqarilishini takomillashtirishda nomoyon bo‘ladi. Qisqa muddatli, tezkorlik va kuch harakatlarida asab-mushak tizimi faoliyati boshqaruvini yaxshilashga ko‘proq ahamiyat beriladi. Birmuncha uzoq muddatli faoliyatda harakat funktsiyalarini takomillashtirish bilan birga vegetativ funktsiyalarni muvofiqlashtirish ham jiddiy ahamiyat kasb etadi. Biroq bolalar va o‘smirlar organizmnining kuch, tezlik va chidamlilik ko‘rsatkichlari yaxshilanishini belgilaydigan funktsiyalarining fiziologik boshqarilishini yaxshilashda eng muhim o‘rinni asab tizimi, ayniqsa, mushak zo‘riqishlarida organizmning funktsiyalari yaxshilanishini ta‘mintovchi aloqalarning shakllanishi egallaydi. Shunday qilib, bolalik davrida kuch, tezlik va chidamlilikning o‘zaro bog‘liqligiga oid turli-tuman shakllarni belgilovchi fiziologik mexanizmlar ham xilma-xildir. Shartli-reflektor omillar muhim ahamiyatga ega. Mashg‘ulotlar davomida biror yo‘nalishdagi kuch, tezlik yoki chidamlilikni rivojlantiruvchi harakatlar uchun markaziy asab tizimida mushaklar hamda vegetativ organlar ishini dasturlashtirishning ma‘lum shakllari yuzaga keladi. Harakatli o‘yinlar harakat qobiliyatlari kompleks rivojlantirish vazifasining amalga oshirilishini maksimal darajada ta‘minlaydi, chunki ularning mazmuni harakat dasturlarini shakllantirish va almashtirishga yo‘naltirilgan. Ma‘lumki, insonning rivojlanish jarayonida egallab boradigan harakat tajribasi turli darajadagi harakat dasturlarining yuzaga kelishi va mustahkamlanishida o‘z ifodasini topadi. Harakat malakalari qanchalik xilma-xil bo‘lsa, yangi harakatlarni o‘zlashtirish imkoniyatlari shuncha ko‘p bo‘lishi tabiiy. Harakatli o‘yinlar murakkab tizimlar bo‘lgan tana va uning qismlari holatlari, harakatlar va harakat faoliyatlarining tez-tez almashinib turishi bilan tavsiflanadi. Xulosa qilib aytganda biz pedagogik tajriba vaqtida olgan natijalarimizning bir ma‘noli emasligini qat’iy ayta olamiz. Umumiy o‘rta ta‘lim maktablari sharoitida bolalarning harakat faoliyatini rivojlantirishning yoshga bog‘liq xususiyatlari o‘tkazilgan tajribalar orqali aniqlandi va nazariy jihatdan asoslab berildi. Umumiy o‘rta ta‘lim maktablari sharoitida jismoniy tarbiya mashg‘ulotlarida harakatli o‘yinlarni qo‘llash bolalarning harakat imkoniyatlarini, jismoniy tayyorgarligini rivojlantirishga yordam beradi, shuningdek, ularning maktab yoshi davriga o‘tish uchun tayyorgarligi sifatini oshiradi.

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THEORETICAL MODELS OF EDUCATIONAL QUALITY MANAGEMENT IN NON-STATE HIGHER EDUCATION INSTITUTIONS

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Abstract. This thesis examines the theoretical models of educational quality management in non-state higher education institutions. It provides a comparative analysis of classical and contemporary quality management models, explores their applicability in the context of non-state higher education, and identifies the key factors influencing the effectiveness of quality assurance systems. The study emphasizes the unique characteristics of non-state institutions, including their organizational flexibility, market orientation, and resource constraints. Based on a review of international and national experiences, the thesis proposes an integrative model tailored to the specific needs of non-state higher education.

Keywords: non-state higher education institution, quality management, theoretical models, quality assurance, TQM, EFQM, ISO, stakeholder approach, higher education.

Introduction: the relevance of quality management models in non-state higher education

The global expansion of non-state (private) higher education institutions has introduced new dynamics into the educational landscape. These institutions, operating under market principles, face the dual challenge of ensuring educational quality while maintaining financial sustainability. Unlike public institutions, which often rely on state funding and centralized quality assurance mechanisms, non-state institutions must develop their own internal systems for quality management.

In Uzbekistan, the rapid growth of non-state higher education institutions since 2020 has made the issue of quality management particularly pressing. The state's policy of encouraging private sector participation in education has created a competitive environment where quality becomes a key differentiating factor. However, many non-state institutions still lack well-developed theoretical and practical frameworks for managing educational quality.

This thesis aims to fill this gap by analyzing existing theoretical models of quality management and assessing their applicability to non-state higher education institutions. The study focuses on identifying the strengths and limitations of each model and

proposes a framework that accounts for the specific characteristics of the non-state sector.

Theoretical foundations of quality management in higher education

The concept of quality in higher education is multidimensional and contested. Different stakeholders—students, employers, faculty, government, society—have different expectations and criteria for quality. Theoretical approaches to quality management in higher education can be grouped into several categories:

- **The Traditional Academic Approach:** Emphasizes academic freedom, peer review, and input-based indicators (e.g., faculty qualifications, library resources). Quality is equated with excellence and prestige.
- **The Quality Assurance Approach:** Focuses on accountability, standards, and compliance with predefined criteria. This approach is often associated with accreditation and external evaluation.
- **The Continuous Improvement Approach:** Draws from industrial quality management theories (e.g., Total Quality Management – TQM). Quality is seen as a dynamic process of ongoing enhancement, driven by stakeholder feedback and data-driven decision-making.
- **The Stakeholder Satisfaction Approach:** Defines quality in terms of meeting or exceeding the expectations of key stakeholders. This approach is particularly relevant for non-state institutions operating in competitive markets.
- **The Transformative Approach:** Views quality as the capacity of education to bring about positive change in students' knowledge, skills, values, and social impact. Each of these perspectives contributes to the broader understanding of quality management, but none alone provides a complete framework for non-state institutions.

Classical and Contemporary Quality Management Models

A number of established models have been adapted from business and industry to higher education. The most prominent include:

Total Quality Management (TQM)

TQM, originally developed by Deming and Juran, is based on the principles of customer focus, continuous improvement, employee involvement, and process orientation. In higher education, TQM has been applied to curriculum development, student services, and administrative processes. However, its application in non-state institutions is often limited by the difficulty of defining “customers” in education and the resistance to viewing education as a product.

The EFQM Excellence Model

The European Foundation for Quality Management (EFQM) model is a non-prescriptive framework that assesses organizations on nine criteria: leadership, strategy, people, partnerships and resources, processes, products and services, people results, customer results, society results, and key results. The EFQM model's holistic approach makes it suitable for non-state institutions seeking to balance stakeholder interests with operational efficiency.

ISO 9000 Standards

The ISO 9000 family of standards provides a process-based approach to quality management, emphasizing documentation, process control, and continuous improvement. ISO certification is often used by non-state institutions to signal their commitment to quality to external stakeholders. However, critics argue that ISO focuses more on processes than on educational outcomes and can lead to bureaucratic rigidity.

Accreditation-Based Models

Accreditation is the most widely used mechanism for quality assurance in higher education. It involves external peer review against established standards. For non-state institutions, accreditation serves both as a quality signal and as a prerequisite for legitimacy. However, accreditation often focuses on minimum standards rather than excellence, and the process can be costly and time-consuming.

Stakeholder-Oriented Models

Recent developments in quality management emphasize the importance of stakeholder engagement. Models such as the "stakeholder satisfaction index" and the "balanced scorecard" (adapted for higher education) allow institutions to measure quality from multiple perspectives: student satisfaction, employer feedback, faculty engagement, and financial performance. These models are particularly relevant for non-state institutions that depend on tuition revenue and market reputation.

Comparative Analysis: Applicability to Non-State Higher Education Institutions

To assess the applicability of these models, we must consider the specific characteristics of non-state institutions:

Characteristic	Implication for Quality Management
Market-driven	Quality is directly linked to student enrollment and retention. Stakeholder satisfaction models are highly relevant.
Financial constraints	Resource-intensive models (e.g., full-scale TQM implementation) may be difficult to sustain. Cost-effective approaches are needed.

Organizational flexibility	Non-state institutions can adopt innovative models more quickly than public institutions. ISO and EFQM can be implemented in stages.
Focus on employability	Outcome-based models that track graduate employment and employer satisfaction are particularly valuable.
Limited research infrastructure	Models that rely heavily on research output (e.g., traditional academic approach) may not be suitable.

Based on these considerations, no single model is sufficient. Instead, an integrative approach is required.

An Integrative Model for Quality Management in Non-State Higher Education

Drawing from the strengths of existing models, an integrative framework for non-state institutions should include the following components:

Strategic Quality Planning

- Define institutional mission, vision, and quality goals aligned with stakeholder needs.
- Develop a quality management system that integrates strategic objectives with operational processes.

Process-Based Quality Assurance

- Implement process documentation and continuous improvement cycles (Plan-Do-Check-Act).
- Use ISO 9000 principles for administrative and support processes.

Stakeholder Engagement and Satisfaction

- Establish regular feedback mechanisms for students, faculty, employers, and alumni.
- Use balanced scorecard approaches to track performance across multiple domains.

Outcome-Oriented Evaluation

- Monitor graduate employment rates, employer satisfaction, and student learning outcomes.
- Use external accreditation as a benchmark and a tool for external validation.

Capacity Building and Continuous Improvement

- Invest in faculty development and staff training.
- Foster a quality culture where all members of the institution are engaged in continuous improvement.

To address these challenges, non-state institutions can adopt a phased approach: start with simple, low-cost mechanisms (e.g., student satisfaction surveys), then gradually introduce more sophisticated systems as resources and expertise grow.

Conclusion

Theoretical models of quality management provide valuable frameworks for non-state higher education institutions seeking to improve educational quality. However, no single model is universally applicable. The most effective approach is an integrative one that combines:

- **Strategic planning** (from EFQM),
- **Process management** (from ISO),
- **Stakeholder focus** (from TQM and stakeholder models),
- **Outcome measurement** (from accreditation models).

For non-state institutions in Uzbekistan and similar contexts, the following recommendations are offered:

1. **Adopt a phased implementation strategy** – begin with stakeholder feedback systems, then gradually integrate process documentation and outcome measurement.
2. **Invest in capacity building** – provide training for faculty and administrators on quality management principles and tools.
3. **Leverage technology** – use learning management systems and data analytics to monitor quality indicators efficiently.
4. **Engage stakeholders** – involve students, employers, and alumni in quality improvement processes.
5. **Seek external validation** – pursue national and international accreditation to benchmark quality and enhance institutional reputation.

Ultimately, quality management in non-state higher education is not merely a technical exercise but a strategic endeavor. When implemented effectively, it can enhance institutional competitiveness, improve student outcomes, and contribute to the broader goal of educational excellence.

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PECULIARITIES OF TEACHER TRAINING IN THE FIELD OF PRIMARY EDUCATION

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Abstract. This thesis explores the distinctive characteristics of teacher training in the field of primary education. It examines the unique pedagogical, psychological, and methodological aspects that differentiate primary education teacher preparation from other levels of teacher education. The study analyzes the competencies required for primary school teachers, the structure of training programs, the role of practice-oriented learning, and the challenges faced by higher education institutions in preparing qualified primary education specialists. Special attention is given to the context of non-state higher education institutions and the evolving demands of modern primary education.

Keywords: primary education, teacher training, pedagogical competencies, practice-oriented learning, professional development, primary school teacher, educational programs.

Introduction: the uniqueness of primary education teacher training

Primary education occupies a foundational position in the educational system. It is during the primary years that children develop basic literacy, numeracy, cognitive skills, and social competencies. The quality of primary education is directly dependent on the quality of primary school teachers. Consequently, the training of primary education teachers requires a distinct approach that differs significantly from secondary or higher education teacher preparation.

The peculiarities of primary education teacher training stem from several factors: the age characteristics of primary school children (typically 6–10 years), the integrative nature of primary education, the teacher's role as both an educator and a subject instructor, and the need for multi-disciplinary competencies. Understanding these peculiarities is essential for designing effective training programs and for ensuring the quality of primary education as a whole.

This thesis aims to systematically analyze the distinctive features of teacher training in the field of primary education, identify the core competencies required, and discuss the implications for higher education institutions, particularly non-state institutions.

The distinct nature of primary education as a field of study

Primary education differs fundamentally from other levels of education in several dimensions:

Age-specific characteristics

Primary school children are in a critical stage of cognitive, emotional, and social development. They transition from concrete to abstract thinking, develop reading and writing skills, and form their initial attitudes toward learning. A primary school teacher must understand child psychology, developmental stages, and age-appropriate teaching methods. This requires specialized training in developmental psychology that is more intensive than that for secondary school teachers.

Integrative curriculum

Unlike secondary education, where subjects are taught by specialized teachers, primary education typically involves a holistic, integrated curriculum. The primary school teacher often teaches multiple subjects: mother tongue, mathematics, science, social studies, arts, and physical education. This demands broad subject knowledge combined with the ability to integrate content across disciplines.

The teacher as a multifaceted professional

The primary school teacher plays multiple roles: educator, instructor, caregiver, counselor, and communicator with parents. This multifunctionality requires training that develops not only teaching skills but also socio-emotional competencies, communication skills, and ethical responsibility.

The formative nature of primary education

Primary education shapes foundational skills and attitudes that influence lifelong learning. The teacher's role in this formative period is critical. Training programs must therefore emphasize the development of diagnostic skills to identify learning difficulties early, as well as differentiated instruction strategies to address diverse student needs.

Core competencies of the primary school teacher

The competency profile of a primary school teacher is multidimensional. Based on international frameworks (e.g., UNESCO, OECD) and national standards, the following core competencies can be identified:

Subject competence

The teacher must possess deep knowledge of the core subjects taught in primary school: language and literacy, mathematics, natural sciences, social studies, arts, and physical education. However, this knowledge must be pedagogically adapted to the developmental level of young learners.

Pedagogical Competence

- **Instructional strategies:** Mastery of diverse teaching methods appropriate for young learners, including play-based learning, inquiry-based learning, and cooperative learning.
- **Lesson planning and assessment:** Ability to design developmentally appropriate lessons and assess student progress using formative and summative methods.
- **Classroom management:** Skills in creating a positive, structured, and safe learning environment.

Psychological Competence

- Understanding of child development theories (Piaget, Vygotsky, Erikson).
- Ability to identify and address developmental delays, learning disabilities, and socio-emotional challenges.
- Skills in fostering motivation, self-esteem, and positive attitudes toward learning.

Communicative and Social Competence

- Effective communication with young children using age-appropriate language.
- Collaboration with parents and families to support children's learning.
- Teamwork with colleagues and school leadership.

Structure and Content of Primary Education Teacher Training Programs

The preparation of primary education teachers typically combines theoretical study with extensive practice. A well-designed training program should include the following components:

Foundational Disciplines

- Child and developmental psychology
- Pedagogy and educational theory
- Philosophy and sociology of education
- Health and physical development of children

Subject-Methodological Disciplines

- Language and literacy teaching methods
- Mathematics teaching methods
- Science and social studies teaching methods
- Arts and physical education teaching methods
- Integrated curriculum design

Professional Practice

- Observation and assisted teaching in primary schools
- Supervised teaching practice (practicum)

- Student teaching (internship) lasting one semester or longer
- Reflective practice seminars

Practice-Oriented Training as a Key Feature

A distinctive feature of primary education teacher training is the centrality of practice. Unlike many other academic disciplines, teaching cannot be learned solely through theory. Research consistently shows that the quality of practice-based experiences is one of the strongest predictors of teacher effectiveness.

The Role of School-Based Practicum

The practicum provides prospective teachers with opportunities to:

- Observe experienced teachers in authentic classroom settings
- Gradually assume teaching responsibilities
- Apply theoretical knowledge to real-world situations
- Develop classroom management skills
- Build relationships with students, parents, and colleagues

Models of Practice-Based Training

Several models have been developed to strengthen the practice component:

- **Cooperative or partnership model:** Universities collaborate closely with demonstration schools where student teachers are placed.
- **Professional development schools:** Schools serve as sites for both teacher training and educational research.
- **Residency model:** Student teachers spend an extended period (often a full academic year) in a school, working alongside a mentor teacher.
- **Clinical model:** Modeled after medical education, this approach emphasizes supervised practice, case studies, and reflective practice.

Conclusion and Recommendations

Primary education teacher training is characterized by a unique set of features that distinguish it from other areas of teacher education. These include:

- The integrative and holistic nature of the primary curriculum
- The age-specific psychological and pedagogical demands
- The multifaceted role of the primary school teacher
- The centrality of practice-based training
- The need for a broad and balanced competency profile

To ensure the quality of primary education teacher training, especially in non-state higher education institutions, the following recommendations are proposed:

1. **Strengthen practice-based training** by establishing formal partnerships with schools, providing structured mentoring, and extending the duration of internships.

2. **Develop a competency-based curriculum** that clearly defines the knowledge, skills, and attitudes expected of graduates and aligns courses with these competencies.
3. **Invest in faculty development** to ensure that instructors have both academic expertise and current experience in primary school settings.
4. **Create demonstration or model schools** where student teachers can observe exemplary practice and engage in supervised teaching.
5. **Incorporate inclusive education** throughout the curriculum, not as a standalone course but as an integrated theme across all subjects.
6. **Foster reflective practice** through portfolios, teaching journals, and action research projects.
7. **Enhance digital competencies** while maintaining a balance with hands-on, experiential learning.

By attending to these peculiarities and implementing these recommendations, higher education institutions can better prepare primary school teachers who are competent, confident, and committed to the foundational years of children's education.

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RENAL DYSFUNCTION AND LIPID PROFILE CHANGES IN PATIENTS WITH ISCHEMIC HEART DISEASE COMPLICATED BY ARRHYTHMIAS

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Ischemic heart disease (IHD) remains one of the leading causes of morbidity and mortality worldwide, particularly among elderly patients. In recent years, increasing attention has been paid to the interaction between cardiac and renal dysfunction, known as cardiorenal syndrome, especially in patients with arrhythmias.

Objective: To evaluate the characteristics of renal function and lipid profile in patients with IHD, depending on the presence of arrhythmias.

Materials and Methods: The study included 125 elderly patients (mean age 66.0 ± 4.4 years) with IHD, divided into two groups: Group 1 ($n=65$) – IHD with arrhythmias, and Group 2 ($n=60$) – IHD without arrhythmias. Diagnosis was established according to ESC (2019) guidelines. Clinical, biochemical, and instrumental assessments were performed, including ECG, echocardiography, ambulatory blood pressure monitoring, and renal Doppler ultrasound. Serum creatinine, urea, lipid profile, HbA1c, and C-reactive protein were measured, and glomerular filtration rate (GFR) was calculated using the CKD-EPI formula. Statistical analysis was conducted using Student's t-test, Mann–Whitney U test, and χ^2 test ($p < 0.05$).

Results: Patients with arrhythmias demonstrated significantly higher levels of creatinine (135.0 ± 12 $\mu\text{mol/L}$ vs 110 ± 8 $\mu\text{mol/L}$), urea (10.5 ± 1.5 mmol/L vs 7.5 ± 1.2 mmol/L), and microalbuminuria (30.0 ± 4.0 mg/day vs 20.0 ± 3.5 mg/day), along with reduced GFR (55.0 ± 4.8 vs 72.0 ± 4.3 mL/min) compared to patients without arrhythmias ($p < 0.01$). A moderate positive correlation was found between total cholesterol and creatinine ($r = +0.41$), as well as between LDL cholesterol and microalbuminuria ($r = +0.46$). Conversely, HDL cholesterol showed a negative correlation with renal markers ($r \approx -0.36$ to -0.40). Echocardiographic findings revealed decreased left ventricular ejection fraction and increased myocardial mass index in patients with arrhythmias.

Conclusion: Patients with IHD and arrhythmias exhibit more pronounced renal dysfunction and lipid metabolism disorders, indicating the progression of cardiorenal

syndrome. Early detection and комплекс assessment of these changes are essential for improving clinical outcomes.

COGNITIVE ANALYSIS OF AVIATION TERMS ACROSS LANGUAGES

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Annotation. This thesis discusses how aviation terms are understood across different languages from a cognitive perspective. The study focuses on how people use their background knowledge, experience, and thinking processes to understand aviation vocabulary. It also looks at how differences between languages can influence the way these terms are interpreted. In some cases, direct translation does not give the exact meaning, which may lead to misunderstanding. The findings show that learners understand aviation terms better when they are presented in context, such as real communication situations.

Key words: cognitive linguistics, aviation terminology, multilingual communication, ESP, aviation English.

Modern aviation communication relies on the correct application of technical vocabulary - most of which is in English. English has become the standard language of international aviation so pilots, air traffic controllers, and other professionals in other countries can communicate without difficulty. Yet in the real world, many of these professionals are using English as a second or even third language. Misinterpreting even one term can have devastating consequences, both linguistically and safety-wise. For instance, a pilot who misunderstands the instruction “*climb to flight level 180*” might incorrectly interpret the altitude and fail to reach the assigned level on time. Similarly, confusion between the commands “*taxi to runway*” and “*hold short of runway*” can create dangerous situations on the ground. [4,80] These examples show that even simple terms can have critical implications if they are not fully understood.

One of the main difficulties arises from the fact that aviation terminology is not always intuitive for non-native speakers. Many terms have specific meanings that differ from their general usage in everyday English. [1,34] For example, the word *hold* in daily language may mean “*to keep something,*” but in aviation it refers to a specific maneuver where an aircraft flies a predetermined pattern while waiting for further instructions. Learners often rely on their prior experiences and mental images to interpret such terms, which can sometimes lead to partial or incorrect understanding.

Learning language involves perception, memory, association, and interpretation. Learners tend to associate new information with what they already know. If a student hears the word descend, they might imagine an elevator going down or a bird flying lower. [2,98] If they are not seeing accurately, for example, if they're seeing a slow speed rather than a controlled rate of descent, they may not receive the instruction properly. Cross-linguistic differences also play a significant role in how aviation terminology is perceived. Not all languages express meaning in the same way, and direct translation may not fully reflect the original concept. For example, in some languages, there is no exact equivalent for the phrase "maintain heading," which in aviation means to continue flying in a specific direction. A learner might translate it word-for-word and interpret it as "*keep your position*," which changes the intended meaning. Another example can be seen with the term "*cleared for takeoff*." Some learners mistakenly associate the word cleared with "cleaned" instead of "authorized," which may lead to confusion.

Another important factor in understanding aviation terminology is context. Studies and practical observations show that terms are learned more effectively when they are presented in realistic communication settings. For instance, when students listen to an actual dialogue such as:

Controller: "*Flight AZ123, descend to 5000 feet.*"

Pilot: "*Descending to 5000 feet, AZ123*". [5,122]

they can see how the term descend is used in a real interaction. Similarly, role-play activities where one student acts as a pilot and another as an air traffic controller allow learners to practice using terminology actively. Flight simulators also provide valuable experience by combining visual, auditory, and situational elements, helping learners connect language with real actions.

In addition, comparing correct and incorrect usage can improve understanding. For example:

Incorrect: "*Go down to 5000*"

Correct: "*Descend to 5000 feet*"

This comparison helps learners recognize the importance of standard phraseology in aviation communication. [1,38]

Emotional and psychological factors should also be considered. In high-pressure situations, such as emergency communication, even well-trained professionals may experience stress that affects their comprehension. For example, a pilot under stress might mishear "*turn left heading 270*" as "*turn right heading 270*." This highlights the importance of repeated practice and familiarity with standard expressions. [3,53]

They also suggest that aviation English instruction should involve more than just vocabulary study. It should include activities designed to increase learning, both cognitive and practical, such as reviewing real flight audio records, identifying the most common terms, and discussing their meaning. Students could also use their learning in solving problems such as finding miscommunication or interpreting directions. Diagrams of flight paths or holding patterns could be helpful to aid understanding. In addition, instructors should consider learners' linguistic backgrounds. [6,138] For example, teachers can highlight differences between English aviation terms and their equivalents in the learners' native language, explaining potential areas of confusion. This helps learners build a more accurate and reliable understanding of terminology. In conclusion, the understanding of aviation terminology across languages is a complex process influenced by cognitive mechanisms and individual linguistic backgrounds. Real-life examples demonstrate that misunderstandings can occur at different levels, from vocabulary interpretation to contextual usage. Therefore, a teaching approach that combines theoretical knowledge, practical application, and cognitive development is essential. Such an approach not only improves language proficiency but also enhances safety and efficiency in aviation communication.

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MODERN APPROACHES TO FORMING PROFESSIONAL COMPETENCE OF PRIMARY SCHOOL TEACHERS

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Abstract

In the context of rapid globalization, digital transformation, and the modernization of education systems, the issue of developing professional competence among primary school teachers has become increasingly significant. This article explores contemporary approaches to shaping teachers' professional competence, focusing on innovative pedagogical strategies, digital literacy, student-centered methodologies, and continuous professional development. The study highlights the importance of integrating theory with practice, fostering reflective teaching, and adapting to modern educational demands. The findings suggest that a comprehensive and dynamic approach is essential for preparing competent, flexible, and creative primary education professionals.

Keywords: professional competence, primary education, innovative pedagogy, digital literacy, lifelong learning, teacher development

INTRODUCTION

In the era of globalization, rapid technological advancement, and the transformation of knowledge-based societies, education systems across the world are undergoing profound changes. These changes place new and complex demands on teachers, especially those working in primary education, where the foundations of lifelong learning are established. Primary school teachers are not only responsible for delivering basic knowledge and skills but also for shaping students' personalities, values, creativity, and critical thinking abilities. Therefore, the issue of forming and continuously developing their professional competence has become one of the central priorities of modern educational policy and practice.

Professional competence of a primary school teacher is a multidimensional construct that integrates subject knowledge, pedagogical and methodological skills, psychological readiness, communication abilities, and ethical values. In today's dynamic educational environment, competence goes beyond traditional teaching proficiency; it encompasses the ability to adapt to changing curricula, implement innovative teaching strategies, and effectively use digital technologies. Moreover,

teachers are expected to foster inclusive and learner-centered environments that respect individual differences and promote active student engagement.

The modernization of education, particularly in developing and transitioning countries, has intensified the need for highly qualified and competent teachers who can meet international standards. Contemporary reforms emphasize not only the acquisition of knowledge but also the development of key competencies such as critical thinking, collaboration, creativity, and problem-solving. In this context, primary school teachers must themselves embody these competencies in order to successfully cultivate them in their students.

Furthermore, the growing influence of digitalization and the expansion of online and blended learning environments have significantly redefined the role of teachers. No longer limited to the classroom, teachers now act as facilitators, mentors, and designers of interactive learning experiences. This shift requires a high level of digital competence, flexibility, and readiness for continuous professional growth. At the same time, the increasing diversity of learners—stemming from differences in abilities, backgrounds, and learning styles—demands that teachers adopt inclusive and differentiated teaching approaches.

Another crucial aspect of professional competence formation is the integration of theory and practice. Modern teacher education highlights the importance of experiential learning, reflective practice, and evidence-based teaching. Teachers are encouraged to critically analyze their own instructional strategies, assess their effectiveness, and continuously improve their performance. Such reflective and research-oriented practices contribute to the development of a more autonomous, responsible, and innovative teaching professional.

In light of these considerations, the formation of professional competence among primary school teachers cannot be viewed as a one-time process but rather as a continuous, dynamic, and lifelong journey. It requires the application of modern pedagogical approaches, institutional support, and active engagement of teachers in professional development activities. This article aims to explore the most effective contemporary approaches to developing professional competence in primary education and to highlight their significance in improving the overall quality of teaching and learning.

Main Part

The formation of professional competence among primary school teachers in modern educational systems is grounded in a set of innovative and interconnected approaches that reflect current pedagogical, technological, and social transformations. These

approaches not only enhance teachers' instructional effectiveness but also prepare them to meet the diverse and evolving needs of learners in the 21st century.

One of the most fundamental approaches is the **competency-based approach**, which shifts the focus from the mere transmission of knowledge to the development of practical skills and the ability to apply knowledge in real-life situations. Within this framework, teachers are expected to design learning activities that promote higher-order thinking skills, such as analysis, synthesis, and evaluation. This requires educators themselves to possess deep methodological competence, enabling them to create meaningful, problem-based, and context-oriented learning experiences. As a result, the teacher becomes not just an instructor, but a designer of learning environments that foster intellectual and personal growth.

Closely related to this is the **student-centered approach**, which emphasizes the active role of learners in the educational process. In contrast to traditional teacher-centered models, this approach requires teachers to consider students' individual needs, interests, abilities, and learning styles. The teacher acts as a facilitator, guide, and motivator, encouraging students to take responsibility for their own learning. This approach significantly contributes to the development of teachers' communicative competence, emotional intelligence, and pedagogical flexibility. It also promotes a more inclusive and supportive classroom environment, where each learner feels valued and engaged.

Another essential dimension is the **integration of digital technologies and ICT competence**. In the digital era, the ability to effectively use information and communication technologies has become a key component of professional competence. Teachers are expected to utilize digital tools such as interactive platforms, virtual classrooms, multimedia resources, and assessment technologies to enhance the quality of instruction. Digital competence not only improves lesson delivery but also enables teachers to organize дистанционное (distance) and blended learning, track student progress through data-driven methods, and provide personalized feedback. Moreover, it supports the development of students' digital literacy, which is crucial in modern society.

The **reflective practice approach** plays a critical role in continuous professional development. Reflection allows teachers to critically evaluate their teaching methods, identify strengths and weaknesses, and implement necessary improvements. Through self-assessment, peer observation, and feedback mechanisms, teachers develop a deeper understanding of their professional activities. Reflective practice fosters a

culture of lifelong learning and self-improvement, which is essential for maintaining professional relevance in a rapidly changing educational landscape.

In addition, the **collaborative and community-based approach** significantly enhances teachers' professional competence. Participation in professional learning communities, workshops, seminars, and conferences provides opportunities for knowledge exchange, experience sharing, and collective problem-solving.

Collaboration with colleagues encourages innovation, supports emotional well-being, and reduces professional isolation. It also allows teachers to stay informed about new pedagogical trends, research findings, and best practices.

The **practice-oriented and integrative approach** is another important aspect, focusing on the connection between theoretical knowledge and practical application. Teacher training programs increasingly emphasize internships, classroom observations, and real teaching experiences. Such practice-oriented activities help teachers develop practical skills, classroom management strategies, and the ability to respond effectively to real educational challenges. Integration of interdisciplinary knowledge also strengthens teachers' ability to design holistic and meaningful learning experiences.

Furthermore, the **lifelong learning approach** underlines that professional competence is not static but continuously evolving. Teachers must engage in ongoing professional development through formal education, online courses, certifications, and independent learning. This approach ensures that teachers remain adaptable, innovative, and responsive to new educational demands. Lifelong learning also contributes to personal growth, motivation, and professional satisfaction.

Finally, increasing attention is being paid to the **innovative and creative approach**, which encourages teachers to experiment with new teaching methods, such as project-based learning, gamification, and inquiry-based instruction. Creativity in teaching enhances student engagement, motivation, and academic achievement. It also allows teachers to develop unique pedagogical styles and adapt to diverse classroom contexts.

In summary, modern approaches to forming the professional competence of primary school teachers are multifaceted and dynamic. They require the integration of pedagogical innovation, technological proficiency, reflective thinking, collaboration, and continuous self-development. The effective implementation of these approaches not only improves teaching quality but also contributes to the overall advancement of the education system.

Conclusion

In conclusion, the formation of professional competence among primary school teachers requires the implementation of modern, integrated approaches that combine pedagogical innovation, digital literacy, and continuous self-improvement. The effectiveness of primary education largely depends on teachers' ability to adapt to new challenges, apply student-centered methods, and engage in lifelong learning. Therefore, educational institutions and policymakers must support teachers through training programs, resources, and opportunities for professional growth. Only through such comprehensive efforts can highly competent and motivated primary school teachers be developed.

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BASTAKORLIKDA ILHOM MANBALARI VA IJOD JARAYONI

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O'zDK huzuridagi B.Zokirov nomidagi

MESI "Bastakorlik san'ati" yo'nalishi

1-bosqich magistr talabasi

Annotatsiya: Mazkur mavzu bastakorlik faoliyatida ilhom manbalarining o'rni va ahamiyatini yoritib beradi. Unda tabiat, jamiyat, insoniy kechinmalar hamda milliy an'analarning bastakor ijodiga ta'siri tahlil qilinadi. Shuningdek, ijodiy jarayon bosqichlari, musiqiy g'oyaning shakllanishi va uni asarda mujassamlantirish usullari haqida qisqacha ma'lumot berilgan.

Kalit so'zlar: bastakorlik, ilhom manbalari, ijodiy jarayon, musiqa, g'oya, san'at, milliy an'analar, kompozitsiya

Musiqiy kompozitsiyadagi ijodiy jarayonga turli xil ilhom manbalari ta'sir qiladi, ularni shaxsiy tajribalar, o'zaro ta'sirlar va ongli tushunchalarga ajratish mumkin. Ushbu manbalarni tushunish bastakorlar orasida kompozitsion tajribani kuchaytirishi va ijodkorlikni rivojlantirsa bo'ladi. Deyarli barcha bastakorlarning qarashlarida muammo bo'lishi mumkin bo'lgan narsa shundaki, bastakorlarning ijodiy qobiliyatining asosiy yoki muhim mexanizmlari ongsizdir. ilhom va musiqiy asar yaratishga bo'lgan ongli istak va sa'y-harakatlar boshqacha qilib aytganda, bastakorlar orasida roli borasida ajoyib bir yakdillik mavjud. ongsiz ravishda ishni o'z qoniqishi bilan boshlash yoki yakunlash juda muhimdir. Shunisi qiziqki, bunday munosabatlar faqat quyidagilar bilan cheklanmaydi. ularni topishimiz mumkin bo'lgan romantik davri bastakorlardir.¹

Ilhom — odamning ruhiy holati; undagi barcha ijodiy kuchlarning kuyilib kelishi, ruhiy jarayonlarning faollashuvi. Bunday holatda butun ruhiyat ayni bir vaqtda ishga solinadi. Ilhom paytida ong tiniqlashishi kuzatiladi, fikrlash va ijodiy hayotot sermahsul bo'ladi, his-tuyg'ular to'lib toshadi, e'tibor butkul ijod ob'yektiga qaratilgan bo'ladi. Ilhomning fiziologik asosi dominanta (vaqtincha hukmronlik qiluvchi reflektor tizimi) hisoblanadi.

¹ Jonatan Xarvi, Musiqa va Ilhom (London: Faber va Faber, 1999); Jak Maritain Ijodiy sezgi San'at va She'riyat (Kingsport, TN: Kingsport nashriyoti, 1953)

Ilhomni “ilohiy ruxlanish” bilan bog‘lovchilar uni faqat badiiy ijodda namoyon bo‘ladi, deb hisoblaydilar. Ilhomga moddiyunchilik nuqtai nazaridan yondoshuvchilar uni qattiq mehnat qilish natijasi deb biladilar. Ilhomni ijodiyotning ijtimoiy va individual omillari, atrof muhit va shaxsning ijtimoiy shartsharoitlari bilan bog‘laydilar. Mehnat faoliyatining har qanday ko‘rinishi ilhombaxsh va ijodiy bo‘lishi mumkin. Ilhomning paydo bo‘lish sabablari, namoyon bo‘lish shakllari xilma-xildir. Barcha fan sohiblarida Ilhom bo‘ladi. Ilhom ijodning qudratli omili, u ijodkorlarning hamma kuchlarini ishga soladi, ijodiy samaradorlikka yordam beradi.²

Ijod jarayoni tabiat bilan uzviy bog‘liq bo‘lib, u ijodkorga ilhom, kuzatuvchanlik va ma’naviy poklanish manbai sifatida xizmat qiladi. Tabiat go‘zalligi, mavsumlar almashinuvi va uning semantik yaxlitligi inson ongini yuksaltirib, asarlarga jonli tuyg‘ular va chuqur mazmun bag‘ishlaydi, bu esa ijodiy biografiyaning shakllanishida muhim o‘rin tutadi.

Tabiat va ijodiy jarayonning bog‘liqligi quyidagilarda namoyon bo‘ladi:

- Ilhom va his-tuyg‘u manbai: Tabiat manzaralari, tovushlari va ranglari ijodkorning ichki dunyosini boyitadi, yangi obrazlar yaratishga turtki beradi.

-Kuzatuvchanlik va tahlil: Tabiat bilan tanishish jarayoni ijodkorda kuzatuvchanlikni shakllantiradi, bu esa voqelikni chuqurroq his qilish va tasvirlash imkonini beradi.

-Ma’naviy va ekologik tarbiya: Inson va tabiatning uzviy bog‘liqligini anglash, atrof-muhitga muhabbat va g‘amxo‘rlik tuyg‘ularini shakllantiradi, bu esa ijodda ekologik madaniyatning aks etishiga olib keladi.

-Fasllar almashinuvi: Tabiatdagi o‘zgarishlar, masalan, bahorning kelishi yoki kuzning barg to‘kishi, ijodkorning ruhiyatiga ta’sir ko‘rsatib, asarlarda kayfiyat o‘zgarishlari sifatida namoyon bo‘ladi.

Ijodkorlar tabiatni shunchaki tasvirlash emas, balki uni o‘z asarlari orqali his qilish va uning bir qismi ekanliklarini anglash orqali yuksak san’at namunalarini yaratadilar.

Arnold Shoenbergning kitobida uning kompozitsion jarayonining eng aniq va eng tizimli tasviri mavjud bo‘lib, u ikkalasini ham qamrab oladi ilhom “o‘zining talabsiz ne’matini beradi” va ongli ravishda ishlab chiqish kompozitsiyaning:

Faqat bitta narsa aniq, ilhomsiz hech biriga erishib bo‘lmaydi. Ba’zida bitta misol ham yoza olmaydigan paytlar bo‘ladi.

Musiqiy ijodkorlikning asosiy qoidalari quyidagilar:

² [O‘zME](#). Birinchi jild. Toshkent, 2000-yil

Mening musiqamda musiqiy instinkt muhim rol o'ynaydi. Shunga qaramay, bu Instinkt hech qachon haddan tashqari baholanmasligi kerak, shunda faqat shu narsa kompozitsion natijaga yo'naltiriladi. Yozish jarayonida instinktiv va konstruktiv jihatlar komplementar usullaridan foydalanish mumkin. Shuningdek, bastakorning so'zlari bilan aytganda, "sezgi" va "aqliy"ning zaruriy kombinatsiyasini talab qiladi. Bundan tashqari, Boulez ijodkorlikning asosiy tarkibiy qismlarini quyidagicha belgilaydi "Tasavvur" va "aql". Bastakorning ijodiy qobiliyati haqida yozish, Boulez quyidagi bayonotni berdi: Ijodiy mexanizmlar tasavvursiz hech narsa emas, lekin ular ayni paytda ularni cheksiz darajada mustahkamlaydigan va ixtiyoridagi vositalarni doimiy ravishda boyitadigan mashg'ulotlarsiz hech narsa qila olmaydi.³

Asosan, ilhom manbalari va ijod jarayoni tabiat bilan ham bog'liqdir. Yaxshi kayfiyatda yozilgan har bir asar, insonga yengillik va o'zgacha zavq baxsh etadi.

Shunisi e'tiborga loyiqki, bastakor tasavvurining ongsiz jihatlari va ijodkorlik masalalari musiqa ta'limiga oid tadqiqotlarda hali yetarli darajada chuqur o'rganilmagan. Aslida, ko'plab nazariy qarashlar shuni ta'kidlaydiki, ijodiy fikrlashdagi tasavvur murakkab jarayon bo'lib, u ilgari shakllangan ma'nolarni ongli ravishda uyg'unlashtirish hamda ijodiy faoliyat jarayonida muammolarni bir vaqtning o'zida hal etish bilan chambarchas bog'liq.

Ko'pgina bastakorlarning tajribalarini umumlashtirib, aytishimiz mumkinki, kompozitsiya bu "yo'qdan" yoki jim jarayon bilan boshlanadigan ancha sekin faoliyatli eshitish, ko'rish, teginish, his qilish, o'zgartirish yoki improvizatsiya qilishdir. Bir tomondan, asar yozishni qanday boshlagani haqida so'z yuritar ekan, Steve Reich o'zining musiqiy g'oyalarini go'yoki hech qayerdan paydo bo'lgandek tasavvur qilish va ularni bosqichma-bosqich rivojlantirish jarayonini ta'riflaydi. Uning fikricha, "materialning o'zi qanday jarayonni talab qilishini ko'rsatadi, jarayon esa undan qanday material o'tishi kerakligini belgilaydi"; boshqacha aytganda, agar uslub sizga mos kelsa, uni bemalol qo'llash lozim".⁴

Xulosa qilib aytganda, bastalash shunchaki dastlabki g'oyani amalga oshirishni anglatmaydi. Bastakorda g'oya paydo bo'lgandan keyin o'z fikrini o'zgartirish huquqini o'zida saqlab qoladi. Foss shunday deydi: "Men uchun bu lahzalar mening eng yaxshi lahzalarim, chunki men bunday qilmayman"degan.

Ijodiy jarayon - bu uni amalga oshirish uchun retseptlarsiz murakkab madaniy faoliyat. Bunda yorug'lik, bastakorlarning o'ziga xos tashvishlari va amaliyotlarining umumiy

³ Pierre Bulez

⁴ Stiv Reyx, Yozish haqida musiqa (Nyu-York: Nyu-York universiteti nashriyoti, 1974)

yoʻnalishi ularning musiqiy ijodining umumiy aurasini aks ettiruvchi kompozitsiya jarayonida ongsizning nomoddiylikiga tegishlidir.

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РОЛЬ СУДЕБНОЙ ПРАКТИКИ В ОБЕСПЕЧЕНИИ ПРИНЦИПА ЮРИДИЧЕСКОЙ ОПРЕДЕЛЁННОСТИ В ГРАЖДАНСКОМ ПРОЦЕССЕ

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ТЕЗИС

Вопрос о роли судебной практики в обеспечении принципа юридической определённости в гражданском процессе, на мой взгляд, имеет ключевое значение для понимания эффективности правосудия. Это связано с тем, что именно в рамках гражданского судопроизводства наиболее ярко проявляется необходимость предсказуемости судебных решений, стабильности правовых позиций и доверия участников процесса к суду.

Юридическая определённость в гражданском процессе выражается прежде всего в устойчивости судебных актов, их обязательности и единообразном применении норм права. В соответствии с общими положениями Конституции Республики Узбекистан и нормами Гражданского процессуального кодекса Республики Узбекистан (ГПК), суды обязаны разрешать дела на основе закона, обеспечивая защиту нарушенных или оспариваемых прав. Однако формального наличия нормы недостаточно - важна её единообразная и последовательная реализация.

В научной литературе С.С. Алексеев подчёркивал, что правоприменение придаёт норме права конкретное содержание, а без устойчивой практики невозможно говорить о правовой определённости. Л. Фуллер, анализируя «внутреннюю мораль права», указывал на необходимость последовательности судебных решений. Ф. Хайек, в свою очередь, связывал юридическую определённость с возможностью прогнозирования последствий поведения субъектов.

В узбекской юридической науке Б.К. Ходжаев обосновывает необходимость усиления роли судебной практики, включая элементы прецедентности, для обеспечения единообразия правоприменения. Ш. Садуллаев и Д. Юсупов также отмечают, что судебная практика в гражданском судопроизводстве фактически выполняет функцию устранения пробелов и коллизий законодательства.

Ссылаясь на указанные подходы и анализа норм ГПК, я прихожу к выводу, что судебная практика в гражданском процессе выполняет ряд важнейших функций.

Прежде всего, она обеспечивает единообразие применения норм гражданского права и процесса. Это особенно важно при рассмотрении типичных категорий дел, таких как споры из договорных обязательств, имущественные споры, вопросы компенсации вреда. Разъяснения Постановления Пленума Верховного суда Республики Узбекистан играют здесь ключевую роль, формируя обязательные ориентиры для судов.

Во-вторых, судебная практика способствует конкретизации оценочных категорий, широко используемых в гражданском праве, таких как добросовестность, разумность, справедливость. Без выработанных судебных подходов эти категории оставались бы неопределёнными.

В-третьих, она обеспечивает стабильность судебных актов, что напрямую связано с принципом юридической определённости. Вступление решения суда в законную силу и его обязательность для сторон и других органов выступают гарантией устойчивости правового положения участников процесса.

В-четвёртых, судебная практика формирует предсказуемость судебной защиты, позволяя сторонам заранее оценивать перспективы дела, что особенно важно в гражданском процессе.

Вместе с тем, я считаю, что в гражданском процессе сохраняются определённые проблемы. В частности, отсутствует чёткое нормативное закрепление судебной практики как источника права, что снижает её формальную значимость. Также наблюдаются случаи неоднородности судебной практики по сходным категориям дел. Кроме того, несмотря на развитие цифровизации, доступ к судебным решениям всё ещё не является максимально полным и систематизированным.

Особое внимание следует уделить и институту пересмотра судебных актов. С одной стороны, он выступает гарантией исправления судебных ошибок, с другой - чрезмерная возможность пересмотра может снижать уровень юридической определённости, подрывая стабильность судебных решений.

Исходя из вышеизложенного, полагаю необходимым предложить следующие меры по совершенствованию законодательства и практики его применения.

Во-первых, целесообразно закрепить на законодательном уровне значение судебной практики как источника официального толкования норм гражданского права и процесса.

Во-вторых, необходимо усилить роль и обязательность правовых позиций Верховного суда по гражданским делам.

В-третьих, следует обеспечить максимальную открытость и систематизацию судебной практики через создание единой цифровой базы судебных актов.

В-четвёртых, важно развивать механизмы обеспечения единообразия судебной практики, включая регулярный анализ и обобщение судебных решений.

В-пятых, необходимо соблюдать баланс между стабильностью судебных актов и возможностью их пересмотра, чтобы не подрывать принцип юридической определённости.

В заключение следует отметить, что судебная практика в гражданском процессе фактически выступает ключевым инструментом обеспечения юридической определённости. Она обеспечивает единообразие правоприменения, конкретизирует нормы права и формирует предсказуемость судебной защиты.

На мой взгляд, дальнейшее развитие судебной практики, её институционализация и нормативное укрепление являются необходимыми условиями повышения эффективности гражданского судопроизводства и укрепления доверия к судебной системе.

THE IMPORTANCE OF ULTRASONIC EXAMINATION IN PANCREATIC DISEASES.

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Current relevance of the topic: In the field of medicine, pancreatic diseases are widespread in the practice of gastroenterology, and modern instrumental examination methods are of great importance for the early detection of this disease and differential diagnosis with other diseases. Also, today ultrasound examination (USG) is a non-invasive, safe, and widely used diagnostic method. Therefore, in scientific research, the diagnostic significance of ultrasound in the early detection of pancreatic diseases is analyzed.

Purpose of the work: to study the possibilities and clinical significance of ultrasound in the diagnosis of pancreatic diseases.

Research methods: During the conducted scientific work, ultrasound of the pancreas was performed on patients admitted to the hospital. During the examination, changes in the size, echogenicity, structure, and surrounding tissues of the pancreas were assessed. These identified data were compared with clinical and laboratory results.

Results obtained: as a result of ultrasound examination, it was observed that it is possible to identify acute and chronic pancreatitis of the pancreas, cystic changes of the pancreas, tumor processes, and destructive changes in the pancreas. In acute pancreatitis, an increase in the volume of the gland, a decrease in echogenicity, and a heterogeneous structure of the parenchyma were noted. In chronic pancreatitis, densification of the parenchyma, increased echogenicity, and dilation were detected. This examination method made it possible to identify morphological changes in the gland at an early stage.

Conclusions: in conclusion, it can be said that ultrasound is an effective and reliable method for the early detection and diagnosis of pancreatic diseases. Its non-invasiveness, safety, and reusability ensure its widespread use in clinical practice. Therefore, it is advisable to use ultrasound examination as part of complex diagnostic studies in the detection of pancreatic pathologies.

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TARAQQIYOT ODIMLARI O‘ZBEK MODELI: IQTISODIY VA IJTIMOYIY ISLOHOTLARNING ASOSIY YO‘NALISHLARI

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Annotatsiya: Mazkur maqolada O‘zbekiston Respublikasining mustaqillikdan keyingi taraqqiyot modeli, iqtisodiy va ijtimoiy islohotlar jarayoni hamda innovatsion rivojlanish yo‘nalishlari tahlil qilingan. Shuningdek, mamlakatda amalga oshirilgan privatizatsiya, investitsion siyosat, ta’lim va sog‘liqni saqlash tizimidagi islohotlar, innovatsion rivojlanish hamda xalqaro hamkorlik masalalari yoritilgan. O‘zbekiston taraqqiyot modelining asosiy tamoyillari va uning iqtisodiy barqarorlikka ta’siri ilmiy jihatdan asoslab berilgan.

Kalit so‘zlar: O‘zbekiston modeli, iqtisodiy islohotlar, privatizatsiya, investitsiya, innovatsiya, ijtimoiy rivojlanish, ta’lim, sog‘liqni saqlash, xalqaro hamkorlik.

Mustaqillikka erishganidan so‘ng O‘zbekiston o‘z oldiga bozor iqtisodiyotiga asoslangan barqaror rivojlanish modelini shakllantirish vazifasini qo‘ydi. Shu maqsadda mamlakat o‘zining tabiiy, iqtisodiy va demografik resurslariga mos keladigan “O‘zbekiston taraqqiyot modeli”ni ishlab chiqdi.

Ushbu modelning asosiy maqsadi iqtisodiy barqarorlikni ta’minlash, ijtimoiy farovonlikni oshirish va mamlakatning global miqyosdagi raqobatbardoshligini kuchaytirishdan iboratdir.

IQTISODIY ISLOHOTLAR VA BOZOR MUNOSABATLARIGA O‘TISH.

O‘zbekiston Respublikasi mustaqillikka erishgach, iqtisodiy rivojlanishning yangi bosqichiga o‘tdi va 1991-yildan boshlab bosqichma-bosqich iqtisodiy islohotlarni amalga oshirish jarayonini boshladi. Ushbu islohotlarning asosiy maqsadi markazlashgan, davlat tomonidan boshqariladigan iqtisodiyotdan bozor munosabatlariga asoslangan iqtisodiy tizimga o‘tish, iqtisodiy erkinlikni ta’minlash hamda xususiy sektorni rivojlantirishdan iborat bo‘ldi.

Bozor iqtisodiyotiga o‘tish jarayoni murakkab va ko‘p bosqichli jarayon bo‘lib, u iqtisodiyotning barcha sohalarini qamrab oldi. Bu jarayonda davlat iqtisodiy islohotlarning asosiy tashabbuskori sifatida chiqib, qonunchilik bazasini shakllantirdi, mulkchilik munosabatlarini o‘zgartirdi va iqtisodiy erkinlik uchun shart-sharoitlar yaratdi.

Ushbu islohotlar doirasida quyidagi asosiy yo‘nalishlar amalga oshirildi:

- **Privatizatsiya jarayoni** – davlat mulkini bosqichma-bosqich xususiy sektorga o‘tkazish orqali iqtisodiyotda raqobat muhitini shakllantirish asosiy vazifalardan biri bo‘ldi. Privatizatsiya jarayoni natijasida ko‘plab davlat korxonalari xususiylashtirildi, bu esa mulkchilik shakllarining xilma-xilligini ta‘minladi. Xususiy sektorning rivojlanishi kichik va o‘rta biznesning shakllanishiga keng imkoniyatlar yaratdi. Natijada iqtisodiyotda samaradorlik oshdi, ishlab chiqarish hajmi kengaydi va yangi ish o‘rinlari paydo bo‘ldi. Shuningdek, raqobat muhitining kuchayishi mahsulot va xizmatlar sifatining yaxshilanishiga olib keldi.
- **Ishlab chiqarishni diversifikatsiya qilish** – iqtisodiyotning bir yoki bir necha tarmoqqa qaramligini kamaytirish maqsadida sanoat, qishloq xo‘jaligi va xizmat ko‘rsatish sohaslarida yangi yo‘nalishlar rivojlantirildi. Xususan, yuqori qo‘shimcha qiymatga ega mahsulotlar ishlab chiqarish, qayta ishlash sanoatini rivojlantirish va eksportbop mahsulotlar ulushini oshirishga alohida e‘tibor qaratildi. Bu jarayon iqtisodiy barqarorlikni mustahkamlash, tashqi bozorlarga bog‘liqlikni kamaytirish hamda milliy iqtisodiyotning mustaqilligini oshirishga xizmat qildi.
- **Investitsiya siyosati** – iqtisodiy islohotlarning muhim yo‘nalishlaridan biri sifatida xorijiy investitsiyalarni jalb etish strategiyasi ishlab chiqildi va amaliyotga joriy etildi. Mamlakatda investitsion muhitni yaxshilash, soliq imtiyozlarini yaratish va huquqiy kafolatlarni mustahkamlash orqali chet el kapitali kirib kelishi uchun qulay sharoitlar shakllantirildi. Natijada yangi korxonalar barpo etildi, zamonaviy texnologiyalar joriy qilindi, ishlab chiqarish jarayonlari modernizatsiya qilindi hamda minglab yangi ish o‘rinlari yaratildi. Bu esa iqtisodiy o‘sish sur‘atlarining barqaror oshishiga va milliy iqtisodiyotning global integratsiyalashuviga xizmat qildi.

IJTIMOIIY SOHALARDAGI ISLOHOTLAR

O‘zbekiston Respublikasida amalga oshirilgan iqtisodiy islohotlar bilan bir qatorda ijtimoiy sohalarda ham keng ko‘lamli va tizimli o‘zgarishlar amalga oshirildi. Ushbu islohotlarning asosiy maqsadi aholining turmush darajasini oshirish, inson kapitalini rivojlantirish hamda jamiyatda ijtimoiy barqarorlikni ta‘minlashdan iborat bo‘ldi. Ijtimoiy sohalardagi islohotlar davlatning uzoq muddatli rivojlanish strategiyasining muhim tarkibiy qismi sifatida qaraladi.

Ushbu yo‘nalishda quyidagi asosiy sohalarda sezilarli islohotlar amalga oshirildi:

- **Ta‘lim tizimini modernizatsiya qilish** – ta‘lim sohasida chuqur tarkibiy islohotlar amalga oshirilib, zamonaviy ta‘lim standartlari joriy etildi. Ta‘lim jarayoniga innovatsion pedagogik texnologiyalar, axborot-kommunikatsiya vositalari hamda raqamli ta‘lim platformalari keng tatbiq etildi. Xorijiy tillarni o‘qitish tizimi kuchaytirildi, bu esa yoshlarning global mehnat bozorida raqobatbardoshligini oshirdi.

Shuningdek, oliy ta'lim muassasalarida kredit-modul tizimi va xalqaro hamkorlik dasturlari joriy etilib, ta'lim sifatini yaxshilashga erishildi. Natijada malakali, zamonaviy bilim va ko'nikmalarga ega kadrlar tayyorlash tizimi shakllandi.

- **Sog'liqni saqlash tizimi islohoti** – sog'liqni saqlash sohasida ham keng qamrovli modernizatsiya jarayonlari amalga oshirildi. Tibbiyot muassasalari zamonaviy uskunalar bilan jihozlandi, diagnostika va davolashning ilg'or texnologiyalari joriy etildi. Birlamchi tibbiy-sanitariya yordami tizimi mustahkamlandi, aholiga yaqin tibbiy xizmat ko'rsatish imkoniyatlari kengaytirildi. Shuningdek, profilaktika ishlari kuchaytirilib, kasalliklarning oldini olishga alohida e'tibor qaratildi. Ushbu islohotlar natijasida aholiga ko'rsatilayotgan tibbiy xizmat sifati va samaradorligi sezilarli darajada oshdi.

- **Ijtimoiy himoya tizimi rivoji** – aholining ijtimoiy himoyaga muhtoj qatlamlarini qo'llab-quvvatlash davlat siyosatining ustuvor yo'nalishlaridan biri sifatida belgilandi. Kambag'allikni qisqartirishga qaratilgan kompleks dasturlar ishlab chiqildi va amaliyotga joriy etildi. Nogironligi bo'lgan shaxslar, kam ta'minlangan oilalar va ehtiyojmand qatlamlar uchun moddiy va ijtimoiy yordam tizimi kengaytirildi. Shu bilan birga, "ijtimoiy reyestr" tizimi joriy etilib, yordam manzilliligini ta'minlash mexanizmlari takomillashtirildi. Bu esa jamiyatda ijtimoiy adolat va barqarorlikni mustahkamlashga xizmat qildi.

INNOVATSION RIVOJLANISH YO'NALISHLARI

So'nggi yillarda O'zbekiston Respublikasida innovatsion iqtisodiyotni shakllantirish va raqamli transformatsiyani jadallashtirishga alohida e'tibor qaratilmoqda. Innovatsion rivojlanish mamlakat iqtisodiyotining raqobatbardoshligini oshirish, yangi texnologiyalarni joriy etish hamda yuqori qo'shimcha qiymatga ega mahsulotlar ishlab chiqarishni kengaytirishning asosiy omili sifatida qaralmoqda. Shu bois davlat siyosatida ilm-fan, texnologiya va tadbirkorlik integratsiyasini kuchaytirishga yo'naltirilgan chora-tadbirlar amalga oshirilmoqda.

Ushbu yo'nalishda quyidagi asosiy strategik chora-tadbirlar muhim ahamiyat kasb etadi:

- **Texnoparklar tashkil etish va rivojlantirish** – mamlakat hududlarida zamonaviy texnoparklar, innovatsion markazlar va ilmiy-ishlab chiqarish klasterlari tashkil etildi. Ushbu texnoparklar innovatsion g'oyalarni amaliyotga tatbiq etish, ilmiy ishlanmalarni tijoratlashtirish hamda startap loyihalarni qo'llab-quvvatlash uchun muhim platforma bo'lib xizmat qilmoqda. Texnoparklar orqali yosh olimlar, muhandislar va tadbirkorlar o'z g'oyalarini real iqtisodiy loyihalarga aylantirish

imkoniyatiga ega bo'lmog'da. Bu esa yangi texnologik mahsulotlar ishlab chiqarish va innovatsion xizmatlar ko'rsatish hajmining oshishiga olib kelmoqda.

- **Startup ekotizimini rivojlantirish** – innovatsion iqtisodiyotning muhim tarkibiy qismi sifatida startap harakatini qo'llab-quvvatlash tizimi shakllantirilmoqda. Yosh tadbirkorlar uchun turli grantlar, imtiyozli kreditlar va venchur moliyalashtirish mexanizmlari joriy etildi. Shuningdek, biznes-inkubatorlar va akselerator dasturlari orqali startap loyihalarni bosqichma-bosqich rivojlantirish imkoniyati yaratildi. Bu jarayon yangi ish o'rinlarini yaratish, innovatsion mahsulotlar ishlab chiqish va iqtisodiyotning raqamli segmentini kengaytirishga xizmat qilmoqda.

Shu bilan birga, innovatsion rivojlanish jarayonida raqamli iqtisodiyot, sun'iy intellekt, katta ma'lumotlar (Big Data), elektron hukumat tizimlari hamda IT xizmatlar eksporti kabi yo'nalishlar ham jadal rivojlanmoqda. Ushbu texnologiyalar iqtisodiy jarayonlarni avtomatlashtirish, boshqaruv samaradorligini oshirish va global bozorlarga integratsiyani tezlashtirishga yordam bermoqda.

Umuman olganda, iqtisodiy islohotlar va bozor munosabatlariga o'tish jarayoni O'zbekiston iqtisodiyotining tubdan yangilanishiga asos bo'ldi. Ushbu jarayon natijasida mamlakatda xususiy sektor kuchaydi, iqtisodiy raqobat shakllandi va barqaror rivojlanish uchun mustahkam poydevor yaratildi. Ijtimoiy sohalaridagi islohotlar O'zbekistonda inson manfaatlarini ta'minlashga yo'naltirilgan davlat siyosatining muhim yo'nalishi bo'lib, aholining hayot sifatini yaxshilash va ijtimoiy farovonlikni oshirishga xizmat qilmoqda.

Xulosa qilib aytganda, O'zbekiston taraqqiyot modeli iqtisodiy barqarorlik, ijtimoiy farovonlik va innovatsion rivojlanishni ta'minlashga qaratilgan kompleks strategiya hisoblanadi. Amalga oshirilayotgan islohotlar mamlakatning xalqaro maydondagi nufuzini oshirib, uning raqobatbardoshligini kuchaytirmoqda. Kelgusida ushbu yo'nalishlarning davom ettirilishi O'zbekistonning yanada barqaror va innovatsion rivojlanishini ta'minlaydi.

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DETECTION FREQUENCY OF SEXUALLY TRANSMITTED INFECTION AGENTS IN CHRONIC CERVICITIS

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Abstract. In patients with social and anamnestic risk factors for the development of cervicitis, the vaginal microbiome should be assessed and a test performed for the presence of a possible causative agent of inflammation.

Keywords: chronic cervicitis, reproductive age, treatment

Relevance. Inflammatory diseases of the genital tract are one of the most common reasons for patients to visit an obstetrician-gynecologist at a women's clinic. They occupy a leading place in the structure of gynecological pathology (up to 60.0%), [1,3,5,7,9,11,13]. Moreover, it is known that the cervix is one of the barriers preventing the penetration of the pathogen into the upper genital tract. This is due to the anatomical narrowness of the cervical canal, the presence of a mucous "plug" containing secretory immunoglobulin A, lysozyme and other substances with protective properties, as well as macrophages, neutrophils, T-lymphocytes in the lamina propria of the mucous membrane [2, 4, 6, 8, 10, 12]. However, according to some researchers, the cervix is often the first organ in the lower urogenital tract to become involved in the inflammatory process. This occurs as a result of damaging factors, particularly cervical trauma during childbirth, abortions, and medical and diagnostic procedures, as well as the affinity of some sexually transmitted infection (STI) pathogens for columnar epithelium, which leads to a decrease in the barrier function of the cervix and the development of inflammation. This allows for ascending infection of the upper genital tract, leading to complications such as infertility, miscarriage, an increased risk of fetal and placental defects, and complications after minor gynecological surgeries. Furthermore, the infectious factor is also considered a precursor to precancerous conditions and, possibly, cervical cancer.

Clearly, this problem has not only medical significance but also negative socioeconomic and demographic consequences. Early diagnosis and timely treatment of cervicitis help prevent further spread of infection, reduce the incidence of pelvic inflammatory diseases, and prevent their complications.

Objective of the study: To assess risk factors for the development of chronic cervicitis and develop an algorithm for the diagnosis and treatment of inflammatory cervical diseases.

Materials and methods: A clinical and laboratory examination and treatment were conducted on 150 non-pregnant women aged 18 to 45 years with complaints of mucous or mucopurulent discharge from the genital tract. The control group consisted of 50 patients of the same age who visited a doctor for a preventive examination. The study samples included cervical and urethral epithelial scrapings, as well as vaginal discharge. The following examination methods were used: direct (bedside) microscopy of native and stained urethral, vaginal, and cervical swabs; microscopy of Gram-stained swabs; assessment of the vaginal microbiota; microbiological methods for pathogen identification (PCR, culture diagnostics); cytological examination of cervical swabs; simple and extended colposcopy with targeted biopsy of cervical areas suspected of dysplasia, followed by histological examination of the biopsy specimens. Cervicitis was diagnosed based on complaints of vaginal

discharge, objective signs of inflammation (hyperemia, mucous or mucopurulent discharge from the cervical canal, a positive swab test), and a polymorphonuclear leukocyte count of more than 10 per field of view of a light microscope at 1000x magnification. The cytological examination was performed using epithelial scrapings from the ectocervix and cervical canal. To study the clinical characteristics of chronic cervicitis, we divided the patients into three groups. The two main study groups (Groups I and II) included 150 non-pregnant women with cervicitis (Group I) and 61 patients with acute cervical inflammation (Group II) and 89 patients with chronic cervicitis. The control group (Group III) included 50 non-pregnant women without cervicitis. Chronic cervicitis was more common in women aged 30-39 years ($57.3 \pm 5.2\%$) and less common in women aged 17-29 years ($34.8 \pm 5.0\%$). In women over 40, both acute and chronic cervicitis were observed much less frequently – in $3.3 \pm 2.3\%$ and $7.9 \pm 2.9\%$ of cases, respectively. In the control group (CG), the majority of women were 20-29 years old - $52 \pm 7.1\%$, less common were women aged 30-39 years - $30 \pm 6.5\%$. Among women without cervicitis aged 40 to 49 years, there were only 4 patients ($8 \pm 3.8\%$).

These three groups of patients were approximately equal in terms of social status, education level, and social class. Age of onset of sexual activity is considered one of the risk factors for the development of infectious and inflammatory diseases of the cervix (14, 15). The results of our study are consistent with this concept. In the group of women with acute cervicitis, there were significantly more women who began sexual relations before the age of 18 ($63.9 \pm 6.1\%$), compared with women with chronic cervicitis ($29.2 \pm 4.8\%$) and women without cervicitis ($10.0 \pm 4.2\%$) ($p < 0.001$). When comparing women with chronic cervicitis and practically healthy women, it was also found that among the former, there were significantly more women who began sexual activity before the age of 18 ($29.2 \pm 4.8\%$ and $10.0 \pm 4.2\%$, respectively) ($p < 0.01$). At the same time, in women who began sexual activity between the ages of 19 and 25, significant differences in the development of cervicitis were not found. After age 25, $14.6 \pm 3.7\%$ of women with chronic cervicitis and $36 \pm 6.8\%$ of women without cervicitis ($p < 0.01$) began having sex. The determining risk factors for developing cervicitis are frequent changes of sexual partners, their number, and the partner's sexual behavior. In patients with both acute and chronic cervicitis, the number of sexual partners in the past year was in most cases greater than five, accounting for $62.3 \pm 6.2\%$ and $67.4 \pm 5.0\%$, respectively. In the group of women without cervicitis, the majority of women had one sexual partner— $58.0 \pm 7.0\%$. $21.0 \pm 7.0\%$ of women had two or more sexual partners. Among women in Group I, other methods of contraception were withdrawal ($29.5 \pm 5.8\%$), combined oral contraceptives (COCs) ($27.9 \pm 5.7\%$), and spermicides ($11.5 \pm 4.1\%$). In $26.2 \pm 5.6\%$ of cases, patients with acute cervicitis did not use any method of contraception at all. The majority of women with chronic cervicitis ($38.2 \pm 5.2\%$) used COCs as their primary method of contraception. The second most common method of contraception in Group II was withdrawal ($21.3 \pm 4.3\%$). Intrauterine contraceptives and spermicides were used less frequently ($12.4 \pm 3.5\%$ and $9.0 \pm 3.0\%$, respectively).

In the control group (CG), the primary method of contraception was condom use by partners, accounting for $76.0 \pm 2.9\%$. Women without cervicitis were less likely to use COCs ($14.0 \pm 4.9\%$) and spermicides ($4.0 \pm 2.8\%$). Analyzing the data obtained, it can be concluded that patients with chronic cervicitis in most cases used ineffective methods of contraception against STIs, focusing primarily on methods of contraception against unwanted pregnancy.

Conclusions. Based on a clinical and laboratory study, social and clinical-anamnestic risk factors for the development of acute and chronic cervicitis in non-pregnant women of reproductive age were

identified. The risk of developing cervicitis is higher in patients with an early onset of sexual activity, frequent changes of sexual partners, a history of intrauterine interventions, cervical trauma during childbirth, as well as chronic inflammatory diseases of the female genital organs and benign diseases of the cervix.

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MORPHOMETRIC INDICATORS OF CARIES AMONG ADOLESCENTS OF KHOREZM REGION.

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Abstract. In this article the data of morphometric studies of caries conducted among young men living in Khorezm region. 514 boys and girls of schoolchildren aged 11 to 17 years living in the city of Urgench were studied, morphometric studies of caries detected in the subjects were conducted and analyzed.

Key words: young men, morphometry, dentin, predentin.

Introduction

The development of dental caries is one of the most important problems of the world health system, affecting children and adults alike. The prevalence of primary teeth in children is 46.2% (95% CI: 41.6–50.8%) worldwide, and that of permanent teeth is 53.8% (95% CI: 50–57.5%) [Amiri S, Veissi M.2017]. The World Health Organization (WHO) describes childhood caries as a global problem with a prevalence of 60% to 90% [Kazeminia M, Abdi A, 2020]. According to statistical data provided by European countries, at least 1 tooth is affected by caries among children aged 6 to 12 years, which is a major socio-economic problem. In view of this, the study of caries in children and adolescents is of great interest. The purpose of the scientific work. Study of the development and spread of caries among adolescents of the Khorezm region, conducting morphometric examinations.

Material and methods. The material was 514 adolescents aged 11 to 17 years from schools in the city of Urgench, who were examined, and the depth and location of the detected caries were analyzed using morphometric measurements.

Results. During the examination, the average thickness of the enamel of the upper and lower molar teeth of adolescents on the chewing surfaces was 2.3 ± 0.03 mm, on the lateral surfaces - 1.8 ± 0.03 mm, and in the cervical area - 0.4 ± 0.01 mm. It was observed that the thickness of dentin is different in molar teeth: it is thicker on the chewing surfaces and is equal to 2.6 ± 0.05 mm on average, on the lateral surfaces it is on average 1.8 ± 0.06 mm, and the thickness of dentin on the neck area is less, it was noted that it is 1.3 ± 0.04 mm on average. It was found that predentin thickness of molar teeth in adolescent children is equal to 17.1 ± 0.5 mm, cementum thickness is 0.2 ± 0.02 mm, and width of dentin tubules is equal to 2.2 ± 0.1 (table 1). The average area

of odontoblasts in the control group was $132.7 \pm 2.1 \mu\text{m}$, and the area of nuclei was 38.6 ± 0.38 . The number of odontoblast tumors was 22 ± 0.40 per $100 \mu\text{m}$. The core-cytoplasmic ratio in the teeth of children in the control group ranged from 0.35 to 0.69, with an average of 0.47 ± 0.02 .

Because the average thickness of dentin was not significantly damaged in the initial period of caries, the thickness was not significantly different from that of the control group and was on average $2.5 \pm 0.04 \text{ mm}$. Later, by the middle period of caries, damage to dentin was clearly reflected, and it was found that the thickness decreased up to 5.5 times. During this period of caries, the thickness of dentin was $0.5 \pm 0.05 \text{ mm}$. By the deep period of caries, it was found that the dentine shrinks and does not exist at all. [1] At the initial stage of caries, the thickness of the cementum did not differ from that of the control group. As a result of the development of caries, the inflammatory process reaches the periodontium, and changes in the structure of the cement were observed. In the case of deep caries, the cementum thickened by $0.3 \pm 0.02 \text{ mm}$ due to inflammation compared to the control group. [2]

The expansion of the dentinal tubules also increases with the development of caries. In the initial stage, the width of the tubules is $2.2 \pm 0.3 \text{ mm}$, but in the intermediate stage of caries they expand to $4.5 \pm 0.8 \text{ mm}$, and in the deep stage to $8.8 \pm 0.4 \text{ mm}$. This expansion indicates the spread of lesions and infections through the dentin and can lead to complete destruction of the teeth.

Morphometric parameters of odontoblasts in carious teeth were also observed to change compared to healthy teeth. The area of odontoblasts begins to actively grow in order to cover the damaged dentin in the initial stage of caries and was found to increase by 5.5% compared to the control group and equal to $140 \pm 2.2 \mu\text{m}^2$. In the middle period of caries, odontoblast cells decreased by 9.6% and the area decreased by $119.9 \pm 1.4 \mu\text{m}^2$, compared to the control group. By the time of deep caries, as a result of destruction of odontoblasts, it was found to be reduced by 37.7% and equal to $87.2 \pm 0.98 \mu\text{m}^2$ compared to the control group.

In the initial period of caries, the area of nuclei of odontoblasts is stable and does not differ significantly from that of the control group. In the initial period of caries, odontoblast cells take an active part in the formation of dentin, the nuclei may become slightly larger due to the activation of the cells. A slight increase in the nuclear area (8.8%) and an increase in the functioning of cells in response to initial damage (by $42 \pm 0.4 \mu\text{m}^2$) are observed. [3]

In the middle stage of caries, as a result of the deepening of the lesion in the tooth, a gradual decrease in the area of the nuclei of odontoblasts is observed, but this

difference is not as significant as in the control group. However, an expansion and increase in the size of the nuclei was detected. At this stage, the area of the nuclei was $40.4 \pm 0.6 \mu\text{m}^2$.

In the later, deep stage of caries, when the lesion penetrated the deep layers of the dentin and damaged the pulp, a sharp decrease in the number of odontoblast nuclei was detected. This process is associated with the loss of function of odontoblast cells and their inability to produce dentin properly. In cases of severe damage and inflammation (pulpitis), the nuclei of odontoblasts are degraded and their area decreases. When the cells restore their function, their nuclei become compact and less bright. During this period, it was determined that the area of the nuclei of odontoblasts decreased by 24.9% and was equal to $29 \pm 0.56 \mu\text{m}^2$ compared to the control group. [4]

In the initial stage of caries, the number of odontoblast growths was 18.2 ± 0.23 per 100 μm , a decrease of 17.3% compared to the control group. The growths were found to be thicker and longer than in the control group. In the middle stage of caries, some odontoblast cell growths were observed, which may lead to a decrease in signal transmission ability. In this stage of caries, the number of cell growths was found to be reduced by 36.4%, and in deep caries by 58.2%. In the middle stage of caries, it was 14 ± 0.25 per 100 μm , and in deep caries, respectively, it was 9.2 ± 0.24 .

From the initial stage of caries, increased blood circulation in the tooth, dilation and fullness of blood vessels were observed. In the initial period of caries, 20.5% less than in the control group, 23.7% in the middle stage, and 6.3% less blood vessels in deep caries than in the control group. It was found that the number of blood vessels in different stages of caries is equal to $59.4 \pm 0.82 \mu\text{m}^2$ in the initial stage, $61 \pm 0.4 \mu\text{m}^2$ in the middle stage and $46.2 \pm 0.72 \mu\text{m}^2$ in the deep stage.

In order to determine the level of activity of the caries process, the Green Vermillion index was determined, and it was found that the indicator increased as the caries process developed. At the initial stage of caries, it was on average 0.80 ± 0.08 (0.2-1.2), in the middle stage of caries, this index was on average 1.4 ± 0.08 (0.9-1.9), which allows us to conclude that oral hygiene is in a satisfactory state. In the deep stage of caries, the Green Vermillion index was 2.5 ± 0.09 (2-3). This indicated that oral hygiene is in an unsatisfactory state.

The following data were obtained as a result of studying mineral metabolism in adolescents at different stages of caries activity. No significant changes were detected in the pH of the oral cavity: the pH level was found to be on average 7.05 in mild caries, 6.95 in moderate caries, and 7.03 in deep caries. It was found that the buffer system of

the oral cavity works actively even at different levels of caries activity in teenage children. [4]

The amount of calcium in the oral fluid did not show a significant change in the level of caries activity. It was equal to 1.6 ± 0.009 g/l in the light level, and 1.1 ± 0.13 g/l in the medium level. It was observed that it was 0.6 ± 0.05 g/l at the heavy level. No reliable changes were observed in the amount of phosphorus in the oral cavity depending on the level of activity.

It was found that the amount of phosphorus is 3.2 ± 0.12 g/l in the mild level of caries, 2.1 ± 0.06 and 1.6 ± 0.03 g/l in the medium and severe levels.

We have identified a correlational relationship in the cases we have studied. It was found that there is a negative (-0.01) correlation between the Green Vermilion index and the amount of calcium in the oral cavity fluid at a mild level of caries, and a slight positive correlation (+3; 0.1) at the middle and severe stages of caries.

A negative correlation was also found between the PMA index and the amount of calcium in the oral cavity fluid. It was observed that the correlation coefficient of calcium was -0.3 for mild caries, -0.1 for moderate and 0.07 for severe caries.

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COMPARATIVE ANALYSIS OF PHRASEOLOGICAL UNITS WITH ORNITHONYMIC COMPONENTS IN ENGLISH AND UZBEK

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Annotation: This article provides a comparative analysis of phraseological units containing ornithonyms in English and Uzbek languages. Ornithonyms, or bird-related terms, are an important part of phraseology in both languages, reflecting cultural perceptions and conceptualizations of birds. The study examines idiomatic expressions, highlighting the use of ornithonyms in both languages, their meanings, and cultural nuances. The comparison aims to reveal similarities and differences in the usage of bird-related idioms, emphasizing how language and culture are intertwined. This paper also investigates how birds are metaphorically used to describe human traits and behaviors in both linguistic and cultural contexts.

Keywords: Ornithonym, phraseological unit, comparative analysis, idiomatic expressions, semantics, cross-cultural analysis, linguistics, bird-related terms, metaphor.

Аннотация: Статья представляет собой сравнительный анализ фразеологических единиц с орнитонимами в английском и узбекском языках. Орнитонимы, или термины, связанные с птицами, являются важной частью фразеологии в обоих языках, отражая культурные восприятия и концептуализации птиц. Исследование изучает идиоматические выражения, подчеркивая использование орнитонимов в обоих языках, их значение и культурные нюансы. Сравнение направлено на выявление сходств и различий в использовании птиц в качестве метафор в обоих языках, а также на то, как язык и культура переплетаются. В статье также рассматривается, как птицы метафорически используются для описания человеческих черт и поведения.

Ключевые слова: Орнитоним, фразеологизм, сравнительный анализ, идиоматические выражения, семантика, межкультурный анализ, лингвистика, термины, связанные с птицами, метафора.

Annotatsiya: Ushbu maqola ingliz va o‘zbek tillarida ornitonim komponentli frazeologik birliklarning chog‘ishtirma tahlilini taqdim etadi. Ornitonimlar, ya’ni qushlarga oid atamalar, ikki tildagi frazeologiyada muhim rol o‘ynaydi va qushlarga bo‘lgan madaniy qarashlar hamda tushunchalarni aks ettiradi. Tadqiqotda idiomatik iboralar o‘rganilib, ornitonimlarning ikkala tildagi ishlatilishi, ularning ma’nolari va madaniy xususiyatlari ko‘rsatiladi. Tahlil ornitonimlarni ishlatishda mavjud bo‘lgan o‘xshashliklar va farqlarni aniqlashga qaratilgan bo‘lib, til va madaniyatning bir-biriga qanday bog‘liqligi ko‘rsatiladi. Maqolada shuningdek, qushlar metaforik tarzda inson xarakteri va xulq-atvorini qanday ifodalashda ishlatilishi ham ko‘rib chiqiladi.

Kalit so‘zlar: Ornitonim, frazeologik birlik, chog‘ishtirma tahlil, idiomatik ifodalar, semantika, madaniyatlararo tahlil, lingvistika, qushlarga oid atamalar, metafora.

Introduction

The study of phraseological units containing ornithonyms in both English and Uzbek languages opens an intriguing window into the linguistic and cultural diversity that exists between these two languages. Ornithonyms, or bird-related terms, are rich in symbolic meaning, often reflecting societal attitudes and the role birds play in human life. Both languages use these terms metaphorically in idiomatic expressions to describe human traits, actions, and characteristics. This paper aims to offer a comparative analysis of ornithonym-based phraseological units in English and Uzbek, focusing on their semantic interpretations and cultural implications.

Main Body

In both English and Uzbek, birds are frequently used in idiomatic expressions to convey various human characteristics and behaviors. For example, the phrase "eagle-eyed" in English describes someone with keen vision, while in Uzbek, "qaldirg‘och ko‘z" (swallow-eyed) might be used with a similar meaning. However, the birds used in these idioms often reflect different cultural values. In English, birds such as the eagle, owl, and sparrow are prominent, symbolizing strength, wisdom, and simplicity, respectively.[1] Conversely, in Uzbek, birds like the falcon, pigeon, and crane are more prevalent, each carrying distinct cultural meanings tied to historical or social contexts. The comparative analysis of ornithonym-based phrases reveals some interesting parallels and differences. While English idioms like "a bird in the hand is worth two in the bush" emphasize the value of certainty over uncertainty, similar expressions in Uzbek might focus on themes of community and social bonds, such as "boshga qulupnay, qo‘lingda oqqush" (literally: "A falcon in the head, a dove in the hand" — representing wisdom and peace). These differences highlight the ways in which birds serve as metaphors for societal values and individual traits in both languages. One

significant difference is in the symbolic meaning attached to certain birds. In English, the crow often carries negative connotations, associated with death or bad luck, as seen in phrases like "a black crow brings bad news." In contrast, the raven, while also associated with dark themes, is regarded in Uzbek culture as a symbol of intelligence and cunning. Birds have a deep cultural resonance that goes beyond their linguistic uses. For example, the falcon in Uzbek culture is a symbol of strength, pride, and nobility, often associated with historical figures and revered in local traditions. In contrast, the eagle in English-speaking countries is often seen as a symbol of freedom and power, particularly in the context of national identity, such as the American bald eagle. Furthermore, birds are commonly used in proverbs and sayings in both languages, reflecting a society's values, ideals, and relationship with nature. For instance, the English saying "don't count your chickens before they hatch" warns against premature optimism, while a similar Uzbek expression, "to'rttadan qalam topolmay o'rganma" (literally: "don't pick the bird before it flies"), emphasizes caution and prudence. Birds are frequently used metaphorically to describe human behavior and emotions.[2] For example, the phrase "free as a bird" is widely used in English to describe someone who is unburdened by responsibilities or restrictions. In Uzbek, a similar metaphor would be "qaldirg'och kabi erkin", meaning as free as a swallow, with a similar connotation of freedom but often connected with the image of a nomadic lifestyle, which is prominent in Central Asian culture.[3] Additionally, birds are sometimes used to represent specific human virtues or flaws. In English, the phrase "a bird of prey" refers to someone who aggressively pursues their goals, often without regard for others, while in Uzbek, the metaphorical use of birds is more often tied to cooperation and communal values, such as the use of "tovuq" (hen) to refer to a nurturing and family-oriented individual.

Conclusion

In conclusion, the comparative study of ornithonym-based phraseological units in English and Uzbek highlights the significant role that birds play in shaping linguistic and cultural expressions. While there are numerous similarities in the use of birds as metaphors, the distinct cultural contexts and symbolic meanings associated with different species of birds reveal the underlying values and social practices of each society. Further research into these idioms can provide deeper insights into the relationship between language, culture, and metaphor, offering a richer understanding of how language reflects cultural identity.

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ULTRATOVUSHNING MIKROBIOLOGIYADAGI AHAMIYATI VA MIKROORGANIZMLARGA TA'SIRI

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Аннотация

Ушбу мақолада ультратовушнинг микроорганизмларга таъсири ва унинг микробиологиядаги амалий аҳамияти кўриб чиқилади. Ультратовуш юқори частотали механик таъсир сифатида бактериялар, замбуруғлар ва бошқа микроорганизмлар ҳужайра тузилмасини бузиш қобилиятига эга. Унинг таъсирида ҳужайра девори шикастланади, ички тузилмалар издан чиқади ва микроблар фаолияти сусаяди ёки тўхтади. Шунингдек, ультратовуш биофтиллارни парчалашда ва стерилизация жараёнларида самарали қўлланилади.

Калит сўзлар: ультратовуш, микроорганизмлар, биофтилл, стерилизация, микробиология

Введение

Микробиологияда микроорганизмларга турли физик ва кимёвий омилларнинг таъсирини ўрганиш муҳим аҳамиятга эга. Замонавий тадқиқотларда ультратовуш алоҳида ўрин тутди, чунки у анъанавий усулларга нисбатан ноинвазив ва самарали ҳисобланади.

Ультратовуш микроорганизмларга бевосита механик таъсир кўрсатади. Бу таъсир натижасида ҳужайра тузилмаларида ўзгаришлар юз беради. Айниқса, ҳужайра девори ва мембранаси сезгир бўлиб, уларнинг бузилиши микроорганизм ҳаёти учун ҳалокатли бўлиши мумкин.

Шу боис ультратовушдан фақат лаборатория тадқиқотларида эмас, балки тиббий амалиётда ҳам фойдаланилмоқда.

Материалы и методы

Тадқиқот маълумотлари замонавий микробиологик адабиётлар ва илмий манбалар таҳлили асосида умумлаштирилди.

Қўлланилган усуллар:

- Илмий адабиётларни таҳлил қилиш
- Микроорганизмларга таъсир қилувчи омилларни таққослаш
- Экспериментал тадқиқот натижаларини умумлаштириш

Микроорганизмларнинг турли штаммларига ультратовуш таъсири бўйича маълумотлар солиштириб ўрганилди.

Результаты

Тадқиқот натижаларига кўра, ультратовуш микроорганизмларга бир неча йўналишда таъсир кўрсатади.

Аввало, у ҳужайра девори ва мембранасини шикастлайди. Бу жараён ҳужайранинг бутунлигини бузади ва унинг ички муҳитини ўзгартиради. Натижада микроорганизм ҳаётий фаолияти издан чиқади.

Иккинчидан, ультратовуш таъсирида ҳужайра ичидаги тузилмаларда ўзгаришлар юз беради. Фермент тизимлари фаолияти бузилади, метаболизм жараёнлари секинлашади.

Учинчидан, биофтилмлар структурасига таъсир кузатилади. Маълумки, биофтилмлар микроорганизмларни ташқи таъсирдан ҳимоя қилади. Ультратовуш эса ушбу ҳимоя қатламини бузиб, микробларни ташқи омилларга нисбатан заифлаштиради.

Шу билан бирга, ультратовуш стерилизация жараёнларида ҳам самарали эканлиги аниқланди. У тиббий асбобларни тозалаш ва микроблардан халос қилишда қўлланилади.

Обсуждение

Олинган натижалар шуни кўрсатадики, ультратовуш микроорганизмларга қарши таъсир этувчи истикболли воситалардан бири ҳисобланади. Унинг таъсири механик бўлгани сабабли, антибиотиклардан фарқли равишда микробларда резистентлик ривожланиши эҳтимоли камроқ.

Бироқ, унинг таъсирини тўғри назорат қилиш муҳим. Жуда юқори таъсир даражаси нафақат микроорганизмларга, балки тирик тўқималарга ҳам зарар етказиши мумкин. Шунинг учун ультратовушдан фойдаланишда оптимал шароитларни танлаш зарур.

Шунингдек, ультратовушни бошқа усуллар билан биргаликда қўллаш, масалан, антимикроб препаратлар билан комбинация қилиш, юқори самара бериши мумкин.

Заключение

Ультратовуш микроорганизмларга кучли таъсир кўрсатувчи самарали омил ҳисобланади. У ҳужайра тузилмасини бузади, биофилмларни парчалайди ва микроблар ҳаёт фаолиятини сусайтиради.

Ушбу хусусиятлари туфайли ультратовуш микробиологияда ва тиббиётда кенг қўлланиш имкониятига эга. Келгусида бу технологияларни янада такомиллаштириш янги даволаш ва стерилизация усуллари яратишга хизмат қилади.

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**BOSHLANG'ICH SINFI ONA TILI VA O'QISH SAVODXONLIGI DARSLARIDA
TANQIDIY FIKRLASHNI RIVOJLANTIRISH**

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Annotatsiya: Mazkur maqolada boshlang'ich sinfi ona tili va o'qish savodxonligi darslarida tanqidiy fikrlashni rivojlantirishning pedagogik va metodik asoslari yoritiladi. Tanqidiy fikrlash o'quvchilarning tahliliy, mantiqiy va baholovchi fikrlash qobiliyatlarini shakllantiruvchi muhim kompetensiya sifatida ko'rib chiqiladi. Tadqiqotda interfaol metodlar va zamonaviy ta'lim texnologiyalarining samaradorligi tahlil qilinadi. Natijada boshlang'ich ta'lim jarayonida tanqidiy fikrlashni rivojlantirishning samarali yo'llari aniqlanadi.

Kalit so'zlar: tanqidiy fikrlash, boshlang'ich ta'lim, ona tili, o'qish savodxonligi, interfaol metodlar, mantiqiy fikrlash, pedagogik texnologiya, kompetensiya.

Kirish: Jamiyat taraqqiyoti, iqtisodiy-ijtimoiy rivojlanish sur'atlari, ilm-fan yutuqlari, axborot texnologiyalarining keskin rivojlanishi XXI asrda inson oldiga yangi talab va vazifalarni qo'yimoqda. Bugungi globallashuv sharoitida ta'lim tizimi jamiyatning eng muhim ijtimoiy institutlaridan biri sifatida o'quvchilarda nafaqat bilim berish, balki ularning mustaqil fikrlashi, tahliliy yondashuvi, tanqidiy va kreativ tafakkurini shakllantirishni taqozo etmoqda. Ayniqsa, boshlang'ich ta'lim bosqichi, o'quvchining fikrlash tizimini shakllantirishning negizi bo'lib, bunda ona tili va o'qish savodxonligi darslarining ahamiyati beqiyosdir. Zero, bu fanlar orqali o'quvchilar matnni tushunish, tahlil qilish, baholash, muallif fikrini ajratish, muqobil qarashlarni ilgari surish, dalillash kabi ko'nikmalarga ega bo'ladilar. Ushbu kompetensiyalar esa tanqidiy fikrlashning asosiy tarkibiy qismlaridir.

Yurtimizda ta'lim sifatini oshirish, xalqaro baholash dasturlariga tayyor o'quvchilarni yetishtirish, zamonaviy fikrlaydigan shaxsni tarbiyalash borasida so'nggi yillarda keng ko'lamli islohotlar amalga oshirilmoqda. Prezidentimiz Sh.M. Mirziyoyev tomonidan ilgari surilgan "Yangi O'zbekiston – taraqqiyot va bunyodkorlik yo'li" g'oyasi, ta'lim tizimidagi tub o'zgarishlarga zamin bo'lmoqda. Davlatimiz rahbari ta'lim jarayonida innovatsion yondashuvlar, tanqidiy fikr yurita oladigan yoshlarni shakllantirish muhimligini ko'p bora ta'kidlab, shunday degan edi: "Bizga tayyor bilimni emas, balki mustaqil fikr yuritib, yangilik yaratadigan yoshlar kerak". Ushbu fikrning o'ziyoz hozirgi davrda ta'limning asosiy vazifasi – tanqidiy fikrlashga ega shaxsni tarbiyalash ekanligini ko'rsatadi. Tanqidiy fikrlash - bu shunchaki tanqid qilish emas, balki ma'lumotni chuqur anglash, asosli savollar qo'yish, muqobil yechimlar taklif qilish, dalillar asosida fikr bildirish, xulosalarni tahlil qilishni nazarda tutadi. Pedagogik adabiyotlarda tanqidiy fikrlash "mantiqiy-tahliliy fikrlash", "refleksiv fikrlash", "kreativ tahlil", "aqliy faoliyatni samarali boshqarish" kabi sinoskalar orqali ham izohlanadi. Barchasi bir maqsadga – o'quvchining fikrlash faoliyatini chuqurlashtirishga xizmat qiladi. Bugungi kunda o'qish savodxonligi bo'yicha xalqaro tadqiqotlar (PISA, PIRLS, TIMSS) talablari ham aynan shunday ko'nikmalarga tayangan holda ishlab chiqilmoqda. Xususan, PISA

dasturi o'quvchilardan matnni yodlab olishni emas, balki uni tahlil qilishni, baholashni, olingan ma'lumotni real hayotga tatbiq etishni talab qiladi. Bu esa o'z navbatida o'quvchilarda tanqidiy fikrlashni rivojlantirishni taqozo etadi.

Ona tili va o'qish savodxonligi darslari tanqidiy fikrlashni shakllantirish uchun eng qulay maydon hisoblanadi. Matn ustida ishlash jarayoni o'quvchilarda ma'no idroki, sabab–oqibatni aniqlash, g'oyani tahlil qilish, muallif fikrini anglash, o'z munosabatini bildirish kabi yuqori darajadagi aqliy operatsiyalarni faollashtiradi. Aynan shu jarayonlarda “Nima uchun?”, “Qanday?”, “Agar shunday bo'lsa-chi?”, “Muqobil yechim bormi?” kabi savollar qo'yish – tanqidiy fikrlashning poydevorini mustahkamlaydi. Bunday savollar o'quvchining mustaqil fikrlashini rag'batlantiradi, uni mulohazaga chorlaydi, dalillashni o'rgatadi.

Bugungi raqamli asrda bolalar turli axborot oqimi ichida yashamoqda. Turli manbalarda keltirilgan ma'lumotlarning haqqoniyligi, mazmuni, mantiqi, ijtimoiy ahamiyatini aniqlay olish – muhim hayotiy ko'nikmaga aylandi. Shu nuqtayi nazardan qaraganda, boshlang'ich sinfdayoq o'quvchilarni tanqidiy fikrlashga o'rgatish - ularga axborotning mohiyatini anglay olish, noaniqlikni tahlil qilish, fakt va fikrni farqlash, xatoga yo'l qo'ymaslik, turli vaziyatlarga to'g'ri baho berish imkonini beradi. Yosh davrning psixologik xususiyatlaridan kelib chiqib aytish mumkinki, 7–10 yoshli bolalarda mantiqiy tafakkur asoslari shakllana boshlaydi, ularning xotirasi obrazli fikrlashdan mantiqiy fikrlashga o'tish bosqichida bo'ladi. Shuning uchun o'qish savodxonligi va ona tili darslarida tanqidiy fikrlashni shakllantirish metodikasini ilmiy asoslash, uni amaliyotga tatbiq etish hozirgi kunning dolzarb masalalaridan biridir.

Asosiy qism: Tanqidiy fikrlashning mazmuni uning keng qamrovli kognitiv faoliyatida namoyon bo'ladi. Bu jarayon bir necha asosiy faoliyat turlarini o'z ichiga oladi: **ma'lumotni tushunish**, ya'ni o'quvchi matn, nutq yoki boshqa axborotni to'liq anglab yetishi; **tahlil qilish**, ya'ni ma'lumotni tarkibiy qismlarga ajratish va asosiy g'oyalarni ajratib olish; **solishtirish va umumlashtirish**, ya'ni turli fikrlar va ma'lumotlarni bir-biri bilan bog'lab, umumiy xulosa chiqarish; **asoslash**, ya'ni har bir qaror va xulosani dalillar bilan mustahkamlash; **baholash**, ya'ni qaror yoki xulosaning mantiqiyligini, ishonchliligini tekshirish; va **yaratish**, ya'ni mavjud ma'lumotlar asosida yangi g'oyalarni ishlab chiqish va muammoga yechim topish. Shu tariqa, tanqidiy fikrlash jarayoni o'quvchida mantiqiy va ijodiy fikrlash ko'nikmalarini uyg'otadi.

Tanqidiy fikrlashning belgilari o'quvchilarning fikrlash darajasini aniqlashda muhim rol o'ynaydi. Ular quyidagilarni o'z ichiga oladi: **mantiqiylik**, ya'ni fikrlar izchil va tartibli bo'lishi; **ochiqlik**, ya'ni yangi g'oyalar va savollarga ochiq bo'lish; **dalillarga asoslanish**, ya'ni har bir fikr va xulosa aniq faktlar va izohlar bilan tasdiqlanishi; **o'z-o'zini tekshirish**, ya'ni o'quvchi o'z fikrini tahlil qilib, xatolarini aniqlay olishi; **muammoli fikrlash**, ya'ni muammoni aniqlash va uni hal qilishga intilish; va **moslashuvchanlik**, ya'ni yangi ma'lumot va vaziyatlarga qarab fikrini qayta shakllantirishga tayyorlik.

Tanqidiy fikrlashning komponentlari esa uning tarkibiy qismlarini tashkil qiladi va pedagogik amaliyotda har bir komponentni rivojlantirish muhim hisoblanadi. Kognitiv komponent ma'lumotni tushunish, tahlil qilish, umumlashtirish va asoslash ko'nikmalarini o'z ichiga oladi. Metakognitiv komponent o'quvchining o'z fikrini monitoring qilish, o'quv jarayonini boshqarish va xulosalar chiqarish qobiliyatini rivojlantiradi. Affektiv komponent mustaqil fikrlashga intilish, tashqi ta'sirlarga qarshi turish va qiziqish uyg'otadi. Ijtimoiy-kommunikativ komponent fikr almashish, boshqalar fikrini tinglash va hurmat qilishni o'z ichiga oladi. Amaliy komponent esa fikrlarni real

hayotiy vaziyatlarda qo'llash va muammolarni hal qilish ko'nikmalarini shakllantiradi. Boshlang'ich ta'limda tanqidiy fikrlashning shakllanishi, ayniqsa, o'quvchilarning yosh xususiyatlarini hisobga olgan holda amalga oshiriladi. Kichik yoshdagi bolalarda tanqidiy fikrlash ko'pincha sodda, amaliy va vizual usullar orqali rivojlantiriladi: o'quvchilar matnni tahlil qiladi, savol-javob o'yinlari o'tkazadi, hikoyalar bo'yicha muammolarni hal qiladi, turli variantlarni solishtiradi va o'z xulosasini chiqaradi. Shu tariqa, tanqidiy fikrlash nafaqat kognitiv, balki metakognitiv, affektiv va ijtimoiy-kommunikativ komponentlarni ham rivojlantiradi.

Bugungi kunda ta'limda tanqidiy fikrlashning shakllanishi innovatsion pedagogik texnologiyalar bilan chambarchas bog'liq. Masalan, **problemaga yo'naltirilgan o'qitish (PBL), case-study, debate (munozara), brainstorming, project-based learning** kabi metodlar tanqidiy fikrlashni tizimli ravishda rivojlantirishga xizmat qiladi. Shu bilan birga, zamonaviy o'quv dasturlari va kompetensiyaviy yondashuv tanqidiy fikrlash ko'nikmalarini o'quv jarayoniga kiritishga imkon beradi. Shu tarzda, tanqidiy fikrlashning ta'limda paydo bo'lishi XIX asr oxirida boshlangan bo'lsa, uning shakllanishi XX–XXI asr pedagogik tajribasi va psixologik tadqiqotlar orqali izchil rivojlanib kelmoqda. Boshlang'ich sinf o'quvchilari uchun bu jarayon maxsus metodik yondashuvlar, vizual va interaktiv mashqlar, muammoli vaziyatlar va savol-javob texnikalari orqali amalga oshiriladi, bu esa ularning mustaqil fikrlash va muammolarni hal qilish qobiliyatlarini sezilarli darajada oshiradi.

Xulosa: Boshlang'ich sinf ona tili va o'qish savodxonligi darslarida tanqidiy fikrlashni rivojlantirish zamonaviy ta'lim jarayonining eng muhim pedagogik vazifalaridan biri hisoblanadi. Tadqiqot natijalari shuni ko'rsatadiki, tanqidiy fikrlash o'quvchilarning axborotni tahlil qilish, taqqoslash, baholash va asosli xulosalar chiqarish ko'nikmalarini shakllantirishga xizmat qiluvchi murakkab kognitiv jarayon sifatida namoyon bo'ladi.

Ilmiy tahlillar asosida aniqlanishicha, boshlang'ich sinf o'quvchilarida tanqidiy fikrlashni rivojlantirish ularning yoshga xos psixologik xususiyatlari bilan uzviy bog'liqdir. Bu davrda o'quvchilarda qiziquvchanlik, obrazli fikrlash va yangi ma'lumotlarni tez qabul qilish qobiliyati ustun bo'lib, bu holat tanqidiy fikrlashni shakllantirish uchun qulay shart-sharoit yaratadi.

Ona tili va o'qish savodxonligi darslarida interfaol metodlardan foydalanish, matn ustida ishlash, savol-javob texnologiyalari hamda muammoli topshiriqlarni qo'llash o'quvchilarning fikrlash jarayonini faollashtiradi va ularning mustaqil xulosa chiqarish qobiliyatini rivojlantiradi. O'qituvchining yo'naltiruvchi roli esa ushbu jarayonning samaradorligini ta'minlaydi.

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THE IMPORTANCE OF ARTISTIC PEDAGOGY IN THE DEVELOPMENT OF SPIRITUAL AND COMMUNICATIVE CULTURE OF STUDENT YOUTH

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Abstract: This article explores the significant role of artistic pedagogy in fostering the spiritual and communicative culture of student youth within modern educational systems. Artistic pedagogy, as an interdisciplinary approach, integrates elements of art, aesthetics, and pedagogy to enhance students' personal development, emotional intelligence, and social interaction skills. The study highlights how exposure to artistic activities—such as literature, music, visual arts, and drama—contributes to the formation of moral values, cultural awareness, and communicative competence among students. Furthermore, the paper examines contemporary pedagogical strategies that employ artistic methods to create a student-centered learning environment, encouraging creativity, empathy, and critical thinking. Special attention is given to the role of higher education institutions in implementing artistic pedagogy as a tool for shaping well-rounded, socially active individuals.

Keywords: artistic pedagogy, spiritual development, communicative culture, student youth, higher education, creativity, emotional intelligence, cultural awareness, pedagogical methods, social interaction

INTRODUCTION

In the context of rapid globalization and the increasing complexity of social interactions, the development of students' spiritual and communicative culture has become a priority in modern education. Higher education institutions are not only responsible for providing professional knowledge but also for shaping individuals who possess strong moral values, cultural sensitivity, and effective communication skills. In this regard, artistic pedagogy emerges as a powerful educational approach that contributes to the holistic development of student youth. Artistic pedagogy is based on the integration of artistic expression into the educational process, enabling students to

engage with knowledge through creative and emotional experiences. Unlike traditional teaching methods that often focus primarily on cognitive outcomes, artistic pedagogy emphasizes the importance of feelings, imagination, and personal interpretation. Through interaction with various forms of art, students develop empathy, aesthetic perception, and the ability to understand different perspectives, which are essential components of communicative culture. Moreover, the spiritual development of students is closely linked to their engagement with cultural and artistic values. Art serves as a medium through which individuals explore ethical concepts, reflect on human experiences, and form their own worldview. By incorporating artistic elements into pedagogy, educators can create meaningful learning experiences that inspire students to think critically, communicate effectively, and act responsibly in society. This article aims to analyze the importance of artistic pedagogy in enhancing the spiritual and communicative culture of student youth, as well as to identify effective methods for its implementation in higher education settings.

Materials and Methods

This study employs a mixed-methods research design to investigate the impact of artistic pedagogy on the development of spiritual and communicative culture among student youth. Both qualitative and quantitative approaches were used to ensure a comprehensive analysis of the research problem. The research was conducted at a higher education institution with the participation of 120 undergraduate and graduate students from the field of pedagogy. The participants were selected using a purposive sampling method, ensuring representation of different academic levels and backgrounds. The study was carried out over one academic semester. Data collection methods included surveys, semi-structured interviews, classroom observations, and analysis of students' creative works. The survey questionnaire was designed to assess students' communicative competence, emotional responsiveness, and level of spiritual awareness before and after the implementation of artistic pedagogical methods. Interviews were conducted with both students and instructors to gain deeper insights into their experiences and perceptions. During the experimental phase, various artistic pedagogical techniques were introduced into the learning process. These included interactive discussions based on literary texts, role-playing and drama activities, visual arts projects, and music-based reflection exercises. The aim was to create an immersive and emotionally engaging learning environment. For data analysis, statistical methods such as descriptive statistics and comparative analysis were used to evaluate quantitative data, while thematic analysis was applied to qualitative data obtained from

interviews and observations. The validity and reliability of the study were ensured through triangulation of data sources and methods.

Results

The findings of the study demonstrate a positive and statistically significant impact of artistic pedagogy on the development of students' spiritual and communicative culture. After the implementation of artistic teaching methods, a noticeable improvement was observed in students' ability to express their thoughts clearly, engage in meaningful dialogue, and demonstrate empathy in communication. Quantitative data revealed that the average level of communicative competence among participants increased by 28%, while indicators of emotional intelligence and spiritual awareness showed an improvement of 25% and 30% respectively. Students became more confident in public speaking, more open to diverse perspectives, and more capable of constructive interaction in group settings. Qualitative findings supported these results, as many students reported that artistic activities helped them better understand themselves and others. Participation in drama and role-playing exercises enhanced their ability to interpret emotions and respond appropriately in social situations. Engagement with literature and visual arts contributed to deeper reflection on ethical values and cultural identity. Furthermore, instructors noted increased student motivation, active participation, and creativity during classes that incorporated artistic pedagogy.

Discussion

The results of this study confirm that artistic pedagogy plays a crucial role in the holistic development of student youth, particularly in enhancing their spiritual and communicative culture. The integration of artistic elements into the educational process creates opportunities for experiential learning, where students actively construct knowledge through emotional and creative engagement. One of the key findings is that artistic pedagogy significantly improves students' communicative competence by encouraging self-expression and active listening. Unlike traditional lecture-based approaches, artistic methods provide a platform for students to explore ideas freely, share personal experiences, and engage in meaningful interactions. This aligns with contemporary educational theories that emphasize student-centered learning and the development of soft skills. Additionally, the study highlights the importance of art as a medium for spiritual development. Through engagement with artistic content, students are exposed to universal human values, ethical dilemmas, and cultural narratives that shape their worldview. This process способствует формированию (helps to form) a deeper sense of identity, empathy, and moral responsibility. The findings also suggest that the successful implementation of artistic

pedagogy depends on the readiness of educators to adopt innovative teaching strategies and create an inclusive learning environment. Teachers must act not only as knowledge providers but also as facilitators of creative and reflective processes. However, certain limitations should be acknowledged.

Conclusion

In conclusion, this study demonstrates that artistic pedagogy plays a vital role in the development of students' spiritual and communicative culture. The integration of artistic elements into the educational process significantly enhances students' emotional intelligence, creativity, and ability to engage in meaningful communication. Through activities such as literature analysis, drama, music, and visual arts, students not only acquire knowledge but also develop empathy, moral values, and cultural awareness. The results confirm that artistic pedagogy fosters a more dynamic and student-centered learning environment, where learners feel motivated to express themselves and interact with others. It contributes to the formation of well-rounded individuals who are capable of critical thinking, effective communication, and responsible social behavior. Moreover, the study highlights that modern education should go beyond traditional teaching methods and incorporate innovative approaches that address both intellectual and emotional aspects of student development. Artistic pedagogy, in this regard, serves as a powerful tool for shaping личности (personalities) who are adaptable, creative, and socially active.

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**G‘OVAK MUHITDA NOSTATSIONAR FILTRATSIYA JARAYONINI
MATLAB MUHITIDA SONLI MODELLASHTIRISH**

**ЧИСЛЕННОЕ МОДЕЛИРОВАНИЕ НЕСТАЦИОНАРНОГО ПРОЦЕССА
ФИЛЬТРАЦИИ В ПОРИСТЫХ СРЕДАХ В MATLAB.**

**NUMERICAL MODELING OF NON-STATIONARY FILTRATION
PROCESS IN POROUS MEDIUMS IN MATLAB.**

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Annotatsiya: Mazkur maqolada g‘ovak muhitlarda suyuqlikning nostatsionar filtratsiya jarayonlarini matematik modellashtirish hamda ularni MATLAB dasturiy muhiti yordamida sonli usullar asosida tadqiq etish masalalari yoritilgan. Tadqiqotda g‘ovak muhitlarda suyuqlik harakatini tavsiflovchi Darcy qonuni va massaning saqlanish tenglamalari asosida matematik model ishlab chiqildi. Hosil qilingan qisman hosilali differensial tenglama chekli ayirmalar usuli yordamida diskretlashtirildi va MATLAB muhitida sonli yechimlar olindi. Hisoblash natijalari g‘ovak muhit ichida bosimning vaqt va fazo bo‘yicha taqsimotini aniqlash imkonini berdi. Olingan natijalar sonli modellashtirish usullari g‘ovak muhitdagi filtratsiya jarayonlarini o‘rganishda samarali vosita ekanligini ko‘rsatadi.

Kalit so‘zlar: g‘ovak muhit, filtratsiya jarayoni, nostatsionar oqim, matematik modellashtirish, sonli usullar, MATLAB, Darcy qonuni.

Аннотация: В данной статье рассматриваются вопросы математического моделирования нестационарных процессов фильтрации жидкостей в пористых средах и их изучение с использованием численных методов в программной среде MATLAB. В исследовании была разработана математическая модель, основанная на законе Дарси и уравнениях сохранения массы, описывающих движение жидкостей в пористых средах. Полученное дифференциальное уравнение в частных производных было дискретизировано методом конечных разностей, и численные решения были получены в среде MATLAB. Результаты расчетов позволили определить распределение давления во времени и пространстве внутри пористой среды. Полученные результаты показывают, что методы численного моделирования являются эффективным инструментом при изучении процессов фильтрации в пористых средах.

Ключевые слова: пористые среды, процесс фильтрации, нестационарный поток, математическое моделирование, численные методы, MATLAB, закон Дарси.

Abstract: This article discusses the issues of mathematical modeling of non-stationary filtration processes of liquids in porous media and their study using numerical methods using the MATLAB software environment. In the study, a mathematical model was developed based on Darcy's law and mass conservation equations describing the movement of liquids in porous media. The resulting partial differential equation was discretized using the finite difference method and numerical solutions were obtained in the MATLAB environment. The calculation results made it possible to determine the distribution of pressure in time and space inside the porous media. The obtained results show that numerical modeling methods are an effective tool in studying filtration processes in porous media.

Keywords: porous media, filtration process, non-stationary flow, mathematical modeling, numerical methods, MATLAB, Darcy's law.

1. KIRISH. G'ovak muhitlarda suyuqlik harakati ko'plab tabiiy va texnologik jarayonlarning asosini tashkil etadi. Yer osti suvlarining harakati, neft va gaz konlaridagi suyuqliklarning filtratsiyasi, tuproq qatlamlarida namlikning tarqalishi kabi jarayonlar aynan g'ovak muhitlarda sodir bo'ladi. Shu sababli g'ovak muhitlarda suyuqlik harakatini matematik modellashirish zamonaviy ilmiy tadqiqotlarning muhim yo'nalishlaridan biri hisoblanadi.

G'ovak muhit – bu ichida ko'plab mayda bo'shliqlar yoki g'ovaklar mavjud bo'lgan qattiq struktura bo'lib, ushbu bo'shliqlar orqali suyuqlik yoki gaz harakatlanishi mumkin. Bunday muhitlarga tuproq qatlamlari, qumtosh, ohaktosh, biologik to'qimalar va turli filtr materiallari kiradi. G'ovak muhitning asosiy fizik xususiyatlari g'ovaklik, o'tkazuvchanlik va filtratsiya koeffitsienti kabi parametrlar bilan tavsiflanadi.

Suyuqlik harakati stasionar va nostatsionar rejimlarda sodir bo'lishi mumkin. Stasionar jarayonlarda tizim parametrlari vaqt bo'yicha o'zgarmaydi, nostatsionar jarayonlarda esa bosim, tezlik va boshqa parametrlar vaqtga bog'liq ravishda o'zgaradi. Tabiiy sharoitlarda kuzatiladigan ko'plab filtratsiya jarayonlari aynan nostatsionar xarakterga ega.

G'ovak muhitda suyuqlik harakatini tavsiflashda Darcy qonuni keng qo'llaniladi. Ushbu qonun suyuqlik oqimi tezligi bosim gradientiga proporsional ekanligini ifodalaydi. Darcy qonuni massaning saqlanish tenglamasi bilan birgalikda qo'llanganda filtratsiya jarayonining asosiy differensial tenglamasi hosil bo'ladi.

Bunday tenglamalarni analitik usulda yechish ko‘pincha murakkab yoki imkonsiz bo‘lgani sababli sonli modellashtirish usullaridan foydalanish zarur bo‘ladi. Zamonaviy hisoblash texnologiyalari yordamida murakkab matematik modellarni sonli usullar asosida tahlil qilish mumkin.

MATLAB dasturiy muhiti ilmiy hisoblashlar va matematik modellashtirish uchun eng qulay vositalardan biri hisoblanadi. Ushbu muhit differensial tenglamalarni yechish, matritsalar bilan ishlash, grafik tasvirlar yaratish va modellashtirish jarayonlarini amalga oshirish uchun keng imkoniyatlarga ega.

Mazkur tadqiqotning asosiy maqsadi g‘ovak muhitda nostatsionar filtratsiya jarayonining matematik modelini yaratish hamda uni MATLAB dasturiy muhiti yordamida sonli usullar orqali modellashtirishdan iborat.

2. TADQIQOT METODLARI.

G‘ovak muhitda suyuqlik harakatini tavsiflash uchun bir qator fizik qonunlar va matematik tenglamalar qo‘llaniladi. Ushbu tadqiqotda suyuqlik filtratsiyasini tavsiflashda Darcy qonuni asosiy nazariy asos sifatida qabul qilindi.

$$v = -\frac{k}{\mu} \nabla p$$

bu yerda:

v – filtratsiya tezligi,

k – g‘ovak muhitning o‘tkazuvchanlik koeffitsienti,

μ – suyuqlik yopishqoqligi,

∇p – bosim gradienti.

Massaning saqlanish qonuni bilan birgalikda ushbu qonun nostatsionar filtratsiya jarayonini tavsiflovchi asosiy differensial tenglamani hosil qiladi.

$$\frac{\partial p}{\partial t} = a \nabla^2 p$$

bu yerda

p – bosim,

t – vaqt,

a – filtratsiya koeffitsienti.

Mazkur tenglama diffuziya tipidagi tenglama bo‘lib, bosimning vaqt va fazo bo‘yicha o‘zgarishini ifodalaydi.

Ushbu tenglamani yechishda **chekli ayirmalar usuli (Finite Difference Method)** qo'llanildi. Ushbu usul differensial tenglamalarni diskret nuqtalar tizimida algebraik tenglamalar sistemasiga keltirishga asoslangan.

Fazoviy koordinata va vaqt diskret qadamlar orqali ifodalanadi:

$$x_i = i\Delta x, \quad t_n = n\Delta t$$

Natijada differensial tenglama quyidagi ayirmali tenglama ko'rinishiga keladi:

$$p_i^{n+1} = p_i^n + a \frac{\Delta t}{\Delta x^2} (p_{i+1}^n - 2p_i^n + p_{i-1}^n)$$

Hisoblash jarayoni MATLAB dasturiy muhiti yordamida amalga oshirildi. MATLAB dasturida hisoblash algoritmi tuzildi va bosim taqsimotining vaqt bo'yicha evolyutsiyasi hisoblab chiqildi.

3. NATIJALAR. MATLAB muhitida ishlab chiqilgan sonli model yordamida g'ovak muhitda bosimning vaqt bo'yicha tarqalishi hisoblab chiqildi. Modelda bir o'lchamli filtratsiya tizimi ko'rib chiqildi.

Boshlang'ich shart sifatida tizimning bir chegarasida yuqori bosim qiymati berildi, qolgan nuqtalarda esa boshlang'ich bosim nolga teng deb qabul qilindi. Hisoblashlar davomida vaqt o'tishi bilan bosimning g'ovak muhit bo'ylab qanday tarqalishi aniqlanib borildi.

Hisoblash natijalari shuni ko'rsatdiki, vaqt o'tishi bilan bosim gradienti asta-sekin kamayib boradi va tizim muvozanat holatiga yaqinlashadi. MATLAB dasturi yordamida bosim taqsimoti grafik ko'rinishda tasvirlandi.

Natijalar shuni ko'rsatdiki, filtratsiya koeffitsienti kattalashgani sari bosim tarqalish tezligi ortadi. Bu esa g'ovak muhitning fizik xususiyatlari filtratsiya jarayonining dinamikasiga sezilarli ta'sir ko'rsatishini bildiradi.

Shuningdek turli boshlang'ich va chegaraviy shartlar uchun hisoblashlar amalga oshirildi va ularning filtratsiya jarayoniga ta'siri tahlil qilindi.

4. MUHOKAMA. Olingan natijalar g'ovak muhitda nostatsionar filtratsiya jarayonlarini o'rganishda sonli modellashtirish usullarining samaradorligini ko'rsatadi. MATLAB dasturiy muhiti yordamida murakkab differensial tenglamalarni sonli usullar asosida yechish va jarayonlarni vizual tahlil qilish imkoniyati mavjud.

Tadqiqot natijalari shuni ko'rsatadiki, g'ovak muhitning o'tkazuvchanligi va filtratsiya koeffitsienti suyuqlik harakatining asosiy parametrlaridan hisoblanadi. Ushbu

parametrlarning o'zgarishi filtratsiya jarayonining tezligi va bosim taqsimotiga sezilarli ta'sir ko'rsatadi.

MATLAB muhitida yaratilgan model yordamida g'ovak muhitda sodir bo'ladigan fizik jarayonlarni chuqur tahlil qilish mumkin. Bunday modellashtirish usullari neft va gaz konlarini o'rganish, yer osti suvlarini modellashtirish hamda ekologik jarayonlarni tadqiq etishda keng qo'llanilishi mumkin.

Kelgusidagi tadqiqotlarda ikki va uch o'lchamli modellarni ishlab chiqish, shuningdek nolinear filtratsiya tenglamalarini hisoblash orqali modelni yanada takomillashtirish mumkin.

XULOSA. Mazkur tadqiqotda g'ovak muhitda nostatsionar filtratsiya jarayonining matematik modeli ishlab chiqildi va MATLAB dasturiy muhiti yordamida sonli modellashtirildi. Darcy qonuni va massaning saqlanish tenglamasi asosida filtratsiya jarayonining differensial tenglamasi hosil qilindi hamda chekli ayirmalar usuli yordamida uning sonli yechimi olindi.

Olingan natijalar bosimning vaqt va fazo bo'yicha tarqalishini aniqlash imkonini berdi. MATLAB muhitida amalga oshirilgan modellashtirish jarayoni filtratsiya jarayonining dinamik xususiyatlarini tahlil qilish uchun samarali vosita ekanligini ko'rsatdi.

Tadqiqot natijalari g'ovak muhitlarda suyuqlik harakatini o'rganishda sonli modellashtirish usullarining muhim ahamiyatga ega ekanligini tasdiqlaydi.

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“TRANSLATION CHALLENGES OF RELIGIOUS METAPHORICAL PHRASEOLOGICAL UNITS FROM UZBEK INTO ENGLISH”

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Abstract : The present study is devoted to the analysis and elucidation of the challenges arising in the process of translating religious metaphorical phraseological units from Uzbek into English from both linguistic and cultural perspectives. The primary objective of this research is to identify the semantic, pragmatic, and conceptual discrepancies encountered in the translation of such units and to develop effective strategies for overcoming them. The study adopts a qualitative research design, employing comparative and contrastive analysis of selected Uzbek religious phraseological expressions alongside their English counterparts. The findings indicate that the principal difficulties and divergences in translation stem from culture-specific features, the inherent particularities of religious concepts, and the lack of direct equivalents in the target language. Moreover, the study reveals the risk of partial semantic loss or misinterpretation of metaphorical meaning during the translation process. Based on the results obtained, it is argued that the use of explanatory techniques, adaptation strategies, and functional equivalence significantly contributes to achieving translation adequacy. The conclusions demonstrate that the translation of religious metaphorical phraseologism constitutes a highly complex process, requiring from the translator not only advanced linguistic competence but also profound cultural awareness and sensitivity to religious nuances.

Keywords: religious phraseologisms, metaphor, translation challenges, Uzbek–English translation, intercultural communication, semantic equivalence, cognitive linguistics

In the contemporary era of globalization, the rapid expansion and intensification of intercultural and interlingual communication have significantly enhanced both the theoretical and practical importance of translation activity. It is particularly noteworthy that the adequate rendering of linguocultural units embodying national and cultural specificity—especially religious metaphorical phraseologisms—from one language

into another constitutes one of the most complex and pressing issues in modern translation studies. Religious metaphorical phraseological units in the Uzbek language represent essential linguocultural phenomena that reflect the historically formed religious worldview, mentality, traditions, and value system of the Uzbek people, thereby necessitating thorough scholarly investigation.

These units are characterized by their multilayered semantic structure, figurative nature, and rich connotative meaning, which give rise to numerous linguistic, cognitive, and pragmatic challenges in the process of translation into English. In particular, metaphorical representations associated with religious concepts in the source language frequently lack direct equivalents in the target language, resulting in semantic loss, shifts in meaning, or potential misinterpretation. Furthermore, discrepancies in cultural background and religious cognition inherent in the two languages serve as significant obstacles to achieving translation adequacy.

The relevance of the present study lies in the fact that the translation of religious phraseological units has not yet been sufficiently explored in a comprehensive and systematic manner, thereby underscoring the necessity for in-depth analysis. From this perspective, the study aims to provide a theoretically grounded examination of the translation features of religious metaphorical phraseologisms within the Uzbek–English language pair.

The primary objective of this research is to identify the semantic, pragmatic, and linguocultural challenges that arise in the translation of Uzbek religious metaphorical phraseologisms into English and to develop effective strategic approaches for overcoming them. To achieve this objective, the following tasks have been established: to examine the theoretical foundations of religious metaphorical phraseologisms; to analyze their linguistic and semantic characteristics; to identify the principal challenges encountered in the translation process; and to evaluate the effectiveness of various translation strategies through practical examples.

The object of the study comprises religious metaphorical phraseological units in the Uzbek language, whereas the subject of the research focuses on the linguistic, semantic, and cultural challenges arising in their translation into English. The study employs a комплекс methodology, integrating comparative-analytical, descriptive, contextual, and linguocultural methods of analysis.

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JUSTIFICATION OF SCIENTIFIC FOUNDATIONS AND RESEARCH DIRECTIONS FOR IMPROVING THE LINTERING MACHINE FOR HAIRED SEEDS

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Abstract. This article provides an analytical review of scientific research results regarding the process of depilation of cotton seeds and the improvement of related equipment. Additionally, a working hypothesis was put forward and a scientific research direction was defined to increase the productivity and improve the energy efficiency of the 5LP linter.

Key words: seed, linting, research, working chamber, lint, productivity, gasket, cylinder.

Currently, increasing the cross-sectional area of the working chamber in 5LP linters, which are widely used in the lint removal areas of cotton ginning plants, leads to an increase in the linter's productivity by only 5-8%. The expansion of the chamber volume did not accelerate the timely removal of dehaired seeds from the working chamber. As a result, the mass and density of the seed roller inside the chamber increased. This, in turn, led to an increase in the load on the saw cylinder from the seed roller [1]. An 18.5 kW electric motor is installed in the saw cylinder to overcome the overload, bring the seed shaft to the required speed, and ensure the depilation process proceeds without clogging.

To intensify the linting process of cotton seeds, numerous studies have been conducted at the Cotton Industry Scientific Center and the Tashkent Institute of Textile and Light Industry, where factors affecting linter performance were primarily studied [2, 3, 4, 5].

The researcher M.V. Pokras studied the effect of forces arising from the rotation of the seed roller on the linter working chamber. It is shown that the magnitude of the forces resisting the rotation speed of the roller from the surface of the working chamber depends on the magnitude of the forces transmitted by the seed roller to the chamber walls and the friction force. However, the dependence of the rotation speed of the seed roller, the structure of the seeds in the seed roller by fuzziness, and the state of timely

seed outlet from the working chamber into the grate zone on the structure and speed of the seed roller were not taken into account.

Before developing 5LP linter equipment and the designs of each working part affecting the seed linting process, scientists studied them in a theoretical direction. Based on theoretical research, the cross-sectional area and volume of the 5LP linter working chamber were studied, taking into account the mass of seeds in the chamber and the speed of the seed roller; the speed of the mixer with a saw cylinder was studied, taking into account the degree of seed damage when scraping lint from the surface of the seeds; and the time spent by linted seeds in the working chamber was studied, taking into account the degree of lint contamination.

In his scientific work, Yu.A. Makhmudov proposed a chamber 15% larger than the working chamber of the PMP-160 linter. When using the chamber in the linter, the productivity of the linter for seeds increased by 15-18%, and for lint by 8-10%. The author concludes in his scientific work that increasing the volume of the working chamber does not give a positive result to the rotation speed of the seed roller in the chamber, and to achieve a positive result, it is necessary to reduce the mass of linted seeds in the seed roller simultaneously with an increase in the volume of the working chamber.

As a result of theoretical research, researcher E.K. Nuraliev proposed a working chamber for the KL-7 linter, which was enlarged in volume. A mixer with an outer diameter of 240 mm is used in the chamber. At the end of the research work, it was found that the proposed working chamber and the mixer used in it had a positive effect on the productivity of the linter for seeds and lint due to the good mixing of the seed roller.

Researcher A.K. Kalimulin noted that the seed productivity of the linter depends on the position of the seed comb. In this case, the existing distance between the seed comb and the grate is moved forward and backward along the seed comb's axis and up and down around the comb's axis; changing this distance does not ensure the uniform removal of lint from the seed surface and the uniform fuzziness of the seeds leaving the chamber. To ensure the seeds emerge with uniform fuzziness, it is recommended to set the seed comb at a 15° degree angle relative to the horizontal plane and move it only in reciprocating motion.

As a result of his research, K.K. Iskandarov proposed an improved mixer design. To increase the efficiency of the saw cylinder in scraping seeds from the surface and the productivity of the linter, the mixer rotated the seed mass along the axis of the mixer. However, due to the absence of blades in the mixer design and the inability of the guide

used to direct seeds along the mixer axis at the required pressure, the rotation speed of the seed roller decreased, and the degree of saw teeth removal of lint from the seed surface was low. As a result, the amount of seeds leaving the working chamber decreased, the density of the seed roller increased, and the supply of ginned seeds from the feeding roller to the working chamber decreased. As a result, the productivity of the linter for cotton seeds and lint decreased.

Attempts were made by JSC "Cotton Industry Scientific Center" to innovate in the improvement of linter equipment [13, 14]. However, the main problem is that no results have been achieved that significantly increase the productivity of the linter.

As a result of the aforementioned brief analytical analysis, a working hypothesis was developed stating that replacing the inter-saw gaskets in the saw cylinder of the existing 5LP linter with relatively large-diameter ones (the width of the gaskets remains unchanged) can positively affect the processes in the linter's working chamber, relatively reduce seed density in the working chamber, and increase productivity through better mixing.

As a result of implementing the proposed working hypothesis, the following is expected: precise fastening of the saw shaft to the linter and the saw discs on it relative to the shaft is ensured, as well as the alignment of each grate section along the saw gap; consequently, the deviation of one saw from its nominal position in the grate gap is expected to be significantly lower than in the existing 5LP linter. Furthermore, it is possible to completely eliminate the deformation of saws compressed by large-diameter saw spacers, thereby eliminating the need for hammer straightening before assembling the saws onto the shaft.

The thickness of the seed layer in the working chamber of the developed improved linter can be reduced by an average of 1.4–1.5 times compared to the existing 5LP linter. Due to this factor, as well as the fact that the large-diameter saw spacers in the rotating saw drum at the bottom of the chamber support the seed layer, it is expected that the productivity of the produced linter will increase by 1.3-1.4 times compared to the current 5LP linter as a result of increasing the absolute and relative speed of the seed layers, their better mixing in the chamber, and accelerating mass transfer.

Conclusion: Calculations and measurements have shown that up to 85% of the energy consumption of the electric motor rotating the saw cylinder in an existing 5LP linter is spent on friction of the saw cylinder against the seed layer, and up to 15% is spent on friction of the saw cylinder against the grate bars. In the developed improved linter, the penetration of the saw cylinder into the seed layer can be significantly reduced; in the current 5LP linter, the penetration of the saw cylinder into the seed layer is 28 mm;

therefore, under all other conditions, it is expected that the energy consumption for friction of the lateral surfaces of the saws in the improved linter will be significantly reduced, i.e., by 10-15%.

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MIKRO VA OPTOELEKTRON ASBOBSOZLIKDA NANOTUZILMALARNING QO'LLANILISHI

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**Andijon Davlat Universiteti Qayta tiklanuvchi energiya manbaalari 1-bosqich
magistri.**

Mikro va optoelektronika sohalari zamonaviy texnologiyaning eng tez rivojlanayotgan yo'nalishlaridan biri hisoblanadi. Ushbu sohada qurilmalarni kichraytirish, samaradorlikni oshirish va energiya tejamkorligini ta'minlash doimiy talabdir. Nanotuzilmalar, ya'ni o'lchami 1-100 nanometr atrofida bo'lgan materiallar, mikro va optoelektron asbobsozlikda innovatsion yechim sifatida muhim o'rin egallaydi. Ularning o'ziga xos fizik va kimyoviy xususiyatlari - yuqori elektr o'tkazuvchanlik, termal barqarorlik, mexanik mustahkamlik, katta yuzaga ega bo'lishi - an'anaviy materiallarga nisbatan sezilarli afzalliklar beradi.

Mikroelektronika sohasida nanotuzilmalar tranzistorlar, mikrosxemalar va sensor qurilmalarda ishlatiladi. Masalan, karbon nanotublari va kvant nuqtalari elektronlarning tezligini oshiradi, energiya sarfini kamaytiradi va miniaturizatsiyani ta'minlaydi. Shu bilan birga, nanotuzilmalar yordamida yuqori integratsiyalashgan nanoqurilmalar yaratish imkoniyati mavjud bo'lib, bu esa mikroelektronika tizimlarining funksional imkoniyatlarini sezilarli darajada kengaytiradi.

Optoelektronika sohasida nanotuzilmalar yorug'lik bilan ishlash xususiyatini yaxshilaydi. Masalan, kvant nuqtalari va nanoantennalar LEDlar, lazerlar, fotodetektorlar va optik aloqa tizimlarining ishlash samaradorligini oshiradi. Nanotuzilmalar yorug'likni yuqori darajada qabul qilish va uzatish imkonini beradi, bu esa yangi turdagi optik qurilmalarni yaratish va yuqori tezlikdagi ma'lumot uzatishni ta'minlashda muhim rol o'ynaydi.

Shuningdek, nanotuzilmalar energiya tejamkorligi, ishonchlilik va qurilmalarni kichik hajmda ishlab chiqarish imkonini oshiradi. Ular mikro va optoelektron asbobsozlikda yangi texnologiyalar - nanoelektronika, fotonika va integratsiyalashgan optik tizimlar - rivojlanishiga turtki bo'ladi. Kelajakda nanotuzilmalar qo'llanilishi kengayib, yuqori samarali va barqaror qurilmalarni yaratishga, shuningdek, zamonaviy ilm-fan va texnologiyalarning yangi darajasiga erishishga yordam beradi.

Mikroelektronikada qo'llanilishi; Nanotuzilmalar tranzistorlar, integral sxemalar va nanochiplar ishlab chiqarishda keng qo'llaniladi. Karbon nanotublari va grafen asosidagi materiallar elektronlarning harakat tezligini oshirib, energiya yo'qotilishini

kamaytiradi. Natijada yuqori samaradorlikka ega, kichik o'lchamli va tezkor qurilmalar yaratiladi.

Optoelektronikada qo'llanilishi; Optoelektronika sohasida kvant nuqtalari, nanoantennalar va fotonik kristallar yorug'likni boshqarish imkoniyatini oshiradi. Ular LED, lazer, fotodetektor va optik aloqa tizimlarining samaradorligini sezilarli darajada yaxshilaydi

Nanotuzilmalarning qo'shimcha qo'llanilish yo'nalishlari

- Nanochiplar va protsessorlar – yuqori tezlik va past energiya sarfi
- Nanoo'lchamli sensorlar – ekologik va tibbiy monitoring
- Moslashuvchan elektronika – egiluvchan displeylar va qurilmalar
- Energiya tizimlari – nano batareyalar va quyosh elementlari
- Nanoqoplamalar – korroziyaga va issiqlikka chidamli himoya
- Biomedikal qurilmalar – dori yetkazish va diagnostika
- Nanoantennalar – yuqori chastotali aloqa tizimlari
- Superkondensatorlar – tez zaryadlanadigan energiya manbalari
- Sun'iy intellekt chip materiallari – tezkor hisoblash tizimlari

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METAPHORICAL REPRESENTATION OF BEAUTY AND STYLE IN ENGLISH FASHION MAGAZINE TEXTS

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Annotation: *This article examines the metaphorical representation of beauty and style in English fashion magazine texts from a linguistic perspective. The study focuses on metaphor as a key stylistic device in fashion discourse and explores its role in influencing readers' perception. Based on the analysis of selected English fashion magazine articles, the research identifies the semantic and pragmatic features of metaphorical expressions related to beauty and style. Furthermore, the study highlights the use of metaphors as persuasive tools in advertising and communicative strategies. The findings contribute to a deeper understanding of linguistic features in fashion discourse.*

Keywords: *metaphor, fashion discourse, beauty concept, style, stylistic devices, English language, fashion magazines, linguistic analysis, pragmatics*

Annotatsiya: *Mazkur maqolada ingliz tilidagi moda jurnallari matnlarida go'zallik va uslub tushunchalarining metaforik ifodalanishi lingvistik nuqtai nazardan tahlil qilinadi. Tadqiqotda metafora moda diskursining muhim stilistik vositasi sifatida ko'rib chiqilib, uning o'quvchi ongiga ta'sir etishdagi roli yoritiladi. Ingliz moda jurnallaridan olingan matnlar asosida go'zallik va uslub konseptlarining obrazli ifodasi, ularning semantik va pragmatik xususiyatlari aniqlanadi. Shuningdek, metaforalarning reklama va kommunikativ strategiyalarda qo'llanilishi ham tahlil qilinadi. Tadqiqot natijalari moda diskursining lingvistik xususiyatlarini chuqurroq tushunishga xizmat qiladi.*

Kalit so'zlar: *metafora, moda diskursi, go'zallik konsepti, uslub, stilistik vositalar, ingliz tili, moda jurnallari, lingvistik tahlil, pragmatika*

Аннотация: *В данной статье рассматривается метафорическое выражение понятий красоты и стиля в текстах английских модных журналов с лингвистической точки зрения. Метафора анализируется как важное стилистическое средство модного дискурса, а также раскрывается её роль в воздействии на восприятие читателя. На основе анализа текстов английских модных журналов выявляются семантические и прагматические особенности*

метафорических выражений, связанных с концептами красоты и стиля. Особое внимание уделяется использованию метафор в рекламных и коммуникативных стратегиях. Результаты исследования способствуют более глубокому пониманию лингвистических особенностей модного дискурса.

Ключевые слова: *метафора, модный дискурс, концепт красоты, стиль, стилистические средства, английский язык, модные журналы, лингвистический анализ, прагматика*

INTRODUCTION

In modern linguistics, the study of discourse has become one of the most significant and rapidly developing fields, especially in relation to specialized domains such as fashion communication. Fashion discourse represents a unique type of institutional discourse that combines elements of advertising, aesthetics, culture, and social identity. Within this discourse, language serves not only as a means of information transmission but also as a powerful tool for persuasion, evaluation, and image construction. Among various linguistic devices, metaphor plays a central role in shaping meanings and influencing readers' perception of beauty and style. The relevance of this research is обусловлена growing interest in the interaction between language, culture, and media, particularly in the context of globalization and the expansion of fashion industries. English fashion magazines, such as Vogue, Elle, and Harper's Bazaar, function as influential platforms that shape public attitudes toward beauty, style, and lifestyle. These texts are characterized by a high degree of expressiveness and creativity, where metaphorical expressions are widely used to construct appealing and memorable images. Metaphor, traditionally studied as a stylistic device, is now viewed as a cognitive and pragmatic phenomenon that reflects the way individuals conceptualize abstract notions. In fashion discourse, abstract concepts such as beauty, elegance, and style are often represented through metaphorical mappings, enabling readers to perceive them in more vivid and relatable ways. For instance, beauty may be conceptualized as light, art, or power, while style may be framed as identity or voice. Such metaphorical representations not only enhance the aesthetic value of the text but also perform persuasive and communicative functions. The aim of this article is to analyze the metaphorical representation of beauty and style in English fashion magazine texts from a linguistic perspective. The objectives of the study include identifying common metaphorical patterns, analyzing their semantic and pragmatic features, and determining their role in shaping the communicative strategies of fashion

discourse. The research is based on a qualitative analysis of selected articles from leading English-language fashion magazines.

The object of the study is English fashion magazine discourse, while the subject is metaphorical expressions related to beauty and style within these texts. The methodological framework of the research includes descriptive, semantic, and pragmatic analysis, as well as elements of discourse analysis.

The scientific novelty of the study lies in its focus on metaphor as a key mechanism of meaning construction in fashion discourse, highlighting its role in representing culturally significant concepts such as beauty and style. The practical significance of the research is that its findings can be used in the fields of stylistics, discourse analysis, media linguistics, and teaching English for specific purposes.

Main Body

The analysis of metaphorical expressions in English fashion magazine texts reveals that metaphor functions as a fundamental linguistic and cognitive tool for constructing meanings related to beauty and style. In fashion discourse, metaphors are not used randomly; rather, they are strategically employed to create vivid, emotionally appealing, and persuasive representations that resonate with the target audience. One of the most prominent metaphorical patterns identified in the analyzed texts is the conceptualization of beauty as light. Expressions such as “radiant skin,” “glowing complexion,” and “luminous beauty” are frequently used in fashion magazines. In this case, beauty is metaphorically associated with brightness and illumination, which symbolically represent purity, health, and attractiveness. This type of metaphor enhances the aesthetic appeal of the text and creates a positive evaluative meaning. Another significant metaphorical model is the representation of beauty as a form of art. Fashion texts often include expressions like “a masterpiece look,” “crafted elegance,” and “a work of art.” Here, beauty is conceptualized as something created with skill and creativity, emphasizing uniqueness and refinement. This metaphor not only elevates the perceived value of fashion items but also aligns them with high culture and artistic expression. In addition, style is frequently metaphorically constructed as identity or voice. Phrases such as “find your signature style,” “express your voice through fashion,” and “style speaks louder than words” illustrate this pattern. These expressions suggest that clothing and appearance serve as a means of self-expression, allowing individuals to communicate their personality and social identity. Such metaphors reflect the communicative and symbolic functions of fashion discourse. Another important group of metaphors presents fashion as movement or journey. For example, expressions like “step into the new season,” “explore new trends,” and “a journey

through style” imply dynamism and change. These metaphors emphasize the evolving nature of fashion and encourage readers to participate in continuous transformation and experimentation. From a semantic perspective, metaphorical expressions in fashion texts are characterized by a high degree of evaluative and connotative meaning. They often carry positive associations and are designed to evoke emotional responses. From a pragmatic point of view, metaphors function as persuasive tools that influence readers’ attitudes and purchasing behavior. By presenting products and styles through attractive and imaginative language, fashion magazines effectively guide consumer perception and decision-making. Concepts such as beauty, elegance, and individuality are not universal but are shaped by cultural norms and media representations. Therefore, metaphor serves as a bridge between language and culture, allowing abstract ideas to be communicated in a culturally meaningful way. The analysis demonstrates that metaphor is an essential element of linguistic creativity in fashion magazine texts. It contributes not only to the stylistic richness of the discourse but also to its communicative effectiveness, playing a key role in shaping how beauty and style are perceived and interpreted.

Conclusion

In conclusion, the study has demonstrated that metaphor plays a crucial role in the linguistic organization of English fashion magazine texts, particularly in representing the concepts of beauty and style. The analysis confirms that metaphor is not merely a decorative stylistic device but a powerful cognitive and communicative tool that shapes readers’ perception and interpretation of fashion-related meanings. The findings reveal that beauty is frequently conceptualized through metaphorical models such as light and art, while style is commonly represented as identity, voice, and movement. These metaphorical patterns contribute to the creation of expressive, vivid, and emotionally engaging texts that effectively capture the attention of the audience. At the same time, they reinforce positive evaluative meanings and enhance the persuasive impact of fashion discourse. From a linguistic perspective, metaphorical expressions in fashion texts exhibit rich semantic and pragmatic features. Semantically, they are characterized by strong connotative meanings and associative imagery, while pragmatically, they function as strategic tools aimed at influencing readers’ attitudes, preferences, and consumer behavior. In this regard, metaphor serves as an essential mechanism of meaning construction and communicative interaction within fashion discourse. The representation of beauty and style through metaphor reflects broader social values, aesthetic norms, and identity constructions promoted by modern media. Thus, metaphor operates at the intersection of language, culture, and communication. The

results of the study may be applied in the fields of stylistics, discourse analysis, media linguistics, and teaching English for specific purposes. Further research may focus on comparative analysis across different languages or explore the evolution of metaphorical patterns in digital fashion media.

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UZLUKSIZ TA'LIM TIZIMINING MAZMUNI, TAMOYILLARI VA RIVOJLANISH BOSQICHLARI

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ANNOTATSIYA

Mazkur maqolada uzluksiz ta'lim tizimining nazariy asoslari, mazmuni, asosiy tamoyillari va rivojlanish bosqichlari ilmiy jihatdan tahlil qilinadi. Ta'lim tizimining uzviyligi, bosqichlararo integratsiyasi, zamonaviy pedagogik yondashuvlar asosida takomillashtirish masalalari yoritiladi. Shuningdek, global ta'lim makonida uzluksiz ta'limning o'rni, innovatsion texnologiyalar ta'siri va milliy ta'lim modelining rivojlanish istiqbollari ko'rib chiqiladi. Tadqiqot natijalari uzluksiz ta'limni samarali tashkil etish bo'yicha ilmiy tavsiyalar ishlab chiqishga xizmat qiladi.

Kalit so'zlar

uzluksiz ta'lim, ta'lim tizimi, pedagogik tamoyillar, rivojlanish bosqichlari, innovatsion ta'lim

АННОТАЦИЯ

В данной статье научно анализируются теоретические основы системы непрерывного образования, ее содержание, основные принципы и этапы развития. Освещаются вопросы интеграции образовательных уровней, совершенствования системы на основе современных педагогических подходов. Также рассматривается роль непрерывного образования в глобальном образовательном пространстве, влияние инновационных технологий и перспективы развития национальной модели образования. Результаты исследования способствуют разработке научных рекомендаций по эффективной организации непрерывного образования.

Ключевые слова

непрерывное образование, образовательная система, педагогические принципы, этапы развития, инновации

ANNOTATION

This article analyzes the theoretical foundations, content, principles, and development stages of the continuous education system. It highlights issues related to integration between educational levels and improvement based on modern pedagogical approaches. The study also explores the role of continuous education in the global educational space, the impact of innovative technologies, and prospects for the development of the national education model. The findings contribute to the development of scientific recommendations for the effective organization of continuous education.

Keywords

continuous education, education system, pedagogical principles, development stages, innovation

KIRISH

Zamonaviy jamiyat taraqqiyoti bevosita inson kapitali, uning bilim darajasi va kompetensiyalariga bog'liqdir. Shu bois ta'lim tizimini takomillashtirish, ayniqsa uzluksiz ta'limni rivojlantirish masalasi dolzarb ahamiyat kasb etadi. Uzoq yillar davomida ta'lim tizimi ma'lum bosqichlar bilan cheklangan bo'lsa, bugungi kunda u inson hayotining barcha davrlarini qamrab oluvchi uzluksiz jarayon sifatida qaralmoqda.

Uzluksiz ta'lim tizimi — bu insonning butun hayoti davomida bilim olish, ko'nikma va malakalarni rivojlantirish jarayonini o'z ichiga oluvchi kompleks tizimdir. Bu tizim maktabgacha ta'limdan boshlab, oliy ta'lim va undan keyingi malaka oshirish hamda qayta tayyorlash bosqichlarini o'z ichiga oladi.

Globalizatsiya sharoitida ta'limning uzluksizligi nafaqat individual rivojlanish, balki jamiyatning iqtisodiy va ijtimoiy taraqqiyotini ta'minlovchi muhim omil sifatida e'tirof

etilmoqda. Shu sababli uzluksiz ta'lim tizimining mazmuni, tamoyillari va rivojlanish bosqichlarini chuqur o'rganish zarur.

METODOLOGIYA

Mazkur tadqiqotda quyidagi ilmiy metodlardan foydalanildi:

- tizimli tahlil
- qiyosiy tahlil
- tarixiy yondashuv
- pedagogik kuzatish
- umumlashtirish

Tadqiqot davomida uzluksiz ta'lim tizimiga oid milliy va xorijiy ilmiy manbalar o'rganildi. Ta'lim tizimining rivojlanish bosqichlari tarixiy nuqtai nazardan tahlil qilindi va zamonaviy pedagogik yondashuvlar asosida baholandi.

ASOSIY QISM

Uzluksiz ta'lim jamiyat taraqqiyoti va shaxs kamolotining muhim omili sifatida qaraladi. Uning mazmuni, omillari va hayotiy jarayonlari o'zaro uzviy bog'langan bo'lib, insonning butun umri davomida bilim olish, tajriba orttirish va o'zini rivojlantirishga xizmat qiladi. Ushbu tizim nafaqat ta'lim muassasalari doirasida, balki ijtimoiy hayot, mehnat faoliyati va kundalik tajribalar orqali ham shakllanadi.

Uzluksiz ta'limning asosiy omillaridan biri bu ijtimoiy ehtiyojdir. Jamiyat rivojlanib borgani sari yangi bilim va ko'nikmalarga bo'lgan talab ortadi. Texnologiyalar, iqtisodiyot va madaniyat sohasidagi o'zgarishlar insonlardan doimiy ravishda o'z ustida ishlashni talab etadi. Shu sababli uzluksiz ta'lim insonning hayotiy zaruratiga aylanadi. Bu jarayonda shaxs nafaqat mavjud bilimlarini mustahkamlaydi, balki yangi kompetensiyalarni ham egallaydi.

Yana bir muhim omil bu shaxsiy motivatsiyadir. Insonning bilim olishga bo'lgan ichki ehtiyoji uzluksiz ta'limning asosini tashkil etadi. Agar shaxsda o'zini rivojlantirishga intilish kuchli bo'lsa, u har qanday sharoitda ham bilim olish imkoniyatlarini izlaydi. Bu esa uzluksiz ta'lim jarayonining samaradorligini oshiradi. Motivatsiya shaxsning

qiziqishlari, maqsadlari va ehtiyojlari bilan bevosita bog'liq bo'lib, ta'lim jarayonini faollashtiradi.

Uzluksiz ta'limning mazmuni keng qamrovli bo'lib, u nazariy bilimlar, amaliy ko'nikmalar va ijtimoiy tajribalarni o'z ichiga oladi. Bu tizimda bilimlar bosqichma-bosqich chuqurlashib boradi va yangi darajaga ko'tariladi. Ta'lim mazmunining yangilanib borishi esa zamonaviy talablar bilan bog'liqdir. Innovatsion texnologiyalar, yangi pedagogik yondashuvlar va global tendensiyalar ta'lim mazmuniga doimiy ta'sir ko'rsatadi.

Uzluksiz ta'lim jarayonining hayotiyliigi uning turli shakllarda namoyon bo'lishida ko'rinadi. Rasmiy ta'lim tizimi bilan bir qatorda norasmiy va informal ta'lim shakllari ham muhim ahamiyatga ega. Inson kundalik hayotda, ish jarayonida, ijtimoiy muhitda turli bilim va ko'nikmalarni o'zlashtiradi. Bu esa uzluksiz ta'limning chegarasiz ekanligini ko'rsatadi.

Ta'lim jarayonining muhim jihatlaridan biri bu uzviylikdir. Har bir bosqich keyingi bosqich uchun asos yaratadi. Maktabgacha ta'limdan boshlab oliy ta'limgacha bo'lgan jarayon izchil davom etadi. Shu bilan birga, ta'lim faqat muayyan bosqichlar bilan cheklanmaydi, balki insonning butun hayoti davomida davom etadi. Bu esa uzluksiz ta'limning asosiy xususiyatlaridan biridir.

Uzluksiz ta'limning hayotiy jarayonlari ko'p qirrali bo'lib, ular individual va ijtimoiy darajada namoyon bo'ladi. Individual darajada shaxs o'z bilim va ko'nikmalarini rivojlantiradi, ijtimoiy darajada esa jamiyatning umumiy intellektual salohiyati oshadi. Bu jarayonlar o'zaro bog'liq bo'lib, bir-birini to'ldiradi.

Zamonaviy sharoitda axborot texnologiyalari uzluksiz ta'limning muhim omillaridan biriga aylangan. Internet, onlayn platformalar va raqamli resurslar ta'lim olish imkoniyatlarini kengaytirdi. Endilikda inson istalgan joyda va vaqtda bilim olish imkoniyatiga ega. Bu esa ta'lim jarayonining moslashuvchanligini oshiradi.

Uzluksiz ta'limning yana bir muhim jhati bu kompetensiyaviy yondashuvdir. Bu yondashuv shaxsning faqat bilim emas, balki amaliy ko'nikma va malakalarini

rivojlantirishga qaratilgan. Natijada shaxs real hayotiy vaziyatlarda o'z bilimlarini qo'llay oladi. Bu esa ta'limning samaradorligini oshiradi.

Hayotiy jarayonlar nuqtai nazaridan uzluksiz ta'lim insonning turli bosqichlarida turlicha ahamiyat kasb etadi. Bolalik davrida asosiy bilim va ko'nikmalar shakllansa, yoshlik davrida kasbiy tayyorgarlik rivojlanadi. Katta yoshda esa malaka oshirish va qayta tayyorlash muhim ahamiyatga ega bo'ladi. Shu tariqa uzluksiz ta'lim insonning butun hayot yo'lini qamrab oladi.

Uzluksiz ta'limning ijtimoiy ahamiyati ham katta. U jamiyatda bilimli, malakali va raqobatbardosh kadrlarni shakllantiradi. Bu esa iqtisodiy rivojlanish va ijtimoiy barqarorlikni ta'minlaydi. Ta'lim darajasi yuqori bo'lgan jamiyatlarda innovatsiyalar tezroq rivojlanadi va yangi imkoniyatlar yuzaga keladi.

Shu bilan birga, uzluksiz ta'lim jarayonida muammolar ham mavjud. Ular orasida ta'lim sifati, resurslar yetishmasligi, motivatsiyaning pastligi kabi omillarni ko'rsatish mumkin. Biroq ushbu muammolarni hal etish orqali ta'lim tizimini yanada rivojlantirish mumkin.

Uzluksiz ta'limning samaradorligini oshirish uchun bir qator omillar muhim hisoblanadi. Avvalo, ta'lim mazmunini zamonaviy talablar asosida yangilash zarur. Shuningdek, pedagoglarning kasbiy rivojlanishiga e'tibor qaratish lozim. Ta'lim jarayonida innovatsion texnologiyalarni keng qo'llash ham muhim ahamiyatga ega.

Xulosa qilib aytganda, uzluksiz ta'lim inson va jamiyat taraqqiyotining ajralmas qismi hisoblanadi. Uning omillari, mazmuni va hayotiy jarayonlari o'zaro uyg'unlikda rivojlanadi. Ushbu tizimni takomillashtirish orqali jamiyatning intellektual salohiyatini oshirish mumkin.

XULOSA

Uzluksiz ta'lim tizimi zamonaviy jamiyat rivojining asosiy omillaridan biridir. Ushbu tizim insonning hayot davomida o'z ustida ishlashini ta'minlaydi. Tadqiqot natijalari shuni ko'rsatadiki, uzluksiz ta'limni samarali tashkil etish uchun uning tamoyillariga

qat'iy amal qilish, zamonaviy texnologiyalarni joriy etish va ta'lim mazmunini doimiy yangilab borish zarur.

Kelgusida uzluksiz ta'lim tizimini rivojlantirish uchun quyidagilar muhim:

innovatsion metodlarni keng joriy etish

xalqaro hamkorlikni kuchaytirish

ta'lim sifatini monitoring qilish

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“AXBOROT TEXNOLOGIYALARINI KASBIY FAOLIYATDA QO‘LLASH” FANI DIFFERENSIAL YONDASHUVGA ASOSLANGAN DASTURIY VOSITALAR YORDAMIDA O‘QITISH

Yallayev Baxtiyor Salimovich

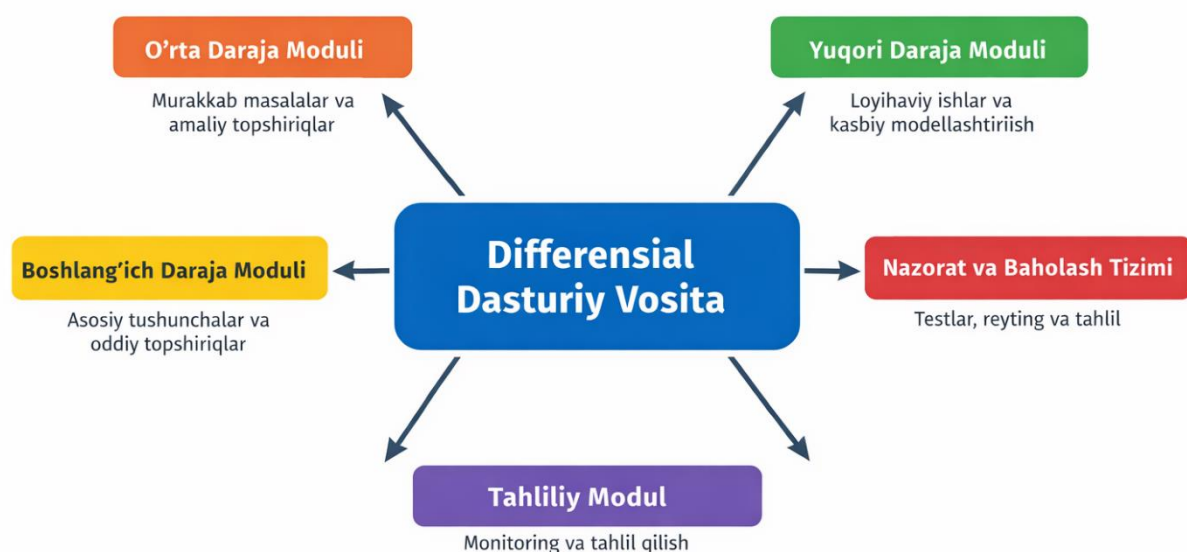
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Annotatsiya

Ushbu maqolada “Axborot texnologiyalarini kasbiy faoliyatda qo‘llash” fani differensial yondashuvga asoslangan dasturiy vositalar yordamida o‘tishning samarali yo‘llari ko‘rib chiqiladi. Barcha fanlar singari “Axborot texnologiyalarini kasbiy faoliyatda qo‘llash” darsida ham differensial yondashuvga asoslana dasturiy vositalar yordamida o‘qitish zarurligi aniqlandi. Darslarni differensiallashtirish sharoitida o‘qitishni tashkil etishni ko‘rib chiqamiz.

Kalit so‘zlar: ta’lim, dasturiy vosita, differensial yondashuv, informatika, axborot texnologiya, standart fikrlash, ijodiy qobiliyat.

Differensial yondashuvga asoslangan dasturiy vosita ta’lim oluvchilarning bilim darajasi, individual imkoniyatlari va kasbiy tayyorgarligini hisobga olgan holda ishlab chiqiladi. Bunday dasturiy vositalar modulli tuzilishga ega bo‘lib, har bir modul ma’lum pedagogik vazifani bajarishga yo‘naltirilgan bo‘ladi.



1-rasm. Differensial yondashuvga asoslangan dasturiy vositaning tuzilishi

Boshlang'ich daraja moduli talabalarga axborot texnologiyalari bo'yicha asosiy tushunchalar va elementar ko'nikmalarni shakllantirishga xizmat qiladi. Ushbu modulda:

- nazariy ma'lumotlar sodda va tushunarli shaklda beriladi;
- vizual materiallar (rasmlar, sxemalar, videodarslar) keng qo'llaniladi;
- oddiy testlar va mashqlar orqali bilimlar mustahkamlanadi.

Mazkur modul asosan axborot texnologiyalari bo'yicha boshlang'ich bilimga ega bo'lgan foydalanuvchilar uchun mo'ljallangan.

O'rta daraja moduli foydalanuvchilarning amaliy ko'nikmalarini rivojlantirish va bilimlarini chuqurlashtirishga qaratilgan. Bu bosqichda:

- murakkabroq nazariy tushunchalar yoritiladi;
- amaliy mashqlar va real vaziyatlarga asoslangan topshiriqlar beriladi;
- foydalanuvchining mustaqil ishlash faolligi oshiriladi.

Ushbu modul kasbiy faoliyatda axborot texnologiyalaridan foydalanish bo'yicha tayanch malakalarni shakllantiradi.

Yuqori daraja moduli talabalarning ijodiy va tahliliy fikrlashini rivojlantirishga xizmat qiladi. Mazkur modulda:

- loyihaviy ishlar va kompleks topshiriqlar taklif etiladi;
- kasbiy faoliyatga oid real muammolar modellashtiriladi;
- axborot texnologiyalarini muayyan kasbiy vaziyatlarda qo'llash talab etiladi.

Bu modul yuqori tayyorgarlikka ega bo'lgan foydalanuvchilar uchun mo'ljallangan bo'lib, ularning kasbiy kompetensiyalarini shakllantiradi.

Nazorat va baholash tizimi ta'lim oluvchilarning bilim va ko'nikmalarini xolis va tizimli baholashni ta'minlaydi. Ushbu tizim:

- testlar, amaliy topshiriqlar va reyting tizimini o'z ichiga oladi;
- foydalanuvchining har bir bosqichdagi natijalarini qayd etadi;
- bilim darajasiga qarab keyingi o'quv yo'nalishini tavsiya etadi.

Baholash natijalari differensial yondashuvni amalga oshirishda muhim asos bo'lib xizmat qiladi.

Tahliliy modul foydalanuvchining o'quv faoliyatini monitoring qilish va tahlil etish imkonini beradi. Ushbu modul orqali:

- o'quvchining faolligi va o'zlashtirish darajasi kuzatiladi;
- statistik ma'lumotlar shakllantiriladi;
- o'qituvchi va tizim tomonidan individual tavsiyalar beriladi.

Differensial yondashuvga asoslangan dasturiy vosita yaratish jarayoni ketma-ket va uzviy bog‘langan bir nechta bosqichlardan iborat bo‘lib, har bir bosqich ta’lim jarayonining samaradorligini ta’minlashga xizmat qiladi.

Tahlil bosqichi dasturiy vosita yaratish jarayonining eng muhim bosqichlaridan biri hisoblanadi.

Ushbu bosqichda:

- fan dasturi, o‘quv reja va davlat ta’lim standartlari o‘rganiladi;
- o‘quv maqsadlari va kutilayotgan ta’lim natijalari aniqlanadi;
- foydalanuvchilar bilim darajasi va tayyorgarligiga ko‘ra kategoriyalarga ajratiladi;
- differensial yondashuvni amalga oshirish uchun zarur bo‘lgan talablar shakllantiriladi.

Mazkur bosqichda olingan ma’lumotlar keyingi bosqichlar uchun metodik asos bo‘lib xizmat qiladi.

Loyihalash bosqichida dasturiy vositaning umumiy konsepsiyasi ishlab chiqiladi. Bu jarayonda:

- dasturiy vositaning arxitekturasi va modulli tuzilishi aniqlanadi;
- foydalanuvchi interfeysining qulay va intuitiv dizayni belgilanadi;
- o‘quv materiallari, topshiriqlar va baholash vositalarining strukturasi rejalashtiriladi.

Loyihalash bosqichi dasturiy vositaning funksional imkoniyatlarini oldindan belgilab beradi.

Dasturlash bosqichi loyihalangan modelni amaliy jihatdan hayotga tatbiq etishni o‘z ichiga oladi. Ushbu bosqichda:

- dasturiy vosita uchun mos dasturlash tillari va platformalar tanlanadi;
- foydalanuvchi ma’lumotlarini saqlash va qayta ishlash uchun ma’lumotlar bazasi yaratiladi;
- foydalanuvchilarning bilim darajasiga moslashuvchi algoritmlar ishlab chiqiladi.

Bu bosqichda dasturiy vositaning asosiy funksiyalari shakllantiriladi.

Sinov va takomillashtirish bosqichi dasturiy vositaning sifatini ta’minlashga qaratilgan. Mazkur bosqichda:

- dastur texnik jihatdan sinovdan o‘tkaziladi;
- real foydalanuvchilar ishtirokida test jarayoni tashkil etiladi;
- aniqlangan kamchiliklar va xatoliklar bartaraf etiladi.

Ushbu bosqich dasturiy vositaning barqaror va ishonchli ishlashini ta’minlaydi.

Yakuniy bosqichda dasturiy vosita ta'lim jarayoniga joriy etiladi. Bu bosqichda:

- dastur amaliy foydalanishga topshiriladi;
- o'quv jarayonida erishilgan natijalar tahlil qilinadi;
- foydalanuvchi fikrlari asosida dasturiy vosita muntazam yangilanadi va takomillashtiriladi.

Differensial yondashuvga asoslangan dasturiy vositalar ta'lim jarayonini individual imkoniyatlar va kasbiy tayyorgarlik darajasiga moslashtiradi. Ularning asosiy afzalliklarini quyidagicha kengaytirib tushuntirish mumkin:

Differensial dasturiy vositalar har bir talabaning bilim darajasi, qiziqishi va o'rganish tezligini hisobga oladi. Natijada:

- o'quv jarayoni barcha talabalar uchun umumiy standartga moslashmaydi, balki har bir foydalanuvchiga shaxsiylashtiriladi;
- murakkab topshiriqlarni bosqichma-bosqich oshirish orqali talaba boshlang'ich darajadan yuqori darajaga o'tadi;
- talabaning qobiliyati va ehtiyojlariga mos o'quv yo'nalishlari va materiallar taqdim etiladi.

Bu afzallik ayniqsa turli darajadagi talabalarni bir xonada birlashtirgan holda samarali ta'lim berishda muhimdir.

Differensial vositalar:

- nazariy bilimlarni amaliy mashqlar bilan mustahkamlaydi;
- o'quvchiga takrorlash va mashq qilish imkoniyatini beradi;
- bilimlarni turli kontekst va vaziyatlarda qo'llashni rag'batlantiradi.

Natijada, talabalar bilimlarni yuzaki emas, balki chuqur o'zlashtiradi, ularni amaliy faoliyatda qo'llashga tayyor bo'ladi.

Shu tariqa, o'qituvchi va talaba o'rtasida doimiy va samarali pedagogik aloqalar o'rnatiladi, ta'lim jarayoni yanada interaktiv va natijaviy bo'ladi.

Xulosa qilib aytganda, "Axborot texnologiyalarini kasbiy faoliyatda qo'llash" fanida differensial yondashuvga asoslangan dasturiy vositalarni yaratish zamonaviy ta'limning muhim yo'nalishlaridan biridir. Bunday dasturiy vositalar ta'lim sifatini oshirish, talabalarning individual imkoniyatlarini rivojlantirish hamda ularni kelajakdagi kasbiy faoliyatga puxta tayyorlashda katta ahamiyat kasb etadi.

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YASHIL IQTISODIYOT - BARQAROR RIVOJLANISHNING ZAMONAVIY MODELI

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Annotatsiya: Ushbu maqolada yashil iqtisodiyot tushunchasi, uning asosiy tamoyillari va barqaror rivojlanishdagi o'rni tahlil qilinadi. Shuningdek, ekologik muammolarni hal etishda yashil iqtisodiyotning ahamiyati, rivojlangan davlatlar tajribasi hamda O'zbekiston sharoitida uni rivojlantirish yo'nalishlari ko'rib chiqiladi. Tadqiqot natijalari yashil iqtisodiyotga o'tish iqtisodiy samaradorlikni oshirish bilan birga ekologik xavfsizlikni ta'minlashda muhim omil ekanligini ko'rsatadi.

Kalit so'zlar: yashil iqtisodiyot, barqaror rivojlanish, ekologiya, qayta tiklanuvchi energiya, resurs samaradorligi, yashil investitsiyalar.

Kirish

XXI asrga kelib global miqyosda iqlim o'zgarishining kuchayishi, tabiiy resurslarning cheklanishi hamda ekologik muammolarning tobora murakkablashuvi iqtisodiy taraqqiyotning yangi yondashuvlarini shakllantirish zaruratini yuzaga keltirdi. Shu nuqtai nazardan, "yashil iqtisodiyot" konsepsiyasi zamonaviy rivojlanish modelining muhim yo'nalishlaridan biri sifatida e'tirof etilmoqda. Ushbu model iqtisodiy o'sishni ta'minlash bilan bir qatorda, atrof-muhitni muhofaza qilish, tabiiy resurslardan oqilona foydalanish va ijtimoiy farovonlikni oshirishga xizmat qiladi.

Hozirgi kunda dunyoning ko'plab mamlakatlari yashil iqtisodiyotga o'tishni ustuvor strategik yo'nalish sifatida belgilagan. Xususan, Uzbekistanda ham barqaror rivojlanishni ta'minlash, ekologik xavfsizlikni mustahkamlash va iqtisodiyotning resurs tejamonkor modelini shakllantirish maqsadida yashil iqtisodiyot tamoyillarini joriy etish bo'yicha tizimli chora-tadbirlar amalga oshirilmoqda.

Yashil iqtisodiyot – bu iqtisodiy faoliyat natijasida inson farovonligini oshirish, ijtimoiy tenglikni ta'minlash hamda ekologik xavf va resurslar tanqisligini kamaytirishga qaratilgan barqaror iqtisodiy tizimdir. Mazkur konsepsiya global

miqyosda United Nations Environment Programme tomonidan keng targ‘ib qilinib, barqaror rivojlanishning muhim elementi sifatida e’tirof etiladi.

Yashil iqtisodiyotning asosiy mohiyati shundan iboratki, u iqtisodiy o‘rni atrof-muhitga salbiy ta’sirni kamaytirgan holda ta’minlashni ko‘zda tutadi. An’anaviy iqtisodiy modelda asosiy e’tibor ishlab chiqarish hajmini oshirishga qaratilgan bo‘lsa, yashil iqtisodiyotda resurslardan samarali foydalanish, ekologik muvozanatni saqlash va kelajak avlod manfaatlarini himoya qilish ustuvor hisoblanadi.

Ushbu iqtisodiy model quyidagi asosiy tamoyillarga tayanadi:

- **Resurslardan oqilona foydalanish** – tabiiy resurslarning cheklanganligini inobatga olgan holda ularni tejash va samarali boshqarish;
- **Chiqindilarni kamaytirish va qayta ishlash** – ishlab chiqarish va iste’mol jarayonlarida chiqindilar hajmini minimallashtirish hamda ularni qayta ishlash tizimini rivojlantirish;
- **Ekologik toza texnologiyalarni joriy etish** – innovatsion va kam chiqindili texnologiyalar asosida ishlab chiqarishni modernizatsiya qilish;
- **Qayta tiklanuvchi energiya manbalaridan foydalanish** – quyosh, shamol, gidro va biomassa energiyasidan keng foydalanish orqali an’anaviy yoqilg‘ilarga qaramlikni kamaytirish.

Yashil iqtisodiyotning muhim jihatlaridan biri — **tabiiy kapital tushunchasiga** alohida e’tibor qaratilishidir. Tabiiy kapital deganda yer, suv, havo, o‘rmonlar va biologik xilma-xillik kabi resurslar tushuniladi. Ushbu modelda tabiiy boyliklar nafaqat iqtisodiy resurs sifatida, balki inson hayoti va farovonligining asosi sifatida baholanadi. Shu sababli, ularni saqlash, tiklash va samarali boshqarish davlat siyosatining ustuvor yo‘nalishiga aylanadi.

Bundan tashqari, yashil iqtisodiyot ijtimoiy yo‘naltirilgan model bo‘lib, “yashil ish o‘rinlari”ni yaratish, kambag‘allikni qisqartirish va aholining turmush darajasini yaxshilashga xizmat qiladi. Bu esa iqtisodiy rivojlanishning ekologik va ijtimoiy jihatlarini o‘rtasida muvozanatni ta’minlash imkonini beradi.

Umuman olganda, yashil iqtisodiyot an’anaviy iqtisodiy modeldan farqli ravishda qisqa muddatli foydadan ko‘ra uzoq muddatli barqarorlikni ustuvor deb biladi. Shu jihatdan u zamonaviy iqtisodiy taraqqiyotning eng istiqbolli yo‘nalishlaridan biri sifatida qoraladi.

Yashil iqtisodiyotning samarali rivojlanishi bir qator ustuvor yo‘nalishlar asosida amalga oshiriladi. Ushbu yo‘nalishlar iqtisodiy o‘rni ta’minlash bilan birga atrof-muhitga salbiy ta’sirni minimallashtirishga xizmat qiladi.

1. Qayta tiklanuvchi energiya manbalarini rivojlantirish

Qayta tiklanuvchi energiya yashil iqtisodiyotning eng muhim tarkibiy qismi hisoblanadi. Quyosh, shamol, gidro va biomassa kabi manbalardan energiya ishlab chiqarish an'anaviy yoqilg'i resurslariga bo'lgan qaramlikni kamaytiradi hamda issiqxona gazlari chiqindilarini qisqartiradi.

Bugungi kunda Germany va China kabi davlatlar qayta tiklanuvchi energiya ulushini oshirish orqali energetika tizimini modernizatsiya qilishga erishgan. Bu tajriba yashil energetikaning nafaqat ekologik, balki iqtisodiy jihatdan ham samarali ekanligini ko'rsatadi.

2. Resurs samaradorligini oshirish

Resurs samaradorligi ishlab chiqarish jarayonlarida energiya, suv va xomashyo sarfini kamaytirishga qaratilgan. Bu yo'nalish "kam resurs – yuqori natija" tamoyiliga asoslanadi. Zamonaviy texnologiyalarni joriy etish orqali ishlab chiqarish tannarxini kamaytirish, chiqindilarni qisqartirish va raqobatbardoshlikni oshirish mumkin.

Resurs samaradorligi, ayniqsa, sanoat korxonalarida energiya tejoychi uskunalarini qo'llash, suvni qayta ishlatish tizimlarini joriy etish orqali namoyon bo'ladi.

3. Yashil transport tizimini rivojlantirish

Transport sohasi atmosferaga zararli moddalar chiqarilishining asosiy manbalaridan biri hisoblanadi. Shu sababli yashil iqtisodiyotda ekologik toza transport vositalarini rivojlantirish muhim ahamiyat kasb etadi.

Elektr transport vositalari, gibridd avtomobillar, velosiped infratuzilmasi va jamoat transportini rivojlantirish orqali karbon chiqindilarini sezilarli darajada kamaytirish mumkin. Bundan tashqari, transport logistikasini optimallashtirish ham ekologik samaradorlikni oshiradi.

4. Chiqindilarni boshqarish va qayta ishlash tizimi

Chiqindilarni samarali boshqarish yashil iqtisodiyotning muhim yo'nalishlaridan biridir. Ushbu yo'nalish chiqindilarni kamaytirish, saralash va qayta ishlash tizimini rivojlantirishni o'z ichiga oladi.

Qayta ishlash texnologiyalarini keng joriy etish orqali ikkilamchi xomashyo bazasini shakllantirish va tabiiy resurslarga bo'lgan bosimni kamaytirish mumkin. Shu bilan birga, chiqindilardan energiya olish texnologiyalari ham iqtisodiy va ekologik samaradorlikni oshiradi.

O'zbekiston sharoitida yashil iqtisodiyot so'nggi yillarda barqaror rivojlanishni ta'minlash va ekologik muammolarni kamaytirish maqsadida yashil iqtisodiyotga o'tish jarayonlari izchil amalga oshirilmoqda. Mamlakatda iqtisodiy o'sishni ta'minlash bilan bir qatorda tabiiy resurslardan oqilona foydalanish va ekologik muvozanatni saqlash ustuvor vazifa sifatida belgilangan.

Yashil iqtisodiyotga o'tish doirasida quyidagi asosiy yo'nalishlarda amaliy chora-tadbirlar olib borilmoqda:

- **Qayta tiklanuvchi energiya manbalarini rivojlantirish.** So'nggi yillarda quyosh va shamol elektr stansiyalarini qurish bo'yicha yirik investitsiya loyihalari amalga oshirilmoqda. Bu esa elektr energiyasi ishlab chiqarishda an'anaviy yoqilg'ilarga bo'lgan qaramlikni kamaytirishga xizmat qilmoqda.
- **Energiya samaradorligini oshirish.** Sanoat korxonalari va uy-joy sektorida energiya tejovchi texnologiyalarni joriy etish orqali energiya sarfini qisqartirish va ishlab chiqarish samaradorligini oshirishga erishilmoqda.
- **Ekologik muhofaza choralari kuchaytirish.** Atmosfera havosini muhofaza qilish, suv resurslarini tejash va yer degradatsiyasining oldini olish bo'yicha kompleks dasturlar amalga oshirilmoqda.

Mamlakatda yashil iqtisodiyotga o'tishning strategik asoslari ham ishlab chiqilgan. Xususan, 2030-yilgacha bo'lgan davrda yashil iqtisodiyotga o'tish konsepsiyasida issiqxona gazlari chiqindilarini kamaytirish, energiya samaradorligini oshirish hamda tabiiy resurslardan barqaror foydalanish ustuvor yo'nalishlar sifatida belgilangan.

Shu bilan birga, yashil iqtisodiyotga o'tish jarayonida xalqaro hamkorlik muhim o'rin tutadi. World Bank, Asian Development Bank kabi xalqaro moliyaviy institutlar bilan hamkorlikda qator ekologik loyihalar amalga oshirilmoqda.

Umuman olganda, O'zbekiston sharoitida yashil iqtisodiyotga o'tish nafaqat ekologik barqarorlikni ta'minlash, balki iqtisodiy samaradorlikni oshirish va aholi farovonligini yuksaltirishning muhim omili hisoblanadi. Kelgusida ushbu yo'nalishda olib borilayotgan islohotlarni chuqurlashtirish mamlakatning barqaror rivojlanishiga xizmat qiladi.

Muammolar va

Yashil iqtisodiyotga o'tish jarayoni murakkab va ko'p qirrali bo'lib, u nafaqat iqtisodiy, balki institutsional, texnologik va ijtimoiy omillar bilan ham chambarchas bog'liqdir. Uzbekistan sharoitida ushbu yo'nalishda bir qator muammolar mavjud bo'lib, ularni tizimli ravishda hal etish zarur.

Avvalo, **yashil iqtisodiyotga o'tish yuqori miqdordagi investitsiyalarni talab qiladi.** Qayta tiklanuvchi energiya manbalarini rivojlantirish, energiya samarador texnologiyalarni joriy etish va ekologik infratuzilmani modernizatsiya qilish katta moliyaviy resurslarni talab etadi. Bu esa ayrim hollarda investitsiya loyihalarining amalga oshirilishini sekinlashtiradi.

Ikkinchi muammo — **texnologik yetishmovchilik** bilan bog'liq. Zamonaviy "yashil" texnologiyalar ko'pincha yuqori rivojlangan davlatlarda yaratiladi va ularni joriy etish

uchun katta xarajatlar hamda malakali kadrlar zarur bo‘ladi. Natijada rivojlanayotgan mamlakatlarda ushbu texnologiyalarni keng qo‘llash imkoniyatlari cheklangan bo‘lishi mumkin.

Uchinchi muhim muammo — **aholining ekologik madaniyati va ongining yetarli darajada shakllanmaganligidir.** Ko‘plab hollarda resurslardan samarasiz foydalanish, chiqindilarni noto‘g‘ri boshqarish va ekologik mas’uliyatning pastligi yashil iqtisodiyot tamoyillarini joriy etishga to‘sqinlik qiladi.

Mazkur muammolarni bartaraf etish uchun quyidagi yo‘nalishlarda kompleks choralar ko‘rish maqsadga muvofiq:

- **Yashil investitsiyalarni keng jalb etish.** Xalqaro moliyaviy institutlar, jumladan World Bank va Asian Development Bank bilan hamkorlikni kuchaytirish, davlat-xususiy sheriklik asosida loyihalarni amalga oshirish muhim ahamiyatga ega.
- **Innovatsion va ekologik toza texnologiyalarni joriy etish.** Ilmiy-tadqiqot faoliyatini rivojlantirish, xorijiy tajribani o‘rganish va texnologik transfer mexanizmlarini kengaytirish orqali ishlab chiqarishning ekologik samaradorligini oshirish mumkin.
- **Ekologik ta’lim va madaniyatni rivojlantirish.** Aholi o‘rtasida ekologik bilimlarni keng targ‘ib qilish, ta’lim tizimiga ekologik fanlarni chuqur integratsiya qilish va ommaviy axborot vositalari orqali ekologik ongni oshirish muhim hisoblanadi.
- **Davlat siyosatini takomillashtirish.** Yashil iqtisodiyotga oid qonunchilik bazasini mustahkamlash, ekologik standartlarni joriy etish va rag‘batlantiruvchi mexanizmlarni ishlab chiqish zarur.

Xulosa qilib aytganda, yashil iqtisodiyotga o‘tishda mavjud muammolarni hal etish tizimli yondashuvni talab qiladi. Ushbu yo‘nalishda kompleks islohotlarni amalga oshirish orqali iqtisodiy samaradorlikni oshirish bilan birga ekologik barqarorlikni ta’minlash mumkin. Yashil iqtisodiyot barqaror rivojlanishning muhim omili hisoblanadi. U nafaqat ekologik muammolarni hal etadi, balki iqtisodiy samaradorlikni ham oshiradi. O‘zbekiston sharoitida ushbu modelni rivojlantirish iqtisodiy o‘rish va ekologik xavfsizlikni ta’minlashda muhim ahamiyatga ega.

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АРТЕРИЯЛАР БИФУРКАЦИЯ СОҲАСИНИНГ АТЕРОСКЛЕРОЗ ЖАРАЁНИГА МОЙИЛЛИГИНИНГ БИОМЕХАНИКА ХУСУСИЯТЛАРИ

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Долзарблиги: Артериялар тармоқланган, яъни бифуркацияланган соҳасининг ўзига хос хусусиятлари мавжуд: бифуркация соҳанинг биомеханикаси бошқа жойларидан фарқ қилади; бифуркация соҳада қон оқиш гемодинамикаси гирдобланиб оқади, томир деворига туташган жойларида уюрмалар пайдо қилади; бифуркация соҳасида томир ички юзасига қоннинг уриниш нуқтаси чидамлилиги бошқа соҳаларига нисбатан фарқ қилади, яъни қон гирдобланиб ва уюрма қилиб оқганлигидан қоннинг уриниш нуқтаси бифуркация майдонининг ҳар хил соҳаларида чидамлилиги турлича бўлганлигидан қон таркибидаги қон таначаларидан моноцитлар ва лейкоцитлар адгезияланиши кучлироқ, липидларнинг томир деворига шимилиши тезроқ кўринишга эга; артериялар бифуркация соҳаси нотекис бўлганлигидан эндотелий таранглилиги ҳар хил бўлади ва артериянинг бошқа соҳаларига нисбатан фарқ қилади. Айнан, эндотелий таранглиги бўшроқ соҳаларида ўтказувчанлиги юқорироқ бўлади ва қон таркибидан моддалар кўпроқ шимилад; қон босими остида томир ички юзасининг деформацияланиш даражаси бошқача, яъни бифуркация соҳадаги қоннинг гирдобланиб ва уюрма кўринишида оқиши оқибатида томир ички юзасини деформацияланишига олиб келади, бу эса интимада атеросклеротик жараённинг тезроқ бошланишига сабабчи бўлади

Мақсад: Артерия интима қатламининг биомеханика хусусиятларини таҳлил қилиш.

Тадқиқот натижалари: Юрак аорта ва артериялар тизимида томирлар деворининг қон босимига нисбатан қаршилигини кўтарадиган томир девори қаршилиқ нуқтасининг чидамлилиқ даражаси умумий қон миқдори босимидан келиб чиқиб, умумий ҳолда 100% деб олинса, унинг 19% аорта ва йирик артерияларга, 50% артериолаларга, 25% капиллярларга, 4% венулалар ва 3% веналарга тўғри келади. Энг юқори кўрсаткич артериолаларга тўғри келиши, уларнинг девори эластиклигига боғлиқ, яъни қон босими юқори даражада таъсир қилиб турадиган артерия ва артериолалар девори қаршилиқ нуқтаси чидамлилиги юқори бўлиши талаб қилинади. Агар қаршилиқ нуқтаси

чидамлилиги айрим сабаблар асосида пасайса, бу соҳаларда артерия интимасининг атеросклеротик жараёнга берилиши ошади.

Артерия деворининг ҳар қандай шикастланишида нордон мукополисахаридлар, жумладан гиалурон кислота синтезланиши, артерия деворида ҳужайралар пролиферациясини, миграциясини, дифференцировкасини кучайтиради. Айрим илмий тадқиқотларда кўрсатишича гиалурон кислота атерогенезда ва интимал гиперплазияда аҳамияти катта ҳисобланади. Улар таъсирида гипоеластоз ривожланиб, эластик толаларнинг ўчоқли йўқолиши кузатилади.

Булардан томир ички юзасига уриниш нуқта чидамлилиги паст бўлса, эндотелий таранглиги баланд бўлса, қон босими остида томир ички юзасининг деформацияланиш даражаси баланд бўлса унга моноцитларнинг ёпишиши кучайиб, атеросклероз бошланади.

Хулоса:

Артериялар девори бифуркация соҳанинг биомеханикаси бошқа жойларидан фарқ қилади.

Бифуркация соҳасида томир ички юзасига қоннинг уриниш нуқтаси чидамлилиги бошқа соҳаларига нисбатан фарқ қилади, яъни қон гирдобланиб ва уюрма қилиб оқганлигидан қоннинг уриниш нуқтаси бифуркация майдонининг ҳар хил соҳаларида чидамлилиги турлича бўлганлигидан қон таркибидаги қон таначаларидан моноцитлар ва лейкоцитлар адгезияланиши кучлироқ, липидларнинг томир деворига шимилиши тезроқ кўринишга эга.

OVQAT HAZM QILISH TIZIMI EPITELIYSI

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Annotatsiya

Ovqat hazm qilish tizimining gistologiyasi — oziq-ovqatni mayda hujayralar va to‘qimalar yordamida parchalaydigan va tanamizga kerakli moddalarni so‘radigan qiziqarli mikroskopik dunyoni ochib beradi. Oshqozon kislota chiqaruvchi hujayralaridan tortib, ichaklardagi oziq moddalarni yutuvchi mikrovillulargacha har bir qism bu murakkab jarayonda muhim rol o‘ynaydi. Ushbu sohani o‘rganish sog‘lom hazm qilish sirlarini anglashga, shuningdek, turli kasalliklarni aniqlash va davolashga yordam beradi. Bu tadqiqot mikroskopik tuzilishlar bilan kundalik sog‘lik o‘rtasidagi bog‘liqlikni ko‘rsatadi.

Kalit so‘zlar: ovqat hazm qilish tizimi, gistologiya, oshqozon to‘qimasi, ichak epiteliyasi, parietal hujayralar, mikrovilluslar, ovqat hazm qilish jarayoni, oziq moddalarning so‘rilishi.

Kirish

Inson tanasining sog‘ligi va hayotiy faoliyati bevosita ovqat hazm qilish tizimining to‘g‘ri ishlashiga bog‘liq. Ovqat hazm qilish jarayoni murakkab mexanizmlar va ko‘plab organlarning uyg‘un ishlashi natijasida amalga oshadi. Ushbu tizimda oziq-ovqat nafaqat mexanik tarzda parchalanadi, balki kimyoviy jarayonlar orqali organizm uchun zarur bo‘lgan moddalar ajratiladi va so‘riladi.

Biroq, bu jarayonlarning muvaffaqiyatli bo‘lishi ovqat hazm qilish tizimining to‘qimalarining sog‘lom va samarali ishlashiga bog‘liq. Shu nuqtai nazardan,

gistologiya — ya'ni to'qimalar ilmiy tahlili — ovqat hazm qilish tizimining tuzilishi va funksiyalarini chuqurroq tushunishga yordam beradi. Ovqat hazm qilish tizimining gistologiyasi nafaqat asosiy ilmiy ma'lumotlarni taqdim etadi, balki turli kasalliklarning oldini olish va ularni samarali davolashda ham muhim ahamiyatga ega.

Ushbu ishda ovqat hazm qilish tizimining gistologiyasi haqida umumiy ma'lumotlar, uning asosiy to'qimalari va hujayralari, shuningdek, ularning funksiyalari va kasalliklarga aloqadorligi haqida so'z yuritiladi. Mazkur mavzu nafaqat biologiya faniga qiziqadigan talabalar uchun, balki sog'liqni saqlash sohasida faoliyat yurituvchi mutaxassislar uchun ham dolzarbdir.

Ovqat hazm qilish tizimi murakkab va ko'p qavatli to'qimalardan tashkil topgan bo'lib, har bir qavatning o'ziga xos vazifasi mavjud. Masalan, oshqozon devori bir nechta qatlamlardan iborat bo'lib, eng ichki qatlam — shilliq qavat — maxsus epiteliya hujayralari bilan qoplangan. Ushbu hujayralar ovqatni kimyoviy parchalanish jarayonida qatnashadigan kislota va fermentlarni ishlab chiqaradi. Shu bilan birga, oshqozon shilliq qavati o'zining himoya xususiyati bilan tanilgan bo'lib, kislota ta'siridan to'qimalarni himoya qiladi.

Ichaklarning gistologiyasi ham juda qiziqarli va murakkab. Ichak epiteliyasi yuzasida joylashgan mikrovilluslar so'rilishni maksimal darajada oshirish uchun yuzaning maydonini sezilarli darajada kengaytiradi. Shu tufayli, oziq-ovqat tarkibidagi moddalar samarali so'rilib, organizmga kiradi. Bundan tashqari, ichak to'qimalari har xil fermentlarni ishlab chiqarish orqali hazm jarayonini davom ettiradi.

Asosiy qism

Gistologik tuzilishlarning sog'lomligi ovqat hazm qilish tizimining umumiy salomatligida muhim ahamiyatga ega. To'qimalardagi o'zgarishlar yoki shikastlanishlar natijasida hazm qilish jarayonlari buzilishi mumkin, bu esa turli kasalliklar — gastrit, oshqozon yarasi, ichak yallig'lanishi kabi muammolarga olib keladi. Shu sababli, gistologik tadqiqotlar kasalliklarni dastlabki bosqichda aniqlash va samarali davolashda juda foydali.

Yaqin yillarda gistologiya va hujayra biologiyasi sohasidagi ilmiy kashfiyotlar ovqat hazm qilish tizimining funktsional va strukturaviy xususiyatlarini chuqurroq o'rganishga imkon yaratdi. Masalan, molekulyar darajadagi tadqiqotlar, yangi diagnostika usullari va sun'iy to'qimalar yaratish kabi yutuqlar sog'liqni saqlashda yangi ufqlar ochmoqda.

Shunday qilib, ovqat hazm qilish tizimining gistologiyasini o'rganish nafaqat biologik bilimlarni boyitadi, balki inson salomatligini saqlash va yaxshilash yo'lida muhim qadam hisoblanadi.

Ovqat hazm qilish tizimi bir nechta asosiy to'qimalardan tashkil topgan bo'lib, har biri o'ziga xos struktura va funksiyaga ega.

Epiteliy to'qimasi

Bu to'qima ovqat hazm qilish kanalining ichki yuzasini qoplaydi va turli hujayra turlaridan tashkil topgan. Oshqozon va ichakda epiteliy hujayralar oziq-ovqatni kimyoviy parchalanishida ishtirok etuvchi fermentlar va kislotalarni ishlab chiqaradi. Ichak epiteliyasining yuzasida joylashgan mikrovilluslar oziq-ovqatdagi moddalar so'rilishini sezilarli darajada oshiradi.

Biriktiruvchi to'qima

U organlarga shakl va mustahkamlik beradi, shuningdek, qon tomirlari va asab tolalarini o'z ichiga oladi. Ovqat hazm qilish tizimidagi biriktiruvchi to'qima, ayniqsa, shilliq qavat ostidagi qatlamlarda joylashgan bo'lib, oziq moddalarni tashish va himoya vazifasini bajaradi.

Mushak to'qimasi

Ovqat hazm qilish kanalining devorida joylashgan mushak to'qimasi peristaltik harakatlarni ta'minlaydi. Bu mushaklarning navbatma-navbat qisqarishi natijasida oziq-ovqat oldinga siljiydi va hazm bo'lish jarayoni davom etadi. Mushak to'qimasi silliq mushak hujayralaridan iborat bo'lib, ixtiyorsiz boshqariladi.

Nerv to'qimasi

Ovqat hazm qilish tizimining nerv to'qimasi ichak devorida joylashgan va hazm jarayonining muvofiqligini ta'minlaydi. U reflektor harakatlarni boshqaradi, shuningdek, sekretiya va peristaltikani tartibga soladi

Oshqozon devori bir necha qatlamlardan tashkil topgan: shilliq qavat, shilliq qavat osti, mushak qavati va seroza. Shilliq qavatdagi maxsus epiteliy hujayralar parietal va principal hujayralarga bo'linadi. Parietal hujayralar kislota (HCl) ishlab chiqarib, ovqatning kimyoviy parchalanishini boshlaydi, principal hujayralar esa pepsinogen fermentini ajratadi. Oshqozon shilliq qavati qalin va kislota ta'siridan himoya qiluvchi maxsus mukus bilan qoplangan.

Ichak to‘qimalari hazm bo‘lgan oziq-ovqatdan moddalarning so‘rilishini ta‘minlashga ixtisoslashgan. Ichak devorining eng ichki qavatini — epiteliy — juda nozik va ko‘plab mikrovilluslarga ega bo‘lib, yuzaning maydonini oshiradi. Bu hujayralar faqat oziq moddalarni so‘rilishini emas, balki ichak fermentlarini ishlab chiqarishni ham ta‘minlaydi. Ichakning biriktiruvchi va mushak qatlamlari esa oziq-ovqat harakatini tartibga soladi.

Ovqat hazm qilish tizimining gistologiyasining kasalliklar bilan bog‘liqligi Ovqat hazm qilish tizimining to‘qimalaridagi o‘zgarishlar ko‘plab kasalliklarning kelib chiqishiga sabab bo‘ladi. Masalan, oshqozon shilliq qavatining yallig‘lanishi (gastrit) epiteliy hujayralarining shikastlanishi bilan boshlanadi. Shuningdek, oshqozon yarasi va ichak yallig‘lanishi gistologik darajada sezilarli o‘zgarishlar bilan namoyon bo‘ladi. Shuning uchun gistologik tahlil kasalliklarni aniqlashda va ularni davolashda katta ahamiyat kasb etadi.

Ovqat hazm qilish tizimi to‘qimalarining immunologik roli

Ovqat hazm qilish tizimining gistologiyasi nafaqat oziq moddalarning parchalanishi va so‘rilishini o‘rganadi, balki uning immunologik himoyasini ham o‘rganishda muhim ahamiyatga ega. Ovqat hazm qilish traktida joylashgan epiteliy hujayralar va biriktiruvchi to‘qima ichida ko‘plab immun hujayralar mavjud bo‘lib, ular zararli mikroorganizmlarga qarshi kurashadi. Masalan, ichakning lamina propria qatlamida joylashgan limfoid to‘qimalar (Peyyer plitalari) organizmning immun javobini shakllantirishda muhim rol o‘ynaydi.

Ovqat hazm qilish tizimining gistologiyasi va yangi davolash usullari So‘nggi yillarda gistologiya sohasidagi ilg‘or texnologiyalar — elektron mikroskopiya, molekulyar biologiya, genetik tahlil kabi usullar yordamida ovqat hazm qilish tizimining to‘qimalari yanada chuqurroq o‘rganilmoqda. Bu esa yangi kasallik diagnostikasi va samarali davolash usullarini ishlab chiqishga imkon beradi. Masalan, o‘simtalarning dastlabki bosqichlarini aniqlash, yallig‘lanish jarayonlarini nazorat qilish va immunoterapiya sohasidagi tadqiqotlar gistologiyaning yangi imkoniyatlarini ko‘rsatadi.

Ovqat hazm qilish tizimining gistologiyasi va kelajak istiqbollari

Kelajakda gistologik tadqiqotlar asosida ovqat hazm qilish tizimining sog‘lomligini ta‘minlash uchun shaxsiylashtirilgan davolash usullari yaratish kutilmoqda. Sun‘iy to‘qimalar va hujayra transplantatsiyasi sohalaridagi rivojlanish bemorlarning hayot sifatini sezilarli darajada yaxshilashi mumkin. Bundan tashqari,

gistologiyaning molekulyar asoslarini o'rganish yangi dori vositalari va davolash strategiyalarini ishlab chiqishda muhim ahamiyat kasb etadi.

Xulosa

Ovqat hazm qilish tizimining gistologiyasi bizga inson organizmida bo'lib o'tadigan juda murakkab va ajoyib jarayonlarni mikroskop ostida ko'rsatadi. Har bir hujayra, har bir to'qima o'ziga xos vazifani bajarib, oziq-ovqatni parchalash va tanamizga kerakli moddalarni yetkazishda muhim rol o'ynaydi. Ushbu sohani chuqur o'rganish nafaqat ilmiy qiziqish uyg'otadi, balki turli kasalliklarni oldini olish va ularni samarali davolashda ham yordam beradi.

Bugungi kunda gistologiya sohasidagi yangi texnologiyalar ovqat hazm qilish tizimini yanada yaxshiroq tushunishga va yangi davolash usullarini yaratishga imkon bermoqda. Shuning uchun gistologiyani o'rganish nafaqat biologiya fanining qiziqarli qismi, balki inson sog'lig'i uchun zarur bo'lgan muhim ilmiy soha hisoblanadi.

Shunday qilib, ovqat hazm qilish tizimining gistologiyasini bilish orqali biz nafaqat tana ichidagi sirli dunyoni o'rganamiz, balki sog'lom hayot sari ishonchli qadam qo'yamiz. Shuningdek, ovqat hazm qilish tizimining gistologiyasini o'rganish tibbiyot sohasida yangi davolash usullarini yaratishda ham katta yordam beradi. Masalan, oshqozon va ichakdagi to'qimalardagi o'zgarishlarni erta bosqichda aniqlash orqali kasalliklarni oldini olish yoki ularni tezda davolash mumkin. Bu esa bemorlarning hayot sifatini yaxshilaydi, sog'liqni saqlash tizimining samaradorligini oshiradi.

Shuningdek, gistologiya orqali ovqat hazm qilish tizimining har bir qismi qanday ishlashini bilish, uning kasalliklarga qarshi qanday javob berishini tushunishga yordam beradi. Bu esa, o'z navbatida, kasalliklarni tez va samarali aniqlashga hamda oldini olishga imkon yaratadi. Masalan, oshqozon yoki ichak to'qimalaridagi yallig'lanishlar va o'zgarishlar dastlab gistologik tahlillar yordamida aniqlanadi, shundan so'ng tegishli davolash usullari qo'llaniladi.

Bundan tashqari, gistologik tadqiqotlar yordamida yangi dori vositalari va terapiyalar ishlab chiqilmoqda. Bu nafaqat bemorlarning shifo topish imkoniyatlarini oshiradi, balki sog'lom hayot kechirish uchun zarur shart- sharoitlarni yaratadi. Shu bilan birga, gistologiyaning yangi usullari shaxsiylashtirilgan tibbiyot rivojlanishiga ham katta hissa qo'shmoqda.

Xulosa qilib aytganda, ovqat hazm qilish tizimining gistologiyasini o'rganish orqali nafaqat organizmning nozik tuzilishlarini anglash mumkin, balki zamonaviy tibbiyotda ko'plab yangi imkoniyatlar ochiladi. Bu esa insonlarning hayot sifatini yaxshilash va uzoq umr ko'rishini ta'minlashda muhim ahamiyat kasb etadi.

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NERV TO'QIMASI VA NEYRONLARNING HISTOLOGIK TUZILISHI

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Annotatsiya: Nerv to'qimasi yuqori darajada ixtisoslashgan to'qima bo'lib, to'qimalar va organizmning barcha a'zolarini o'zaro aloqada bo'lishini hamda organizmni tashqi muhit bilan bog'lanishini ta'minlaydi. Nerv to'qimasi organizmdagi barcha a'zolarining anatomik-funksional bog'liqligini, ularning kelishilgan holda ishlashini hamda organizmning tashqi va ichki muhit bilan aloqasini ta'minlaydi. Nerv to'qimasi nerv tizimini tashkil etib, tashqi muhit ta'sirotlarini qabul qiladi, ularni eng oliy darajada tahlil qilib, shu ta'sirotga nisbatan javob qaytaradi. Ushbu maqolada nerv to'qimasi hujayralarining tuzilish gistologiyasi va taraqqiyoti haqida ma'lumot berilgan.

Kalit so'zlar: Nerv to'qimasi, neyrotsitlar, neyrogliya, neyrobblastlar, dendritlar, lipofutsin pigmenti.

KIRISH

Nerv to'qimasining asosiy vazifasi ta'sirotni qabul qilish, saqlash va qayta ishlash, organizmning turli sistemalarining faoliyatini uyg'unlashtirish, koordinatsiyalash kabilardan iborat. To'qimaning bu vazifasi tirik organizmlarning tarixiy taraqqiyoti jarayonida vujudga kelgan. Nerv to'qimasi markaziy va periferik nerv sistemasini hosil qilib, bir-biridan bajaradigan vazifasiga qarab keskin farq qiluvchi ikki xil hujayralardan tashkil topgan. Birinchi turi neytronlar yoki neyrotsitlar (neuronum osytus) bo'lib, nerv hujayra iborasi xuddi shu hujayraga tegishlidir.

Neyronlar nerv impulsini hosil qiladi va uning tarqalishini ta'minlaydi. Nerv to'qimasining ikkinchi xil hujayralari — neyrogliya yoki gliotsitlar (neuroglia) kelib chiqishi bo'yicha neyronlar bilan bog'liq bo'lsa ham, bir qator yordamchi vazifalarni bajaradi. Nerv to'qimasining taraqqiyoti. Nerv to'qimasi tashqi embrional varaq — ektodermadan rivojlanadi. Embrionning dorzal devorida ektodermadan nerv plastinkasi shakllanadi. So'ngra u egilib, nerv tarnovchasini hosil qiladi. Nerv tarnovchasining chetlari buralib, bir-biriga yaqinlashadi va so'ngra birikib, nerv nayini hosil qiladi. Shu vaqtning o'zida ektoderma chetlari ham o'zaro birikib, nerv nayidan ajraladi.

Nerv nayining teri ektodermasidan ajralishi davomida nerv tarnovchasining ko'tarilgan chetidagi hujayralar to'dasi ajraladi va ular nerv nayining ikki yon tomonida ganglioz plastinka yoki nerv qirrasini hosil qiladi. Nerv nayidan keyinchalik bosh va orqa miya hamda nerv sistemasining periferik qismlari rivojlanadi, ganglioz plastinkadan esa sezuvchi nerv tugunlari va vegetativ nerv sistemasi shakllanadi. Taraqqiyotning ilk bosqichlarida nerv naychasining devori bir qavat silindrsimon hujayralardan iborat bo'ladi. Bu hujayralar tez mitotik bo'linishi natijasida nerv nayi yo'g'onlashadi va ko'p qavatli (soxta ko'p qavatli) bo'lib qoladi. Bu davrda nerv nayi bir hujayra turidan — medulloblastlardan (medulla — miya, blastos — kurtak) iborat bo'lib, keyinchalik ikki turga differensiallashadi: 1) neyrobblastlar — dumaloq shakldagi birlamchi nerv hujayralari bo'lib, ulardan neyronlar rivojlanadi; 2) spongioblastlar (glioblastlar) birlamchi neyrogliyal hujayralar bo'lib, ulardan har xil neyrogliya hujayralari rivojlanadi. Hujayralar ko'payishi va nerv naycha devorida surilishi natijasida nerv nayida quyidagi uch qavat tafovut qilinadi: 1) ichki — ependima qavati; 2) o'rta — yopqich (mantiya) qavati; 3) tashqi — qirg'oq vuali (parda) qavati. Ichki ependima qavatida juda ko'p mitoz bo'linish ro'y beradi va rivojlanishning ilk bosqichlarida bu qavat glioblastlar va neyrobblastlarni hosil qilsa, so'ngra faqat neyrogliya uchun manba bo'lib qoladi. Asta-sekin ichki ependima hujayralari prizmatik shaklni olib, bosh miya qorinchalari va orqa miya kanalining ependima hujayralariga aylanadi. O'rta qavat neyrobblastlar va ulardan shakllanuvchi neyronlar hamda birlamchi neyrogliyal asosni hosil qiluvchi hujayralardan iborat. Shu qavat hisobiga orqa miyaning kulrang moddasi hosil bo'ladi. Tashqi qavat — qirg'oq vuali (pardasi) neyrobblast hujayralarini tutmaydi, bu qavatga ependima hamda o'rta qavat hujayralarining o'simalari o'tib, orqa miya o'tkazuvchi yo'llarining shakllanishida ishtirok etadi. Neyronlar va neyrogliyal hujayralarning ixtisoslanishi nerv sistemasining turli qismlarida barobar bo'lmaydi. Yumaloq shaklga ega bo'lgan

o'simtasiz neyrobblastlar differensiallashib, cho'ziq noksimon shaklni oladi va ularning o'tkirlashgan uchidan tugmachasimon bo'rtma shaklida nerv o'simtasi o'sib chiqadi. Bundan kelgusida neyrit rivojlanadi. Keyinroq esa hujayraning kalta o'siqlari — dendritlar hosil bo'ladi. Neyrobblastlar differensirovkasining ilk belgisi ularning sitoplazmasida ingichka neyrofilamentlar va mikronaychalardan tarkib topgan neyrofibrillalar hosil bo'lishidir. Yadro va sitoplazmaning submikroskopik tuzilishi ham o'zgaradi: neyrobblast sitoplazmasida erkin ribosomalarning miqdori kamayadi, endoplazmatik to'r kanalchalari va Golji kompleksi paydo bo'ladi va takomillashdi. Yadroda turli elektron zichlikdagi donalar va iplar hosil bo'ladi. Natijada, neyrobblastlar yetuk neyronlarga aylanadi. Neyrobblastlardan hosil bo'luvchi neyronlar bo'linish qobiliyatiga ega emas. Shu tufayli ularda fiziologik regeneratsiya jarayoni hujayra sitoplazmasidagi organellalar va oqsillarning uzluksiz almashinuvi bilangina chegaralanadi.

Neyron hujayra sitoplazmasi yuqori darajada funksional sintetik xususiyatga ega bo'lgan neyronlar maxsuslashgan plazmolemmaga ega, ulami sitoplazmasi organellalarga boy. Neyron hujayra sitoplazmasi boshqa hujayralar sitoplazmasidan farqli o'laroq, ta'sirotni o'tkazish xususiyatiga ham ega. Yuqorida aytilgan so'zlarga xulosa qilib shuni aytish kerakki, fibrilyar strukturalar (neyrofibrillalar, mikronaychalar, mikrofilamentlar) bular birgalikda hujayra sitoplazmasida tayanch — qisqarishni va moddalarni nerv tolalariga tashiydi. Donador endoplazmatik to'rda oqsil sintezi kuchli kechadi. Uni bu borada oqsil ishlovchi bezlar bilan taqqoslash mumkin. Funksional holatning o'zgarishiga qarab, Nissl substansiyasida oqsil sintezi o'zgarib turadi. Patologik holatda endoplazmatik to'r bilan bog'liq bo'lgan ribosomalar soni kamayib, aksincha, erkin ribosomalar soni ko'paysa, buni nerv hujayrasining patologik indeksi deyiladi. Nishonlangan aminokislotalar yordamida neyronlardagi oqsillarning aylanish vaqti (sirkulyatsiyasi) aniqlangan. Shunga ko'ra nerv hujayrasi tanasidagi oqsillar ikki guruhga: tez va sekin aylanadigan oqsillarga bo'linadi. Neyronlarda tez aylanadigan oqsillar bir kun, sekin aylanadigan oqsillar 15 kun saqlanar ekan. Sekin aylanadigan oqsillar neyron tanasining asosiy oqsillari bo'lib hisoblanadi.

Nerv hujayrasining sitoplazmasida ikki xil pigment kiritmalari uchraydi. Shularning bittasi lipofutsin pigmenti (lipoidlar saqlovchi modda), bular to'q jigarrang dog'lar ko'rinishida bo'ladi. Bu pigment kiritmalari mayda donalar ko'rinishida hamma nerv hujayralarida uchraydi. Bu dog'lar faqat qarilik davrlarida, hujayra funksional jihatdan charchaganda hosil bo'ladigan moddalardir. Lipofutsinning hujayrada paydo bo'lishi, nerv hujayralarida patologik o'zgarishlar jarayonida hosil

bo'lgan keraksiz moddalar chiqib ketmasligidan dalolat beradi. Yosh ulg'ayishi bilan bu pigmentning miqdori oshadi. Nerv hujayrasida to'xtovsiz ravishda sintez va resintez jarayonlari bo'lib turadi. Ularda ko'p lizosomalar va bir qancha ultratuzilmalar qatnashib, keraksiz moddalarni yo'qotishda yoki zararsizlantirishda bularning ahamiyati kattadir. Lizosomalar va ular turlarining ko'p bo'lishi, lipofutsinning ko'payishi qandaydir patologik o'zgarishlar borligini bildiradi. Bu esa, o'z navbatida nerv hujayralarida patologik holatni aniqlash uchun diagnostik belgi vazifasini bajarishi ham mumkin.

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BIRIKTIRUVCHI TÒQIMA HUYAYRASINING PROLIFERATSIYASINING INSON HAYOTIDAGI AHAMIYATI

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Annotatsiya: Ushbu maqolada biriktiruvchi to'qimaning gistologik tuzilishi, turlari hamda inson organizmidagi muhim biologik va fiziologik vazifalari yoritib beriladi. Biriktiruvchi to'qima organizmda eng keng tarqalgan to'qimalardan biri bo'lib, u hujayralararo moddaning ko'pligi va tuzilma xilma-xilligi bilan boshqa to'qimalardan ajralib turadi. Maqolada biriktiruvchi to'qimaning asosiy tarkibiy qismlari - hujayralar, tolalar va asosiy modda haqida batafsil ma'lumot beriladi. Shuningdek, bo'sh biriktiruvchi, zich biriktiruvchi, retikulyar, yog', tog'ay va suyak to'qimalarining gistologik xususiyatlari solishtirma tahlil qilinadi. Biriktiruvchi to'qimaning tayanch, himoya, trofik, plastik va regenerativ funksiyalari ilmiy manbalar asosida ochib beriladi. Ushbu to'qimaning patologik holatlari, xususan, yallig'lanish jarayonlari va regeneratsiya mexanizmlari haqida ham qisqacha ma'lumot keltiriladi. Maqola tibbiyot yo'nalishi talabalari uchun nazariy bilimlarni mustahkamlashda, shuningdek, gistologiya fanini chuqurroq o'rganishda muhim ahamiyat kasb etadi.

Kalit soʻzlar: Biriktiruvchi toʻqima, gistologiya, hujayralararo modda, kollagen tolalar, elastik tolalar, fibroblastlar, togʻay toʻqima, suyak toʻqima.

Kirish.

Inson organizmi murakkab va mukammal tuzilishga ega boʻlib, u turli xil toʻqimalarning oʻzaro uygʻun faoliyati natijasida yashash va rivojlanish imkoniyatiga ega boʻladi. Toʻqimalar organizmning asosiy morfologik birliklari hisoblanib, ular kelib chiqishi, tuzilishi va bajaradigan vazifalariga koʻra bir-biridan farqlanadi. Gistologiya fani ana shu toʻqimalarning mikroskopik tuzilishini, rivojlanishini va funksional xususiyatlarini oʻrganadi. Ushbu fan tibbiyot amaliyotida muhim oʻrin egallab, kasalliklarning kelib chiqish mexanizmlarini tushinishda asosiy nazariy poydevor boʻlib xizmat qiladi.

Biriktiruvchi toʻqima organizmda eng keng tarqalgan va eng xilma-xil tuzilishga ega boʻlgan toʻqimalardan biridir. U barcha organ va tizimlar tarkibida uchraydi hamda ularni oʻzaro bogʻlab turish, tayanch yaratish va himoya qilish kabi muhim vazifalarni bajaradi. Biriktiruvchi toʻqima epiteliy, muskul va nerv toʻqimalaridan farqli ravishda hujayralararo moddaning koʻpligi bilan xarakterlanadi. Aynan shu xususiyati uning mexanik mustahkamligi va funksional imkoniyatlarini belgilaydi.

Biriktiruvchi toʻqimaning rivojlanishi embrional davrda mezoderma qatlamidan boshlanadi. Embrional davrda hosil boʻlgan mezenxima keyinchalik biriktiruvchi toʻqimaning turli shakllariga differensiallanadi. Bu jarayon organizmning oʻsishi va rivojlanishida muhim ahamiyat kasb etadi. Biriktiruvchi toʻqimaning bunday kelib chiqishi uning yuqori darajadagi moslashuvchanligi va regeneratsiya qobiliyatini taʼminlaydi.

Biriktiruvchi toʻqimaning asosiy tarkibiy qismlariga hujayralar, tolalar va asosiy (amorf) modda kiradi. Hujayralar orasida fibroblastlar asosiy oʻrinni egallab, ular kollagen va elastik tolalarni sintez qilish orqali toʻqimaning mexanik xususiyatlarini belgilaydi. Shuningdek, makrofaglar, mast hujayralar, plazmotsitlar va adipotsitlar ham biriktiruvchi toʻqima tarkibida uchrab, himoya va modda almashinuvi jarayonlarida faol ishtirok etadi.

Tolalar biriktiruvchi toʻqimaning tayanch elementlari boʻlib, ular kollagen, elastik va retikulyar tolalarga boʻlinadi. Kollagen tolalar mustahkamlikni taʼminlasa, elastik tolalar choʻzilish va qayta tiklanish xususiyatini beradi. Retikulyar tolalar esa organlarning ichki skeletini hosil qilib, hujayralar uchun tayanch vazifasini bajaradi.

Asosiy modda esa hujayralar va tolalar orasini to'ldirib, modda almashinuvi jarayonlarida muhim rol o'ynaydi.

Biriktiruvchi to'qimaning turlari juda ko'p bo'lib, ularga bo'sh va zich biriktiruvchi to'qima, yog' to'qimasi, tog'ay va suyak to'qimalari kiradi. Har bir tur o'ziga xos gistologik tuzilishga ega bo'lib, ma'lum bir vazifani bajarishga moslashgan. Masalan, tog'ay to'qimasi bo'g'imlarda amortizator vazifasini bajarsa, suyak to'qimasi organizm uchun mustahkam tayanch va mineral moddalarning ombori hisoblanadi.

Biriktiruvchi to'qimaning funksional ahamiyati nihoyatda kengdir. U tayanch va mexanik himoya bilan bir qatorda, oziqlantiruvchi, himoyalovchi, plastik va tiklovchi vazifalarni bajaradi. Yallig'lanish jarayonlari, jarohatlar va shikastlanishlardan so'ng aynan biriktiruvchi to'qima regeneratsiya jarayonlarida yetakchi rol o'ynaydi. Shu sababli, uning gistologik tuzilishini chuqur o'rganish klinik tibbiyot uchun muhim hisoblanadi.

Biriktiruvchi to'qima organizmning normal faoliyat yuritishida ajralmas ahamiyatga ega bo'lib, uning gistologik xususiyatlarini o'rganish nafaqat nazariy, balki amaliy jihatdan ham muhimdir. Ushbu mavzu tibbiyot yo'nalishi talabalari uchun asosiy bilim manbai bo'lib xizmat qiladi.

Asosiy qism. Biriktiruvchi to'qima organizmning barcha a'zolari va tizimlarida uchraydigan, tuzilishi va funksiyasi jihatidan nihoyatda murakkab bo'lgan to'qima hisoblanadi. U epiteliy, muskul va nerv to'qimalarini o'zaro bog'lab turadi, ularni mexanik jihatdan mustahkamlaydi hamda ichki muhit barqarorligini ta'minlaydi. Biriktiruvchi to'qimaning asosiy farqlovchi belgisi - hujayralararo moddaning ko'pligi bo'lib, aynan shu xususiyat uning funksional imkoniyatlarini kengaytiradi.

Biriktiruvchi to'qimaning hujayralari

Biriktiruvchi to'qima hujayralari kelib chiqishi va bajaradigan vazifalariga ko'ra doimiy va vaqtinchalik hujayralarga bo'linadi. Doimiy hujayralarga fibroblastlar va fibrotsitlar kiradi. Fibroblastlar metabolik jihatdan faol hujayralar bo'lib, ular kollagen, elastik va retikulyar tolalarni sintez qiladi. Fibrotsitlar esa nisbatan kam faol bo'lib, mavjud to'qimaning saqlanishini ta'minlaydi.

Vaqtinchalik hujayralarga makrofaglar, mast hujayralar, plazmotsitlar va leykotsitlar kiradi. Makrofaglar fagotsitoz orqali begona zarrachalarni yo'q qiladi va immun javobda muhim rol o'ynaydi. Mast hujayralar biologik faol moddalar - gistamin va geparin ishlab chiqarib, yallig'lanish va allergik jarayonlarda ishtirok etadi.

Plazmotsitlar esa antitanachalar sintezi orqali organizmning immun himoyasini ta'minlaydi.

Biriktiruvchi to'qimaning tolalari

Biriktiruvchi to'qimada uchraydigan tolalar uning mexanik xususiyatlarini belgilovchi asosiy tuzilmalardir. Kollagen tolalar eng keng tarqalgan bo'lib, yuqori darajadagi mustahkamlikka ega. Ular paylar, bog'lamlar va suyak to'qimasida ko'p uchraydi. Elastik tolalar cho'zilish va qisqarish qobiliyatiga ega bo'lib, o'pka, qon tomirlari devori va terida uchraydi. Retikulyar tolalar esa nozik tuzilishga ega bo'lib, limfa tugunlari, taloq va suyak ko'migi kabi organlarda tayanch vazifasini bajaradi.

Asosiy (amorf) modda

Asosiy modda hujayralar va tolalar orasini to'ldirib turuvchi yarim suyuq muhit bo'lib, uning tarkibiga glikozaminoglikanlar, proteoglikanlar va glikoproteinlar kiradi. Ushbu modda orqali oziqa moddalar, gazlar va almashinuv mahsulotlari hujayralar orasida erkin harakatlanadi. Asosiy moddaning fizik-kimyoviy xususiyatlari biriktiruvchi to'qimaning turiga qarab farqlanadi.

Biriktiruvchi to'qimaning turlari

Biriktiruvchi to'qima bir necha turlarga bo'linadi. Bo'sh biriktiruvchi to'qima eng keng tarqalgan bo'lib, qon tomirlari va nervlar atrofida joylashadi. Zich biriktiruvchi to'qima esa kollagen tolalarning ko'pligi bilan ajralib turadi va paylar hamda bog'lamlar tarkibida uchraydi.

Yog' to'qimasi energiya zaxirasini saqlash, issiqlikni saqlab qolish va ichki organlarni himoyalash vazifasini bajaradi. Tog'ay to'qimasi elastiklik va mustahkamlikni ta'minlab, bo'g'imlar faoliyatida muhim rol o'ynaydi. Suyak to'qimasi esa organizmning tayanch skeletini tashkil etib, mineral moddalarning asosiy ombori hisoblanadi.

Biriktiruvchi to'qimaning funksiyalari

Biriktiruvchi to'qimaning asosiy funksiyalariga tayanch, himoya, trofik, plastik va regenerativ vazifalar kiradi. U organlarni mexanik shikastlanishlardan himoya qiladi, moddalar almashinuvini ta'minlaydi va jarohatlangan to'qimalarning tiklanishida yetakchi rol o'ynaydi. Shu sababli, biriktiruvchi to'qima klinik tibbiyotda katta ahamiyatga ega.

Xulosa. Biriktiruvchi to‘qima inson organizmidagi eng muhim va eng keng tarqalgan to‘qimalardan biri hisoblanadi. Uning gistologik tuzilishi hujayralar, tolalar va asosiy moddaning o‘zaro uyg‘unligi asosida shakllanadi. Ushbu tuzilma biriktiruvchi to‘qimaga yuqori darajadagi moslashuvchanlik va funksional imkoniyatlar beradi.

Biriktiruvchi to‘qima nafaqat organlar va tizimlarni o‘zaro bog‘lab turadi, balki ularning normal faoliyat yuritishini ham ta‘minlaydi. Uning tayanch va himoya funksiyalari organizmni tashqi va ichki ta’sirlardan asrashda muhim ahamiyat kasb etadi. Shu bilan birga, trofik va regenerativ vazifalari orqali modda almashinuvini boshqaradi va shikastlangan to‘qimalarning tiklanishiga yordam beradi.

Tog‘ay va suyak to‘qimalari misolida biriktiruvchi to‘qimaning yuqori darajadagi ixtisoslashgan shakllarini ko‘rish mumkin. Bu to‘qimalar organizmning harakatlanishi, tayanchi va mineral muvozanatini ta‘minlashda muhim rol o‘ynaydi. Biriktiruvchi to‘qimaning patologik holatlarini o‘rganish esa ko‘plab kasalliklarning kelib chiqish mexanizmlarini tushunishga yordam beradi.

Xulosa qilib aytganda, biriktiruvchi to‘qimaning gistologik xususiyatlarini chuqur o‘rganish tibbiyot ta‘limi va amaliyoti uchun zarur bo‘lib, ushbu mavzu talabalarning nazariy bilimlarini mustahkamlashga xizmat qiladi.

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YURAK DEVORINING GISTOLOGIK TUZILISHI.

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Annotatsiya: Mazkur maqolada yurak–qon tomir tizimining gistologik tuzilishi, uning asosiy tarkibiy qismlari va to‘qima darajasidagi xususiyatlari yoritiladi. Yurak devorining qatlamlari, qon tomirlarining morfologik farqlari, endoteliy va silliq mushak hujayralarining funksional ahamiyati ilmiy manbalar asosida tahlil qilinadi. Shuningdek, yurak–qon tomir tizimi gistologiyasini o‘rganishda qo‘llaniladigan zamonaviy metodlar va ularning diagnostik ahamiyati ko‘rsatib beriladi. Tadqiqot natijalari tibbiyot ta’limi va klinik amaliyotda gistologik bilimlarning muhimligini asoslab beradi.

Kalit so‘zlar: Yurak gistologiyasi, qon tomirlari, miokard, endokard, epikard, arteriya, vena, kapillyar, endoteliy, silliq mushak to‘qimasi.

KIRISH

Yurak–qon tomir tizimi organizmning hayotiy muhim tizimlaridan biri bo‘lib, u barcha to‘qima va organlarni kislorod, oziqa moddalari bilan ta’minlaydi hamda metabolism mahsulotlarini tashishda muhim rol o‘ynaydi. Ushbu tizimning normal faoliyati uning anatomik va gistologik tuzilishiga bevosita bog‘liqdir. Ayniqsa, hujayra va to‘qima darajasidagi tuzilishlarni chuqur o‘rganish yurak–qon tomir kasalliklarining kelib chiqish mexanizmlarini tushunishda muhim ahamiyat kasb etadi.

Gistologiya fani yurak devorining qatlamlari, qon tomirlarining tuzilishi va ularning funksional moslashuvlarini o‘rganish orqali zamonaviy tibbiyot uchun zarur bo‘lgan nazariy asoslarni yaratadi. Shu bois yurak–qon tomir tizimi gistologiyasini o‘rganish tibbiy ta’lim va ilmiy tadqiqotlarda muhim yo‘nalishlardan biri hisoblanadi.

Yurak-qon tomir tizimi (kardiovaskulyar sistema) gistologiyasi – bu yurak va qon tomirlarining mikroskopik tuzilishi haqida fan bo‘lib, ularning devor qavatlarini, hujayralari va to‘qimalarini o‘rganadi.

Yurakning gistologik tuzilishi

Yurak devori uchta asosiy qavatdan iborat (qon tomirlaridagi kabi uch qavatli tuzilishga o‘xshash):

Endokard (tunica intima analogi)

- Ichki qavat, yurak bo‘shliqlarini va klapanlarni qoplaydi.
- Yuzasida endoteliy (yassi epiteliy hujayralari) joylashgan – bu qon bilan bevosita aloqada bo‘lgan silliq yuzani hosil qiladi.
- Pastki qismida yupqa subendotelial biriktiruvchi to‘qima va elastik tolalar mavjud.
- Klapanlarda kollagen va elastin ko‘p bo‘lib, mustahkamlik beradi. Miokard (tunica media analogi, eng qalin qavat)
- Yurakning asosiy mushak qavatini – kardial mushak to‘qimasidan iborat.
- Kardial miotsitlar (yurak mushak hujayralari) – chiziqli, lekin ixtiyoriy bo‘lmagan mushak hujayralari.
- Ular orasida interkalatsion disklar (maxsus bog‘lanish zonasi) mavjud – bu hujayralarni sinxron qisqarishga yordam beradi.
- Qorincha devorlarida miokard ancha qalin (bosim yuqori bo‘lgani uchun), bo‘lmachada esa yupqaroq.
- O‘tkazuvchanlik tizimi (Purkinje tolalari, His to‘dasi) maxsus katta miotsitlardan iborat.

Epikard (tunica adventitia analogi)

- Tashqi qavat, seroz membrana (vizkeral perikard).
- Yupqa biriktiruvchi to‘qima va yog‘ to‘qimasi bilan qoplangan.
- Perikard bo‘shlig‘ini hosil qiluvchi parietal perikard bilan birga yurakni himoya qiladi.

Qon tomirlarining gistologik tuzilishi Qon tomirlari ham uch qavatdan iborat:

Qavat nomi	Umumiy tuzilishi	Arteriyalarda	Venalarda	Kapillyarlarda
Tunica intima	Endoteliy + subendotelial biriktiruvchi to'qima + ichki elastik membrana	Juda yaxshi rivojlangan, ichki elastik membrana aniq	Yupqa, ichki elastik membrana zaif yoki yo'q	Faqat endoteliy
Tunica media	Silliq mushak hujayralari + elastik tolalar + kollagen	Eng qalin (ayniqsa elastik va mushakli arteriyalarda)	Yupqa, silliq mushak kamroq	Yo'q
Tunica adventitia	Qattiq biriktiruvchi to'qima, nerv va vasa vasorum	Qalin, elastik tolalar ko'p	Eng qalin qavat, ko'p kollagen	Yo'q yoki juda yupqa

Arteriyalar turlari

- Elastik arteriyalar (aorta, pulmonar arteriya) – tunica mediada ko'p elastik membranalar (fenestratsiyalangan), bosim o'zgarishlarini yumshatadi.
- Mushakli arteriyalar (o'rta va kichik arteriyalar) – tunica mediada silliq mushaklar ko'p, qon oqimini regulyatsiya qiladi.
- Arteriolalar – eng kichik arteriyalar, qon oqimini boshqarishning asosiy joyi (silliq mushaklar dominant).

Kapillyarlar

- Endoteliy + bazal membrana + peritsitlar (ba'zan).

- Turlari:

- Doimiy (continuous) – eng ko‘p, mushak va nervlarda.

- Fenestratsiyalangan – buyrak, ichak, endokrin bezlarda (moddalar almashinuvi).

- Discontinuu (sinusoidal) – jigarda, taloqda, suyak iligida (katta porlar, hujayralar o‘tishi mumkin).

Venalar

- Devori arteriyaga nisbatan yupqaroq.

- Tunica adventitia ko‘pincha eng qalin qavat.

- Ko‘pchilik venalarda klapanlar mavjud (qonning orqaga qaytishini oldini oladi). Agar siz ma‘lum bir qism haqida batafsilroq ma‘lumot istasangiz (masalan, miokardning o‘tkazuvchanlik tizimi, aorta devori yoki kapillyar turlari), aniqroq so‘rang – chuqurroq yoritib beraman!

Olingan natijalar yurak–qon tomir tizimining gistologik tuzilishi uning fiziologik vazifalariga mos kelishini ko‘rsatadi. Ayniqsa, endoteliy hujayralarining regulyator roli yurak–qon tomir kasalliklarini tushunishda muhim omil sifatida namoyon bo‘ladi. Gistologik o‘zgarishlar ko‘pincha klinik simptomlar paydo bo‘lishidan oldin yuzaga kelishi mumkinligi sababli, gistologik tadqiqotlar diagnostik ahamiyatga ega.

Xulosa

Xulosa qilib aytganda, yurak–qon tomir tizimi gistologiyasi ushbu tizimning normal va patologik holatlarini tushunishda muhim ilmiy asos bo‘lib xizmat qiladi. Yurak va qon tomir to‘qimalarining hujayra darajasidagi tuzilishini o‘rganish kasalliklarni erta aniqlash va davolash strategiyalarini ishlab chiqishda muhimdir.

Kelgusida yurak–qon tomir tizimi gistologiyasini o‘rganishda zamonaviy molekulyar va immunogistokimyoviy metodlardan kengroq foydalanish, shuningdek, ta‘lim jarayonida raqamli mikroskopiya texnologiyalarini joriy etish tavsiya etiladi.

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COMPREHENSIVE MECHANISMS FOR BROADENING THE TAX BASE AND REDUCING THE SHADOW ECONOMY UNDER ACCOUNTING DIGITALIZATION

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Abstract: this article examines comprehensive mechanisms for broadening the tax base and reducing the shadow economy under accounting digitalization through an integrated finance, accounting, and institutional governance perspective. It combines recent international standards discussions, Uzbekistan's 2021-2025 digitalization trajectory, and analytical mechanisms linking data quality with transparency outcomes. The study argues that digital architecture produces durable anti-shadow effects only when artificial intelligence, professional judgment, and compliance design are aligned within accountable institutions.

Keywords: tax base; accounting digitalization, shadow economy, compliance, e-tax services, voluntary compliance, risk management, digital payments, VAT gap, Uzbekistan.

Introduction

Policy effectiveness depends on the article argues that Comprehensive Mechanisms for Broadening the Tax Base and Reducing the Shadow Economy Under Accounting Digitalization requires tax base broadening anchored in compliance simplification and measurable digital accountability. This perspective improves the analytical value of accounting data by converting fragmented records into auditable evidence trails. When firms standardize digital documents, managers and regulators can observe risk patterns earlier and respond with proportionate controls. Artificial intelligence becomes useful only if model governance, source validation, and human review remain institutionally embedded throughout deployment. Such an arrangement organizes internal processes, reduces concealment opportunities, and improves the reliability of downstream tax assessments. For emerging economies, the central challenge lies in combining technological capacity, professional competence, and enforceable reporting discipline. Therefore, the proposed framework deepens transparency incentives while preserving comparability, legality, and managerial relevance across entities. World Bank

monitoring for Uzbekistan reports that electronic tax service coverage rose from 60 percent in April 2021 to 94 percent by October 2025 [6].

Experience from recent reforms shows the article argues that Comprehensive Mechanisms for Broadening the Tax Base and Reducing the Shadow Economy Under Accounting Digitalization requires accounting digitalization anchored in tax-base expansion and measurable digital accountability. This perspective supports the analytical value of accounting data by converting fragmented records into auditable evidence trails. When firms standardize digital documents, managers and regulators can observe risk patterns earlier and respond with proportionate controls. Artificial intelligence becomes useful only if model governance, source validation, and human review remain institutionally embedded throughout deployment. Such an arrangement restructures internal processes, reduces concealment opportunities, and improves the reliability of downstream tax assessments. For emerging economies, the central challenge lies in combining technological capacity, professional competence, and enforceable reporting discipline. Therefore, the proposed framework secures transparency incentives while preserving comparability, legality, and managerial relevance across entities. The same project documents a reduction in the State Tax Committee cost-of-collection ratio from 1.53 in 2021 to 0.83 by April 2025 [6].

An important lesson from digital reforms the article argues that Comprehensive Mechanisms for Broadening the Tax Base and Reducing the Shadow Economy Under Accounting Digitalization requires voluntary compliance anchored in digital service delivery and measurable digital accountability. This perspective clarifies the analytical value of accounting data by converting fragmented records into auditable evidence trails. When firms standardize digital documents, managers and regulators can observe risk patterns earlier and respond with proportionate controls. Artificial intelligence becomes useful only if model governance, source validation, and human review remain institutionally embedded throughout deployment. Such an arrangement aligns internal processes, reduces concealment opportunities, and improves the reliability of downstream tax assessments. For emerging economies, the central challenge lies in combining technological capacity, professional competence, and enforceable reporting discipline. Therefore, the proposed framework disciplines transparency incentives while preserving comparability, legality, and managerial relevance across entities. The Uzbek tax administration reform project links digitalization with compliance simplification, risk-based audit selection, and shadow-economy reduction [5].

The Uzbek case demonstrates the article argues that Comprehensive Mechanisms for Broadening the Tax Base and Reducing the Shadow Economy Under Accounting

Digitalization requires digital service coverage anchored in administrative efficiency and measurable digital accountability. This perspective strengthens the analytical value of accounting data by converting fragmented records into auditable evidence trails. When firms standardize digital documents, managers and regulators can observe risk patterns earlier and respond with proportionate controls. Artificial intelligence becomes useful only if model governance, source validation, and human review remain institutionally embedded throughout deployment. Such an arrangement coordinates internal processes, reduces concealment opportunities, and improves the reliability of downstream tax assessments. For emerging economies, the central challenge lies in combining technological capacity, professional competence, and enforceable reporting discipline. Therefore, the proposed framework stabilizes transparency incentives while preserving comparability, legality, and managerial relevance across entities. IFRS digital reporting guidance explains that taxonomy-based tagging improves comparability, machine readability, and investor access to disclosures [8].

Main Part

Policy effectiveness depends on institutional design becomes economically relevant when accounting digitalization is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually improves control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats digital service delivery not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement organizes managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning. The IFRS Accounting Taxonomy 2024 reflects presentation and disclosure requirements current at 1 January 2024 and supports digital reporting [9].

Digitalization becomes fiscally meaningful when data governance becomes economically relevant when voluntary compliance is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually supports control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats informality reduction not as a static attribute but as a product of data quality, governance discipline, and review intensity.

Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement restructures managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning. IAASB states that its 2024 technology position is intended to strengthen audit quality and relevance amid rapid technological change [10].

A tax-base strategy should therefore audit trail construction becomes economically relevant when digital service coverage is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually clarifies control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats tax-base expansion not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement aligns managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning. The Statistics Agency notes that its information society collection includes administrative and statistical data on ICT value added and digital activity [11].

Experience from recent reforms shows compliance architecture becomes economically relevant when tax-gap reduction is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually strengthens control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats administrative efficiency not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement coordinates managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning. The Central Bank reported an

expansion of financial technologies, online banking, and digital payment instruments in its 2025 Q4 monetary policy review [12].

The policy case strengthens further because digital payment traceability becomes economically relevant when tax base broadening is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually improves control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats compliance simplification not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement organizes managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning. A Central Bank release citing ADB assessment notes digital payment usage in Uzbekistan increased from 39 percent in 2021 to 72 percent in 2025 [12].

At the compliance interface taxonomy-based reporting becomes economically relevant when accounting digitalization is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually supports control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats digital service delivery not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement restructures managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning. Remote banking statistics published by the Central Bank show multi-million user bases across leading banks as of January 2025 [12].

An important lesson from digital reforms risk scoring becomes economically relevant when voluntary compliance is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually clarifies control continuity, reduce reconciliation gaps, and expose concealed transactions

sooner. The article treats informality reduction not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement aligns managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning. IFAC argues that generative AI is already reshaping accounting work, professional judgment, and service design [3].

Rather than relying on rates alone anomaly detection becomes economically relevant when digital service coverage is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually strengthens control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats tax-base expansion not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement coordinates managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning. OECD documents more than two hundred uses of automation and analytics in public financial management environments [2].

Public administration also benefits when cross-platform integration becomes economically relevant when tax-gap reduction is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually improves control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats administrative efficiency not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement organizes managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for

intervention, prioritization, and post-audit learning. World Bank work on informality and digitalization emphasizes that digital tax portals and automated compliance checks reduce formality barriers [7].

The Uzbek case demonstrates human oversight becomes economically relevant when tax base broadening is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually supports control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats compliance simplification not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement restructures managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning. IMF technical guidance shows that GenAI can already support compliance risk analysis when governance safeguards are explicit [1]. Another policy lever emerges through cost efficiency becomes economically relevant when accounting digitalization is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually clarifies control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats digital service delivery not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement aligns managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning.

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Table 1. Selected 2021-2025 developments shaping digital accounting, tax transparency, and audit analytics (*compiled from sources [6], [8], [9], [10], [11], [12]*)

Period	Documented development	Evidence or indicator	Relevance to article
2021	Tax administration reform baseline	Electronic tax services coverage baseline: 60%	Starting point for digital control redesign
2021	Cost-of-collection baseline	STC ratio recorded at 1.53	Shows efficiency reserve in administration
2022	Mobile tax services recognized	Tax app recognized among public digital brands	Expands taxpayer interface capacity
2023	Face ID and AI virtual assistant introduced	Remote identification and AI support reported	Improves access and automated guidance
2024	IFRS digital reporting upgraded	IFRS Taxonomy 2024 published	Supports machine-readable disclosures
2024	IAASB technology position adopted	Technology embedded in standard-setting agenda	Connects audit quality with tech use
2025	Electronic tax services deepened	Coverage increased to 94% by Oct 2025	Raises compliance visibility
2025	Digital payment usage expanded	ADB-related CBU estimate: 72% users	Creates transaction traceability

2025	Risk-based and integrated oversight broadened	70 ministries integrated with tax systems	Improves cross-dataset verification
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The literature also indicates fraud typologies becomes economically relevant when tax base broadening is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually clarifies control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats compliance simplification not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement aligns managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning.

Policy effectiveness depends on platform accountability becomes economically relevant when accounting digitalization is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually strengthens control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats digital service delivery not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement coordinates managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning.

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A tax-base strategy should therefore professional skills becomes economically relevant when digital service coverage is translated into verifiable accounting routines and defensible thresholds. Enterprises that digitize source documents usually supports control continuity, reduce reconciliation gaps, and expose concealed transactions sooner. The article treats tax-base expansion not as a static attribute but as a product of data quality, governance discipline, and review intensity. Where platforms exchange structured records, analysts can compare invoices, payments, inventory, payroll, and tax declarations with greater precision. This analytical arrangement restructures managerial attention toward deviations that carry material, fiscal, or reputational consequences. It also helps distinguish operational noise from deliberate concealment, which is essential in shadow-economy environments with partial formalization. Accordingly, firms and regulators gain a more credible basis for intervention, prioritization, and post-audit learning.

Experience from recent reforms shows the comparative evidence from 2021-2025 suggests that digitalization delivers better results when institutions redesign workflows, not merely interfaces. In that period, Uzbekistan expanded electronic tax services and integrated a wider circle of public information systems into tax administration [6]. Such coordination strengthens the informational base for voluntary compliance, especially where manual reconciliation previously created blind spots. The same tendency is visible in financial reporting, where digital taxonomies and structured disclosures enhance comparability and machine-readiness [8]. For audit and forensic purposes, digital service delivery rises when time-stamped records can be matched across independent systems without costly re-entry. This makes selective concealment harder because discrepancies become visible across payments, reporting, and operational subsystems simultaneously. Consequently, economic formalization can be encouraged through lower compliance frictions and higher probabilities of targeted detection.

The policy case strengthens further because the comparative evidence from 2021-2025 suggests that digitalization delivers better results when institutions redesign

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Table 2. Mechanism matrix for tax base broadening: data layers, control logic, transparency effect, and implementation risk (*authorial analytical matrix*)

Mechanism	Core data layer	Expected transparency effect	Key implementation risk
E-invoicing linkage	Sales and supplier records	Faster mismatch detection	Fragmented legacy systems
Digital payment matching	Bank and wallet transactions	Reduced cash opacity	Platform data access limits
AI anomaly scoring	Ledger and journal entries	Earlier risk identification	False positives
Taxonomy tagging	Financial statement disclosures	Greater comparability	Weak tagging discipline
Continuous audit scripts	Time-stamped events	Near real-time assurance	Insufficient reviewer capacity

Cross-agency integration	Tax, customs, registry data	Better entity visibility	Legal interoperability gaps
Beneficial-owner mapping	Ownership disclosures	Reduced concealment chains	Data quality weaknesses
Exception dashboards	Control and approval logs	Managerial responsiveness	Alert fatigue
Model governance file	Training and override records	Explainable AI accountability	Poor documentation

Public administration also benefits when the comparative evidence from 2021-2025 suggests that digitalization delivers better results when institutions redesign workflows, not merely interfaces. In that period, Uzbekistan expanded electronic tax services and integrated a wider circle of public information systems into tax administration [6]. Such coordination improves the informational base for voluntary compliance, especially where manual reconciliation previously created blind spots. The same tendency is visible in financial reporting, where digital taxonomies and structured disclosures enhance comparability and machine-readiness [8]. For audit and forensic purposes, digital service delivery rises when time-stamped records can be matched across independent systems without costly re-entry. This makes selective concealment harder because discrepancies become visible across payments, reporting, and operational subsystems simultaneously. Consequently, economic formalization can be encouraged through lower compliance frictions and higher probabilities of targeted detection.

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In behavioural terms a practical implementation path begins with data inventories, control mapping, and explicit responsibility for exception handling. The next step is to configure AI models around business semantics so that alerts reflect real accounting risk rather than computational noise. Professional teams should then validate outputs through sampling, contradiction testing, and scenario review before escalating findings. When governance follows that sequence, digital service coverage can

supports without replacing judgment, ethics, or legal accountability. The article therefore treats tax-base expansion as an outcome of sociotechnical design instead of a mere function of software acquisition. This viewpoint is crucial for emerging reform agendas, because weak institutions can digitalize quickly while remaining substantively opaque. Sustainable transparency emerges only when accounting rules, tax administration, audit methods, and digital infrastructure evolve together.

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Conclusions

Digital accounting reforms yield the strongest anti-shadow effects when they are tied to enforceable control redesign rather than interface automation alone. Artificial intelligence improves reporting and audit quality primarily through earlier signal extraction, richer cross-checking, and faster exception prioritization. The evidence discussed across the article indicates that transparency is cumulative rather than episodic, because each digital layer only becomes effective when it is institutionally connected to the next layer.

Uzbekistan's 2021-2025 digital tax administration experience demonstrates that service coverage, system integration, and risk management matter simultaneously. Long-run transparency depends on coordinated evolution of accounting standards, tax administration routines, audit methodologies, and institutional oversight. Consequently, the anti-shadow agenda should be understood not as a single technology project, but as a coordinated modernization of finance, regulation, and professional practice.

Policy Recommendations

- Establish a unified data-governance protocol that legally binds accounting, tax, payments, and audit datasets through common identifiers and exception logs.
- Adopt model-risk management rules requiring documentation of training data, drift testing, override procedures, and reviewer accountability for AI outputs.
- Introduce a phased digital-reporting roadmap that links IFRS taxonomy tagging, e-invoicing, and risk-based audit case management within one control architecture.
- Create enterprise-level transparency scorecards that combine reconciliation discipline, source-document integrity, payment traceability, and audit response times.
- Develop advanced training modules for accountants and auditors focused on forensic analytics, platform controls, prompt governance, and digital evidence evaluation.

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IMPROVING LOAN CLASSIFICATION TO ENSURE BANK PROFITABILITY IN UZBEKISTAN

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Abstract. Loan classification is one of the most decisive elements of modern bank management because it influences asset quality assessment, provisioning policy, capital efficiency, and the overall sustainability of profit generation. In Uzbekistan, this issue is especially important because credit operations remain the dominant source of bank income and a major component of bank assets. The national legal framework defines the institutional basis of banking activity, while the Central Bank's prudential rules require commercial banks to classify assets and form reserves for expected losses. However, a purely formal approach to classification does not fully reveal the real economic quality of a loan. A credit asset may appear profitable in nominal terms and still produce weak or unstable net returns once funding costs, monitoring costs, and expected losses are taken into account. This thesis argues that improving loan classification should be understood not only as a compliance requirement, but as a strategic instrument for protecting and increasing bank profitability. The paper uses official legal and statistical sources from Uzbekistan to show that more analytical and multi-layer classification improves the quality of profit, strengthens risk detection, and supports long-term portfolio efficiency.

Keywords: loan classification, bank profitability, credit portfolio, expected losses, provisions, non-performing loans, banking system, Uzbekistan.

Introduction.

In commercial banking, profitability is not determined by loan volume alone. It depends on the ability of a bank to distinguish between loans that generate sustainable income and loans that create hidden future losses. This distinction becomes critical in credit-based banking systems, where interest income occupies the largest share of total revenues. According to the Central Bank of Uzbekistan, the banking system's annual report for 2024 showed that interest income remained the key revenue source, while profitability indicators were under pressure, with return on assets at 1.4 percent and

return on equity at 6.6 percent by year-end. In the Financial Stability Report for the first half of 2025, those indicators improved to 2 percent for ROA and 10.8 percent for ROE, which suggests partial recovery, but also confirms that bank profitability is highly sensitive to asset quality and risk costs. This means that loan classification is not a secondary technical procedure. It is one of the central mechanisms through which banks recognize, price, and control the real profitability of their credit portfolios.

The legal basis for this issue is clear. The Law of the Republic of Uzbekistan “On Banks and Banking Activity” establishes the general legal framework for banking operations, prudential standards, and supervisory discipline. In addition, the regulation on asset quality classification and reserve formation in commercial banks defines how assets must be grouped and how expected losses must be covered through provisions. These rules are essential for financial stability. Yet they are not sufficient for internal profitability management unless banks transform prudential categories into analytical management tools. A bank may comply with regulation and still fail to identify which segments of its loan book are eroding value. Therefore, the practical problem is not whether classification exists, but whether it reflects the real economic behavior of the loan.

Materials and Methods.

This thesis is based on normative and statistical analysis. The legal foundation was examined through the Law “On Banks and Banking Activity” and the current regulation on classification of assets and formation of reserves in commercial banks. The empirical basis was drawn from the Central Bank’s Annual Report 2024, the Financial Stability Report for H1 2025, and official statistical releases on commercial bank loans, non-performing loans, sectoral loan distribution, and key banking indicators as of July 1, 2025. The method used is analytical interpretation of official data, combined with a comparative and structural approach. The analysis focuses on the relationship between loan classification, reserve burden, portfolio structure, and profitability indicators.

The conceptual assumption of the thesis is that a prudential category by itself does not fully explain economic profitability. For analytical purposes, loan quality should be interpreted through at least four dimensions: regulatory quality, borrower cash-flow stability, collateral coverage, and risk-adjusted return. The thesis therefore adopts a qualitative management perspective rather than a purely accounting perspective. This allows profitability to be interpreted as net value after expected losses and operational costs, not merely as gross interest income. That distinction is crucial in banking

systems where rapid credit growth may temporarily inflate income while simultaneously increasing future provisioning pressure.

Results and Discussion.

Official data confirm that the scale of credit activity in Uzbekistan makes loan classification a profitability issue, not only a risk issue. As of July 1, 2025, the banking system's total assets reached 852,195 billion UZS, while total loans amounted to 575,245 billion UZS. This means that loans represented the core earning asset of the banking system. The same official release shows that deposits stood at 355,621 billion UZS and total capital at 125,285 billion UZS, which underlines how strongly asset quality affects both funding sustainability and capital efficiency. When a system is this credit-intensive, even a modest deterioration in classification quality can produce significant effects through additional reserves, lower net interest income, and weakened returns on capital.

The composition of the portfolio also matters. By July 1, 2025, loans to individuals reached 196,890 billion UZS, while total loans rose by 16 percent year-on-year. Within retail lending, microloans grew by 73 percent compared with July 1, 2024, while mortgage lending grew by 18 percent. At the same time, the sectoral structure of lending showed that industry accounted for 27 percent of total loans, agriculture for 10 percent, construction for 3 percent, and trade and public service for 7 percent. These figures show that the loan portfolio is heterogeneous. Different sectors and borrower groups carry different repayment cycles, collateral structures, and sensitivity to macroeconomic shocks. A uniform classification logic cannot fully capture these differences. This is why a bank that classifies all substandard loans in the same managerial way may misjudge which segments remain salvageable and which ones threaten profitability.

The non-performing loan figures further support this argument. According to the Central Bank's release for July 1, 2025, non-performing loans amounted to 21,870 billion UZS, or 3.8 percent of total loans. This ratio is not catastrophic, but it is large enough in absolute value to influence reserve charges and earnings quality. The key issue is that the visible NPL share does not capture the full profitability risk embedded in loans that have not yet entered the non-performing stage. The most economically sensitive segment is often the layer immediately above formal problem status, where borrower stress is visible but not yet fully recognized in income statements. If classification remains purely formal, banks react too late. If classification is analytical and forward-looking, banks can identify cash-flow deterioration, weakened collateral, or behavioral warning signs before the loan fully migrates into the loss zone.

From a profitability perspective, the most important improvement is to connect classification with risk-adjusted return. A high-interest loan is not necessarily a profitable loan. Real profitability should be understood as interest income minus funding cost, operating cost, and expected credit loss. Once this logic is applied, some apparently attractive loans become economically weak, while some moderate-yield loans prove more efficient because of better repayment discipline and lower reserve burden. In practical terms, this means that banks in Uzbekistan need a multi-layer classification model. The first layer should remain regulatory and fully compliant with prudential norms. The second layer should segment loans by sector, region, currency, maturity, and collateral quality. The third layer should incorporate borrower behavior, including payment discipline, account turnover, and restructuring history. The fourth layer should evaluate the loan's risk-adjusted profitability. Only such a structure allows management to see which assets truly support sustainable profit.

This approach is especially relevant under changing banking conditions. The Financial Stability Report for H1 2025 notes that the banking system remained stable and that macrofinancial conditions eased during the period. Stability, however, should not be confused with immunity. A stable system can still suffer profitability deterioration if credit growth is not matched by stronger classification and monitoring practices. The purpose of improved classification is therefore not only to comply with supervision, but to protect future earnings. In this sense, better loan classification performs three functions simultaneously: it improves the accuracy of provisioning, strengthens early detection of portfolio deterioration, and supports more rational pricing of credit products.

Conclusion.

Improving loan classification is one of the most practical ways to ensure bank profitability in Uzbekistan. The official banking data show that loans dominate the asset structure of commercial banks and that profitability remains highly dependent on asset quality, provisioning costs, and risk control. A purely formal classification system may satisfy prudential reporting requirements, but it does not fully support internal profitability management. For that reason, banks should move from static classification toward analytical, multi-dimensional classification based on regulatory quality, sectoral risk, borrower behavior, collateral effectiveness, and risk-adjusted return. Such an approach makes loan classification a strategic management tool rather than a passive reporting obligation. In a banking system where the quality of income matters more than nominal growth, this shift is essential for achieving durable and economically sound profitability.

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ANNOTATSIYA: Mazkur maqolada Sa’dulla Siyoyevning “Ahmad Yassaviy” romanida ibora va maqollarning qo‘llanish xususiyatlari tahlil qilinadi. Asarda xalq og‘zaki ijodiga xos bo‘lgan barqaror iboralar, maqollar hamda hikmatli so‘zlarning badiiy nutqdagi o‘rni ko‘rsatib beriladi. Shuningdek, ibora va maqollarning qahramon xarakterini ochish, voqea-hodisalarni obrazli ifodalash hamda asarning badiiy-estetik ta’sirini kuchaytirishdagi vazifasi misollar asosida yoritiladi.

KALIT SO‘Z: Ahmad Yassaviy romani, ibora, xalq og‘zaki ijodi, obrazlilik.

АННОТАЦИЯ: В данной статье анализируются особенности употребления фразеологизмов и пословиц в романе Sa’dulla Siyoyev «Ахмад Яссавий». В произведении рассматривается роль устойчивых выражений, пословиц и мудрых изречений, характерных для устного народного творчества, в художественной речи. Также на основе примеров раскрывается значение фразеологизмов и пословиц в раскрытии характера персонажей, образном изображении событий и усилении художественно-эстетического воздействия произведения.

КЛЮЧЕВЫЕ СЛОВА: роман «Ахмад Яссавий», фразеологизм, устное народное творчество, образность.

ABSTRACT: This article analyzes the features of the use of phraseological units and proverbs in the novel “Ahmad Yassaviy” by Sa’dulla Siyoyev. The study highlights the role of stable expressions, proverbs, and wise sayings characteristic of folk oral tradition in the artistic language of the work. It also explains, through examples, the function of phraseological units and proverbs in revealing the characters’ traits, figuratively depicting events, and strengthening the artistic and aesthetic impact of the work.

KEYWORDS: Ahmad Yassaviy novel, phraseological unit, folklore, imagery.

KIRISH. O‘zbek badiiy adabiyotida xalq og‘zaki ijodi unsurlaridan foydalanish muhim badiiy vositalardan biri hisoblanadi. Ayniqsa, maqol va iboralar yozuvchi nutqining ta’sirchanligini oshiradi, qahramonlarning ruhiy holatini ochib beradi hamda asarga milliy ruh bag‘ishlaydi. O‘zbek adibi Sa’dulla Siyoyev qalamiga mansub “Ahmad Yassaviy” romanida ham xalqona iboralar, maqollar va hikmatli so‘zlardan keng foydalanilgan.

Mazkur roman tasavvuf olamining buyuk namoyandasi Ahmad Yassaviy hayoti va faoliyatini badiiy talqin qilishga bag‘ishlangan bo‘lib, unda xalq og‘zaki ijodi unsurlari muhim badiiy vosita sifatida xizmat qiladi[1]. Adabiyotshunoslar fikriga ko‘ra, badiiy asarda xalq tiliga xos iboralar qo‘llanishi obrazlarning tabiiyligini kuchaytiradi hamda asarning estetik ta’sirini oshiradi[3]. Asarni lingvistik tahlil qilish jarayonida undagi frazeologik birliklar va maqollar statistik jihatdan ham o‘rganildi. Tadqiqot natijalariga ko‘ra, romanda takrorlarsiz frazeologik birliklar soni taxminan 260 tani tashkil etadi. Shuningdek, asarda qo‘llangan maqollar soni nisbatan kam bo‘lib, ularning umumiy miqdori 45 ta atrofida ekanligi aniqlandi. Bu esa muallif asarda ko‘proq individual obrazli ifodalar (frazeologizmlar)dan foydalanganini ko‘rsatadi. Quyida romanda keltirilgan ibora hamda maqollardan misollar keltirilgan:

No	Romanda qo‘llangan iboralar	Romanda qo‘llangan maqollar
1.	Ha, balo-qazo kelsa, Qoratovdan to‘shi bilan to‘sib turardi.	Tuyadek bo‘y berguncha, tuymadek aql bersin
2.	Xayol otiga minib vujud shahrini kezadi, yetti iqlimda, to‘qqiz falakda sayr etadi.	Bitar ishning boshig‘a, yaxshi kelar qoshig‘a
3.	Kun nayza bo‘yi ko‘tarildi	El ming qo‘ychiga bir boshchi (turkiy naql)
4.	Shayx kiprik qoqmay, mo‘ltirab turgan, yuzlab qorako‘zlarga boqib, bir lahza hayolga qoldi	Olishga kelganda - bismillo, berishga kelganda - astafirillo
5.	Ayol kishining ko‘z yoshini ko‘rsa, ko‘ngli buziladi	Burgaga achchiq qilib ko‘rpa kuydiribdir
6.	Haqiqatning eshigini ochdim	Adashsang - ko‘pchilik bilan adash
7.	Men ham sizga qarab hayrat barmog‘imni tishlab o‘tiribman	Egilgan boshni qilich kesmas
8.	Bir musulmon o‘rtanib qora kosovdek bo‘lib qolibdi	Nonning butuni, kaltakning yarmi yaxshi
9.	Yigirma yetti yoshimda tirik murda bo‘lib yuribman	Eshak mingan yo‘lda ko‘p, yo‘l topmagan yo‘lda ko‘p
10.	Hazratning yuki bor deganlari rostga o‘xshaydi	Ursang eti qotadi, ursang beti qotadi

Romanda ko‘plab frazeologik birliklar qahramonlarning ruhiy kechinmalarini ifodalash uchun xizmat qiladi. Masalan, asarda quyidagi fikr uchraydi: “Qutbiddin boshini egib sukunatga berildi [4]”. Bu yerda “boshini egib” iborasi qahramonning kamtarligi, ichki iztirobi va mulohaza holatini ifodalaydi. Oddiy harakat tasviri orqali qahramonning ruhiy kechinmalari ochib berilgan. Shuningdek, romanda yana shunday iboralar uchraydi: “Xon g‘azab otiga mingan ko‘rinadir [4]”. Bu ibora o‘zbek tilidagi mashhur frazeologizm bo‘lib, “qattiq g‘azablangan” degan ma‘noni bildiradi. Yozuvchi bu iborani ishlatish orqali hukmdorning keskin kayfiyatini jonli tarzda tasvirlaydi [5]. Yana bir misol: “Zoviyaning tor xujrasidek bu zindon endi Qutbiddin uchun hayolot maskaniga aylandi [4]”. Bu jumlada ham obrazli ifoda mavjud bo‘lib, qahramonning ruhiy olami va tasavvufiy tafakkuri aks ettirilgan. Zindonning “xayolot maskani”ga aylanishi obrazli tasvir orqali berilgan.

Romanda xalq hikmatlariga yaqin bo‘lgan fikrlar ham uchraydi. Masalan: “Tug‘ilmoq bor, o‘lmoq bor [4]”. Mazkur hikmat xalq orasida keng tarqalgan falsafiy qarashni ifodalaydi. Unda inson hayotining vaqtinchaligi va dunyoning foniyligi haqida fikr yuritiladi. Tasavvuf falsafasida ham bu g‘oya muhim o‘rin tutadi. Yana bir hikmatli fikr romanda quyidagicha ifodalanadi: “Har bir kimsa o‘zini yaxshi xulqlar bilan ziynatlasa, jamiki insoniyat soflanadi [4]”. Bu fikr ham xalqona hikmat ruhiga ega bo‘lib, axloqiy poklik va komillik g‘oyasini targ‘ib qiladi. Tasavvuf ta’limotida inson o‘z nafsini poklash orqali ma’naviy kamolotga erishadi. Roman tasavvuf ruhida yozilgani sababli undagi hikmatli iboralar insonning ruhiy poklanishi, sabr, tavoze kabi tushunchalarni yoritadi [2].

Asarda xalq og‘zaki ijodi unsurlaridan, xususan, maqollardan ham unumli foydalanilgan. Maqollar asosan qahramonlar nutqida, pand-nasihat va hayotiy xulosalarni ifodalashda qo‘llanib, badiiy matnning milliy ruhini kuchaytiradi. Jumladan, asarda “Birovga o‘lim tilaguncha, o‘zingga umr tila” kabi maqol orqali insonni yomon niyatlardan qaytarish g‘oyasi ilgari suriladi [1]. Shuningdek, “Ering

– piring [4]” mazmunidagi ibora orqali oilaviy munosabatlar va an’anaviy qadriyatlar ifodalanadi [5]. Yana “Ikki gaz yer hamma uchun yetarli” mazmunidagi hikmat esa insonning bu dunyodagi o’rni va umrning o’tkinchiligi haqida falsafiy xulosa beradi.

Bundan tashqari, asarda uchraydigan maqollar qahramonlarning dunyoqarashi, ijtimoiy muhit va xalqona tafakkurini ochib berishga xizmat qiladi. Ular nafaqat nutqni jonlantiradi, balki asarning tarbiyaviy ahamiyatini ham oshiradi [2].

Xulosa qilib aytganda, Sa’dulla Siyoyevning “Ahmad Yassaviy” romanida maqol va iboralardan keng foydalanilgan. Bu birliklar asarning badiiyligini oshirib, qahramonlarning ruhiy holatini yanada ta’sirchan qilib tasvirlashga xizmat qiladi. Ayniqsa, xalq og’zaki ijodiga xos hikmatli fikrlar roman mazmunini boyitib, tasavvufiy g’oyalarni chuqurroq anglashga yordam beradi. Shunday qilib, romandagi maqol va iboralar nafaqat til bezagi, balki asarning g’oyaviy-badiiy mazmunini ochib beruvchi muhim vosita sifatida namoyon bo’ladi.

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CLINICAL STRUCTURE OF LOCAL COMPLICATIONS OF AN INTESTINAL STOMA AND ITS SIGNIFICANCE FOR OPTIMIZING REHABILITATION MEASURES

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Introduction. Local complications of intestinal stomas are a significant factor that determines the course of the early postoperative period and the effectiveness of rehabilitation. Their clinical structure is heterogeneous and depends on a variety of factors, which requires detailed analysis in order to develop differentiated approaches to patient management.

The purpose of the study. To assess the frequency and clinical structure of local complications of intestinal stomas and determine their significance for optimizing rehabilitation tactics.

Materials and methods. A retrospective analysis of 156 patients was conducted. Complications were assessed during the first 30 days after surgery, divided into stomal, parastomal, and peristomal forms. The severity and combination of complications were also analyzed.

Results and discussion. Local complications were registered in 61 (39.1%) patients. Isolated forms were identified in 49 (31.4%) patients, combined - in 12 (7.7%). The most frequent were peristomal complications (32.1%), among which skin maceration (11.5%), inflammatory changes (9.6%) and dermatitis (7.7%) prevailed. Stomal complications were significantly less common and included suture failure (2.6%), stomal necrosis (1.9%), and retraction (1.3%). The data obtained indicate that the majority of complications are associated not so much with the technical aspects of the operation, but rather with disorders of tissue adaptation and care of the stoma in the early postoperative period. It is important to note that peristomal complications can be largely prevented through an adequate rehabilitation process, including patient education, selection of care products, and dynamic monitoring. Analysis of the structure of complications allows us to identify key areas of rehabilitation aimed at preventing skin and inflammatory changes.

Conclusions. Peristomal forms predominate in the structure of local complications of intestinal stoma, which determines the priority of rehabilitation measures aimed at care of the stoma and prevention of skin damage. The results obtained substantiate the need for standardization of rehabilitation protocols.

CLINICAL AND METABOLIC PREDICTORS OF EARLY-STAGE AVASCULAR NECROSIS OF THE HIP AND THEIR SIGNIFICANCE FOR OPTIMIZING PREVENTIVE PROGRAMS

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Introduction. Avascular necrosis of the femoral head (ANFH) is a multifactorial disease in which local vascular disorders are closely associated with systemic metabolic, inflammatory, and endocrine changes. The most promising stage for active medical treatment is the initial stages of the disease, when there is no pronounced deformation of the articular surface, but mechanisms are already forming that determine further progression and reduced limb function. In this regard, it is of particular importance to study a complex of modifiable risk factors that can not only characterize the severity of the process, but also serve as guidelines for building targeted rehabilitation programs aimed at slowing down bone tissue destruction and stabilizing the clinical condition.

The purpose of the study. To study clinical, anthropometric and biochemical features of patients with initial stages of ANFH and to determine their significance for the development of a risk-oriented approach to the prevention of the progression of the pathological process.

Materials and methods. The study included 160 subjects divided into three groups: 32 practically healthy individuals in the control group, 66 patients with the asymptomatic stage of ANFH, and 62 patients with the early symptomatic stage of the disease. All participants underwent a comprehensive examination to assess their age, gender, body mass index, concomitant pathologies, carbohydrate and lipid metabolism parameters, markers of inflammatory activity, mineral and vitamin status, as well as a range of hormonal and metabolic characteristics. The analysis was performed taking into account the stage of the pathological process and the severity of clinical manifestations.

Results. It was found that as the transition from the control group to the asymptomatic and then to the early symptomatic stage of ANFH increases, a combination of unfavorable clinical and metabolic disorders increases. One of the most striking patterns was an increase in the body mass index: in the control group, it was 22.4, in

patients with the asymptomatic stage, it was 28.3, and in patients with the early symptomatic stage, it reached 34.9. This trend indicates the important role of excess body weight and obesity as factors that contribute to both mechanical overload of the hip joint and systemic metabolic disorders that can affect microcirculation and bone remodeling.

An analysis of concomitant pathology showed that the most frequent comorbid conditions in patients with the initial stages of ANFH were arterial hypertension, detected in 40.63% of cases, dyslipidemia - in 26.88%, and vitamin D deficiency - in 21.88% of cases. At the same time, patients with an early symptomatic stage had more pronounced signs of systemic metabolic maladaptation. This group was characterized by higher levels of C-reactive protein, hyperphosphatemia, hypertriglyceridemia, and hypercholesterolemia. The combination of these changes suggests that an unfavorable biochemical background is already formed at an early stage of the disease, creating conditions for further progression of the bone-destructive process.

Special attention should be paid to the identified link between the clinical manifestation of the disease and the accumulation of modifiable risk factors. More pronounced abnormalities in the lipid spectrum, systemic inflammatory activity, and vitamin and mineral status were observed in patients with symptomatic disease. This suggests that the clinical deterioration in the early stages of ANFH cannot be solely attributed to local joint damage. Instead, it is influenced by general metabolic disorders that should be considered when planning treatment and subsequent rehabilitation.

Discussion. The obtained data confirm the multifactorial nature of early ANFH and demonstrate that rehabilitation measures should go beyond standard functional recovery. In the presence of obesity, dyslipidemia, arterial hypertension, vitamin D deficiency, and laboratory signs of inflammatory activity, it is advisable to consider comprehensive correction of these conditions as an essential component of the treatment program. This approach allows not only to reduce the severity of symptoms and increase tolerance to exercise, but also to potentially influence the pathogenetic mechanisms of disease progression. Therefore, the assessment of clinical and biochemical indicators can be used as a tool for risk stratification and as a criterion for monitoring the quality of rehabilitation measures in this category of patients.

Conclusions. The initial stages of ANFH are accompanied by the formation of a complex of interrelated clinical and biochemical disorders, the severity of which increases as the disease progresses. The most significant adverse factors include an increase in body mass index, arterial hypertension, dyslipidemia, vitamin D deficiency, and increased levels of C-reactive protein, triglycerides, cholesterol, and phosphorus.

The identified patterns justify the need for early detection and targeted correction of metabolic disorders in the structure of rehabilitation programs, which can help improve the effectiveness of treatment and slow down the progression of ANFH.

ЎЗБЕКИСТОНДА КОРПОРАТИВ НИЗОЛАРДА МЕДИАЦИЯНИ ҚЎЛЛАШ МУАММОЛАРИ

PROBLEMS OF APPLYING MEDIATION IN CORPORATE DISPUTES IN UZBEKISTAN

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КИРИШ

Ўзбекистон Республикасида бозор иқтисодиётининг ривожланиши ва тадбиркорлик муносабатларининг кенгайиши билан бирга корпоратив субъектлар ўртасида юзага келадиган низолар сони ҳам изчил ортиб бормоқда. Давлат суд тизимида тушаётган тижорий ва корпоратив низоларнинг кўплиги — фақат иш юки муаммоси эмас, балки низони ҳал қилишнинг самаралироқ, тезроқ ва иқтисодий жиҳатдан мақсадга мувофиқ механизмлари ривожланиши учун жиддий ижтимоий эҳтиёждир.

Медияция — тарафлар ўртасидаги мулоқотни мустақил, холис учинчи шахс иштирокида юритиш орқали ўзаро манфаатли ечимга эришишга йўналтирилган жараён айнан ана шундай эҳтиёжга жавоб берадиган институт сифатида жаҳон ҳукуқий тизимларида тобора кенгроқ эътироф этилмоқда. 2018 йилда «Медияция тўғрисида»ги Қонуннинг қабул қилиниши Ўзбекистонда ушбу институтни расман мустаҳкамлаш учун зарур ҳукуқий асос яратди. Бироқ қонуннинг мавжудлиги унинг амалиётда самарали ишлаши дегани эмас.

Амалий кузатишлар ва ҳукуқий таҳлил шуни кўрсатадики, корпоратив низоларда медиациядан фойдаланиш ҳали ҳам жуда чекланган даражада қолмоқда. Бунинг ортида бирига боғлиқ бир қатор ҳукуқий, тузилмавий ва ижтимоий муаммолар ётади. Ушбу тезисда мазкур муаммолар тизимли равишда аниқланиб, уларни бартараф этишга йўналтирилган илмий асосланган таклифлар ишлаб чиқилади.

ТАДҚИҚОТНИНГ МАҚСАДИ ВА ВАЗИФАЛАРИ

Тадқиқотнинг асосий мақсади Ўзбекистонда корпоратив низоларда медиацияни қўллашда юзага келадиган муаммоларни комплекс таҳлил қилиш ва уларни бартараф этишга йўналтирилган амалий таклифлар ишлаб чиқишдан иборат.

Ушбу мақсадга эришиш учун қуйидаги вазифалар белгиланган:

- Ўзбекистон Республикасида медиацияни тартибга солувчи амалдаги қонунчиликни таҳлил қилиш ва унинг корпоратив низоларга таъбиқ этилиши жиҳатидаги камчиликларини аниқлаш;
- Корпоратив субъектлар ва юридик амалиёт вакиллари орасида медиацияни қўллашга нисбатан мавжуд тузилмавий ва психологик тўсиқларни ўрганиш;
- хорижий мамлакатлар тажрибасини қиёсий таҳлил қилиш орқали Ўзбекистон шароитига мослаштириш мумкин бўлган ижобий моделларни белгилаш;
- корпоратив шартномаларда медиация бандини белгилаш, медиаторлар малакасини оширишга доир амалий тавсиялар ишлаб чиқиш.

1. Ҳукуқий тартибга солишдаги бўшлиқлар

Ўзбекистон Республикасининг 2018 йил 3 июлдаги «Медияция тўғрисида»ги Қонуни (ЎРҚ-482) медиация институтининг асосий тамойиллари ва тартибини белгилаган бўлиб, бу миллий ҳуқуқ тизимида муҳим қадам ҳисобланади. Бироқ ушбу Қонуннинг алоҳида корпоратив

низоларга - акциядорлар ўртасидаги низолар, бошқарув органлари ваколатига оид тортишувлар, кўп томонли шартнома низолари - нисбатан татбиқ этилиш жиҳатлари батафсил тартибга солинмаган.

Жумладан, Қоннда медиация битимининг ижросини таъминлаш механизми мукаммал белгиланмаган: медиация якунида тузилган мураса шартномасини нотариал тасдиқлаш ёки суд томонидан кучга киритиш тартиби норасмий ва аниқ эмас. Бу вазият медиатив муомала натижасига ишонч муаммосини вужудга келтиради. Қиёслаш учун айтилса, Сингапур медиация конвенциясини (2019) ратификация қилган давлатларда медиация битими худди арбитраж қарори каби ижро этилиши мумкин. Ўзбекистон ушбу конвенцияни ҳали ратификация қилмаган, бу эса халқаро корпоратив низоларда ўзбек тарафларнинг медиациядан фойдаланиш истагини сусайтиради.

Яна бир ҳуқуқий муаммо - корпоратив шартноманомаларда мажбурий мурожаатдан олдинги медиациянинг белгиланмаслиги. Ўзбекистоннинг амалдаги иқтисодий-процессуал қонунчилиги баъзи тоифадаги низоларда мурожаатдан олдинги тартибни кўзда тутди, аммо бу тартиб медиацияни аниқ ўз ичига олмайди. Натижада, тарафлар кўпинча медиацияни синаб кўрмай, тўғридан-тўғри судга мурожаат қилади.

2. Институционал заифликлар ва инфратузилма танқислиги

Корпоратив низоларда медиациянинг самарали ишлаши учун ихтисослашган медиация муассасалари, малакали медиаторлар ва аниқ касбий стандартлар зарур. Ўзбекистонда эса ушбу инфратузилма ҳали ривожланиш босқичидадир. Медиаторларнинг сертификатлаш тизими мавжуд бўлишига қарамай, айнан корпоратив ҳуқуқ, молия ва тижорий бошқарув соҳасида чуқур билимга эга бўлган мутахассис медиаторлар жуда кам.

Корпоратив низолар ўзига хос мураккабликка эга: акциядорлик жамиятидаги ваколат ва мажбурият тақсимоли, молиявий ҳисоб-китоблар, бошқарув органлари қарорларини баҳолаш - буларнинг барчасини мусофа ёки оддий медиатор тушуниши ва самарали тартибга солиши қийин. Бу муаммо касбий ихтисослашув масаласини долзарбга чиқаради: жаҳон амалиётида «корпоратив медиатор» деб аталадиган алоҳида ихтисослик мавжуд бўлиб, бундай мутахассислар Ўзбекистонда ҳали тизимли тарзда тайёрланмаяпти.

Шунингдек, корпоратив низоларда ихтисослашган медиация марказларининг йўқлиги ҳам жиддий муаммо. Тошкент халқаро тижорат арбитраж суди арбитраж хизматларини таклиф этади, аммо унинг ёнида фаол ишлайдиган институционал медиация тузилмаси ҳали тўлиқ шаклланмаган. Хорижда, масалан Сингапур Халқаро медиация маркази (SIMC) ва Лондон CEDR каби муассасалар нафақат медиация ўтказди, балки корпоратив низолар учун мослаштирилган регламентлар, тайёрлов дастурлари ва статистик мониторинг тизимини олиб боради.

3. Ижтимоий-психологик тўсиқлар ва хабардорлик танқислиги

Ҳуқуқий ва институционал муаммолар билан бир қаторда корпоратив субъектлар ва юридик амалиётчилар орасидаги муносабат ва стереотиплар ҳам медиациянинг кенг тарқалишига жиддий тўсиқлик қилади. Корпоратив тортишувларда тарафлардан бирининг юридик хизмати кўпинча медиацияни «кучсизлик белгиси» ёки «позицияни нотўғри тан олиш» деб баҳолайди. Бу нотўғри тасаввур медиациянинг стратегик устунликларини - вақт, харажат ва муносабатларни тежашни - кўришга ҳалал беради.

Тадбиркорлар орасидаги сўровномалар ва амалиёт таҳлили шуни кўрсатадики, корпоратив субъектларнинг кўпчилиги медиация имкониятлари ҳақида умуман хабардор эмас ёки уни фақат оилавий ёхуд меҳнат низолари учун мўлжалланган восита деб тушунади. Бинобарин, хабардорликни ошириш - ҳуқуқий ислохотлар билан бирга олиб борилиши лозим бўлган стратегик вазифадир. Давлат органлари, Савдо-саноат палатаси ва юридик тузилмаларнинг биргаликдаги маъёрий-тарғибот фаолияти бу борада муҳим роль ўйнаши мумкин.

Юридик консультантлар ва адвокатларнинг рол омилини ҳам инобатга олиш зарур. Хорижий тадқиқотлар (Stipanowich & Lamare, 2014) шуни кўрсатадики, корпоратив клиентнинг медиацияга мурожаат қилиш-қилмаслигини кўп ҳолларда унинг адвокати ёки юридик маслаҳатчисининг медиацияга муносабати белгилайди. Агар адвокат медиацияни ўз иш юкини камайтирадиган, демак даромадини қисқартирадиган восита деб ҳисобласа, у уни клиентга тавсия этмайди. Бу «агентлик муаммоси» миллий ҳуқуқий маданиятни ўзгартириш заруратини янада долзарб қилади.

4. Корпоратив шартномаларда медиация бандининг самарасизлиги

Корпоратив шартномаларда медиация бандларини белгилаш амалиётини кузатиш шуни кўрсатадики, агар бундай банд умуман мавжуд бўлса ҳам, у кўпинча ниҳоятда умумий ва юридик жиҳатдан кучсиз тарзда ёзилган. «Тарафлар низоларни музокаралар орқали ҳал қилишга ҳаракат қилишади» тарзидаги шартлар амалда суд олдида ҳеч қандай юридик мажбурият яратмайди. Ижро этилиши мумкин бўлган медиация банди учун эса аниқ муддатлар, жараёнлар, медиатор танлаш тартиби, сирлилик ва харажатлар тақсимлаш тартиби белгиланган бўлиши шарт.

Айни вақтда, Ўзбекистон корпоратив ҳуқуқий амалиётида медиация банди шаблонларини тавсия этадиган профессионал ассоциация ёки расмий методик кўрсатма мавжуд эмас. Хорижда, масалан Сингапур медиация маркази ва ICC ўз шаблон бандларини таклиф этади ва уни ишлатган тарафлар аниқ процессуал кафолатлардан фойдаланади. Ўзбекистонда ана шундай стандартлашган ёндашув ишлаб чиқиш ва тарқатиш - ҳам қонунчилик, ҳам касбий ташкилотлар даражасидаги муҳим вазифа.

5. Халқаро тажриба ва Ўзбекистон учун дарслар

Медиацияни корпоратив низоларда муваффақиятли татбиқ этган давлатлар тажрибасини таҳлил қилиш Ўзбекистон учун аниқ методологик дарслар беради. Европа Иттифоқида 2008/52/ЕС Директиваси жорий этилганидан кейинги 10 йил ичида айрим аъзо давлатларда тижорий низоларда медиациядан фойдаланиш 30–40 фоизга ошди. Бунинг асосида учта омил ётади: биринчи - суд олдидаги мажбурий ахборот мажбурияти (судлар тарафларга медиация ҳақида маълумот бериши шарт); иккинчи - медиация харажатларини субсидиялаш тизими; учинчи - медиация йўлини рад этган тарафга харажатларни юклаш практикаси.

Сингапур тажрибаси бошқача моделни намоиш этади: у мажбурловдан кўра рағбатлантириш тизимига таянади. Ҳукумат корпоратив медиацияни қўллаган тарафларга тизимли давлат қўллаб-қувватлашини таъминлади, халқаро медиация учун инфратузилмани жадал ривожлантирди ва натижада SIMC - жаҳонда энг нуфузли медиация марказларидан бирига айланди. Бу мисол медиациянинг нафақат ички ҳуқуқий амалиёт учун, балки мамлакатнинг халқаро тижорий жозибдорлигини ошириш учун ҳам стратегик аҳамиятини кўрсатади.

Россия Федерациясининг 2010 йилги тажрибаси ўзгача сабоқ беради: Федерал медиация қонуни қабул қилинди, аммо амалиётда медиациядан фойдаланиш жуда секин кенгайди.

Бунинг асосий сабаби - қонуни бор, аммо уни амалга татбиқ этадиган институционал инфратузилма кечикдирилди. Ўзбекистон учун бу мисол аниқ огоҳлантиришдир: қонунчилик ислохотини институционал қурилиш, кадрлар тайёрлаш ва хабардорлик оширишдан ажратиб бўлмайди.

ТАКЛИФ ВА ТАВСИЯЛАР

Тадқиқот давомида аниқланган муаммолар асосида Ўзбекистонда корпоратив низоларда медиациядан самаралироқ фойдаланишни таъминлаш учун қуйидаги таклиф ва тавсиялар ишлаб чиқилди.

Ҳуқуқий ислохотлар доирасида:

- «Медиация тўғрисида»ги Қонунга корпоратив низоларни алоҳида белгиловчи ва медиация битимини суд ёки нотариат орқали ижро этиш механизминини аниқ мустаҳкамловчи қўшимча ва ўзгартиришлар киритиш;
- Иқтисодий процессуал кодексга суднинг тарафларга медиация ҳақида ахборот беришини мажбурий қилувчи норма қўйиш, шунингдек медиация йўлини асоссиз рад этган тарафга қўшимча харажатларни юклаш имконини берувчи тартибни белгилаш;
- Сингапур медиация конвенциясининг ратификация қилишни кун тартибига қўйиш, бу ўзбек тарафлари иштирокидаги халқаро корпоратив медиация натижаларига ишончли оширадиган.

Институционал ривожлантириш доирасида:

- Тошкент халқаро тижорат арбитраж суди қошида ёки мустақил тарзда корпоратив низоларга ихтисослашган медиация маркази ташкил этиш, унинг алоҳида регламент ва малака талабларини ишлаб чиқиш;
- Корпоратив медиатор ихтисослиги бўйича касбий тайёрлов дастурини ишлаб чиқиш ва ТДЮУ ҳамда бошқа юридик таълим муассасаларига жорий этиш;
- Миллий медиаторлар реестрини оммалаштириш ва корпоратив низолар статистикасини мониторинг қилиш тизимини йўлга қўйиш.

Амалий йўналишда:

- Ўзбекистон Савдо-саноат палатаси, юридик ассоциациялар ва медиация органлари ҳамкорлигида корпоратив шартнома медиация банди намунаси (стандарт шаблон)ни ишлаб чиқиш ва тарқатиш;
- Тадбиркорлик субъектлари, корпоратив юристлар ва суд аъзолари учун медиация мавзусидаги малака ошириш курсларини мунтазам ўтказиш;
- Корпоратив медиациядан муваффақиятли фойдаланилган иш ҳолатларини (case studies) оммалаштириш орқали рағбатлантириш ва амалий намуналарни тарқатиш.

ХУЛОСА

Ўзбекистонда корпоратив низоларда медиацияни қўллаш муаммолари бу бир-бирига боғлиқ ҳуқуқий, институционал ва ижтимоий омилларнинг мажмуасидан иборат мураккаб ҳодиса. 2018 йилда қабул қилинган «Медиация тўғрисида»ги Қонун зарур ҳуқуқий асос яратган, аммо ушбу асос корпоратив низоларнинг ўзига хос хусусиятларини тўлиқ қамраб ола олмайди. Медиация битимининг ижро механизми, мажбурий мурожаатдан олдинги тартиб ва корпоратив шартноманомаларга нисбатан тегишли нормаларни мустаҳкамлаш зарурати мавжуд бўлиб қолмоқда.

Институционал жиҳатдан корпоратив медиаторлар тайёрлаш тизимининг кучсизлиги ва ихтисослашган медиация муассасаларининг ривожланмаганлиги амалий тўсиқлар сифатида

намоён бўлади. Ижтимоий-психологик соҳада эса тадбиркорлар ва юридик амалиётчилар орасидаги кам хабардорлик ва стереотиплар медиацияга муносабатни шаклланишига тўсқинлик қилади.

Мазкур тезисда илгари сурилган таклиф ва тавсиялар ҳукукий ислохотлар, институционал қурилиш ва амалий тарғибот чоралари биргаликда амалга оширилган тақдирда корпоратив низоларда медиацияни самарали ва кенг ишлатиладиган механизмга айлантириш мумкин. Бу, ўз навбатида, нафақат алоҳида корпоратив субъектлар манфаатларига хизмат қилади, балки Ўзбекистоннинг иш юритиш муҳитини янада рақобатбардош ва ҳукукий жиҳатдан башоратли қилишга ҳам ҳисса қўшади.

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SHAXSGA DOIR MA'LUMOTLAR TERMINOLOGIYASI

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ANNOTATSIYA Mazkur maqolada shaxsga doir ma'lumotlar terminologiyasining nazariy-huquqiy asoslari kompleks tahlil qilinadi. Tadqiqot doirasida “shaxsga doir ma'lumotlar”, “shaxsiy hayot daxlsizligi”, “identifikatsiya” hamda ma'lumotlar bilan bog'liq subyektlar kabi asosiy tushunchalarning mazmuni va o'zaro nisbatlari yoritiladi. Xalqaro huquqiy tajribadan Yevropa ittifoqining GPDR tizimi hamda milliy qonunchilik qiyosiy tahlil qilinib, terminologik yondashuvlardagi mavjud tafovutlar va ularning amaliy oqibatlarini aniqlanadi.

Tadqiqot natijasida shaxsga doir ma'lumotlar terminologiyasini tizimlashtirish, uni yagona ilmiy-huquqiy yondashuv asosida aniqlashtirish hamda zamonaviy raqamli muhit talablariga moslashtirish zarurligi asoslab beriladi.

KALIT SO'ZLAR shaxsga doir ma'lumotlar, , GDPR, , identifikator, platforma, operator, biometrik ma'lumotlar, IP-manzillar, fiziologik omil, ekotizim, geolokatsiya.

ANNOTATION This article provides a comprehensive analysis of the theoretical and legal foundations of personal data terminology. The study examines the content and correlation of key concepts such as “personal data,” “privacy,” “identification,” as well as the subjects involved in data processing. A comparative analysis of international legal experience, particularly the European Union's GDPR framework, and national legislation is conducted, identifying existing differences in terminological approaches and their practical implications.

The research substantiates the necessity of systematizing personal data terminology, clarifying it on the basis of a unified scientific and legal approach, and adapting it to the requirements of the modern digital environment.

KEYWORDS personal data, GDPR, identifier, platform, operator, biometric data, IP addresses, physiological factors, ecosystem, geolocation.

АННОТАЦИЯ В данной статье проводится комплексный анализ теоретико-правовых основ терминологии персональных данных. В рамках исследования раскрывается содержание и соотношение таких ключевых понятий, как «персональные данные», «неприкосновенность частной жизни»,

«идентификация», а также субъекты, связанные с обработкой данных. Проведен сравнительный анализ международного правового опыта, в частности системы GDPR Европейского союза, и национального законодательства, выявлены существующие различия в терминологических подходах и их практические последствия.

По результатам исследования обоснована необходимость систематизации терминологии персональных данных, ее уточнения на основе единого научно-правового подхода, а также адаптации к требованиям современной цифровой среды.

КЛЮЧЕВЫЕ СЛОВА персональные данные, GDPR, идентификатор, платформа, оператор, биометрические данные, IP-адреса, физиологические факторы, экосистема, геолокация.

KIRISH

Zamonaviy jamiyatda raqamli texnologiyalarning jadal rivojlanishi natijasida axborot inson hayotining eng muhim resurslaridan biriga aylanmoqda. Ayniqsa, shaxsga doir ma'lumotlar nafaqat ijtimoiy munosabatlarning ajralmas qismi, balki iqtisodiy va huquqiy tizimlarda muhim ahamiyat kasb etuvchi obyekt sifatida namoyon bo'lmoqda. Shu bilan birga, ushbu ma'lumotlarning keng miqyosda yig'ilishi, qayta ishlanishi va tarqalishi ularni himoya qilish zaruratini yanada kuchaytirmoqda.

Shaxsga doir ma'lumotlar sohasida samarali huquqiy tartibga solishni ta'minlashda terminologik aniqlik alohida o'rin tutadi. Chunki mazkur sohada qo'llaniladigan tushunchalarning turlicha talqin qilinishi nafaqat ilmiy bahs-munozaralarga, balki amaliyotda ham muayyan noaniqliklar va ziddiyatlarga olib kelishi mumkin. Xususan, "shaxsiy hayot daxlsizligi", "shaxsga doir ma'lumotlar", "identifikatsiya", "ma'lumotlar subyekti" kabi asosiy kategoriyalarning mazmunini yagona yondashuv asosida aniqlash dolzarb masalalardan biri hisoblanadi.

Bugungi kunda xalqaro huquqiy hujjatlar va milliy qonunchilikda shaxsga doir ma'lumotlarga oid terminologiya shakllanayotgan bo'lsa-da, ularning o'zaro uyg'unligi va izchilligi har doim ham ta'minlanmagan. Ayniqsa, raqamli muhitda yangi texnologiyalar - sun'iy intellekt, katta ma'lumotlar (big data), biometrik identifikatsiya tizimlari - mavjud tushunchalarning mazmunini kengaytirib, ularni qayta ko'rib chiqishni talab etmoqda.

Shu bois, mazkur maqolada shaxsga doir ma'lumotlar terminologiyasining nazariy asoslari, asosiy tushunchalar tizimi hamda ularning o'zaro nisbatlari tahlil qilinadi. Asosiy maqsad - ushbu sohadagi terminologik aniqlikni ta'minlashga xizmat qiluvchi

ilmiy yondashuvlarni ishlab chiqish va ularni huquqiy amaliyot nuqtai nazaridan asoslashdan iborat.

METODLAR

Ushbu maqolani yozishda bir qator ilmiy manbalar tahlil qilindi, hamda O'zbekiston Respublikasining amaldagi qonunchiligiga va xalqaro huquqiy hujjatlarga tayanildi. Asosiy maqsad - raqamli olamda shaxsga doir ma'lumotlarni terminologiyasini tahlil etish va uni yaxshilashga doir amaliy xulosalar ishlab chiqishdan iborat. Bugungi kunda shaxsiy ma'lumotlar raqamli muhitning ajralmas qismiga aylangan. Sun'iy intellekt va zamonaviy raqamli tizimlar tobora ko'proq ma'lumotni saqlash va qayta ishlash imkoniga ega bo'lmoqda va aynan shu holat kiberjinoyatchilar uchun yangi eshiklar ochib bermoqda. Shuningdek, ilmiy adabiyotlar asosida shaxsga doir ma'lumotlar tushunchasining nazariy asoslari o'rganilib, amaliy muammolar bilan bog'liq holatlar tahlil qilindi. Tadqiqot jarayonida zamonaviy kiberjinoyatlar tendensiyasi va ularning shaxsiy ma'lumotlar bilan bog'liqligi ham alohida ko'rib chiqildi.

MUHOKAMA

Shaxsga doir ma'lumotlar tushunchasi zamonaviy huquqiy va texnologik muhitda tobora murakkablashib bormoqda. Xalqaro huquqiy standartlar, xususan, Yevropa Ittifoqining GDPR reglamenti hamda Indoneziyaning 2022-yildagi 27-sonli qonuni ushbu tushunchaga keng va universal ta'rif beradi. Unga ko'ra, shaxsga doir ma'lumotlar - bu identifikatsiya qilingan yoki identifikatsiya qilinishi mumkin bo'lgan jismoniy shaxsga taalluqli har qanday axborotdir¹.

Biroq, nazariy yondashuvlarda ushbu tushuncha yagona emas. Olimlar orasida bu borada kamida uch xil yondashuv mavjud. Birinchi qarashga ko'ra, shaxsiy hayot daxlsizligi kengroq kategoriya bo'lib, shaxsga doir ma'lumotlar uning tarkibiy qismi hisoblanadi². Ikkinchi yondashuv esa aksincha, aynan ma'lumotlar tushunchasi kengroq deb hisoblaydi. Uchinchi yondashuv esa bu ikki tushunchani mustaqil, biroq kesishuvchi kategoriyalar sifatida talqin qiladi.

Amaliyot shuni ko'rsatadiki, bu nazariy farqlar faqat ilmiy bahs emas - ular real huquqiy qarorlar qabul qilishda muhim rol o'ynaydi. Masalan, oddiy yashash manzili ba'zi holatlarda oddiy ma'lumot sifatida qaralsa, boshqa vaziyatda u shaxsiy hayotga aralashuv sifatida baholanishi mumkin.

¹ General Data Protection Regulation. <https://gdpr-info.eu/art-1-gdpr/>

² Малеина М.Н. Право на тайну и неприкосновенность персональных данных / М.Н. Малеина // Журнал российского права. 2010. №11 // СПС «Гарант».

O‘zbekiston Respublikasining “Shaxsga doir ma’lumotlar to‘g‘risida”gi qonunining 4-moddasiga muvofiq, shaxsga doir ma’lumotlar deganda muayyan jismoniy shaxsga taalluqli bo‘lgan yoki uni identifikatsiya qilish imkonini beradigan, elektr tarzda, qog‘ozda va (yoki) boshqa moddiy jismda qayd etilgan axborot tushuniladi³. Bu tushuncha ham xalqaro standartlarha javob bergan holada shaxsga doir ma’lumotlarning barcha elementlarini o‘z ichiga qamrab olgan.

Shaxsga doir ma’lumotlarning tarkibini o‘rganar ekanmiz, uning asl mohiyatini yanda chuqurroq anglash orqali, uning jinoyat huquqiy tabiatini ham to‘liq tahlil qilamiz.

Shaxsga doir ma’lumotlarni tushunishda **identifikatsiya** masalasi alohida ahamiyatga ega. To‘g‘ridan-to‘g‘ri identifikatsiya - bu shaxsni uning ismi yoki identifikatsiya raqami orqali aniqlash bo‘lsa, bilvosita identifikatsiya ancha murakkabroqdir. Bugungi kunda oddiy IP-manzil, geolokatsiya yoki hatto onlayn xulq-atvor orqali ham shaxsni aniqlash mumkin. Bu esa raqamli muhitda anonimlik tushunchasining nisbiy ekanligini ko‘rsatadi.

Identifikatsiya turlari:

1. To‘g‘ridan-to‘g‘ri identifikatsiya: Shaxsning ismi-sharifi yoki yagona identifikatsiya raqami orqali aniqlanishi.
2. Bilvosita identifikatsiya: Joylashuv ma’lumotlari, onlayn identifikatorlar (IP-manzillar), shuningdek, shaxsning fiziologik, genetik, ruhiy, iqtisodiy, madaniy yoki ijtimoiy o‘ziga xosligini belgilovchi omillar yig‘indisi orqali aniqlanishi⁴.

Ma’lumotlarning tasnifi ham muhim masalalardan biridir. Umumiy ma’lumotlar kundalik hayotda keng tarqalgan bo‘lsa-da, sezgir ma’lumotlar oshkor bo‘lganda jiddiy ijtimoiy va huquqiy oqibatlar olib kelishi mumkin. Ayniqsa, biometrik va genetik ma’lumotlar bilan bog‘liq xavflar tobora ortib bormoqda. Masalan, barmoq izi yoki yuzni tanish texnologiyalari qulaylik yaratgani bilan birga, noto‘g‘ri qo‘llanganda shaxs ustidan to‘liq nazorat vositasiga aylanishi mumkin.

Ushbu ma’lumotlarning oshkor bo‘lishi shaxs uchun jiddiy xavf-xatarlar yoki kamsitishlarni (discrimination) keltirib chiqarishi mumkin. Shuning uchun ularni qayta ishlashga qat’iy cheklovlar qo‘yilgan⁵:

- **Salomatlikka oid ma’lumotlar:** Kasallik tarixi, tibbiy ko‘rik natijalari va nogironlik holati.

³³ O‘zbekiston Respublikasining “Shaxsga doir ma’lumotlar to‘g‘risida”gi Qonuni. O‘zbekiston Respublikasi Qonunchilik ma’lumotlari milliy bazasi. <https://lex.uz/docs/4396419>

⁴ Article 29 Data Protection Working Party, Opinion 4/2007 on the concept of personal data, WP 136, 20 June 2007, p. 15.

⁵ M.Park, S. Chai, The Value of Personal Information: An Exploratory Study for Types of Personal Information and Its Value, Asia Pacific Journal of Information Systems Vol. 28 No. 3 – 2018. – B. 155

- **Biometrik ma'lumotlar:** Shaxsning o'ziga xos fiziologik va biologik xususiyatlarini tavsiflovchi (barmoq izlari, ko'z qobig'i skaneri) ma'lumotlar.
- **Genetik ma'lumotlar:** Shaxsning irsiy xususiyatlari haqidagi tahlillar.
- **Sudlanganlikka oid ma'lumotlar:** Jinoiy javobgarlik, ayblovlar va jazo choralari haqidagi axborotlar.
- **Siyosiy va mafkuraviy qarashlar:** Siyosiy partiyalarga a'zolik, kasaba uyushmalari faoliyati va falsafiy e'tiqodlar

Ma'lumotlar bilan ishlash jarayonida subyektlar o'rtasidagi rol taqsimoti ham katta ahamiyatga ega. Ma'lumotlar subyekti, operator, mulkdor va uchinchi tomon tushunchalarini aniq ajratmaslik javobgarlikni belgilashda jiddiy muammolarni keltirib chiqaradi⁶. Ayniqsa, global platformalar faoliyati sharoitida "kim javobgar?" degan savol tobora murakkablashmoqda.

Shaxsiy ma'lumotlarni qayta ishlash jarayoni esa ko'pincha foydalanuvchi sezmagan holda amalga oshiriladi. Oddiy ro'yxatdan o'tish jarayonida berilgan ma'lumotlar keyinchalik reklama, tahlil yoki hatto siyosiy manipulyatsiya vositasiga aylanishi mumkin. Bu esa "axborotni o'z-o'zini belgilash" huquqining amalda qanchalik ta'minlanayotgani haqida savol tug'diradi.

Shu nuqtai nazardan, shaxsiy hayot daxlsizligi va shaxsga doir ma'lumotlar o'rtasidagi bog'liqlik alohida e'tiborga loyiq. Daxlsizlik huquqi insonning shaxsiy hududini himoya qilsa, ma'lumotlar ustidan nazorat qilish huquqi uning raqamli "soyasi"ni boshqarish imkonini beradi.

Zamonaviy kiberjinoyatlar, xususan, shaxsiyat o'g'irligi, doksing va maqsadsiz foydalanish holatlari ushbu sohadagi asosiy xavflardan hisoblanadi. Bunday jinoyatlar ko'pincha "oq yoqalilar jinoyati" sifatida baholanadi, chunki ular zo'ravonliksiz, biroq katta zarar keltiruvchi xarakterga ega.

Natijada, shaxsga doir ma'lumotlarni himoya qilish faqat texnik yoki huquqiy masala emas, balki ijtimoiy, axloqiy va hatto psixologik muammoga aylanmoqda. Shu sababli, bu sohada kompleks yondashuv zarur.

XULOSA

Xulosa qilib aytganda, shaxsga doir ma'lumotlar terminologiyasi zamonaviy raqamli huquq tizimining asosiy kategoriyalaridan biri bo'lib, uning aniq va yagona talqinda qo'llanilishi huquqiy tartibga solish samaradorligini belgilovchi muhim omil hisoblanadi. Tadqiqot natijalari shuni ko'rsatadiki, ushbu sohada mavjud terminologik

⁶ L.Strahilevitz. Toward a positive theory of privacy law //Harvard Law Review. – 2013. – T. 126. – №. 7. – S. 20102042.<https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1588&context=law>

yondashuvlar xilma-xilligi — xususan, “shaxsiy hayot daxlsizligi” va “shaxsga doir ma’lumotlar” tushunchalarining o‘zaro nisbatiga doir turli ilmiy qarashlar — amaliyotda muayyan noaniqliklarni yuzaga keltirmoqda.

Shuningdek, identifikatsiya mezonlari (to‘g‘ridan-to‘g‘ri va bilvosita), ma’lumotlar tasnifi (umumiy va sezgir toifalar) hamda ma’lumotlar bilan ishlovchi subyektlar (subyekt, operator, mulkdor va boshqalar) o‘rtasidagi terminologik aniqlik yetarli darajada shakllanmaganligi javobgarlikni belgilash va huquqni qo‘llash jarayonida murakkabliklarni keltirib chiqaradi.

Xalqaro tajriba, xususan, ilg‘or huquqiy tizimlar tahlili shuni ko‘rsatadiki, shaxsga doir ma’lumotlar terminologiyasini standartlashtirish, uni aniq huquqiy mezonlar asosida belgilash hamda milliy qonunchilikka uyg‘unlashtirish dolzarb vazifa hisoblanadi. Ayniqsa, raqamli muhitda bilvosita identifikatsiya imkoniyatlarining kengayib borayotgani mavjud terminologik yondashuvlarni qayta ko‘rib chiqishni talab etadi. Shu nuqtai nazardan, shaxsga doir ma’lumotlar terminologiyasini tizimlashtirish, uning asosiy kategoriyalarini yagona ilmiy-huquqiy yondashuv asosida aniqlashtirish hamda amaliyotga joriy etish ushbu sohada samarali huquqiy tartibotni ta’minlashning zarur sharti hisoblanadi.

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LEGAL PROBLEMS AND PRACTICE OF ONE-SIDED TERMINATION OF A PROFESSIONAL SPORTS COACHING CONTRACT BY A COACH

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INTRODUCTION

In modern professional sports, the relationship between a coach and a sports club (or federation) possesses a complex legal nature and is governed by both labour law and specific norms of sports law. In practice, the unilateral termination of a contract by a club (for example, due to unsatisfactory sporting results) is a common occurrence and has been widely examined. However, the unilateral termination of a contract by a coach has been comparatively under-researched, despite constituting a pressing legal issue that may lead to highly contentious consequences in practice.

The unilateral termination of a sports contract by a coach typically occurs for two main reasons: first, within the framework of “just cause” - for instance, in cases of systematic non-payment of salary by the club or unlawful interference with the coach's professional activities; and second, “without just cause” - such as when the coach receives a more favorable financial offer. Although national labour laws generally guarantee an employee's right to terminate an employment contract at their own discretion, in sports law and in the jurisprudence of the Court of Arbitration for Sport, the principle of contractual stability is considered paramount. This creates a legal conflict between national labour codes and international sports law.

The purpose of this thesis is to analyse the legal grounds for the unilateral termination of a sports contract by a coach, the criteria for recognizing such termination as lawful (with just cause), and the legal and financial consequences arising from such actions for the parties involved, including obligations to pay compensation.

METHODS

The following methods were employed in this research:

- (1) comparative legal analysis - to compare approaches to the legal qualification of coaching contracts across different international legal systems;
- (2) doctrinal analysis - to interpret the existing regulatory and legal framework;
- (3) systematic analysis - to determine the structural elements of unilateral termination of coaching contracts and their correlation with labour-law and civil-law frameworks.

RESULTS

As a result of analysing national labour legislation, international sports law norms, and the jurisprudence of the Court of Arbitration for Sport within the framework of this research, the following key scientific and practical findings were obtained regarding the unilateral termination of sports contracts by coaches.

The study demonstrated that domestic labour legislation of various states (including provisions governing the termination of employment contracts at the initiative of the employee) generally guarantees the employee's (coach's) right to resign at their own discretion, subject to the applicable notice period. This rule is based on the principle prohibiting forced labour. However, within the system of international sports regulators such as FIFA and UEFA, the principle of contractual stability (*pacta sunt servanda*) prevails. Consequently, a legal conflict arises: although a coach may lawfully terminate a contract under domestic law, from the perspective of sports law, such conduct may be regarded as a breach of contractual stability without just cause, potentially resulting in severe financial or sporting sanctions.

The analysis of Court of Arbitration for Sport jurisprudence and precedents made it possible to identify circumstances that may constitute "just cause" for the premature unilateral termination of a contract by a coach. According to the findings of this research, the following circumstances are generally recognized by courts and arbitral tribunals as valid grounds in favour of the coach.

First, contract termination may be justified due to the non-fulfilment of financial obligations. This includes situations where a club systematically fails to pay or unjustifiably delays the payment of the coach's salary and bonuses (typically for a period of two months or longer). In such cases, the coach is generally required to provide the club with prior written notice (notice of default).

As a contrasting practical example, reference may be made to the well-known case of Blaž Slišković v. Qingdao Zhongneng F.C., examined by the Court of Arbitration for Sport. In that dispute, the coach argued that he had terminated the contract with just cause due to a 17-day delay in salary payment¹. However, Court of Arbitration for Sport did not recognise this as just cause and emphasized that a short-term delay in fulfilling contractual obligations could not justify breaching the principle of contractual stability.

Second, contract termination may also be justified where club management (such as the president or board of directors) unlawfully interferes with the coach's core sporting authority. For example, mandatory instructions regarding match tactics, squad

¹ Football Legal: [Qingdao Zhongneng Football Club v. Blaz Sliskovic - CAS 2015/A/4158](#)

selection, or decisions on which athletes must participate in competitions have been recognised by Court of Arbitration for Sport as sufficient grounds for contract termination.

Finally, excluding a coach from the team's primary training activities, unjustifiably dismissing the coach's assistants, or restricting access to club infrastructure may also constitute grounds for termination under the doctrine of mobbing or constructive dismissal.

The findings indicate that if a coach terminates a contract on their own initiative, in the absence of any contractual breach, solely for the purpose of continuing their career at another (more prestigious or financially stronger) club, legal liability may arise. In such circumstances, the coach (and, in most cases, the new club as a jointly and severally liable party) is required to pay compensation to the former club. The amount of compensation may be predetermined in the contract through a buy-out clause.

A clear practical example is the 2021 departure of Julian Nagelsmann from RB Leipzig, where he terminated his contract in order to join the more prestigious FC Bayern Munich. As the contract was terminated without just cause, his new club, FC Bayern Munich, assumed joint liability and paid the contractually agreed compensation of €25 million to RB Leipzig².

Where no compensation clause is stipulated in the contract, arbitral tribunals generally determine the amount of compensation based on the principle of proportionality, taking into account the coach's remaining salary under the contract, the expenses incurred by the club in hiring a replacement coach of a similar level, and the actual sporting damage suffered by the club.

Unlike players (particularly football players), coaches who terminate contracts without just cause are less frequently subjected to strict sporting sanctions, such as bans from engaging in sporting activities for a specific period (for example, four to six months). The primary focus is not on punishment, but rather on restoring the economic interests of the injured club through financial compensation.

DISCUSSION

Based on the findings of this study, the following conclusions and recommendations are proposed regarding the legal and practical aspects of contract termination initiated by coaches in professional sports:

The termination of a contract by a head coach often affects the employment of their assistant staff as well. In practice, the signing of separate contracts with each member of the coaching staff frequently creates legal uncertainty. If a head coach terminates a

² The Guardian: [Julian Nagelsmann leaving RB Leipzig to become Bayern Munich manager](#)

contract with just cause, their assistants should also be granted the automatic right to terminate their contracts, which would contribute to greater regulatory certainty and staffing stability within sports organizations.

The analysis also demonstrates that the principle of proportionality is often violated when determining compensation clauses in sports contracts. Excessively high financial penalties imposed on coaches may unjustifiably restrict labour freedom. Therefore, it would be appropriate to introduce legal limitations within national legislation and internal sports regulations to ensure that compensation does not exceed a certain percentage of the coach's annual salary (for example, 50–100%). This would help maintain economic balance between clubs and coaches.

When disputes arise between a coach and a club, immediately referring the matter to Court of Arbitration for Sport or ordinary courts is often inefficient in terms of both time and financial resources. National federations should establish a specialized “Coach–Club Dispute Resolution Chamber” and create mechanisms to ensure the mandatory enforcement of its decisions. This would strengthen the social and legal protection of coaches.

CONCLUSION

In conclusion, the unilateral termination of a sports contract by a coach is not merely an issue of labour law, but rather a complex legal process that must take into account the specific nature of sport (*lex sportiva*). The research demonstrates that:

1. The scope of just cause should be expanded to explicitly include not only financial indebtedness, but also violations of a coach's professional autonomy.
2. A balance between contractual stability and labour freedom can only be ensured through a fair compensation system.
3. Integrating international standards - particularly the approaches of FIFA and Court of Arbitration for Sport into the sports law practice of Uzbekistan would help prevent future violations of coaches' rights and enhance the reputation of the national sports industry

ИСПОЛЬЗОВАНИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В АДАПТИВНЫХ ОБРАЗОВАТЕЛЬНЫХ СИСТЕМАХ

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Аннотация: В условиях цифровой трансформации образования особую значимость приобретает внедрение технологий искусственного интеллекта (ИИ) в образовательные процессы. Настоящая статья посвящена исследованию применения ИИ в адаптивных образовательных системах, обеспечивающих персонализацию обучения и повышение эффективности усвоения знаний. Целью исследования является анализ современных методов и архитектур адаптивных систем, а также оценка их влияния на образовательные результаты. В работе использованы методы анализа научной литературы, сравнительного анализа, а также методы машинного обучения и обработки естественного языка (NLP). Вместе с тем выявлены ограничения, связанные с необходимостью больших объемов данных, сложностью внедрения и вопросами этики. В заключение обосновывается необходимость дальнейшего развития интеллектуальных образовательных систем.

Ключевые слова: искусственный интеллект, адаптивное обучение, машинное обучение, образовательные технологии, NLP, персонализация, анализ данных

Введение

Современная система образования переживает этап глубокой цифровой трансформации, обусловленной стремительным развитием информационно-коммуникационных технологий. В этих условиях традиционные подходы к обучению, ориентированные на усредненного обучающегося, постепенно утрачивают свою эффективность. Возникает необходимость перехода к персонализированным моделям обучения, учитывающим индивидуальные особенности, уровень подготовки и темп усвоения знаний каждого обучающегося.

Актуальность исследования определяется возрастающей ролью искусственного интеллекта в образовательной среде. ИИ позволяет анализировать большие объемы данных, прогнозировать поведение обучающихся и адаптировать образовательный контент в реальном времени.

Целью данной работы является исследование возможностей применения искусственного интеллекта в адаптивных образовательных системах. Для достижения цели поставлены следующие задачи:

- проанализировать современные научные подходы к адаптивному обучению;
- рассмотреть методы ИИ, применяемые в образовательных системах;
- определить преимущества и ограничения адаптивных технологий.

Научная новизна исследования заключается в комплексном анализе интеграции методов машинного обучения и NLP в архитектуру адаптивных образовательных систем.

Обзор литературы

В последние годы наблюдается значительный рост научных исследований в области применения ИИ в образовании. Работы S. Russell и P. Norvig (2021) заложили теоретические основы искусственного интеллекта, включая методы машинного обучения и интеллектуального анализа данных.

Исследования В. Woolf (2010) посвящены разработке интеллектуальных обучающих систем, способных взаимодействовать с пользователем в режиме реального времени.

Holmes и др. (2019) рассматривают влияние ИИ на образовательные процессы и подчеркивают потенциал персонализированного обучения.

Современные исследования также акцентируют внимание на использовании NLP для анализа текстовых данных обучающихся и автоматической оценки ответов.

Несмотря на значительные достижения, остаются нерешенными вопросы интерпретируемости моделей, защиты данных и этических аспектов.

Методология исследования

В исследовании применён комплексный междисциплинарный подход, основанный на современных методах искусственного интеллекта и анализа данных. Используются алгоритмы машинного обучения, включая классификацию, регрессионные модели и нейронные сети, позволяющие моделировать учебное поведение и прогнозировать результаты образовательной деятельности.

Особое внимание уделено технологиям обработки естественного языка, которые применяются для анализа текстовых ответов обучающихся, выявления смысловых закономерностей и семантической интерпретации информации. Это обеспечивает более точную оценку знаний и автоматизацию анализа учебных данных.

Для выявления скрытых зависимостей и закономерностей в образовательных массивах использованы методы интеллектуального анализа и технологии обработки больших данных. Их применение способствует более глубокому пониманию учебного процесса и факторов, влияющих на его результативность. Сравнительный анализ позволил сопоставить традиционные образовательные модели с адаптивными системами, основанными на искусственном интеллекте. Дополнительно применены методы системного анализа для разработки и обоснования архитектуры адаптивных образовательных систем.

Основная часть Архитектура адаптивных образовательных систем

Адаптивные образовательные системы представляют собой комплексные программные решения, включающие взаимосвязанные компоненты: модель обучающегося, модель предметной области и модель педагогических стратегий.

- **Модель обучающегося** аккумулирует данные об уровне знаний, индивидуальных особенностях и поведенческих характеристиках.
- **Модель предметной области** отражает структуру и взаимосвязи учебного контента.
- **Модель педагогических стратегий** определяет механизмы адаптации образовательного процесса в зависимости от характеристик обучающегося.

Применение искусственного интеллекта в персонализации обучения

Использование технологий ИИ обеспечивает индивидуализированный подход к обучению. Система формирует персональную траекторию, подбирает материалы, регулирует сложность заданий и оптимизирует темп усвоения знаний.

Адаптивное тестирование

Адаптивное тестирование является ключевым элементом интеллектуальных систем. В отличие от традиционных методов, оно предполагает динамическое изменение сложности заданий в зависимости от ответов обучающегося, что повышает точность диагностики уровня подготовки и сокращает время тестирования.

Анализ данных обучающихся

Сбор и анализ данных об учебной активности позволяют выявлять индивидуальные особенности процесса обучения. Методы машинного обучения дают возможность прогнозировать образовательные результаты и своевременно выявлять риски снижения успеваемости.

Результаты и обсуждение

Результаты исследования показывают, что внедрение адаптивных образовательных систем повышает эффективность учебного процесса, способствует индивидуализации обучения и положительно влияет на мотивацию студентов.

Однако выявлены ограничения: высокая стоимость разработки и внедрения, необходимость обработки больших объёмов данных, а также вопросы конфиденциальности и безопасности информации.

Сравнительный анализ подтверждает, что адаптивные образовательные системы на основе технологий искусственного интеллекта обладают значительными преимуществами перед традиционными подходами, особенно в условиях цифровой трансформации образования.

Заключение

Использование искусственного интеллекта в адаптивных образовательных системах является перспективным направлением развития современного образования. Такие системы обеспечивают персонализацию обучения, повышают качество образования и способствуют более эффективному усвоению знаний.

В дальнейшем необходимо сосредоточить внимание на разработке интерпретируемых моделей, обеспечении безопасности данных и интеграции ИИ в образовательную инфраструктуру.

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IMPROVING DIGITAL GOVERNANCE, OPENNESS AND INSTITUTIONAL RESPONSIBILITY IN THE DISTRIBUTION OF STATE SUBSIDIES TO NON-GOVERNMENTAL NON-PROFIT ORGANIZATIONS

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The distribution of state subsidies to non-governmental non-profit organizations is not only a financial procedure, but also an institutional process that affects public trust, civic participation and the effectiveness of social policy. In modern public administration, this process should be based on digital governance, openness and clear institutional responsibility.

Digital governance creates opportunities for improving subsidy management. It allows applications to be submitted electronically, documents to be checked faster, agreements to be monitored online and results to be compared across regions and sectors. At the same time, digitalization does not automatically guarantee fairness. It produces positive results only when the rules, criteria and responsibilities are clearly defined.

Openness means that information about subsidy priorities, eligibility requirements, evaluation criteria, allocated amounts and final results is understandable and accessible. Institutional responsibility, in turn, means that each participant in the subsidy process has a clearly defined role and can be held accountable for the quality of decisions, monitoring and reporting.

Table-1

Digital governance tools in the distribution of state subsidies to non-profit organizations

Stage of subsidy process	Digital tool	Openness element	Governance effect
Announcement of priorities	Unified electronic portal with searchable calls	Public access to goals, deadlines and eligibility rules	Equal information for all applicants
Application submission	Electronic forms and automated completeness checks	Clear list of required documents	Lower administrative burden and fewer errors
Evaluation	Digital scoring sheet and expert comments	Publication of criteria and general assessment logic	Reduced subjectivity and better comparability
Monitoring and reporting	Online dashboard with financial and result indicators	Open registry of beneficiaries and outcomes	Stronger public oversight and accountability

Table 1 demonstrates that digital governance should cover the whole life cycle of state subsidy distribution. If the digital platform is used only for receiving

applications, its effect remains limited. A complete model should connect announcement, submission, evaluation, agreement, payment, monitoring and final reporting in one information environment.

A modern subsidy platform should be based on three principles. The first principle is “digital by design”, meaning that procedures are simplified before they are transferred online. The second principle is “open by default”, meaning that non-confidential information is published without additional requests. The third principle is “responsibility by role”, meaning that every institutional participant leaves a digital trace of actions and decisions.

The improvement of openness requires a public registry of subsidy recipients. Such a registry should include the name of the organization, the amount of support, the field of activity, the region, the expected results and the final report. This information allows citizens, journalists, researchers and public councils to compare public spending with achieved social effects.

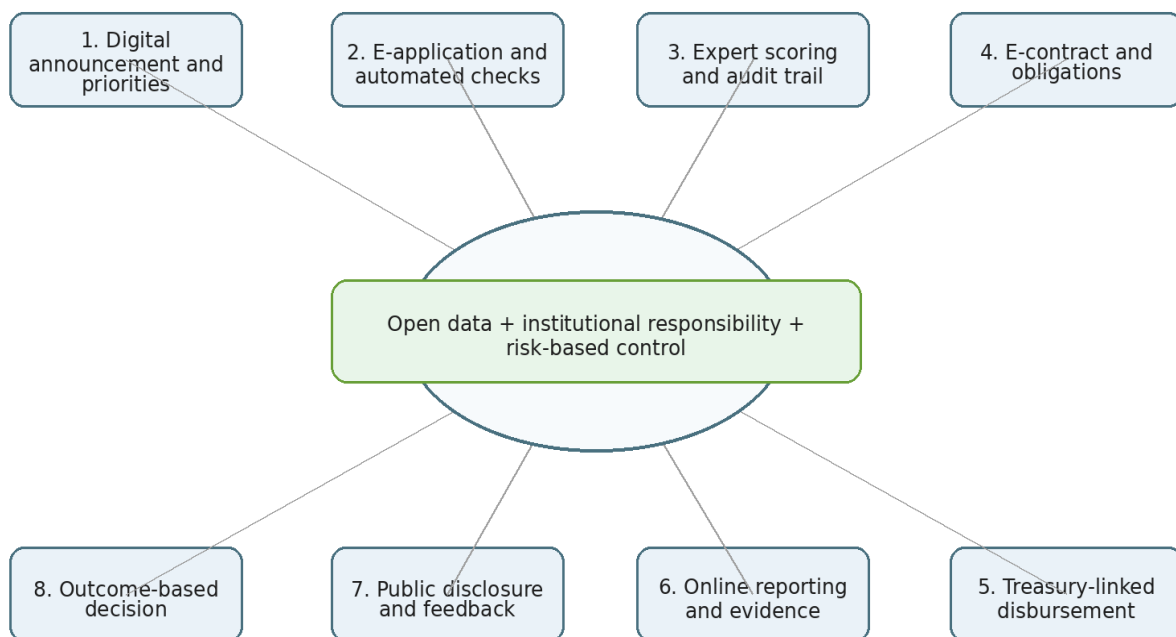


Figure-1. Digital cycle of open and responsible subsidy distribution

Figure 1 shows that digital subsidy management should function as a continuous cycle. The final stage of public reporting and feedback must influence the next planning period. In this way, digital data becomes not only a technical archive, but also a basis for better decisions and institutional learning.

Table-2
Institutional responsibility in digital subsidy management

Institutional participant	Main responsibility	Digital evidence	Risk if responsibility is weak
Authorized public body	Defines priorities, rules and expected outcomes	Published program documents and approved criteria	Unclear priorities and formal allocation
Public fund or operator	Organizes selection and manages subsidy agreements	Electronic registry of applications, contracts and payments	Unequal treatment and administrative inconsistency
Expert commission	Evaluates applications according to announced criteria	Digital scoring sheets and written conclusions	Subjective assessment and weak justification
Subsidy recipient	Uses funds properly and reports results	Financial documents, activity evidence and final report	Low accountability and weak public trust

Table 2 indicates that institutional responsibility must be distributed among all actors of the subsidy process. Digital tools can record actions, but real responsibility depends on internal regulations, standard reporting forms and feedback channels for applicants and beneficiaries.

A risk-based approach is also necessary: small initiatives may use simplified reporting, while large subsidy programs should apply more detailed control and outcome evaluation.

In conclusion, digital governance, openness and institutional responsibility are interrelated conditions for improving subsidy distribution. Digital platforms increase speed and traceability; openness strengthens public trust; and responsibility connects each decision with measurable social results.

Practical proposals include a unified digital platform, open registries of recipients, published evaluation criteria and final results, integrated financial-social reports, and the use of monitoring results in future funding decisions.

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