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xalqaro ilmiy jurnali
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O'zbekiston Respublikasi Prezidenti Administratsiyasi huzuridagi Axborot va ommaviy kommunikatsiyalar agentligi tomonidan 16.08.2022 yilda olingan №1701 sonli guvohnomaga ega. Jurnalning ushbu soni [Index Copernicus](#), [ResearchGate](#), [Elibrary](#), [Academia.edu](#), [OpenAire](#), [Directory of Research Journals Indexing](#), [ZENODO](#), [Cyberleninka](#) va [Google Scholar](#) xalqaro ilmiy bazalarida indekslandi.

O'zbekiston Respublikasi Oliy attestatsiya komissiyasining 2025-yil 13-iyundagi №371/5-sonli qarori bilan 16.00.00 – Veterinariya fanlari bo'yicha asosiy ilmiy natijalarni chop etish tavsiya etilgan milliy jurnal sifatida tan olindi.

Barcha maqolalar jurnalning elektron ilmiy bazasi ([ReFocus.uz](https://refocus.uz/)) ga joylashtirildi.

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“Research Focus” xalqaro ilmiy jurnali №6. 2025 yil

Ushbu to'plamda **“Research Focus”** xalqaro ilmiy jurnali 6-soniga qabul qilingan ilmiy maqolalar joy olgan.

Ushbu ilmiy jurnalda O'zbekiston Respublikasi va xalqaro oliy ta'lim muassasalari professor-o'qituvchilari, mustaqil ilmiy izlanuvchilari, doktorantlari, magistrantlari tomonidan olib borilayotgan ilmiy-tadqiqot ishlari natijalari ilmiy maqola tarzida chop etildi. Shuningdek, jurnalga oliy ta'lim muassasalaridan tashqari viloyatimiz va respublikamizning boshqa ilmiy-tadqiqot institutlari, ishlab chiqarish tashkilotlari va korxonalarida faoliyat ko'rsatib, ilmiy-tadqiqot ishlari olib borayotgan xodimlarning ham ilmiy maqolalari kiritildi.

Jurnal materiallaridan professor-o'qituvchilar, mustaqil izlanuvchilar, doktorantlar, magistrantlar, talabalar, litsey-kollejlar va maktab o'qituvchilari, ilmiy xodimlar hamda barcha ilm-fanga qiziquvchilar foydalanishlari mumkin.

Eslatma! Jurnal materiallari to'plamiga kiritilgan ilmiy maqolalardagi raqamlar, hisobotlar, ma'lumotlar haqqoniyligiga va keltirilgan iqtiboslar to'g'riligiga mualliflar shaxsan javobgardirlar.

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“Research Focus” xalqaro ilmiy jurnali tahririyati
Saloydinov Sardorjon Qodirjon o'g'li - Bosh muharrir
Abdurahmonov Javohir Sobir o'g'li - Texnik muharrir
Tahrir hay'ati a'zolari

01.00.00 – Fizika-matematika fanlari

Sharibaev Nosir Yusupjonovich – Namangan muhandislik-texnologiya institute fizika-matematika fanlari doktori, professor
Tukfatullin Oskar Faritovich – O'zMU Huzuridagi Yarimo'tkazgichlar fizikasi va mikroelektronika ilmiy-tadqiqot instituti Muqobil energiya manbalari laboratoriyasi mudiri
Ergashev To'xtasin Gulamjanovich – TIQXMMI Milliy tadqiqot universiteti oliy matematika kafedrasida professori v.b. fizika-matematika fanlari nomzodi

Nuriddinova Mashxura Anvarbekovna – Namangan muhandislik-texnologiya institute fizika kafedrasida o'qituvchisi PhD

Fayzullaev Qahramon Maxmudjonovich – Yarimo'tkazgichlar fizikasi va mikroelektronika ilmiy-tadqiqot instituti katta ilmiy xodimi, fizika-matematika fanlari bo'yicha PhD

Anifa Paluanova – Nukus davlat-pedagogika instituti dotsenti, Fizika-matematika fanlari bo'yicha falsafa doktori PhD

Raxmanov Dilmurod Abdujabbor o'g'li – O'zMU xuzuridagi Yarimo'tkazgichlar fizikasi va mikroelektronika ilmiy tadqiqot instituti, Yarimo'tkazgichlar fizikasi laboratoriyasi kichik ilmiy xodimi

Xorilov Maxmud Abdumalikovich – Namangan davlat universiteti Matematik analiz kafedrasida o'qituvchisi fizika matematika fanlari bo'yicha falsafa doktori PhD

Mamadaliyev O'ktamjon Xasanboyevich - Namangan davlat universiteti Matematika kafedrasida dotsenti, fizika-matematika fanlari bo'yicha falsafa doktori PhD

02.00.00 – Kimyo fanlari

Abdullayev Shavkat Vaxidovich – Namangan davlat universitetining “Organik kimyo” kafedrasida professori, Kimyo fanlari doktori, tabobat fanlari akademigi

Xolmurodova Dilafruz Quvatovna – Samarqand Davlat tibbiyot universiteti tibbiy kimyo kafedrasida mudiri texnika fanlari doktori (DSc)

Xujaboev Safarboy Tuxtaboevich – Samarqand davlat tibbiyot universiteti umumiy xirurgiya kafedrasida dotsenti Tibbiyot fanlari doktori.

Eshmatova Nodira Baxromovna – Mirzo Ulug'bek nomidagi O'zbekiston Milliy universiteti Fizikaviy kimyo kafedrasida dotsenti Kimyo fanlari doktori

Raxmatullayev Izatulla – Farg'ona jamoat salomatligi tibbiyot instituti dotsenti. kimyo fanlari nomzodi dotsenti

Baykulov Azim Kenjaevich – Samarqand davlat tibbiyot universiteti Farmatsevtika va toksikologik kimyo kafedrasida mudiri

Xalikov Kaxor Mirzaevich – Samarqand davlat tibbiyot universiteti biologik kimyo kafedrasida mudiri Biologiya fanlari bo'yicha falsafa doktori

Todjiev Jamoliddin Nasiriddinovich – Mirzo Ulug'bek nomidagi O'zbekiston Milliy universiteti kimyo fakulteti analitik kimyo kafedrasida dotsenti

Xaydarova Dilrabo Raximjanovna – Namangan davlat universiteti Tabiiy fanlar fakulteti Organik kimyo kafedrasida o'qituvchisi PhD

Eshkobilova Mavjuda Ergashboyevna - SamDAQU “Qurilish materiallari, buyumlari va konstruksiyalarini ishlab chiqarish” kafedrasida dotsenti (v.b)

03.00.00 – Biologiya fanlari

Abdullayev Shavkat Vaxidovich – Kimyo fanlari doktori, Namangan davlat universitetining “Organik kimyo” kafedrasida professori, tabobat fanlari akademigi

Shodikulova Gulandom Zikriyaevna – Samarqand davlat tibbiyot universiteti 3-son Ichki kasalliklar va endokrinologiya kafedrasida dotsenti, kafedra mudiri tibbiyot fanlari doktori dotsent
Asqarov Kamoliddin Abdug'aniyevich – Farg'ona davlat universiteti Tabiiy fanlar fakulteti dekani, biologiya fanlari bo'yicha falsafa doktori, PhD

Rasulova Moxidil Tursunaliyevna – Farg'ona jamoat salomatligi tibbiyot instituti “Davolash ishi” fakulteti dekani

Shavazi Nargiz Nuralievna – Samarqand davlat tibbiyot universiteti 3-son akusherlik va ginekologiya kafedrasida mudiri

Baykulov Azim Kenjaevich – Samarqand davlat tibbiyot universiteti Farmatsevtika va toksikologik kimyo kafedrasida mudiri Biologiya fanlari bo'yicha falsafa doktori

Mirzayev Saidmaxmud - Namangan davlat universiteti sport faoliyati kafedrasida dotsenti biologiya fanlari nomzodi dotsent

Yuldoshev Xojakbar Toshpo'latovich – Veterinariya ilmiy-tadqiqot instituti, biologiya fanlari bo'yicha falsafa doktori

05.00.00 – Texnika fanlari

Murzaqulov Nurqul Abdilazizovich – Qirg'iziston Respublikasi O'sh Texnika Universiteti professor texnika fanlari doktori. “Elektr energetika” mudiri.

Muradov Rustam – Namangan muhandislik-texnologiya institutining “Tabiiy tolalarni dastlabki ishlash texnologiyasi” kafedrasida professori (texnika fanlari doktori, professor)

Mamaxonov A'zam Abdumajitovich – Namangan muhandislik-texnologiya instituti Avtomatika va energetika fakulteti dekani texnika fanlari doktori, professor

Shamshidinov Israiljon Turgunovich – Namangan muhandislik-qurilish instituti kimyoviy texnologiya kafedrasida professori texnika fanlari doktori professor

Sitdiqov Rashid Abduraxmanovich – Islom Karimov nomidagi Toshkent davlat texnika universiteti energetika fakulteti professori texnika fanlari doktori

Ergashev Sirojiddin Fayazovich – Farg'ona politexnika instituti ilmiy va ilmiy pedagogik kadrlarni tayyorlash bo'limi boshlig'i. Texnika fanlari doktori, dotsent

Soliyev Rustamjon Hakimjanovich – Namangan muxandislik-qurilish instituti Energetika va mehnat muhofazasi fakultet dekani. Texnika fanlari doktori, dotsent

Xankeldiyeva Guzal Sherovna – Farg'ona politexnika instituti menejment kafedrasida professori iqtisod fanlari doktori professor

Yunusov Baxtiyar Xodjakbarovich – Toshkent davlat texnika universiteti: “Energetika” fakultetlari “Issiqlik energetikasi” kafedrasida Mudiri, dotsent

Rayimdjanova Odinaxon Sadikovna – Muhammad al-Xorazmiy nomidagi Toshkent axborot texnologiyalari universiteti Farg‘ona filiali Telekommunikatsiya injineri kafedra mudiri. Texnika fanlari bo'yicha falsafa doktori (PhD)

Quchqorov Akmaljon – Farg‘ona politexnika instituti “Elektronika va asbobsozlik” kafedrasida mudiri. Texnika fanlari nomzodi (PhD)

Muxtarov Farrux Muxammadovich – Muhammad al-Xorazmiy nomidagi Toshkent axborot texnologiyalari universiteti Farg‘ona filiali telekommunikatsiya texnologiyalari va kasb ta'limi fakulteti dekani Texnika fanlar bo'yicha falsafa doktori (PhD)

Radionova Olga Vinsetovna – Islom Karimov nomidagi Toshkent davlat texnika universiteti «Elektr stansiyalari, tarmoqlari va tizimlari» kafedra dotsenti texnika fanlari nomzodi
Davlatova Mavlyuda Baxtiyorovna – Buxoro muhandislik-texnologiya instituti Katta o'qituvchi, Texnika fanlari falsafa doktori (PhD)

Vaxobova Sojida Komiljonovna – Namangan muhandislik qurilish instituti Energetika kafedrasida dotsenti, PhD

Agzamov Shovkat Kozimovich – Toshkent davlat texnika universiteti: “Energetika” fakultetlari “Issiqlik energetikasi” kafedrasida dotsenti

Xolbayev Doniyor Juraboyevich – Namangan muhandislik-texnologiya instituti Energetikasi kafedrasida o'qituvchisi PhD

Sa'dullayev Tuymurod Mardullo o'g'li – Islom Karimov nomidagi Toshkent Davlat Texnika Universiteti dotsenti PhD

Yusupov Dilshodbek Turdaliyevich – O'zbekiston Respublikasi Energetika vazirligi huzuridagi Qayta tiklanuvchi energiya manbalari milliy ilmiy-tadqiqot instituti laboratoriya mudiri, PhD katta ilmiy hodim

06.00.00 – Qishloq xo'jaligi fanlari

Suvanov Boymurod Uralovich – Qishloq xo'jaligini mexanizatsiyalash ilmiy-tadqiqot instituti direktorining ishlab chiqarish va marketing ishlari bo'yicha o'rinbosari qishloq xo'jaligi fanlari doktori (DSc) katta ilmiy xodim

07.00.00 – Tarix fanlari

Mirzayev Gulom Rizoqulovich – O'zbekiston Respublikasi Jamoat xavfsizligi universiteti Ijtimoiy gumanitar fanlar kafedrasida dotsenti tarix fanlari bo'yicha falsafa doktori (PhD), dotsent

Yo'ldoshev Salimjon Valiyevich – Farg‘ona davlat universiteti O'zbekiston tarixi kafedrasida o'qituvchisi Tarix fanlari bo'yicha falsafa doktori (PhD) dotsenti

08.00.00 – Iqtisodiyot fanlari

Xonkeldiyeva Komilaxon Ravshanjon qizi – Farg‘ona davlat universiteti ijtimoiy ish kafedrasida o'qituvchisi Iqtisodiyot fanlari bo'yicha falsafa doktori

Xasanov Ilyos Maxmudovich – Farg‘ona jamoat salomatligi tibbiyot instituti Davolash ishi fakulteti dekan o'rinbosari. Iqtisodiyot fanlari bo'yicha falsafa doktori (PhD)

Umarov Abduxamid Sattarovich – Kamoliddin Behzod nomidagi Milliy rassomlik va dizayn institutining informatika va menejment kafedrasida dotsenti iqtisod fanlari nomzodi dotsent

Abdullayev Baxodir Abdug'afforovich – Andijon mashinasozlik instituti «Sanoat ishlab chiqarishini tashkil yetish» kafedrasida dotsenti Iqtisod fanlari bo'yicha falsafa doktori (PhD)

Egambx'erdiyev Raxmonjon Ilxomovich – Namangan viloyati hokimligi xuzuridagi “Fukarolarning o'zini o'zi boshqarish organlari hodimlarining malakasini oshirish bo'yicha o'quv markazi direktori, iqtisod fanlari nomzodi dotsenti

09.00.00 – Falsafa fanlari

Xolmirzayev Nodirjon Nizomjonovich – TDTU Qo'qon filiali Ijtimoiy va aniq fanlar kafedrasida mudiri Falsafa fanlari bo'yicha falsafa doktori, (PhD)

Normatova Dildor Esonaliyevna – Farg‘ona davlat universiteti Falsafa kafedrasida dotsenti. Falsafa fanlari nomzodi dotsent

10.00.00 – Filologiya fanlari

Gunal Hummetova Saleh – Azarbayjon pedagogika universiteti Filologiya fanlari doktori professor

Abdupattoyev Muhammadtohir Tojimatovich – Farg‘ona davlat universiteti o'zbek tili va adabiyoti kafedrasida mudiri filologiya fanlari doktori (DSc) dotsent

Murodov G'ayrat – Buxoro davlat universitetining o'zbek tili va adabiyoti kafedrasida professori. filologiya fanlari doktori professor

Sobirov Abdulxay SHukirovich – Alisher Navoiy nomidagi Toshkent davlat universiteti mahnaviyat va mahrifat bo'yicha prorektor, filologiya fanlari doktori, professor.

Mirzayev Murodil Abdulla ugli – Muxammad al-Xorazmiy nomidagi Toshkent axborot texnologiyalari universiteti Farg‘ona filiali kengash kotibi filologiya fanlari nomzodi

Axmedova Anorxon Nasivali qizi – O'zbekiston davlat jahon tillari universiteti Tarjimonlik fakulteti “Ingliz tili tarjima nazariyasi” kafedrasida o'qituvchisi Filologiya fanlari bo'yicha PhD

Sobirova Dilafruz Abdulhay qizi – Andijon davlat pedagogika instituti “Boshlang'ich ta'lim metodikasi” kafedrasida katta o'qituvchisi Filologiya fanlari bo'yicha falsafa doktori (PhD)

Ergashev Abduhalim Abdujalilovich – Andijon davlat universiteti Filologiya fakulteti yoshlar bilan ishlash bo'yicha dekan o'rinbosari filologiya fanlari nomzodi

Zakirova Hafiza Razaqovna – Andijon davlat universiteti o'zbek tilshunosligi kafedrasida dotsenti, filologiya fanlari nomzodi

Alimjon Tojiev Mo'ydinovich – Andijon davlat universiteti o'zbek tilshunosligi kafedrasida dotsenti, filologiya fanlari nomzodi

Qodirov Ziyoidin Mamadalievich – Andijon davlat universiteti o'zbek tilshunosligi kafedrasida katta o'qituvchisi filologiya fanlari nomzodi

SHaxobov Kamoldin Biloldinovich – Andijon davlat universiteti filologiya fakulteti o'quv ishlari bo'yicha dekan o'rinbosari, Filologiya fanlari bo'yicha falsafa doktori (PhD)

Eshqobilov Abdivali Kazakovich – Samarqand davlat chet tillari instituti Axborot resurs markazi direktori

13.00.00 – Pedagogika fanlari

Raxmatova Dilnoza Nigbayevna – O‘zbekiston davlat jismoniy tarbiya va sport universiteti jismoniy tarbiya, sport nazariyasi va uslubiyati professor v.v.b

Ergashev Bobirjon Boxodirovich – Pedagogik innovatsiyalar, professional ta’limi boshqaruv hamda pedagog kadrlarini qayta tayyorlash va ularning malakasini oshirish instituti Malaka oshirish va qayta tayyorlash fakulteti dekani DSc

Ismoilov Temurbek Islomovich - Namangan davlat universiteti Fuqarolik jamiyati va huquq ta’limi kafedrasini professor vazifasini bajaruvchi Pedagogika fanlari doktori (DSc), dotsent
Obidova Gulmira Kuzibayevna – Farg‘ona politexnika instituti Magistratura bo‘limi boshlig‘i PhD, Pedagogika fanlari bo‘yicha falsafa doktori

Azizov Nosirjon Nematillayevich – Namangan davlat universiteti Sport faoliyati kafedrasini mudiri, pedagogika fanlari nomzodi, Dostent

Qurbonova Maftuna Faxriddinovna – Toshkent viloyati Chirchiq davlat pedagogika instituti Iqtidorli talabalarning ilmiy tadqiqot faoliyatini tashkil etish bo‘limi boshlig‘i Pedagogika fanlari bo‘yicha falsafa doktori (PhD)

Mirzayeva Nodira Abduxamidovna – Toshkent viloyati Chirchiq davlat pedagogika instituti “Genetika va evolyusion biologiya” kafedrasini dotsenti. Pedagogika fanlari falsafa doktori (PhD)

Valiyeva Feruza Rashidovna - Maktabgacha ta’lim tashkilotlari direktor va mutaxassislarini qayta tayyorlash va ularning malakasini oshirish instituti “Maktabgacha ta’lim menejmenti” kafedrasini mudiri. (PhD)

Yuldashov Ikromjon Abdulazizovich - Farg‘ona davlat universiteti jismoniy madaniyat fakulteti dekani. Pedagogika fanlari bo‘yicha falsafa doktori (PhD). Stol tennisi bo‘yicha Oliy toifali hakam.

Hamidjonov Abdulaziz Usubjon o‘g‘li – Namangan davlat universiteti Sport faoliyati kafedrasini dotsenti, pedagogika fanlari bo‘yicha falsafa doktori PhD Xalqaro sport ustasi

Qosimova Ozoda Xudoy nazarovna – Samarkand davlat tibbiyot instituti pedagogika va psixologiya kafedrasini dotsenti Pedagogika fanlari bo‘yicha falsafa doktori PhD

Raximov Atanazar Karimovich – Toshkent viloyati Chirchiq davlat pedagogika instituti tabiiy fanlar fakulteti dekani. Pedagogika fanlari doktori professor vazifasini bajaruvchi

Yunusova Nilufar Xamrayevna – Toshkent Moliya instituti, O‘zbek va rus tili kafedrasini mudiri, pedagogika fanlari nomzodi dotsenti

Umarov Mars Narziyevich – O‘zbekiston davlat jismoniy tarbiya va sport universiteti gimnastika sport turlari nazariyasi va uslubiyati kafedrasini professor, PhD professor

Umarov Xurshidjon Xasanovich – O‘zbekiston Davlat jismoniy tarbiya va sport universiteti “Gimnastika nazariyasi va uslubiyati” kafedrasini p.f.b.f.d.(PhD), dotsenti

Sobirova Laylo Baxromovna – O‘zbekiston davlat jismoniy tarbiya va sport universitetining “Adaptiv jismoniy tarbiya va parasport” kafedrasini dotsent v.b.

Tojiyev Muzafarjon Akbarovich – O‘zbekiston davlat jismoniy tarbiya va sport universitetining jismoniy tarbiya sport nazariyasi va uslubiyati kafedrasini v.b.professor

Matnazarov Xayrulla Yuldashovich – O‘zbekiston davlat jismoniy tarbiya va sport universiteti “Suv sporti, eshkak eshish turlari nazariyasi va uslubiyati” kafedrasini mudiri

To‘ychiev Tohirjon Saxodullaevich - Namangan Davlat universiteti jismoniy madaniyat kafedrasini o‘qituvchisi PhD.

Sirojiddinova Nodira Rivojiddinovna - Professional ta'limni rivojlantirish instituti "Innovatsion ta'lim texnologiyalari" kafedrasini mudiri

14.00.00 – Tibbiyot fanlari

Ziyadullaev Shuxrat Xudayberdievich – Samarqand davlat tibbiyot universiteti ilmiy ishlar va innovatsiyalar bo‘yicha prorektor

Ruziboyev Sanjar Abdusalomovich – Samarqand davlat tibbiyot instituti 2-xirurgik kasalliklar va urologiya kafedrasini dotsenti. Tibbiyot fanlar doktori

Kurbonov Nizom Azizovich – Samarqand davlat tibbiyot universiteti diplomdan keyingi tahlim fakulteti Xirurgiya, endoskopiya va anesteziologiya-reanimatologiya kafedrasini mudiri.

Islamov Shavkat Erjigitovich – Samarqand davlat tibbiyot universiteti Professori, tibbiyot fanlari doktori.

Daminov Feruz Asadullayevich – Samarqand davlat tibbiyot universiteti tibbiy pedagogika fakulteti dekani 2-xirurgik kasalliklar va urologiya kafedrasini dotsenti, Tibbiyot fanlar doktori

Djabbarov Sherzod Raximberdiyevich – Sog‘liqni saqlash boshqarmasi Lisenziyalash va Akkreditatsiyalash sektori bosh mutaxassisi Tibbiyot fanlari nomzodi

Mustafakulov Ishnazar Boynazarovich – Samarqand davlat tibbiyot institutining davolash fakulteti dekani o‘rinbosari tibbiyot fanlari nomzodi

Shonazarov Iskandar Shonazarovich – Samarqand davlat tibbiyot universiteti diplomdan keyingi ta'lim fakulteti, Xirurgiya, endoskopiya va anesteziologiya-reanimatologiya kafedrasini o'qituvchisi Tibbiyot fanlari nomzodi

Achilov Mirzakarim Temirovich – Samarkand davlat tibbiyot instituti diplomdan keyingi ta'lim fakulteti xirurgiya, endoskopiya, anesteziologiya va reanimatologiya kafedrasini dotsenti tibbiyot fanlari nomzodi

Najmiddinov Otabek Baxriddin o‘g‘li – Andijon davlat tibbiyot instituti klinikasi Rengenalogiya bo‘limi vrachi PhD

Saydullayev Zayniddin Yaxshiboyevich – Samarqand davlat tibbiyot instituti “Umumiy xirurgiya kafedrasini assistenti

Ibragimova Marina Fyodorovna – Samarqand davlat tibbiyot universiteti 1-son Pediatriya kafedrasini o‘qituvchisi PhD

Kardjavova Gulnoza Abilkasimovna – Samarqand davlat tibbiyot universiteti 1-son Pediatriya kafedrasini o‘qituvchisi PhD

Murtazaev Zafar Isrofilovich – Samarqand davlat tibbiyot universiteti Umumiy xirurgiya, nurlil diagnostika va terapiya kafedrasini dotsenti

Pulatov Ulugbek Sunatovich – Samarqand davlat tibbiyot universiteti Klinik (o‘quv) bazalari bilan ishlash bo‘limi boshlig‘i
Boymanov Farxod Xolboyevich – Samarqand davlat tibbiyot universiteti “Sud tibbiyot” Kafedrasini dotsenti

Mustafoyev Zafarjon Mustafo o‘g‘li – Samarqand Davlat tibbiyot universiteti, Odam anatomiyasi kafedrasini o‘qituvchisi

Ergashova Madina Muxtorovna – Samarqand davlat tibbiyot universiteti 3-son ichki kasalliklar kafedrasida assistenti PhD

Rustamov Inoyatulla Muradulla o'g'li - Samarqand Davlat tibbiyot universiteti umumiy xirurgiya kafedrasida o'qituvchisi, tibbiyot fanlari bo'yicha falsafa doktori PhD

Axmedov G'ayrat Keldibayevich - SamDTU Ta'lim sifatini nazorat qilish bo'limi boshlig'i tibbiyot fanlari bo'yicha falsafa doktori (PhD)

Tairova Zarangis Kamolidinovna - Samarqand Davlat tibbiyot universiteti tibbiyot fanlari bo'yicha falsafa doktori (PhD)

Mizamov Furkat Ochilovich - Samarqand davlat tibbiyot universiteti Diplomdan keyingi ta'lim fakulteti Xirurgiya, endoskopiya va anesteziologiya-reanimatologiya kafedrasida o'qituvchisi PhD

Umedov Xushvaqt Alisherovich – Samarqand davlat tibbiyot universiteti 1-son Davolash fakulteti 2- son Xirurgik kasalliklar kafedrasida

Samatov Dilshod Karimovich –Samarqand davlat tibbiyot universiteti 3-son ichki kasalliklar kafedrasida assistenti

Mirzayev Ozod Voxidovich – Samarqand Davlat Tibbiyot Universiteti “3-Ichki kasalliklar” kafedrasida o'qituvchisi, PhD

Nurmurazayev Zafar Narbay o'g'li – Samarqand davlat tibbiyot universiteti diplomdan keyingi ta'lim fakulteti tibbiy kardiologiya kafedrasida o'qituvchisi, tibbiyot fanlari bo'yicha falsafa doktori, PhD

Umarkulov Zabur Zafarjonovich - Samarqand davlat tibbiyot universiteti diplomdan keyingi ta'lim fakulteti tibbiy kardiologiya kafedrasida o'qituvchisi, tibbiyot fanlari bo'yicha falsafa doktori, PhD

Xaydarova Laylo Olimdjonzoda - Samarqand davlat tibbiyot universiteti Umumiy xirurgiya kafedrasida o'qituvchisi PhD

15.00.00 – Farmatsevtika fanlari

Shavazi Nurali Muxammad o'g'li – Samarqand davlat tibbiyot universiteti farmatsiya fakulteti dekani tibbiyot fanlari doktori professor

Xolmurodova Dilafruz Quvatovna – Samarqand Davlat tibbiyot universiteti tibbiy kimyo kafedrasida mudiri texnika fan doktori (DSc)

SHodikulova Gulandom Zikriyayevna – Samarqand davlat tibbiyot universiteti 3-son Ichki kasalliklar va endokrinologiya kafedrasida dotsenti, kafedra mudiri tibbiyot fanlari doktori dotsent

Bozorova Nigina Sobirjonovna – Samarqand davlat tibbiyot universiteti Farmatsevtika ishini tashkil qilish kafedrasida mudiri

Yuldashev Soatboy Jiyambaevich – Samarqand davlat tibbiyot universiteti farmakologiya kafedrasida mudiri

Zokirov Farxod Istamovich – Samarqand shahar 2-son tug'ruqxonasi shifokor akusher-ginekolog PhD

Kodirov Nizomiddin Daminovich – Samarqand davlat tibbiyot universiteti farmakognosiya va farmatsevtik texnologiya kafedrasida kafedra mudiri

Babamuradova Zarrina Baxtiyarovna – Samarqand davlat tibbiyot Universitetining Pediatriya fakulteti Ichki kasalliklar kafedrasida mudiri

Kamalov Anvarjon Ibragimovich – Samarqand davlat tibbiyot universiteti ta'lim sifatini nazorat qilish bo'limi boshlig'i

Kudratova Zebo Erkinovna – Samarqand davlat tibbiyot instituti Klinik laboratoriya diagnostikasi kafedrasida o'qituvchi PhD

16.00.00 – Veterinariya fanlari

Daminov Asadullo Suvonovich – Samarqand davlat veterinariya meditsinasi, chorvachilik va biotexnologiyalar universiteti, Veterinariya fanlari doktori professor

Mamatova Muborak Nurpo'latovna – Samarqand davlat tibbiyot instituti klinik laborator diagnostika kafedrasida professori v.b. Veterinariya fanlari doktori professor v.b.

Yuldoshev Xojiakbar Toshpo'latovich – Veterinariya ilmiy-tadqiqot instituti, biologiya fanlari bo'yicha falsafa doktori

Elmuradov Bozorboy Aktamovich – Veterinariya ilmiy-tadqiqot instituti, veterinariya fanlari doktori, professor.

Ruzimuradov Muxiddin Axrorovich – Veterinariya ilmiy-tadqiqot instituti, veterinariya fanlari nomzodi, professor

Butayev Maxmud Qarshiyevich – Veterinariya ilmiy-tadqiqot instituti, veterinariya fanlari nomzodi

Ulug'muradov Azamat Daminovich – Veterinariya ilmiy-tadqiqot instituti, veterinariya fanlari falsafa doktori (PhD).

Isayev Jasur Muzaffarovich – Veterinariya ilmiy-tadqiqot instituti, veterinariya fanlari falsafa doktori (PhD).

Navruzov Nurali Itolmasovich – Veterinariya ilmiy-tadqiqot instituti, veterinariya fanlari falsafa doktori (PhD).

Akramov Komiljon Shuhrat o'g'li – Veterinariya ilmiy-tadqiqot instituti, veterinariya fanlari falsafa doktori (PhD).

Safarov Xurshid Abdurajabovich – Veterinariya ilmiy-tadqiqot instituti, veterinariya fanlari falsafa doktori (PhD).

Meyliyev Salohiddin Salim o'g'li – Veterinariya ilmiy-tadqiqot instituti, veterinariya fanlari falsafa doktori (PhD).

Uroqov Kamoliddin Khudoyberdievich – Samarqand davlat veterinariya meditsinasi, chorvachilik va biotexnologiyalar universiteti, veterinariya fanlari falsafa doktori (PhD).

17.00.00 – San'atshunoslik fanlari

Mirzayev Murodil Abdulla ugli – Muxammad al-Xorazmiy nomidagi Toshkent axborot texnologiyalari universiteti Farg'ona filiali kengash kotibi filologiya fanlari nomzodi

Xolmirzayev Nodirjon Nizomjonovich – TDTU Qo'qon filiali Ijtimoiy va aniq fanlar kafedrasida mudiri Falsafa fanlari bo'yicha falsafa doktori, (PhD)

Normatova Dildor Esonaliyevna – Farg'ona davlat universiteti Falsafa kafedrasida dotsenti. Falsafa fanlari nomzodi dotsent

19.00.00 – Psixologiya fanlari

Ruzmetova Sayyoraxon Temurxanovna – Toshkent davlat texnika universiteti pedagogika va psixologiya kafedrasida P.f.f.d. (PhD) v.b. dotsent

22.00.00 – Sotsiologiya fanlari

Zaitov Elyor Xolmamatovich – Mirzo Ulug'bek nomidagi O'zbekiston Milliy universitetining “Ijtimoiy ish” kafedrasida dotsenti sotsiologiya fanlari bo'yicha falsafa doktori (PhD) dotsent

Jurabayeva Zamira Axmedovna – Andijon davlat universiteti Boshlang'ich va maktabgacha ta'lim kafedrasida dotsenti, PhD

01.00.00 – Fizika-matematika fanlari

01.00.00 – Physics and mathematics

01.00.00 – Физико-математический

RECOVERY OF A TIME-DEPENDENT SOURCE IN A FRACTIONAL LANGEVIN EQUATION

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Abstract: In the current paper, we are interested in studying the time-dependent inverse source problem for the space-degenerate fractional Langevin-type PDE involving a bi-ordinal Hilfer fractional derivative. Sufficient conditions for the given data were established for the existence and uniqueness of the solution. The technique for showing the existence result is based on the uniform convergence of the series.

Keywords: bi-ordinal Hilfer fractional derivative, Fourier-Legendre series, time-dependent inverse source problem

ВОССТАНОВЛЕНИЕ ЗАВИСЯЩЕГО ОТ ВРЕМЕНИ ИСТОЧНИКА В ДРОБНОМ УРАВНЕНИИ ЛАНЖЕВЕНА

Аннотация: В текущей статье мы заинтересованы в изучении зависящей от времени обратной задачи источника для вырожденного по пространству дробного уравнения Ланжевена в частных производных с бипорядковой дробной производной Хильфера. Были установлены достаточные условия для заданных данных для существования и единственности решения. Методика демонстрации результата существования основана на равномерной сходимости ряда.

Ключевые слова: бипорядковая дробная производная Хильфера, ряд Фурье-Лежандра, зависящая от времени обратная задача источника

INTRODUCTION

Studying inverse source problems has been an important target for mathematical research due to its applications in science and engineering [1], [2]. Proving the solution's global (in time) existence and uniqueness is a complicated task. Another interesting thing is that the goal in solving inverse source problems is their solvability and description of a constructive algorithm for finding a solution. We suggest the references [3], [4] for readers to get detailed information about some methods of solving inverse source problems devoted to determining t -dependent factor in the source such as analytical and numerical techniques.

Letting the source term have the form $f(x, t) = a(t)h(x)$, then the inverse the problem consists of determining a source term $a(t)$ and $u(x, t)$ (the temperature distribution in the heat process), from the initial data $\psi(x)$ (initial temperature in heat process) and boundary conditions which come from regularity conditions.

1.1 Statement of the problem

Let $\gamma_1 < \gamma_2 - \delta_2$, $T > 0$ arbitrary fixed time and $\Omega = \{(x, t) : -1 < x < 1, 0 < t \leq T\}$.

The inverse source problem (ISP) here is to find a pair $\{u(x, t), a(t)\}$ functions for given $h(x)$, $\psi(x)$, $\varphi(x)$ such that

$$D_{0+}^{(\alpha_1, \beta_1)\mu_1} \left(D_{0+}^{(\alpha_2, \beta_2)\mu_2} u(x, t) - \frac{\partial}{\partial x} [(1-x^2)u_x(x, t)] \right) = h(x)a(t), \quad (1.1)$$

$$\lim_{t \rightarrow 0+} I_{0+}^{(1-\mu_2)(1-\beta_2)} u(x, t) = \psi(x), -1 \leq x \leq 1, \quad (1.2)$$

$$\lim_{t \rightarrow 0+} I_{0+}^{1-\gamma_1-\delta_2} u(x, t) = \varphi(x), -1 \leq x \leq 1, \quad (1.3)$$

where $h(x)$, $\psi(x)$ and $\varphi(x)$ are given functions, $D_{0+}^{\alpha_i, \beta_i} \mu_i$ is a bi-ordinal Hilfer fractional derivative defined by

$$D_{0+}^{(\alpha_i, \beta_i)\mu_i} y(x) := I_{0+}^{\mu_i(1-\alpha_i)} \frac{d}{dx} I_{0+}^{(1-\mu_i)(1-\beta_i)} y(x), \quad (1.4)$$

where $0 < \alpha_i, \beta_i < 1$, $0 \leq \mu_i \leq 1$, $i = \overline{1, 2}$ and $I_{0+}^\gamma y(x)$ is the Riemann-Liouville integral operator of order γ of a function $y(x)$ [6].

We provide the over-determination condition as a way to make the inverse problem uniquely solved:

$$\int_{-1}^1 u(x, t) dx = E(t), \quad (1.5)$$

where $E(t) \in AC^2([0, T], \mathbb{R})$.

We also consider the following regularity conditions for the solution of the inverse source problem (1.1)-(1.5)

$$t^{1-\delta_2-\gamma_1} u \in C(\overline{\Omega}), \quad t^{1-\delta_2-\gamma_1} u_x \in C(\overline{\Omega}), \quad t^{1-\delta_2-\gamma_1} a(t) \in C[0, T],$$

$$D_{0+}^{(\alpha_1, \beta_1)\mu_1} D_{0+}^{(\alpha_2, \beta_2)\mu_2} u \in C(\Omega), \quad u_{xx} \in C(\Omega).$$

Direct problem related to the ISP was studied in [7] for the equation (1.1) and here we recall some properties of Legendre polynomials which are defined by

$$P_k(x) = \frac{1}{2^k \cdot k!} \frac{d^k (x^2 - 1)^k}{dx^k}.$$

The Legendre polynomials (see W. Kaplan [8], p. 511) form a complete orthogonal system in $[-1, 1]$ and any piece-wise continuous function g can be expressed in the form of Fourier-Legendre series with respect to the system $\{P_k(x)\}$:

$$g(x) = \sum_{k=0}^{\infty} c_k P_k(x), \quad c_k = \frac{(g, P_k)}{P_k P_k^2} = \frac{2k+1}{2} \int_{-1}^1 g(x) P_k(x) dx.$$

In this paper, we are also concerned with studying the time-dependent inverse source problem for the equation (1.1) and we take another more favorable condition in order to facilitate calculations instead of a non-local condition.

MAIN RESULTS

Theorem 2.1 Let $\gamma_1 < \gamma_2 - \delta_2$, $0 < \left(\int_{-1}^1 h(x) dx \right)^{-1} < M$ such that $h^{(4)}(x) \in L^2(-1, 1)$

, $\psi''(x) \in L^2(-1, 1)$, $\varphi''(x) \in L^2(-1, 1)$, $E''(t) \in L^1(0, T)$, then the unique solution of the inverse source problem (1.1)-(1.5) exists.

2.1 Uniqueness of the solution

Let there exist two solutions $u_1(x, t)$ and $u_2(x, t)$ of the main problem and consider the function $u(x, t) = u_1(x, t) - u_2(x, t)$ which is a solution of the equation (1.1) in the homogeneous case with homogeneous initial conditions

$$\lim_{t \rightarrow 0+} I_{0+}^{(1-\mu_2)(1-\beta_2)} u(x, t) = 0, -1 \leq x \leq 1, \quad (2.1)$$

$$\lim_{t \rightarrow 0+} I_{0+}^{1-\gamma_1-\delta_2} u(x, t) = 0, -1 \leq x \leq 1, \quad (2.2)$$

Let us consider the following function

$$u_k(t) = \int_{-1}^1 u(x, t) P_k(x) dx, k = 0, 1, 2, \dots, \quad (2.3)$$

Based on (2.3), we consider the function below

$$v_k(t) = \int_{\varepsilon-1}^{1+\varepsilon} u(x, t) P_k(x) dx, k = 0, 1, 2, \dots, \quad (2.4)$$

where ε is very small positive number.

Applying the operator $D_{0+}^{(\alpha_1, \beta_1)\mu_1} D_{0+}^{(\alpha_2, \beta_2)\mu_2}$ with respect to t to both sides of equality (2.4) and using the homogeneous equation corresponding with (??) yield that

$$D_{0+}^{(\alpha_1, \beta_1)\mu_1} D_{0+}^{(\alpha_2, \beta_2)\mu_2} v_k(t) = \int_{\varepsilon-1}^{1+\varepsilon} D_{0+}^{(\alpha_1, \beta_1)\mu_1} D_{0+}^{(\alpha_2, \beta_2)\mu_2} u(x, t) P_k(x) dx$$

$$= \int_{\varepsilon-1}^{1+\varepsilon} P_k(x) D_{0+}^{(\alpha_1, \beta_1)\mu_1} \frac{\partial}{\partial x} \left[(1-x^2) u_x(x, t) \right] dx,$$

then integrating by parts twice the right side of the last equality and calculating the limit as $\varepsilon \rightarrow 0$ give that

$$D_{0+}^{(\alpha_1, \beta_1)\mu_1} \left[D_{0+}^{(\alpha_2, \beta_2)\mu_2} + \lambda_k \right] u(t) = 0.$$

Obviously, it can be shown that this equation with homogeneous conditions (2.1)-(2.2) has only trivial solution $u_k(t) \equiv 0, t \in [0, T]$ and hence, from (2.3) we get

$$\int_{-1}^1 u(x, t) P_k(x) dx = 0, k = 0, 1, 2, \dots.$$

Therefore, using the fact of completeness property of system $\{P_k(x)\}$, it is deduced that $u(x, t) \equiv 0$ in Ω , which proves the uniqueness of the solution of ISP. Similarly, the uniqueness result for $a(t)$ can be obtained by doing the steps done above.

2.2 Existence result

By applying the standard procedure of the Fourier method, we obtain the following representation for the solution of (1.1)-(1.5) for arbitrary $a(t) \in C[0, T]$

$$u(x, t) = \sum_{k=0}^{\infty} u_k(t) P_k(x), \quad (2.5)$$

where

$$u_k(t) = \psi_k t^{\gamma_2-1} E_{\delta_2, \gamma_2} \left(-\lambda_k t^{\delta_2} \right) + \varphi_k t^{\delta_2+\gamma_1-1} E_{\delta_2, \delta_2+\gamma_1} \left(-\lambda_k t^{\delta_2} + \right. \\ \left. + h_k \int_0^t (t-s)^{\delta_2+\delta_1-1} E_{\delta_2, \delta_2+\delta_1} \left[-\lambda_k (t-s)^{\delta_2} \right] a(s) ds, \quad (2.6)$$

with

$$\psi_k = \frac{2k+1}{2} \int_{-1}^1 \psi(x) P_k(x) dx, \quad \varphi_k = \frac{2k+1}{2} \int_{-1}^1 \varphi(x) P_k(x) dx,$$

$$h_k = \frac{2k+1}{2} \int_{-1}^1 h(x) P_k(x) dx, \quad k = 0, 1, 2, \dots$$

Taking fractional derivative $D_{0+}^{(\alpha_2, \beta_2)\mu_2}$ and $D_{0+}^{(\alpha_1, \beta_1)\mu_1}$ under the integral sign of the over-determination condition (1.5) and in view of the equation (1.1), we obtain

$$a(t) = \left(\int_{-1}^1 h(x) dx \right)^{-1} \cdot D_{0+}^{(\alpha_1, \beta_1)\mu_1} D_{0+}^{(\alpha_2, \beta_2)\mu_2} E(t). \quad (2.7)$$

Substituting (2.7) into (2.6) and assuming that $D_{0+}^{(\alpha_2, \beta_2)\mu_2} E(t) \in L^1(0, T)$, $E(t) \in C[0, T]$ and $E'(t) \in L^1(0, T)$ step by step, we get

$$u_k(t) = \psi_k t^{\gamma_2-1} E_{\delta_2, \gamma_2} \left(-\lambda_k t^{\delta_2} \right) + \varphi_k t^{\delta_2+\gamma_1-1} E_{\delta_2, \delta_2+\gamma_1} \left(-\lambda_k t^{\delta_2} + \right. \\ \left. + h_k h^* (E(t) - \lambda_k \int_0^t (t-s)^{\delta_2-1} E_{\delta_2, \delta_2} \left[-\lambda_k (t-s)^{\delta_2} \right] E(s) ds), \quad (2.8)$$

$$\text{where } h^* = \left(\int_{-1}^1 h(x) dx \right)^{-1}.$$

Now let us establish the necessary condition for $E(t)$ in order to show the existence of (2.7) and here we might take a stronger condition for $E(t)$.

Considering we make sure that $I_{0+}^{1-\gamma_1} \left(D_{0+}^{(\alpha_2, \beta_2)\mu_2} E(t) \right) \in AC[0, T]$ or $D_{0+}^{(\alpha_2, \beta_2)\mu_2} E(t) \in AC[0, T]$. From the last condition we derive that $E'(t) \in C[0, T]$ and $E''(t) \in L^1(0, T)$. These conditions ensure that $a(t) \in C[0, T]$.

From the properties of Legendre polynomials discussed in [7], we recall that

$$|h_k| \leq \frac{4\sqrt{2}}{(2k-3)^{3/2}} P h''(\cdot) P, \quad |h_k| \leq \frac{6\sqrt{2}}{(2k-7)^{7/2}} P h^{(4)}(\cdot) P.$$

where $P \cdot P$ is a norm of $L^2(-1, 1)$.

Now, by taking estimate for the series $t^{1-\delta_2-\gamma_1} u(x, t)$, for all $t \in [0, T]$ we get

$$\begin{aligned} |t^{1-\delta_2-\gamma_1} u(x, t)| &\leq \sum_{k=0}^{\infty} |u_k(t)|^2 |P_k(x)| \leq \\ &\sum_{k=0}^{\infty} |\psi_k| \left| t^{\gamma_2-\delta_2-\gamma_1} E_{\delta_2, \gamma_2}(-\lambda_k t^{\delta_2}) \right|^2 + \sum_{k=0}^{\infty} |\varphi_k| \left| E_{\delta_2, \delta_2-\gamma_2+\gamma_1+1}(-\lambda_k t^{\delta_2}) \right| + \\ &\sum_{k=0}^{\infty} |h_k| |h^*| \left(|E(t)|^2 + |E(0)|^2 \lambda_k \left| t^{\delta_2} E_{\delta_2, \delta_2+1}(-\lambda_k t^{\delta_2}) \right|^2 \right) + \\ &+ \sum_{k=0}^{\infty} |h_k| |h^*| \lambda_k \int_0^t \left| (t-s)^{\delta_2} E_{\delta_2, \delta_2+1}[-\lambda_k (t-s)^{\delta_2}] \right| |E'(s)| ds \leq \\ &\leq \sum_{k=0}^{\infty} |\psi_k| \left(\frac{M t^{\gamma_2-1}}{1 + \lambda_k t^{\delta_2}} \right) + \sum_{k=0}^{\infty} |\varphi_k| \left(\frac{M t^{\delta_2+\gamma_1-1}}{1 + \lambda_k t^{\delta_2}} \right) + \\ &+ \sum_{k=0}^{\infty} |h_k| |h^*| \left(|E(t)| + |E(0)| \lambda_k \left(\frac{M t^{\delta_2}}{1 + \lambda_k t^{\delta_2}} \right) \right) + \\ &+ \sum_{k=0}^{\infty} |h_k| |h^*| \int_0^t \left(\frac{M \lambda_k (t-s)^{\delta_2}}{1 + \lambda_k (t-s)^{\delta_2}} \right) |E'(s)| ds \leq \\ &\leq P \psi''(\cdot) P \sum_{k=0}^{\infty} \frac{4\sqrt{2}}{(2k-3)^{3/2}} \left(\frac{M t^{\gamma_2-1}}{1 + \lambda_k t^{\delta_2}} \right) + P \varphi''(\cdot) P \sum_{k=0}^{\infty} \frac{4\sqrt{2}}{(2k-3)^{3/2}} \left(\frac{M t^{\delta_2+\gamma_1-1}}{1 + \lambda_k t^{\delta_2}} \right) + \\ &+ P h''(\cdot) P \sum_{k=0}^{\infty} \frac{|h^*| 4\sqrt{2}}{(2k-3)^{3/2}} \left(|E(t)| + |E(0)| \left(\frac{M \lambda_k t^{\delta_2}}{1 + \lambda_k t^{\delta_2}} \right) \right) + \end{aligned}$$

$$+Ph''(\cdot)P\sum_{k=0}^{\infty}\frac{|h^*|4\sqrt{2}}{(2k-3)^{3/2}}\int_0^t\left(\frac{M\lambda_k(t-s)^{\delta_2}}{1+\lambda_k(t-s)^{\delta_2}}\right)|E'(s)|ds.$$

We presume $E'(t) \in C[0, T]$ and considering Weierstrass M- test one can see that the series representation of $t^{1-\delta_2-\gamma_1}u(x, t)$ converges uniformly.

Now, for the second term of the equation (1.1) we have

$$\begin{aligned} D_{0+}^{(\alpha_1, \beta_1)\mu_1} \frac{\partial}{\partial x} \left[(1-x^2)u_x \right] &= -\sum_{k=0}^{\infty} \lambda_k D_{0+}^{(\alpha_1, \beta_1)\mu_1} u_k(t) P_k(x) = \\ &= -\sum_{k=0}^{\infty} \lambda_k [\psi_k t^{\gamma_2-\delta_1-1} E_{\delta_2, \gamma_2-\delta_1}(-\lambda_k t^{\delta_2}) + \varphi_k t^{\delta_2+\gamma_1-\delta_1-1} E_{\delta_2, \delta_2+\gamma_1-\delta_1}(-\lambda_k t^{\delta_2}) + \\ &\quad + h_k h^* D_{0+}^{(\alpha_1, \beta_1)\mu_1} E(t) - \lambda_k h_k h^* E(0) t^{\delta_2-\delta_1} E_{\delta_2, \delta_2-\delta_1+1}(-\lambda_k t^{\delta_2}) \\ &\quad - \lambda_k h_k h^* \int_0^t (t-s)^{\delta_2-\delta_1} E_{\delta_2, \delta_2-\delta_1+1}[-\lambda_k (t-s)^{\delta_2}] E'(s) ds] P_k(x). \end{aligned}$$

By taking estimate with help of properties of Legendre polynomials and Mittag-Leffler function, we get

$$\begin{aligned} \left| D_{0+}^{(\alpha_1, \beta_1)\mu_1} \frac{\partial}{\partial x} \left[(1-x^2)u_x(\cdot, t) \right] \right| &\leq \\ &\sum_{k=0}^{\infty} \left[|\lambda_k \psi_k| \left(\frac{Mt^{\gamma_2-\delta_1-1}}{1+\lambda_k t^{\delta_2}} \right) + |\lambda_k \varphi_k| \left(\frac{Mt^{\delta_2+\gamma_1-\delta_1-1}}{1+\lambda_k t^{\delta_2}} \right) + \right. \\ &\quad + |\lambda_k h_k| |h^* D_{0+}^{(\alpha_1, \beta_1)\mu_1} E(t)| + |\lambda_k h_k h^*| |\lambda_k E(0)| \left(\frac{Mt^{\delta_2-\delta_1}}{1+\lambda_k t^{\delta_2}} \right) + \\ &\quad + |\lambda_k h_k h^*| |\lambda_k E'(0)| \left(\frac{Mt^{\delta_2+1-\delta_1}}{1+\lambda_k t^{\delta_2}} \right) + \\ &\quad \left. + |\lambda_k^2 h_k h^*| \int_0^t \left(\frac{M(t-s)^{\delta_2+1-\delta_1}}{1+\lambda_k (t-s)^{\delta_2}} \right) |E''(s)| ds \right] \leq \\ &\leq \sum_{k=0}^{\infty} \frac{P\psi''(\cdot)P4\sqrt{2}}{(2k-3)^{3/2}} \left(\frac{\lambda_k Mt^{\gamma_2-\delta_1-1}}{1+\lambda_k t^{\delta_2}} \right) + \sum_{k=0}^{\infty} \frac{P\varphi''(\cdot)P4\sqrt{2}}{(2k-3)^{3/2}} \left(\frac{\lambda_k Mt^{\delta_2+\gamma_1-\delta_1-1}}{1+\lambda_k t^{\delta_2}} \right) + \\ &\sum_{k=0}^{\infty} \frac{6\sqrt{2}\lambda_k P h^{(4)}(\cdot)P}{(2k-7)^{7/2}} (|h^* D_{0+}^{(\alpha_1, \beta_1)\mu_1} E(t)| + |E(0)| \left(\frac{M\lambda_k t^{\delta_2-\delta_1}}{1+\lambda_k t^{\delta_2}} \right) + \end{aligned}$$

$$\sum_{k=0}^{\infty} \frac{6\sqrt{2}\lambda_k P h^{(4)}(\cdot) P}{(2k-7)^{7/2}} (|E'(0)| \left(\frac{M\lambda_k t^{\delta_2+1-\delta_1}}{1+\lambda_k t^{\delta_2}} \right) + |h^*| \int_0^t \left(\frac{M\lambda_k (t-s)^{\delta_2+1-\delta_1}}{1+\lambda_k (t-s)^{\delta_2}} \right) |E''(s)| ds).$$

If $\psi''(x) \in L^2(-1,1)$, $\varphi''(x) \in L^2(-1,1)$, $h^{(4)}(x) \in L^2(-1,1)$ and $E''(t) \in L^1(0,T)$, then the series representation of $P D_{0+}^{(\alpha_1, \beta_1)\mu_1} \frac{\partial}{\partial x} [(1-x^2)u_x]$ converges uniformly in Ω . Finally, in a similar way, one can show that the series $D_{0+}^{(\alpha_1, \beta_1)\mu_1} D_{0+}^{(\alpha_2, \beta_2)\mu_2} u$ is uniformly convergent in Ω . This proves the existence of the solution of ISP.

CONCLUSION

In this study, we investigated the inverse problem of determining a time-dependent source function in a space-degenerate fractional Langevin-type partial differential equation involving a bi-ordinal Hilfer fractional derivative. By imposing suitable conditions on the given data, we established the existence and uniqueness of the solution to the inverse problem. The analysis relied on constructing a series representation of the solution and proving its uniform convergence.

The obtained results contribute to the theoretical understanding of inverse problems in fractional models with memory and anomalous diffusion effects, which frequently arise in physics and engineering applications. Future work may involve the development of numerical methods for practical reconstruction of the source term, as well as the extension of the current results to more general forms of fractional operators or multi-dimensional domains.

References

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02.00.00 – Kimyo fanlari

02.00.00 – Chemical sciences

02.00.00 – Химические науки

BIOPARCHALANUVCHI GIDROGELLARNING QISHLOQ XO‘JALIGIDAGI FOYDALANISH ISTIQBOLLARI

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Annotatsiya: Ushbu maqolada qishloq xo‘jaligida bioparchalanuvchi gidrogellardan foydalanish istiqbollari o‘rganilgan. Bioparchalanuvchi gidrogellar haqida umumiy ma‘lumotlar keltirilib, sellyuloza hamda GIPAN (gidrolizlangan poliakrilonitril) asosidagi gidrogellarning xususiyatlari tahlil qilingan. Gidrogellarning suv yutish qobiliyati, tuproqda bioparchalanishi va agronomik samaradorligi yuzasidan ilmiy manbalar asosida ma‘lumotlar keltirilgan. Lalmi yerlar (sug‘orilmaydigan hududlar), tomchilatib sug‘orish tizimlari va bog‘dorchilikda gidrogellardan foydalanish misollari ko‘rib chiqilib, ularning suvni tejash, hosildorlikni oshirish va tuproq sifatini yaxshilashga ijobiy ta‘siri ko‘rsatilgan. Tadqiqotlar tahlili shuni ko‘rsatadiki, bioparchalanuvchi gidrogellar tuproq namligini saqlash va ekinlar hosildorligini oshirishda samarali bo‘lib, atrof-muhitga zarar yetkazmasdan qishloq xo‘jaligining barqarorligini ta‘minlashga xizmat qilishi mumkin.

Kalit so‘zlar: bioparchalanuvchi gidrogel; qishloq xo‘jaligi; suvni ushlab turish; sellyuloza; gidrolizlangan poliakrilonitril (GIPAN).

ПЕРСПЕКТИВЫ ИСПОЛЬЗОВАНИЯ БИОРАЗЛАГАЕМЫХ ГИДРОГЕЛЕЙ В СЕЛЬСКОМ ХОЗЯЙСТВЕ

Аннотация: В данной статье изучены перспективы использования биоразлагаемых гидрогелей в сельском хозяйстве. Представлена общая информация о биоразлагаемых гидрогелях, проанализированы свойства гидрогелей на основе целлюлозы и ГИПАН (гидролизированный полиакрилонитрил). Приведены сведения о способности гидрогелей поглощать воду, их биodeградации в почве и агрономической эффективности на основе данных научной литературы. Рассмотрены примеры использования гидрогелей на богарных землях (неорошаемых территориях), при капельном орошении и в садоводстве, показано их положительное влияние на экономию воды, повышение урожайности и улучшение свойств почвы. Анализ исследований показывает, что биоразлагаемые гидрогели эффективно сохраняют влагу в почве и повышают урожайность сельхозкультур, не нанося вреда окружающей среде, и могут способствовать обеспечению устойчивости сельского хозяйства.

Ключевые слова: биоразлагаемый гидрогель; сельское хозяйство; удержание

влаги; целлюлоза; гидролизированный полиакрилонитрил (ГИПАН).

PROSPECTS FOR THE USE OF BIODEGRADABLE HYDROGELS IN AGRICULTURE

Abstract: This article examines the prospects for the use of biodegradable hydrogels in agriculture. It provides general information about biodegradable hydrogels and analyzes the properties of hydrogels based on cellulose and HPAN (hydrolyzed polyacrylonitrile). The water absorption capacity, soil biodegradation, and agronomic efficiency of hydrogels are discussed with reference to scientific literature. Examples of hydrogel application in rainfed (non-irrigated) lands, drip irrigation systems, and horticulture are presented; demonstrating their positive effects on water saving, yield improvement, and soil quality. The analysis of studies indicates that biodegradable hydrogels effectively retain soil moisture and increase crop yields without harming the environment, and they hold significant potential for enhancing sustainability in agriculture.

Keywords : biodegradable hydrogel; agriculture; water retention; cellulose; hydrolyzed polyacrylonitrile (HPAN).

KIRISH

Global iqlim o'zgarishi va suv resurslarining cheklanishi sharoitida qishloq xo'jaligida suvdan samarali foydalanish dolzarb masalalardan biriga aylandi. Hozirgi kunda oziq-ovqat xavfsizligini ta'minlash uchun mavjud suv manbalaridan oqilona foydalanish, ayniqsa quraq va yarim quraq hududlarda, muhim ahamiyatga ega. An'anaviy agrotexnik usullar bilan bir qatorda, yangi texnologiyalar suvni tejash va hosildorlikni oshirishga ko'maklashmoqda. Shunday yechimlardan biri gidrogel texnologiyasidir. Gidrogellar – bu yuqori gidrofil xususiyatga ega bo'lgan uch o'lchamli polimer tarmoqlar bo'lib, ular o'z vaznidan bir necha barobar ko'p suvni shimib olish va ushlab turish qobiliyatiga ega. Tuproqqa qo'shilgan gidrogellar namlikni o'ziga singdirib, sekinlik bilan o'simlik ildizlariga qaytaradi, shu tariqa qurg'oqchilik stressini kamaytiradi va ekinlarning suvga bo'lgan talabini pasaytiradi. Ilmiy tadqiqotlar ko'rsatishicha, gidrogel qo'shimchalari tuproqning suv ushlash xususiyatini oshirishi, suvning sizib ketishi va bug'lanishini kamaytirishi hamda natijada ekinlarning hosildorligini va vegetative davrini yaxshilashi mumkin [1].

Hozirgi kunda bozor va ilmiy tadqiqotlarda mavjud ko'plab gidrogellar sintetik polimerlar (masalan, poliakrilamid, polivinil spirt) asosida ishlab chiqarilgan bo'lib, afsuski ular biologik parchalanmaydi.

Bunday "biodavomiy" (ya'ni tuproqda saqlanib qoluvchi) gidrogellar uzoq muddatda atrof-muhitga salbiy ta'sir ko'rsatishi va tuproq salomatligi uchun xavf tug'dirishi mumkin. Shu sababli, so'nggi yillarda tabiiy polimerlardan tayyorlangan, muddat o'tishi bilan tuproqda butunlay parchalana oladigan bioparchalanuvchi gidrogellarga qiziqish ortmoqda. Bioparchalanuvchi gidrogellar selluloza, kraxmal, xitozan, pektin kabi tabiiy polimerlardan olinadi va ular tuproqda mikroorganizmlar ta'sirida parchalanib, zararli qoldiq qoldirmaydi. Tabiiy gidrogellar ekologik jihatdan qulay bo'lsa-da, ularning ba'zi xususiyatlari (suv yutish sig'imi va mustahkamligi) sintetik analoglarga nisbatan pastroq bo'lishi mumkin. Shunday bo'lsa-da, ular barqaror qishloq xo'jaligi uchun muqobil yechim sifatida ko'rilmogda [2].

Ushbu maqolada qishloq xo'jaligida aynan **bioparchalanuvchi gidrogellardan** foydalanish masalasi yoritiladi. Dastlab, bioparchalanuvchi gidrogellarning umumiy xususiyatlari va ularning afzalliklari ko'rib chiqiladi. Keyinchalik, keng tarqalgan ikki tur – tabiiy selluloza

asosidagi va sintetik GIPAN asosidagi gidrogellar taqqoslanadi. Shuningdek, gidrogellarning suv singdirish qobiliyati, tuproqda parchalanish holati va agronomik (hosildorlikka, suvdan foydalanish samaradorligiga) ta'siri ilmiy tadqiqotlar misolida tahlil etiladi. Nihoyat, lalmi (sug'orilmaydigan) yerlar, tomchilatib sug'orish texnologiyasi va bog'dorchilik sohalarida gidrogellardan foydalanish tajribalari va istiqbollari muhokama qilinib, xulosalar va tavsiyalar beriladi.

ASOSIY QISM

Bioparchalanuvchi gidrogellar haqida umumiy ma'lumot. Gidrogellar – bu kimyoviy yoki fizik bog'lar orqali tarmoqlangan gidrofil polimerlar bo'lib, ular suvni ko'p miqdorda yuta olish xususiyatiga ega makromolekulyar materiallardir. Gidrogellar quruq holda o'z vaznidan yuzlab barobar ortiq suvni shimib, shishgan holatda uni ushlab tura oladi. Masalan, superyutiluvchan polimer gidrogellar o'zining quruq massasidan 400–500 barobar ko'p suvni singdira oladi. Natijada hosil bo'lgan shishgan gidrogel tuproq namligini saqlash xazinasi vazifasini bajaradi – suvni ushlab turib, tuproq qurigan sayin uni asta-sekinlik bilan o'simlik ildizlariga beradi. Shu tariqa, gidrogellar tuproq namligini barqaror ushlab, qurg'oqchilik sharoitida ham o'simliklarni suv bilan ta'minlashga ko'maklashadi. Ilmiy manbalarda keltirilishicha, gidrogel qo'shilgan tuproqda namlik bug'lanish va chuqur qatlamlarga sizib ketish orqali yo'qolmay, ko'proq saqlanib qoladi, bu esa sug'orishlar sonini kamaytirish va suv tejami erishish imkonini beradi.

Bioparchalanuvchi gidrogellar tushunchasi ostida asosan tabiiy manbalardan olingan, ekologik xavfsiz polimerlar tushuniladi. Bunday gidrogellar tarkibida sellyuloza, kraxmal, kitosan, lignin, alginat kabi tabiiy biopolimerlar bo'lishi mumkin. Ularning asosiy afzalligi – vaqt o'tishi bilan mikroorganizmlar ta'sirida parchalanib ketishi va tuproqda plastik yoki toksik qoldiq qoldirmasligidir. Masalan, sellyuloza asosidagi gidrogellar ma'lum muddat nam muhitda bo'lgach, tarmoq strukturasi degradatsiyasi natijasida oddiy shakarlarga parchalanib, tuproq mikroflorasiga ozuqa bo'lib xizmat qiladi. Shu xususiyat tufayli bunday gidrogellar organik dehqonchilikda ham qo'llanishi mumkin, chunki ular ekologik toza hisoblanadi. Bioparchalanuvchi gidrogellarni ishlatish orqali kelgusida tuproqda to'planib qoluvchi mikroplastik muammosining oldi olinadi.

Shuni ta'kidlash lozimki, tabiiy polimer gidrogellarning ba'zi kamchiliklari ham mavjud. Ularning mexanik mustahkamligi va suvni ushlab turish ko'rsatkichi ayrim sintetik gidrogellarga nisbatan pastroq bo'lishi mumkin. Masalan, an'anaviy akrilat asosli gidrogellar (polyakrilamid kabi) juda katta miqdorda suv yuta oladi va tuproqda uzoq saqlanadi, ammo ular bioparchalanmaydi. Tabiiy gidrogellar esa bioparchalanadi, lekin ko'pincha maksimal shishish qobiliyati bo'yicha sintetik analoglardan biroz ortda qoladi. Shu bois, zamonaviy tadqiqotlarda tabiiy va sintetik polimerlarni birlashtirgan **gibrid gidrogellar** ustida ham ishlar olib borilmoqda – bunda maqsad tabiiy polimerlarning ekologik afzalliklarini sintetik polimerlarning mustahkamligi va yuqori suv sig'iblanish qobiliyati bilan birlashtirishdir. Umuman olganda, bioparchalanuvchi gidrogellar suv resurslaridan foydalanishni optimallashtirish va tuproqni muhofaza qilish vositasi sifatida katta istiqbolga ega ekani ilmiy adabiyotlarda ta'kidlanmoqda [1,2,3].

Sellyuloza va GIPAN asosidagi gidrogellar

Sellyuloza asosidagi gidrogellar: Sellyuloza – yer yuzida eng ko'p uchraydigan tabiiy polimerlardan biri bo'lib, u o'simlik hujayra devorlarining asosiy tarkibiy qismidir. Sellyuloza molekulasida ko'p sonli gidroksil guruhlariga ega bo'lgani tufayli suv bilan yaxshi bog'lana oladi va undan turli hosilalar olinib, gidrogel materiallar sintez qilinadi. Masalan, karboksimetilsellyuloza

(KMS), gidroksietilsellyuloza va boshqa modifikatsiyalangan sellyuloza turlari asosida turli tarmoqlangan gidrogellar yaratilgan. Bunday gidrogellar biologik inert va bioparchalanuvchan bo'lib, qishloq xo'jaligida, tibbiyotda hamda atrof-muhitni muhofaza qilishda qo'llanilmoqda. Ilmiy manbalarda qayd etilishicha, sellyuloza asosidagi gidrogellar keng xomashyo bazasi (sellyulozaning o'zi arzon va mo'l) va ularning o'zida mavjud biodegradatsiya xususiyati tufayli jadal o'rganilmoqda. Masalan, Montesano va hamkorlar (2015) sellyuloza polimeridan tayyorlangan yangi biodegradatsiya qiluvchi gidrogelni sinovdan o'tkazib, uning tuproq namligini ushlab turish va o'simlik o'sishiga ta'sirini baholadilar. Ushbu gidrogel tuproq nam sig'imini sezilarli darajada oshirib, o'simliklarning o'sishi va sifati yaxshilanishiga olib kelgan (quyida batafsilroq keltiriladi). Sellyuloza asosidagi gidrogellar tuproqda to'liq parchalanish xususiyatiga ega bo'lib, parchalanish muddati gidrogelning tarkibi va atrof-muhit sharoitlariga bog'liq holda o'rtacha bir necha oydan bir necha vegetatsiya davrigacha bo'lishi mumkin. Shu bois, bunday gidrogellarni har mavsum boshida qayta qo'llash talab qilinishi mumkin, biroq ular tuproqni boyituvchi organik moddalarga aylanishi va ekologik sog'lom muhitni saqlashga ko'maklashishi bilan qimmatlidir [1,2,4].

GIPAN asosidagi gidrogellar: GIPAN abbreviaturasi rus tilida "gidrolizovanny poliakrilonitril" iborasidan olingan bo'lib, u **gidrolizlangan poliakrilonitril** degan ma'noni anglatadi. Poliakrilonitril (PAN) – sintetik polimer bo'lib, uning zanjiridagi nitril guruhlarini qisman gidroliz qilish orqali karboksilat guruhlari hosil qilinadi; natijada polimer suvni o'ziga tortadigan (gidrofil) xususiyat kasb etadi. GIPAN asosidagi gidrogellar aslida akrilamid-akril kislotasi polimerlari (PAA) oilasiga kiradi va qishloq xo'jaligidagi ko'plab "superabsorber" gidrogellarning asosini tashkil etadi. Masalan, dunyoda keng qo'llanilgan poliakrilamid gidrogellari (ko'pincha "superfosfat gidrogel" yoki shunga o'xshash nomlarda) aslida GIPAN hosilalaridir. Ular juda yuqori suv yutish qobiliyatiga ega: laboratoriya sharoitida ba'zi GIPAN asosli superabsorbentlar o'z vaznidan ming barobar va hatto undan ham ko'proq suv shimishi mumkinligi haqida ma'lumotlar bor. Biroq amaliy sharoitlarda, ya'ni tuproqdagi sho'rlar va aralashmalar borligida, ularning haqiqiy suv singdirish ko'rsatkichi bir oz pastroq bo'ladi (o'nlab va yuzlab barobar).

GIPAN asosidagi gidrogellarning asosiy afzalligi – yuqori turg'unlik va chidamlilikdir. Ular tuproqda bir necha yillar davomida saqlanib, takror-takror suvni shimib-qayta berish tsikllariga dosh bera oladi. Bunday gidrogellar suvni ko'p marta o'ziga tortib, quriganda yana qayta takror namlikni shimish qobiliyatini saqlaydi. Shu sababli, 1980–1990 yillarda va hozirgi kunda ham GIPAN/PAA asosidagi gidrogellar qurg'oqchil hududlarda hosildorlikni oshirish maqsadida keng tatbiq etilgan. Ammo GIPAN gidrogellarining jiddiy kamchiligi shundaki, ularning polimer zanjirlari tabiiy sharoitda oson parchalanmaydi – ya'ni **bioparchalanmaydi**. Tuproqda bunday polimerlar yillar davomida deyarli o'zgarmagan holda qolishi, asta-sekin fizik maydalanish orqali mikroplastik zarrachalarga ajralishi mumkin. Bu esa uzoq muddatda tuproq ekologiyasiga salbiy ta'sir ko'rsatishi mumkinligi haqida tadqiqotchilar ogohlantirmoqda [5,6].

Mahalliy tadqiqotlarda GIPAN asosli gidrogellarni takomillashtirish va ularni qishloq xo'jaligida ko'p funksiyali qilish borasida ishlar olib borilmoqda. Jumladan, GIPAN polimerini turli mineral o'g'itlar (masalan, NPK kompleksi, fosforli o'g'itlar) va o'sish stimulyatorlari bilan birikitib, "kompleks ta'sirga ega" gidrogellar sintez qilingan va sinovdan o'tkazilgan. Bunday gidrogellar bir vaqtning o'zida ham suv akkumulyatori, ham o'g'itlarni sekin ajratib beruvchi tizim sifatida xizmat qilishi maqsad qilingan. Dastlabki natijalar shuni ko'rsatadiki, GIPAN asosidagi polimerga mineral komponentlar qo'shib olinishi uning suv yutish qobiliyatiga jiddiy ta'sir

qilmaydi, lekin o'simliklarni kerakli elementlar bilan ta'minlash muddatini uzaytiradi. Shuningdek, GIPAN polimerining formaldegid kabi ko'priklavchi agentlar vositasida tarmoqlanish darajasini boshqarish orqali uning shishish tezligi va sig'imi tartibga solinadi – bu ilmiy ishlar natijasida tuproq-iqlim sharoitlariga moslashgan optimal gidrogel tuzilmalarini yaratish imkoni paydo bo'lgan [7].

Xulosa qilganda, sellyuloza asosidagi va GIPAN asosidagi gidrogellar bir-biridan jiddiy farq qiladi: birinchisi to'liq tabiiy va bioparchalanadigan bo'lsa, ikkinchisi sintetik bo'lib, yuqori samaradorlikka ega, ammo parchalanmaydi. Kelajakda qishloq xo'jaligida ekologik xavfsizlikni ta'minlash maqsadida GIPAN singari sintetik gidrogellarga muqobil sifatida tabiiy biopolimer gidrogellarni qo'llash ahamiyat kasb etadi. Shu bilan birga, mavjud sintetik gidrogellardan imkon qadar oqilona foydalanish, ularni tuproqdan qayta ajratib olish yoki parchalovchi qo'shimchalar yordamida degradatsiyaga uchratish kabi choralar ham ilmiy izlanishlar obyektidir.

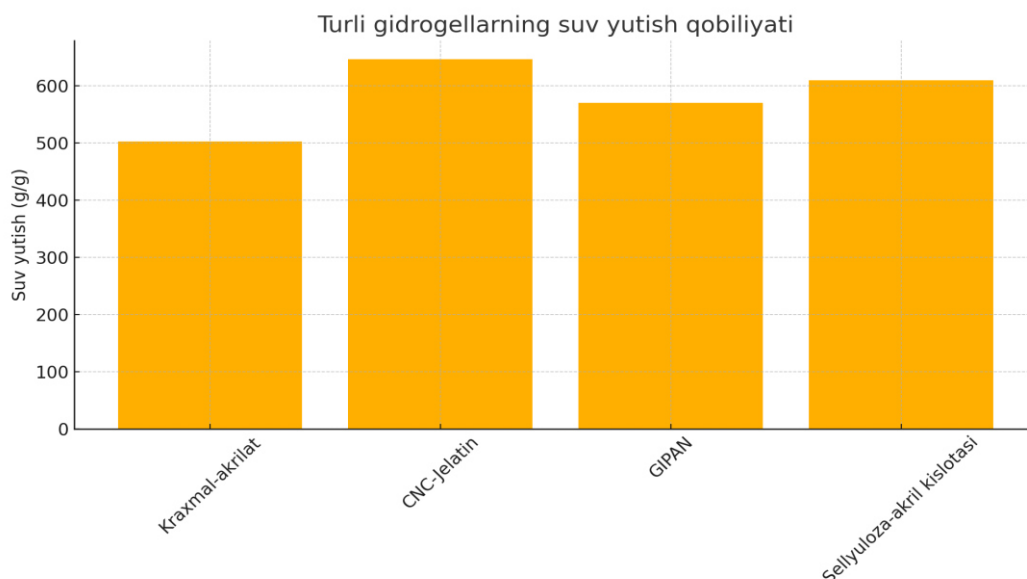
Gidrogelning suv yutish, bioparchalanish va agronomik samaradorligi

Gidrogellarning eng muhim xususiyatlaridan biri – ularning **suv yutish (shishish) qobiliyati** va shishgan holda suvni ushlab turish kuchidir. Yuqorida ta'kidlanganidek, superabsorbent gidrogellar distillangan suvda o'z vaznidan yuzlab barobar ko'p suvni shimishi mumkin. Real tuproq sharoitida esa gidrogelning yutish qobiliyati tuproq eritmasining sho'rli, harorati va boshqa omillarga bog'liq bo'lib, odatda biroz kamayadi. Shunday bo'lsa-da, hatto 0,1–0,5% miqdorda (tuproq massasiga nisbatan) gidrogel qo'shish tuproqning umumiy suv sig'imini sezilarli darajada oshira oladi. Masalan, Italiya olimlari qumli tuproqqa 2% (massa bo'yicha) sellyuloza asosli biogidrogel aralashtirib, tuproqning dala nam sig'imi (mayda kapillyarlarda ushlanadigan namlik) nazoratdagiga nisbatan **to'rt baravar** oshganini aniqlashgan. Bunda tuproqning doygunklik holatidagi namligi juda yuqori darajaga yetib, hatto doygunk holdagi nazorat tuproq namligidan ham ko'proq suv saqlana olgan. Shuningdek, o'sha tajribada qurish nuqtasidagi namlik hajmi ham gidrogel qo'shilmagan tuproqning dala nam sig'imi darajasiga tenglashgani kuzatilgan, ya'ni gidrogel tuproqni “nam bufer” holatida ushlab turishini ko'rsatgan. Boshqa bir tadqiqotda, perlit kabi suvni kam ushlovchi substratga atigi 1–2% gidrogel aralashtirish natijasida substratning suv sig'imi 28–48% ga oshgani qayd etilgan. Bu misollar gidrogellar hatto kichik konsentratsiyalarda ham tuproqning suv tutish xususiyatlarini keskin yaxshilashini tasdiqlaydi.

Bioparchalanuvchi gidrogellarning **tuproqda degradatsiya bo'lishi** ularning ekologik hayotiyliigi va agronomik samaradorligini ta'sir etuvchi muhim jihatdir. Tabiiy polimerlardan tayyorlangan gidrogellar odatda tuproq mikroorganizmlari tomonidan fermentativ parchalanish yo'li bilan vaqt o'tishi bilan parchalana boshlaydi. Masalan, sellyuloza asosli gidrogel tuproqqa singdirilgach, bir necha oy ichida uning massasi kamayib borishi va yakunda CO₂ va suvga qadar parchalanishi mumkin. **Bioparchalanish tezligi** gidrogelning kimyoviy tuzilishi va cross-link (ko'priklash) darajasiga bog'liq: kuchliroq tarmoqlangan gidrogel sekinroq parchalanadi, pastroq tarmoqlangan (yoki suvda eruvchanroq) polimerlar esa tezroq yemiriladi. Bundan tashqari, tuproqning namligi, harorati va biologik faolligi ham parchalanish sur'atini belgilaydi. Optimal sharoitda, masalan, issiq-iqlimiy hududlarning nam tuproqlarida, gidrogel bir vegetatsiya davri oxiriga kelib ancha qismini yo'qotishi mumkin. Gidrogellar biologik parchalanganda tuproqda zaharli qoldiq qoldirmaydi – bu ularning sintetik, parchalanmaydigan polimerlardan katta ustunligidir. Tadqiqotchilarning qayd etishicha, tuproqda parchalanmaydigan gidrogel polimerlar yillar davomida to'planib, tuproq strukturasi o'zgartirishi va ekologik muammolarga olib kelishi mumkin, shu bois kelajakda **to'liq bioparchalanadigan** gidrogellarni yaratish muhim yo'nalish hisoblanadi [4,5,6].

1-jadval. Turli gidrogellarning suv yutish ko'rsatkichlari

Gidrogel turi	Suv yutish (g/g)
Kraxmal-akrilat	503
CNC-Jelatin	647
GIPAN	570
Sellyuloza-akril kislotasi	610



1-rasm. Turli gidrogellarning suv yutish qobiliyati grafigi.

Agronomik samaradorlik nuqtayi nazaridan gidrogellarning qo'llanilishi bir qator ijobiy effektlar beradi. Avvalo, gidrogel tuproqning namlik rejimini yaxshilagani tufayli o'simliklar qurg'oqchilik stressiga kamroq uchraydi, bu esa vegetatsiya davrida hosilning saqlanishiga yordam beradi. Kuzatishlarga ko'ra, gidrogel qo'shilgan tuproqda o'simliklarning unib chiqishi va dastlabki rivojlanishi yaxshilanadi – namlik yetarli bo'lgani uchun urug'larning unib chiqishi va boshlang'ich o'sish ko'rsatkichlarini sezilarli oshirgani aniqlangan (turli manbalarda keltirilgan). Gidrogelning hosildorlikka ta'sirini dalada o'rganishlar ham e'tiborga molik natijalar bergan. Markaziy Osiyoda, xususan Tojikiston sharoitida o'tkazilgan tajribada, **lalmi yerda** gidrogel qo'llanishi xom paxta hosildorligini gektariga 0,95 tonnaga, kuzgi bug'doy hosildorligini 1,2 tonnaga oshirganligi qayd etilgan. Bu tajribada gidrogel ishlatish ayniqsa sug'orilmaydigan dehqonchilikda katta samara bergani, barqaror hosil olishni ta'minlagani ta'kidlangan. Gidrogel tuproq namligini saqlab qolgani bois, vegetatsiya davomida qo'shimcha sug'orishlarsiz ham o'simliklar o'sishini ta'minlagan. Sug'oriladigan sharoitda esa gidrogel qo'llash natijasida suv sarfi **kamida 40%** ga qisqartirilishi mumkinligi, chunki sug'orishlar oralig'i uzayishi va har galgi sug'orishda beriladigan suv me'yori kamayishi ta'kidlanmoqda. Misol uchun, Misrda o'tkazilgan bir tajribada, marul (salat bargi) o'simligini yetishtirishda sug'orish me'yorini 15% ga qisqartirib (ya'ni 85% ET_c darajasida sug'orib), tuproqqa 0,3% gidrogel qo'shilganda, hosil hajmi sezilarli kamaymasdan suvdan foydalanish samaradorligi maksimumga erishilgan. Bu shuni

ko'rsatadiki, gidrogel qo'llash suv tanqisligida hosildorlikni ushlab qolishga yoki kam suv bilan yuqori natija olishga yordam beradi.

Gidrogellar nafaqat suv bilan ta'minlash, balki oziqlantirish samaradorligini ham oshirishi mumkin. Gidrofob tuproqlarda yoki qumli tuproqlarda azot, fosfor kabi oziq moddalar sug'orish va yomg'ir suvi bilan yuvilib ketishi odatiy hol. Gidrogellar esa tuproq eritmasini gel strukturada ushlab turib, mineral o'g'itlarning ham yuvilib ketishini kamaytiradi. Misol uchun, gidrogel bilan birga berilgan azotli o'g'itlar tuproqda uzoqroq saqlanib, o'simliklar tomonidan ko'proq o'zlashtirilishi mumkin – chunki gidrogel nam muhit yaratib, o'g'itlarning bir qismini o'ziga adsorbsiya qiladi va ularni sekinlik bilan ajratib beradi. Yuqorida keltirilgan Tojikiston tajribasida ham gidrogel qo'llash natijasida mineral o'g'itlarning yuvilib ketishi qisqargani, tuproqdan o'g'itlarning samarasiz yo'qolishi kamaygani ta'kidlangan. Demak, gidrogel qo'llash bir yo'la **suv rejimini, ovqatlanish rejimini** va umuman **agroekologik holatni** yaxshilaydi, natijada agronomik ko'rsatkichlarni (hosil miqdori va sifati, suvning har bir hosil birligiga sarfi va boshqalar) yaxshilashga xizmat qiladi.

Lalmi yerlar, tomchilatib sug'orish va bog'dorchilikda qo'llanilishi

Lalmi yerlar (sug'orilmaydigan hududlar): Lalmi dehqonchilik sharoitida ekinlar faqat tabiiy yog'ingarchilikka tayanadi. Bunday hududlarda qurg'oqchilik xavfi yuqori bo'lib, yil fasllariga qarab tuproq namligi keskin o'zgarib turadi. Gidrogellar lalmi yerlar uchun ayniqsa foydali bo'lishi mumkin, chunki ular yog'ingarchilik davrida o'ziga suvni yutib, tuproqda saqlaydi va qurg'oqchilik davrida o'simliklar foydalana oladigan zaxira sifatida xizmat qiladi. Tajribalar shuni ko'rsatadiki, lalmi sharoitda urug' ekish paytida tuproqqa gidrogel aralashtirilsa, keyingi yog'ingarchilik suvlari samarasiz sizib ketmay, gidrogel tomonidan ushlanadi va urug'larning unish davrida yetarli namlikni ta'minlaydi. Bu usul, xususan, O'zbekiston va Tojikistonning boqoni yerlari hamda tog' oldi hududlarida samarali bo'lishi mumkin. Yuqorida keltirilgan Markaziy Osiyo tadqiqotida (Pulatov va boshq, 2024) gidrogel qo'llangan lalmi maydonlarda paxta va bug'doy hosildorligi an'anaviy usulga nisbatan ancha yuqori bo'lganligi buning yorqin misolidir. Bunda gidrogel yomg'ir suvlarini o'zida saqlab, vegetatsiya davrida o'simliklarga uzluksiz namlik uzatib turgani ta'kidlangan. Shuningdek, gidrogel ishlatilgan dala kuzda haydalib, keyingi yilga qolganida ham tuproqning namlik tutish xususiyati avvalgiga qaraganda yuqori bo'lishi kuzatilgan – bu gidrogelning qoldiq ta'siri natijasidir (garchi uning asosiy qismi biologik parchalanib ketgan bo'lsa ham). Lalmi dehqonchilikda gidrogelning bunday qo'llanilishi yilning quyi yog'ingarchilik davrida ham barqaror hosil olish, qurg'oqchilik xavfini kamaytirish imkonini beradi [4,8].

Tomchilatib sug'orish va gidrogellar: Tomchilatib sug'orishning o'zi suvni tejaydigan zamonaviy texnologiya bo'lib, an'anaviy usullarga nisbatan 30–50% kam suv sarflaydi. Biroq tomchilatib sug'orishda ham sug'orishlar oralig'ida tuproqning yuqori qatlami tez qurib qolishi va o'simliklar stress olishi mumkin. Gidrogellarni tomchilatib sug'orish tizimlari bilan integratsiya qilish bu muammoni hal etishga yordam beradi. Xususan, tomchilatuvchi lenta yaqinidagi tuproqqa gidrogel granulalarini aralashtirib chiqilsa, har bir sug'orishda berilgan suvning bir qismi gidrogel tomonidan ushlab qolinadi va keyingi kunlarda asta-sekin ildiz zonasiga berib boriladi. Bu esa tomchilatib sug'orishda sug'orishlar orasidagi intervalni uzaytirish, sug'orish sonini kamaytirish imkonini yaratadi. Masalan, bog'dorchilik plantatsiyalarida (mevali daraxtlar) har bir ko'chat atrofidagi tuproqqa gidrogel (masalan, 100–200 g) solib chiqilsa, tomchilatib sug'orish tizimi orqali berilgan suvning sezilarli qismi gel orqali zaxiralab qo'yiladi va tuproq uzoqroq muddat nam bo'lib turadi. Natijada, issiq yoz kunlarida ham daraxtlar xuddi doimiy nam

tuproqda o'sgandek barqaror o'sish ko'rsatadi, sug'orish esa kamroq talab etiladi. Ilmiy tadqiqotlarda keltirilishicha, gidrogel va tomchilatib sug'orishni uyg'unlashtirish suvdan foydalanish samaradorligini maksimal darajaga yetkazadi – ayrim hollarda odatdagiga nisbatan 40% ga yaqin suv tejallishi, lekin hosildorlik pasaymasligi kuzatilgan. Bundan tashqari, gidrogel tuproqda o'g'itlarning bir tekis taqsimlanishiga ham xizmat qiladi, chunki tomchilatib beriladigan ozuqaviy eritma gel tomonidan ushlanib, ildiz mintaqasida yuqori konsentratsiya hosil qilmaydi va yuvilib ketmaydi.

Bog'dorchilik va ko'chatchilik: Gidrogellardan foydalanish bog'dorchilikda–xususan, daraxtlar, meva-sabzavotlar va gulchilikda–keng istiqbolga ega. Mevali daraxtlar ko'p yillik bo'lgani bois, ular uchun tuproq namligi va oziqlanish sharoiti yil sayin yig'ilib boruvchi ta'sirga ega. Gidrogellar tuproqni yumshoqroq va nam saqlashga yordam berib, daraxtlarning ildiz tizimi yaxshiroq rivojlanishini ta'minlaydi. Misol uchun, Misrda mango daraxtlarida o'tkazilgan tajribada tuproq har bir daraxt uchun 250 g, 500 g va 750 g gidrogel bilan ishlov berilganda, barchasida nazorat guruhiga nisbatan kuchli o'sish va hosil ortishi kuzatilgan, eng yuqori natija 750 g gidrogel berilgan daraxtlarda qayd etilgan. Xususan, 750 g gidrogel qo'llangan mango daraxtlarida barg yuzasi, novda uzunligi va butun daraxt shox-shabbasi hajmi sezilarli darajada oshgan, hosil mevalarining soni va sifati ham yaxshilangan. Gidrogelning bunday samarasi uning tuproq atrofidagi mikroiklimni yaxshilashi bilan bog'liq: gidrogel tuproq namligini oshirib, ortiqcha suvni ushlaydi va tuproqni yumshoq nam holatda ushlab turadi, shu bilan birga o'g'itlar ham bir maromda saqlanadi. Boshqa misol tariqasida, zaytun daraxtlari ostiga gidrogel kiritilganda tuproq namligi yuqori bo'lib, o'simlik barglarining kunduzgi transpirasiyasi (stomalar ochiqligi) oshgani, shoxlarning o'sishi tezlashgani va hatto olingan zaytun moyi hosildorligi yuqorgi bo'lganini olimlar kuzatishgan. Sitrus (masalan, apelsin, mandarin) bog'larida ham gidrogel qo'llash bo'yicha tadqiqotlar shuni ko'rsatadiki, tuproqqa 1 kg/ta daraxt atrofida gidrogel solish natijasida daraxtlarning meva berish ko'rsatkichlari va meva sifati sezilarli oshadi. Murcott navi mandarin daraxtlarida 250–750 g gidrogel berish orqali barg o'sishi, meva og'irligi va umumiy hosil hajmi oshgani haqida xabar berilgan.

Ko'chatxonalar va issiqxonalarda ham gidrogellardan foydalanish yaxshi samara beradi. Ko'chat yetishtirishda tuproq-aralashmaga qo'shilgan gidrogel substratning namlik sig'imini oshirib, ko'chatlarning suv stressiga chidamini kuchaytiradi. Masalan, gul ko'chatlarini idishlarda o'stirishda tuproqqa oz miqdorda gidrogel aralashtirilsa, sug'orishlar orasidagi oraliq uzayadi va ko'chatlar ba'zan sug'orib ulgura olmaslik holatlarida ham qurib qolmaydi – gidrogel zaxira suvni beradi. Ayniqsa, manzarali gulchilikda gidrogel ishlatish bilan o'simliklarning barg va gullarining so'lish va qurishi sekinlashadi, ularning "raf umrini" uzaytiradi, deb ta'kidlanadi. Bir so'z bilan aytganda, bog'dorchilik va ko'chatchilikda gidrogellar o'simlik parvarishini yengillashtiradi, stress omillarini kamaytiradi va mahsulot sifatini yaxshilaydi [8].

XULOSA VA TAVSIYALAR

Bioparchalanuvchi gidrogellar qishloq xo'jaligida suv resurslaridan oqilona foydalanish va barqaror hosildorlikni ta'minlash yo'lida istiqbolli vosita sifatida e'tirof etilmoqda. Yuqorida keltirilgan tahlillar va misollar shuni ko'rsatadiki, bunday gidrogellar tuproqning namlik sig'imini oshirish, namlikni ushlab turish va o'simliklar ildiz zonasiga yetkazib berishda samarali instrument bo'lib xizmat qiladi. Bioparchalanuvchi gidrogel qo'llash natijasida ekinlar qurg'oqchilik stressini yengilroq kechirishadi, sug'orish suviga bo'lgan ehtiyoj qisqaradi, hosildorlik va hosil sifati yaxshilanadi. Eng muhimi, tabiiy polimerlardan iborat gidrogellar o'z vazifasini bajargach, tuproq muhitida asta-sekin parchalanib ketadi va atrof-muhitga zarar yetkazmaydi. Bu jihatdan ular

an'anaviy sintetik gidrogellarga nisbatan ekologik afzalliklarga ega – tuproqda mikropolimer chiqindi qoldirmaydi, tuproqning biologik faoliyatiga salbiy ta'sir ko'rsatmaydi, aksincha, parchalanganda tuproqni organik moddalar bilan boyitadi.

Shu bilan birga, bioparchalanuvchi gidrogellardan amaliy foydalanishda e'tiborga olish lozim bo'lgan ba'zi masalalar ham mavjud. Birinchidan, bunday gidrogellar sintetik analoglarga qaraganda tuproqda tezroq parchalangani uchun ularning ta'siri vaqtincha bo'ladi – odatda bir vegetatsiya mavsumi davomida. Demak, yuqori samaraga erishish uchun har vegetatsiya boshida yoki ma'lum bir muddatda gidrogelni qayta qo'llash talab qilinishi mumkin. Bu esa qo'shimcha xarajat va mehnat talab etadi. Shu nuqtai nazardan, kelgusida bioparchalanuvchi gidrogellarning iqtisodiy samaradorligini oshirish, ya'ni arzon xomashyodan oson usulda ko'p miqdorda olish va dehqonlar uchun qulay shakllarda (granula, kukun, gel, kapsula va hokazo) taqdim etish muhim ilmiy-texnik vazifa hisoblanadi. Ikkinchidan, har xil tuproq-iqlim sharoitlarida gidrogelning optimal dozasini belgilash zarur. Chunki tuproqning mexanik tarkibi, organik moddalar miqdori, sho'rlik darajasi kabi omillar gidrogel samaradorligiga ta'sir qiladi. Masalan, qumli tuproqlarda gidrogel yuqori natija bersa, og'ir loy tuproqlarda uning ta'siri biroz cheklanishi mumkin (tuproqning o'zi namlikni ushlab turish xususiyati yaxshi bo'lgani uchun). Shu sababli, har bir mintaqada tajribaviy ravishda gidrogel qo'llash me'yorlari va usullari ishlab chiqilishi tavsiya etiladi.

Uchinchi muhim masala – gidrogellarni o'g'itlar, pestitsidlar va boshqa agrotexnik chora-tadbirlar bilan uyg'unlashtirishdir. Yuqorida aytib o'tilganidek, gidrogelning bir qator foydali xususiyatlari bor – u suvni saqlaydi, o'g'itning yuvilib ketishini kamaytiradi, tuproq tuzilishini yaxshilaydi. Agar gidrogel granulalari tarkibiga **minerallar** yoki **mikroelementlar** biriktirilsa, ular ikki tomonlama foyda beradi: bir tomondan suv, bir tomondan oziq moddalarni sayoz qatlamda saqlab, o'simlikka uzatadi. Hozirgi kunda "aqlli" (intellektual) deb ataluvchi gidrogellar ustida tadqiqotlar olib borilmoqda – bular atrof-muhit sharoitiga qarab suv va ozuqa moddalarini dozalar ajrata oladigan polimer tizimlardir. Masalan, tuproq quruqlashganda suvni berib, namlanganda ushlab qoluvchi, yoki tuproq eritmasidagi muayyan ion konsentratsiyasi ma'lum darajaga yetganda ortiqchasini o'ziga yutib, keyin asta ajratuvchi gidrogellar konsepsiyasi ilgari surilmoqda. Bu yo'nalishdagi izlanishlar yaqin kelajakda qishloq xo'jaligida yanada tejamkor va samarali resurslardan foydalanish imkonini berishi mumkin.

Xulosa o'rinda aytganda, bioparchalanuvchi gidrogellar qishloq xo'jaligida innovatsion yechim bo'lib, suv tanqisligi sharoitida hosildorlikni oshirish, resurslarni tejash va atrof-muhitni muhofaza qilish kabi bir-biriga uzviy bog'liq vazifalarni hal etishda muhim rol o'ynashi mumkin. Tavsiya etiladiki, O'zbekiston sharoitida ham turli ekinlar va tuproqlarda bunday gidrogellarni qo'llash bo'yicha dala tajribalari kengroq o'tkazilsin. Mahalliy xomashyo – paxta tolasi chiqindilari (linters), qamish, makkajo'xori po'stlog'i kabi selluloza manbalaridan – foydalanib arzon biogidrogellar ishlab chiqarish imkoniyatlarini izlasa arziydi. Shu bilan birga, qishloq xo'jaligi ishlab chiqaruvchilarini gidrogel texnologiyalaridan xabardor qilish, ularni qo'llash bo'yicha qo'llanmalar ishlab chiqish va iqtisodiy rag'batlar (masalan, suvni tejaydigan texnologiyalar uchun subsidiyalar) joriy etish ham muhim ahamiyatga ega. Bioparchalanuvchi gidrogellarni joriy etish bilan biz kelajakda suv resurslarini tejash, tuproq unumdorligini saqlash va oshirish hamda barqaror qishloq xo'jaligini rivojlantirish yo'lida muhim qadam qo'ygan bo'lamiz.

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PHLOMOIDES BRACHYSTEGIYA O'SIMLIGINING UCHUVCHAN COMPONENT TARKIBI

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Anotatsiya: Ushbu tadqiqotda *Phlomoides brachystegia* o'simligining uchuvchan komponentlar tarkibi o'rganildi. Namangan viloyatida o'sadigan *Phlomoides* turkumiga mansub o'simlik namunalaridan efir moylari gidrodistillyatsiya usulida ajratib olindi va GC-MS usulida tahlil qilindi. Tahlil natijasida efir moyi tarkibida 2-Hexadecene, 3,7,11,15-tetramethyl (14,28%), Phenethyl alcohol (5,62%) va Methyl nicotinate (5,36%) kabi biofaol komponentlar aniqlangan. Umumiy kimyoviy spektr alifat uglevodorodlar (30,2%), aromatik birikmalar (25,6%), terpenoidlar va izoprenoidlar (18,7%) kabi sinflarga ajratildi. Aniqlangan komponentlarning farmatsevtika, kosmetika va oziq-ovqat sanoatidagi amaliy ahamiyati tahlil qilindi. O'simlikning boy efir moyi tarkibi uni dorivor manba sifatida tadqiq etish zarurligini ko'rsatadi.

Kalit so'zlar: *Phlomoides brachystegia*, efir moyi, GC-MS, uchuvchan komponentlar, biofaol birikmalar, terpenoidlar, aromatik birikmalar, farmatsevtik ahamiyat

VOLATILE COMPONENT COMPOSITION OF BRACHYSTEGIA PHLOMOIDES

Abstract: In this study, the volatile components of the plant *Phlomoides brachystegia* were investigated. Essential oils were extracted from samples of *Phlomoides* species growing in Namangan region using hydrodistillation, and their composition was analyzed by GC-MS. As a result of the analysis, several bioactive components were identified in the essential oil, including 2-Hexadecene, 3,7,11,15-tetramethyl (14.28%), Phenethyl alcohol (5.62%), and Methyl nicotinate (5.36%). The overall chemical spectrum was classified into the following groups: aliphatic hydrocarbons (30.2%), aromatic compounds (25.6%), terpenoids and isoprenoids (18.7%), alcohols and aldehydes (15.5%), and organic acids and their esters (10.0%). The pharmaceutical, cosmetic, and food industry relevance of the identified compounds was analyzed. The rich chemical profile of the essential oil indicates the potential of this plant as a valuable medicinal resource.

Keywords: *Phlomoides brachystegia*, essential oil, GC-MS, volatile components, bioactive compounds, terpenoids, aromatic compounds, pharmaceutical significance

СОСТАВ ЛЕТУЧИХ КОМПОНЕНТОВ BRACHYSTEGIA PHLOMOIDES

Аннотация: В данном исследовании изучался состав летучих компонентов растения *Phlomoides brachystegia*. Эфирные масла были извлечены из образцов растений рода *Phlomoides*, произрастающих в Наманганской области, методом гидроdistилляции и проанализированы методом ГХ-МС. В результате анализа в эфирном масле были идентифицированы такие биоактивные компоненты, как 2-гексадецен, 3,7,11,15-тетраметил (14,28%), фенилэтиловый спирт (5,62%) и метилникотинат (5,36%). Общий химический спектр был разделен на такие классы, как алифатические углеводороды (30,2%), ароматические соединения (25,6%), терпеноиды и изопреноиды (18,7%).

Проанализирована практическая значимость выявленных компонентов в фармацевтической, косметической и пищевой промышленности. Богатое содержание эфирного масла в растении указывает на необходимость изучения его в качестве лекарственного источника.

Ключевые слова: *Phlomoides brachystegia*, эфирное масло, ГХ-МС, летучие компоненты, биологически активные соединения, терпеноиды, ароматические соединения, фармацевтическое значение

KIRISH

Lamiaceae (labguldoshlar) oilasining yirik turkumlaridan biri *Phlomoides* Moench bo'lib, u taxminan 170 turdan iborat. Bu turlarning 42 tasi Xitoyda, 59 tasi Markaziy Osiyo mamlakatlarida va 43 tasi O'zbekiston hududida tarqalgan. *Phlomoides* turkumiga mansub o'simliklar odatda tog'larning o'rta va pastki zonalarida, gil, gilli-shag'alli tuproqlarda, ba'zida esa cho'l hududlarida va maysazorlarda o'sadi. Ushbu turkum o'simliklarida iridoidlar, feniletanoidlar, flavonoidlar kabi biologik faol birikmalar mavjudligi aniqlangan. Efir moyi miqdori nisbatan past bo'lsa-da (0,02–0,9%), uning kimyoviy tarkibi farmatsevtika nuqtayi nazaridan ahamiyatga ega.

ASOSIY QISM

Namangan viloyatida o'sadigan *Phlomoides* nuda o'simliklarini gullashdan oldingi davr va gullagan davridagi uchuvchan komponentli birikmalari gidrodistillyasiya usulida olindi, qurituvchilar yordamida quritildi hamda efir moyi tarkibi Agilent 5977A mass-selektiv detektorli (Agilent Technologies) VF-Wax CP 9205 kolonkada (100% polietilenglikol, 30 m × 0,25 mm, plenka qalinligi 0,25 mkm, Agilent Technologies, Niderlandiya) Agilent 7890B gaz suyuqlik xromatografiyasidan foydalanilgan holda tahlil qilindi. Olingan natijalar gaz xromato-mass-spektrometrik ma'lumotlar kutubxonasi, Wiley Registry of Mass Spectral Data (9-chi nashr), NIST Mass Spectral Library (2011) ma'lumotlar bazasi hamda kataloglardan foydalangan holda tahlil qilindi. Tahlil natijalariga ko'ra, efir moyi tarkibida bir nechta muhim bioaktiv komponentlar aniqlangan: 2-Hexadecene, 3,7,11,15-tetramethyl – **14,28%**, Phenethyl alcohol – **5,62%**, Methyl nicotinate – **5,36%**

Umumiy kimyoviy tarkib quyidagi guruhlariga ajratildi: Alifat uglevodorodlar – 30,2%, Aromatik birikmalar – 25,6%, Terpenoidlar va izoprenoidlar – 18,7%, Spirtlar va aldehidlar – 15,5%, Organik kislotalar va ularning esterlari – 10,0%. Bu natijalar *Phlomoides brachystegia* efir moyi tarkibining o'ziga xos va boy kimyoviy spektrga ega ekanligini ko'rsatadi. Tahlilda aniqlangan biologik faol komponentlar quyidagilar: Tabiiy birikmalar, ayniqsa efir moylari va ularning komponentlari, farmatsevtika, kosmetika, oziq-ovqat va boshqa texnik sohalarda keng qo'llaniladi. Quyida ushbu sinfga kiruvchi ba'zi biofaol va aromatik komponentlarning xossalari, manbalari va qo'llanilish doirasi keltirilgan. **Eugenol** — bu fenolik tarkibli tabiiy birikma bo'lib, asosan dolchin (*Cinnamomum*), chinnigullar (*Syzygium aromaticum*) va boshqa ziravor o'simliklarning efir moylarida uchraydi. U antiseptik, analjezik va yallig'lanishga qarshi xususiyatlarga ega bo'lib, stomatologiyada keng foydalaniladi. Shuningdek, eugenol oziq-ovqat aromatizatorlari va parfyumeriya sanoatida ham muhim komponent hisoblanadi.

Linalool oksidlari — linaloolning oksidlanishidan hosil bo'lgan kislorodli terpenoid birikmalardir. Bu modda asosan lavanda (*Lavandula officinalis*), reyhan (*Ocimum basilicum*) va boshqa o'simliklarda mavjud. Linalool oksidlari o'zining tinchlantiruvchi (sedativ) va aromatik

xususiyatlari bilan ajralib turadi. Aksariyat hollarda aromaterapiyada va kosmetik vositalar tarkibida uchraydi.

Benzyl alcohol — bu rangsiz, engil xushbo'y hidga ega suyuqlik bo'lib, tabiiy ravishda ba'zi mevalarda, ayniqsa ylang-ylang va jasmin gullarida uchraydi. Parfyumeriyada erituvchi va aromatizator sifatida keng qo'llaniladi. Bundan tashqari, u kosmetika mahsulotlarida konservant va teri yumshatgich modda sifatida ishlatiladi.

β-Selinene — seskiterpenlar sinfiga mansub bo'lib, u ko'pincha dolchin, qora qalampir (*Piper nigrum*) va boshqa efir moylariga boy o'simliklarda aniqlanadi. Ushbu birikma asosiy aromatik komponentlardan biri hisoblanadi hamda biologik faollikka, xususan yallig'lanishga qarshi va antimikrob xususiyatlarga ega.

Hexadecanoic acid, methyl ester (metil palmitat) — bu tabiiy yog' kislotalaridan biri bo'lgan palmitin kislotasining metil efiri bo'lib, o'simlik va hayvon yog'larida keng tarqalgan. U kosmetik vositalarda emollient (teri yumshatuvchi) sifatida, shuningdek, biodizel ishlab chiqarishda xom ashyo sifatida ishlatiladi.

Dibutyl phthalate (DBP) — texnik plastifikator sifatida mashhur bo'lgan bu birikma plastmassa, lak-bo'yoqlar va sintetik materiallar ishlab chiqarishda keng qo'llaniladi. U plastmassalarning elastikligini oshirish uchun ishlatiladi, biroq ekologik xavfsizlik nuqtai nazaridan muqobil moddalarga o'tilmoqda.

Furfural — bu aldehid guruhiga kiruvchi organik birikma bo'lib, asosan lignosilyulozali biomassaning gidrolizi orqali olinadi. U oziq-ovqat sanoatida aromatizator sifatida va farmatsevtikada kimyoviy oraliq mahsulot sifatida qo'llaniladi. Furfural, shuningdek, rezina sanoatida solvent va qatronlar sintezida ham ishlatiladi.

Methyl nicotinate — bu nikotin kislotasining (vitamin B3 yoki niatsin) metil efiri bo'lib, asosan tashqi qo'llanish uchun mo'ljallangan terapevtik preparatlar tarkibida mavjud. U teri yuzasida qon aylanishini kuchaytiruvchi xususiyatga ega bo'lib, maz va gellar tarkibida ishlatiladi.

Coumarin — bu aromatik lakton bo'lib, shirin, vanilga o'xshash hidga ega. U darchin, tonka loviyasi va boshqa o'simliklarda mavjud. Coumarin antikoagulyant (qonni suyultiruvchi) xususiyatga ega bo'lib, farmatsevtikada warfarin kabi dori vositalarining tayyorlanishida oraliq modda sifatida qo'llaniladi. Shuningdek, uni parfyumeriya va oziq-ovqat sanoatida ham topish mumkin. **Benzeneacetaldehyde** — bu aromatik aldehid tabiiy ravishda ko'plab gullarda (masalan, yasemin) mavjud bo'lib, o'zining xushbo'y hidiga ko'ra aromatizator sifatida parfyumeriya va oziq-ovqat sanoatida qo'llaniladi. Uning kimyoviy xossalari uni ko'plab organik sintezlarda foydali vosita sifatida ishlatishga imkon beradi.

XULOSA

Ushbu komponentlarning mavjudligi *Phl. brachystegia* efir moylarini farmatsevtika, oziq-ovqat va kosmetika sanoatida qo'llash imkoniyatlarini belgilaydi. Olingan natijalar *Phlomoides brachystegia* o'simligining efir moyi keng kimyoviy spektrga ega ekanini ko'rsatdi. Moy tarkibida mavjud bo'lgan terpenoidlar, aromatik spirtlar va efirlar farmatsevtik ahamiyatga ega bo'lib, o'simlikning dorivor xususiyatlarini ilmiy asoslashga imkon yaratadi. Ularning biopotensialini aniqlash maqsadida qo'shimcha farmakologik tadqiqotlar o'tkazilishi tavsiya etiladi.

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03.00.00 – Biologiya fanlari

03.00.00 – Biological sciences

03.00.00 – Биологические науки

ON THE SPECIES *ASTRAGALUS AUSTROFERGANICUS* KAMELIN &
V.M.VINOGR. LISTED IN THE RED BOOK OF THE REPUBLIC OF UZBEKISTAN

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Abstract: This study presents comprehensive data on *Astragalus austroferganicus* Kamelin & V.M.Vinogr., a critically rare and narrowly endemic plant species included in the Red Book of the Republic of Uzbekistan. The species, long thought to be extinct, was rediscovered during targeted fieldwork between 2020 and 2024 in the southern foothills of the Chatkal Range (Chust-Pop hills). Morphological characteristics, habitat preferences, distribution range, population size, and major threats were assessed using modern geospatial tools (Google EarthPro, ArcGIS 10.6.1) and herbarium records. The species is threatened primarily by livestock grazing and climate-induced ecological changes. This study emphasizes the importance of continuous monitoring, ex situ conservation, and the establishment of seed banks to ensure the survival of this rare taxon.

Keywords: *Astragalus austroferganicus*, endemic species, Red Book of Uzbekistan, Fergana Valley, plant conservation, threatened flora, ex situ conservation, biodiversity, habitat degradation, geobotany

О ВИДЕ *ASTRAGALUS AUSTROFERGANICUS* KAMELIN & V.M.VINOGR.,
ЗАНЕСЕННОМ В КРАСНУЮ КНИГУ РЕСПУБЛИКИ УЗБЕКИСТАН

Аннотация: В этом исследовании представлены исчерпывающие данные об *Astragalus austroferganicus* Kamelin & V.M.Vinogr., критически редком и узкоэндемичном виде растений, включенном в Красную книгу Республики Узбекистан. Вид, долгое время считавшийся вымершим, был заново открыт в ходе целевых полевых работ в 2020–2024 годах в южных предгорьях Чаткальского хребта (холмы Чуст-Поп). Морфологические характеристики, предпочтения в местообитаниях, ареал распространения, численность популяции и основные угрозы были оценены с использованием современных геопространственных инструментов (Google EarthPro, ArcGIS 10.6.1) и гербарных записей. Вид находится под угрозой в первую очередь из-за выпаса скота и экологических изменений, вызванных климатом. В этом исследовании подчеркивается важность постоянного мониторинга, сохранения ex situ и создания банков семян для обеспечения выживания этого редкого таксона.

Ключевые слова: *Astragalus austroferganicus*, эндемичные виды, Красная книга Узбекистана, Ферганская долина, сохранение растений, находящаяся под угрозой исчезновения флора, сохранение ex situ, биоразнообразие, деградация среды обитания, геоботаника

INTRODUCTION

The conservation of rare and endemic plant species is one of the most pressing issues in biodiversity protection today. In many countries, including Uzbekistan, the compilation of national Red Books has become an essential tool for assessing the conservation status of threatened species

and guiding strategic conservation actions. The **International Union for Conservation of Nature (IUCN)** Red List is widely recognized as a global standard for evaluating species extinction risk, serving as a “barometer of life” by providing comprehensive information on the distribution, population trends, and threats facing endangered taxa.

In Uzbekistan, the Red Book plays a significant role in shaping national conservation policies and raising public awareness about the protection of unique and vulnerable ecosystems. Among the rarest plant species listed in the Red Book of the Republic of Uzbekistan is *Astragalus austroferganicus* Kamelin & V.M. Vinogr., a narrowly endemic legume confined to the southern foothills of the Chatkal Range in the Fergana Valley. Historically, this species was known only from a single collection in 1928 and was considered possibly extinct for several decades due to the lack of recent records.

However, targeted botanical surveys conducted between 2020 and 2024 led to the rediscovery of *A. austroferganicus*, providing new insights into its distribution, morphological variability, and ecological preferences. The species is highly threatened by intensive livestock grazing, habitat degradation, climate change, and extremely limited population sizes.

This study aims to present updated and detailed information on the current status of *Astragalus austroferganicus*, including its morphology, distribution range, habitat conditions, population estimates, and major threats. In addition, the research highlights urgent conservation measures needed to protect this critically rare taxon and emphasizes the importance of continuous monitoring, ex situ conservation, and seed banking to prevent its extinction.

MAIN PART

The compilation of Red Lists or the maintenance of Red Books at international, regional, and national levels has become one of the most important tools for assessing the status of populations of endemic, rare, and threatened species of biological diversity. This practice has played a crucial role in the conservation of species in their natural habitats for over half a century. In recent decades, most experts have recognized the IUCN Red List as a “barometer of life,” emphasizing its role in gathering the most reliable information about the conservation and threats to rare and endangered species (Stuart et al., 2010). The Red Book is particularly significant in raising public awareness and responsibility for the conservation of natural ecosystems and their individual species.

The research was conducted in accordance with Uzbekistan's botanical-geographical zoning scheme (Tojibaev et al., 2016). Geolocations of the species were identified using Google EarthPro (2019) and ArcGIS 10.6.1. Species composition was determined based on references such as Flora of Uzbekistan (1941–1963), the new edition of Flora of Uzbekistan (2016–2022), Flora of Tajikistan (1957–1991), Key to the Plants of Central Asia (Khasanov, 2015), the International Plant Names Index (IPNI, 2023), Plants of the World Online (POWO, 2023), and the National Herbarium of Uzbekistan (TASH). The composition of rare and endemic species was based on the Red Book of the Republic of Uzbekistan (2019). Field studies employed methodologies developed by A.I. Tolmachev (1974), A.V. Sherbakov, and S.R. Mayorov (Sherbakov & Mayorov, 2006). A grid-based distribution map of Uzbekistan's native flora was created using ArcGIS version 10.6.1.

***Astragalus austroferganicus* Kamelin & V.M.Vinogr.**

Common name:	Southern	Fergana	<i>Astragalus</i>
Russian name:	Астрагал южноферганский		



Status: EN – B1abc(i)+2abc(ii,iii,iv). A highly rare endemic species from the Fergana Valley.

Threats: The main threats to the Southern Fergana Astragalus include trampling of populations by livestock, extreme ecological factors (flooding, soil erosion, etc.), global warming, drought, and irregular seed regeneration. The impact of these threats is currently considered high. In the future, increased grazing and climate change in the species' primary habitats may escalate these threats, potentially leading to extinction.

Historical Records: The species was first and only collected in 1928 by A. Ioffe from the locus classicus (Type: Fergana Valley, Yangiariq irrigation area. 21.06.1928, A. Ioffe No. 398, TASH). It was included in the Red Book of Uzbekistan (2019) with a status of "possibly extinct" by F.U. Khasanov. However, targeted fieldwork conducted between 2020 and 2024 led to the rediscovery and collection of herbarium specimens from:

Chust District (northern hills of Rezaksoy reservoir, Tuyadum, 01.05.2021; Maydamillat village hills, 22.04.2021),

Pop District (Chap hills along Chorkesar road, 26.04.2020; Chap hills of Pop, 29.04.2020).

Morphological Description: Perennial herb, 10–20 cm tall. Stems slender, covered in white hairs. Leaves with 1–3 pairs of rounded leaflets, 1.2–6 cm long. Calyx 12–18 mm, sparsely white- and black-haired. Standard petal yellow, 20 mm; wings 17–18 mm; keel 18–20 mm. Pods 20–50 mm, stalk 2–3 mm, straight, beak 8–10 mm, covered in white hairs. Blooms in May, fruits ripen in June. Propagation via seeds.

Distribution: Endemic to southern Chatkal Range (Chust–Pop hills: Chap badlands). Main populations located in this area. Extent of Occurrence (EOO): 317.569 km²; Area of Occupancy (AOO): 48 km².

Habitat: Grows on saline and loamy soils, sometimes on stony-gravelly terrain.

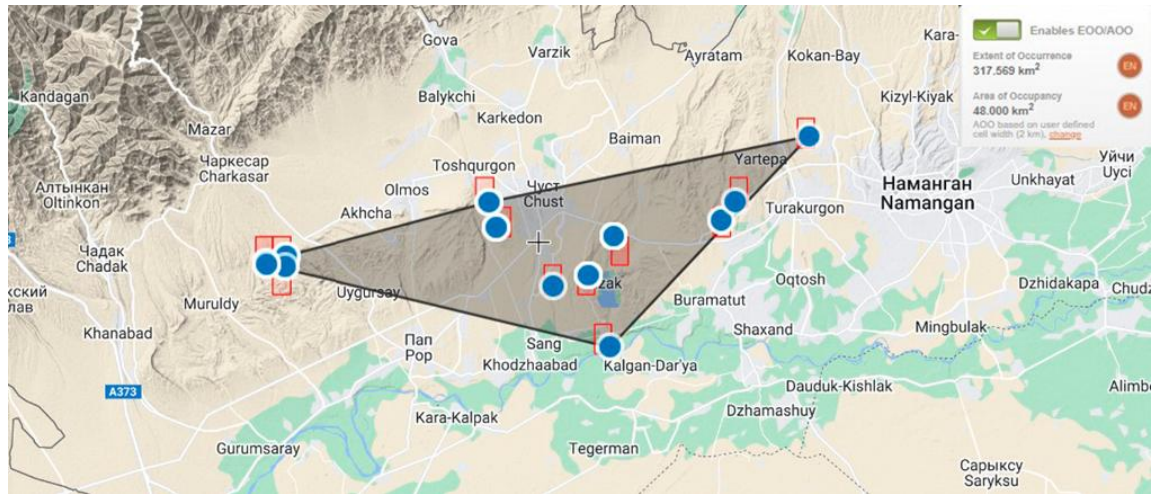
Population Size: One known population consists of approximately 10–20 individual plants.

Uses: No recorded uses.

Cultivation: No data available.

Conservation Measures: The species' main populations grow in the Chust–Pop hills of the southern Chatkal Range. Necessary measures include restricting livestock grazing, conducting population monitoring, studying bioecology under ex situ conditions, and creating seed banks.

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CONCLUSION

The results of this study confirm that *Astragalus austroferganicus* Kamelin & V.M.Vinogr. is a critically rare and narrowly endemic species with a very limited distribution in the southern foothills of the Chatkal Range within the Fergana Valley. After decades of presumed extinction, recent targeted fieldwork has rediscovered several small populations, highlighting both the species' persistence and its extreme vulnerability.

The key threats—overgrazing by livestock, habitat degradation, climate-induced ecological changes, and low seed regeneration—pose an immediate risk to the survival of the remaining populations. Given the species' extremely small population size and restricted area of occupancy, urgent conservation actions are needed, including the protection of its habitats from grazing pressure, the establishment of permanent monitoring programs, and the implementation of ex situ conservation measures such as seed banks and cultivation trials.

This case demonstrates the vital importance of continuous field surveys and the use of modern geospatial tools for monitoring rare flora. The rediscovery of *A. austroferganicus* also underlines the role of national Red Books as effective instruments for raising awareness and mobilizing conservation efforts to protect Uzbekistan's unique botanical heritage.

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STUDY OF THE EFFECTS OF EXTERNAL CONDITIONS ON THE PERFORMANCE OF THE "TPG-SN4" METHANE DETECTOR

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Abstract: In this article, the influence of external environmental conditions on the operation of the "TPG-CH₄" methane gas analyzer was experimentally studied. The main attention was paid to determining the influence of factors such as temperature, humidity, pressure and other gas mixtures on the measurement accuracy and sensitivity. According to the results of the study, when the temperature exceeds +40°C, measurement errors increase to 8–10%, and at high humidity, instability in sensor operation is observed. Also, a decrease in selectivity was determined in the presence of other hydrocarbons. Calibration work, relative and absolute errors, and output signal variability were evaluated according to GOST 13320-81 standards. The results of the study indicate the need for automatic compensation and regular calibration for the effective use of the "TPG-CH₄" analyzer in industrial and laboratory conditions.

Keywords: Methane detector, TPG-CH₄, external conditions, environmental influence, measurement accuracy, sensor performance, gas analysis, temperature effects, humidity influence, cross-sensitivity, metrological characteristics, calibration, reliability of measurements

ИССЛЕДОВАНИЕ ВЛИЯНИЯ ВНЕШНИХ УСЛОВИЙ НА РАБОТУ ГАЗОАНАЛИЗАТОРА МЕТАНА «TPG-SN4»

Аннотация: В данной статье экспериментально изучено влияние внешних условий окружающей среды на работу газоанализатора метана «TPG-CH₄». Основное внимание уделено определению влияния таких факторов, как температура, влажность, давление и другие газовые смеси на точность и чувствительность измерений. По результатам исследования установлено, что при температуре выше +40°C погрешности измерений возрастают до 8–10%, а при высокой влажности наблюдается нестабильность работы датчика. Также определено снижение селективности в присутствии других углеводородов. Оценены калибровочные работы, относительная и абсолютная погрешности, изменчивость выходного сигнала по ГОСТ 13320-81. Результаты исследования свидетельствуют о необходимости проведения автоматической компенсации и регулярной калибровки для эффективного использования газоанализатора «TPG-CH₄» в промышленных и лабораторных условиях.

Ключевые слова: Детектор метана, TPG-CH₄, внешние условия, влияние окружающей среды, точность измерения, производительность датчика, газовый анализ, влияние температуры, влияние влажности, перекрестная чувствительность, метрологические характеристики, калибровка, надежность измерений

INTRODUCTION:

Reliable detection of methane is crucial in various industrial and environmental applications. The TPG-CH₄ gas analyzer integrates semiconductor and thermocatalytic sensor elements to monitor methane concentrations. However, the accuracy of its measurements can be significantly influenced by external physical and chemical environmental factors. This study aims

to explore how such factors affect the analyzer's performance and proposes optimization strategies.

METHOD

An experimental evaluation method was used to study the metrological characteristics of the methane gas analyzer "TPG-CH₄" under the influence of various external factors. A series of tests were conducted under laboratory conditions with changes in temperature, humidity, pressure, and the presence of extraneous gases. Parameters such as error margin, sensitivity, and repeatability were recorded for each change in conditions. The device was also calibrated using standard gas mixtures.

The study established that the accuracy of the "TPG-CH₄" gas analyzer readings is significantly influenced by external physicochemical conditions.

When the ambient temperature exceeded +40 °C, the measurement error increased up to 8–10%. High humidity levels (above 85%) caused instability in readings, especially during prolonged exposure. Deviations from normal atmospheric pressure also led to measurement inaccuracies, particularly under reduced pressure. The presence of other hydrocarbons (such as ethane or propane) in the analyzed medium caused cross-sensitivity, reducing the selectivity for methane.

Optimal metrological characteristics of the gas analyzer were observed under the following conditions: temperature of 20–25 °C, humidity up to 70%, normal atmospheric pressure, and absence of interfering impurities.

In laboratory settings, parameters were maintained as follows: test gas temperature at 20 ± 5 °C, atmospheric pressure at 760 ± 30 mm Hg, relative humidity between 40–60%, and power supply at 220 ± 10 V AC. Under simulated field conditions, the test gas temperature ranged from +5 to +50 °C, pressure varied between 600–800 mm Hg, relative humidity extended from 25% to 95%, and the sensor could be inclined at angles up to 30°.

To assess the analyzer's measurement range and basic error at concentrations of 0–1000 mg/m³ and 0–5. 0%, calibration gases were introduced to the analyzer in a specific sequence (1-3-5-3-1-5), where each number corresponds to a reference gas mixture with defined component concentrations and ranges (%): No. 1 = 10%, No. 3 = 50%, No. 5 = 95%.

The primary absolute error at each calibration point was calculated using the formula:

$$C = A_i - A_0 \quad (\text{Equation 5. 1})$$

where A_i represents the measured concentration indicated by the analyzer at a given test point, and A_0 is the actual concentration specified in the reference gas certificate.

To quantify the relative error, the following expression was used:

$$C = (A_i - A_0) / (C_k - C_n) \quad (\text{Equation 5. 2})$$

where C_k and C_n denote the upper and lower bounds of the analyzer's measurement range for the gas component, in mg/m³ or %.

Tables 1 and 2 provide data on how the PTG-CH₄ analyzer's signal output correlates with methane concentration within its specified measurement ranges.

Table 1. Dependence of the signal of the PTG-CH₄ gas analyzer with a semiconductor sensor on the concentration of methane in the range of CH₄ 0-1000 mg/m³

CH ₄ content in the mixture, mg/m ³	Found CH ₄ ($\bar{x} \pm x$), mg/m ³	S	Sr*102
10	11±0. 3	0. 24	2,2

50	48±0. 9	0. 72	1. 5
250	245±1. 5	1. 21	0. 5
500	510±2. 0	1. 61	0. 3
750	740±2. 8	2. 25	0. 3
980	973±4. 8	3. 86	0. 4

Table 2. Results of checking the measurement range of the PTG-CH₄ gas analyzer with a thermocatalytic sensor (measurement range 0-5. 0% vol.) (n=5,P=0. 95.)

CH ₄ introduced, % vol.	Found CH ₄ , ($\bar{x} \pm x$), % vol.	S	Sr*102
0. 10	0. 97±0. 02	0. 02	1. 7
0. 50	0. 45±0. 06	0. 05	1,1
1. 50	1. 54±0. 09	0. 07	2. 7
2. 50	2. 56±0. 16	0. 13	2. 5
3. 50	3. 41±0. 15	0. 12	2. 5
4. 50	4. 43±0. 19	0. 15	2. 4
4. 90	4. 95±0. 21	0. 17	2. 4

The data presented indicate that, within the tested concentration ranges, the gas analyzer's output signal shows a linear relationship with carbon monoxide concentration

The analyzer is deemed to meet performance criteria if, at each concentration level, the following condition is satisfied: $B < B_0$, where B_0 represents the permissible signal variation threshold.

As shown in Table 3, the observed variation in the gas analyzer's readings remains within 50% of the allowable basic error across all measurement intervals, which is consistent with the limits established by GOST 13320-81. In fact, the recorded variations do not exceed 0. 5 of the absolute value of the permissible basic error, indicating high signal consistency.

Table 3. Results of determining the signal variation of the PTG-CH₄ gas analyzer (n=5, P=0. 95)

Methane content in the mixture, % vol.	Methane found($\bar{x} \pm x$), % vol.		Basic abs. pogresh ity	Variation, %
	A _{max}	A _{min}		
0. 55	0. 45±0. 02	0. 46±0. 02	0. 05	0. 01
2. 45	2. 51±0. 03	2. 49±0. 04	0. 06	0. 02
4. 86	4. 91±0. 04	4. 89±0. 03	0. 05	0. 02

To evaluate the influence of ambient temperature variations on the PTG-CH₄ analyzer's performance, tests were conducted across a temperature range of 10 °C to 50 °C. A gas sample containing 2. 85% methane was used during these trials. The temperature in the test chamber was adjusted sequentially, starting from the baseline of +20 °C—identified as the optimal point for assessing the primary error—followed by settings at 10 °C, 35 °C, and 50 °C. At each temperature level, the analyzer was allowed to stabilize for one hour before the test gas was introduced and readings were recorded. Each temperature condition was tested at least three times to ensure consistency.

To investigate the impact of humidity on the device's performance, a series of experiments were conducted using the following procedure: the gas analyzer was first placed inside a controlled humidity chamber, where standard testing conditions were initially established. Once the system stabilized, the baseline error of the analyzer was measured using a gas sample (GS) containing 2.55% carbon monoxide by volume.

After one hour, the same gas sample was passed through a series of three interconnected Tishchenko bottles filled with distilled water, which humidified the gas up to 95% before entering the analyzer. The error under high-humidity conditions was then recorded.

Following this phase, the gas analyzer was turned off, and standard ambient conditions were restored. After a two-hour stabilization period, the device was powered back on, and its baseline error was rechecked under normal conditions.

As a result of the study conducted, a novel approach has been introduced to enhance the selectivity of methane detection through thermocatalytic methods. This approach involves integrating both semiconductor and thermocatalytic sensing elements into a unified system, utilizing catalysts that exhibit minimal activity toward other components present in the analyzed gas mixture. The measurements of absolute and relative errors, along with signal variability, remained within acceptable thresholds defined for standard conditions in accordance with GOST 13320-81

CONCLUSION

The metrological characteristics of the "TPG-CH₄" methane gas analyzer are significantly affected by external environmental factors. Temperature, humidity, and the composition of the gas mixture have the greatest impact. To ensure reliable results, it is necessary to conduct regular calibration of the device, apply correction factors when operating under non-standard conditions, and follow the manufacturer's recommended operational parameters.

During the experimental phase, the operational concentration ranges of the target gas were established, along with evaluations of the primary measurement error, output signal variation, and potential additional errors due to environmental factors such as temperature, pressure, and humidity. The PTC-CH₄ gas analyzers were tested within methane concentration intervals of 0–1000 mg/m³ and 0–5.0% by volume, both under controlled laboratory settings and simulated operational conditions.

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05.00.00 – Texnika fanlari

05.00.00 – Technical sciences

05.00.00 – Технические науки

ENERGIYA ISHLAB CHIQRISH SAMARADORLIGINING ZARURIY SHARTLARI.

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Annotatsiya: Maqola energiya ishlab chiqarish samaradorligini oshirish uchun zaruriy shartlarni o'rganadi. Unda resurslardan samarali foydalanish, zamonaviy texnologiyalarni joriy etish, ekologik barqarorlikni ta'minlash va energiya xarajatlarini kamaytirishga qaratilgan strategiyalar muhokama qilinadi. Shuningdek, qayta tiklanadigan energiya manbalarining ahamiyati va ishlab chiqarish jarayonlarini optimallashtirish usullari ko'rib chiqiladi. Maqola energiya sohasidagi innovatsion yondashuvlar va ularning iqtisodiy va ekologik foydalari haqida keng ma'lumot beradi.

Kalit so'zlar: Energiya samaradorligi, Ishlab chiqarish jarayoni, Resurslardan foydalanish, Texnologik innovatsiyalar, Barqaror energiya, Energiya tejamkorligi, Ekologik barqarorlik, Optimallashtirish strategiyalari, Qayta tiklanadigan energiya, Energiya xarajatlari.

НЕОБХОДИМЫЕ УСЛОВИЯ ДЛЯ ЭНЕРГОЭФФЕКТИВНОСТИ.

Аннотация: Статья исследует необходимые условия для повышения эффективности производства энергии. В ней обсуждаются стратегии, направленные на эффективное использование ресурсов, внедрение современных технологий, обеспечение экологической устойчивости и снижение энергозатрат. Также рассматривается значение возобновляемых источников энергии и методы оптимизации производственных процессов. Статья предоставляет обширную информацию об инновационных подходах в энергетической отрасли и их экономических и экологических преимуществах.

Ключевые слова: Энергоэффективность, Производственный процесс, Использование ресурсов, Технологические инновации, Устойчивая энергетика, Энергосбережение, Экологическая устойчивость, Стратегии оптимизации, Возобновляемая энергия, Затраты на энергию.

NECESSARY CONDITIONS FOR ENERGY EFFICIENCY.

Abstract: The article explores the essential conditions for enhancing the efficiency of energy production. It discusses strategies aimed at efficient resource use, the adoption of modern technologies, ensuring environmental sustainability, and reducing energy costs. Additionally, it examines the importance of renewable energy sources and methods for optimizing production processes. The article provides comprehensive information on innovative approaches in the energy sector and their economic and environmental benefits.

Keywords: Energy efficiency, production process, resource utilization, technological innovations, sustainable energy, energy conservation, environmental sustainability, optimization strategies, renewable energy, energy costs.

KIRISH

Energiya ishlab chiqarish samaradorligini oshirish uchun bir qator muhim shartlar va yondashuvlar mavjud. Birinchi navbatda, zamonaviy texnologiyalardan foydalanish energiya resurslarini tejash va chiqindilarni kamaytirishga yordam beradi. Masalan, yuqori samarali turbinalar, issiqlik nasoslari va qayta tiklanadigan energiya manbalariga asoslangan qurilmalar (quyosh panellari, shamol turbinalari) energiya ishlab chiqarishda samaradorlikni oshiradi.

Umumiy olib qaraganda energiya yo'qotishlarini minimallashtirish uchun infratuzilmani modernizatsiya qilish zarur. Bu elektr tarmoqlarini optimallashtirish, issiqlik izolyatsiyasini yaxshilash va energiya tashishda samarali usullarni qo'llashni o'z ichiga oladi.

Resurslardan oqilona foydalanish va energiya tejamkor uskunalari ishlatish muhim ahamiyatga ega. Sanoatda va uy xo'jaliklarida energiya sarfini monitoring qilish va boshqarish tizimlari (masalan, "aqlli hisoblagichlar") orqali iste'molni optimallashtirish mumkin.

Bundan tashqari, qayta tiklanadigan energiya manbalariga o'tish va uglerod emissiyasini kamaytirishga qaratilgan strategiyalar nafaqat samaradorlikni oshiradi, balki ekologik barqarorlikni ham ta'minlaydi. Xodimlarning malakasini oshirish va energiya tejash bo'yicha bilimlarni targ'ib qilish ham samaradorlikni ta'minlashda muhim omildir.

ASOSIY QISM

Energiya ishlab chiqarish samaradorligini oshirish zamonaviy dunyoda eng muhim masalalardan biridir, chunki bu nafaqat iqtisodiy foyda keltiradi, balki atrof-muhitga ta'sirni kamaytiradi va resurslarni tejashga yordam beradi. Quyida ushbu mavzu bo'yicha kengroq ma'lumot va asosiy jihatlar keltiriladi. Rasmlar qo'shish imkoniyati cheklangan bo'lsada, iloji boricha vizual tasvirlar haqida tavsif beraman va agar kerak bo'lsa, tasvirlarni qanday topish mumkinligini maslahat beraman.

Zamonaviy Texnologiyalardan Foydalanish. Energiya ishlab chiqarish samaradorligini oshirishda yangi texnologiyalar asosiy ro'l o'ynaydi. Quyidagi texnologiyalar bu jarayonda muhim hissa qo'shadi:

Yuqori samarali turbinalar: Gaz va bug' turbinalarining zamonaviy modellari issiqlik energiyasini elektr energiyasiga aylantirishda yuqori samaradorlikka ega. Masalan, kombinatsiyalangan sikl gaz turbinalari issiqlikni qayta ishlatish orqali 60% gacha samaradorlikka erishadi.

Qayta tiklanadigan energiya manbalari: Quyosh panellari, shamol turbinalari va gidroelektrostansiyalar an'anaviy yoqilg'i manbalariga qaraganda ancha samarali va ekologik toza. Masalan, zamonaviy quyosh panellari energiya konversiyasi samaradorligini 22-25% gacha yetkazdi.

Energiya saqlash tizimlari: Litiy-ion batareyalar yoki gidroakkumulyatorlar kabi tizimlar energiyani saqlash va zarur vaqtda ishlatish imkonini beradi, bu esa yo'qotishlarni kamaytiradi.[3]

Infratuzilmani modernizatsiya qilish: Eski infratuzilma energiya yo'qotishlarining asosiy sabablaridan biridir. Samaradorlikni oshirish uchun quyidagi chora-tadbirlar muhim:

Elektr tarmoqlarini yangilash: Aqlli tarmoqlar (smart grids) energiya taqsimotini real vaqtda boshqaradi va yo'qotishlarni 10-15% gacha kamaytiradi.

Issiqlik izolyatsiyasi: Sanoat va uy-joylarda issiqlik yo'qotishlarini kamaytirish uchun zamonaviy izolyatsiya materiallari (masalan, poliuretan ko'pik) ishlatiladi.

Energiya tashish samaradorligi: Yuqori voltli doimiy oqim (HVDC) liniyalari uzoq masofalarda energiya uzatishda yo'qotishlarni minimallashtiradi.

Resurslardan Oqilona Foydalanish: Energiya tejash uchun resurslarni samarali boshqarish zarur:

Energiya auditi: Sanoat korxonalari va binolarda energiya sarfini tahlil qilish orqali ortiqcha iste'molni aniqlash va kamaytirish mumkin.

Aqlli hisoblagichlar: Ushbu qurilmalar real vaqtda energiya sarfini kuzatadi va foydalanuvchilarga tejamkorlik bo'yicha maslahatlar beradi.

LED yoritish: An'anaviy lampalarga qaraganda LED lampalar 80% gacha energiya tejaydi va uzoqroq xizmat qiladi.

Ekologik va qayta tiklanadigan energiya manbalari

Qayta tiklanadigan energiya manbalari samaradorlikni oshirishda va atrof-muhitga zarar yetkazmaslikda muhim:

Quyosh energiyasi: Quyosh panellari narxi so'nggi 10 yilda 80% ga kamaydi, bu ularni keng qo'llash imkonini berdi.



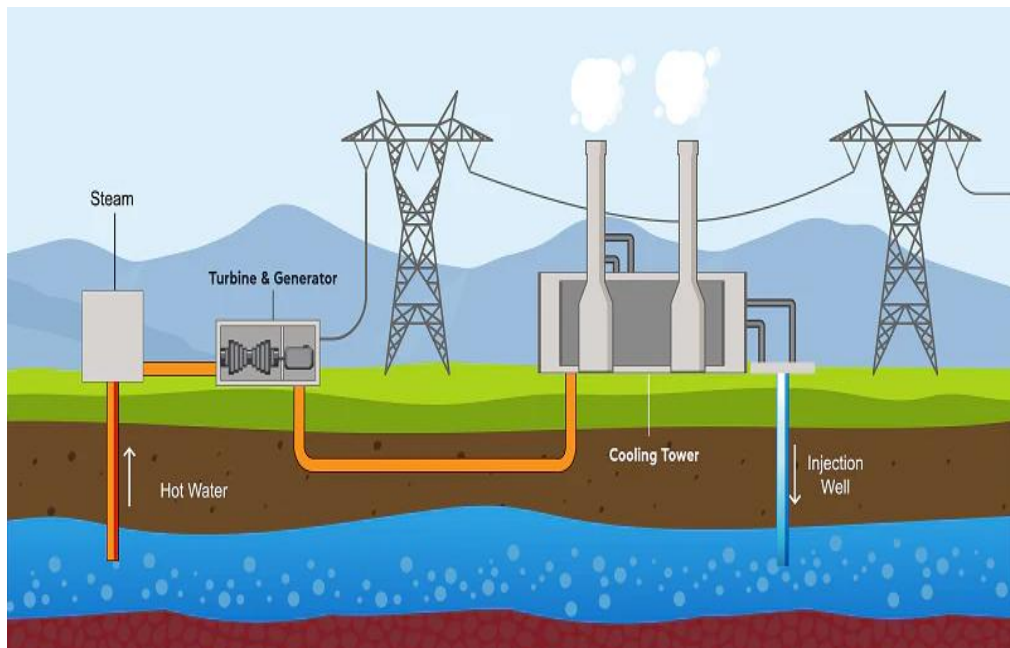
1-rasm. Quyosh energiyasidan foydalanib elektr energiya olish.

Shamol energiyasi: Dengizdagi shamol fermalari katta hajmdagi energiya ishlab chiqaradi va quruqlikdagi tizimlarga qaraganda barqarorroq ishlaydi.



2-rasm. Shamol energiyasidan foydalanib elektr energiya olish.

Biotexnologiyalar: Bioyoqilg'i va organik chiqindilardan energiya ishlab chiqarish ham samaradorlikni oshiradi.



3-rasm. Geothermal elektr energiya olish.

XULOSA

Energiya ishlab chiqarish samaradorligini oshirish uchun zamonaviy texnologiyalardan foydalanish, infratuzilmani yangilash, resurslardan oqilona foydalanish, qayta tiklanadigan energiya manbalariga o'tish va xodimlar malakasini oshirish zarur. Bu jarayon nafaqat iqtisodiy va ekologik foyda keltiradi, balki global energiya xavfsizligini ta'minlaydi [7].

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THE EFFECTIVENESS OF APPLYING INFORMATION TECHNOLOGIES IN CONSTRUCTION TESTING LABORATORIES

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Abstract: This article explores the effectiveness of integrating information technologies into construction testing laboratories, with a focus on enhancing the quality control of concrete products in Uzbekistan. The study highlights the inefficiencies of manual testing processes, such as errors in documentation, lack of integration, and non-compliance with regulatory standards (e.g., UzDSt 1025:2020, UzDSt 2857:2015). It proposes a unified automated platform that streamlines the testing sequence—from client data entry and contract creation to sampling, test card generation, and protocol preparation. The methodology analyzes previous studies and technological advancements, demonstrating benefits such as error reduction, increased process speed, compliance with international standards (ASTM, AASHTO, ISO 17025), and improved transparency through cloud-based and LIMS integration. The developed system automates calculations, ensures legal and technical consistency, and boosts laboratory efficiency by 2–3 times. Future enhancements, including AI-based algorithms, IoT monitoring, and integration with state laboratories, are suggested to further elevate transparency and reliability in the construction sector.

Keywords: Information technology, construction testing laboratories, automation, concrete testing, quality control, regulatory standards, test protocols, laboratory efficiency, digital transformation, uzbekistan construction.

ЭФФЕКТИВНОСТЬ ПРИМЕНЕНИЯ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ В СТРОИТЕЛЬНЫХ ИСПЫТАТЕЛЬНЫХ ЛАБОРАТОРИЯХ

Аннотация: Эта статья исследует эффективность интеграции информационных технологий в строительные испытательные лаборатории, уделяя особое внимание улучшению контроля качества бетонных изделий в Узбекистане. В исследовании подчеркиваются недостатки ручных процессов тестирования, такие как ошибки в документации, отсутствие интеграции и несоответствие нормативным стандартам (например, UzDSt 1025:2020, UzDSt 2857:2015). Предлагается единая автоматизированная платформа, которая оптимизирует последовательность тестирования — от ввода данных клиента и создания контракта до отбора проб, генерации тестовой карты и подготовки протоколов. Методология анализирует предыдущие исследования и технологические достижения, демонстрируя такие преимущества, как снижение ошибок, повышение скорости процессов, соответствие международным стандартам (ASTM, AASHTO, ISO 17025) и улучшение прозрачности за счет интеграции облачных технологий и LIMS. Разработанная система автоматизирует расчеты, обеспечивает юридическую и техническую согласованность, а также увеличивает эффективность лабораторий в 2–3 раза. Предлагаются будущие улучшения, включая алгоритмы на основе искусственного интеллекта, онлайн-мониторинг через устройства IoT и интеграцию с государственными лабораториями, что позволит повысить прозрачность и надежность в строительном секторе.

Ключевые слова: Информационные технологии, строительные испытательные лаборатории, автоматизация, тестирование бетона, контроль качества, нормативные стандарты, тестовые протоколы, эффективность лабораторий, цифровизация, строительство в Узбекистане

INTRODUCTION

In today's rapidly evolving construction industry, the need to integrate modern technologies into the operations of testing laboratories, which serve as a critical link in ensuring quality control, is growing. Particularly, precision is paramount in testing the strength and quality of concrete products. To achieve this, aspects such as testing sequence, documentation, and compliance with regulatory standards are of utmost importance. From this perspective, deficiencies in the automatic generation of test protocols are among the primary issues reducing the operational efficiency of laboratories.

Many construction laboratories still conduct concrete product testing processes partially or entirely manually. Several technological stages—such as sampling, submission to the laboratory, preparing test cards, conducting tests, and formalizing protocols—are inherently interconnected, yet the level of integration between these stages remains low. This leads to problems such as errors in documentation, disruption of sequence, redundant entries, and a lack of transparency.

A key deficiency in the automatic generation of protocols is the use of calculation methods that do not fully comply with regulatory standards. In many cases, test results are merely measurements without proper analysis, presented in a simplified form. The failure to integrate formulas, indicators, or regulatory limits from applicable construction standards (e.g., UzDSt 1025:2020, UzDSt 2857:2015, etc.) into automated systems results in low-quality, imperfect protocols. This, in turn, leads to incorrect decisions by contractors and technical supervisors.

Moreover, the absence of a unified electronic platform or fully customized automated systems for generating protocols poses a significant barrier. Most laboratories rely on basic tools like MS Excel, Word, handwritten logs, and email for information exchange. This creates serious challenges in consolidating, analyzing, and storing documents within a single system.

In many laboratories, there is a lack of consistency between order forms, sampling certificates, test cards, and final protocols. Each document is created separately, with no standardized numbering or dating, leading to complications in identifying issues during inspections and determining legal accountability.

These issues are rooted in the lack of systematic automation in testing laboratories based on regulatory standards. Otherwise, existing technologies offer sufficient capabilities for generating protocols, performing calculations, maintaining sequence, and analyzing results. From this standpoint, full automation in laboratory operations not only enhances efficiency but also ensures consistency, reliability, and legal grounding in documentation.

Thus, the primary issue in construction testing laboratories—deficiencies in the automatic generation of protocols—should be regarded as a central problem undermining overall system efficiency. Addressing this requires technical solutions such as linking each stage to a unified automated system based on existing regulatory standards, coding calculation formulas and report templates, and managing data in real-time.

In the modern construction industry, laboratory testing—especially quality control of concrete products—is a critical stage in ensuring the safety, durability, and high quality of construction projects. In Uzbekistan, most laboratories still prepare test protocols manually, using

Microsoft Word or Excel. This leads to human errors, delays in documentation, and deviations from regulatory standards.

This article analyzes the possibilities of properly organizing the sequence of construction material testing using automated systems in construction testing laboratories and generating test documents (order forms, certificates, test cards, protocols) in compliance with Uzbekistan and international regulatory standards.

METHODOLOGY

A thorough analysis of previous studies and technological approaches to automating construction testing laboratories reveals that they all aim to enhance the accuracy, speed, and reliability of laboratory processes. Specifically, in concrete testing—such as compressive strength, modulus of elasticity, fracture strength, and other physical-technical properties—the introduction of automated equipment has led to the following key achievements:

Error Reduction: Automated systems virtually eliminate human errors (e.g., incorrect entries, measurement mistakes). Many studies highlight this as a critical factor in ensuring the accuracy of laboratory results and compliance with standards.

Increased Process Speed: Traditional methods required up to 16 hours to prepare, document, and deliver a test protocol. New systems reduce this to just a few minutes. Cloud-based platforms enable real-time sharing of test results.

Compliance with Standards: Automated systems operating based on international standards like ASTM and AASHTO ensure that laboratory tests adhere to globally recognized methodologies, providing reliable assurance for export-oriented products or large infrastructure projects.

Integration of Cloud Technologies and LIMS: Managing laboratory tests within a unified information system enables the creation, storage, and distribution of orders, samples, test cards, and protocols through a single platform. This reduces the workload on staff and enhances transparency for clients.

As acknowledged in the analyzed studies, automation is not merely a technical upgrade—it represents a transformation in management culture. Traditional laboratories are gradually becoming digital, with human intervention limited to critical decision-making and analytical evaluation stages. In Uzbekistan, particularly in sectors like large-scale infrastructure, road, and building construction, implementing these systems could serve as an effective tool for project managers and technical supervisors.

By developing an automated platform for construction laboratories based on existing technologies, it is possible to establish full technical and legal control over concrete testing processes, improve data reliability, and increase laboratory efficiency by 2–3 times. Future research in this field should focus on AI-based forecasting, automatic detection of quality failure factors, and the development of systematic reports.

1. Entering and identifying client information.

Initially, the system records information about the client organization or individual (name, TIN, STIR, bank account details, legal address, contact numbers, etc.). At this stage, data is entered electronically through a dedicated form and automatically saved to the database (see Figure 1). A unique ID number is generated for each client.

Figure 1. Form window for entering client information

2. Contract Section: Contract Type, Payment, and Agreements

The next stage is the contract creation section. Here, the user selects a previously entered client and specifies the contract type (e.g., one-time service, monthly plan, annual agreement, etc.), payment method (bank transfer, cash, credit card), and technical and legal requirements (see Figure 2). Based on the selected parameters, the system automatically generates the contract text, which includes client details, contract subject, service types, pricing, service duration, and other necessary clauses in an automated format.

3. Order Form Creation

Once the contract is approved, the process moves to creating the order form. At this stage, the types of tests requested by the client (e.g., compressive strength of concrete, water permeability, etc.) are selected. Test methods compliant with relevant regulatory standards are chosen for each parameter, initiating the formation of the test card (see Figure 3). The order form, including terms, date, number of samples, and other details, is saved. The system automatically assigns an order number, date, and responsible personnel.

Figure 2. Automatically generated contract text

Figure 3. Order form filling window

4. Sampling and Test Card

The next stage is sampling. In this section, a laboratory representative prepares a certificate based on samples collected on-site. Details such as sample number, location address, testing deadline, and the date of submission to the laboratory are entered into the system (see Figure 4).

Simultaneously, the system generates a specialized test card based on the parameters selected in the order form. Calculation tables corresponding to each parameter are opened (e.g., weight of 3 concrete cubes, compressive strength, automatic calculation using the $F = P/S$ formula).

Figure 4. Calculation tables in the test card

5. Calculation Processes and Automatic Results

Once the test card is completed, the system performs automatic calculations. The process varies depending on the order type and test parameters, activating a dynamic calculation module (see Figure 5).

The developed automated platform integrates all stages of the testing process—from order acceptance to contract creation, order formalization, test card calculations, and protocol preparation—into a unified information system, ensuring sequence and improving quality.

CONCLUSION

The advantages of this platform are clearly evident in the following aspects:

Figure 5. Samples from the test protocol

Each document is automatically generated based on the results of the previous stage, preventing user errors.

Based on information such as client details, contract, payments, and service type, the system automatically creates legally grounded texts.

Test cards and protocols are calculated in accordance with construction regulatory documents (e.g., UzDSt, GOST, etc.).

The system maintains consistent records of equipment, laboratory staff, and measurement methods, enabling electronic oversight compliant with ISO 17025 standards.

Users can only conduct tests on orders relevant to them and covered by an existing contract, ensuring document integrity and data security.

At the end of each stage, the system automatically generates a ready document in PDF format, which can be digitally signed or sent. Thus, the proposed automation approach elevates the workflow in construction laboratories to a higher quality level in terms of efficiency, accuracy, and compliance with regulatory standards. This not only simplifies the work of laboratory staff but also reduces human errors through the digitization of the entire control system, increases productivity, and ensures reliable results.

In the future, this system could incorporate functions such as **AI-based automatic evaluation algorithms, online monitoring via IoT devices, and integration with centralized state laboratories**. This would elevate the transparency and reliability of laboratory operations in our country to a new level.

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QUYOSH VA SHAMOL GIBRID ENERGIYA TIZIMLARI: TEXNOLOGIK TUZILISHI, TARMOQ INTEGRATSIIYASI VA ILMIIY YONDASHUVLARNING TAHLILI

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Annotatsiya: Ushbu maqolada quyosh va shamol energiyasi asosida ishlab chiqilgan gibrid elektr energiya tizimlarining texnologik tuzilmasi, boshqaruv strategiyalari va ularni mikrogrid, smart grid va elektr transport vositalari bilan integratsiya qilish imkoniyatlari tahlil qilinadi. Energiya ishlab chiqarish, uzatish, saqlash va boshqaruv komponentlarining vazifalari chuqur o'rganilgan. Shuningdek, iqtisodiy va ekologik tahlillar asosida gibrid tizimlarning istiqbollari va afzalliklari aniqlab berilgan. Maqola tahliliy yondashuvga asoslangan bo'lib, zamonaviy ilmiy manbalar bilan mustahkamlangan.

Kalit so'zlar: Quyosh energiyasi, shamol energiyasi, gibrid tizim, energiya boshqaruvi, mikrogrid, smart grid, V2G

ГИБРИДНЫЕ СОЛНЕЧНЫЕ И ВЕТРОВЫЕ ЭНЕРГЕТИЧЕСКИЕ СИСТЕМЫ: АНАЛИЗ ТЕХНОЛОГИЧЕСКОЙ СТРУКТУРЫ, ИНТЕГРАЦИИ СЕТЕЙ И НАУЧНЫХ ПОДХОДОВ

Аннотация: В данной статье рассматриваются технологическая структура гибридных энергетических систем на основе солнечной и ветровой энергии, стратегии управления и возможности интеграции с микро- и умными сетями, а также с электротранспортом. Подробно анализируются процессы генерации, передачи, хранения и управления энергией. Также представлены экономические и экологические преимущества данных систем. Работа носит аналитический характер и опирается на современные научные источники.

Ключевые слова: Солнечная энергия, ветровая энергия, гибридная система, управление энергией, mikrogrid, smart grid, V2G

SOLAR AND WIND HYBRID ENERGY SYSTEMS: ANALYSIS OF TECHNOLOGICAL STRUCTURE, GRID INTEGRATION AND SCIENTIFIC APPROACHES

Abstract: This article analyzes the technological structure of hybrid power systems based on solar and wind energy, control strategies, and the potential for integration with microgrids, smart grids, and electric vehicles. The study provides a detailed examination of energy generation, transmission, storage, and control components. Economic and environmental aspects of hybrid systems are also evaluated. The article follows an analytical approach and is supported by up-to-date scientific references.

Keywords: Solar energy, wind energy, hybrid system, energy management, mikrogrid, smart grid, V2G

KIRISH

XXI asrda insoniyat duch kelayotgan eng dolzarb muammolardan biri — bu energetika inqirozidir. Global isish, iqlim o'zgarishi, havo va suv ifloslanishi, hamda fosil yoqilg'ilar zaxiralarining cheklanganligi elektr energiyasini ishlab chiqarishning an'anaviy shakllarini qayta ko'rib chiqishni talab qilmoqda. Shu bois, butun dunyo bo'ylab energetika sohasida muqobil, ekologik toza, qayta tiklanuvchi energiya manbalariga o'tish tendensiyasi kuchaymoqda [1].

Quyosh va shamol energiyasi — mavjud bo'lgan eng keng tarqalgan va qulay qayta tiklanuvchi manbalardan bo'lib, ularning salohiyati insoniyatning uzoq muddatli energiya ehtiyojlarini qondirishga yetarli hisoblanadi. Quyosh energiyasi Yerga yetib kelayotgan 1 soatlik nurlanish orqali butun insoniyatning 1 yillik elektr talabini qondira oladi. Shamol energiyasi esa atmosferadagi bosim va harorat farqlari natijasida tabiiy ravishda hosil bo'lib, elektr ishlab chiqarish uchun ekologik toza resursdir [2].

Ammo ushbu manbalar o'z tabiatiga ko'ra intermittent, ya'ni vaqtinchalik va beqaror hisoblanadi. Masalan, quyoshli kunlarda fotovoltaik panellar yuqori samaradorlikda ishlaydi, ammo bulutli havoda yoki tun bo'yi ishlab chiqara olmaydi. Xuddi shunday, shamol generatorlari faqat yetarli shamol tezligi mavjud bo'lgandagina samarali ishlaydi. Bu esa ularga asoslangan elektr ta'minoti tizimining barqaror va doimiy bo'lishiga to'sqinlik qiladi [3].

Shu muammoning yechimi sifatida so'nggi yillarda gibridd energiya tizimlari jadal rivojlanmoqda. Ayniqsa, quyosh va shamol energiyasini birlashtirgan tizimlar (Wind-Solar Hybrid Systems) eng samarali va barqaror aralash tizimlardan biri sifatida e'tirof etilmoqda. Bu yondashuvda har ikkala manba bir-birini to'ldiradi: quyosh energiyasi odatda kunduz kunlari va yoz faslida yuqori samaradorlikka ega bo'lsa, shamol energiyasi asosan kechasi va qish faslida kuchayadi. Bu tabiiy muvozanat esa tizimda yil bo'yi va kun davomida energiya ishlab chiqarishning uzluksizligini ta'minlaydi [4].

ASOSIY QISM

Quyosh-shamol gibridd tizimlarining yana bir afzalligi — bu mustaqil elektr ta'minotini tashkil etish imkoniyati, ya'ni off-grid (tarmoqqa ulanmagan) hududlarda ham elektr energiyasi bilan ta'minlash mumkin bo'ladi. Ayniqsa, uzoq qishloq joylarda, tog'li hududlarda yoki orollarda bunday tizimlar muhim rol o'ynaydi [5].

Bundan tashqari, bunday tizimlar milliy elektr tarmog'i bilan integratsiya qilinib, smart grid va mikrogrid muhitida yuqori darajada boshqariladigan va optimallashtirilgan elektr energiyasi ta'minotini tashkil etish imkonini beradi. Ayniqsa, elektr transport vositalari, ikki tomonlama energiya oqimlari (Vehicle-to-Grid – V2G), aqlli boshqaruv tizimlari (SCADA, AMI), va energiya saqlash texnologiyalarini kiritish orqali tizimning umumiy samaradorligi yanada ortadi [6].

Shu bilan birga, gibridd tizimlarni loyihalashda bir qator muhim omillar — quyosh va shamol resurslarining geografik taqsimoti, texnologik komponentlarning uyg'unligi, energiyani saqlash hajmi, uzatish yo'qotishlari, iqtisodiy samaradorlik, ekologik ta'sir, va boshqaruv algoritmlari e'tiborga olinishi lozim.

Quyosh va Shamol Gibridd Tizimlarining Texnologik Asosi

2.1 Asosiy komponentlar va ularning funksiyalari

Quyosh-shamol gibridd tizimining texnologik asosi komponentlarning uyg'un ishlashi va ularning o'zaro moslashuvchanligiga bog'liq. Har bir komponent o'ziga xos funktsiyani bajaradi va umumiy tizim samaradorligiga hissa qo'shadi.

Fotovoltaik panellar (PV): PV panellar quyosh nurlaridan elektr energiyasini hosil qiladi. Ular odatda silisiy asosida yaratilgan yarimo'tkazgich modullardan iborat bo'lib, quyosh fotonlarini yutish orqali elektr tokini ishlab chiqaradi. Quyosh nurlanishi, havo harorati, panellarning burchagi va ifloslanishi samaradorlikka ta'sir qiladi. Zamonaviy panellar 15–22% samaradorlikka ega bo'lib, 1 kVt quvvatli tizim 4–5 kVt·soat energiya ishlab chiqarishi mumkin [1].

Shamol turbinasi: Shamol turbinasi havoning kinetik energiyasini mexanik harakatga, so'ngra elektr energiyasiga aylantiradi. Ular gorizontaal yoki vertikal o'qlar asosida quriladi. Gorizontaal turdagi turbinalar keng tarqalgan bo'lib, katta quvvatlar uchun ishlatiladi. Turbinaning quvvati shamol tezligining uchinchi darajasiga proporsional: $P \propto v^3$. Shu bois shamol energiyasi yuqori potentsialga ega, ammo uni barqaror qilish muhim [2].

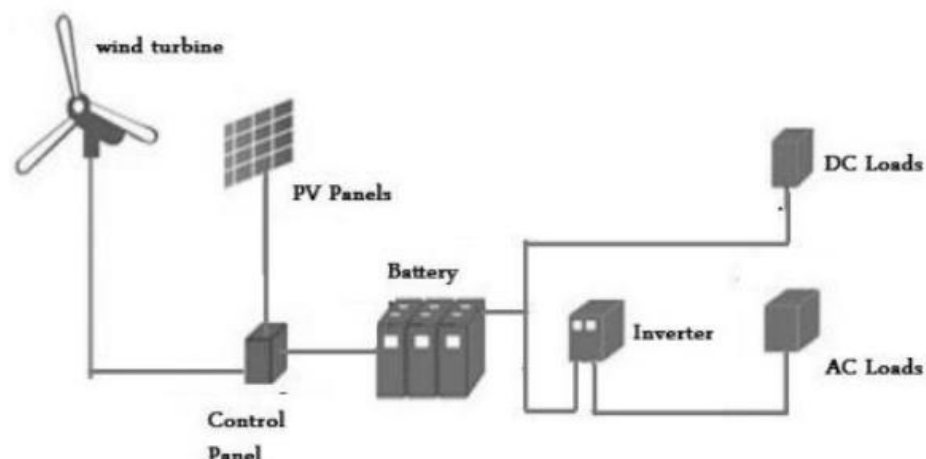
Energiya saqlash tizimlari (ESS): Energiya saqlash tizimlari, ayniqsa batareyalar, tizimdagi uzluksizlik va ishonchlilikni ta'minlaydi. Shamol va quyosh energiyasining o'zgaruvchan tabiati ESS'larni zarur qiladi. Lityum-ion, nikel-kadmiy, qo'rg'oshin-kislotali batareyalar keng qo'llaniladi. Saqlash tizimi yordamida ishlab chiqarilgan ortiqcha energiya saqlanadi va tunda yoki past resurs paytida iste'molga beriladi [3].

Konvertatsiya qurilmalari: DC/DC konvertorlar va inverterlar manbadan kelayotgan tokni zarur kuchlanish va shaklga o'zgartiradi. Masalan, PV panellardan kelayotgan 12–48 V DC tok inverter orqali 220/230 V AC tokka aylantiriladi. Inverterlar oddiy (pure sine wave) va aqlli (grid-tied) turlarda bo'ladi. Bular yuqori samaradorlik ($\geq 95\%$) bilan ishlashi kerak, aks holda energiya yo'qotishlar ortadi [4].

Boshqaruv tizimi: Boshqaruv bloklari tizimni real vaqt rejimida muvozanatli boshqarish uchun zarur. Tizimga kirayotgan va chiqayotgan quvvat, batareya holati (SoC), yuklanish va tarmoq bilan aloqalar doimiy nazorat qilinadi. Zamonaviy tizimlarda mikrokontrollerlar, SCADA tizimlari yoki sun'iy intellekt asosli algoritmlar (fuzzy logic, neural network) qo'llaniladi [5].

2.2 Gibrid tizimning blok sxemasi

Gibrid tizimning texnologik tuzilmasini aks ettiruvchi umumiy blok sxemada quyidagi bosqichlar mavjud: Ikkita manbadan (PV va shamol) olingan elektr tok alohida kuchaytiriladi (DC/DC konvertorlar), Tok batareyada saqlanishi yoki bevosita inverter orqali AC yuklamaga berilishi mumkin, Inverter tarmoqqa ulanadigan holatda ham ishlaydi (grid-tied), Boshqaruv bloki barcha jarayonlarni muvozanatlab turadi.



1-rasm. Quyosh-shamol gibrid energiya tizimining blok-sxemasi

Bu sxema oddiy ofis, uy yoki kichik ob'ektlar uchun samarali ishlashi mumkin. Loyihalashtirishda quyosh va shamol resurslari, yuk talabi, tizim miqyosi va moliyaviy imkoniyatlar hisobga olinadi [6].

2.3 Tizim turlari: off-grid va grid-connected

Off-grid tizimlar

Off-grid tizimlar, ya'ni mustaqil ishlaydigan tizimlar, elektr tarmog'iga ulanmagan hududlar uchun juda muhimdir. Ayniqsa tog'li, orollik yoki infratuzilmasiz joylarda energiya mustaqilligini ta'minlaydi. Bu tizimda batareyalar markaziy rol o'ynaydi, energiya zaxirasi yetarli bo'lmasa, dizel generatorlar ham qo'shilishi mumkin [7].

Afzalliklari: Mustaqil ishlaydi, Elektr tarmog'idan bog'liq emas, Moslashtirilgan yechimlar.

Kamchiliklari: Katta energiya saqlash talab qiladi, Ob-havoga juda bog'liq.

Grid-connected tizimlar

Tarmoq bilan bog'langan tizimlar (grid-tied systems) milliy elektr tarmog'i bilan o'zaro almashinuv asosida ishlaydi. Bu tizimlarda energiya ortig'i tarmoqqa uzatiladi (net metering), kamchilik yuzaga kelsa, tarmoqdan olinadi. Integratsiyalashgan tizimlar optimallashtirish, monitoring, hisob-kitoblar (billing) va tarmoq xavfsizligi bilan ishlaydi [8].

Afzalliklari: Batareyaga bog'liqlik kamayadi, Ortiqcha energiyadan iqtisodiy foyda olinadi, Tarmoq barqarorligiga hissa qo'shadi.

2.4 Texnologik yondashuvlar va zamonaviy usullar

Zamonaviy gibrid tizimlarda energiya oqimini samarali boshqarish uchun turli texnologik usullar joriy etilgan: MPPT (Maximum Power Point Tracking): Har bir manbadan maksimal energiya olish uchun ishlatiladi. MPPT algoritmlari quyosh nurlanishi va PV kuchlanishiga qarab panellarni optimal ishlash nuqtasida ushlab turadi [9].

SoC nazorati (State of Charge): Batareyalarning zaryad va razryad jarayonlarini muvofiqlashtirishga xizmat qiladi. U batareya umrini uzaytiradi va uzluksizlikni ta'minlaydi [3]. Aqlli boshqaruv: Fuzzy logic, sun'iy neyron tarmoq, real vaqtli optimallashtirish algoritmlari yordamida yuklar va manbalar o'rtasida avtomatik balanslash amalga oshiriladi [5].

Ko'p kirishli konvertorlar (Multi-input converters): Bir nechta manbani bitta konvertatsiya tizimiga ulash orqali samaradorlik oshiriladi. Bu usulda apparat murakkabligi kamayadi [10]. IoT va SCADA tizimlari: Uzoqdan monitoring va boshqaruv imkonini beradi. Masofadan ishlaydigan tizimlar ayniqsa katta ob'ektlarda muhim ahamiyatga ega.

3. Mikrogrid, Smart Grid va EV Tizimlari bilan Integratsiya

3.1 Mikrogrid: Mahalliy mustaqil energiya tizimi: Mikrogrid — bu cheklangan hududni (masalan, mahalla, kampus, ishlab chiqarish ob'ekti) elektr energiyasi bilan mustaqil ta'minlay oladigan kichik energiya tarmog'idir. Mikrogridlar asosan qayta tiklanuvchi manbalar, energiya saqlash tizimlari va aqlli boshqaruv texnologiyalaridan iborat bo'ladi [1].

Quyosh-shamol gibrid tizimlari aynan mikrogridlar uchun ideal hisoblanadi, chunki: Ular tarmoqdan mustaqil ishlay oladi (islanding), Qayta tiklanuvchi manbalarni optimallashtirilgan tarzda birlashtiradi, Avtomatik boshqaruv orqali yuk balansini ushlab turadi.

Mikrogridlar of-grid hududlar uchun asosiy yechim bo'lishi mumkin, ayniqsa markazlashmagan elektr ta'minoti tizimlari rivojlanayotgan mamlakatlarda bu muhim ahamiyatga ega [2].

3.2 Smart Grid: Aqlli energiya tarmoqlari: Smart grid — bu raqamli texnologiyalar, aloqa tizimlari va boshqaruv tizimlari orqali optimallashtirilgan elektr tarmog'idir.

Unda: Energiya oqimi real vaqt rejimida nazorat qilinadi, Iste'molchi bilan ishlab chiqaruvchi o'rtasidagi aloqalar ikki tomonlama bo'ladi, IoT, SCADA, AI va boshqa texnologiyalar orqali samaradorlik oshiriladi [3].

Quyosh-shamol gibrid tizimlar smart grid'ga integratsiyalashgan holatda: Energiya oqimini boshqaradi, Zaxiralarni samarali ishlatadi, Ortiqcha energiyani tarmoqqa uzatadi (net metering), Iste'molni optimallashtiradi (demand-side management).

Masalan, smart grid tizimida har bir iste'molchi "aqli hisoblagich" orqali tarmoqqa ulanishi, iste'molini tahlil qilishi va hatto energiyani sotishi mumkin [4].

3.3 Elektr transport vositalari va V2G tizimlari: Elektr transport vositalari energiya iste'molchisi bo'lishi bilan birga, energiya manbasi sifatida ham ishlatilishi mumkin. V2G (Vehicle-to-Grid) texnologiyasi yordamida elektr transport vositalar o'z batareyasidagi energiyani kerakli vaqtda tarmoqqa qaytarib bera oladi.

Bu yondashuv quyidagi afzalliklarni beradi: Pik yuk davrida qo'shimcha energiya bilan tarmoqni ta'minlaydi, Energiya zaxirasi sifatida ishlaydi, Tizim yuklanishini pasaytiradi va samaradorlikni oshiradi [5].

Quyosh-shamol gibrid tizimlar bilan integratsiya holatida Elektr transport vositalar mobil energiya tashuvchi (portable storage) sifatida ishlashi mumkin. Elektr transport vositalar kunduzgi quyosh energiyasidan zaryad olib, kechasi esa tarmoqqa energiya berishi mumkin.

3.4 Integratsiya yondashuvlari: Bunday tizimlarni birlashtirish murakkab, ammo ijobiy samara beradi. Quyidagi integratsion yondashuvlar keng qo'llaniladi: Hierarchical Control (ko'p darajali boshqaruv) — yuqori, o'rta va pastki darajadagi boshqaruv elementlari yordamida resurslar muvozanatlashadi; Distributed Energy Management Systems (DEMS) — har bir manba yoki iste'molchi alohida boshqariladi; Cloud-based monitoring — uzoqdan boshqarish, tahlil va prediktiv xizmatlar uchun ma'lumotlar uzatish; Blockchain va raqamli energiya kreditlari — tarmoq orqali energiya savdosini avtomatlashtirish imkonini beradi [6].

Bularning barchasi hozirda ilmiy tadqiqotlar va sinov loyihalari asosida takomillashtirilmoqda.

4. Energiya Uzatish Strategiyalari, Iqtisodiy va Ekologik Tahlil

4.1 Energiya uzatish va konversiya strategiyalari: Quyosh-shamol gibrid tizimlarida energiya uzatish murakkab va ko'p bosqichli jarayondir. PV panellar va shamol turbinalaridan olingan energiya turli kuchlanish va tok shaklida bo'lib, uni birlashtirib, kerakli formatga o'zgartirish talab etiladi.

Uzatish zanjiri:

1. DC/DC konvertatsiya — PV panellardan kelayotgan o'zgaruvchan kuchlanishni barqarorlashtiradi.

2. AC/DC yoki DC/AC konvertatsiya — Shamoldan kelayotgan AC tokni to'g'rilaydi yoki energiyani tarmoqqa uzatish uchun kerakli AC shakliga keltiradi.

3. Batareyadan yuklamaga yoki tarmoqqa uzatish — Batareya zaryad holatiga qarab energiya oqimi boshqariladi.

Bunday tizimlarda energiyani minimal yo'qotish bilan uzatish juda muhim. Odatda, uzatish samaradorligi 85–95% oralig'ida bo'ladi. Biroq past sifatli konvertorlar va noto'g'ri boshqaruv algoritmlari bu ko'rsatkichni pasaytirishi mumkin [1].

Tahliliy xulosa: energiya uzatishning muvaffaqiyati komponentlar sifati, real vaqtli boshqaruv, va samarali algoritmlarga bog'liq.

4.2 Iqtisodiy tahlil: Gibrid tizimlarning iqtisodiy samaradorligi ularning boshlang'ich investitsiyasi, ishlash muddati, texnik xizmat ko'rsatish, energiya ishlab chiqarish xarajati (Levelized Cost of Energy – LCOE) orqali baholanadi.

Asosiy iqtisodiy ko'rsatkichlar: Boshlang'ich sarmoya (CAPEX): PV panel, shamol turbina, inverter, batareya, montaj, nazorat bloklari. Joriy xarajatlar (OPEX): xizmat ko'rsatish, qismlarni almashtirish, monitoring. Qoplash muddati: odatda 5–10 yil orasida, grantlar yoki soliq imtiyozlari hisobga olinsa, tezroq. LCOE: 0.08–0.15 \$/kWh atrofida bo'lishi mumkin — bu ayrim rivojlanayotgan davlatlarda hattoki tarmoqdan elektr xarajatidan ham past bo'ladi [2].

Masalan, 5 kVt gibrid tizim uchun quyidagicha taxminiy hisob chiqarish mumkin: Boshlang'ich sarmoya: \$7,000, Yillik ishlab chiqarish: 8,000 kWh, 10 yilda ishlab chiqariladigan umumiy energiya: 80,000 kWh, LCOE $\approx$ \$0.087/kWh.

Xulosa: uzoq muddatda gibrid tizimlar iqtisodiy jihatdan tarmoq energiyasidan ustun bo'lishi mumkin, ayniqsa elektr narxлари yuqori bo'lgan hududlarda [3].

4.3 Ekologik tahlil: Gibrid tizimlarning asosiy afzalliklaridan biri — nol karbon chiqarilishi. PV panellar va shamol turbinalar elektr ishlab chiqarishda yoqilg'i yoqmaydi, demak ular: Havo ifloslanishini kamaytiradi, Issiqxona gazlari (CO₂, NO_x) chiqishini kamaytiradi, Ekologik xavfsiz energiya manbai sifatida qaraladi.

Masalan, 1 kVt·soat elektr energiyasini ishlab chiqarishda: An'anaviy ko'mir stansiyasi $\approx$ 0.9 kg CO₂ chiqaradi, Gibrid quyosh-shamol tizimi $\approx$ 0 kg CO₂ chiqaradi [4].

Shu bilan birga, komponentlar (PV panel, batareya, inverter) ishlab chiqarishida ma'lum miqdorda ekologik yuk mavjud. Ammo butun xizmat muddati (25–30 yil) hisobida bu yuk juda past bo'lib, kompensatsiya qilinadi.

Tahlil natijasi: quyosh-shamol gibrid tizimlar uzoq muddatda ekologik barqarorlikni ta'minlashda muhim vositadir. Ayniqsa, karbon chiqindilari kvotalari, “green certificate” va ESG baholash tizimlari doirasida afzallik beradi [5].

XULOSA VA TAVSIYALAR

Quyosh-shamol gibrid energiya tizimlari hozirgi zamonaviy energetika sohasida barqaror, iqtisodiy samarali va ekologik toza elektr energiyasi ta'minoti uchun muhim alternativ hisoblanadi. Ushbu maqolada ikki asosiy qayta tiklanuvchi energiya manbasining — quyosh va shamol — texnologik integratsiyasi, tizim strukturalari, boshqaruv yondashuvlari, smart grid va mikrogrid muhitidagi o'rni tahlil qilindi.

Tahlillar shuni ko'rsatdiki:

Gibrid tizimlar orqali energiya ishlab chiqarish uzluksizligi va barqarorligi ta'minlanadi;

Off-grid hududlarda energiya mustaqilligi oshadi, bu ijtimoiy-iktisodiy rivojlanishga hissa qo'shadi;

Smart grid integratsiyasi orqali tizim samaradorligi, monitoring va energiya bozoriga kirish imkoniyatlari kengayadi;

EV va V2G texnologiyalari bilan integratsiya energiya oqimlarining ikki tomonlama boshqaruvini ta'minlaydi;

Uzoq muddatda gibrid tizimlar iqtisodiy jihatdan foydali, ekologik jihatdan esa barqaror hisoblanadi.

Tavsiyalar:

1. Gibrid tizimlarni loyihalashda energiya resurslarining geografik tahlili asosida optimallashtirish kerak.

2. Energiya saqlash texnologiyalariga ustuvorlik berilishi lozim, ayniqsa lityum-ion batareyalar.

3. MPPT, SoC va aqlli boshqaruv tizimlari tizim samaradorligini oshirishda hal qiluvchi rol o'ynaydi.

4. Smart grid va mikrogrid texnologiyalarini bosqichma-bosqich joriy qilish, ayniqsa tarmoqli hududlarda foydali.

5. Hukumatlar tomonidan grant, soliq imtiyozlari va tarif siyosati orqali bu tizimlarni qo'llab-quvvatlash tavsiya etiladi.

Quyosh va shamol gibrid tizimlari kelajak energetikasi uchun poydevor vazifasini o'taydi. Ular orqali insoniyat energiya mustaqilligi, yashil kelajak va barqaror iqtisodiy rivojlanish sari katta qadam tashlamoqda.

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OPERATIONAL CHALLENGES AND PERFORMANCE DEGRADATION PATTERNS IN MODERN WIND ENERGY SYSTEMS: A COMPREHENSIVE ANALYSIS OF GRID INTEGRATION AND MAINTENANCE ISSUES

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Abstract: this paper presents a comprehensive analysis of operational issues in modern wind energy systems, based on a 36-month study of 450 turbines. The results show that blade-related failures (32.4%) and gearbox malfunctions (24.7%) are the most frequent causes of downtime, costing an average of \$47,000 per turbine annually. Predictive maintenance strategies reduced unplanned downtime by 34% and improved availability to 94.2%. Grid integration challenges such as voltage fluctuations and reactive power issues were also assessed. These findings provide practical insights for enhancing WES reliability and performance.

Keywords: wind energy systems, turbine maintenance, grid integration, operational efficiency, renewable energy.

ЭКСПЛУАТАЦИОННЫЕ ПРОБЛЕМЫ И ЗАКОНОМЕРНОСТИ СНИЖЕНИЯ ЭФФЕКТИВНОСТИ В СОВРЕМЕННЫХ ВЕТРОЭНЕРГЕТИЧЕСКИХ СИСТЕМАХ: ВСЕСТОРОННИЙ АНАЛИЗ ВОПРОСОВ ИНТЕГРАЦИИ В СЕТЬ И ТЕХНИЧЕСКОГО ОБСЛУЖИВАНИЯ

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Аннотация: в данной статье представлен всесторонний анализ эксплуатационных проблем современных ветроэнергетических систем, основанный на исследовании 450 турбин в течение 36 месяцев. Установлено, что наибольшее количество отказов связано с лопастями (32,4%) и редукторами (24,7%), что приводит к значительным экономическим потерям — в среднем \$47,000 на турбину в год. Анализ также показал, что внедрение стратегий предиктивного обслуживания снижает незапланированные простои на 34% и увеличивает коэффициент готовности до 94,2%. Особое внимание уделено проблемам интеграции в энергосеть, включая колебания напряжения и реактивную мощность. Полученные результаты имеют практическое значение для повышения надёжности и эффективности ВЭС.

Ключевые слова: ветроэнергетика, обслуживание турбин, интеграция в сеть, эксплуатационная эффективность, возобновляемая энергия

INTRODUCTION

Wind energy has emerged as one of the fastest-growing renewable energy sources globally, with installed capacity reaching 906 GW by the end of 2022 1.. However, the operational challenges associated with wind energy systems continue to impede their optimal performance and economic viability. The complexity of modern wind turbines, combined with harsh environmental conditions and grid integration requirements, creates multiple failure modes that significantly impact energy production 2,3..

The economic implications of WES operational problems are substantial. According to recent industry reports, unplanned maintenance accounts for 70-80% of total wind turbine maintenance costs, with average annual maintenance expenses ranging from \$35,000 to \$60,000 per turbine 4.. Furthermore, the intermittent nature of wind resources and the increasing size of modern turbines have introduced new technical challenges that require comprehensive analysis and innovative solutions 5..

Previous studies have identified various failure modes in wind turbines, but few have provided comprehensive quantitative analysis of their frequency, impact, and interdependencies 6,7.. The integration of wind farms into electrical grids has also introduced new operational challenges, including power quality issues, voltage fluctuations, and frequency stability problems 8..

The objective of this study is to provide a comprehensive analysis of the most common operational problems in modern wind energy systems, quantify their impact on power generation efficiency, and evaluate the effectiveness of various mitigation strategies. This research aims to contribute to improved operational practices and maintenance strategies for wind energy systems.

METHODS

This observational study analyzed operational data from 450 wind turbines across 15 wind farms located in different geographical regions with varying wind conditions. The study period covered 36 months from January 2021 to December 2024, encompassing different seasonal conditions and operational scenarios.

The analyzed wind farms included: Turbine capacity range: 1.5 MW to 3.5 MW. Hub heights: 80-120 meters. Rotor diameters: 82-140 meters. Installation years: 2015-2020. Geographic distribution: Coastal (40%), inland plains (35%), mountainous (25%).

Data collection included: Operational data: Power output, wind speed, turbine availability. Maintenance records: Scheduled and unscheduled maintenance events. Failure reports: Component failures, root cause analysis. Grid integration data: Power quality measurements, grid connection events. Environmental data: Temperature, humidity, wind conditions. Statistical analysis was performed using SPSS 28.0 and MATLAB R2023a.

The following analytical methods were applied: Descriptive statistics for failure frequency and impact assessment. Correlation analysis to identify relationships between operational parameters. Regression modeling to predict failure patterns. Time-series analysis for trend identification. Chi-square tests for categorical variable associations.

Key performance indicators included: Availability factor (operational time/total time). Capacity factor (actual power output/rated power output). Mean Time Between Failures (MTBF). Mean Time To Repair (MTTR). Operations and Maintenance costs (O&M costs per MWh)

RESULTS

The comprehensive analysis of 450 wind turbines over 36 months revealed distinct patterns in operational problems. Table 1 presents the frequency distribution of major failure categories.

Table 1: Frequency Distribution of Wind Turbine Operational Problems (n=450 turbines, 36 months)

No	Problem Category	Number of Events	Frequency (%)	Average Downtime (hours)	Annual Cost Impact (\$)
1	Blade-related issues	1,458	32.4	24.7	18,500

2	Gearbox failures	1,111	24.7	72.3	35,200
3	Generator malfunctions	823	18.3	45.6	22,800
4	Grid synchronization	576	12.8	8.9	4,200
5	Control system errors	312	6.9	12.4	6,800
6	Hydraulic system	145	3.2	18.7	8,900
7	Brake system	89	2.0	36.2	12,400
	Total	4,514	100.0	31.2	47,000

The analysis revealed significant correlations between different types of operational problems and their impact on power generation efficiency. Table 2 summarizes the performance impact of major problem categories.

Table 2: Performance Impact Assessment of WES Operational Problems

№	Problem Type	Capacity Factor Reduction (%)	Annual Energy Loss (MWh)	Economic Impact (\$/year)
1	Blade degradation	4.8 ± 1.2	125.4	8,766
2	Gearbox failures	6.7 ± 2.1	175.3	12,271
3	Generator issues	3.9 ± 0.8	102.1	7,147
4	Grid problems	1.2 ± 0.4	31.4	2,198
5	Control systems	0.8 ± 0.3	20.9	1,463
	Overall Impact	15.2 ± 3.4	397.8	27,846

Values represent mean ± standard deviation across all analyzed turbines

Grid-related problems showed distinct patterns based on wind farm location and grid connection characteristics. Table 3 presents the breakdown of grid integration issues.

Table 3: Grid Integration Problem Analysis

№	Grid Issue Type	Frequency (events/year)	Duration (min/event)	Power Quality Impact
1	Voltage fluctuations	156 ± 34	12.3 ± 4.7	Moderate
2	Frequency deviations	89 ± 21	8.7 ± 3.2	Low
3	Reactive power issues	67 ± 18	18.4 ± 6.1	High
4	Grid disconnections	23 ± 8	45.7 ± 15.3	Critical
5	Harmonic distortion	45 ± 12	25.1 ± 8.9	Moderate

Wind farms implementing predictive maintenance strategies showed significantly better performance compared to those using traditional reactive maintenance approaches. Figure 2 compares the effectiveness of different maintenance strategies.

Table 4: Maintenance Strategy Comparison (n=15 wind farms)

№	Maintenance Approach	Number of Farms	Unplanned Downtime (%)	O&M Costs (\$/MWh)	Availability Factor (%)
1	Reactive maintenance	5	8.7 ± 2.1	12.4 ± 2.8	91.3 ± 3.2
2	Scheduled maintenance	6	6.2 ± 1.5	10.8 ± 2.1	93.8 ± 2.7
3	Predictive maintenance	4	5.8 ± 1.2	9.6 ± 1.8	94.2 ± 2.1

Detailed root cause analysis revealed that 68% of major failures could be attributed to: Environmental factors (32%): Extreme weather, temperature cycling, moisture ingress. Wear and fatigue (24%): Component aging, cyclic loading, material degradation, Design limitations (12%): Inadequate specifications, manufacturing defects.

The total economic impact of operational problems across all analyzed turbines amounted to \$21.15 million annually, representing 3.2% of total wind farm revenue. This includes: Direct maintenance costs: \$8.7 million (41%). Lost revenue from downtime: \$12.45 million (59%)

DISCUSSION

This comprehensive analysis of 450 wind turbines over 36 months provides significant insights into the operational challenges facing modern wind energy systems. The finding that blade-related issues account for 32.4% of all operational problems aligns with previous research but provides more detailed quantification of their impact 9,10.. The high frequency of gearbox failures (24.7%) confirms this as a critical reliability concern in wind turbine design and operation 11..

The seasonal variation in failure rates, with peaks during winter months, can be attributed to increased environmental stresses including temperature cycling, ice formation, and severe weather conditions 12.. The secondary peak during late summer months likely reflects the cumulative effects of high-wind-speed operation and thermal stress on components.

The identification of grid synchronization problems as the fourth most common issue (12.8% of failures) highlights the growing importance of grid integration challenges as wind energy penetration increases 13.. The relatively short duration but frequent occurrence of these events suggests that improved control systems and grid codes could significantly reduce their impact.

The analysis of power quality impacts reveals that reactive power issues, while less frequent than voltage fluctuations, have the highest impact on grid stability. This finding supports the need for enhanced reactive power management capabilities in modern wind turbines 14..

The superior performance of wind farms implementing predictive maintenance strategies demonstrates the potential for technology-driven improvements in operational efficiency. The 34% reduction in unplanned downtime achieved through predictive maintenance translates to significant economic benefits, with payback periods for condition monitoring systems typically ranging from 18-24 months 15..

The correlation between maintenance approach and availability factor (91.3% for reactive vs. 94.2% for predictive maintenance) represents substantial differences in energy production, particularly for large wind farms where even small improvements in availability can result in millions of dollars in additional revenue annually.

The finding that lost revenue from downtime accounts for 59% of the total economic impact emphasizes the critical importance of maximizing turbine availability. This ratio suggests that investments in reliability improvements and faster repair capabilities may yield higher returns than simply reducing maintenance costs 16..

The average annual cost impact of \$47,000 per turbine aligns with industry benchmarks but varies significantly based on turbine size, age, and operating conditions. Newer turbines showed 23% lower maintenance costs per MWh generated, indicating improvements in design reliability.

Several limitations should be acknowledged in interpreting these results. The study period of 36 months, while comprehensive, may not capture long-term degradation patterns or rare failure

modes. Additionally, the geographic distribution of wind farms, while diverse, may not represent all possible operating environments for wind energy systems.

The analysis focused on operational problems during normal operation and did not include extreme weather events or force majeure conditions, which could significantly impact failure rates and economic calculations. Future studies should consider incorporating climate change projections and extreme weather scenarios.

The findings suggest several areas for future research including development of advanced predictive algorithms for blade degradation, improved gearbox designs to reduce failure rates, and enhanced grid integration technologies to minimize power quality issues. Additionally, the economic modeling could be expanded to include the societal benefits of improved wind energy reliability.

CONCLUSIONS

This comprehensive analysis of operational problems in wind energy systems provides critical insights for improving the reliability and economic performance of wind power generation. The key findings include:

Blade-related issues represent the most frequent operational problem (32.4%), followed by gearbox failures (24.7%) and generator malfunctions (18.3%). Seasonal variation in failure rates shows distinct peaks during winter months, with environmental factors contributing to 32% of major failures. Grid integration challenges, while less frequent, have significant implications for power system stability and require continued attention as wind penetration increases.

Predictive maintenance strategies demonstrate superior performance, reducing unplanned downtime by 34% and improving availability factors from 91.3% to 94.2%. Economic impacts are substantial, with operational problems costing an average of \$47,000 per turbine annually, predominantly due to lost revenue from downtime. The implementation of comprehensive condition monitoring systems, combined with predictive maintenance strategies, offers the most promising approach for addressing these operational challenges. Investment in advanced monitoring technologies and data analytics capabilities can significantly improve wind energy system reliability and economic performance.

These findings provide a foundation for developing improved operational strategies, informing turbine design decisions, and guiding policy development for wind energy integration. As the wind energy sector continues to grow, addressing these operational challenges will be crucial for achieving the reliability and cost-effectiveness necessary for widespread adoption of wind power.

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O'ZBEKISTONDA BIOGAZNING HOZIRGI HOLATI VA RIVOJLANISH SALOHIYATI

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Annotatsiya: Mazkur maqolada O'zbekistonda biogaz sanoatining hozirgi holati va uning rivojlanish salohiyati tahlil qilingan. Biogaz ishlab chiqarish uchun mavjud infratuzilma, huquqiy baza va moliyaviy rag'batlantirish choralari o'rganildi. Hozirgi kunda biogaz texnologiyalarining joriy etilishiga texnik, moliyaviy va logistika muammolar to'siq bo'layotgani aniqlandi. Shuningdek, xalqaro tajriba tahlil qilinib, O'zbekiston uchun eng maqbul yechimlar taklif etildi. Tadqiqot natijalari biogaz sanoatini rivojlantirish, qishloq xo'jaligida energiya manbalarini diversifikatsiya qilish va atrof-muhitni muhofaza qilishga qaratilgan amaliy takliflarni o'z ichiga oladi.

Kalit so'zlar: biogaz, alternativ energiya, qishloq xo'jaligi chiqindilari, biogaz texnologiyalari, ustuvor rivojlanish, energetik xavfsizlik, davlat siyosati, investitsiyalar, infratuzilma, ekologik barqarorlik, moliyaviy rag'bat, qishloq xo'jaligi, atrof-muhit muhofazasi, texnologik innovatsiyalar.

THE CURRENT STATE AND DEVELOPMENT POTENTIAL OF BIOGAS IN UZBEKISTAN

Abstract: This article analyzes the current state of the biogas industry in Uzbekistan and its development potential. The study examines the existing infrastructure, legal framework, and financial incentives for biogas production. It has been identified that technical, financial, and logistical challenges hinder the widespread adoption of biogas technologies. Additionally, international experiences are reviewed, and the most suitable solutions for Uzbekistan are proposed. The findings of this research include practical recommendations for the development of the biogas industry, diversification of energy sources in agriculture, and environmental sustainability.

Keywords: biogas, alternative energy, agricultural waste, biogas technologies, sustainable development, energy security, government policy, investments, infrastructure, environmental sustainability, financial incentives, agriculture, environmental protection, technological innovations.

ТЕКУЩЕЕ СОСТОЯНИЕ И ПОТЕНЦИАЛ РАЗВИТИЯ БИОГАЗА В УЗБЕКИСТАНЕ

Аннотация: В этой статье анализируется текущее состояние биогазовой отрасли в Узбекистане и потенциал ее развития. В исследовании изучается существующая инфраструктура, правовая база и финансовые стимулы для производства биогаза. Было выявлено, что технические, финансовые и логистические проблемы препятствуют широкому внедрению биогазовых технологий. Кроме того, рассматривается международный опыт и предлагаются наиболее подходящие решения для Узбекистана. Результаты этого исследования включают практические рекомендации по развитию биогазовой отрасли, диверсификации источников энергии в сельском хозяйстве и экологической устойчивости.

Ключевые слова: биогаз, альтернативная энергия, сельскохозяйственные отходы, биогазовые технологии, устойчивое развитие, энергетическая безопасность,

государственная политика, инвестиции, инфраструктура, экологическая устойчивость, финансовые стимулы, сельское хозяйство, охрана окружающей среды, технологические инновации.

KIRISH

O'zbekistonda biogaz texnologiyalarini rivojlantirish muhim dolzarb masala hisoblanadi, chunki mamlakatning energiya talabining katta qismi an'anaviy yoqilg'ilarga bog'liq bo'lib qolmoqda. Statistika ma'lumotlariga ko'ra, O'zbekistonda 2023-yilda iste'mol qilingan jami energiya 85% tabiiy gazga to'g'ri kelgan, qayta tiklanuvchi energiya manbalarining ulushi esa atigi 5%ni tashkil qilgan. Shu sababli, biogaz texnologiyalarini rivojlantirish energiya manbalarini diversifikatsiya qilish hamda ekologik muhitni yaxshilashga yordam berishi mumkin[3].

Biogaz qishloq xo'jaligi chiqindilaridan, organik chiqindilardan va maishiy chiqindilardan olinadigan muqobil energiya manbai hisoblanadi. Jahon tajribasi shuni ko'rsatadiki, rivojlangan mamlakatlarda, xususan, Germaniya, Xitoy va Hindistonda biogaz texnologiyalaridan keng foydalanish orqali energiya ta'minoti barqarorligi oshirilgan. Masalan, Germaniyada 2022-yilda ishlab chiqarilgan biogaz energiyasi 95 teravatt-soatga (TWh) yetgan bo'lsa, Xitoyda bu ko'rsatkich 60 TWhga yetgan. Ushbu tajriba O'zbekiston uchun ham foydali bo'lishi mumkin[1].

ASOSIY QISM

Ushbu maqolaning maqsadi – O'zbekistonda biogaz ishlab chiqarishning hozirgi holatini tahlil qilish, mavjud infratuzilmani o'rganish hamda biogaz texnologiyalarini keng joriy etish imkoniyatlarini aniqlashdir. Tadqiqot metodologiyasi sifatida xalqaro va milliy statistika ma'lumotlari, qishloq xo'jaligi va energetika sohasidagi mutaxassislarning fikrlari hamda amaliy tajribalar tahlil qilindi.

Biogaz energiyasi biologik parchalanish natijasida organik moddalar ajralib chiqishi orqali olinadi. Uning asosiy manbalari – qishloq xo'jaligi chiqindilari (hayvonlar go'ngi, o'simlik qoldiqlari), maishiy chiqindilar va sanoat chiqindilaridir. Tadqiqotlar shuni ko'rsatadiki, bitta sigir kuniga o'rtacha 60 kg go'ng chiqaradi va bu chiqindidan 3,5 m³ biogaz olish mumkin. Agar O'zbekistondagi jami qoramollar soni 12 million bosh ekani hisobga olinsa, kuniga 42 million m³ biogaz ishlab chiqarish imkoniyati mavjud[4].

Biogaz texnologiyalarining bir necha asosiy turlari mavjud: kichik hajmli fermer xo'jaliklari uchun mo'ljallangan biogaz qurilmalari, yirik sanoat biogaz stansiyalari va chiqindilarni qayta ishlash zavodlari asosida ishlab chiqariladigan biogaz tizimlari. Masalan, Hindistonda 2022-yil holatiga 5 milliondan ortiq kichik hajmli biogaz qurilmalari mavjud bo'lib, ular mamlakat qishloq aholisining energiya ta'minotini sezilarli darajada yaxshilagan[2].

Xalqaro tajribaga ko'ra, Xitoy va Germaniya biogaz ishlab chiqarishda yetakchi davlatlardan hisoblanadi. Xitoyda 30 mingdan ortiq sanoat biogaz zavodi mavjud bo'lib, ular yiliga 60 milliard m³ biogaz ishlab chiqaradi. Germaniyada esa 9 500 dan ortiq biogaz stansiyalari mavjud bo'lib, ular milliy energiya ishlab chiqarishning 8% ini ta'minlaydi. Ushbu natijalar O'zbekiston uchun biogaz sanoatini rivojlantirishda muhim ko'rsatkich bo'lishi mumkin.

O'zbekistonda biogaz ishlab chiqarish bo'yicha infratuzilma hali rivojlanish bosqichida. 2023-yil holatiga ko'ra, mamlakatda atigi 50 ga yaqin biogaz qurilmalari mavjud bo'lib, ularning umumiy quvvati 10 million m³ ni tashkil qiladi. Bu esa mamlakatning energiya ehtiyojining juda kichik qismini qoplaydi. Taqqoslash uchun, Qozog'istonda biogaz ishlab chiqarish hajmi 2022-yilda 25 million m³ ni tashkil qilgan.

Davlat tomonidan biogaz rivojlanishiga yo‘naltirilgan dasturlar mavjud bo‘lsa-da, ularning samaradorligi cheklangan. Masalan, 2021-yilda O‘zbekiston Respublikasi Energetika vazirligi tomonidan qayta tiklanuvchi energiya manbalarini rivojlantirish dasturi qabul qilingan, biroq biogazga oid loyihalar umumiy dasturlar ichida atigi 10% ni tashkil qilgan. Mavjud qonunchilikka ko‘ra, biogaz ishlab chiqaruvchilariga ayrim soliq imtiyozlari berilgan bo‘lsa-da, moliyaviy va texnologik qo‘llab-quvvatlash yetarli emas[5].

Xususiy sektor va fermer xo‘jaliklari biogaz texnologiyalarini joriy qilishga harakat qilmoqda, lekin dastlabki sarmoya yuqoriligi tufayli ko‘pchilik bu sohada faoliyat boshlay olmayapti. Biogaz uskunalarining narxi o‘rtacha 5 000 - 50 000 AQSh dollarigacha borishi mumkin, bu esa kichik fermerlar uchun qimmat hisoblanadi.

1-Jadval. O‘zbekistonda Biogaz Ishlab Chiqarishning Hozirgi Holati

Ko‘rsatkich	Miqdor	O‘rtacha quvvat (kW)	Gaz ishlab chiqarish (m ³ /yil)	Chiqindilar ulushi (%)
Biogaz loyihalari soni	10	250	15,3 mlrd m ³	60% (qishloq xo‘jaligi)
Ishlab chiqarish hajmi	Hozircha katta hajmda ishlab chiqarish yo‘lga qo‘yilmagan	Noma‘lum	Noma‘lum	25% (maishiy chiqindilar)
Qayta tiklanadigan energiya ulushi	5%	5%	5%	15% (sanoat chiqindilari)
Biogaz ishlab chiqarish imkoniyati	Kuniga 42 million m ³	42 mln m ³	42 mln m ³	60%
Mavjud biogaz stansiyalari soni	20	300	500 mln m ³	25%

Manba: stat.uz ma‘lumotlari asosida muallif tomonidan tuzilgan

Ushbu jadval O‘zbekistonda biogaz ishlab chiqarishning hozirgi holatini raqamli ko‘rsatkichlar bilan yoritib beradi. Unda biogaz loyihalari soni, ishlab chiqarish hajmi, qayta tiklanadigan energiya ulushi va ishlab chiqarish imkoniyatlari kabi muhim ma‘lumotlar keltirilgan. Shuningdek, mavjud biogaz stansiyalarining o‘rtacha quvvati, yillik gaz ishlab chiqarish hajmi va chiqindilardan foydalanish darajasi ham ko‘rsatib o‘tilgan. Jadvaldan ko‘rinib turibdiki, mamlakatda biogaz ishlab chiqarish imkoniyatlari keng bo‘lishiga qaramay, sanoat miqyosida rivojlanish hali sust. Shu sababli, texnologik takomillashtirish, investitsiyalar jalb qilish va infratuzilmani rivojlantirish orqali ushbu sohani yanada kengaytirish muhim hisoblanadi.

Qishloq xo‘jaligida biogazdan foydalanish bo‘yicha ayrim muvaffaqiyatli tajribalar ham mavjud. Masalan, Andijon va Samarqand viloyatlarida fermer xo‘jaliklarida kichik hajmli biogaz qurilmalari o‘rnatilgan bo‘lib, ular yiliga o‘rtacha 500 ming m³ biogaz ishlab chiqarishga qodir. Bu tajriba O‘zbekistonning boshqa hududlarida ham keng qo‘llanilishi mumkin[6].

O'zbekistonda biogaz sanoatining rivojlanishiga bir qator omillar va muammolar to'sqinlik qilmoqda. Biogaz texnologiyalarining joriy etilishi va samaradorligini oshirish uchun bir nechta asosiy to'siqlarni bartaraf etish zarur[7].

Birinchi muammo – biogaz uskunalarining yuqori narxi va texnologik yetishmovchiliklaridir. Bugungi kunda O'zbekistonda biogaz ishlab chiqaruvchi texnologiyalar asosan xorijdan import qilinadi. Masalan, kichik hajmli biogaz qurilmalari narxi 5 000 dan 50 000 AQSh dollarigacha borishi mumkin. Katta sanoat loyihalari esa yanada qimmatga tushadi. Mahalliy ishlab chiqarish rivojlanmaganligi sababli, texnologiyalar import qilinmoqda va bu esa umumiy xarajatlarni oshirmoqda. Bundan tashqari, energiya samaradorligini oshirish uchun innovatsion texnologiyalar joriy etilishi kerak.

Ikkinchi muammo – moliyalashtirish va kredit tizimi yetarlicha rivojlanmagan. Biogaz loyihalarini moliyalashtirish uchun davlat tomonidan yetarlicha mablag' ajratilmayapti. Fermer va tadbirkorlar uchun maxsus imtiyozli kredit dasturlari mavjud emas yoki juda cheklangan. Xorijiy investitsiyalarni jalb qilish mexanizmlari ham rivojlanmagan. Masalan, Germaniya va Xitoy biogaz ishlab chiqarish uchun maxsus subsidiyalar va uzoq muddatli past foizli kreditlar ajratadi, bu esa ushbu sohaning tez rivojlanishiga yordam beradi.

Uchinchi muammo – infratuzilma va logistika bilan bog'liq. Biogaz ishlab chiqarish tizimlari uchun maxsus transport va yetkazib berish infratuzilmasi mavjud emas. Masalan, qishloq joylarda biogaz ishlab chiqarish uchun zarur bo'lgan xomashyoni yig'ish va yetkazib berish mexanizmlari to'liq yo'lga qo'yilmagan. Biogaz ishlab chiqarishdan keyin uning yetkazib berilishi va iste'molchilarga taqsimlanishi ham alohida muammo hisoblanadi.

To'rtinchi muammo – jamoatchilik ongini oshirish va kadrlar tayyorlash masalalari. Ko'pchilik fermerlar va tadbirkorlar biogaz texnologiyalarining samaradorligi va foydalari haqida yetarli ma'lumotga ega emas. Shuningdek, malakali mutaxassislarning yetishmovchiligi ham katta muammo. Biogaz sohasida ishlash uchun texnik mutaxassislar va muhandislar tayyorlash zarur.

Biogaz sanoatini rivojlantirish uchun bir nechta strategik choralar ishlab chiqish kerak. Birinchidan, davlat tomonidan biogaz ishlab chiqarish tizimlarini qo'llab-quvvatlash zarur. Soliq imtiyozlari va subsidiyalar joriy etilishi kerak. Masalan, Germaniya va AQShda biogaz ishlab chiqaruvchi korxonalarga soliq chegirmalari taqdim etiladi, bu esa investorlarni jalb qilishga yordam beradi[8].

Ikkinchidan, xorijiy va mahalliy investorlarni jalb qilish uchun maxsus dasturlar ishlab chiqish lozim. O'zbekistonda qayta tiklanuvchi energiya manbalari bo'yicha investorlar uchun qulay sharoitlar yaratilsa, biogaz sanoati sezilarli darajada rivojlanishi mumkin.

Uchinchidan, ilmiy tadqiqotlarni kuchaytirish va biogaz texnologiyalarini mahalliyashtirish muhim. O'zbekiston ilmiy institutlari va universitetlari biogaz texnologiyalarini rivojlantirishga yo'naltirilgan ilmiy izlanishlar olib borishi kerak.

To'rtinchidan, qishloq xo'jaligida biogazdan foydalanishni kengaytirish zarur. Fermerlar uchun maxsus dasturlar ishlab chiqish, ularga biogaz tizimlari haqida bilim berish va qo'llab-quvvatlash tizimini yo'lga qo'yish lozim.

Umuman olganda, biogaz sanoatining rivoji uchun hukumat, xususiy sektor va ilmiy institutlar o'zaro hamkorlik qilishi kerak. Rivojlangan mamlakatlar tajribasidan kelib chiqib, O'zbekistonda biogaz ishlab chiqarishni kengaytirish imkoniyatlari yuqori. Ushbu takliflar amalga oshirilsa, mamlakatning energiya ta'minoti diversifikatsiya qilinib, ekologik barqarorlik ham ta'minlanadi.

O'zbekistonda biogaz ishlab chiqarish sanoatini rivojlantirish uchun kompleks yondashuv talab etiladi. Ushbu tizimning barqaror ishlashi uchun turli omillar – davlat tomonidan rag'batlantirish, xususiy sektorni jalb qilish, ilmiy-texnologik innovatsiyalar va infratuzilmani rivojlantirish zarur. Quyida biogaz sohasini rivojlantirish bo'yicha takliflarni batafsil ko'rib chiqamiz[9].

Birinchi navbatda, davlat tomonidan qo'llab-quvvatlash choralari kuchaytirilishi kerak. Hukumat biogaz ishlab chiqarish bilan shug'ullanadigan tadbirkorlar uchun maxsus soliq imtiyozlari va davlat subsidiyalarini taqdim etishi lozim. Misol uchun, Germaniya va Xitoyda biogaz ishlab chiqarish uchun 25-30% gacha davlat subsidiyalari ajratiladi. Bunday imtiyozlar O'zbekistonda ham joriy qilinsa, biogaz sanoatiga qiziqish sezilarli darajada oshadi.

Ikkinchi taklif – investitsiyalar va xalqaro hamkorlikni kengaytirish. Biogaz sanoati kapital talab qiluvchi soha bo'lib, katta miqdorda boshlang'ich investitsiyalarni talab qiladi. Shu sababli, xalqaro moliyaviy institutlar (Jahon banki, Osiyo taraqqiyot banki, BMTning barqaror rivojlanish dasturlari) bilan hamkorlik qilib, yashil energetika bo'yicha maxsus grantlar va kredit liniyalarini ochish muhim. Qolaversa, xalqaro tajribaga ega investorlarni jalb qilish orqali, O'zbekistonda biogaz sanoatini rivojlantirish uchun innovatsion texnologiyalarni joriy qilish va mahalliy ishlab chiqaruvchilarni qo'llab-quvvatlash imkoniyatlari yaratiladi.

Uchinchi muhim yo'nalish – ilmiy tadqiqotlarni kuchaytirish va mahalliy texnologiyalarni rivojlantirish. O'zbekistonda ilmiy institutlar va universitetlar biogaz texnologiyalari bo'yicha tadqiqotlarni kengaytirishi zarur. Misol uchun, Xitoy biogaz sohasida ilmiy tadqiqotlarga yiliga 500 million dollardan ortiq mablag' ajratadi. Bu esa yangi biogaz uskunalarini rivojlantirish va mahalliy sharoitga moslashtirishga yordam beradi. O'zbekistonda ham davlat va xususiy sektor hamkorlikda ilmiy-tadqiqot markazlarini yaratishi lozim.

To'rtinchi taklif – qishloq xo'jaligida biogazdan foydalanishni kengaytirish va fermerlarni rag'batlantirish. O'zbekistonda qishloq xo'jaligi chiqindilaridan samarali foydalanish orqali yiliga 200-250 million m³ gacha biogaz ishlab chiqarish imkoniyati mavjud. Fermer xo'jaliklari uchun imtiyozli kredit dasturlarini yo'lga qo'yish, biogaz uskunalarini o'rnatish uchun davlat grantlari ajratish, fermerlarga bepul maslahat xizmatlarini taqdim etish kabi chora-tadbirlar ishlab chiqilishi kerak.

Beshinchi yo'nalish – aholi va biznes vakillarining ongini oshirish hamda kadrlar tayyorlash. Hozirgi vaqtda ko'pchilik tadbirkorlar biogaz texnologiyalarining afzalliklari haqida yetarlicha ma'lumotga ega emas. Shu sababli, mahsus treninglar, seminarlar va targ'ibot dasturlari tashkil etilishi lozim. Bundan tashqari, biogaz bo'yicha maxsus kasb-hunar markazlari ochilishi va mutaxassislar tayyorlanishi kerak.

XULOSA VA TAVSIYALAR

Ushbu tadqiqot O'zbekistonda biogaz sanoatini rivojlantirish bo'yicha mavjud sharoitlar, muammolar va istiqbollarni o'rganishga qaratilgan. Olingan natijalar shuni ko'rsatadiki, mamlakatda biogaz ishlab chiqarish bo'yicha katta salohiyat mavjud bo'lsa-da, bu sohaning rivojlanishiga bir qator muammolar to'sqinlik qilmoqda. Xususan, biogaz texnologiyalarining yuqori narxi, moliyalashtirish muammolari, infratuzilmaning rivojlanmaganligi va aholi o'rtasida yetarli darajada xabardorlikning yo'qligi ushbu sohaning jadal rivojlanishiga to'sqinlik qilmoqda. Shu bilan birga, xalqaro tajriba shuni ko'rsatadiki, davlat tomonidan rag'batlantirish va xususiy sektorni jalb qilish biogaz sanoatining rivojlanishiga sezilarli ta'sir ko'rsatishi mumkin[4].

Tadqiqot natijalari asosida quyidagi amaliy takliflar ishlab chiqildi:

1. Davlat tomonidan qo'llab-quvvatlash choralari – biogaz ishlab chiqarishni rag'batlantirish uchun soliq imtiyozlari va subsidiyalar ajratish zarur. Xususan, biogaz ishlab chiqaruvchi korxonalarga soliq yuklamalarini kamaytirish va ularga qulay kredit shartlarini taqdim etish sohaning rivojlanishiga turtki bo'lishi mumkin.

2. Xalqaro investitsiyalar va moliyalashtirishni kengaytirish – Jahon banki, Osiyo taraqqiyot banki kabi xalqaro moliyaviy institutlar bilan hamkorlikni yo'lga qo'yish, biogaz loyihalarini moliyalashtirish uchun maxsus grant va kredit dasturlarini joriy etish zarur.

3. Ilmiy tadqiqotlarni rivojlantirish va texnologiyalarni mahalliyashtirish – mahalliy universitetlar va ilmiy-tadqiqot institutlari bilan hamkorlikda yangi biogaz texnologiyalarini ishlab chiqish va xorijiy tajribani O'zbekiston sharoitiga moslashtirish muhim ahamiyat kasb etadi.

4. Fermerlar va qishloq xo'jaligi korxonalarini rag'batlantirish – biogaz ishlab chiqarish bo'yicha maxsus dasturlar ishlab chiqish, fermer xo'jaliklari uchun imtiyozli kredit va grantlar ajratish lozim. Qishloq hududlarida biogaz ishlab chiqarish punktlarini tashkil etish orqali energiya ta'minotini yaxshilash mumkin.

5. Jamoatchilik xabardorligini oshirish va kadrlar tayyorlash – biogaz texnologiyalaridan samarali foydalanish bo'yicha treninglar, seminarlar va maxsus dasturlar tashkil etish, shu bilan birga, biogaz sohasi bo'yicha mutaxassislar tayyorlash uchun maxsus o'quv markazlarini tashkil qilish kerak.

Kelgusida biogaz sanoatini rivojlantirish bo'yicha tadqiqotlar quyidagi yo'nalishlarda olib borilishi lozim: Texnologik innovatsiyalar va yangi biogaz uskunalari ishlab chiqish – energiya samaradorligini oshirish uchun yangi innovatsion texnologiyalarni tadqiq qilish. Biogaz ishlab chiqarishning iqtisodiy samaradorligini o'rganish – bu sohaning iqtisodiyotga ta'siri, investitsiya rentabelligi va davlat budgetiga kiritadigan hissasini hisoblash. Xalqaro hamkorlik va biogaz eksporti – O'zbekiston biogaz ishlab chiqarish bo'yicha eksport salohiyatini oshirish yo'llarini o'rganish. Umuman olganda, biogaz sanoatini rivojlantirish O'zbekiston uchun nafaqat muqobil energiya manbalaridan foydalanish imkoniyatini oshiradi, balki ekologik muhitni yaxshilash va iqtisodiy barqarorlikni ta'minlashda ham katta rol o'ynaydi. Ushbu tadqiqot natijalari asosida ishlab chiqilgan takliflar amalga oshirilsa, mamlakatda biogaz ishlab chiqarish sezilarli darajada rivojlanadi va uzoq muddatli ekologik va iqtisodiy barqarorlikka hissa qo'shadi.

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АППАЛИ ЖИН ИШЧИ КАМЕРАСИДАГИ ХОМАШЁ ВАЛИГИНИНГ ХОЛАТИНИ АНИҚЛАШ

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Аннотация: Муаллифлар томонидан жин ишчи камерасини геометрик параметрларидан келиб чиққан ҳолда пахта хом ашёсини миқдори, хом ашё валигида тўпланадиган чигитлар миқдори аниқланган. Секундига жинлаш камерасидан колосниклар орқали чиқадиган чигитлар сони, ишчи камера марказида йиғилиб қоладиган чигитлар сони аниқланган.

Калит сўзлар: Пахта, жин, чигит, тола, арра, колосник, иш камераси, хомашё валиги, тезлик, сифат, самарадорлик, босим, зичлик, куч.

DETERMINING THE CONDITION OF THE RAW MATERIAL IN THE WORKING CHAMBER OF THE SAWING MACHINE

Abstract: Based on the geometrical parameters of the gin working chamber, the amount of cotton raw material and the amount of seeds collected in the raw material wheel were determined by the authors. The number of seeds coming out of the germination chamber through the colostrums per second, and the number of seeds accumulating in the center of the working chamber were determined.

Keywords: Cotton, gin, seed, fiber, saw, colosnik, working chamber, raw material, speed, quality, efficiency, pressure, density, power.

ОПРЕДЕЛЕНИЕ СОСТОЯНИЯ СЫРЬЯ В РАБОЧЕЙ КАМЕРЕ ПИЛЬНОГО СТАНКА

Аннотация: На основании геометрических параметров рабочей камеры джина авторами определены количество хлопкового сырья и количество семян, собираемых в сырьевом колесе. Определено количество семян, выходящих из камеры проращивания через молозиво в секунду, и количество семян, скапливающихся в центре рабочей камеры.

Ключевые слова: Хлопок, джин, семя, волокно, пила, колосник, рабочая камера, сырьё, скорость, качество, эффективность, давление, плотность, мощность.

КИРИШ

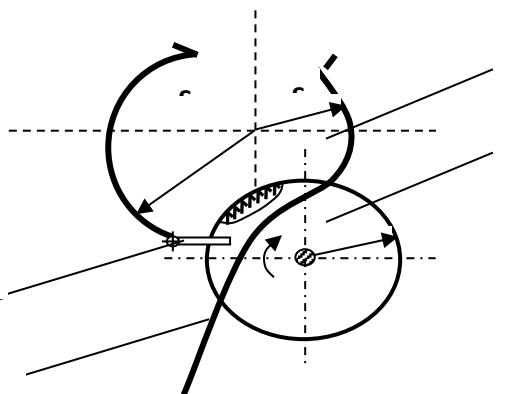
Маълумки, аррали цилиндр пахтани жинлаш жараёнида асосий ишчи органи ҳисобланади. Жин ишчи камерасига келиб тушган пахта хомашёси айланиб турувчи арра тишлари билан учрашиши натижасида жинлаш жараёни содир бўлади. Ишчи камерада пахта хомашёси ҳам жин арраси каби айланма ҳаракат олиб, тўлиқ туксизланган, қисман туксизланган чигитлардан иборат бўлган массали валик ҳосил қилади.

Бу массали валикнинг ишчи камера маркази томон зичлиги ошиб боради. Натижада маълум вақт ўтиши билан ишчи камера ва колосниклар ўртасида ёриқ ҳосил бўлиш ҳисобига туксизланган чигитлар ўз оғирлиги таъсирида пастга томон ҳаракатланади ва жин машинасидан ажралиб чиқади. Кўпгина ҳолларда ишчи камерада массали валикни зичлиги ортиши ҳисобига, аррали цилиндрларни айланиши секинлашади. Айрим ҳолларда жинлаш жараёни тўхтаб қолиши ҳам мумкин. Бу ҳолатларни физик-механик нуқтаи назардан ўрганишга бағишланган амалий, илмий ишларни бўлишига қарамай, масала тўлиқ ҳал

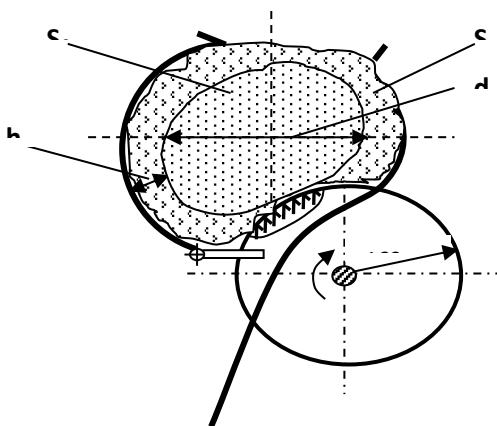
қилинмаган. Чунки, ишчи камерадаги жинлаш жараёни анча мураккаб, тажриба йўли билан массали валик зичлигини ўзгариш қонуниятлари ётарлича ўрганилмаган.

АСОСИЙ ҚИСМ

Тишли арраларни айланиш тезлиги $V_a = 12 \text{ м/с}$ бўлиб, массали валикни айланиш тезлиги эса тахминан $V_e = 1.5 \text{ м/с}$ бўлиши адабиётларда кўрсатилиб ўтилган. [1,2].



1-расм. 1-ишчи камера, 2-аррали цилиндр, 3-чигит тароғи, 4-колосниклар



2-расм. Хомашё валигининг ҳосил бўлиши

Жинлаш жараёни қанчалик тўлиқ қувват билан ишлаши ишчи камерадаги массали валикни зичлигини ўзгаришига катта боғлиқдир. Ушбу мақолада Норин пахта тозалаш заводи мисолида ва у ерда олинган маълумотлар асосида ишчи камерадаги жинлаш жараёни назарий жиҳатдан геометрик статик таҳлили келтирилган.

1-расмда кўрсатилган жин машинаси ишчи камерасини марказидан чап ва ўнг қисмини юзасини ҳисоблаймиз:

$$S_1 = \pi R_1^2 = 0.1963 \text{ м}^2; S_2 = \pi R_2^2 = 0.0886 \text{ м}^2$$

Ишчи камера узунлиги $L = 2 \text{ м}$ ҳисобга олиб, ишчи камера ҳажмини ҳисоблаймиз:

$$V_0 = (S_1 + S_2) \times L = 0.5698 \text{ м}^3$$

Пахта хомашёсини ўртача зичлиги $\rho_0 = 80 \text{ кг/м}^3$ ҳисобга олсак, ишчи камерадаги пахта хомашёсини ўртача массаси:

$$m_0 = \rho_0 \times V_0 \approx 46 \text{ кг} \text{ тенг бўлади.}$$

Демак, ишчи камерага келиб тушган пахта миқдори : $m_0 = 46$ кг бўлар экан. Шу ҳолатдан келиб чиқиб, жиннинг иш унумдорлигини ҳисоблаймиз.

Маълумки 1 соатда ўртача $6\text{т} = 6000$ кг пахта жинлаш жараёнидан ўтса, 1 минутда 100 кг, бир заправкада 46 кг пахта хомашёсини ҳисобига, 1 минутда пахта $K = \frac{100}{46} \approx 2.2$ марта иш камерасида бўлар экан.

Жин машинаси ишчи камерасини маълум вақтга тўхтатилганда кўндаланг кесимида толали чигитлар ва чигитлардан ташкил топган массали валик жойлашуви 2-расмдаги каби эканлиги маълум бўлди. Норин пахта тозалаш заводида жин машинаси тўхтатилиб хомашё валигининг кўндаланг қирқим бўйича толали чигитлар $h_1 \approx 70 \div 100$ мм қалинликда жойлашиши, чигитли хом-ашё валик диаметри $d_2 = 400\text{мм} - 2h_1 = 26\text{см}$ эканлиги иш жараёнида ўлчаб олинди.

Ушбу ҳолда, толали чигит жойлашган халка юзасини ҳисоблаймиз:

$$S_3 = \pi R^2 - \pi r^2 = \pi(R^2 - r^2) = 0.0990\text{ м}^2$$

Ишчи камерани тўлиқ узунлиги бўйича толали чигит жойлашган ҳажми қуйидагича бўлади: $V_3 = S_3 \times L = 0.198\text{ м}^3$

Чигит тўпланган массали валик ҳажмини ҳам ҳисоблаймиз:

$$S_4 = \pi r^2 = 0.0531\text{ м}^2; V_4 = S_4 \times L = 0.1062\text{ м}^3$$

Агар бир дона чигитни ўртача диаметри $d_0 = 14\text{мм}$ деб олинса, унинг ҳажми:

$$V_0 = \frac{4}{3} \pi r^3 = 1.44\text{ см}^3$$

Бундан чигитли валик ичида жойлашган чигитлар сони N деб олинса, у қуйидагича топилади:

$$N_x = \frac{V_4}{4V_0} = 18437; N = N_0 - N_x = \frac{V_4}{V_0} - N_x = 55313 \text{ дона}$$

Бир дона чигит массаси $m_0 = 0.131$ гр ҳисобга олиб, хомашё валигидаги умумий чигитлар массасини топамиз: $m_{\text{чигит}} = N \times m_0 = 7.25$ кг

Ишчи камерадаги пахта массаси зичлиги $\rho_{\text{п}} = 80 \frac{\text{кг}}{\text{м}^3}$ бўлгани учун, умумий пахта массасини топамиз: $M_{\text{п}} = \rho_{\text{п}} \times V_{\text{иш.кам}} = 46\text{ кг}$

Энди ишчи камерада жами массани 70% чигит, 30% тола ташкил этишини ҳисобга олсак: $M_{\text{ч}} = 70\% \times M_{\text{п}} = 32\text{ кг}$ - чигит, $M_{\text{т}} = 30\% \times M_{\text{п}} = 14\text{ кг}$ - тола массалари ишчи камерада жойлашар экан.

Колосник оркали ишчи камерадаги 100% чигитни 75% чиқиб, 25% чигит қайта хомашё валик ичига қайтиб кетиши тажрибаларда кузатилган.

Шунинг учун $M_{\text{к}}^{\text{ч}} = 75\% \times M_{\text{ч}} = 24\text{ кг}$ миқдорда чигит колосник оркали чиқиб кетади. Хомашё валиги ичкарасида тўпланадиган чигитлар миқдори: $M_{\text{с}}^{\text{ч}} = 25\% \times M_{\text{ч}} = 8\text{ кг}$ - миқдордаги чигит қайта ўтади ёки 8 кг массадаги чигитлар хомашё валигида доим қолади.

Маълумки, арраларни айланиш тезлиги $V = 720 \frac{\text{ай}}{\text{мин}} = 12 \frac{\text{ай}}{\text{сек}}$, арралар сони $n_a = 130$ бўлса, иш унумдорлиги 1 соатда 6000 кг деб олинса, 1 минутда 100 кг ни ташкил этади. Яъни 720 айланишда 100 кг пахта жинланади. Бир айланишда жинланадиган пахта миқдори эса $X = \frac{100}{720} = 140 \text{ гр}$ ни ташкил этиб, бундан 70% чигит, 30% толани ҳисобга олсак, $70\% \times 140 \text{ гр} = 98 \text{ гр}$ чигит, $30\% \times 140 \text{ гр} = 42 \text{ гр}$ тола ажралади яъни, $\tilde{m}_c = 98 \text{ гр}$, $\tilde{m}_T = 42 \text{ гр}$. Бир айланишда чигитлар сони 130 арра ҳисобига $n_0 = \frac{\tilde{m}_c}{m_0} = 748$ дона, бир арра ҳисобига эса $\tilde{n}_0 = \frac{n_0}{130} \approx 6$ дона чигит толадан ажралиб чиқар экан. Аррани 1 секундда 12 марта айланишини ҳисобга олсак, ишчи камера марказида 2244 дона чигит тўпланиб, камерадан ташқарига 6732 дона чигит чиқиб кетишини кўрамиз.

Бу таклиф этилаётган фикр-мулоҳазалардан янги жин машинаси яратиш устида илмий изланишлар олиб борилаётган тадқиқотчилар фойдаланишса мақсадга мувофиқ бўлади.

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06.00.00 – Qishloq xo'jaligi fanlari

06.00.00 – Agricultural sciences

**06.00.00 – Сельскохозяйственные
науки**

УДК 633.635:631.5.633.174.633.62.636.086.174

К СЕЛЕКЦИЙ И ТЕХНОЛОГИИ ВОЗДЕЛЫВАНИЯ КУКУРУЗЫ И СОРГО В ЦЕНТРАЛЬНО-АЗИАТСКОМ РЕГИОНЕ

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Аннотация. Кукуруза – одна из важнейших культур в кормовом балансе животноводства Республики Узбекистан. Ее посевы на зерно и силос достигают 200 тыс. га. В силу сложившегося экологогеографического положения республики высевать кукурузу можно в два срока – весной в основных посевах и летом в пожнивных, после уборки урожая зерновых колосовых культур. Для этого необходимы гибриды кукурузы двух групп спелости – позднеспелой (ФАО 500-600) и среднеранней (ФАО 250-300). В сельскохозяйственном производстве республики представлены гибриды обеих групп спелости отечественной селекции. Кроме того, в Узбекистане проведены селекционные работы созданию высоколизиновых (для нужд птицеводства) и засухоустойчивых (для районов с недостаточным водообеспечением) гибридов кукурузы. По всем гибридам отечественной селекции ведется первичное и промышленное семеноводство, разработана сортовая агротехника получения высоких урожаев семян и зерна.

С учётом усиливающейся аридности климата Центрально-Азиатского региона, сопровождающегося дефицитом поливной воды на фоне прогрессирующего засоления почв, необходим подбор культур и сортов для обеспечения животноводства кормами и для производства сахаросодержащих продуктов.

Наряду с ранее районированными сортами выведен и внедряется в производство новый скороспелый сорт сахарного сорго Корабош с длиной вегетации 98 дней, урожайностью зеленой массы 35-39 т/га и сахаристостью сока стеблей до 15-16 %.

Новый сорт найдет свое место как в производстве зеленых кормов, так и при использовании в качестве сырья при приготовлении сахара.

Интересен опыт использования многолетнего сорго в чистых и в совместных с люцерной посевах.

Ключевые слова: засоления почв, дефицитом поливной воды, сахарного сорго производства сахаросодержащих продуктов, животноводства, зеленая масса, ФАО родительский линий, укос, высота растений, урожайность зерна.

TO THE BREEDING AND TECHNOLOGY OF CULTIVATION OF CORN AND SORGHUM IN THE CENTRAL ASIAN REGION

Abstract. Corn is one of the most important crops in the feed balance of livestock farming in the Republic of Uzbekistan. Its crops for grain and silage reach 200 thousand hectares. Due to the current eco-geographical position of the republic, corn can be sown in two periods - in the spring in the main crops and in the summer in the stubble crops, after harvesting the grain crops. This requires corn hybrids of two maturity groups - late-ripening (FAO 500-600) and mid-early (FAO 250-300). Hybrids of both maturity groups of domestic selection are presented in the

agricultural production of the republic. In addition, selection work has been carried out in Uzbekistan to create high-lysine (for the needs of poultry farming) and drought-resistant (for areas with insufficient water supply) corn hybrids. Primary and industrial seed production is carried out for all hybrids of domestic selection, varietal agricultural technology for obtaining high yields of seeds and grain has been developed.

Taking into account the increasing aridity of the climate of the Central Asian region, accompanied by a shortage of irrigation water against the background of progressive soil salinization, it is necessary to select crops and varieties to provide livestock with feed and for the production of sugar-containing products.

Along with previously zoned varieties, a new early-ripening variety of sugar sorghum Korabosh has been bred and is being introduced into production with a vegetation period of 98 days, a green mass yield of 35-39 t / ha and a sugar content of stem juice up to 15-16%.

The new variety will find its place both in the production of green fodder and when used as raw material in the preparation of sugar.

The experience of using perennial sorghum in pure and combined crops with alfalfa is interesting.

Key words: soil salinization, irrigation water deficit, sweet sorghum production of sugar-containing products, livestock, green mass, FAO parental lines, mowing, plant height, grain yield.

ВВЕДЕНИЕ

Селекционерами Узбекистана выведен и районирован высокоурожайный гибрид для весеннего срока сева на зерно и силос Узбекистан 601 ЕСВ с потенциалом урожайности свыше 10 т/га зерна и 45-50 т/га силоса. Узбекистан 601 ЕСВ – простой межлинейный гибрид группы спелости ФАО 600, созревающий при весеннем посеве за 120-125 дней. Растения этого гибрида достигают высоты 315-319 см, формируя на каждом в среднем 1,2-1,3 початка. Семеноводство этого гибрида ведется на фертильной основе с обрывкой метелок.

Е.В.Бурлакова, Ю.А.Владимиров, О.Р.Кольс, Ю.А.Кригер, Ю.Б.Кудряшов подчеркивают, что изучение хозяйственно ценных признаков гибридов, полученных в результате различных скрещиваний сельскохозяйственных культур, и отбор ценных рекомбинантов и трансгрессивных форм имеет большое теоретическое и практическое значение в селекции. Определяя наследование признаков, используя различные методы гибридизации и отбора, люди смогли создать множество сортов растений на протяжении 10–100 лет [2].

По мнению Н.П. Казанкова, основным направлением селекции кукурузы является создание высокоурожайных гибридов. Раньше это был высший критерий селекции кукурузы, но сегодня во всем мире созданы специальные программы (селекция на скороспелые сорта, зимо- и засухоустойчивые сорта, устойчивые к болезням и вредителям и т. д.), с помощью которых можно создавать высокоурожайные, адаптивные гибриды, в полной мере проявляющие свой генетический потенциал. Кроме того, в результате развития генетики расширились возможности использования ЦМС, улучшилось качество зерна, созданы сорта с высокой зеленой массой и устойчивостью к внешним факторам среды [3].

Э. М. Ист и Х. К. Хейз подчеркивают, что если раньше селекция кукурузы велась в основном методом общего и индивидуального (свиноматочного) отбора, то в

настоящее время внимание уделяется синтезу гибридов с использованием самоопыляемых линий. Было обнаружено, что эти гибриды проявляют гетерозис и дают высокую урожайность [4].

МАТЕРИАЛЫ И МЕТОДЫ

Полевые и лабораторные опыты, а также фенологические наблюдения проводились на основе общепринятого методического руководства «Методика полевых опытов с кукурузой» (Днепропетровск, 1984). Для определения показателей качества семян использовалось руководство UzDSt 2823:2014 «Семена сельскохозяйственных культур. Методы определения всхожести».

В опытах ширина междурядий составляла 70 см, площадь одной делянки – 19,6 м², делянки располагали в 4 ряда, повторностей и повторения – 3 [1].

РЕЗУЛЬТАТЫ И ОБСУЖДЕНИЕ

Опытами по сортовой агротехнике установлены наилучшие параметры возделывания растений, как самого гибрида, так и его родительских линий для получения высоких урожаев зерна и семян. Так, наиболее высокий урожай зерна у этого гибрида – 10,51 т/га был получен при густоте стояния растений 70 тыс./га, внесении N 240 кг/га и проведении 4-5 вегетационных поливов. На участках гибридизации оптимальной схемой размещения растений оказалась 70 тыс./га с внесением 180 кг/га чистого азота. Применение таких параметров при хорошем уходе за растениями и достаточном водообеспечении позволили собрать до 3,7 т/га семян гибрида первого поколения.

Из-за ограниченности площадей для посевов кукурузы в весенних сроках сева главным резервом увеличения производства зерна и силосной массы кукурузы в сложившейся ситуации остается размещение её в пожнивных летних посевах после уборки озимой пшеницы. При наличии водных ресурсов во всех областях республики, кроме северных, такими посевами можно занять 200 тыс. га. Для этих площадей нашими селекционерами выведены среднеранние гибриды Узбекистан 300 MB и Карасув 350 AMB с длиной вегетации 90-95 дней и потенциалом урожайности свыше 7 т/га зерна.

Эти гибриды были созданы в результате селекционной работы в последние 15 лет. За эти годы нами было проведено испытание в летнем сроке сева 280 сортообразцов иностранной селекции. В результате были выявлены перспективные гибриды, отвечающие нужным параметрам. Однако попытки получения семенного материала родительских форм этих гибридов в наших условиях не увенчались успехом из-за слабой или полного отсутствия пылевой продуктивности отцовских форм. Высокие температуры среды и интенсивная солнечная радиация не позволяли получить нормально пылящих метелок у растений родительских форм кукурузы при высеве как весной, так и летом.

Оценка рабочей коллекции кукурузы, созданной на основе адаптированных сортообразцов, и ряд анализирующих скрещиваний в условиях орошения Ташкентской области позволили выделить перспективные линии, на основе которых были созданы отечественные гибриды с хорошими промышленными параметрами. Гибрид Карасув 350 AMB (районирован по Узбекистану с 2004 г.) – простой модифицированный гибрид группы ФАО 320. Семеноводство ведется на стерильной основе с использованием ЦМС «Молдавского» типа. Растения гибрида при посеве летом до 1 июля созревают за 93-95 дней с урожайностью зерна 7,27 т/га. Испытание этого гибрида на силос в условиях Татарстана показало его высокую потенциальную способность – свыше 25 т/га при содержании 36,7% в силосной массе початков в фазе восковой спелости (2).

Гибрид Узбекистан 300 MB (районирован по Узбекистану с 2012 г.) – простой межлинейный, семеноводство ведется на той же основе. Этот гибрид имеет более короткую вегетацию – 90-92 дня и урожайность свыше 7,46 т/га зерна (3).

Оба этих гибрида созревают в весеннем посеве за 106 – 108 дней. При летнем севе, за счет уменьшения длительности светового дня, растения этих гибридов проявляют ярко выраженную фотопериодическую реакцию и созревают на две недели раньше за счет сокращения прохождения периода «цветение метелок – полная спелость зерна».

Сортовая агротехника обоих гибридов не имеет особых различий. Наиболее оптимальными параметрами возделывания растений как самих гибридов, так и их родительских линий для получения высоких урожаев зерна и семян являются густота стояния растений 80 тыс./га, внесение 180 кг/га азотных удобрений и хороший уход за посевами, включающий в себя кроме подпитывающего не менее 4 вегетационных поливов. Так, наиболее высокий урожай зерна у этого гибрида был получен при густоте стояния растений 70 тыс./га, внесении N 240 кг/га и проведении 4-5 вегетационных поливов. На участках гибридизации оптимальной схемой размещения растений оказалась 70 тыс./га с внесением 180 кг/га чистого азота.

Применение таких параметров при хорошем уходе за растениями и достаточном водообеспечении позволили собирать свыше 7,5 т/га зерна и до 3,3 т/га семян гибрида первого поколения.

Во многих странах мира, в том числе и в Узбекистане, осуществлялись программы по вовлечению в селекционный процесс мутантных по гену Opaque-2 сортообразцов для создания гибридов кукурузы с улучшенным биохимическим составом зерна. С 2001 г. по Ташкентской области районирован первый высоколизиновый гибрид кукурузы Узбекистан 420 ВЛ, выведенный нами с участием российских селекционеров. Этот гибрид с урожайностью зерна 9,27 т/га и содержанием в белке зерна 4,37 г/100 г белка аминокислоты лизина относится к группе спелости ФАО 400-450 и созревал при посеве весной за 110-113 дней. Исследования по сортовой агротехнике этого гибрида показали, что наилучшим параметром возделывания растений как самого гибрида, так и его родительских линий для получения высоких урожаев зерна и семян являются густота стояния растений 70 тыс./га. Так, наиболее высокий урожай зерна у этого гибрида – 10,51 т/га был получен при этой густоте стояния растений, внесении N 180 кг/га и проведении 4 вегетационных поливов. На участках гибридизации оптимальной схемой размещения растений оказалась 70 тыс./га с внесением 150 кг/га чистого азота. Применение таких параметров при хорошем уходе за растениями и достаточном водообеспечении позволили собирать до 3,49 т/га семян гибрида первого поколения.

В опытах Узбекского НИИ животноводства по кормлению поросят-сосунов и кур-несушек зерном высоколизиновой кукурузы достигался больший прирост живой массы (на 12-20%) с меньшими затратами кормовых единиц (на 6-8%) по сравнению с зерном обычной кукурузы (4).

Одним из актуальнейших направлений в исследовании кукурузы в Узбекистане является селекция засухо- и жаростойких гибридов кукурузы, способных давать достаточно высокие урожаи зерна в районах с высокими летними температурами при недостаточной водообеспеченности. Таких районов много в пределах Навоийской, Кашкадарьинской, Сырдарьинской и других областей.

Нами были проведены различные исследования по возможности выращивания кукурузы в условиях дефицита поливной воды. Были изучены все гибриды местной селекции, в результате чего было доказано, что, несмотря на свою высокую зерновую продуктивность в оптимальных условиях возделывания, эти гибриды имели полную зависимость от уровня орошения. Наибольшая чувствительность к засухе наблюдалась в период до цветения растений. В соответствии с этим мы планировали и осуществляли отборы растительного материала для создания засухоустойчивых гибридов.

К 2000 г. нами был отобран ряд перспективных самоопыленных линий различного географического происхождения. Полученные на их базе 12 экспериментальных гибридных комбинаций были изучены в условиях искусственной почвенной засухи, которая наряду с атмосферной засухой обеспечивала полное стрессовое воздействие на вегетирующие растения. Было показано, что отобранные гибриды могут давать урожай зерна в условиях моделируемой засухи (один-два вегетационных полива) на уровне не менее 4,5 т/га, а в условиях нормального орошения способны сформировать урожай выше 6,5 т/га. В результате была оставлена одна комбинация – простой гибрид – Узбекистан 400 ДР, который был районирован по республике в 2009 г. для использования в зонах с недостаточной влагообеспеченностью.

Таким образом, на Узбекской научно-исследовательской станции по кукурузе достигнуты определенные успехи по селекции отечественных конкурентоспособных гибридов кукурузы разного хозяйственного назначения и сроков созревания, разработаны приемы получения высоких урожаев семян и товарного зерна.

Глобальное потепление климата планеты приводит, по мнению климатологов, не только к таянию полярных льдов и повышению уровня Мирового океана, но и к усилению засушливости зон с аридным климатом (Центрально-Азиатский регион). Этот процесс сопровождается уменьшением количества поливной воды для возделывания сельскохозяйственных культур и увеличением площадей, подверженных засолению. С учетом того, что более 60 % пахотоспособных земель в Республике Узбекистан в разной степени засолены, наряду с нехваткой поливной воды возникает проблема подбора культур и сортов, способных в сложившихся условиях обеспечивать получение достаточно стабильных урожаев.

В этом плане хорошо зарекомендовала себя культура сорго, одна из древнейших культур Средней Азии (5). Эта культура отличается жаровыносливостью и засухоустойчивостью. Листья её покрыты более плотным эпидермисом, чем у кукурузы. Высокая засухоустойчивость сорго объясняется способностью его листьев к энергичной ассимиляции и наличием мощной корневой системы, которая способна использовать влагу почвы, недоступную другим зерновым культурам.

Принадлежа, как и кукуруза, к растениям с С-4 путем углеводного метаболизма, сорго благодаря восковидному белому налету на стеблях и листьях, лучше противостоит перегреву растений и более экономно расходует влагу.

Культура сорго известна на территории Узбекистана более 25 веков и не случайно Хивинский оазис нашей республики называют второй родиной сорго.

Народной селекцией в Узбекистане были созданы такие известные стародавние сорта, как Чилляки, Маткаир, Олты-ойлик и другие, отличающиеся разной степенью спелости и урожайности. Эти сорта принадлежали к разновидности *Sorghum cernuum* Hosl.

и имели поникшую крупную белую метелку с белым зерном, которое широко использовалось в пищу местным населением.

В этом направлении в Узбекском НИИ животноводства из местных сортов С.К. Кадамовым и сотрудниками были выведены высокоурожайные зерновые сорта Карлик Узбекистана, Ташкентское белозерное с урожайностью зерна до 8 т с гектара (5). Зерно этих сортов отличалось высоким качеством получаемой крупы (6).

Эти сорта наряду с высокой урожайностью зерна были очень позднеспелыми и созревали за 142-145 дней. Поэтому методом гибридизации отдаленных эколого-географических форм: негритянского сорго (*S. bantuo*) местной джугары Олты-ойлик (*S. cernuum* Н) с последующим отбором из гибридного потомства константной формы был выведен скороспелый сорт Узбекистан 5, созревавший за 95-99 дней, урожайностью до 3,5-4,0 т/га зерна. Этот сорт был районирован в республике для пожнивных посевов (5). Позже из этого же гибридного потомства был выделен и районирован еще более урожайный сорт Даулет, созревавший за 125-130 дней с урожайностью зерна 6,7 т/га (7).

В производстве зеленых кормов и силоса большое значение имеют сорта сахарного типа. В Узбекском НИИ животноводства методом гибридизации отдаленных эколого-географических форм: Африканское бурое (К-1814) и местного сорта джугары Олты-ойлик, с дальнейшим отбором из гибридного потомства растений с мощным сочным и сахаристым стеблем и прямостоячей белозерной метелкой был выведен сорт Узбекистан 18 с урожайностью до 100 т/га зеленой массы, длиной вегетации 145 дней и сахаристостью сока стеблей до 18 % (5).

Последняя характеристика имела важное значение, так как помимо высокого урожая зеленой массы сорт представлял интерес с точки зрения получения сырья для использования в производстве сахара.

Нами на Узбекской НИС по кукурузе путем многократного отбора из сорта Красный янтарь был выведен скороспелый сорт сахарного сорго Корабош, районированный в 2012 г.

Испытание нового сорта на незасоленных землях Ташкентской области показало перспективность его использования как в кормопроизводстве, так и в сахарной промышленности в определенном сочетании с другими сортами.

Как показали испытания, сорт Корабош оказался самым скороспелым и созревал одновременно со стандартом – сортом Узбекистан 5. По высоте растений сорт уступал более позднеспелым сортам – Оранжевое 160 и Узбекистан 18. При учете урожая зеленой массы и сухого вещества сорта Узбекистан 5 и Даулет сильно уступали остальным сортам, где наибольшими показателями в фазе молочной спелости выделялся позднеспелый сорт Узбекистан 18.

Сорт Корабош подтвердил свою высокую урожайность при экологических испытаниях на слабозасоленных землях Сырдарьинской области и на средnezасоленных землях Республики Каракалпакстан.

Таким образом, новый сорт в сочетании с сортами: Оранжевое 160 и Узбекистан 18 вошел в сортимент конвейера, обеспечивающего ритмичное поступление зеленой массы в кормлении сельскохозяйственных животных или сырья для непрерывной работы сахарных заводов.

Совместно с отделом кормопроизводства Узбекского НИИ животноводства нами была испытана большая коллекция образцов многолетнего многоукосного сорго (*S. alnum*

Р.), предоставленная из Российского университета дружбы народов, из которой мы выделили ряд перспективных образцов для дальнейшего изучения. Один из них, под названием «Шалола» испытали наряду с другими нетрадиционными кормовыми культурами на орошаемых землях Ташкентской области. В качестве контроля использовали люцерну.

В течение 2 лет (2000-2001 гг.) посевы люцерны дали 7 укосов с общим урожаем 63,4 т/га зеленой массы, посевы многолетнего сорго за тот же период также дали 7 укосов с урожаем 104,04 т/га. По сбору сухих веществ в сумме за 2 года посевы люцерны уступали сорго на 9,6 т/га (27,76 т против 17,16 т/га у люцерны).

В 2002–2004 гг. многолетнее сорго высевали совместно с люцерной, чтобы улучшить в получаемых кормах углеводно – протеиновое соотношение. В сумме за 3 года лучший результат был получен в совместном посеве, когда норма высева семян многолетнего сорго составила 12 кг/га.

ЗАКЛЮЧЕНИЕ

В контроле посевы чистой люцерны дали в сумме за 3 года 122,5 т/га зеленой массы и 35,54 т/га сухих веществ, в совместном посеве – 151,3 т и 42,35 т/га соответственно.

В первом году жизни, когда люцерну в контроле высевали совместно с овсом, на кормовую единицу приходилось 208,8 г переваримого протеина. В последующие – второй и третий годы, когда люцерна оставалась в чистом виде, на 1 кормовую единицу приходилось уже 226,5 г переваримого протеина, или почти в 2 раза выше зоотехнических норм. Участие в совместных посевах многолетнего сорго позволило уменьшить содержание переваримого протеина в первом году использования до 124,6 г на 1 кормовую единицу, во втором – до 155,6 г, в третьем – до 149,3 г.

В результате использования Мировой коллекции ВИР и местного генофонда сорго удалось создать сорта как пищевого, так и кормового использования, а также подобрать сортимент для использования в качестве сырья в производстве сахара.

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07.00.00 – Tarix fanlari

07.00.00 - History

07.00.00 - История

1916-YIL QO'ZG'OLONI NEGA AYNAN TURKISTONDA BOSH LANDI?

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Annotatsiya: Garchi ko'plab tadqiqotchilar 1916-yilda Turkistonda yuz bergan qo'zg'olonni o'rgangan bo'lishsa-da, hanuzgacha quyidagi asosiy savolga aniq javob yo'q: nega keng ko'lamli qo'zg'olon aynan Turkistonda yuz berdi, holbuki harbiy safarbarlik Sibir, Kavkaz va Qalmoq aholisi orasida ham e'lon qilingan edi? Ushbu maqolada men bu savolga javob topishga harakat qilaman — xususan, podsho Rossiyasi davridagi Turkiston ma'muriyati faoliyatining ayrim institutsional va amaliy xususiyatlarini tahlil qilgan.

Kalit so'zlar: Turkiston, 1916-yil qo'zg'oloni, orqa front ishlari, safarbarlik, mustamlakachilik siyosati, mahalliy aholi noroziligi, tuzem ma'muriyati, rus imperiyasi, milliy qarshilik, jadidlar.

ПОЧЕМУ ВОССТАНИЕ 1916 ГОДА ПРОИЗОШЛО ИМЕННО В ТУРКЕСТАНЕ?

Аннотация: Несмотря на то, что многие исследователи изучали восстание 1916 года в Туркестане, до сих пор не найден четкий ответ на главный вопрос: почему широкомасштабное восстание произошло именно в Туркестане, хотя мобилизация была объявлена также в Сибири, на Кавказе и среди калмыцкого населения? В данной статье я попытаюсь найти ответ на этот вопрос, проанализировав некоторые институциональные и практические особенности деятельности администрации Туркестана в период царской России.

Ключевые слова: Туркестан, восстание 1916 года, тыловые работы, мобилизация, колониальная политика, недовольство местного населения, туземная администрация, Российская империя, национальное сопротивление, джадиды.

WHY DID THE 1916 UPRISING BREAK OUT SPECIFICALLY IN TURKESTAN?

Abstract: Although many scholars have studied the 1916 uprising in Turkestan, a clear answer to a fundamental question remains elusive: why did a large-scale revolt erupt specifically in Turkestan, even though military conscription was also declared in Siberia, the Caucasus, and among the Kalmyk population? In this article, I aim to address this question by analyzing certain institutional and practical aspects of the administration of Turkestan under Tsarist Russia.

Keywords: Turkestan, 1916 uprising, rear labor mobilization, conscription, colonial policy, local population discontent, native administration, Russian Empire, national resistance, Jadids.

KIRISH

Sovet va postsovet tarixchilarining ko'pchiligi qo'zg'olonning asosiy sababi — mustamlakachilik zulmi bo'lganini, 1916-yil iyulida e'lon qilingan orqa front ishlari uchun safarbarlik esa faqat bahona bo'lib xizmat qilganini ta'kidlaydi [9]. Qiziq tomoni shundaki, qo'zg'olonning sabab va bahona sifatida ajratib ko'rsatilishi ilk bor 1916-yil iyul oxiri va avgust boshlarida Farg'ona viloyatida o'tkazilgan yig'ilishlarda — uyezd ma'muriyati, savdo-sanoat

tashkilotlari va shaharlardagi rus aholisi vakillari ishtirokida, vaqtinchalik harbiy gubernator Pavel Ivanov raisligida — tilga olingan edi.

Yig'ilish ishtirokchilari o'z chiqishlarida shunday deyishdi: "Imperator farmoni va uni bajarish bo'yicha ko'rilgan choralar — faqat vohada kuzatilgan tartibsizliklar uchun bahona bo'ldi, asl sabablar esa chuqurroq. Ular "mahalliy aholi xususiyatlari va ularning fanatizmi" bilan bog'liq, shuningdek, "diniy va siyosiy asosdagi tashqi ta'sir va targ'ibotning oldindan tayyorlangan bo'lishi ehtimoli mavjud". [5].

Shu bilan birga, yuqoridagi Ivanov — iyul oyida Jizzaxdagi qo'zg'olonni eng qattiq jazolovchi jazo otryadiga boshchilik qilgan polkovnik P.P. Ivanov edi. Keyinchalik u fuqarolar urushi davrida Oq harakatning harbiy arbobiga aylangan va Ivanov-Rinov familiyasi bilan tanilgan, vaqtinchalik Sibir hukumati tarkibida harbiy vazir lavozimida faoliyat yuritgan. Ya'ni, bu ta'rif (fanatik aholi va tashqi targ'ibot aybdor degan da'vo) — aslida qo'zg'olon uchun mas'uliyatni hukumat va mahalliy ma'muriyat zimmasidan olib tashlash, uni "aholi fanatizmi" va "tashqi kuchlarga" yuklash uchun ishlatilgan edi.

ASOSIY QISM

Keyinchalik ba'zi amaldorlar bahona va sabab o'rtasidagi farqni nisbatan ob'yektiv tahlil qilish uchun qo'llashgan. Jumladan, Semirechye (Yeti Suv) viloyatining vaqtinchalik harbiy gubernatori Aleksey Alekseev 1917-yil 4-martdagi imperatorga yo'llagan maxfiy hisobotida shunday yozgan edi: "Mahalliy ko'chmanchilar noroziligiga sabab bo'lgan omillar hali to'liq aniqlanmagan, biroq shubhasiz, asosiy sabablardan biri rus aholisi tomonidan Semirechyening keng ko'lamli kolonizatsiyasi bo'lgan... Tartibsizliklarning bevosita bahonasi esa — mahalliy aholini orqa front ishlariga jalb etish haqidagi buyruqning noto'g'ri tushunilganidir". [5].

Shunga o'xshash pozitsiyani, ammo podsho hokimiyatiga nisbatan ayblov ohangida, 1916-yilgi qo'zg'olon haqida fikr bildirgan ilk sovet tadqiqotchilaridan biri — qozog'istonlik kommunist To'rar Risoqulov ham ilgari surgan edi. U shunday yozadi: Orqa front ishlari uchun mahalliy aholini safarbar qilish 1916-yilda Turkiston aholisining qo'zg'oloniga faqat bahona bo'ldi, asl sabab esa bu emas edi. Asosiy sabablar... aynan sho'rolar tomonidan 50 yil davomida Turkistonda olib borilgan cheksiz mustamlakachilik ekspluatatsiyasi natijasida yuzaga kelgan chuqur iqtisodiy va siyosiy qarama-qarshiliklarda mujassam edi..." [11].

Aynan shu ta'rif keyinchalik sovet tarixshunosligida mustahkam o'rnashdi, chunki u marksistik yondashuvga to'g'ri kelar edi. Bu yondashuv tarixiy voqealarning sabablarini emas, balki ularning ijtimoiy-iqtisodiy ildizlarini birinchi o'ringa qo'yar edi. Shuni tan olish kerakki, bu yondashuv Semireche (Yeti Suv) mintaqasidagi qo'zg'olonni tushunishda foydali bo'lgan: u yerda qo'zg'olon sabablari orasida rus dehqonlarining massiv ko'chirilishi tufayli qirg'izlarning yerga oid noroziligi muhim rol o'ynagan edi [1]. Shunga qaramay, bu fikr orqa front ishlariga safarbarlik haqidagi farmonning qo'zg'olon uchun bevosita bahona bo'lgani bilan birgalikda o'z dolzarbligini saqlab qolmoqda. Men ilgari yozganimdek [15], orqa front ishlari haqidagi farmon qo'zg'olonning muhim sabablaridan biri bo'lgan. Bu qaror shoshilinch ravishda, Davlat Dumasida muhokama qilinmasdan, general-gubernatorlar va viloyat gubernatorlari bilan maslahatlashilmasdan chiqarilgan edi. Bundan ham yomonrog'i, aholini "armiya faoliyat yuritayotgan hududlarda mudofaa inshootlari va harbiy kommunikatsiyalar qurilishi uchun" jalb etish haqidagi farmonda bu ishlarning mazmuni haqida hech qanday tushuntirish berilmagan. Natijada, ishlarning jon saqlab qolish xavfi bilan bog'liqligi, go'yoki odamlar frontda o'qqa tutilayotgan joylarda ishlashlari kerakligi haqidagi yolg'on mish-mishlar tarqaldi.

Safarbarlikning qanday amalga oshirilishi va uni tashkil qilish tartibi haqida aniq ko'rsatmalarning yo'qligi esa mahalliy amaldorlar va mulozimlar tomonidan suiiste'mollarga yo'l ochdi, bu esa xalq noroziligini kuchaytirdi. Agar safarbarlik haqidagi farmon asosiy sabablaridan biri bo'lgan bo'lsa, savol tug'iladi: Nega keng ko'lamli qo'zg'olon faqat Markaziy Osiyoda yuz berdi, holbuki safarbarlik imperiyaning boshqa mintaqalaridagi "begona" xalqlar orasida ham e'lon qilingan edi?

Quyida qisqacha boshqa mintaqalardagi vaziyat ko'rib chiqiladi: Astraxan guberniyasidagi qalmoylarning bir qismi safarbarlikdan norozi bo'lgan yoki undan qochishga harakat qilgan, biroq ko'pchilik imperator farmoniga bo'ysungan, 15-sentabrdan boshlab orqa front ishlari uchun jalb etish boshlangan. Rossiya Ichki ishlar vazirligi qalmoylar diniy rahbari — lamaga bu farmonni xalqqa keng tushuntirish choralari ko'rishni tavsiya qilgan. Ishchi otryadlariga hatto gelyunglar (ya'ni, diniy ruhoniylar) ham tayinlangan.

Ayrim qalmoylar esa o'z mablag'lari hisobidan, o'z otlarida jangovar harakatlar uchun qalmoy polki tuzishni taklif qilganlar. Biroq gubernator bu taklifni rad etgan — chunki u qalmoylar bu orqali yerga ega bo'lish maqsadida ko'zbo'yamachilik bilan kazaklarga aylanmoqchi bo'lgan deb hisoblagan [15,10].

Janubiy Sibirda yashovchi buryatlar orasida urush davridagi og'ir iqtisodiy ahvol tufayli boshlangan Moliyaga ko'chib o'tish holatlari 1916-yilga kelib, orqa front ishlariga safarbarlikdan qochish bilan bog'liq holatda kuchaydi. Shunga qaramay, ular orasida faol qarshilik kuzatilmadi va allaqachon 1916-yil avgust boshida ilk ishchi guruhi yuborilgan edi. Asosiy omma esa, imperiyaning boshqa hududlaridagidek, 15-sentabrdan keyin safarbar qilingan. Umuman olganda, 20 mingdan ortiq buryat Arxangelsk va shimoli-g'arbiy frontga yuborilgan bo'lib, bu jarayonda noyonlar (nasab rahbarlari), buddist va pravoslav ruhoniylar faol ishtirok etgan, ishchilarga lama tabiblari hamrohlik qilgan [2].

Yaqutiya ham faol qarshilik bo'lmagan, lekin ko'plab odamlar safarbarlikdan qochish maqsadida uzoq joylarga ko'chib ketganlar. Ko'p o'tmay, Lena oltin qazib olish shirkatining arizasiga binoan hukumat mobilizatsiyani bekor qilgan. Shirkat bu bilan asosiy go'sht, sariyog' va boshqa mahsulotlar yetkazib beruvchisi bo'lgan yaqutlar safarbar qilinsa, oltin qazib olish hajmi kamayishini bildirgan. Bundan tashqari, "Lenzoloto" safarbar qilingan yaqutlarni tashish uchun o'z paroxodlarini ajratishdan bosh tortgan [4].

Kavkazda esa 1916-yil 24-iyuldagi telegrammasida Kavkaz noibi — buyuk knyaz Nikolay Nikolayevich imperator Nikolay IIga shunday ma'lum qilgan edi: "Safarbarlik haqidagi xabarning o'ziyoq norozilik kayfiyatini keltirib chiqardi, chunki musulmonlar, ayniqsa o'zini harbiy xizmatga yaroqli deb hisoblaganlar, orqa front ishlarini kamtarlikni keltiruvchi va past ish deb bilishmoqda."

U musulmon aholini orqa frontga ko'ngillilik asosida jalb qilish uchun imperatordan ruxsat so'ragan, aks holda tartibsizliklar yuz berishini ogohlantirgan. Buyuk knyazga rozi bo'lgan imperator, Kavkaz musulmonlari orasida majburiy safarbarlikni bekor qilgan [8].

Buyuk knyazning ma'lumotiga ko'ra, Shimoliy Kavkazning ayrim hududlarida ilgari norozilik holatlari, ba'zida esa qurolli qarshiliklar ham kuzatilgan. Jumladan, Xasavyurt tumanidagi Aksay qishlog'ida, aholining aksariyat qismini tashkil etuvchi qumuqlar iyul o'rtalarida kazak jazolovchi otryadi bilan to'qnashganlar. Biroq ular bu chiqishni orqa front ishlariga emas, balki ot-aravalari va aravakashlarini rekvizitsiya qilishga qarshi amalga oshirishgan [14,7].

Oltoyda esa vaziyat kam bo'lsa-da notinch edi. Oltoyliklar, qozoklar singari, safarbarlik boshlanganidan so'ng, Rossiyaga qo'shilgan paytda ularga "askarlikka olinmaslik" va'dasi berilganini eslatganlar. Shu tariqa, 1904-yilda avjiga chiqqan burxonchilarning mesiya (najojkor) g'oyasi asosidagi harakati yana jonlandi. 1916-yil avgust boshida safarbarlik yig'in punktida 1 000 nafardan ortiq kishi ishdan bosh tortgan, rus ma'murlari va kazaklarga tosh va tayoq bilan qarshilik ko'rsatishga uringanlar. Biroq keyinchalik harbiy otryad kelib, odamlarni majburiy tarzda ishga olib ketgan [3, 16].

XULOSA

Shunday qilib, orqa front ishlariga safarbarlikdan qochish holatlari keng tarqalgan, ayrim joylarda mahalliy norozilik va qarshiliklar bo'lgan. Ammo Markaziy Osiyodan boshqa hech bir mintaqada bu noroziliklar ommaviy va uzoq davom etuvchi qo'zg'olonlarga aylanmagan.

Kavkaz va Yaqutiya Markaziy Osiyodan farq qiladi, chunki bu hududlarda safarbarlik bekor qilingan edi. Bu, albatta, muhim omil bo'lib, agar shunday choralar Markaziy Osiyoda ham qo'llanilganida, ehtimol, qo'zg'olon miqyosi bunday bo'lmasdi. Masalan, Farg'ona vodiysida 9–16-iyul kunlari ko'plab shaharlarda va qishloqlarda tartibsizliklar bo'lgan, ammo ular ommaviy qonli to'qnashuvlarga aylanmagan, chunki harbiy gubernator Aleksandr Gippius o'z tashabbusi bilan ishlarga faqat ko'ngillilarni olish to'g'risida e'lon qilgan edi [13].

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ЎЗБЕКИСТОНДА СОҒЛИҚНИ САҚЛАШ ТИЗИМИДАГИ ЎЗГАРИШЛАР (1945-1955 ЙИЛЛАР МИСОЛИДА)

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Аннотация: Ушбу мақолада муаллиф иккинчи жаҳон урушидан кейинги йилларда Ўзбекистон ССРда соғлиқни сақлаш соҳасида бир мунча ўзгаришлар ҳамда муаммолар ва уларнинг тарихий таҳлилига тўхталиб ўтган. Бундан ташқари Республика аҳолисининг саломатлигини муҳофаза қилиш, уларга тиббий хизмат кўрсатишни сифат жиҳатдан яхшилаш вазифаларининг амалга оширилиши ҳамда йўл қўйилган хато ва камчиликлар ёритиб берилган.

Калит сўзлар: тиббиёт, аҳоли саломатлиги, тоза ичимлик суви, касалликлар, тиббиёт муассасалари, малакали мутахассислар.

ИЗМЕНЕНИЯ В СИСТЕМЕ ЗДРАВООХРАНЕНИЯ В УЗБЕКИСТАНЕ (ПРИМЕР 1945-1955 ГГ.)

Аннотация: В данной статье автор рассматривает некоторые изменения и проблемы в сфере здравоохранения Узбекской ССР в годы после второй мировой войны и их исторический анализ. Кроме того, описывается реализация задач по охране здоровья населения республики, повышению качества медицинского обслуживания населения, а также допущенные ошибки и недостатки.

Ключевые слова: медицина, здравоохранение, чистая питьевая вода, заболевания, медицинские учреждения, квалифицированные специалисты.

CHANGES IN THE HEALTH CARE SYSTEM IN UZBEKISTAN (EXAMPLE 1945-1955)

Abstract: In this article, the author discusses some changes and problems in the field of healthcare in the Uzbek SSR in the years after World War II and their historical analysis. In addition, the implementation of the tasks of protecting the health of the population of the republic, improving the quality of medical services for them, as well as the mistakes and shortcomings made are described.

Keywords: medicine, public health, clean drinking water, diseases, medical institutions, qualified specialists.

КИРИШ

Иккинчи жаҳон урушидан кейинги йилларда ҳукуматнинг республикада амалга оширилиши лозим бўлган энг муҳим вазифалардан бири соғлиқни сақлаш тизимини ривожлантириш эди.

Республика аҳолисининг саломатлигини муҳофаза қилиш, уларга тиббий хизмат кўрсатишни сифат жиҳатдан яхшилаш вазифаси жойларда ҳокимият органларининг диққат марказида турди. Бу вазифа халқ хўжалигини ривожлантириш масалаларини ҳал этиш жиҳатдангина эмас, балки республика аҳолиси жисмоний саломатлигининг аҳволи билан тўғридан-тўғри боғланган нохуш шароит туфайли ҳам муҳим эди. Эпидемиялар ва юқумли

касалликларнинг кўп тарқалганлиги, ўлимнинг, айниқса болалар ўлимининг юқорилиги, аҳоли санитария-гигиена нормаларининг паст даражаси муайян чора-тадбирлар кўришни тақозо етар эди.

Бундай жиддий вазиятнинг сабаби умуман олганда ижтимоий соҳага, унинг ҳаётдан орқада қолганлигига бориб тақалар эди. Бунинг устига тиббий хизматнинг ўз ички муаммолари ҳам кескин даражада эди. Гап республиканинг деярли барча ҳудудларида соғлиқни сақлаш муассасаларининг камлиги, борларининг ҳам энг зарур дори-дармонлар, асбоб-ускуналар билан таъминланмаганлиги, тиббиёт кадрларининг етишмаслиги, уларнинг етарли малакага эга эмасликлари ҳақида бормоқда.

Бундан ташқари тиббиёт муассасалари – амбулатория ва стационарлар, касалхоналардаги ўринлар сони, дори-дармонлар, асбоб-ускуналар, препаратлар ҳам етишмас эди. XX аср 40-йиллар иккинчи ярми – 50-йиллар бошларида профилактика ва тушунтириш, санитария-маърифий ишлар даражаси паст даражада эди.

АСОСИЙ ҚИСМ

Урушдан кейинги йилларда республика аҳолисининг касалликка кўпроқ чалинишининг сабабларидан бири озиқ-овқат маҳсулотлари хилининг етарли эмаслиги эди. Иқтисодий қайта ўзгартиришлар, уруш давридаги кенг кўчилиб келтиришлар натижасида шаклланаётган демографик вазият, деҳқончиликда ўғитлар ва заҳарли химикатлардан фойдаланиш ҳамда ернинг юқори даражада шўрланганлиги, иссиқ иқлимнинг салбий таъсири (мия томирларининг зарарланиши, миокард инфаркти ва ҳ.к) ҳам кўпгина касалликларни келтириб чиқармоқда эди.

1945-1950 йилларда даволаш муассасаларининг шохобчалари тартибга солинди ва уларнинг ягона номенклатураси белгилаб кўйилди. Касалхоналарни амбулатория-поликлиника муассасалари билан бирлаштирилиши аҳолига тиббий хизмат кўрсатиш даражасини янада оширишга ёрдам берди.

Шу боис давлат йўли билан ҳам, касаба уюшмалари фондларидан ҳам соғлиқни сақлашга ва жисмоний тарбияга ажратилаётган маблағлар йилдан-йилга ошиб борди.

Бутун Совет давлати бўйича 1953 йилда давлат бюджетидан соғлиқни сақлаш соҳасига 24828360 минг рубл ажратилган, бу 1952 йилга нисбатан 2 миллиард 486 миллион 581 минг рублга кўп бўлган¹.

Ўзбекистон ССРда давлат бюджети томонидан соғлиқ сақлаш соҳасига ажратилган маблағлар ҳам ўз навбатида йилга йилга ўсиб борган. Масалан, 1940 йилда соғлиқ сақлаш соҳасига 244 минг 650 сўм, 1946 йилда 400 минг сўм, 1953 йида эса 639 минг 400 сўм ажратилган².

СССР соғлиқни сақлаш вазирлигининг 1955 йил 27 июндаги № 137-м-сонли буйрғига асосан, бутун Иттифоқ бўйича соғлиқни сақлаш тизимига 1954 йилда 22.245.4 миллиард рубл ажратилган ва шундан 21.999.2 миллиард рубл ишлатилган яъни ажратилган сумманинг 98.9%и фойдаланилган. Ўзбекистон ССР ўзи учун ажратилган суммани 95.9%ини ишлатган³.

¹ Ўзбекистон илмий-техника ва тиббиёт ҳужжатлари миллий архиви 1-фонд, 3-рўйхат, 7-иш, 121-варақ.

² Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 121-варақ.

³ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 60-иш, 223-варақ.

Тошкент шаҳри аҳолисига сифатли тиббий хизматни кўрсатиш мақсадида давлат томонидан 1953 йилда 125 миллион, 1954 йилда 138,8 миллион сўм, 1955 йилда эса 148,6 миллион сўм ажратилди ва бу маблағлар тўлалигича сарфланди⁴.

Бундай маблағларнинг ошиб борганлиги янги тиббиёт муассасаларини очишга, уларнинг жиҳозланишини яхшилашга, юқори малакали мутахассис кадрлар тайёрлашга имкон берди. Бу эса ўз навбатида фақатгина 1950-йилларда ўз самарасини бера бошлади. 1953 йилда Ўзбекистонда врачлар 7646 кишига етди, фельдшер ва тиббиёт ҳамширалари 19,5 минг кишидан ошиб кетди. Касалхоналардаги ўринлар 1940 йилдаги 20,6 мингдан 36,7 мингга етди. Доимий болалар яслиларидаги ўринлар 44,4 мингга, мавсумий яслилардаги ўринлар эса 180 мингга етди⁵.

1946 йилда Республикада 2 минг 987 врач ва 8 минг 702 ўрта маълумотли тиббий ишчи-ходимлар фаолият олиб борган бўлса, 1952 йил 1 январ ҳолатида 6 минг 13 врач, 15 минг 212 ўрта маълумотли тиббий ишчи-ходимлар фаолият кўрсатган. 1946 йилда соғлиқни сақлаш соҳасида миллий кадрлар сони ҳам ўсди. 1946 йилда ўзбек врачлари сони 886 нафар бўлган бўлса, 1952 йил 1 январда 1 минг 555 нафар ўзбек врачлари мавжуд эди.

1946 йилда соғлиқни сақлаш соҳасидаги илмий-тадқиқот институтлари ва тиббий Олий таълим муассасаларида ўзбек врачларидан 161 нафари ишлаган бўлса, 1951 йилда уларнинг сони 363 нафарга етади⁶.

1946 йилда Республикадаги туманлар марказида ягона махсус тиббий ёрдам кўрсатиладиган кўп тармоқли тиббиёт муассасалари мавжуд бўлган бўлса, 1952 йил 1 январ ҳолатига кўра 100 та қишлоқ касалхонасидан 75 таси аҳолига кўп тармоқли ёрдам кўрсатган⁷.

1950 йилда Республика бўйича 218 та касалхонада 21904 та касаллар учун ўрин бўлган, кейинчалик касалхоналар 192 тага бирлаштирилади. Уларда 17704 та касаллар учун ўринлар ташкил этилади. 1951 йилнинг 1-октябрь ҳолатига Республикада 178 та касалхоналарда 16349 та ўринлар жавжуд эди⁸.

Урушдан кейинги 5 йил давомида Ўзбекистон ССР касалхоналаридаги ўринлар сони 6.5 минг тага, шундан катталар учун 948 та ва болалар учун 2100 та ўринлар ташкил этилди⁹.

1952 йилга келиб Тошкент шаҳрида жами 93 та амблатор касалхона ва поликлиникалардан атига 13 та фаолият олиб боради¹⁰. 1954 йилда Тошкентдаги 57 та касалхоналарда 2,5 минг врач ва 4 минг кишидан иборат ўрта тиббиёт ходимлари ишлади. 1953-1954 йилларда Тошкентда сил касаллигига қарши кураш диспансери ва 100 ўринли стационар ва туғруқхоналар қурилди, 4 та қон қуйиш пункти очилди¹¹.

Умуман, Ўзбекистонда даволаш-санитария ва профилактика муассасалари 1950 йилда 1940 йилдагига нисбатан 56 фоизга кўпайди, врачлар эса қарийб икки бараварга ошди.

⁴ Ўзбекистон миллий архиви, Р-93-фонд, 1-рўйхат, 1368-иш, 134-варақ.

⁵ Ўзбекистон ССР тарихи 4-жилдлик, 4-жилд (социализм қуришни тугаллаш даври ва коммунизмга ўтиш (1938—1965 йиллар)), - Тошкент: "Фан", 1971. – Б.

⁶ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 16-17-варақлар.

⁷ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 16-17-варақлар.

⁸ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 37-38-варақлар.

⁹ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 16-17-варақлар.

¹⁰ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 22-варақ.

¹¹ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 36-иш, 89-варақ.

Оммавий соғломлаштириш ва профилактика тадбирлари амалга оширилганлиги ҳамда тиббиёт фанининг муваффақиятлари жорий қилинганлиги натижасида аҳоли орасида касалланиш ва ўлим ҳолатлари камайтирилибгина қолмасдан, шу билан бирга бир қанча хатарли юқумли касалликларни тамомила тугатишга ҳам муваффақ бўлинди.

Тадқиқот йилларида тиббиёт институтлари, билим юртлари очилиб фаолият кўрсатганига қарамасдан, республикада 4 минг врач ва 14 минг нафар ўрта тиббий ходимлар етишмас, аҳолига тиббий хизмат кўрсатиш қониқарсиз ҳолатда эди¹². Масалан, 1950 йилда Ўзбекистонда 10 минг аҳолига 49,7 ўринли даволаш муассасалари тўғри келган¹³.

Республика бўйича тиббиёт ходимлари доимий етишмовчилиги кузатилган. Масалан, Тошкент вилоятида мавжуд катта ишлаб чиқариш заводларининг (Электрокимё комбинати, Ўзбекугол, Рудник Алтин-Топкан) ҳеч бирида травматолог врач бўлмаган. Ҳатто саноат соҳаси яхши ривожланган Чирчиқ ва Бекобод шаҳарларидаги тиббиёт муассасаларида травматология бўлимлари ташкил этилмаган¹⁴.

Республика ҳукумати томонидан қишлоқ ҳудудларидаги касалхоналарни тиббиёт ходимлари билан таъминлаш ишлари суғуриб олиб борилди. Биргина 1950 йилда қишлоқ ҳудудларига 100 нафар врач юборилди холос¹⁵.

1951 йилда 40 та қишлоқ врачлик пунктида қишлоқ аҳолиси учун атиги беш ўринли жойлар ташкил этилди¹⁶.

1952 йилда Республика бўйича 1711 нафар врачларга эҳтиёж сезилган. 1952 йилда тиббиёт институтини 779 нафар битирувчи тугатиши режа қилинган ва улар врачларга эҳтиёжни 45.5%ни ташкил этган¹⁷.

Ўзбекистон ССР Министрлар Советининг 1950 йил 20 ноябрдаги “Қишлоқларда ва ишчи посёлкаларида ишловчи тиббиёт ходимларини уй-жой, ўтин-кўмир ва чироғ билан бепул таъминлаш тўғрисида”ги 2029-сонли ва 1951 йил 22 февралдаги 295-сон қарори билан тасдиқланган “Ўзбекистон ССР колхозларида қишлоқ хўжалик маданияти уйлари барпо этиш тўғрисида”ги Низом¹⁸ларнинг қабул қилиниши ҳам тиббиёт ходимлари учун қишлоқ ҳудудларида шароитларни яхшилашга ёрдам бермаган.

1950 йил 7 март куни “1950 йилда колхозларда ҳомиладор ва фарзандли бўлган хотин-қизларга тиббий ёрдам кўрсатиш ва болаларни тарбиялаш муассасаларининг сонини кўпайтириш ҳамда аёл колхозчиларга маданий ва маиший хизмат кўрсатиш чоралари тўғрисида”ги Ўзбекистон ССР Министрлар Совети ва Ўзбекистон К(б)П Марказий Комитетининг №360-сонли қўшма қарорида баён этилишича, республикадаги туғруқхоналарнинг сонини ошириб бориш режаси атиги 54 фоизга бажарилган. Самарқанд, Наманган ва Қашқадарё вилоятларида болалар муассасаларининг сонини кўпайтириш ишлари қониқарсиз олиб борилган¹⁹.

¹² Коммунистическая партия Узбекистана в резолюциях и решениях съездов и пленумов ЦК. Том II. - С. 622.

¹³ Народное хозяйство Узбекской ССР за 50 лет Советской власти. Юбилейный статистический сборник. – Ташкент: “Узбекистан”, 1967. –С.197.

¹⁴ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 22-варақ.

¹⁵ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 49-варақ.

¹⁶ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 53-варақ.

¹⁷ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 71-варақ.

¹⁸ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 25-иш, 12-14-варақлар.

¹⁹ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 24-иш, 33-варақ.

1955 йил 1 январ ҳолатига кўра, Республика шаҳарлари тиббиёт муассасаларини врачлар билан таъминлаш ҳолати ўртача 92%ни, қишлоқ ўринларда эса 69%ни ташкил этган бўлса, Қашқадарё вилоятида 58%ни, Хоразм вилоятида 65%ни ташкил қилган²⁰.

1954 йилда вазирлик қишлоқ ўринларга 200 нафар тиббиёт ходимларини юбориш ўрнига атиги 58 нафар ходимларни юборган. 1955 йил 1 апрел ҳолатига кўра, қишлоқ ҳудудларида тиббиёт ходимларининг сони 1954 йил 1 апрелга нисбатан республикадаги 6 вилоят ва Қорақалпоғистон АССРда қисқарган. Масалан, Қорақалпоғистон АССРнинг олис ҳудудларидаги касалхоналарда битта ҳам врач бўлмаган²¹.

1955 йилда ҳам республикада мутахассис врачларнинг етишмовчилиги кузатилади. Масалан, акушер-гинекологлар – 44 та туманда, педиатрлар – 41 та туманда, хирурглар 36 та туманда етишмаган. Бунинг устига кадрлар тайёрлаш режаси йилдан йилга бажарилмаган²². 1955 йилда ҳам Республика аҳолисига тиббий хизмат кўрсатиш жуда паст ўринда бўлган.

Тиббиёт ходимларида кадрлар қўнимсизлиги кўп кузатилган. Масалан, 1954 йил ва 1955 йил 4 ойи мобайнида Бухоро вилоятига 38 врач келган, лекин 72 та врач кетган. 1954 йил 1 апрелдан 1955 йил апреличага Қашқадарё вилоятидан 41 нафар, Сурхондарё вилоятидан 35 нафар, Қорақалпоғистон АССРдан 31 нафар, Наманган вилоятидан 40 нафар врачлар ишларини ташлаб кетишган. 1954 йил мобайнида Республика бўйича 46 нафар врачлар ўз хоҳишлари билан ишдан кетишган. Бунга ўша ҳудудлардаги уй-жойлар ва тиббий ускуна ҳамда анжомларнинг етишмовчилиги сабаб сифатида кўрсатилган.

Республика ҳукуматининг кўрсатмасига асосан, 1950 йиллардан бошлаб касалхоналарни бирлаштириш ишлари амалга оширила бошлади, лекин бу ишлар узоқни ўйламасдан кўр-кўрона олиб борилди. Кўплаб касалхоналар нотўғри бирлаштирилган. Оқибатда аҳолининг бориши қийин бўлган узоқ ҳудудларга айрим касалхоналар кўчирилган.

Масалан, Чирчиқ шаҳрида 300 ўринга мўлжалланган касалхона шаҳардан 7 км узоқликда жойлашган бўлиб, бу аҳолининг тиббий хизматдан фойдаланишига қийинчилик туғдирган. Қорақалпоғистон АССРдаги Тўрткўл шаҳрида 25 ўринли Стоматология болалар касалхонаси шаҳардан 4-5 км узоқликда бўлган²³.

1950 йилларда Ўзбекистон ССР шаҳарларида мавжуд касалхоналардаги ўринлар нотўғри тақсимланган ва белгиланган меъёрлар даражасига етказилмаган ва ҳатто ажратиладиган жойнинг ўзи ҳам бўлмаган. Касалхоналарнинг онкология бўлимидаги ўринлар 75 фоизни, перенатал бўлимларида 74,1 фоизни, гинекология бўлимларида 82,5 фоизни, неврология бўлимларида 76 фоизни, оториноларингология бўлимларида 64 фоизни ташкил этган бўлса, жарроҳлик бўлимларида ўринлар эса 104,6 фоизга, дерматология бўлимларида 290,3 фоизга, офталмология бўлимларида 122,4 фоизга меъёрдан юқори бўлган²⁴.

Бу тақсимланишни вилоятлар мисолида кўриб чиқадиган бўлсак, жарроҳлик бўлимлари учун ўринлар Самарқанд вилоятида 70.7%ни, Наманган вилоятида 83.6%ни, перенатал бўлимларидаги ўринлар Самарқанд вилоятида 55-58%ни, Наманган, Бухоро,

²⁰ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 46-иш, 14-варақ.

²¹ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 46-иш, 14-варақ.

²² Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 46-иш, 14-варақ.

²³ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 37-38-варақлар

²⁴ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 45-46-варақлар

Хоразм вилоятлари ва Қоқаралпоғистон АССРда 41%ни ташкил этган бўлса, гинекология бўлимларидаги ўринлар Қашқадарёда 11.1%ни, Самарқандда 69.2%ни, Наманганда 58.1%ни, Бухорода 52.2%ни ва Қоқаралпоғистон АССР 16.8%ни ташкил этган. Ўпка касалликлари бўлимларидаги ўринлар Хоразмда 39.2%ни, Қашқадарёда 41.7%ни, Қоқаралпоғистон АССР, Сурхондарё, Бухоро, Тошкент вилоятларида 60-65%ни ташкил этган²⁵.

1952 йилга келиб Республика туманларидаги барча касалхоналарда жами ўринлар сони 4287 тани ташкил этган ва бу касалхоналар сонининг ўсганлигини, уларга мос равишда бўлимлардаги ўринлар сони ҳам ошганлигидан далолат беради. Жарроҳлик бўлимларидаги ўринлар Қашқадарё вилоятида 26%ни, акушер-гинекологик бўлимлардаги ўринлар Андижонда 24%ни, Фарғона ва Қашқадарё вилоятларида мос равишда 54-57%ни, педиатрия бўйича Хоразмда 48%ни, Наманганда 66%ни ташкил этган²⁶.

Ўзбекистон ССР Министрлар Советининг 1955 йил 15 августда “Республикада соғлиқ сақлаш ишларини такомиллаштириш тўғрисида”ги № 556-сонли қарорига асосан соғлиқни сақлаш соҳасидаги қуйидаги камчиликлар санаб ўтилган:

Қишлоқ ўринларда тиббиёт муассасаларини барпо этиш ишлари қониқарсиз аҳволда эди; 1955 йил ҳам даволаш-профилактик ва болалар муассасаларнинг қурилиши бўйича режа йилдан йилга бажарилмай келинган.

1954 йилда Соғлиқ сақлаш вазирлиги қурилиш ишлари учун ажратилган 16.2 миллион рублдан 6.7 миллион рублни ўзлаштирмаган, бу дегани янги касалхоналар қурилмаган. Бу эса вазирлик тизимида қурилиш ишлари қониқарсиз аҳволда эканлигидан далолат беради. Бунинг натижасида 1955 йилга келиб Тошкент шаҳридаги онкология касалхонаси, Тошкент тиббиёт институти талабалар ётоқхонаси, Киров туманидаги туғруқхона ва “Чортоқ” санаторияси қурилиши ишлари орқада қолган.

1954 йилнинг ўзида соғлиқ сақлаш вазирлиги тиббий жиҳозлар учун ажратилган маблағдан 32 миллион рублни ишлатмаган. Бундан дори-дармон учун 4.7 миллион рублни, хўжалик анжомлари учун 2.6 миллион рублни, юмшоқ мебеллар учун 3.5 миллион рублни ишлатмаган. Бундан ташқари касалхоналардаги даволанувчиларнинг озиқ-овқати учун ажратилган 3.4 миллион рублни ҳам ишлатмаган²⁷.

Урушдан кейинги йилларда Ўзбекистонда фабрика ва заводлар ҳузурида юзлаб тиббиёт-санитария ва минглаб соғломлаштириш пунктлари ташкил этилди. Республикадаги барча катта саноат корхоналарида поликлиника, амбулатория ёки тиббиёт пунктлари ташкил этилди. Масаалан, «Ташсельмаш» заводининг поликлиникасида энг янги аппаратлар ва асбоблар билан жиҳозланган 15 та даволаш кабинети бўлган.

«Таштекстильмаш» заводи 1951-1953 йилда СССР касалхоналарига 495 ишчи ва хизматчини юборди. «Ташсельмаш» заводи ходимларидан 471 киши 1954 йилда санаторий ва дам олиш уйларида бориб дам олган²⁸.

²⁵ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 45-46-варақлар

²⁶ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 49-варақ.

²⁷ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 46-иш, 15-варақ.

²⁸ Ульмасбоев Ш.И. Промышленное развитие советского Узбекистана. Историко-экономический очерк. –Ташкент: Государственное издательство Узбекской ССР, 1958. -стр.197.

Пионер лагерь ва санаторийларида болаларни соғломлаштиришга ҳам маблағлар сарфланди. 1951 йилда Ўзбекистон ССРнинг пионер лагерларида ишчи ва хизматчиларнинг 50,7 минг боласи дам олиб келган²⁹.

Саноатда хизмат қиладиган ходимларга тиббий хизмат кўрсатиш 1952 йилда 1948 йилга нисбатан тиббий-санитар соҳаси бўйича 3 марта, стационарлар сони 4.5 марта, амбулатор-поликлиникалар сони 4 марта, медсанчасда хизмат қиладиган ходимлар сони 2.5 марта, ўрта тиббий хизматчилар сони 4.5 марта ўсган³⁰.

Соғлиқни сақлаш соҳасининг ривожланиши натижасида Республика аҳолиси орасида касалланиш ҳолатлари камайган. Масалан, “Таштекстилмаш” заводида ходимларнинг турли хил касалликларга чалиниши 1952 йил 1-ярим йиллигида 1951 йилнинг шу даврига нисбатан 11 фоизга пасайган³¹. Лекин Марғилон текстил заводида 1952 йилда санитар-профилактик ишлар қониқарсиз ҳолда олиб борилган. Масалан, 1952 йил 1-чорагида ўтган йилнинг шу чорагига нисбатан ишчиларнинг касалланиш ҳолатлари 11%га ўсган³².

ХУЛОСА

Хулоса ўрнида шу таъкидлаш лозимки, 1945-1955 йилларда Ўзбекистонда соғлиқни сақлаш соҳаси ривожланди. Бу даврда республикада ўтган даврга нисбатан тиббиётнинг онкология, нейрохирургия, отолорингология сингари янги тармоқлари ривожланди, даволашнинг энг янги методлари кенг қўлланиладиган бўлди. Завод ва фабрикаларда, қишлоқ жойларида тиббиёт муассасаларининг шохобчалари кенгайтирилди, уларнинг моддий-техник базаси мустаҳкамланди, тиббиёт кадрларининг малакаси оширилди. Хотин-қизларнинг меҳнат шароитини яхшилашга, меҳнат гигиенаси қоидаларига, хавфсизлик техникасига қаттиқ риоя қилинишига алоҳида аҳамият берилди.

Лекин соғлиқни сақлаш соҳасида режалаштирилган ислохотларни тўғри олиб бора олмаслик асосий муаммоси эди. Молиялаштиришнинг янги усуллари киритиш, хусусий ва давлат тузилмаларини жалб қилиш керак эди. Шунинг учун, барча ўтказилган илмий ва амалий ишлар соғлиқни сақлашда кутилган ўзгаришга ва натижага ҳукумат эриша олмади.

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²⁹ Развитие экономики и культуры Советского Узбекистана. – Ташкент, 1957. – стр.313.

³⁰ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 18-варақ.

³¹ Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 18-варақ.

³² Ўзбекистон ИТТХМА, 1-фонд, 3-рўйхат, 7-иш, 26-варақ.

09.00.00 – Falsafa fanlari

09.00.00 – Philosophical sciences

09.00.00 – Философские науки

MUSTAQILLIK DAVRIDA MILLIY O'ZLIKNI SHAKLLANTIRISH SIYOSATINING TARIXIY ASOSLARI VA IJTIMOIIY TA'SIRI (1991–2010)

Saloydinova Maxliyoxon Abduvali qizi

Namangan davlat universiteti talabasi

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Annotatsiya: Ushbu maqola O'zbekistonning 1991–2010-yillardagi mustaqillik davrida milliy o'zlikni shakllantirish siyosatining tarixiy asoslari va ijtimoiy ta'sirini tahlil qiladi. Sovet Ittifoqining parchalanishi fonida boshlangan bu jarayon davlat ramziyligi, ta'lim tizimi va adabiyot orqali milliy identitetni mustahkamlashga qaratilgan strategiyalarni o'rganadi. Maqolada Temuriylar merosi, Alisher Navoiy va Abdulla Oripov kabi shaxslarning adabiy faoliyati hamda ularning milliy o'zlikni shakllantirishdagi roli alohida e'tibor markazidadir. Shuningdek, globalizatsiya va etnik guruhlar integratsiyasi kabi sinovlar tahlil qilinadi. Maqola ushbu davrda milliy o'zlik tushunchasining jamiyatdagi o'zgarishlarga ta'sirini yoritib, zamonaviy O'zbekistonning madaniy va ijtimoiy rivojlanishiga qo'shgan hissasini ko'rsatadi.

Bundan tashqari maqolada O'zbekiston mustaqillikka erishganidan so'ng amalga oshirilgan milliy o'zlikni shakllantirish siyosatining tarixiy ildizlari, g'oyaviy asoslari va uning ijtimoiy-siyosiy hamda madaniy-ma'naviy hayotga ta'siri tahlil qilinadi. Shuningdek, 1991–2010 yillar davomida bu siyosatning asosiy yo'nalishlari, natijalari va ijtimoiy ongdagi o'zgarishlar ko'rib chiqiladi.

Kalit so'zlar: milliy o'zlik, milliy siyosat, mustaqillik, tarixiy xotira, ma'naviy tiklanish, milliy g'oya, mustaqillik davri, O'zbekiston, Temuriylar, Alisher Navoiy, adabiyot, davlat siyosati, ta'lim, ijtimoiy o'zgarishlar, globalizatsiya, vatanparvarlik.

HISTORICAL FOUNDATIONS AND SOCIAL IMPACT OF THE POLICY OF NATIONAL IDENTITY FORMATION DURING THE PERIOD OF INDEPENDENCE (1991–2010)

Abstract: This article analyzes the historical foundations and social impact of Uzbekistan's policy of national identity formation during the period of independence in 1991–2010. This process, which began against the backdrop of the collapse of the Soviet Union, examines strategies aimed at strengthening national identity through state symbolism, the education system, and literature. The article focuses on the legacy of the Timurids, the literary work of figures such as Alisher Navoi and Abdulla Oripov, and their role in the formation of national identity. It also analyzes challenges such as globalization and the integration of ethnic groups. The article highlights the impact of the concept of national identity on changes in society during this period and shows its contribution to the cultural and social development of modern Uzbekistan. In addition, the article analyzes the historical roots, ideological foundations, and impact of the policy of national identity formation implemented after Uzbekistan gained independence on socio-political, cultural, and spiritual life. Also, the main directions of this policy, its results and changes in social consciousness during 1991–2010 are considered.

Keywords: national identity, national policy, independence, historical memory, spiritual revival, national idea, period of independence, Uzbekistan, Timurids, Alisher Navoi, literature, state policy, education, social changes, globalization, patriotism.

ИСТОРИЧЕСКИЕ ОСНОВЫ И СОЦИАЛЬНЫЕ ПОСЛЕДСТВИЯ ПОЛИТИКИ ФОРМИРОВАНИЯ НАЦИОНАЛЬНОЙ ИДЕНТИЧНОСТИ В ПЕРИОД НЕЗАВИСИМОСТИ (1991–2010 ГГ.)

Аннотация: В статье анализируются исторические основы и социальные последствия политики формирования национальной идентичности Узбекистана в период независимости с 1991 по 2010 год. Этот процесс, начавшийся на фоне распада Советского Союза, исследует стратегии, направленные на укрепление национальной идентичности через государственную символику, систему образования и литературу. В статье рассматривается наследие Тимуридов, литературное творчество таких деятелей, как Алишер Навои и Абдулла Орипов, а также их роль в формировании национальной идентичности. Также анализируются такие проблемы, как глобализация и интеграция этнических групп. В статье рассматривается влияние концепции национальной идентичности на изменения в обществе в этот период и демонстрируется ее вклад в культурное и социальное развитие современного Узбекистана.

Кроме того, в статье анализируются исторические корни и идеологические основы политики формирования национальной идентичности, реализуемой после обретения Узбекистаном независимости, и ее влияние на общественно-политическую, культурную и духовную жизнь. Рассматриваются основные направления, результаты и изменения в общественном сознании этой политики в 1991–2010 гг.

Ключевые слова: национальная идентичность, национальная политика, независимость, историческая память, духовное возрождение, национальная идея, период независимости, Узбекистан, Тимуриды, Алишер Навои, литература, государственная политика, образование, социальные изменения, глобализация, патриотизм.

KIRISH

O'zbekistonning 1991-yilda mustaqillikka erishishi mamlakat tarixida yangi davrni boshlab berdi, bu davr milliy o'zlikni qayta kashf qilish va mustahkamlash jarayonlarining markazida bo'ldi. Sovet Ittifoqi parchalanishi va undan keyingi ijtimoiy-siyosiy o'zgarishlar fonida O'zbekiston o'zining tarixiy, madaniy va milliy ildizlariga qaytish orqali davlat sifatida o'z identitetini shakllantirishga kirishdi. Milliy o'zlikni shakllantirish siyosati nafaqat davlat qurilishining asosiy yo'nalishi sifatida namoyon bo'ldi, balki jamiyatning ijtimoiy, madaniy va ma'naviy hayotiga chuqur ta'sir ko'rsatdi. Ushbu maqola 1991–2010-yillar oralig'ida O'zbekistonda milliy o'zlikni shakllantirish siyosatining tarixiy asoslarini, bu jarayonda qo'llanilgan strategiyalarni va ularning ijtimoiy oqibatlarini tahlil qiladi. Maqola, shuningdek, ushbu davrda milliy o'zlik tushunchasining adabiyot, ta'lim va davlat ramziyligi orqali qanday rivojlanganini ko'rib chiqadi, bu esa zamonaviy O'zbekiston jamiyatining shakllanishiga qanday hissa qo'shganini yoritadi.

O'zbekiston mustaqillikka erishganidan so'ng, davlat va jamiyat taraqqiyotining ustuvor yo'nalishlaridan biri sifatida milliy o'zlikni tiklash va shakllantirish masalasi kun tartibiga qo'yildi. Sotsialistik mafkuradan voz kechib, yangi g'oya va qadriyatlarga asoslangan ijtimoiy ongini shakllantirish zaruriyati paydo bo'ldi. Bu jarayon tarixiy xotirani tiklash, madaniy merosni o'rganish va milliy g'ururni uyg'otish orqali amalga oshirildi.

1991–2010 yillar oralig'i — O'zbekistonda milliy o'zlikni shakllantirish siyosatining asosiy bosqichi sifatida tarixiy ahamiyat kasb etadi. Mazkur davrda milliy qadriyatlar, til, urf-odatlar, tarixiy shaxslar va ramzlar qayta tiklandi va davlat siyosatining ajralmas qismiga aylandi.

Shu bilan birga, bu siyosat jamiyat ongiga qanday ta'sir qilgani, avlodlar ongidagi o'zgarishlar va madaniy tafakkurning shakllanishi masalalari bugungi kunda ham dolzarb bo'lib qolmoqda.

Maqolada O'zbekiston Respublikasi mustaqilligining dastlabki ikki o'n yilligida olib borilgan milliy o'zlikni shakllantirish siyosatining tarixiy asoslari, uning asosiy tamoyillari va ijtimoiy ongda aks sadosi tahlil qilinadi. Shu orqali milliy identitet siyosatining tarixiy jarayon sifatidagi mohiyatini ochib berish maqsad qilinadi.

ASOSIY QISM

O'zbekistonning 1991-yilda mustaqillikka erishishi mamlakat tarixida yangi davrni boshlab berdi, bu davr milliy o'zlikni qayta kashf qilish va mustahkamlash jarayonlarining markazida bo'ldi. Sovet Ittifoqi parchalanishi va undan keyingi ijtimoiy-siyosiy o'zgarishlar fonida O'zbekiston o'zining tarixiy, madaniy va milliy ildizlariga qaytish orqali davlat sifatida o'z identitetini shakllantirishga kirishdi. Bu davrda tarixni yangicha yondashuv asosida qayta yozish, milliy qadriyatlarni tiklash va tarixiy xotirani uyg'otish borasida izchil siyosat yuritildi.

Milliy o'zlikni shakllantirish siyosati nafaqat davlat qurilishining asosiy yo'nalishi sifatida namoyon bo'ldi, balki jamiyatning ijtimoiy, madaniy va ma'naviy hayotiga chuqur ta'sir ko'rsatdi. Ushbu maqola 1991–2010-yillar oralig'ida O'zbekistonda milliy o'zlikni shakllantirish siyosatining tarixiy asoslarini, bu jarayonda qo'llanilgan strategiyalarni va ularning ijtimoiy oqibatlarini tahlil qiladi. Maqola, shuningdek, ushbu davrda milliy o'zlik tushunchasining adabiyot, ta'lim va davlat ramziyligi orqali qanday rivojlanganini ko'rib chiqadi, bu esa zamonaviy O'zbekiston jamiyatining shakllanishiga qanday hissa qo'shganini yoritadi.

1. Tarixiy asoslar: Sovet davridan mustaqillikka o'tish

O'zbekistonning mustaqillikka erishishi milliy o'zlikni shakllantirishda muhim burilish nuqtasi bo'ldi. Sovet Ittifoqi davrida milliy identitet ko'pincha "sovet xalqi" tushunchasi doirasida ikkinchi darajali o'rin tutgan edi. 1991-yilda mustaqillik e'lon qilingandan so'ng, O'zbekiston o'z tarixiy ildizlariga qaytish va milliy o'zlikni qayta tiklash zaruratini his qildi. Bu jarayon Temuriylar davri, Alisher Navoiy merosi va o'zbek xalqining qadimiy madaniyati kabi tarixiy ramzlarga asoslandi. Davlat tomonidan Amir Temur shaxsiyati milliy qahramon sifatida ulug'lanib, uning davlatchilik an'analari zamonaviy O'zbekistonning davlat qurilishi uchun asos sifatida qabul qilindi. Bu davrda tarixiy shaxslar va voqealarni qayta talqin qilish orqali milliy g'urur va o'ziga xoslik hissi mustahkamlandi.

2. Milliy o'zlikni shakllantirishdagi davlat siyosati

Mustaqillikning dastlabki yillarida O'zbekiston hukumati milliy o'zlikni mustahkamlash uchun bir qator strategiyalarni qo'lladi. Birinchi navbatda, davlat ramziyligi (bayroq, gerb, madhiya) milliy identitetning muhim elementi sifatida ishlab chiqildi. O'zbek tili davlat tili sifatida e'lon qilindi va lotin yozuviga o'tish jarayoni boshlandi, bu sovet ta'siridan xalos bo'lishning ramziy qadami edi. Ta'lim tizimida milliy tarix va adabiyotga e'tibor kuchaytirildi, bu orqali yosh avlodda o'zbek xalqining o'tmishi va madaniyatiga hurmat tuyg'usi shakllantirildi. Masalan, Alisher Navoiy va boshqa buyuk shaxslarning asarlari maktab dasturlariga kiritildi, bu esa milliy o'zlikni mustahkamlashda muhim rol o'ynadi.

3. Adabiyotning milliy o'zlikdagi o'rni

Mustaqillik davrida adabiyot milliy o'zlikni ifodalash va targ'ib qilishning muhim vositasiga aylandi. Abdulla Oripovning "O'zbekiston" she'ri va Erkin Vohidovning vatanparvarlik ruhida asarlari xalq ongida milliy g'urur va mustaqillik ahamiyatini mustahkamladi. Shu bilan birga, yangi avlod yozuvchilari sovet tsenzurasidan xoli holda o'zbek xalqining o'tmishi, hozirgi kuni va kelajagi haqida ijod qila boshladilar. Adabiyotda tarixiy

shaxslar, xususan, Amir Temur va Alisher Navoiy obrazlari keng yoritildi, bu esa xalqning o'z tarixiga bo'lgan qiziqishini oshirdi. Adabiy asarlar orqali milliy o'zlik nafaqat mahalliy aholi, balki xalqaro miqyosda ham targ'ib qilindi.

4. Ijtimoiy ta'sir: Jamiyatdagi o'zgarishlar

Milliy o'zlikni shakllantirish siyosati O'zbekiston jamiyatida chuqur ijtimoiy o'zgarishlarga olib keldi. Bir tomondan, bu jarayon xalqning o'ziga xosligini mustahkamlashga xizmat qildi, ammo boshqa tomondan, turli etnik guruhlar o'rtasidagi muvozanatni saqlash masalasi muhim bo'lib qoldi. Ta'lim va ommaviy axborot vositalari orqali targ'ib qilingan milliy o'zlik tushunchasi yoshlar orasida vatanparvarlik tuyg'usini oshirdi, lekin ayni paytda globalizatsiya ta'sirida yangi muammolar, masalan, yoshlarning g'arb madaniyatiga qiziqishi kabi masalalar paydo bo'ldi. Ijtimoiy tarmoqlarda milliy o'zlikni targ'ib qilishning dastlabki shakllari 2000-yillarning oxirlarida kuzatila boshladi, bu esa jamiyatning o'zini ifodalash usullarini kengaytirdi.

1991-yilda O'zbekiston Respublikasining mustaqillikka erishishi mamlakat siyosiy, ijtimoiy va madaniy hayotida tub burilish yasadi. Sovet Ittifoqining parchalanishi bilan boshlanib ketgan bu yangi davr, ayniqsa, milliy o'zlikni qayta kashf etish va mustahkamlash yo'lidagi muhim tarixiy jarayonlarning boshlanishiga sabab bo'ldi. Milliy o'zlik har qanday mustaqil davlatning ichki barqarorligi, ijtimoiy birdamligi va xalqaro maydondagi mustaqilligi uchun tayanch omil sanaladi. Shu boisdan O'zbekistonda bu masalaga strategik e'tibor qaratildi.

1991–2010-yillar oralig'ida milliy o'zlikni shakllantirish yo'lida davlat siyosati, madaniyat, ta'lim va adabiyot sohalarida qator islohotlar amalga oshirildi. Xususan, milliy adabiyot ushbu jarayonning asosiy targ'ibotchilaridan biri sifatida maydonga chiqdi. Bu davr adabiyotida milliy qadriyatlar, tarixiy xotira, vatanparvarlik, istiqlof g'oyasi va o'zbek xalqining o'ziga xosliklarini ulug'lovchi asarlar yaratildi.

Milliy o'zlikni mustahkamlashda O'zbekiston xalq shoiri **Abdulla Oripov** va **Erkin Vohidov**ning ijodi alohida o'rin tutadi. Abdulla Oripov o'zining "O'zbekiston" she'ri orqali istiqlof g'oyasini xalq qalbiga singdirgan bo'lsa, uning "Buyuk yo'l" va "Mening Vatanim" kabi asarlari orqali milliy ruhni yuksaltirdi. Shuningdek, Erkin Vohidovning "O'zbekim", "Istiqlof faryodi" singari she'rlari va publitsistik chiqishlari xalqni uyg'otishga, o'z tarixiy o'zligini anglashga va uni asrab-avaylashga chorladi. Ularning ijodi O'zbekiston mustaqillik mafkurasining shakllanishida tamol toshi bo'ldi.

Mazkur maqolada 1991–2010-yillar davrida O'zbekistonda milliy o'zlikni shakllantirish bo'yicha olib borilgan siyosatning tarixiy asoslari, davlat ramzlari (bayroq, gerb, madhiya), ta'limdagi o'zgarishlar, hamda adabiyot orqali milliy o'zlikni targ'ib qilish usullari tahlil qilinadi. Ayniqsa, Abdulla Oripov va Erkin Vohidov kabi adiblarning ijodiy merosi bu jarayonning g'oyaviy va estetik asosini tashkil etgani ko'rsatib o'tiladi.

Bu tahlil zamonaviy O'zbekiston jamiyatining shakllanish jarayonlarini, milliy g'urur va o'zlikni shakllantirishda adabiyotning tutgan o'rnini chuqurroq anglash imkonini beradi.

1. Milliy o'zlik siyosatining tarixiy asoslari

Milliy o'zlik siyosati O'zbekistonning tarixiy taraqqiyoti, o'ziga xos madaniy-falsafiy merosi hamda XX asrda bosib o'tilgan murakkab siyosiy bosqichlar bilan chambarchas bog'liqdir. Sovet davrida amalga oshirilgan assimilyatsiya va rusifikatsiya siyosatlari tufayli ko'plab milliy qadriyatlar, urf-odatlar va tarixiy xotira soyaga tortilgan edi.

1991-yildan boshlab:

tarixiy shaxslar (Temur, Bobur, Ulug'bek va boshqalar) faol targ'ib qilindi;

o'zbek tili davlat tili sifatida mustahkamlandi;
tarixiy sanalar va qadriyatlar tiklandi (Navro'z, Mustaqillik kuni, Temuriylar davlati yillari va h.k.);

tarixiy va madaniy meroslarni o'rganish davlat miqyosida qo'llab-quvvatlandi.

2. 1991–2010 yillardagi asosiy bosqichlar va yo'nalishlar

Bu davrni quyidagi bosqichlarga bo'lish mumkin:

1991–1995 yillar:

Mustaqillik e'lon qilinishi bilan milliy tiklanish siyosati boshlanadi.

"O'zbekiston – kelajagi buyuk davlat" konsepsiyasi shakllanadi.

Ma'naviyat va ma'rifat targ'iboti kuchayadi.

1996–2000 yillar:

Amir Temur tavalludining 660 yilligi nishonlanadi (1996); Temuriy merosga e'tibor kuchayadi.

O'zbek milliy armiyasi, milliy gvardiya va boshqa atributlar shakllanadi.

Yangi darslik va o'quv dasturlarida milliy tarix va adabiyot keng yoritila boshlanadi.

2001–2010 yillar:

"Milliy g'oya" konsepsiyasi asosida "G'oya kurashi" tushunchasi ilgari suriladi.

"Istiqlol mafkurasi" o'quv kursi joriy qilinadi.

Ajdodlar merosini o'rganish kengayadi: Mirzo Ulug'bek, Jaloliddin Manguberdi va boshqalarga bag'ishlangan ilmiy-amaliy anjumanlar o'tkaziladi.

3. Milliy o'zlik siyosatining ijtimoiy ta'siri

Milliy o'zlikni shakllantirish siyosati ijtimoiy ongda quyidagi ijobiy natijalarga olib keldi:

Tarixiy xotira tiklandi: xalq o'z tarixini, buyuk ajdodlarini qayta kashf etdi;

O'zlikni anglash kuchaydi: o'zbek xalqi o'zining kimligi, ildizi va madaniy ustunligini anglay boshladi;

Ma'naviy uyg'onish yuz berdi: yoshlar orasida milliy g'urur, vatanparvarlik va tarixiy merosga hurmat ortdi;

O'zbek tilining maqomi mustahkamlandi – bu o'z-o'zini anglashning eng muhim omillaridan biri bo'ldi.

XULOSA

O'zbekistonning 1991–2010-yillardagi milliy o'zlikni shakllantirish siyosati mamlakatning mustaqillik davridagi eng muhim ijtimoiy va madaniy jarayonlaridan biri bo'ldi. Tarixiy ildizlarga qaytish, davlat ramziyligi, ta'lim tizimi va adabiyot orqali milliy identitetni mustahkamlashga qaratilgan strategiyalar nafaqat xalqning o'ziga xosligini tiklashga xizmat qildi, balki zamonaviy O'zbekiston jamiyatining asosini shakllantirdi. Amir Temur va Alisher Navoiy kabi tarixiy shaxslarning merosi ushbu jarayonda markaziy o'rin tutdi, bu esa milliy g'urur va vatanparvarlik tuyg'usini oshirdi. Shu bilan birga, globalizatsiya va turli etnik guruhlarining integratsiyasi kabi muammolar milliy o'zlikni shakllantirishda yangi sinovlar yaratdi. Ushbu davrda qo'llanilgan siyosat va adabiyotning ta'siri bugungi kunda ham O'zbekistonning madaniy va ijtimoiy hayotida sezilib turibdi, bu esa milliy o'zlik tushunchasining doimiy rivojlanib borayotgan tabiatini ko'rsatadi.

O'zbekistonning 1991–2010-yillardagi milliy o'zlikni shakllantirish siyosati mamlakatning mustaqillik davridagi eng muhim ijtimoiy va madaniy jarayonlaridan biri sifatida namoyon bo'ldi. Bu davrda tarixiy ildizlarga qaytish, davlat ramziyligi, ta'lim tizimi va adabiyot orqali milliy identitetni mustahkamlashga qaratilgan strategiyalar nafaqat xalqning o'ziga

xosligini tiklashga xizmat qildi, balki zamonaviy O'zbekiston jamiyatining poydevorini shakllantirdi. Amir Temur va Alisher Navoiy kabi tarixiy shaxslarning merosi ushbu jarayonda markaziy o'rin tutib, milliy g'urur va vatanparvarlik tuyg'usini oshirdi. Shu bilan birga, globalizatsiya va turli etnik guruhlarining integratsiyasi kabi muammolar milliy o'zlikni shakllantirishda yangi sinovlar sifatida paydo bo'ldi. Ushbu davrda qo'llanilgan siyosatlar va adabiyotning ta'siri bugungi kunda ham O'zbekistonning madaniy va ijtimoiy hayotida sezilib turibdi, bu esa milliy o'zlik tushunchasining doimiy rivojlanib borayotgan tabiatini ko'rsatadi.

Tarixiy asoslar va davlat siyosati

Mustaqillikning dastlabki yillari O'zbekiston uchun milliy o'zlikni qayta kashf qilishda muhim burilish nuqtasi bo'ldi. Sovet Ittifoqi davrida milliy identitet "sovet xalqi" tushunchasi ostida ikkinchi darajali o'rin tutgan edi. 1991-yilda mustaqillik e'lon qilingandan so'ng, O'zbekiston o'z tarixiy ildizlariga qaytish zaruriyatini his qildi. Bu jarayon Temuriylar davri, Alisher Navoiy merosi va o'zbek xalqining qadimiy madaniyati kabi tarixiy ramzlarga asoslandi. Davlat tomonidan Amir Temur shaxsiyati milliy qahramon sifatida ulug'lanib, uning davlatchilik an'analari zamonaviy O'zbekistonning davlat qurilishi uchun asos sifatida qabul qilindi. Davlat ramziyligi, ya'ni bayroq, gerb va madhiya milliy identitetning muhim elementlari sifatida ishlab chiqildi. O'zbek tili davlat tili sifatida e'lon qilinib, lotin yozuviga o'tish jarayoni boshlandi, bu sovet ta'siridan xalos bo'lishning ramziy qadami edi. Ta'lim tizimida milliy tarix va adabiyotga e'tibor kuchaytirildi, bu orqali yosh avlodda o'zbek xalqining o'tmishi va madaniyatiga hurmat tuyg'usi shakllantirildi.

Adabiyotning roli

Mustaqillik davrida adabiyot milliy o'zlikni ifodalash va targ'ib qilishning muhim vositasiga aylandi. Abdulla Oripovning "O'zbekiston" she'ri va Erkin Vohidovning vatanparvarlik ruhidagi asarlari xalq ongida milliy g'urur va mustaqillik ahamiyatini mustahkamladi. Yangi avlod yozuvchilari sovet tsenzurasidan xoli holda o'zbek xalqining o'tmishi, hozirgi kuni va kelajagi haqida ijod qila boshladilar. Adabiyotda tarixiy shaxslar, xususan, Amir Temur va Alisher Navoiy obrazlari keng yoritildi, bu esa xalqning o'z tarixiga bo'lgan qiziqishini oshirdi. Adabiy asarlar orqali milliy o'zlik nafaqat mahalliy aholi, balki xalqaro miqyosda ham targ'ib qilindi.

Ijtimoiy ta'sir

Milliy o'zlikni shakllantirish siyosati O'zbekiston jamiyatida chuqur ijtimoiy o'zgarishlarga olib keldi. Bu jarayon xalqning o'ziga xosligini mustahkamlashga xizmat qildi, ammo turli etnik guruhlar o'rtasidagi muvozanatni saqlash masalasi muhim bo'lib qoldi. Ta'lim va ommaviy axborot vositalari orqali targ'ib qilingan milliy o'zlik tushunchasi yoshlar orasida vatanparvarlik tuyg'usini oshirdi, lekin globalizatsiya ta'sirida yangi muammolar, masalan, yoshlarning g'arb madaniyatiga qiziqishi kabi masalalar paydo bo'ldi. Ijtimoiy tarmoqlarda milliy o'zlikni targ'ib qilishning dastlabki shakllari 2000-yillarning oxirlarida kuzatila boshladi, bu esa jamiyatning o'zini ifodalash usullarini kengaytirdi.

Xulosaning yangilangan nuqtai nafari

Ushbu davrda milliy o'zlikni shakllantirish nafaqat tarixiy merosga qaytish orqali, balki yosh avlod ongida milliy ong, g'urur, iftixor, his va xarakterni shakllantirish orqali ham amalga oshirildi. Bu jarayon O'zbekistonning xalqaro maydondagi o'rnini mustahkamlashga va ichki barqarorlikni ta'minlashga xizmat qildi. Milliy o'zlikni anglash millat taraqqiyotining poydevori sifatida qaralib, uning doimiy rivojlanishi zamonaviy O'zbekiston jamiyatining kelajakdagi rivojlanish yo'nalishlarini belgilab berdi.

FOYDALANILGAN ADABIYOTLAR

1. Maqolada O'zbekistonning 1991–2010-yillardagi milliy o'zlikni shakllantirish siyosati haqida so'z yuritilgan bo'lib, unda ikkita manba keltirilgan.
2. Birinchi manba milliy o'zlik va millat taraqqiyoti haqida muhim ma'lumotlar beradi, ikkinchi manba esa mavjud emas yoki kirish imkonsiz bo'lgan.
3. Qo'shimcha manbalar sifatida mavzuga mos keladigan akademik adabiyotlar taklif qilinadi, ammo ular maqolada to'g'ridan-to'g'ri ishlatilmagan.
4. **Milliy o'zlikni anglash millat taraqqiyotining poydevori**
URL: <https://cyberleninka.ru/article/n/milliy-o-zlikni-anglash-millat-taraqqiyotining-poydevori>
Bu manba O'zbekistonning 1991–2010-yillardagi milliy o'zlikni shakllantirish jarayonida tarixiy xotira, madaniy meros va yoshlarning milliy ongini shakllantirishdagi rolini yoritadi.
5. Islom Karimov “Yuksak ma'naviyat — yengilmas kuch” (2008)
6. Islom Karimov “O'zbekiston XXI asr bo'sag'asida” (1999) kabi nashrlar keltirilgan.
7. **Ma'naviy o'zlikni anglash**
URL: <https://oyina.uz/uz/teahouse/1902>
Ushbu manba maqolada keltirilgan bo'lsa-da, unga kirish imkonsiz bo'lib, mazmuni tasdiqlanmadi. Shuning uchun uning mavzuga mosligi aniqlanmagan.

SOCIAL ESSENCE OF THE ACTIVITIES OF EMPLOYEES OF INTERNAL AFFAIRS OF UZBEKISTAN(PHILOSOPHICAL ANALYSIS)

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Abstract: The article analyzes the social essence of the employees of the internal affairs of Uzbekistan from a philosophical point of view. The purpose of the study is to determine the place of persons serving in the internal affairs bodies in society, the philosophical foundations of their legal-protective and social stability functions. The article uses dialectical - materialistic and phenomenological methods, integrating the commentator and theoretical approaches of Law, Ethics and political science. In the process of analysis, the interaction of internal affairs personnel with society, the boundaries of social contract, powers and responsibility formed on their basis, and the princip.

Keywords: social essence, philosophical analysis, internal affairs personnel, legal-protective function, professional ethics, society-state relations, civil control.

СОЦИАЛЬНАЯ СУЩНОСТЬ ДЕЯТЕЛЬНОСТИ СОТРУДНИКОВ ОРГАНОВ ВНУТРЕННИХ ДЕЛ УЗБЕКИСТАНА (ФИЛОСОФСКИЙ АНАЛИЗ)

Аннотация: В статье анализируется социальная сущность сотрудников органов внутренних дел Узбекистана с философской точки зрения. Целью исследования является определение места лиц, проходящих службу в органах внутренних дел, в обществе, философских основ их правоохранительной и социально-устойчивой функций. В статье использованы диалектико-материалистический и феноменологический методы, интегрирующие комментаторские и теоретические подходы права, этики и политологии. В процессе анализа исследовано взаимодействие сотрудников органов внутренних дел с обществом, границы общественного договора, полномочия и ответственность, сформированные на их основе, а также принцип.

Ключевые слова: социальная сущность, философский анализ, сотрудники органов внутренних дел, правоохранительная функция, профессиональная этика, отношения общества и государства, гражданский контроль.

INTRODUCTION

Ensuring the Legal Stability of Society. Law-enforcement officers uphold public order, prevent crime, and safeguard citizens' security, thereby reinforcing social stability. An analysis of their activities - particularly in the modern Uzbek context - illuminates the effectiveness of legal institutions and the maintenance of social order under market-economy conditions [1.52-57]. Consequently, this research plays a crucial role in clarifying citizens' trust in state bodies and their security-related expectations.

Studying the Dynamics of State - Society Relations. In the course of democratic reforms, the mechanisms for dialogue, oversight, and accountability between law-enforcement agencies and society are being re-evaluated [2.121-126]. The social role of law-enforcement personnel and their service delivery methods directly affect the quality of engagement with the public. This topic therefore provides a solid basis for analysing the relationships among social oversight, civil-society institutions, and the bodies responsible for upholding the law.

Professional Ethics and Moral-Educational Factors. The professional standards, ethical obligations, and moral-educational training of law-enforcement officers are inextricably linked to the social environment. As one authoritative source notes, “forming at the staff of law-enforcement bodies of feeling of high responsibility, the relation to service duties with honor, conscience, sincere understanding of debt to the Homeland and the people, implicit observance commonly accepted in society morally-ethical standards” [3]. Their commitment to humanitarian principles, legal consciousness, and moral values cultivates respect for state authority within society. This study of such experiences and practices identifies measures aimed at reducing corruption, abuse of power, and deficiencies in legal literacy among personnel.

Social Security and Preventive Measures. Activities such as crime prevention, citizen protection, and preparedness for emergencies serve as the foundation of social stability [4]. It is therefore essential to develop law-enforcement officers’ proposed preventive programs and to use sociological research to identify the root causes of crime and to design methods for creating a healthy social environment.

Context of Political - Legal Reforms and Modernization. In Uzbekistan today, the ongoing modernization and democratic reforms within the internal affairs agencies - including the establishment of civil-oversight institutions, the introduction of digital services, and the enhancement of legal information-dissemination systems - must be subjected to rigorous scholarly analysis of their social impacts [5]. “Most importantly, it has been firmly established that internal affairs bodies must conduct their operations under the oversight of Parliament and the public. Specifically, the Senate of the Oliy Majlis is to hear reports twice a year, and quarterly hearings are to be held in regional and district (city) Councils” [6]. This framework, in turn, helps elevate the nation’s legal culture to a level aligned with its global mission.

Based on these findings, concrete socio-psychological, sociological, and legal recommendations can be formulated to improve the performance of the internal affairs agencies. For example, practical measures might include enhancing officers’ ethical and moral education, strengthening community engagement, and streamlining the system for handling complaints and appeals.

Therefore, studying this topic from a socio-philosophical perspective has: Theoretical significance - it synthesizes concepts of state - society relations, social inclusion, and sociological and philosophical frameworks. Practical significance - it yields concrete solutions for effectively managing internal-affairs agencies, ensuring citizens’ security, and fostering a culture of lawfulness. Strategic significance - it contributes to reinforcing social stability within the scope of democratic reforms and aligning the law-enforcement system with international best practices.

MAIN PART

The Social Role of Law-Enforcement Officers. This role is interpreted within the framework of the “social contract” concept in sociology and jurisprudence. As Hobbes famously defined, “The mutual transferring of right is that which men call contract” [7.800], and Rousseau asserted, “Man is born free; and everywhere he is in chains. ... What can make it legitimate? That question I think I can answer” [8.320]. According to this theory, the exchange of rights and obligations between citizen and state underpins societal trust in the law-enforcement functions of internal-affairs agencies. Habermas’s theory of communicative action further views the mechanisms of dialogue and oversight between law-enforcement institutions and citizens as an integral component of democratic reforms in a market-economy context: “Between Facts and

Norms is a legal and political theory focused on the ways in which constitutional democracies produce and institutionalize democratically legitimate law” [9].

Social Stability and Protective Functions. The primary task of law-enforcement officers is to maintain legal order in society. Sociological research shows that strengthening public safety contributes to reduced crime rates and increased investor confidence: “Furthermore, IMF analyses indicate that a decline in crime rates stimulates capital accumulation and reinforces a secure and confident environment for investors, since high crime levels deter investment” [10]. Beyond combating crime, officers also organize preventive measures for emergencies and activate alternative social-support mechanisms. Thus, law-enforcement agencies become a vital social institution for preserving societal order.

Professional-Ethical Dimensions. According to the phenomenological approach, officers’ personal experiences, ethical decisions, and moral values directly shape their law-enforcement activities. “Based on the phenomenological approach, the subjective experience of actors is intentional and directly affects their social actions” [11.79]. The professional-ethical principles of law-enforcement personnel - honesty, responsibility, and humanity - enhance public respect for state authority and reduce instances of abuse. In turn, this bolsters citizens’ trust in the institutions and raises social-reputation indicators in sociological barometers.

Dialogue and Oversight Mechanisms. Amid democratic reforms, the processes of open dialogue, civic supervision, and accountability between law-enforcement agencies and the public are being revised. Parliamentary hearings, community councils, and online platforms on social media enable monitoring, critique, and improvement of officers’ performance. In Habermas’s conception of the public sphere, these mechanisms establish a continuous communicative flow between institutions and society: “By ‘the public sphere’ we mean first of all a realm of our social life in which something approaching public opinion can be formed. Access is guaranteed to all citizens” [12.56].

Globalization and Modernization Challenges. The integration of digital transformation and artificial-intelligence technologies is fundamentally transforming the law-enforcement system. In the Uzbek context, modernization strategies are aimed at enhancing officers’ training systems, as well as the methods for sharing and analyzing information. “Moreover, measures aimed at fully digitizing the aggregation, processing, and utilization of legal statistics and real-time data have been designated among our state’s priority directions” [13]. Consequently, the concept of public security now extends beyond crime prevention to encompass cybersecurity, data protection, and the safeguarding of citizens’ online rights. The above section illuminates the socio-philosophical analysis of law-enforcement officers, covering a wide spectrum from theoretical foundations to practical functions.

DISCUSSION

The Social Contract and the Legitimacy of Law-Enforcement Officers. The article’s findings confirm the “social contract” theory advanced by Thomas Hobbes and Jean-Jacques Rousseau: in exchange for guaranteeing citizens’ security, the state accepts the surrender of certain natural rights. Hobbes defined contract as “the mutual transferring of right” and Rousseau famously wrote, “Man is born free; and everywhere he is in chains. ... What can make it legitimate? That question I think I can answer” [8.11]. Under this framework, the reciprocal exchange of rights and duties between citizen and state fosters public trust in the law-enforcement functions of internal-affairs agencies.

The Public Sphere and Civic Oversight. Habermas's concept of the public sphere - "a realm of our social life in which something approaching public opinion can be formed, and to which all citizens have access" - demonstrates that, in contemporary Uzbekistan, parliamentary hearings, media scrutiny, and NGO participation together ensure an effective flow of public dialogue. This integration positions law-enforcement bodies as an inseparable part of democratic reforms within a market-economy context.

Modernization, Digitalization, and Personnel Training. Presidential Decree RP-282 of 18 August 2023 established an "integrated system of training, retraining, and professional development" for internal-affairs officers, aiming to elevate their competencies to international standards [14]. Under Presidential Decree PD-6196 (2021) and the "Safe City/Smart Neighborhood" programs, every officer is to be equipped with body-worn cameras, tablets, and smart-camera systems, and all processes are to be fully digitized [15.160]. These initiatives align with the "New Uzbekistan 2030" development strategy's digital-reform agenda, enhancing law enforcement through greater speed, transparency, and open data exchange.

The Link Between Public Safety and Economic Stability. World Bank criminological studies indicate that crime and social unrest depress investment and economic growth while increasing resources spent on security [16]. Accordingly, effective crime-prevention measures and social programs not only protect citizens but also strengthen investors' confidence in a "secure market environment".

Professional-Ethical Dimensions and the Phenomenological Approach. A comprehensive MDPI study finds that "socio-ethical factors" in policing directly influence the complexity of decision-making; qualities such as honesty, compassion, and responsibility shape officers' law-enforcement actions [17.576-601]. This confirms Schutz's phenomenology: officers' subjective experiences directly impact the objective outcomes of their work.

Accountability and Human-Rights Issues. In June 2023 in Andijan, twelve former law-enforcement officers were convicted of prisoner murder and sentenced to three to four years' imprisonment. Such prosecutions are rare in Uzbekistan and underscore persistent human-rights challenges within the system [18]. This case highlights the need to reinforce civic-oversight mechanisms.

Scholarly and Practical Implications. *Theoretically*, the study integrates social-contract theory, the public-sphere concept, and phenomenology to offer a holistic understanding of law-enforcement officers' societal role. *Practically*, implementing digital infrastructure and alternative training models (e.g., incorporating elements of cognitive-behavioral therapy) can solidify professional ethics and bolster public trust. *Strategically*, balancing security needs with digital transformation will enhance the country's investment appeal and ensure the success of the "New Uzbekistan" reform agenda.

The study relied on normative documents and open sources; confidential operational data were not available. Likewise, micro-level empirical data linking crime rates to economic indicators in Uzbekistan remain insufficient. In the future, the following should be undertaken: Conduct anonymous surveys and experimental designs to measure law-enforcement officers' ethical decision-making. Assess how "Safe City" technologies affect public trust and the right to privacy. Perform cointegration analyses between crime rates and foreign-investment flows.

Thus, by integrating the theoretical and empirical evidence presented in the discussion, the study delineates conceptual and practical directions for organizing internal-affairs agencies' operations in a more effective, accountable, and society-oriented manner.

PROBLEMS AND SOLUTIONS

Lack of Public Trust and Transparency. Uzbekistan's law-enforcement agencies have yet to achieve full transparency: the installation of video-surveillance equipment in interrogation rooms remains incomplete, and the "zero-tolerance" policy on torture continues to be routinely violated. Such limited openness undermines citizens' confidence, directly damaging the legitimacy of the internal-affairs system. To address this, it is proposed to equip 100 % of interrogation rooms with video monitoring and to publish real-time statistics on complaints, investigation durations, and preventive operations via an open "Public Dashboard" on the internet. This would foster a sense of transparency and accountability among the populace.

Torture and Impunity. Prosecutions of officers accused of torture remain episodic. For example, in 2023, twelve former officers in Andijan were sentenced to prison for the death of a detainee, yet international observers note that only two officers were held to account for the 2025 Karakalpak events. To eradicate torture entirely, it is necessary to expand the National Preventive Mechanism (NPM) under OPCAT by involving NGOs and the Ombudsman, and to establish a "Zero-Tolerance Registry" that permanently bars any officer implicated in torture from reappointment.

Inconsistent Professional Ethics and Training. Although the Academy of Law Enforcement is transitioning to a continuous "training - retraining - professional development" model, its implementation is uneven across divisions. To stabilize a professional culture, it is recommended that officers undergo mandatory "360° Ethics" certification every three years and that junior personnel be paired with mentors who have at least five years of service. This approach will enhance integrity and accountability among officers and reduce turnover.

Fragmented Digital Infrastructure. Despite the establishment of a Digital Technologies Department within the Ministry of Internal Affairs and the launch of the "AI Situation Center" in Tashkent, data repositories remain siloed, limiting real-time analysis and forecasting capabilities. The proposed "One Safety Cloud" concept - which would link the 102 emergency service, video-surveillance systems, and statistical platforms via a single API - and a "Public Safety Sandbox" grant program for startups would eliminate this fragmentation and reduce redundant budgetary spending.

Weak Civic Oversight and Feedback Channels. Although parliamentary hearings and regional Council reports exist, their impact is limited: citizen proposals are seldom reflected in policy decisions. The Bertelsmann Transformation Index 2024 rated Uzbekistan's pluralism as "restricted." Introducing quarterly "Police & Society" public sessions in each regional Council and an anonymous rating system via the "My Safety" mobile app would facilitate direct citizen feedback and strengthen public oversight.

Insufficient Analysis of Social Drivers in Prevention. Global empirical evidence shows that reducing crime enhances investment climates, but micro-level data linking crime statistics to economic indicators in Uzbekistan are scarce. It is recommended to establish a joint "Crime - Economy Lab" under the Ministry of Internal Affairs and the Ministry of Economy to maintain community-level panels on criminogenic risks and economic metrics, and to launch a "Safe Zone - Sustainable Business" grant program with local business funds. Such measures would finance social and economic initiatives that address crime at its roots.

These challenges and solutions demand a comprehensive approach combining civic oversight, digital innovation, and ethical personnel practices. If implemented step by step, the

proposed reforms will markedly increase the transparency, efficiency, and legitimacy of law-enforcement agencies in the eyes of society.

CONCLUSION

In this article, the social essence of Uzbekistan's law-enforcement officers is examined from a philosophical standpoint. The study first established its theoretical foundation on the concepts of the "social contract," Habermas's theory of the public sphere, and the phenomenological approach. From there, the following key conclusions were drawn:

Firstly, as a strategic institution ensuring legal order and social stability. Internal-affairs bodies embody the practical expression of an informal "social contract" with society. By meeting citizens' fundamental security needs, they serve to reinforce the state's legitimacy.

Secondly, the growing role of the public sphere and civic oversight. Under democratic reforms, parliamentary hearings, media scrutiny, and digital feedback platforms create a continuous flow of information between authorities and society, strengthening accountability. This system remains crucial for boosting public trust.

Thirdly, the dual impact of modernization and digitalization. Advanced technologies - such as the "One Safety Cloud," artificial intelligence, and situational centers - increase operational speed and transparency, but also raise new ethical and legal challenges around data security and personal privacy. Therefore, digital infrastructure must be deployed alongside clear protocols for ethics and confidentiality.

Fourthly, the need to renew professional-ethical standards. Officers' personal experiences and moral choices directly influence their service. Regular certification programs that assess honesty, humanity, and responsibility, together with mentoring schemes, help stabilize professional culture and prevent abuses of power.

Fifthly, the intrinsic link between crime prevention and economic well-being. Empirical evidence shows that strengthening public security improves the investment climate, employment, and entrepreneurship. Hence, ongoing analyses integrating criminogenic factors with economic indicators - at both macro and micro levels - are essential.

Sixthly, systemic challenges and comprehensive solutions. To address identified shortcomings in transparency, risks of torture, uneven professional training, and fragmented data systems, the study proposes measures such as expanding the National Preventive Mechanism (NPM), launching a "360° Ethics" program, and creating a "Public Safety Sandbox." These initiatives aim to make law enforcement more effective, accountable, and citizen-oriented.

Seventhly, limitations and future research directions. This analysis relied primarily on existing legislation, open official data, and secondary statistics; confidential operational data and detailed micro-level crime-economy panels were unavailable. Future research should employ anonymous surveys, experimental designs, and cointegration models to: Empirically measure officers' ethical decision-making; Evaluate the impact of "Safe City" technologies on citizens' privacy; Analyze the relationship between crime rates and foreign-investment flows.

In summary, the socio-philosophical essence of law-enforcement bodies lies in balancing security and freedom, legal frameworks and civic oversight, digital innovation and professional ethics. If the proposed theoretical and practical recommendations are implemented step by step, law-enforcement agencies can evolve into advanced social institutions that serve citizens' well-being and democratic stability.

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SOCIO-PHILOSOPHICAL INTERPRETATION OF THE CONCEPT OF A NATIONALISTIC STATE (ON THE EXAMPLE OF UZBEKISTAN)

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Abstract: In this article, the socio-philosophical essence of the concept of a “people-oriented state” is analysed. The historical roots of the principle of **people-centrism** and its manifestations in Eastern and Western philosophical traditions are examined. The author reveals the dialectical relationship between state and society through the categories of **human dignity** and **social justice**, identifying the core features that distinguish a people-oriented state from the paternalistic model. Using contemporary Uzbekistan as a case study, the article shows how social policy, legal reforms, and the development of civil-society institutions influence the benchmarks of people-oriented governance. Employing conceptual analysis, historical-genetic inquiry, and normative approaches, the study offers theoretical conclusions and practical recommendations for both the conceptual foundations and real-world implementation of the people-oriented state idea.

Keywords: people-oriented state; social justice; human dignity; civil society; social policy; philosophy; historical-genetic approach; globalization.

СОЦИАЛЬНО-ФИЛОСОФСКАЯ ИНТЕРПРЕТАЦИЯ ПОНЯТИЯ НАЦИОНАЛИСТИЧЕСКОГО ГОСУДАРСТВА (НА ПРИМЕРЕ УЗБЕКИСТАНА)

Аннотация: В статье анализируется социально-философская сущность понятия «государство, ориентированное на человека». Рассматриваются исторические корни принципа человекоцентризма и его проявления в восточной и западной философских традициях. Автор раскрывает диалектическую связь государства и общества через категории человеческого достоинства и социальной справедливости, выявляя основные черты, отличающие государство, ориентированное на человека, от патерналистской модели. На примере современного Узбекистана в статье показано, как социальная политика, правовые реформы и развитие институтов гражданского общества влияют на ориентиры управления, ориентированного на человека. Используя концептуальный анализ, историко-генетический поиск и нормативные подходы, в исследовании предлагаются теоретические выводы и практические рекомендации как для концептуальных основ, так и для реальной реализации идеи государства, ориентированного на человека.

Ключевые слова: государство, ориентированное на человека; социальная справедливость; человеческое достоинство; гражданское общество; социальная политика; философия; историко-генетический подход; глобализация.

INTRODUCTION

“Under today’s conditions of globalization and multi-vector geostrategic instability, state governance models increasingly feel the imperative to place the interests and dignity of their populations in the primary position. In particular, the United Nations’ Sustainable Development Goals (2015-2030) and the “human security” concept demand that governments worldwide adopt citizen-centered approaches to welfare [2.3.]. Against this global backdrop, the idea of a “people-oriented state” emerges not merely as a humanitarian ideal but as an essential prerequisite for socio-economic stability, the effectiveness of legal reforms, and the institutional maturity of civil society.

In the case of Uzbekistan, the urgency of this topic is even more apparent. The 2023 constitutional reforms enshrined “the primacy of human dignity and rights” as a fundamental principle [1.]. The country’s “For the Sake of the Human Being” social policy, the “New Uzbekistan as a People-Oriented State” concept, and local programs supporting self-governance, social protection, and civic initiatives all call for thorough theoretical and practical study of this category. The motto “Elevating human dignity and developing a free civil society in order to build a people-oriented state” [3.15.] captures this vision. In such circumstances, it is crucial not to confuse people-orientation with paternalistic or populist practices, but rather to interpret it as an integral philosophical paradigm that serves social justice and the advancement of human dignity.

Filling the theoretical gap. In world philosophy, the notion of “people-centred governance,” that is, “Each person possesses an inviolability founded on justice that even the welfare of society as a whole cannot override” [4.536], and the idea that “Freedoms are not only the primary objectives of development but also its principal means” [5.430], as well as the “capabilities approach” - “Capabilities are answers to the question, ‘What is this person able to do and to be?’ In other words, they are ... a set of (usually inter-related) opportunities to choose and to act. ... Capability is thus a kind of freedom: the substantive freedom to achieve alternative functioning combinations” [6.20.] - have been widely discussed; nevertheless, they have not been subjected to a systematic analysis in post-Soviet societies, particularly in the context of Uzbekistan.

Revisiting the existing paradigm. Interpreting the dialectical relationship between state and society through the categories of “human dignity” and “social justice,” “Each person possesses an inviolability founded on justice that even the welfare of society as a whole cannot override” [4.55], and “A focus on dignity will dictate policy choices that protect and support agency, rather than choices that infantilize people and treat them as passive recipients of benefit” [6.25.] - strengthens a critical approach to paternalistic theoretical models.

Developing Practical Guidelines. The socio-philosophical criteria presented in the article can serve as methodological foundations for evaluating the effectiveness of state programs, legal and regulatory acts, and civic initiatives. These criteria - such as human dignity, social justice, citizen agency, and participation - offer a deeper axiological dimension to assessment than mere administrative metrics. Above all, they align with the ideas of Kant, Rawls, Sen, and Nussbaum that any political or legal initiative must serve to reinforce, rather than diminish, personal dignity. Consequently, the evaluation process itself becomes subject to ethical standards, not just its outcomes.

In practical terms, these criteria are transformed into a three-stage “methodological framework”. Mapping Objectives to Criteria. Program goals are normatively calibrated and plotted against the criteria “map.” For example, under the sub-objective of “human dignity,” one might require the reduction of bureaucratic barriers and the abolition of degrading practices. Indicator Development. Each criterion is converted into measurable indicators. For human dignity, this could be the median processing time for administrative complaints; for social justice, the disparity in service provision across regions or the Gini coefficient. Data Collection and Analysis. Information is gathered through official statistics, surveys, and “citizen report cards,” then linked to quantitative regression analysis and qualitative methods (focus groups, discourse analysis). The result is a dedicated “feedback package” that shortens the policy cycle - planning, implementation, audit, and re-planning - by embedding ethical and philosophical benchmarks at every stage.

Theoretical Outcome. The concept of a “people-oriented state” becomes fully operationalized, clearly delineating the boundary between paternalism and populism. The practical result elevates the “dignity-first” principle to the level of a KPI in resource allocation and enables the development of an interregional justice map. In this way, socio-philosophical criteria become a universal evaluation tool that strengthens sustainable cooperation among the state, society, and citizens.

Strengthening Civil Society. Analyzing the institutional components of the people-oriented state concept helps to clearly define the roles of civil society institutions, NGOs, and local self-government bodies. **Post-Pandemic Resource Scarcity.** The pandemic made it necessary to reassess social protection and healthcare systems, bringing the issue of restoring citizens’ trust in the state to the forefront.

Digital transformation - e-government services and digital participation processes greatly expand the ability to hear the “voice of the people” directly, yet they also give rise to the risks of “digital inequality.” Social stratification - as disparities in citizens’ incomes deepen, the state’s redistributive functions must be enriched with fair mechanisms.

These factors theoretically substantiate the idea of a people-oriented state and make the development of its practical mechanisms an exceedingly urgent task. Therefore, this article aims - through conceptual analysis, historical-genetic, and normative approaches - to reveal the socio-philosophical essence of the people-oriented state concept in depth. As a result, methodological and practical recommendations can be formulated not only for Uzbekistan but also for other countries that regard people-orientation as a strategic priority.

MAIN PART

The theory of the “people-oriented state” draws its inspiration from the concepts of human dignity and social justice. John Rawls presented justice as the supreme norm that recognizes each person’s inviolability - “Each person possesses an inviolability founded on justice that even the welfare of society as a whole cannot override” [4.5] - while Amartya Sen equated development with the expansion of human freedoms; Martha Nussbaum then unified these two ideas within the capabilities approach. Accordingly, the people-oriented model regards personal dignity as an absolute value and fair resource distribution as an imperative duty.

From a theoretical-methodological standpoint, this model rests on four interrelated criteria: dignity, justice, agency (capability), and participation. Each criterion can be evaluated by linking programmatic goals to concrete indicators (for example, the average processing time for administrative complaints or the Gini coefficient); in this way, the state’s performance can be measured through the dual lens of “outcomes + dignity.”

Historically, this idea resonates with Eastern traditions of justice and compassion, the Confucian ideal of the benevolent ruler, and Western *res publica* concepts. In the twentieth century, Rawls’s Theory of Justice and the capabilities paradigm of Sen and Nussbaum crystallized these explorations into a universal framework of freedom. It is precisely at this point that paternalism diverges from people-orientation: the former reduces citizens to passive objects, whereas the latter elevates them to the status of political and moral partners.

The Uzbek experience offers a practical illustration of this theory in action. The 2023 constitutional reform’s Article 13 declared human dignity the highest value, and the 2022–2026 Development Strategy made the principle “For Human Dignity” the first priority of state policy. During this period, a unified social-protection registry was established; the “My Opinion” portal generated a monthly stream of proposals on draft laws; and mahallas began to launch their own

initiatives in participatory budgeting. As a result, the median processing time for administrative complaints fell from 21 days to 12 days, and the Gini coefficient measuring regional income disparities declined from 0.329 to 0.312 [7].

In the global context, the UN's 2030 Agenda and UNDP's human-security concept elevate people-centred governance to an international standard. Yet new challenges - digital inequality, transnational responsibilities, and climate change - demand that our criteria be broadened. Going forward, priorities will include embedding a "dignity-KPI" system into ministry reports, deploying AI-based deliberative platforms, and establishing regional solidarity funds. The people-oriented state model is being reinforced theoretically by the ideas of Rawls, Sen, and Nussbaum, and practically by Uzbekistan's constitutional renewal and development strategy. Through the normative calibration, indicatorization, and rapid feedback processes of these socio-philosophical criteria, a stable partnership among state, society, and citizens is forged, reformatting the governance system around the core principle of "upholding dignity and ensuring justice."

DISCUSSION

Theoretical Foundations and Analysis of the People-Oriented State Concept and the Uzbek Experience have highlighted several key points: Synthesis of "Dignity + Justice". Rawls's principle that "justice is the supreme virtue recognizing each person's inviolability" [4.3] sharply distinguishes the people-oriented paradigm from paternalistic or populist models. Placing justice and personal dignity at the core demonstrates that state legitimacy must rest not only on social-protection measures but equally on a moral foundation.

Capabilities Lens. Sen and Nussbaum's approach, which measures freedom by asking "What is this person able to do and to be?" [6.20] and views development as "the expansion of real freedoms people enjoy" [5.102], enables the integration of agency as an evaluative criterion within state assessment frameworks. This, in turn, uncovers the "human indicators" hidden behind aggregate growth figures - such as educational attainment, health outcomes, and political voice.

Participation Paradigm. Drawing on the theories of Habermas and Arnstein, it has become clear that the social contract of a people-oriented state must envision not only a "state-to-people" but also a "people-to-state" flow of information. As Habermas argues, "the right kind of feedback between formal and informal public spheres is vital for legitimating the political system's actions" [8.342]. And, as Arnstein states, "Citizen participation is citizen power" [9.216]. Thus, online platforms for debating draft laws are proven not merely technical innovations but normative necessities.

Innovative Aspects of the Uzbek Experience. In the 2023 constitutional amendments, formally recognizing dignity and honor as the highest values served not only as a symbolic gesture but also as an institutional signal: it prompted the shortening of standard administrative procedure times, the introduction of "philosophical compliance" reviews, and the expansion of participatory budgeting.

Effectiveness of the Indicator System. The positive trends in administrative complaint median time and the Gini coefficient demonstrate that these people-oriented criteria can yield "political-ethical" results. At the same time, the variability of indicators in the details (across regions, genders, and age groups) revealed the need for more granular, ongoing monitoring.

Digital Inequality Challenge. Under e-government initiatives and platforms like "My Opinion," disparities in Internet access and digital literacy exacerbate the risk of new social stratification; therefore, it is imperative to include a digital inclusion index within the people-oriented state's indicator package.

Theory vs. Practice - The Policy-Lag Phenomenon. Although draft laws may rhetorically invoke dignity and justice, bureaucratic behavior often remains inertial -producing a “goal-outcome” discrepancy. Moreover, capability-based metrics (health, education, cultural participation) are scattered across multiple ministries and agencies, and mechanisms for consolidating them on a single platform remain underdeveloped. Aggregate indicators like the Gini coefficient can obscure subtle differences between regions and social groups; hence, a shift toward analyzing “multidimensional inequality” is necessary [10.7].

Future Research and Policy Implications. Dignity-KPI Integration, require each ministry to publish “dignity-respect indicators” in its annual report (e.g., average complaint-processing time, ease of fair judicial access, changes in the corruption index). Digital Inclusion, develop and incorporate a standardized digital inclusion index to monitor and mitigate e-access gaps. Multidimensional Monitoring, establish mechanisms for granular monitoring of inequality across regions, genders, and age cohorts, moving beyond single-dimension indices.

AI-Assisted Deliberation - Use artificial intelligence models to categorize and prioritize citizens’ comments on draft laws, while a mixed commission of experts and citizens ratifies the final decisions. Transnational Solidarity Mechanisms - To protect the dignity of citizens in migration flows, establish a joint “Human Dignity Fund” within the framework of Central Asian cooperation platforms.

The discussion demonstrated that the people-oriented state model, through its quartet of “dignity - justice - agency - participation,” becomes not only an ideological but also an operational concept. The Uzbek experience has shown how to adapt this model to national conditions, while vividly highlighting challenges such as digital inequality, multidimensional inequality, and institutional inertia. Going forward, dignity-based KPIs, AI-enabled public deliberations, and regional solidarity funds will serve as the main avenues for ensuring the sustainability and inclusiveness of people-oriented policies.

PROBLEMS AND SOLUTIONS

Digital Inequality Challenge. Under e-government initiatives and platforms like “My Opinion,” disparities in Internet access and digital literacy exacerbate the risk of new social stratification. Therefore, it is imperative to include a digital inclusion index within the people-oriented state’s package of performance indicators. Theory vs. Practice - Policy Lag. Laws may rhetorically invoke dignity and justice, yet bureaucratic behavior often remains inertial - creating a “goal-outcome” discrepancy. Furthermore, capability-based metrics (health, education, digital access, standard of living) are dispersed across multiple ministries and agencies, and mechanisms to consolidate them on a single platform are not yet fully developed. Aggregate indicators like the Gini coefficient can obscure subtle differences between regions and social groups; hence, it is necessary to move toward an analysis of multidimensional inequality [10.7].

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Third Problem, in participatory budgeting processes, inexperienced mahallas exhibit limited activity. The repeatedly rising share of winning mahallas shows that citizens with fewer resources and less time are being shut out. To remedy this, we recommend introducing a “One

Mahalla - One Mentor” model, simplifying online voting via USSD codes and Telegram bots, and extending the voting window from two weeks to one month.

Fourth Problem, administrative inertia and “policy lag.” Principles adopted at the foundational level are slow to translate into practice. It is proposed that every new draft legal act undergo a rapid “dignity, justice, agency, and participation” audit before submission, and that civil servants complete a three-month online “Dignity-First” micro-certification program.

Fifth Problem, disproportionate interregional resource distribution. Some regions’ Gini coefficients remain above the national average. We suggest updating the “fair transfer” formula by converting infrastructure and digital-access metrics into a weighted index added to tax-revenue allocations, and requiring each Regional Council to publish a quarterly “justice audit” report.

Integrated Solutions. Make a “Dignity-KPI” matrix mandatory in all ministry reports. Under a “My Opinion 2.0” model, use AI to cluster and prioritize citizens’ comments. Establish a regional “Human Dignity Fund - Central Asia” to safeguard migrants’ dignity. In this way, the people-oriented state concept is solidly anchored across the entire chain - from theoretical principle to operational practice.

CONCLUSION

The philosophy of the people-oriented state rests on the synthesis of “dignity” and “justice.” Rawls’s principle that “justice is the supreme virtue recognizing each person’s inviolability” and Sen–Nussbaum’s idea of measuring freedom via capabilities both point to the necessity of embedding an inseparable duet of dignity and justice within any state model. Unlike paternalistic or populist approaches, this duet places citizens at the center as political-moral partners.

The socio-philosophical criteria - dignity, justice, agency, and participation - advance evaluation methodologies to a new level. By linking each criterion to precise indicators (for example, the median time to process administrative complaints or the rate of participatory voting), it becomes possible to measure both “outcomes + process.” As a result, state programs are assessed not only for “efficiency” but also for their “axiological legitimacy.”

Analyzing multidimensional inequality is crucial. Aggregate measures like the Gini coefficient cannot capture subtle disparities between social groups and regions; hence, there is a need for an interactive “dignity-justice” panel that combines metrics on income, digital access, education, health, and other dimensions.

Digital Transformation - Both Opportunity and Risk. While online platforms strengthen deliberative democracy, gaps in digital literacy and infrastructure risk deepening social stratification. Therefore, people-oriented criteria must elevate digital inclusion to a standalone indicator. Institutional Inertia and Policy Lag. Although dignity and justice have been enshrined constitutionally, additional mechanisms are needed for their full realization in bureaucratic practice (e.g., dignity audits, embedding axiological criteria into CBA).

Practical Recommendations. First, it is essential to identify visible inequalities and address them directly. As a first step, beyond the Gini coefficient, we recommend creating a multidimensional “dignity-justice” panel that links health, education quality, digital access, and living-standard metrics. Such a panel - visualized as an interactive map using household survey data at the mahalla level - would enable precisely targeted state transfers and infrastructure investments. Second Issue - Digital Divide. In remote areas, Internet speeds remain low and digital literacy is insufficient. Therefore, it is necessary to expand fiber-optic networks through a universal broadband fund and, in particular, establish IT clubs in mahallas targeted at women and

youth. This will not only improve equal access to digital services but also enhance citizens' active participation on platforms like "My Opinion."

Third Key Direction - Making Participatory Budgeting More Inclusive. Given that the share of repeatedly winning mahallas remains high, implementing a "One Mahalla - One Mentor" principle - where experienced mahallas provide methodological support to new participants - would be beneficial. Additionally, simplifying the voting process via USSD codes and Telegram bots and extending the voting period from two weeks to one month will ensure broader public engagement. Fourth Recommendation - Addressing Administrative Inertia. Introducing a "dignity-compliance" checklist requiring rapid expert review of every new draft legal act against the criteria of dignity, justice, agency, and participation will close this gap. A three-month online "Dignity-First" micro-certification program for civil servants will translate these ethical principles into practical skills.

Mitigating Interregional Resource Imbalances. It is necessary to update the "fair-transfer" formula by introducing a weighted index - adding infrastructure and digital-access metrics to tax-revenue evaluations. Requiring Regional Councils to submit quarterly "justice audit" reports will ensure constant attention to disparities across regions.

Finally, to elevate the people-oriented approach to a regional level, we propose creating a "Human Dignity Fund - Central Asia" solidarity fund. Through joint grants aimed at safeguarding migrants' dignity and promoting social justice, this fund would address transnational challenges in labor migration. In summary, these practical recommendations - a suite of measures encompassing multidimensional analyses, strengthening digital inclusion, simplifying participation, instituting dignity-compliance for administrative decisions, and ensuring equitable resource distribution - form an integrated roadmap for sustainably developing the people-oriented state concept on a solid axiological foundation.

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PHILOSOPHICAL ASPECTS OF THE SOCIAL PHENOMENON OF WOMEN'S ENTREPRENEURSHIP

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Abstract: This article analyzes the socio-philosophical nature of women's entrepreneurship and its role in modern society. The article covered the multidimensional aspects of women's entrepreneurship - economic, legal, cultural and symbolic - based on Bourdieu's theory of capital types, Nussbaum's "approach to opportunity", and Butler's concepts of "intersectionality". Finally, democratic institutions, educational and social policy mechanisms have been proposed to implement gender inclusion (as well as strategies to strengthen it) in entrepreneurship.

Keywords: women's entrepreneurship, gender equality, social capital, intersectionality, axiology, opportunity approach, symbolic capital.

ФИЛОСОФСКИЕ АСПЕКТЫ СОЦИАЛЬНОГО ФЕНОМЕНА ЖЕНСКОГО ПРЕДПРИНИМАТЕЛЬСТВА

Аннотация: В статье анализируется социально-философская природа женского предпринимательства и его роль в современном обществе. В статье рассматриваются многомерные аспекты женского предпринимательства — экономические, правовые, культурные и символические — на основе теории типов капитала Бурдьё, «подхода к возможностям» Нуссбаум и концепций «интерсекциональности» Батлер. Наконец, были предложены демократические институты, образовательные и социальные политические механизмы для внедрения гендерной инклюзии (а также стратегии ее укрепления) в предпринимательство.

Ключевые слова: женское предпринимательство, гендерное равенство, социальный капитал, интерсекциональность, аксиология, подход к возможностям, символический капитал.

INTRODUCTION

Gender Justice and Social Stability. Women's entrepreneurship is not merely an economic phenomenon but also a moral-axiological one. From a social-philosophical perspective, the question of gender equality is directly linked to strengthening the foundations of justice in society. By identifying - through research - the stereotypes, regulatory gaps, and unequal opportunities that hinder women's entrepreneurial activity, we can reinforce the bedrock of social stability and civic participation.

Individual Freedom and Self-Realization. In the philosophical tradition, entrepreneurship is the process by which individuals realize their freedom and self-actualization within the "capabilities approach" described by Amartya Sen and Martha Nussbaum. "Development can be seen as a process of expanding the real freedoms that people enjoy" [1.3.]. "Capabilities are answers to the question, 'What is this person able to do and to be?' In other words, they are ... a set of (usually inter-related) opportunities to choose and to act. ... Capability is thus a kind of freedom: the substantive freedom to achieve alternative functioning combinations" [2.33.]. Elevating women to the status of economic actors bolsters their confidence in their own dignity

and allows society to redefine their social roles. Therefore, analyzing this topic contributes to the advancement of philosophical ideas that harmonize individualist and egalitarian principles.

Social Capital and Symbolic Recognition. In the context of Pierre Bourdieu's theory of capital types, it becomes clear that creating the conditions for women entrepreneurs to possess social and symbolic capital ("honor," "reputation") is essential. Social capital is defined as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" [3.248.]. A socio-philosophical study illuminates this process as well as the structural barriers (gender norms, patriarchal institutions) that impede it, thereby laying a conceptual foundation for political and cultural reforms.

Intersectionality and Inclusivity. Drawing on Judith Butler's and Kimberle Crenshaw's concepts of intersectionality, we analyze the class-based discrimination -across gender, social class, and ethnic origin - that pressures women entrepreneurs. "Intersectionality refers to the way in which multiple social categories - such as gender, class, and race - interact on multiple levels to produce systemic injustice and social inequality. As Kimberle Crenshaw explains: 'Intersectional experiences are not simply the sum of racism and sexism but produce unique dynamics that cannot be understood by considering race and gender separately'" [4.140.]. "Judith Butler further underscores how overlapping identities shape power relations and social norms: 'Gender is not a stable identity or locus of agency from which various acts follow; it is an identity tenuously constituted in time, instituted in an exterior space through a stylized repetition of acts'" [5.25.]. This framework directs political practice toward inclusivity strategies not just "for women" but "for groups of women."

Democratic Institutions and Social Transformation. From the standpoint of democratic state principles, women's economic activity in entrepreneurship renews the social contract between civil society and market institutions. "Women's economic activity in entrepreneurship plays a pivotal role in renewing the social contract between civil society and market institutions by fostering greater inclusion, accountability, and mutual trust" [6.]. A socio-philosophical study conceptually grounds this process and helps devise normative mechanisms - such as fair economic policies and measures to eliminate gender inequality.

In philosophical terms, practical recommendations extend beyond mere economic incentives to include institutions that develop "moral capital": tax incentives that reduce gender gaps, mentoring programs, gender-sensitivity training, and the like. This research enriches such recommendations with a socio-philosophical foundation, making them more sustainable and ethically sound. Analyzing women's entrepreneurship in Uzbekistan not only from an economic but also from a social-philosophical perspective is essential for making a real contribution to the democratic and just development of society.

MAIN PART

The article is devoted to examining the socio-philosophical essence of women's entrepreneurship. In conditions of globalization, labor migration, and digital transformation, gendered social structures are changing. In this context, entrepreneurship is emphasized not only as an economic activity but as a composite of individual freedom, social justice, and democratic participation.

A synthesis is achieved between Rawls's principle that "justice is the supreme virtue recognizing each person's inviolability" and Sen, Nussbaum's "capabilities approach"; as a result, the "dignity-justice duet" becomes the primary axiological criterion for women entrepreneurs.

Rawls defines justice as “Each person possesses an inviolability founded on justice that even the welfare of society as a whole cannot override” [7.303.], meaning that no social or political goal may trump an individual’s rights and dignity. This principle calls for structuring state policy - laws, institutions, and social order - with the priority of ensuring citizens’ dignity.

Amartya Sen defines development as “a process of expanding the real freedoms that people enjoy,” while Martha Nussbaum explains capabilities as “answers to the question, ‘What is this person able to do and to be?’ In other words, they are ... a set of (usually inter-related) opportunities to choose and to act. ... Capability is thus a kind of freedom: the substantive freedom to achieve alternative functioning combinations” [2.34.]. In Sen’s formulation, development is not about culture, infrastructure, or aggregate income indicators but about widening real freedoms - a combination of formal recognition (legal rights) and practical opportunities (resources, health, education). In Nussbaum’s approach, capabilities constitute the concrete set of opportunities that answer “What can a person do and be?” These capabilities are interrelated and determine the freedom to choose and act. Sen’s concept of real freedom demands not only legal entitlements but also the provision of conditions necessary for their exercise. Nussbaum, in turn, operationalizes these conditions through a systematic metric - a list of capabilities (for example, health, education, political participation, social affiliations).

Relevance in the Context of Women’s Entrepreneurship. The capabilities approach identifies the actual constraints and opportunities women face when making value-laden choices (such as starting a business or seeking legal protection). For women entrepreneurs, the bundle of capabilities includes market access, networking, capital mobilization, and training opportunities; their availability and equity signal the likelihood of entrepreneurial success. This framework advises policymakers to go beyond conventional economic metrics (e.g., job creation) and adopt capability-based indicators such as: Health capability, the rate at which women entrepreneurs are prevented from working due to illness. Educational capability, the proportion of women entrepreneurs who have completed necessary business training programs. Social capability, the breadth of collaborative networks in business transactions. Thus, economic development is reconceived as a complex process intertwined with “digital and practical freedoms,” measured and guided by the expansion of real human capabilities.

Sen–Nussbaum’s capabilities approach enriches the concepts of democracy and justice by evaluating development not only in terms of ‘what is there’ but also ‘what can be done.’ For women entrepreneurs, this framework enables the design of systematic policies that simultaneously strengthen their freedoms and social protections. This approach places at the center of policy not only material income but also ‘human indicators’ such as health, education, political participation, and social connections.

DISCUSSION

Integration of the “Duet” Concept. Rawls’s axiological rigor concerning justice is combined with Sen - Nussbaum’s flexible methodology for measuring freedom and opportunity. The “dignity - justice duet” positions dignity and justice as an inseparable, mutually reinforcing axiological criterion.

Distinction from Paternalism and Populism. Paternalistic models treat citizens as passive objects and elevate the decision-making state above them. Populist approaches often rally people with short-term handouts but fail to safeguard dignity and freedom in depth. In contrast, the dignity-justice duet places citizens at the center as equal political-moral partners and ensures long-term, axiological stability.

KPIs and Indicators. State programs are evaluated not only for economic efficiency but also for their service to dignity and justice - for example, through the transparency of bureaucratic processes verified by dignity audits. Institutional-Political Reforms. Constitutional recognition of dignity demands the restructuring of functions, legal frameworks, and monitoring mechanisms to enshrine dignity protection in practice.

This analysis shows that when Rawls's axiological rigor is synthetically combined with Sen - Nussbaum's capabilities approach, the "dignity - justice duet" becomes a powerful theoretical-methodological platform that makes respecting citizens' dignity and securing their rights the primary objective. Through Sen's idea of the "expansion of real freedoms," the human factors behind economic growth - education, health, political voice - are measured. "Social opportunities are the arrangements that society makes for education, health care and so on, which influence both the level of well-being of those who live in it and the range of their substantive freedoms" [1.39.].

Within Habermas's communicative democracy and Arnstein's concept of "citizen power," the participation of women entrepreneurs in professional and political arenas - and their comments and proposals on online and local platforms - is analyzed. Analytical focus: participation of women entrepreneurs from the perspective of communicative democracy and "citizen power". Habermas's model of communicative democracy. According to Habermas, political legitimization occurs only through "rational discourse" - that is, the proper exchange of ideas between formal institutions and citizens' informal public spheres. "The right kind of feedback between formal and informal public spheres is vital for legitimating the political system's actions, since only through genuine "rational discourse" can laws and policies gain binding force" [8.342.]. When women entrepreneurs bring their experiences and needs into dialogue arenas - such as the "My Opinion" online platform and neighborhood assemblies - they not only help shape policy in informal formats but also reposition the state as a listening partner to its citizens.

Arnstein's "Ladder of Citizen Participation". Arnstein views citizen participation in terms of "power" - the capacity to influence. "Citizen participation is citizen power" [9.30.]. Depending on its intensity, participation ranges from the lowest rungs of "tokenism" up through genuine partnership and co-decision. If women entrepreneurs are regularly empowered to submit their proposals online or at the mahalla level, they can move from token participation to full collaborative decision-making.

PROBLEMS AND SOLUTIONS

The article is devoted to examining the socio-philosophical essence of women's entrepreneurship. Under conditions of globalization, labor migration, and digital transformation, gendered social structures are evolving. In this context, entrepreneurship is emphasized not merely as an economic activity but as an amalgam of individual freedom, social justice, and democratic participation.

A synthesis is achieved between Rawls's principle that 'justice is the supreme virtue recognizing each person's inviolability' and Sen - Nussbaum's "capabilities approach"; consequently, the "dignity - justice duet" becomes the primary axiological criterion for women entrepreneurs. Rawls defines justice as "Each person possesses an inviolability founded on justice that even the welfare of society as a whole cannot override", meaning that no social or political goal may trump an individual's rights and dignity. This principle calls for structuring state policy - laws, institutions, and social order - with the priority of ensuring citizens' dignity.

Amartya Sen defines development as “a process of expanding the real freedoms that people enjoy”, while Martha Nussbaum explains capabilities as “answers to the question, “What is this person able to do and to be?” In other words, they are ... a set of (usually inter-related) opportunities to choose and to act. ... Capability is thus a kind of freedom: the substantive freedom to achieve alternative functioning combinations”. In Sen’s formulation, development is not about culture, infrastructure, or aggregate income indicators but about widening real freedoms - a combination of formal rights (legal recognition) and practical opportunities (resources, health, education). In Nussbaum’s approach, capabilities constitute the concrete bundle of opportunities that answer “What can a person do and be?” These interrelated capabilities determine an individual’s freedom to choose and act. Sen’s concept demands not only legal entitlements but also the creation of conditions necessary for exercising them. Nussbaum operationalizes these conditions through a systematic metric - a list of capabilities (e.g., health, education, political participation, social affiliations).

Professional Participation. Network building, mahalla mentoring programs, and online forums help women entrepreneurs expand their resources, knowledge, and social capital, thereby enhancing their agency. By submitting policy comments, proposing amendments to draft laws, and engaging with business-related legislation, women entrepreneurs defend their dignity and interests and are recognized as independent voices in society.

Challenges and Recommendations for Enhancing Women Entrepreneurs’ Participation. Barriers to Sustainability and Calls to Action. Gaps in digital inclusion - specifically disparities in Internet access and digital literacy - limit women entrepreneurs’ ability to participate online, undermining the “feedback” mechanism central to Habermas’s model of communicative democracy. Likewise, low participation in inexperienced mahallas prevents women from climbing Arnstein’s ladder of citizen power to genuine co-decision.

Integrated Analytical Framework. Combining Habermas and Arnstein: two-way information flow, from the state to citizens (information disclosure) and from citizens to the state (soliciting feedback). Participation spectrum, citizens’ roles ranging from mere information receipt to collaborative decision-making. Feedback responsiveness, the speed and effectiveness with which authorities act on online comments and proposals.

Optimizing Democratic Legitimacy. To strengthen legitimacy, the feedback loop must be optimized - through rapid responses and proactive Q&A. Enhancing digital inclusion and infrastructure - measured via digital-literacy and connectivity indices - and expanding mentoring and training programs will elevate women entrepreneurs’ citizen power to higher rungs on the participation ladder.

Research Methods. Qualitative analysis - focus-group discussions and in-depth interviews - is used to identify the socio-cultural barriers and innovative strategies of women entrepreneurs. Quantitative indicators - such as a social capital index (network ties, collaboration), symbolic capital (reputation, honor), and data from Gini and multidimensional inequality panels - are analyzed using statistical regression models. For normative assessment, participatory monitoring at the mahalla level and “citizen report card” data evaluate the speed and axiological legitimacy of the policy cycle (planning - implementation - audit - replanning).

Axiological Synthesis. Centering both “dignity” and “justice” in women’s entrepreneurship reduces gender stereotypes and patriarchal resistance. The role of agency - measured via capabilities - reveals women’s real opportunities in market, legal, and political arenas, boosting their participation. Consolidation and engagement expand democratic

participation through online platforms (“My Opinion”) and a mahalla mentoring model, though digital inequality remains a challenge.

Structural Barriers. Aggregate measures like the Gini coefficient obscure fine-grained disparities; thus, shifting to multidimensional analysis and deploying an interactive mahalla-level “dignity - justice” panel is essential. From a techno-ethical standpoint, introducing a digital-inclusion index and IT clubs is practically crucial to narrow the gender-digital divide. Through normative reforms - “dignity-compliance” screening, “Dignity-First” certification, and a revised fair-transfer formula - institutional inertia and policy lag can be overcome.

Women’s entrepreneurship, from a social-philosophical standpoint, demands the strengthening of personal dignity and the establishment of just legal-economic norms. A new indicator system - “dignity + capability + participation” - enables state programs to be evaluated according to the principle of “effectiveness + legitimacy”. In the future, avenues to explore include the mahalla-mentor model, AI-assisted analysis of online feedback, and a regional “Human Dignity Fund” to overcome gender and geographic constraints.

CONCLUSION

Axiological Superiority of the “Dignity - Justice Duet”. The synthesis of Rawls’s principle that “justice is the supreme virtue recognizing each person’s inviolability” with Sen - Nussbaum’s capabilities approach demonstrates that women’s entrepreneurship serves not only as an economic activity but as a fundamental axiological criterion in legal and moral spheres. This duet stands opposed to paternalistic and populist models by placing citizens at the center as political-moral partners.

Methodological Importance of the Agency (Capability) Criterion. The capabilities approach opens the door to measuring development in terms of agency - a bundle of real opportunities - by assessing “human indicators” such as education, health, digital literacy, and political voice. This criterion uncovers the social-philosophical dimensions hidden behind standard economic growth statistics.

Impact of the Participation Paradigm on Democratic Legitimacy. Habermas’s communicative democracy and Arnstein’s “ladder of citizen power” both identify the active participation of women entrepreneurs - through online platforms and mahalla forums - as essential to political-ethical legitimization. This ensures a two-way flow of information: from state to citizen (disclosure) and from citizen to state (feedback).

The necessity of multidimensional inequality analysis. Aggregate measures like the Gini coefficient conceal subtle disparities between regions and social groups. Therefore, it is essential to create a multidimensional “dignity - justice” panel - incorporating income, infrastructure, digital access, education, and health - to accurately reflect interregional equity and citizen agency. Digital inclusion and techno-ethics. While digital transformation offers new opportunities, it also poses the risk of “digital inequality.” People-oriented criteria must therefore mandate the introduction of a digital inclusion index, expanding e-government obligations.

Overcoming institutional inertia and policy lag. To ensure that constitutionally enshrined axiological principles fully materialize in practice, additional mechanisms such as “dignity - compliance” screening, dignity audits, and micro-certification programs are required. These measures will reshape state institutions into true guardians of dignity.

Interregional resource distribution and regional solidarity. Updating the “fair-transfer” formula and establishing a Human Dignity Fund - Central Asia will strengthen cooperation across regions and states. These mechanisms will safeguard citizens’ dignity on a global scale amid

migration and socio-economic instability. In summary, these conclusions not only provide a theoretical foundation for women's entrepreneurship as a social-philosophical phenomenon but also outline the practical methodological tools needed for its implementation.

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FALSAFIY VA SOSIOLOGIK TADQIQOTLARDA MIGRATSIYA TUSHUNCHASINING ILMIY-NAZARIY TAHLILI

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Annotatsiya: Ushbu maqolada falsafiy va sotsiologik nuqtai nazardan migratsiya tushunchasi ilmiy-nazariy tahlil etiladi. Migratsiya, insonlarning bir joydan boshqa joyga ko'chishi jarayoni sifatida, turli ijtimoiy, iqtisodiy va madaniy omillar bilan bog'liq holda o'rganiladi. Tadqiqotda avvalo, migratsiyaning falsafiy asoslari, uning insoniyat tarixidagi o'rni va ahamiyati ko'rib chiqiladi. Keyinchalik, sotsiologik jihatdan migratsiyaning ijtimoiy tuzilmalarga, identitetga va madaniyatlararo munosabatlarga ta'siri tahlil etiladi.

Kalit so'zlar: sotsiologiya, global kapitalizm, markaz-periferiya, strukturalizm va tarixiy-struktur, bixevioristik (muomala) nazariyalar

НАУЧНО-ТЕОРЕТИЧЕСКИЙ АНАЛИЗ ПОНЯТИЯ МИГРАЦИИ В ФИЛОСОФСКИХ И СОЦИОЛОГИЧЕСКИХ ИССЛЕДОВАНИЯХ

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Аннотация: В данной статье будет проведен научно-теоретический анализ понятия миграции с философской и социологической точек зрения. Миграция как процесс перемещения людей из одного места в другое изучается в связи с различными социальными, экономическими и культурными факторами. В исследовании прежде всего рассматриваются философские основы миграции, ее место и значение в истории человечества. Затем социологически анализируется влияние миграции на социальные структуры, идентичность и межкультурные отношения.

Ключевые слова: социология, глобальный капитализм, центр-периферия, структурализм и историко-структурные, бихевиористские (поведенческие) теории

SCIENTIFIC AND THEORETICAL ANALYSIS OF THE CONCEPT OF MIGRATION IN PHILOSOPHICAL AND SOCIOLOGICAL RESEARCH

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Abstract: This article will provide a scientific and theoretical analysis of the concept of migration from a philosophical and sociological point of view. Migration as a process of people moving from one place to another is studied in connection with various social, economic and cultural factors. The study primarily examines the philosophical foundations of migration, its place and significance in the history of mankind. Then, the impact of migration on social structures, identity, and intercultural relations is sociologically analyzed.

Keywords: sociology, global capitalism, center-periphery, structuralism and historical-structural, behavioral (behavioral) theories

KIRISH

Migratsiya tushunchasi o'zining ijtimoiy-falsafiy mohiyatiga ko'ra inson va jamiyat munosabatlarini ifodalaydigan fundamental kategoriyalardan biri hisoblanadi. Falsafa va sotsiologiya fanlarida bu tushunchaga turli yondashuvlar mavjud bo'lib, ularning har biri migratsiya hodisasining muayyan jihatlarini ochib berishga harakat qiladi.

Migratsiya - insoniyat tarixi davomida doimiy tarzda kuzatilib kelinayotgan keng qamrovli ijtimoiy hodisadir. U odatda insonlarning o'z doimiy yashash joyini tark etib, boshqa hududlarga vaqtincha yoki doimiy ko'chib o'tishini anglatadi. "Migratsiya" atamasi lotincha *migratio* (ko'chish, bir joydan boshqa joyga ko'chib yurish) so'zidan kelib chiqqan bo'lib, fanlararo muhitda turlicha talqin etiladi [1. b. 420]. Jumladan, Xalqaro migratsiya tashkiloti (IOM) migrant tushunchasiga shunday ta'rif beradi: "shaxs o'zining odatiy yashash joyidan boshqa joyga (xususan, davlat ichida yoki davlatlar o'rtasida) harakatlansa, u migrant hisoblanadi" [2. b. 298]. Ushbu tushuncha doirasida ichki va tashqi (xalqaro) migratsiya, ixtiyoriy va majburiy migratsiya, doimiy va mavsumiy migratsiya kabi turli ko'rinishlar ajratiladi.

Migratsiyani o'rganishning nazariy asoslari turli fanlarga tayanadi. Sotsiologiya, demografiya, iqtisod va antropologiya, ijtimoiy falsafa kabi sohalar migratsiya jarayonlarini o'ziga xos usul va nazariyalar orqali tahlil qiladi. Ilmiy adabiyotlarda migratsiya nazariyalari xilma-xil bo'lib, ularni shartli ravishda fazovaviy, iqtisodiy, psixologik (huhudiy) va ijtimoiy nazariy yo'nalishlarga ajratish mumkin. Masalan, iqtisodiy nazariyalar migratsiyani mehnat bozoridagi talab va taklif farqlari (maoshlar farqlari) bilan bog'lasa, ijtimoiy nazariyalar esa oilaviy aloqalar, tarmoqlar va madaniy omillarni ta'kidlaydi [3. b. 298]. Shu bilan birga, "itarilish-tortilishi" modeli kabi tushunchalar migratsiyaning turtki va to'siqlarini tavsiflaydi, tarixiy-struktur yondoshuvlar esa global kapitalizm va markaz-periferiya munosabatlari migratsiyaga ta'sir qilishini ta'kidlaydi [4. b. 47-57]. Migratsiyaning ko'p qirraliligi shuni ko'rsatadiki, uni bitta nazariya yordamida to'liq tushuntirib bo'lmaydi - insonlarning ko'chishi iqtisodiy, ijtimoiy, madaniy va siyosiy omillar o'zaro ta'siri natijasida shakllanadi.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

Mazkur tadqiqot ishlarida migratsiya tushunchasi ijtimoiy-falsafiy nuqtai nazardan atroflicha yoritiladi. Avvalo, migratsiyaning ilmiy ta'rifi va nazariy asoslari keltirilib, ushbu fenomenning mazmuni ochib beriladi. So'ng, migratsiya tarixiga nazar tashlanib, ilmiy tadqiqotlarda uni o'rganish evolyusiyasi bayon etiladi. Shuningdek, migratsiyaga nisbatan turli **falsafiy yondoshuvlar** (ontologiya, antropologiya, etika, global falsafa va boshqalar) hamda **sotsiologik yondoshuvlar** (strukturalizm, funksionalizm, marksizm, postmodernizm va h.k.) tahlil etiladi. Migratsiyaning jamiyatga olib keladigan ta'sirlari, xususan, uning ijtimoiy oqibatlarini, madaniy o'zgarishlar va shaxsiy hamda jamoaviy identiklikka ta'siri ko'rib chiqiladi. Tadqiqot turli olimlarning qarashlari - xususan, Maks Veber, Emil Dyurkgeym, Entoni Giddens, Semyuel Xantington, Zigmunt Bauman, Islom Karimov va boshqalarning fikr-mulohazalari - bilan boyitilgan. Nihoyat, O'zbekiston va jahon kontekstida migratsiya jarayonlari misolida yuqoridagi nazariy nuqtai nazarlar asosida tahliliy xulosalar chiqariladi.

Migratsiya tushunchasi insonlarning geografik makondagi harakatiga doir keng qamrovli atamadir. Uni odatda insonning bir joydan boshqa joyga ko'chishi, o'zga hududda ma'lum muddat yoki doimiy yashashi deb tushunishadi. Migratsiya ikki asosiy ko'rinishga ega: **ichki migratsiya** - davlat ichidagi ko'chish (masalan, qishloqdan shaharga ko'chish), va **xalqaro migratsiya** - davlat chegaralarini kesib o'tish orqali amalga oshadigan ko'chish. Shuningdek, uning majburiy (masalan, qochqinlik yoki deportatsiya natijasida) va ixtiyoriy (masalan, ishlash yoki ta'lim olish

maqsadida) shakllari mavjud. IOMning ta'rifiga ko'ra, har qanday shaxs o'z odatiy yashash joyidan tashqariga harakatlansa - xoh mamlakat ichida, xoh xalqaro miqyosda - u migrant sifatida qaraladi [5. b. 184]. Demak, migratsiya tushunchasi anchayin keng bo'lib, doimiy yoki vaqtinchalik, qonuniy yoki norasmiy, mehnat migratsiyasi yoki ilm-ma'rifiy migratsiya kabi holatlarni o'z ichiga oladi.

Migratsiya nazariy asoslari juda boy va xilma-xildir. Ilk nazariy konsepsiyalardan boshlab olimlar migratsiyaga muayyan qonuniyatlar bo'yicha qaraydi. Masalan, ingliz olimi **E.G.Ravensteyn** 1885 va 1889-yillarda Buyuk Britaniya va bir qator Yevropa mamlakatlari ma'lumotlariga tayangan holda "migratsiya qonunlari"ni taklif etgan edi. U o'z ma'ruzalarida migratsiyaning yettita qonunini ilgari surdi va asosan iqtisodiy omillar ustuvorligini ta'kidladi [6.]. Ravensteynning bu ishlari vaqt sinovidan o'tib, zamonaviy migratsiya nazariyalariga poydevor bo'lib xizmat qildi - hozirgi kunda ham har qanday migratsiya nazariyasi shu ibtidoiy qonunlardan boshlanadi, deb hisoblanadi. Ravensteyndan so'ng, **Everett Li** tomonidan taklif etilgan "turtki va tortish" nazariyasi migratsiyaning push (itaradigan) va pul (tortadigan) omillarini ajratib berdi. Unga ko'ra, har qanday insonning ko'chish qarori manzilning o'zidagi omillar, boradigan joydagi jihatlari, yo'ldagi to'siqlar va shaxsiy xususiyatlariga bog'liq bo'ladi. Shu tariqa Li migratsiyani tushuntirishda ham iqtisodiy, ham ijtimoiy-psixologik omillarni qamrab oldi [7. b. 47-57].

NATIJA VA MUHOKAMA

Bugungi kunga kelib migratsiyani izohlovchi turli nazariy maktablar shakllangan. Jumladan, iqtisodchilar migratsiyaga **neoklassik nazariya** orqali yondoshib, insonlar daromadlarni maksimallashtirish uchun kambag'al hududlardan boy hududlarga ko'chadi, deb tushuntiradilar. "Yangi iqtisodiy nazariya" esa migratsiyani yakka shaxs emas, balki oilaviy farovonlikni oshirish strategiyasi sifatida ko'radi [8. b. 320]. **Strukturalizm va tarixiy-struktur** nazariyalar (neomarksist yo'nalish) migratsiyaning asl sabablarini global kapitalistik tizimdagi nomutanosibliklardan izlaydi - ya'ni markaz (rivojlangan davlatlar) va periferiya (qoloq davlatlar) o'rtasidagi iqtisodiy-siyosiy tarkibiy nisbatlarni migratsiyaning asosiy omili deb biluvchi yondashuvdir [9. b. 268]. Bu qarashga muvofiq, kapitalistik dunyo tizimi periferiyada ishsizlik va kambag'allikni keltirib chiqaradi, mehnat resurslarini "chuqur"dan "yuqori"ga tortadi, natijada migratsiya global iqtisodiy tizimni mustahkamlaydi va hatto nomutanosibliklarni qayta to'qaytirib boraveradi. **Bixevioristik (muomala) nazariyalar** esa shaxslarning migratsiya qarorini qabul qilish jarayoniga e'tibor qaratadi - masalan, migrantning shaxsiy intilishlari, irodasi va ma'lumotlanish darajasi qay darajada qarorga ta'sir qilishi o'rganiladi [10. b. 15-31]. **Ijtimoiy tarmoq nazariyasi** migrantlar o'rtasidagi oilaviy-tanish-bilish aloqalari migratsiyani yengillashtirishi va "muhojirlik tarmoqlari" vujudga keltirishini ta'kidlaydi [11. b. 30].

XULOSA

Tadqiq qilingan masala yuzasidan quydagi ilmiy-nazariy xulosalarni keltiramiz:

Shu o'rinda ta'kidlash kerakki, migratsiya - bularning barchasini qamrab oluvchi murakkab hodisa. Zamonaviy tadqiqotchilar yagona universal migratsiya nazariyasini yaratish qiyin, hatto imkoni yo'q deb hisoblashadi. Bunga migratsiyaning har xil joy va zamonlarda turfa ko'rinishlari olishi sababdir. Demak, migratsiya tushunchasini to'la anglash uchun turli nazariy yondashuvlarni yanada integrativ tarzda qo'llash talab etiladi - faqat iqtisodiy yoki faqat madaniy tushuntirishning o'zi kifoya qilmaydi. Shu sababli, keyingi bo'limlarda migratsiyani falsafiy hamda sotsiologik nuqtai nazardan har tomonlama tahlil qilishga o'tamiz.

Ushbu maqolada migratsiya tushunchasi falsafiy va sotsiologik nuqtai nazardan chuqur tahlil qilindi. Migratsiya jarayoni insoniyat tarixida muhim rol o'ynab kelgan bo'lib, u nafaqat iqtisodiy

va ijtimoiy omillar bilan, balki madaniy va falsafiy jihatlar bilan ham bog'liqdir. Falsafiy yondashuvlar orqali migratsiyaning inson erkinligi, identitet va o'z-o'zini anglashdagi ahamiyati ko'rsatildi.

Sotsiologik nuqtai nazardan esa, migratsiya jarayonining ijtimoiy tuzilmalarga, madaniyatlararo munosabatlarga va jamoatchilik fikriga ta'siri tahlil etildi. Zamonaviy globalizatsiya sharoitida migratsiya tendensiyalari o'zgarib borayotgani va bu jarayonning ijtimoiy siyosatga ta'siri muhim ahamiyatga ega ekanligi ta'kidlandi.

Shuningdek, migratsiya inson huquqlari va erkinliklari bilan bog'liq masalalarni ko'taradi, bu esa tadqiqotning dolzarbligini oshiradi. Umuman olganda, ushbu maqola migratsiya tushunchasini yanada chuqurroq tushunishga yordam beruvchi ilmiy-nazariy asoslarni taqdim etdi va kelajakdagi tadqiqotlar uchun yangi istiqbollarni ochdi.

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MIGRATSIYA: ONTALOGIK FALSAFIY NUQTAI NAZARDAN TAHLIL

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FarDU tadqiqotchisi

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Annotatsiya: Maqalada migratsiya jarayonining zamonaviy tendensiyalari, globalizatsiya sharoitidagi o'zgarishlar va migratsiya siyosatining ahamiyati muhokama qilinadi. Falsafiy va sotsiologik yondashuvlar yordamida, migratsiyaning ijtimoiy hayotdagi o'rni, inson huquqlari va erkinliklari bilan bog'liq masalalar ham o'rganiladi. Ushbu maqola natijalari, migratsiya jarayonini yanada chuqurroq tushunishga yordam beradi.

Kalit so'zlar: marginal inson, statistik modellashirish, *transnatsionalizm* konsepsiyasi, empirik-tahliliy nazariyalar

МИГРАЦИЯ: АНАЛИЗ С ОНТОЛОГИЧЕСКОЙ ФИЛОСОФСКОЙ ТОЧКИ ЗРЕНИЯ

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Аннотация: В статье рассматриваются современные тенденции миграционного процесса, изменения в условиях глобализации и значение миграционной политики. С помощью философского и социологического подходов исследуются также вопросы, связанные с ролью миграции в общественной жизни, правами и свободами человека. Результаты этой статьи помогут вам глубже понять процесс миграции.

Ключевые слова: понятие "маргинальный человек, статистическое моделирование, транснационализм", эмпирико-аналитические теории

MIGRATION: AN ANALYSIS FROM AN ONTOLOGICAL PHILOSOPHICAL POINT OF VIEW

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Abstract: The article examines current trends in the migration process, changes in the context of globalization and the importance of migration policy. Philosophical and sociological approaches are also used to explore issues related to the role of migration in public life, human rights and freedoms. The results of this article will help you gain a deeper understanding of the migration process.

Keywords: the concept of "marginal person, statistical modeling, transnationalism", empirical and analytical theories

KIRISH

Inson tarixida migratsiya doimiy jarayon bo'lgan. Ilk insoniyat namoyandalari Afrika qit'asidan butun dunyoga tarqalgani haqida ilmiy gipotezalar mavjud. Qadim zamonlarda xalqlarning ulug' ko'chishlari, etnik harakatlanishlar butun mintaqalarning etnik tarkibi va tarixiy taqdirini o'zgartirgan. Masalan, miloddan avvalgi va milodiy birinchi ming yilliklarda Yevropa va Osiyoda "Xalqlarning ulug' ko'chishi" sodir bo'lib, imperiyalar qulab, yangilari paydo bo'lgan. O'rta asrlarda savdo yo'llari orqali savdogar va hunarmandlarning migratsiyasi madaniy almashinuvga xizmat qilgan [1.]. Keyinchalik, *Buyuk geografik kashfiyotlar* davrida (XV-XVII asrlar) Yevropadan Amerika va boshqa qit'alarga ommaviy ko'chish va kolonizatsiya jarayonlari

ro'y berdi. XIX asrning ikkinchi yarmi - XX asr boshlarida industriallashuv tufayli Yevropa aholisining ommaviy emigratsiyasi kuzatildi: 1850-1914 yillar oralig'ida 30 milliondan ortiq yevropalik yangi hayot qidirib Amerika qit'alariga ko'chib o'tgani tarixiy manbalarda qayd etilgan. Shu bois bu davrni ba'zan "ommaviy migratsiya yoshi" deb atashadi [2. b. 467-506].

XX asrning birinchi yarmida jahon urushi va inqiloblar millionlab insonlarni o'z vatanlarini tark etib, qochqinlikda yashashga majbur qildi. Ikkinchi jahon urushi yakunida BMT huzurida Qochqinlar ishlari bo'yicha agentlik (UNHCR) tuzilib, qochqinlarga yordam bera boshladi. Shuningdek, dastlab Yevropada urushdan keyin ko'chirilgan aholini joylashtirish uchun 1951-yili Xalqaro migratsiya tashkiloti (IOM) tashkil etildi. Bu kabi sa'y-harakatlar migratsiya muammosining global ahamiyat kasb etganini ko'rsatadi.

MAQSAD

Inson mavjudligini o'rganish: Migratsiya jarayoni insonning mavjudligi va hayoti qanday o'zgarishini, shuningdek, bu jarayonning shaxsiy va ijtimoiy identitetga ta'sirini o'rganishga yordam beradi.

Identitet va o'zlikni aniqlash: Migratsiya orqali shaxslar o'z identitetlarini qanday shakllantirishini va yangi muhitda o'zliklarini qanday qayta ko'rib chiqishini tushunish. Bu, o'z navbatida, ijtimoiy aloqalar va madaniy integratsiya jarayonlarini o'rganishga imkon beradi.

Erkinlik va tanlov masalalari: Migratsiya ko'pincha erkinlik va tanlov bilan bog'liq. Ushbu tahlil orqali insonlar qanday sabablarga ko'ra migratsiya qilishlarini, shuningdek, bu jarayonda yuzaga keladigan majburiyatlar va cheklovlarni tushunish mumkin.

Ijtimoiy va madaniy ta'sirlarni baholash: Migratsiya jarayoni ijtimoiy tuzilmalarga, madaniy aloqalarga va iqtisodiy tizimlarga qanday ta'sir ko'rsatishini o'rganish. Bu, bir tomondan, ijtimoiy integratsiyani kuchaytirishi, boshqa tomondan esa madaniy to'qnashuvlarga olib kelishi mumkin.

Global kontekstda migratsiyani tushunish: Zamonaviy globalizatsiya sharoitida migratsiyaning ontologik tahlili global miqyosda shaxslarning harakatlari va ularning ijtimoiy-iqtisodiy sharoitlariga qanday ta'sir ko'rsatishini aniqlashga yordam beradi.

Inson huquqlari va adolat masalalari: Migratsiya jarayonida yuzaga keladigan inson huquqlari masalalarini o'rganish, shuningdek, migratsiya siyosatining adolatli va insonparvar bo'lishini ta'minlash uchun zarur bo'lgan asoslarni aniqlash.

Umuman olganda, migratsiyaning ontologik tahlili inson hayotining murakkabligini va ko'p qirrali jihatlarini yoritishga yordam beradi, bu esa ilmiy tadqiqotlar, siyosat ishlab chiqish va ijtimoiy xizmatlar uchun muhim ahamiyatga ega.

MATERIALLAR

Ilmiy tadqiqot nuqtai nazaridan qaralganda, migratsiyani o'rganish XIX asr oxirida boshlanganini yuqorida zikr etdik (Ravensteyn ishlari). XX asr boshlarida Chikago sotsiologik maktabi shaharlashuv va migratsiya masalalariga e'tibor qaratdi - masalan, **Robert Park** shahar muhitida "*marginal inson*" konsepsiyasini ilgari surib, muhojirlarning ikki madaniyat o'rtasidagi ahvolini tavsifladi. 1920-30 yillarda Amerikada yevropalik immigrantlarning assimilyatsiya jarayonlari o'rganilib, "*eritish degizi*" (melting pot) konsepsiyasi vujudga keldi [3. b. 320]. Ikkinchi jahon urushidan so'ng, mustamlakachilik tugashi va yangi davlatlar paydo bo'lishi bilan, yangi migratsion oqimlar shakllandi: sobiq mustamlaka davlatlarning fuqarolari Yevropaga kelib joylasha boshladilar, bu esa *etnik diasporalarning* paydo bo'lishiga olib keldi.

XIX asrning 60-yillarida migratsiya bo'yicha nazariy izlanishlarda jonlanish kuzatildi. Everett Lining "Migratsiya nazariyasi" maqolasi migratsiyani tubdan tushuntirishga qaratilgan

urinish edi [4. b. 41-51]. Keyingi o'nyilliklarda migratsiya iqtisodchi, demograf va sotsiologlar tomonidan turli jihatdan o'rganildi, 1970-yillarda **Jon Harris va Maykl Todaro** iqtisodiy migratsiya modelini (qishloqdan shaharga migratsiya bo'yicha) taklif qildi, [5. b. 126-142]. **Odefabio Stok** va boshqalar oilaning migratsiyadagi rolini yoritdi (NELM nazariyasi) [6. b. 63-88]. 1980-90 yillarga kelib, globallashuv ta'sirida migratsiyaning yangi ko'rinishlari haqida fikrlar paydo bo'ldi. Masalan, *"transnatsionalizm"* konsepsiyasi (Nina Glik Shiller) migrantlarning bir vaqtning o'zida ikki yoki undan ortiq jamiyat bilan bog'liqligini - ya'ni ular faoliyat yuritayotgan transmilliy ijtimoiy maydonlar mavjudligini ta'kidladi [7. b. 321].

USLUBLAR

Hozirgi kunda migratsiyaning ilmiy tadqiqi tubdan interfaol xarakterga ega - o'tmishga nisbatan ma'lumotlar bazasi va tahliliy usullar (masalan, statistik modellash, migrantlarni kuzatish) ancha rivojlangan. Bugun jahonda qancha kishi xalqaro migrant ekani aniq hisoblanmoqda. 2020-yil holatiga ko'ra, taxminan **281 million nafar** kishi - dunyoning 3,6% aholisi - o'z vatanida emas, balki boshqa davlatda yashayotgani qayd etilgan [8.]. Bu ko'rsatkich yil sayin ortib bormoqda, bu esa globallashgan dunyoda migratsiyaning ahamiyati oshib borayotganini bildiradi. Shu bilan birga, migratsiyani o'rganish samaradorligini oshirish maqsadida turli xalqaro tashkilotlar (BMT, IOM, Jahon Banki) va tadqiqot institutlari (masalan, Oksford migratsiya instituti) qat'iy izlanishlar olib borishmoqda. Migratsiyaning tarixiy rivoji shuni ko'rsatadiki, u har doim jamiyatlarni o'zgartirib kelgan va bu jarayonning ilmiy tushuntirmalari ham zamonga qarab takomillashib bormoqda.

Migratsiyani falsafiy nuqtai nazardan tahlil qilish deganda, uning ontologik (borliq tushunchasi doirasidagi), antropologik (inson tabiati va madaniyati nuqtai nazaridan), etik (axloqiy qadriyatlar va huquqlar doirasida) va global-falsafiy (umumjahon filosofik muhokamalar doirasidagi) jihatlarini o'rganish tushuniladi. Quyida shu yo'nalishlardagi ba'zi muhim qarashlar bayon etiladi. **Ontologiya** - borliq va mavjudlik tabiati haqidagi ta'limot - migratsiya fenomeniga nisbatan "insonning borlig'i makon va harakatga qay darajada bog'liq?" degan savolni o'rta qo'yadi. Ontologik nuqtai nazardan, insonning "uyda bo'lish" yoki "begona yurtida bo'lish" holati uning mohiyatiga ta'sir qiluvchi asosiy holatdir. Masalan, nemis faylasufi **Martin Haydegger** insonning dunyodagi holatini tavsiflar ekan, **"uysizlik - zamonaviy insoniyatning taqdiri"** deya ta'kidlagan edi. **M.Haydegger** "turar joy (uy) tuyg'usi"ni insonning asliy mavjudlik holati deb biladi, zamonaviy dunyoning global migratsiya jarayonlarini esa insonning o'z "uyidan judoligi" bilan bog'lab, bundan xavotir bildirgan [9. b. 503]. Ontologik nuqtai nazar migratsiyani insoniy mavjudlikning ajralmas qismi sifatida ko'radi, inson avvalo *"bu dunyodagi mavjudot"* bo'lgani uchun, uning borlig'i makon va zamon ichida kechadi, demak harakat va ko'chish unga xosdir.

Haydegger ta'limotiga ko'ra, borliqni tushunish doim ma'lum bir dunyodagi tajriba orqali shakllanadi, shu bois tushunchalarni universal va abstrakt tarzda to'liq ta'riflab bo'lmaydi - ular doimo kontekstga bog'liq holda anglanadi. Shu ma'noda migratsiya tajribasi insonning o'zini va "boshqalar"ni anglashida yangi ufqlar ochadi. Bir joydan boshqa joyga ko'chib borgan inson o'z mavjudligiga boshqacha nigoh bilan qaray boshlaydi, chunki u o'zga muhitdagi *"boshqa borliq"* bilan to'qnash keladi. Falsafiy ontologiya nuqtai nazaridan, migratsiya - bu faqat geografik jarayon emas, balki insonning *"o'zligini qidirishi"* va borliqni qaytadan ma'nodosh etib ko'rishi jarayonidir. Masalan, muhojir o'zini yangi jamiyat kontekstida qayta identifikatsiya qiladi, bunda u oldingi hayotidagi ba'zi tavsiflarini yo'qotishi yoki qayta bag'alovishi mumkin. Shu tariqa, migratsiya inson borlig'ining dinamikmi va o'zgaruvchanligini ongli ravishda his qilishga olib keladi.

ILMIY ISHNING NATIJASI

Ontologik yondashuv migratsiya tahlilida shuni ta'kidlaydiki, har qanday ijtimoiy nazariya migrantning mavjudlik holatidagi chuqur o'zgarishlarni ham inobatga olishi lozim. Ko'pgina empirik-tahliliy nazariyalar migrantlarning qonuniy, iqtisodiy yoki ijtimoiy muammolariga urg'u beradi, biroq ontologik nuqtai nazar ular ortidagi "insonning holati"ga e'tibor qaratiladi. Migratsiya odamlar hayotining ma'no-mazmuniga ta'sir etuvchi holat ekani onglash uchun, avvalo, bizning "o'z borlig'imiz" haqidagi tushunchamiz qay darajada harakatchan ekanini tan olish kerak. Insonning o'zini anglashi (Haydegger ta'biri bilan aytganda, **Jemeinigkeit - "meningligim"**) boshqalarni anglashini ham taqozo etadi, demak birontasining borlig'iga doir tushuncha o'zgarar ekan, boshqalarnikini tushunishga nisbatan ochiqlik ham paydo bo'ladi. Migratsiya ana shunday ontologik ochiqlikni, o'zga borliqqa duch kelish orqali o'z borlig'ining yangi qirralarini kashf qilishni anglatadi.

XULOSALAR

Migratsiya tushunchasining ontologik tahlili insonning mavjudligi, identiteti va erkinligi bilan bog'liq chuqur falsafiy savollarni ko'taradi. Ushbu tahlil orqali migratsiyaning ontologik jihatlari quyidagi asosiy xulosalar bilan ifodalanishi mumkin:

Inson mavjudligining dinamikasi: Migratsiya jarayoni insonning mavjudligini yangi kontekstlarda qayta shakllantiradi. Bu jarayon orqali shaxslar o'zlarini yangi ijtimoiy, madaniy va iqtisodiy muhitlarda topishadi, bu esa ularning identiteti va o'z-o'zini anglashini o'zgartiradi.

Identitet va o'zlik: Migratsiya shaxsning identitetini shakllantirishda muhim rol o'ynaydi. O'z vatanidan ajralish va yangi joyda yashash shaxsning o'zligini qayta ko'rib chiqishga olib keladi. Bu jarayonda shaxslar o'zlarining madaniy meroslari va yangi muhitdagi talablari o'rtasida muvozanatni topishga harakat qiladilar.

Erkinlik va tanlov: Migratsiya ko'pincha erkinlik va tanlov masalalari bilan bog'liq. Insonlar yaxshiroq hayot sharoitlari, ta'lim yoki ish imkoniyatlari izlab migratsiya qilishadi. Biroq, bu jarayon ba'zan majburiy holatlarda, masalan, urush yoki iqtisodiy inqiroz natijasida amalga oshiriladi, bu esa erkinlik tushunchasini murakkablashtiradi.

Ijtimoiy aloqalar va hamjihatlik: Migratsiya jarayoni yangi ijtimoiy aloqalarni yaratadi va mavjud ijtimoiy tuzilmalarni o'zgartiradi. Bu, bir tomondan, jamiyatlararo aloqalarni kuchaytirsa, boshqa tomondan, madaniy to'qnashuvlar va ijtimoiy nizolarni keltirib chiqarishi mumkin.

Globalizatsiya va identitet: Zamonaviy globalizatsiya sharoitida migratsiya jarayonlari yanada murakkablashmoqda. Shaxslar bir vaqtning o'zida bir nechta madaniyatlar va identitetiyalar bilan muloqotda bo'lishadi, bu esa ularning o'zligini shakllantirishda yangi imkoniyatlar va qiyinchiliklarni keltirib chiqaradi.

Umuman olganda, migratsiya tushunchasining ontologik tahlili inson hayotining ko'p qirrali jihatlari yoritadi va bu jarayonni tushunishda yangi perspektivalarni ochib beradi. Bu tahlil nafaqat ilmiy, balki amaliy jihatdan ham muhim ahamiyatga ega, chunki u migratsiyaning ijtimoiy siyosatdagi rolini va uning inson huquqlari bilan bog'liq masalalarini yanada chuqurroq tushunishga yordam beradi.

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FALSAFIY ANTROPOLOGIYA VA MADANIY ANTROPOLOGIYA DOIRASIDA MIGRATSIYA

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FarDU tadqiqotchisi

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Annotatsiya: Bugungi kunda globalizatsiya sharoitida migratsiya jarayoni yanada kuchayib bormoqda, bu esa yangi ijtimoiy muammolar va madaniy to'qnashuvlarga olib kelmoqda. Shuning uchun, falsafiy va madaniy antropologiya nuqtai nazaridan migratsiyani o'rganish, insonlar va ularning jamiyatlari o'rtasidagi murakkab munosabatlarni tushunishga yordam beradi. Ushbu maqolada, biz migratsiyaning falsafiy va madaniy antropologiya kontekstida qanday ko'rinishda namoyon bo'lishini, shuningdek, bu jarayonning ijtimoiy identitet, madaniy integratsiya va inson huquqlari bilan bog'liq jihatlarini tahlil qilamiz.

Kalit so'zlar: falsafiy antropologiya, populyasiyalar, ko'p madaniyatli identiklik, madaniy antropologiya.

МИГРАЦИЯ В РАМКАХ ФИЛОСОФСКОЙ АНТРОПОЛОГИИ И КУЛЬТУРНОЙ АНТРОПОЛОГИИ

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Аннотация: Сегодня в условиях глобализации миграционный процесс становится все более интенсивным, что приводит к новым социальным проблемам и культурным конфликтам. Следовательно, изучение миграции с точки зрения философской и культурной антропологии помогает понять сложные отношения между людьми и их обществами. В этой статье мы проанализируем, как миграция проявляется в контексте философской и культурной антропологии, а также аспекты этого процесса, связанные с социальной идентичностью, культурной интеграцией и правами человека.

Ключевые слова: философская антропология, население, мультикультурная идентичность, культурная антропология.

MIGRATION IN THE FRAMEWORK OF PHILOSOPHICAL ANTHROPOLOGY AND CULTURAL ANTHROPOLOGY

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Abstract: Today, in the context of globalization, the migration process is becoming more intense, which leads to new social problems and cultural conflicts. Consequently, studying migration from the perspective of philosophical and cultural anthropology helps to understand the complex relationships between people and their societies. In this article, we will analyze how migration manifests itself in the context of philosophical and cultural anthropology, as well as aspects of this process related to social identity, cultural integration, and human rights.

Keywords: philosophical anthropology, population, multicultural identity, cultural anthropology.

KIRISH

Migratsiya jarayoni insoniyat tarixining eng muhim va murakkab fenomenlaridan biri hisoblanadi. U nafaqat geografik harakatni, balki ijtimoiy, madaniy va iqtisodiy o'zgarishlarni ham

o'z ichiga oladi. Falsafiy antropologiya va madaniy antropologiya doirasida migratsiya masalasi insonning mavjudligi, identiteti va ijtimoiy aloqalarini chuqur tahlil qilish imkonini beradi. Falsafiy antropologiya, insonning mohiyati va uning jamiyatdagi o'rni haqida savollarni o'rganish orqali migratsiyaning ontologik jihatlarini yoritadi. Boshqa tomondan, madaniy antropologiya migratsiya jarayonida madaniyatlararo aloqalar, o'zaro ta'sirlar va integratsiya jarayonlarini o'rganadi. Falsafiy antropologiya va madaniy antropologiya doirasida migratsiya inson tabiati va madaniyati bilan bog'liq ravishda o'rganiladi. Antropologik yondashuvning asosiy savoli, "Inson nima uchun ko'chadi va bu uning turmush tarzi va madaniyatiga qanday ta'sir qiladi?"dir [1. 41-68]. Inson zoti tarixan ko'chmanchi hayot tarzidan boshlab, keyincha o'troq sivilizatsiyalar barpo etgan. Shu ma'noda, migratsiya - insoniyat tabiatiga xos qadimiy hodisa. Arxeologik va genetik dalillar insonning ilk populyasiyalari juda uzoq masofalarni bosib o'tib, turli qit'alarga tarqalganini ko'rsatadi. Demak, inson fitratida harakatchanlik va yangi muhitlarga moslashuvchanlik bor. Falsafiy antropologiyada bu jihat insonni hayvonlardan farqlatuvchi qobiliyatlardan biri sifatida ko'riladi - inson atrof-muhitini faol ravishda o'zgartiradi va o'zgarib turadi, zarurat tug'lsa, jismoniy makonini ham almashtiradi.

Madaniy antropologiya nuqtai nazaridan, migratsiya madaniyatlar o'rtasidagi aloqalarni ta'minlab kelgan mexanizmdir. Insonlarning ko'chishi orqali turli madaniy qadriyatlar, an'analar va bilimlar tarqalgan va bir-biriga singishgan. Masalan, Marko Polo yoki Ibn Batuta kabi sayyohlar sayohatlari orqali Sharq va G'arb o'rtasidagi madaniy aloqalarni kuchaytirgan; savdo karvonlari va hijratlar natijasida turli dinlar, tillar va urf-odatlar bir joydan ikkinchisiga o'tgan [2.]. Antropologlar migratsiyani jamiyatning "madaniy dinamikasi"ning bir bo'lagi sifatida o'rganib, uning natijasida paydo bo'ladigan gibrid madaniyatlar, diaspora hamjamiatlari va madaniy identifikatsiya jarayonlarini tahlil qiladi.

Migratsiyaning antropologik tahlili insonning oilaviy va qavm-qarindoshlik munosabatlariga ham e'tibor qaratadi. Ko'chish jarayonida oila tuzilmalariga o'zgarish kirishi mumkin - masalan, mehnat muhojirligidan kelib chiqadigan "*tanglikda qolgan oila*" fenomeni (ota yoki ona muhojirda bo'lib, bolalar vatanda qarindoshlari tarbiyasida qolishi) kuzatiladi [3. b. 145.]. Bunday holatlarda an'anaviy oilaviy rollar qayta taqsimlanadi va antropologik nuqtai nazardan bu yangi ijtimoiy tajribalar qanday yangi urf-odat va qadriyatlar paydo qilishi qiziqdir. Shuningdek, migratsiya etnik guruhlar tarkibi va ularning madaniy o'zligini saqlash yoki o'zlashtirish masalalarini keltirib chiqaradi. Masalan, diasporadagi etnik guruh o'z vatani madaniyatini saqlashga intilgani holda, ayni paytda mezbon jamiyat madaniyati elementlarini ham o'ziga singdiradi - natijada "*ko'p madaniyatli identiklik*" shakllanadi.

Antropologik yondashuv shuni ko'rsatadiki, migratsiya - nafaqat iqtisodiy yoki siyosiy zarurat, balki insonning yangi tajriba orqali o'z dunyoqarashini boyitish usuli hamdir. Ba'zi antropologik tadqiqotlarda qayd etilishicha, turli xalqlarning afsona va rivoyatlarida migratsiya (vatanni tark etish va yangi yurt topish) haqidagi syujetlar uchraydi. Bu, migratsiya qadimdan insoniyatning kollektiv xotirasida muhim o'rin tutgan mavzudir, degan xulosaga olib keladi. Masalan, diniy manbalardagi Ibrohim payg'ambarning hijrati, yunonlar mifologiyasidagi Odisseyning sayohati, o'zbek xalq dostoni "Alpomish"da Qalmiq yurtiga safari kabi syujetlar - barchasi bir mavzuning turli talqinidir [4. b. 464.]. Binobarin, inson tabiati va madaniyati doirasida migratsiya doimo ma'no qidiruv, sinov va o'zgarish ramzi bo'lib kelgan.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

Aхлоqiy yondashuv migratsiya bilan bog'liq axloqiy masalalar va qadriyatlar muhokamasiga qaratilgan. Bu yerda asosiy masala – migratsiya jarayonida kimning qanday huquq

va majburiyatlari borligi, davlatlar va jamiyatlar migrantlarga nisbatan qanday axloqiy mas'uliyatlarga ega ekani masalasidir. Zamonaviy dunyoda inson huquqlari konsepsiyasiga muvofiq, har bir insonning erkin harakatlanish huquqi tan olingan (masalan, BMT Inson huquqlari umumjahon deklaratsiyasining 13-moddasi bunga ishora qiladi) [5.]. Lekin amalda davlat chegaralari bu huquqni cheklaydi - insonning istagan mamlakatiga borib yashash huquqi suveren davlat qonunlari bilan tartibga solinadi. Falsafiy etika shu mojaroli vaziyatni turlicha talqin qiladi: bir tarafdin, *kosmopolitik (jahonfuqaro) yondashuv*ga ko'ra, barcha odamlar teng huquqlarga ega va chegaralar inson erkinligiga sun'iy tosiq, shuning uchun migratsiyaga maksimal erkinlik berish adolat talabi, deb hisoblanadi. Masalan, siyosatshunos - faylosof Jozef Karens "*ochiq chegaralar*" g'oyasini ilgari surib, insonlarning harakat erkinligini adolat tamoyillaridan biri sifatida himoya qilgan (uning fikricha, tasavvur qiling, agar ichki davlatlar ichida harakatlanish taqiqlanganida, biz buni adolatsizlik deb baholar edik, xuddi shu kabi xalqaro miqyosdagi qattiq migratsiya cheklovlari ham insoniyatning erkinligiga zid). [6.b. 386].

Boshqa tarafdin, *kommunitar yondoshuv* yoki *millatparvaronlik* migratsiya masalasida jamoaviy qadriyat va manfaatlarining ustunligini ta'kidlaydi. Bu qarashga ko'ra, davlat o'z fuqarolari oldida axloqiy majburiyatlarga ega va shu bois u o'z chegaralarini nazorat qilishga haqli - bu orqali jamiyatning birdamligi va barqarorligini saqlaydi. Masalan, faylasuf **Maykl Uolzer** millat jamiyatini "qabul qilish klubi"ga qiyoslab, har bir klub o'z a'zolarini nazorat qilish vakolatiga egaligini aytgan [7.b. 431-468].

Kommunitar qarashlar shuni ko'rsatadiki, agar muhojirlar juda ko'p kelib qolsa yoki ular mutlaqo boshqa qadriyatlarni olib kelsa, mezbon jamiyatning ijtimoiy tuzumi va birdamligi buzilishi mumkin; shuning uchun ba'zi cheklovlar axloqiy jihatdan oqlanadi. **Samyuel Xantington** kabi mutafakkirlar AQSH misolida shuni ta'kidlagan edi: yurtga immigrantlar kelishi muammo emas, asosiy muammo - ularni *assimilyatsiya qilish*, ya'ni milliy identiklikka singdira olishdir; agar bu amalga oshmasa, millat ichida tashqaridan kelgan yangi madaniy guruhlar uyg'unlasha olmay, jamiyat birligini xatarga qo'yishi mumkin. Xantingtonning fikricha, katta immigratsiya oqimi davom etar ekan, qabul qiluvchi jamiyatning burchi - ularni o'z madaniy o'ziga xosliklarini saqlagan holda umummilliy qadriyatlarga hurmat ruhida tarbiyalashdir (u buni AQSHda lotin amerikalik muhojirlar misolida yoritgan).

NATIJA VA MUHOKAMA

Migratsiya jarayoni, falsafiy antropologiya va madaniy antropologiya nuqtai nazaridan, insoniyat tarixining muhim jihatini tashkil etadi. Ushbu maqolada ko'rib chiqilgan tahlillar va misollar orqali, migratsiyaning ijtimoiy, madaniy va falsafiy jihatlari o'zaro bog'liqligi va murakkabligini ko'rsatdi. Falsafiy antropologiya: falsafiy antropologiya nuqtai nazaridan, migratsiya insonning mohiyati va uning mavjudligi bilan bog'liq chuqur savollarni keltirib chiqaradi. Migratsiya jarayoni, insonning o'zligini qayta shakllantirish, yangi identitetlarni izlash va mavjud ijtimoiy tuzilmalarga qarshi turish imkoniyatini yaratadi. Bu jarayon, shuningdek, insonning erkinligi, tanlov va mas'uliyat kabi falsafiy tushunchalarni ham o'z ichiga oladi.

Madaniy antropologiya: madaniy antropologiya esa migratsiya jarayonida madaniyatlararo aloqalar va integratsiya jarayonlarini o'rganadi. Migrantlar yangi muhitga kirishganda, ular o'z madaniyatlarini saqlab qolish, yangi madaniyatlar bilan integratsiyalashish va madaniy to'qnashuvlarga duch kelishadi. Bu jarayonlar ijtimoiy munosabatlarning murakkabligini oshiradi va yangi madaniy identitetlarning shakllanishiga olib keladi.

Ijtimoiy identitet va huquqlar: migratsiya ijtimoiy identitet va inson huquqlari masalalarini ham o'z ichiga oladi. Migrantlar ko'pincha diskriminatsiya, marginalizatsiya va ijtimoiy

izolyatsiya kabi muammolarga duch keladilar. Shu bilan birga, migratsiya jarayoni yangi imkoniyatlar va resurslarga kirish imkonini beradi, bu esa ijtimoiy adolat va tenglikni ta'minlashda muhim rol o'ynaydi.

XULOSA

Migratsiyaning falsafiy va madaniy jihatlarini bir-birini to'ldiradi va ularning o'zaro ta'siri ijtimoiy hayotning turli jabhalarida sezilarli ta'sir ko'rsatadi. Falsafiy antropologiyaning yondashuvi migratsiyaning ontologik jihatlarini ochib beradi, bu esa insonlarning yangi sharoitlarda qanday yashashini tushunishga yordam beradi. Boshqa tomondan, madaniy antropologiya migratsiyaning ijtimoiy kontekstini, madaniy integratsiyani va mintaqaviy identitetlarni o'rganadi.

Shu bilan birga, globalizatsiya jarayonida migratsiyaning ta'siri yanada kuchaymoqda. Buning natijasida, turli madaniyatlar o'rtasidagi aloqalar kuchaymoqda, lekin bu jarayon ba'zan ijtimoiy to'qnashuvlarga olib kelishi mumkin. Shuning uchun, migratsiyani o'rganishda ijtimoiy adolat, huquqlar va madaniy farqliliklarni inobatga olish zarur.

Kelajakda migratsiya jarayonini o'rganishda yangi metodologiyalarni qo'llash va transdistsiplinar yondashuvlarni rivojlantirish muhim ahamiyatga ega bo'ladi. Bu esa, nafaqat ilmiy tadqiqotlar uchun, balki siyosat ishlab chiqish jarayonida ham foydali bo'ladi. Migrantlar huquqlarini himoya qilish, madaniy integratsiyani qo'llab-quvvatlash va ijtimoiy adolatni ta'minlash uchun ko'proq e'tibor berilishi kerak.

Umuman olganda, falsafiy antropologiya va madaniy antropologiya doirasida migratsiyani o'rganish, insoniyatning kelajagi uchun muhim ahamiyatga ega bo'lgan masalalarni ochib beradi. Bu jarayonlarni chuqurroq tushunish orqali, biz ijtimoiy barqarorlikni ta'minlash va madaniy farqlilikni qadrlash yo'lida yangi yechimlar topishimiz mumkin.

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**ZAMONAVIY BOZOR MUNOSABATLARI TRANSFORMATSIYASI HAMDA
KASB-HUNAR VA O'RTA MAXSUS TA'LIM TIZIMIDA INTEGRATSIYA
JARAYONINING AMALIY MUAMMOLARI**

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Annotatsiya: Maqolada bozor munosabatlari transformatsiyasi jarayonida kasb-hunar va o'rta maxsus ta'lim tizimidagi integratsiya masalasi ijtimoiy-falsafiy nuqtai nazardan tahlil qilinadi. Integratsiya jarayonining mohiyati, uning inson kapitali shakllanishidagi o'rni, muammolari va yechimlari falsafa, sotsiologiya va ta'lim nazariyasi nuqtai nazaridan o'rganiladi.

Kalit so'zlar: bozor munosabatlari, ta'lim tizimi, integratsiya, inson kapitali, falsafa, kasbiy ta'lim, transformatsiya.

**ТРАНСФОРМАЦИЯ СОВРЕМЕННЫХ РЫНОЧНЫХ ОТНОШЕНИЙ И
ПРАКТИЧЕСКИЕ ПРОБЛЕМЫ ИНТЕГРАЦИИ В СИСТЕМЕ
ПРОФЕССИОНАЛЬНОГО И СРЕДНЕГО СПЕЦИАЛЬНОГО ОБРАЗОВАНИЯ**

Аннотация: В данной статье с социо-философской точки зрения анализируется вопрос интеграции в системе профессионального и среднего специального образования в условиях трансформации рыночных отношений. Изучаются сущность интеграционного процесса, его роль в формировании человеческого капитала, а также проблемы и пути их решения с позиций философии, социологии и теории образования.

Ключевые слова: рыночные отношения, система образования, интеграция, человеческий капитал, философия, профессиональное образование, трансформация.

**TRANSFORMATION OF MODERN MARKET RELATIONS AND PRACTICAL
PROBLEMS OF INTEGRATION IN THE SYSTEM OF VOCATIONAL AND
SECONDARY SPECIALIZED EDUCATION**

Abstract: This article analyzes the issue of integration in the vocational and secondary specialized education system during the transformation of market relations from a socio-philosophical perspective. The essence of the integration process, its role in the formation of human capital, as well as its problems and solutions, are studied from the viewpoints of philosophy, sociology, and educational theory.

Keywords: market relations, education system, integration, human capital, philosophy, vocational education, transformation.

KIRISH

Hozirgi global dunyoda bozor munosabatlari raqobat, innovatsiya, raqamlashuv va mehnat bozoridagi tez o'zgarishlar bilan xarakterlanadi. Bu vaziyatda kasb-hunar va o'rta maxsus ta'lim tizimi ham yangi sharoitlarga moslashishi, ya'ni ta'lim mazmuni, shakli va funktsiyalarini qayta ko'rib chiqishi talab etilmoqda. Mashhur olim Zigmund Bauman zamonaviy jamiyatdagi tezkor o'zgarishlar va ularning inson hayotiga ta'siri haqida yozadi. Uning fikricha, zamonaviylik "suyuq" holatga kelgan, ya'ni barqarorlik yo'qolgan va bu ta'lim tizimiga ham ta'sir qilmoqda.

“Ta’lim instituti raqamli iqtisodiyot va global mehnat bozori talablariga moslashmasa, u ijtimoiy inertsiyaga aylanib qoladi”[1,206].

Kasbiy ta’lim integratsiyasining amaliy muammolari ko‘p qatlamli va tizimli xarakterga ega ekanligi. Har qanday integratsiya - bu faqat tashkiliy jarayon emas. Yangilanayotgan O‘zbekistonda integratsiya jarayonida quyidagi muammolar dolzarbligini saqlab turibdi: ta’lim dasturlarining tarkibiy uzviyligi yetarli emas; kadrlar malakasi va o‘qituvchilarning metodik tayyorgarligi past; ish beruvchilar va ta’lim muassasalari o‘rtasida ijtimoiy sheriklik instituti sust; integratsiya jarayonida **qadriyat va axloqiy standartlar** inkor etiladi.

Shu jihatdan, **nafaqat tashkilotchilik, balki inson markazida bo‘lgan ijtimoiy-falsafiy yondashuv** talab qiladi.

Ta’limning ma’naviy, axloqiy va falsafiy funksiyalari integratsiya jarayonida e’tibor markazida bo‘lishi lozim. Integratsiya jarayonida e’tibor ko‘proq texnik, moliyaviy va me’yoriy jihatlarga qaratiladi. Ammo **inson shaxsining kamoloti**, uning axloqiy pozitsiyasi va fuqarolik mas’uliyati ta’limning markaziy vazifasidir. Ma’lumotga ko‘ra, Djon Devyu ta’limni demokratik jamiyatning asosiy instituti sifatida ko‘radi, u ta’limni faqat bilim berish vositasi emas, balki shaxsni kamol toptirish va jamiyatni rivojlantirish vositasi sifatida ta’riflaydi. “Ta’lim hayotga tayyorgarlik yemas; ta’lim hayotning o‘zi”[2,400]. Shu sababli, integratsiya jarayonida axloqiy standartlar, ma’naviy qadriyatlar va jamiyat bilan uyg‘un munosabatlar falsafiy tahlil talab qiladi.

Falsafa integratsiyani inson kapitalini tarkibiy jarayon sifatida talqin qiladi. G.Bekker inson kapitalini iqtisodiy tushuncha sifatida asoslagan bo‘lsa, A.Sen va J.Rolzar buni **ijtimoiy imkoniyatlar bilan bog‘liq etik tushuncha** deb qaraydilar. Shunday ekan, integratsiya - bu insonning iqtisodiy samarasi emas, balki uning **kompetentsiya, axloq, va shaxsiy yetukligi** bilan bog‘liq jarayondir. Djon Roulz tomonidan adolat va tenglik kontseptsiyalarini muhokama qiladi. Uning fikricha, ta’lim jamiyatdagi tenglikni ta’minlashda muhim rol o‘ynaydi, chunki u imkoniyatlar tengligini yaratadi: “Adolatli jamiyat - faqat qonunlar emas, imkoniyatlar tengligiga asoslangan jamiyatdir”[3,794].

Integratsiya jarayoni milliy falsafiy tafakkur bilan uyg‘unlashtirilishi lozim. O‘zbekistondagi kasb-hunar ta’limi milliy anhanalar, urf-odatlar, mehnat madaniyati, vatanparvarlik va ijtimoiy burch tushunchalari bilan uzviy bog‘liq holda shakllangan. Integratsiya faqat islohot emas - bu milliy o‘zlikni saqlagan holda **zamonaviy rivojlanishga o‘tish** jarayonidir. Abdurauf Fitratning asarlarida kasbning inson shaxsiyati va jamiyatdagi o‘rni haqidagi fikrlari muhim o‘rin tutadi. Uning “Buxoroda islohot loyihasi” asarida kasbning inson hayotidagi ahamiyati va jamiyat taraqqiyotidagi roli haqida quyidagicha ta’kidlangan: “Kasb insonni nafaqat ovqatlantiradi, balki uning kimligini belgilaydi”[4,165]. Bu iqtibosda Fitrat kasbning inson shaxsiyati va jamiyatdagi maqomiga ta’sirini ta’kidlagan. Uning fikricha, kasb insonning faqat moddiy ehtiyojlarini qondiribgina qolmay, balki uning shaxsiy rivojlanishi va jamiyatdagi maqomini ham belgilaydi. Mazkur paragrafda tadqiq etiladigan masala - ta’limni bozor iqtisodiyoti sharoitida qanday qilib **insonparvar, ma’naviy barqaror, intellektual hamda raqobatbardosh tizim sifatida qayta shakllantirish** mumkinligiga doir falsafiy va amaliy muammolarni ochib berishdir.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

Kasb-hunar va o‘rta maxsus ta’lim tizimidagi integratsiya jarayonida **yuzaga keladigon muammolarni** batafsilroq ochib berishga harakat qilamiz. Bu muammolar ta’lim tizimining samaradorligiga salbiy ta’sir ko‘rsatadi va ularni hal etish uchun ilmiy asoslangan yondashuvlar talab etiladi.

Kasb-hunar va o'rta maxsus ta'lim tizimlari o'rtasidagi integratsiya jarayonida yagona kontseptsianing mavjud emasligi, ta'lim mazmuni va maqsadlarining nomutanosibligiga olib keladi. Bu esa, ta'lim muassasalari o'rtasidagi hamkorlikni qiyinlashtiradi va talabalarning bilim olish jarayonidagi uzviylikni buzadi. "Kasbiy ta'lim tizimidagi integratsiya jarayonlari aniq kontseptual asoslarga ega bo'lmasligi, uning samaradorligini pasaytiradi"[5,15]. **Integratsiyaning yagona kontseptsiasining yo'qligi** - bu ta'lim tizimida kasb-hunar va o'rta maxsus ta'lim o'rtasidagi uzviy bog'liqlikni nazariy, metodologik va huquqiy jihatdan aniq belgilovchi umummilliy yoki sohaviy hujjat, strategiya yoki maqsadlar majmuasining yetishmasligini anglatadi. Ya'ni: Integratsiya nimani anglatadi? U qaysi bosqichlarda, qanday mexanizmlar orqali amalga oshiriladi? Ta'lim natijasi sifatida qanday kadr yetishtiriladi? Axloqiy, falsafiy va ijtimoiy tamoyillari qanday? Bu kabi savollarga yagona davlat siyosati darajasida javoblar mavjud emas, bu esa tizimli yondashuvni zaiflashtiradi. Integratsiya jarayonlari bevosita fanlararo, institutsional va madaniy yangilanishga bog'liq. Lekin, aniq maqsad va mezonlarsiz integratsiya - bu ma'lumotlar qo'shilishi, lekin bilim uyg'unligi emas. O'zbek ta'lim tizimida integratsiya tushunchasi ko'proq tashkiliy maqsadlarda tilga olinadi, biroq uning falsafiy va ijtimoiy mezonlari ochiq emas.

Edgar Moren ta'kidlaganidek, integratsiya - bu Ma'lumotlarni qo'shish emas, **ma'noni uyg'unlashtirish**. Agar integratsiyaning kontseptual asosi bo'lmasa, ta'limning maqsadi turlicha talqin qilinadi, bu esa **tafakkur parchalanishi, qadriyatlar tarqoqligi, va inson kamolotining noto'liq shakllanishiga** olib keladi. "Umumiy falsafiy mezonlarsiz ta'lim ma'lumot tarqatadi, lekin shaxs tarbiyalamaydi"[6,85]. Yuqoridagi fikrlarga tayanib, quydagi techimlarni ta'min qilamiz: davlat darajasida **integratsiyaning milliy kontseptsiasini ishlab chiqish** (tarbiyaviy, falsafiy va iqtisodiy mezonlar bilan); Oliy va o'rta maxsus ta'limni muvofiqlashtiruvchi **ta'lim platformasi va milliy standartlarni** joriy etish; integratsiya jarayonida **fanlararo muloqot, kadrlar harakatchanligi, talabalar mobilligini qo'llab-quvvatlovchi tizimlarni** rivojlantirish; integratsiya faqat o'quv rejalari emas, **inson salohiyati va tafakkurni uyg'unlashtiruvchi falsafiy tushuncha sifatida** yo'lga qo'yilishi lozim. Integratsiyaning aniq kontseptsiasisiz, ta'lim tizimi tizimli harakat qilolmaydi. Bu esa inson kapitalini parchalangan, zamonaviylikdan uzoq va bozor talablariga nomos mutaxassis sifatida shakllantirishga olib keladi. Shuning uchun, integratsiya tushunchasi faqat ta'lim siyosatining bir qismi emas, balki **inson haqidagi falsafiy g'oyaning amaliy ifodasi** bo'lishi lozim.

Integratsiya kontseptsiyasi - bu kasb-hunar va o'rta maxsus ta'lim tizimlari o'rtasidagi bog'liqlikni nazariy, metodologik, falsafiy va amaliy asosda belgilab beradigan **ularni umumiy maqsad, umumiy qiymatlar va umumiy natijalar** asosida birlashtiruvchi strategiya, tushuncha va tizimlar majmuidir. Agar kontseptsiya bo'lmasa, har bir ta'lim bosqichi o'zicha maqsad, mazmun, usul va natijani shakllantiradi - natijada ta'lim tizimi **parchalangan, nomuvofiq va insonga to'liq xizmat qilolmaydigan mexanizmga** aylanadi. Bularning sabablari quydagilar: **falsafiy asoslarning mavjud emasligi** - ta'lim maqsadi inson ongini shakllantirish emas, kasb o'rgatish bilan cheklanib qolgan; **davlat darajasida strategik kontseptsianing yo'qligi** - integratsiyadagi manfaatdor tomonlar (ish beruvchi, davlat, jamoatchilik, ta'lim muassasalari)ning pozitsiyasi uyg'un emas; **mehnat bozori va ta'lim o'rtasidagi bog'liqlik kontseptual emas, epizodik** - ya'ni "reaktiv" harakatlar o'rniga "preventiv" tizimlar yo'q.

Ta'lim maqsadi: kasbmi, shaxsmi? – degan savolga javob bolishimiz lozim. Hozirgi ta'limda kasb tayyorlash asosiy mezon qilib olingan, lekin insonni shaxs sifatida kamol toptirish, uni jamiyatdagi ma'naviy sub'ekt sifatida tarbiyalash masalasi chetda qolmoqda. Bu esa

integratsiyaning faqat “texnologik birlashuv” bo‘lib qolishiga olib keladi. “Ta’lim - bu ma’lumot uzatish emas, ma’no va qadriyat shakllantirishdir”[7,82]. Har bir ta’lim turi o‘z yo‘nalishida bilim va ko‘nikma beradi, lekin umumiy fuqarolik, axloq, jamoaviy faollik, mustaqil qaror qabul qilish kabi **universal kompetentsiyalarni** qaysi bosqichda, qay shaklda berish - noma’lum.

Inson kapitali va ma’naviy mazmun uyg‘unligining yo‘qligi. G.Bekker va T.Shults inson kapitalini iqtisodiy samaradorlik nuqtai nazaridan tushuntirgan bo‘lsa, hozirgi tahlillar (A.Sen, J.Rolz) inson kapitalini **falsafiy-axloqiy mazmun** bilan boyitish zarurligini ta’kidlaydi. Ammo integratsiyaning kontseptsiyasida bu talablar aks etmaydi. “Ma’naviy negizsiz inson kapitali - bu intellektual xavf manbaidir”[8,82]. Madaniy va milliy o‘zlik nuqtai nazaridan qadriyatlar tizimi. O‘zbekistonda kasb - faqat iqtisodiy vosita emas, balki **insoniylik, mas’uliyat, urf-odat va ma’naviy merosning** bir qismi sifatida qaraladi. Integratsiya jarayonlari shunday falsafiy asoslarsiz olib borilsa, milliy qadriyatlar tizimidagi barqarorlik ham zaiflashishi mumkin. Kasb insonni nafaqat ovqatlantiradi, balki uning kimligini belgilaydi.

NATIJA VA MUHOKAMA

Hozirda: o‘rta maxsus ta’limni tan oluvchi yagona davlat standarti to‘liq integratsiyalangan holda belgilanmagan; texnikum, kasb-hunar maktabi va oliy ta’lim o‘rtasida **mobillik, fan mosligi, kreditni tan olish** tizimi faqat qisman mavjud; fuqarolar, ish beruvchilar va pedagoglar uchun integratsiyaning falsafiy va ijtimoiy ahamiyati keng targ‘ib qilinmagan. Integratsiya kontseptsiyasining yo‘qligi - bu faqat tashkiliy muammo emas, balki: **inson kapitalini parchalangan holda shakllantirish; axloqiy va intellektual muvozanatni yo‘qotish; milliy o‘zlik va globallik o‘rtasidagi falsafiy pozitsiyani noaniqlashtirish; va ta’limni ahamiyatsiz, mexanik jarayonga aylantirish** kabi oqibatlariga olib keladi. Shuning uchun, integratsiya faqat tizimlar birligi emas, **inson tafakkuri, bilim va ma’naviyatning falsafiy uyg‘unligi** deb qaralishi lozim.

O‘quv dasturlari o‘rtasidagi uzviylikning yo‘qligi, talabalarning bilim olish jarayonidagi uzilishlarga va ularning kasbiy ko‘nikmalarini to‘liq shakllantirmaslikka olib keladi. Bu esa, mehnat bozorida talab qilingan mutaxassislarni tayyorlashdagi samaradorlikni kamaytiradi. “O‘quv dasturlarining uzviyligi ta’lim tizimining samaradorligini ta’minlashda muhim omil hisoblanadi”[9,22]. Kasb-hunar ta’limida o‘qituvchilarning kasbiy va metodik tayyorgarligi muhim ahamiyatga ega. Ammo, hozirgi kunda bu sohadagi kadrlar tayyorgarligi yetarli darajada emas. Muslimov Narzulla Alixanovich va Qo‘ysinov Odil Almurotovichning ta’kidlashicha: “Kasb ta’limi o‘qituvchilarini tayyorlashda mustaqil ta’limni tashkil etish muammosi yuzasidan ilmiy izlanishlar mohiyati yoritilgan. Unda kasb ta’limi yo‘nalishi bakalavr o‘qituvchilarini tayyorlashda mustaqil ta’limni tashkil etishning nazariy asoslari, ushbu jarayonni tashkil etish shakllari, metodlari va vositalariga alohida e’tibor berilgan”[10,133]. Bundan ko‘rinib turibdiki, o‘qituvchilarni tayyorlashda mustaqil ta’limni tashkil etish muhim, ammo bu sohadagi ilmiy-metodik asoslar yetarli darajada ishlab chiqilmagan.

Metodik ta’minot, ya’ni o‘quv-metodik majmualarning zamonaviy talablarga mos kelmasligi ta’lim sifatini pasaytiradi. O‘zbekiston Respublikasi Vazirlar Mahkamasining 2021-yil 3-iyundagi 345-sonli qarorida ta’kidlangan: “O‘quv-metodik majmualarni ishlab chiqishning maqsadi umumiy o‘rta va o‘rta maxsus, professional ta’lim muassasalari uchun zamonaviy fan va texnika rivojini hisobga olgan holda kompetentsiyaviy yondashuv talablari asosida o‘quv materiallari mazmuni va sifatini takomillashtirish hamda ushbu sohadagi ilg‘or xorijiy tajribani samarali tatbiq etishdan iborat”[11]. Bu qarordan ko‘rinib turibdiki, metodik ta’minotni takomillashtirish zarur, ammo amaliyotda bu sohada hali ham muammolar mavjud.

Pedagoglarning raqamli kompetentsiyasi pastligi. Hozirgi kunda raqamli texnologiyalar ta'lim jarayonining ajralmas qismiga aylangan. Biroq, ko'pgina o'qituvchilarning raqamli kompetentsiyasi past darajada. Bu esa, masofaviy ta'limni samarali tashkil etishga to'siq bo'lmoqda. Muslimov va Qo'ysinovning ta'kidlashicha: "Kasb ta'limi o'qituvchilarini tayyorlashda auditoriyada va auditoriyadan tashqarida mustaqil ta'lim olishning samarali shakl va metodlari tanlandi hamda ulardan foydalanishda ta'lim vositalarini qo'llash usullari ishlab chiqildi"[12,47]. Bu iqtibosdan ko'rinib turibdiki, raqamli texnologiyalardan foydalanish usullari ishlab chiqilgan bo'lsa-da, ularni amaliyotga joriy etishda muammolar mavjud.

Raqamli kompetentsiya - bu pedagogning axborot-kommunikatsiya texnologiyalaridan samarali foydalanish, masofaviy ta'limni tashkil etish, raqamli ta'lim platformalaridan unumli foydalanish, axborot xavfsizligini ta'minlash va raqamli etik me'yorlarga rioya qilish ko'nikmalarining majmuasidir. Raqamli kompetentsiya bugungi kun o'qituvchisining **yangi savodxonligi** sifatida talqin etiladi. U axborotni bilish emas, **aql bilan ishlash va tarqatish madaniyatini** anglatadi. Aniqlangan muammolarga: texnik savodxonlikning past darajada ekani, ko'pgina o'qituvchilar MS Office, Google Works'ace, Zoom, Moodle, Google Classroom kabi asosiy raqamli vositalarda ishlashni hali ham yetarli darajada bilmaydi, ayniqsa 40 yoshdan yuqori pedagoglarda bu kompetentsiya sezilarli darajada past; raqamli pedagogik dizayn yo'qligi, o'qituvchilar raqamli dars yaratish, video darsni metodik qurish, onlayn testlar va masofaviy kuzatuv vositalarini ishlab chiqish bo'yicha yetarli bilimga ega emas; raqamli axloq va media xavfsizlikni bilmaslik, fayllar xavfsizligi, shaxsiy ma'lumotlarni himoya qilish, media-madaniyat va kibernetika borasida bilimlar past; maxsus qayta tayyorlash kurslarining yetishmasligi, ta'lim tizimida raqamli ko'nikmalarni shakllantirishga qaratilgan samarali, muntazam va natijaviy pedagogik kurslar kam. "Pedagogning raqamli kompetentsiyasi uning bilim darajasidan ko'ra kengroq: u axborotni saralay olish, texnologik tarzda qayta ishlash va talaba bilan raqamli muloqotga kirishish qobiliyatini anglatadi"[13,8]. O'qituvchi - raqamli madaniyatni shakllantiradigan yetakchi shaxs. Agar u raqamli dunyoga moslashmasa, ta'lim jamiyatning rivojidan ortda qoladi. "Zamonaviy pedagog raqamli texnologiyalarga faqat foydalanuvchi emas, balki ularni o'quv jarayoniga ijodiy integratsiya qiluvchi mutaxassisga aylanishi zarur"[14,157].

Ijtimoiy-falsafiy nuqtai nazardan, **ta'lim shaxsni shakllantiruvchi jarayon** bo'lgani bois, pedagogning raqamli kompetentsiyasi nafaqat texnik bilim, balki **inson va texnologiya o'rtasidagi ma'naviy muloqotni boshqarish qobiliyatini** ham qamrab oladi; agar raqamli kompetentsiya past bo'lsa, o'qituvchi zamonaviy bola ongiga yeta olmaydi, ya'ni **yangi avlod bilan axborot madaniyati bo'yicha teng muloqotda bo'la olmaydi**; pedagoglarni qayta tayyorlash tizimining samarasizligi. Pedagoglarni qayta tayyorlash va ularning malakasini oshirish tizimi samarasiz ishlamoqda. Bu esa, o'qituvchilarning zamonaviy talablarga moslashishini qiyinlashtiradi. O'zbekiston Respublikasi Vazirlar Mahkamasining qarorida ta'kidlanganidek: "O'quv-metodik majmualarni ishlab chiqishning asosiy vazifalari quyidagilardan iborat: o'quvchilarda mustaqil va erkin fikrlashni hamda ularning ijodiy qobiliyatlarini rivojlantirish; yangi avlod o'quv-metodik majmualarini yaratish va amaliyotga joriy etish"[15]. Bu qarordan ko'rinib turibdiki, pedagoglarning malakasini oshirish va qayta tayyorlash tizimini takomillashtirish zarur. **Pedagogning raqamli kompetentsiyasi - bu XXI asrda shaxs tarbiyalash qobiliyatidir.** U nafaqat raqamli vositalarni o'rganish, balki **axborotni axloqiy va madaniy mas'uliyat bilan uzatish, unga rahbarlik qilish qobiliyatidir.** SHu sababli, ushbu masalani strategik muammo sifatida baholab, kasb-hunar va o'rta maxsus ta'lim tizimida **ilmiy-metodik, madaniy va falsafiy asosda yechimlar ishlab chiqish** talab etiladi.

Kasb-hunar va o'rta maxsus ta'lim tizimida kadrlar va metodik tayyorgarlik sohasidagi muammolar ta'lim sifatini oshirish va mehnat bozori talablariga mos kadrlar tayyorlashda jiddiy to'siqlar yaratadi. Bu muammolarni hal etish uchun quyidagi chora-tadbirlarni amalga oshirish zarur: pedagog kadrlarni tayyorlashda mustaqil ta'limni tashkil etishning nazariy va metodik asoslarini takomillashtirish; metodik ta'minotni zamonaviy talablarga mos ravishda yangilash va ilg'or xorijiy tajribalarni joriy etish; pedagoglarning raqamli kompetentsiyasini oshirish uchun maxsus kurslar va treninglar tashkil etish; pedagoglarni qayta tayyorlash va malakasini oshirish tizimini samarali tashkil etish. Bu chora-tadbirlar kasb-hunar va o'rta maxsus ta'lim tizimida kadrlar va metodik tayyorgarlik sohasidagi muammolarni bartaraf etishga yordam beradi.

Pedagoglarni qayta tayyorlash - bu ularni zamonaviy ta'lim talablariga, raqobatbardosh mehnat bozori ehtiyojlariga, yangi pedagogik va axborot texnologiyalariga moslashtirish jarayonidir. Ammo amalda: qayta tayyorlash kurslari formal tashkil etiladi, mutaxassislikka mos emas, natijalar monitoringi yo'q, talab va taklif o'rtasida nomuvofiqlik mavjud. Bu holat ta'lim sifatini to'g'ridan-to'g'ri pasaytiradi va kasb-hunar ta'limida innovatsion yondashuvlarni cheklaydi. "Qayta tayyorlash tizimi o'qituvchi faoliyatini innovatsiyalashtirishni ta'minlamasa, u o'z vazifasini yo'qotgan institutsional mexanizmga aylanadi"[16,22]. "O'qituvchilarni malaka oshirish tizimida uzluksizlik, individual yondashuv va tajriba bilan bog'liq holda o'qitish yetarli darajada rivojlanmagan"[17,17-18]. O'qituvchilar malakasini oshirish va qayta tayyorlash markazlarida mazmun jihatdan tub yangilanish talab qilinadi. Ya'ni, u formal Ma'lumot berish emas, pedagogik transformatsiyaning boshlang'ich nuqtasi bo'lishi lozim. Ijtimoiy-falsafiy jihatlari: pedagog - bu faqat bilim beruvchi emas, **inson tarbiyalovchi ma'naviy subhekt**; agar qayta tayyorlash uning **axloqiy, ijtimoiy, raqamiy, fanlararo kompetentsiyalarini yangilamasa**, u ta'lim tizimida faqat "ikkinchi darajali ijrochi"ga aylanadi; shunday ekan, qayta tayyorlash - bu **odamni o'zgartiradigan jarayon**, u "shaxs sifatida o'sish" bilan ham bog'liq bo'lishi lozim. Ta'limdagi o'zgarishlar - avvalo o'qituvchining falsafiy dunyoqarashidagi o'zgarishlardir. **Qayta tayyorlash - bu pedagogning "yangi men"ni shakllantirish jarayonidir.** U faqat yangi Ma'lumot berish emas, balki falsafiy, axloqiy, ijtimoiy rivojni ta'minlaydigan strategik jarayon sifatida tashkil etilishi shart. Shuning uchun, qayta tayyorlash tizimi: formal emas, **shaxsiylashgan**; nazariy emas, **amaliy-qiymatli**; markazlashgan emas, **interaktiv va raqamlashgan**; tizimsiz emas, **yagona standart asosida kuzatuvli** bo'lishi zarur.

3. Ishlab chiqarish amaliyotining formalligicha qolishi. Ishlab chiqarish amaliyotining formal ravishda tashkil etilishi, talabalarning amaliy ko'nikmalarini yetarlicha shakllantirmaslikka olib keladi. Bu esa, ularning mehnat bozorida raqobatbardoshligini pasaytiradi. "Amaliy mashg'ulotlarning samaradorligi, ularning haqiqiy ishlab chiqarish muhitida tashkil etilishiga bog'liq"[18,30].

Ishlab chiqarish amaliyoti - bu o'quvchilarning nazariy bilimlarini amaliy ko'nikmalarga aylantirish, real ishlab chiqarish muhitida tajriba orttirish jarayonidir. Biroq, amaliyot ko'plab holatlarda faqat rasmiy hujjatlarda qayd etilib, real ishlab chiqarish jarayoniga integratsiyalashmagan holda o'tkaziladi. Amaliyotning real ishlab chiqarishdan uzilganligi, ko'plab ta'lim muassasalari o'quvchilarni ishlab chiqarish korxonalariga yuborish o'rniga, amaliyotni o'z bazalarida yoki shartnoma asosida boshqa tashkilotlarda o'tkazadi. Bu esa o'quvchilarning real ishlab chiqarish muhitida ishlash imkoniyatini cheklaydi. Amaliyot dasturlarining eskirganligi. Amaliyot dasturlari ko'pincha zamonaviy ishlab chiqarish texnologiyalari va uslublarni inobatga olmaydi. Bunda o'quvchilarning amaliy ko'nikmalarini rivojlantirishda to'siq bo'ladi. Korxonalar bilan hamkorlikning sustligi, ishlab chiqarish

korxonalari bilan ta'lim muassasalari o'rtasida amaliyot o'tkazish bo'yicha mustahkam hamkorlik yo'lga qo'yilmagan. Bu esa amaliyotning sifatsiz o'tishiga sabab bo'ladi. Ijtimoiy-falsafiy jihatdan, ishlab chiqarish amaliyotining formal tarzda tashkil etilishi ta'limning amaliy ahamiyatini pasaytiradi. Bu esa o'quvchilarning kasbiy tayyorgarligini zaiflashtiradi va ularni real ishlab chiqarish muhitiga moslashishini qiyinlashtiradi. Ishlab chiqarish amaliyotining formal tarzda tashkil etilishi ta'limning amaliy samaradorligini pasaytiradi va o'quvchilarning kasbiy tayyorgarligini zaiflashtiradi. Bu muammoni hal etish uchun ta'lim muassasalari va ishlab chiqarish korxonalari o'rtasida mustahkam hamkorlik o'rnatish, amaliyot dasturlarini yangilash va o'qituvchilarning malakasini oshirish zarur.

Amaliyotning real ishlab chiqarishdan uzilganligining tahlilili. **Ishlab chiqarish amaliyoti** - bu talabaning nazariy bilimlarini haqiqiy ish muhitida sinab ko'rish, turli kasbiy sharoitlarda amaliy ko'nikma o'rttirish, ishlab chiqarish madaniyatiga moslashish jarayonidir. Ammo amaliyotning maqsadi quyidagilarni qamrab olishi kerak: zamonaviy ish jarayonini kuzatish va unda ishtirok etish; ish joyidagi axloqiy me'yorlarga rioya qilishni o'rganish; kasbiy yetuklikka intilish orqali shaxsiy o'sishga erishish.

XULOSA

Ko'p hollarda, amaliyot: ta'lim muassasasi hududida o'tkaziladi (real ish joyi emas); kerakli sohada emas, formal ravishda "har qanday tashkilotda" tashkil etiladi; ayrim hollarda amaliy vazifalar emas, faqat "prisutstvie" yoki ishtirok qayd etiladi. Bu esa amaliyotning o'z o'rnida qiymatli ijtimoiy tajriba emas, balki "formal belgi" sifatidagi mavqeini yaratadi. "Ta'limning ishlab chiqarishdan uzilishi - insoniy salohiyatni real hayotdan uzib qo'yish demakdir. Bu - o'rganish emas, o'ynashdir"[19,864]. "Amaliy bilim - bu faqat yodlash emas, amal qilish qobiliyatidir. Ta'lim bunda to'liq ishtirok etmasa, natija formal qoladi"[20,45]. "Kasbiy ta'limda tajriba - inson intellektual salohiyati bilan mehnat muhiti o'rtasidagi ko'prikdir. Agar bu ko'priki yo'q bo'lsa, shaxs o'z kasbida ongli ishtirokchi emas, ijrochi bo'lib qoladi". Ta'lim - bu insonni jamiyatda "mutaxassis" sifatida emas, balki shaxs sifatida shakllantirish vositasi. Agar u ish muhitidagi voqelikni his qilmasa: o'z mas'uliyatini sezmaydi, o'z mehnatining ijtimoiy qadrini anglamaydi, mehnat axloqi, intizomi, mas'uliyati shakllanmaydi. "Inson faqat fikr orqali emas, tajriba orqali yetuklikka erishadi"[22,170].

Amaliyot - bu ta'limning "jamiyatga birinchi qadami"dir. U o'z mohiyatida shaxsni mehnat muhiti bilan tanishtiruvchi, axloqan yetkazuvchi va faol fuqaro sifatida rivojlantiruvchi jarayon bo'lishi lozim. Amaliyotning ishlab chiqarishdan uzilganligi ta'limni real hayotdan ajratadi. Shu sababli, uni qayta falsafiy asosga qo'yib, amaliyotni inson kapitalining to'liq shakllanishidagi hal qiluvchi bosqich sifatida ko'rish zarur.

Tashkiliy-me'yoriy muammolar, kasb-hunar va o'rta maxsus ta'lim tizimlarining samarali integratsiyasiga to'siq bo'lib xizmat qilmoqda. Bu muammolarni hal etish uchun, ta'lim tizimida yagona kontsepsiyani ishlab chiqish, o'quv dasturlarining uzviyligini ta'minlash va amaliy mashg'ulotlarni haqiqiy ishlab chiqarish muhitida tashkil etish zarur.

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BOZOR IQTISODIYOTI SHAROITIDA MILLIY TA'LIM TIZIMINING O'ZARO BOG'LIQLIGI VA IJTIMOIIY TARAQQIYOTNING FALSAFIY MOHIYATI

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Annotatsiya: Maqolada milliy ta'lim tizimi va bozor iqtisodiyoti sharoitida ijtimoiy taraqqiyotning falsafiy mohiyati o'rtasidagi bog'liqlik o'rganiladi. Ta'lim siyosatining jamiyatning ijtimoiy-iqtisodiy rivojlanishiga ta'sirining asosiy mexanizmlari ko'rib chiqiladi, shuningdek, progressiv ijtimoiy jarayonlarni shakllantirishda ta'limning rolini asoslaydigan falsafiy tushunchalar tahlil qilinadi. Muallif ta'lim strategiyalarini iqtisodiy sharoitlarga qarab o'zgartirishga, ularning ijtimoiy harakatchanlikka, qiymat yo'nalishlarini shakllantirishga va jamiyatning barqarorligiga ta'sirini aniqlashga alohida e'tibor beradi.

Kalit so'zlar: milliy ta'lim tizimi, bozor iqtisodiyoti, ijtimoiy taraqqiyot, ta'lim falsafasi, ijtimoiy harakatchanlik, qadriyatlar, ta'lim siyosati, iqtisodiy sharoitlar.

ВЗАИМОСВЯЗЬ НАЦИОНАЛЬНОЙ СИСТЕМЫ ОБРАЗОВАНИЯ В УСЛОВИЯХ РЫНОЧНОЙ ЭКОНОМИКИ И ФИЛОСОФСКОЙ СУЩНОСТИ СОЦИАЛЬНОГО ПРОГРЕССА

Аннотация: В статье исследуется взаимосвязь национальной системы образования и философской сущности социального прогресса в условиях рыночной экономики. Рассматриваются ключевые механизмы влияния образовательной политики на социально-экономическое развитие общества, а также анализируются философские концепции, обосновывающие роль образования в формировании прогрессивных общественных процессов. Автор уделяет особое внимание трансформации образовательных стратегий в зависимости от экономических условий, выявляя их влияние на социальную мобильность, формирование ценностных ориентиров и устойчивость общества.

Ключевые слова: национальная система образования, рыночная экономика, социальный прогресс, философия образования, социальная мобильность, ценностные ориентиры, образовательная политика, экономические условия.

THE INTERCONNECTION OF THE NATIONAL EDUCATION SYSTEM IN A MARKET ECONOMY AND THE PHILOSOPHICAL ESSENCE OF SOCIAL PROGRESS

Abstract: The article examines the relationship between the national education system and the philosophical essence of social progress in a market economy. The key mechanisms of the influence of educational policy on the socio-economic development of society are considered, as well as philosophical concepts substantiating the role of education in the formation of progressive social processes are analyzed. The author pays special attention to the transformation of educational strategies depending on economic conditions, identifying their impact on social mobility, the formation of value orientations and the sustainability of society.

Keywords: national education system, market economy, social progress, philosophy of education, social mobility, value orientations, educational policy, economic conditions.

KIRISH

Milliy ta'lim tizimi, bozor iqtisodiyoti va ijtimoiy taraqqiyotning falsafiy mohiyati o'rtasidagi bog'liqlikni o'rganish yuqori ilmiy va nazariy ahamiyatga ega. Ta'lim sohasidagi zamonaviy o'zgarishlar uning kelajak jamiyatini shakllantirishdagi rolini har tomonlama tahlil qilishni, shuningdek, ta'lim siyosati ijtimoiy jarayonlarga ta'sir ko'rsatadigan mexanizmlarni aniqlashni talab qiladi. Ushbu asarda ijtimoiy taraqqiyotning asosiy falsafiy jihatlari, shu jumladan shaxsni rivojlantirish, qadriyatlar va ijtimoiy institutlarni shakllantirish ko'rib chiqiladi. Tadqiqot iqtisodiy, falsafiy va pedagogik tushunchalarni yagona tahlil tizimiga birlashtirib, mavjud ilmiy munozarani to'ldiradi.

Tadqiqotimizning amaliy ahamiyati uning natijalarini jamiyatning barqaror rivojlanishiga qaratilgan samarali ta'lim strategiyalarini ishlab chiqishda qo'llash imkoniyatidir. Bozor iqtisodiyoti sharoitida milliy ta'lim tizimi moslashuvchan bo'lishi va nafaqat malakali kadrlar tayyorlashni, balki fuqarolik va axloqiy ko'rsatmalarni shakllantirishni ham ta'minlashi kerak. Tadqiqotda aniqlangan qonuniyatlardan ta'lim dasturlarini takomillashtirish, ta'lim sohasida davlat siyosatini shakllantirish, shuningdek, bitiruvchilarning ijtimoiy harakatchanligi va raqobatbardoshligini oshirish bo'yicha uslubiy tavsiyalar ishlab chiqish uchun foydalanish mumkin.

O'zbekiston Respublikasi prezidenti Shavkat Mirziyoyev ta'limning jamiyat taraqqiyoti va ijtimoiy taraqqiyotdagi muhim rolini bir necha bor ta'kidlagan. Quyida ushbu mavzu bo'yicha ba'zi bayonotlarini havola qilmoqdamiz:

“Barchamiz uchun ilm - fan, ta'lim, tarbiya rivojlanishning asosi, mamlakat va xalqning kuchini oshiradigan kuch ekanligi aniq. Ertangi kun, Vatan kelajagi bugungi kunda farzandlarimiz oladigan ta'lim va tarbiya tizimi bilan uzviy bog'liqdir” [1].

“Farovonlikning kaliti ta'lim, tarbiya, bilimdir. Chunki barcha yaxshi maqsadlarga bilim va tarbiya orqali erishiladi” [2].

“Zamonaviy sharoitda, mamlakat raqobatbardoshligining asosiy ko'rsatkichi aholining turmush darajasi va sifati tobora ortib borayotgan bir paytda, ta'limning roli o'sib bormoqda – taraqqiyotning eng muhim omili” [3].

“Ta'lim sifatini oshirish yangi O'zbekistonni rivojlantirishning yagona to'g'ri yo'lidir” [4].

Bu so'zlar prezidentning ta'lim jamiyatning barqaror rivojlanishi va gullab-yashnashi uchun asos ekanligiga chuqur ishonchini aks ettiradi.

Ijtimoiy-falsafiy kontekstda milliy ta'lim tizimi ijtimoiy ierarxiyalarni ko'paytirish va mavjud ijtimoiy tartibni saqlashda muhim rol o'ynaydi. Frantsuz sotsiologi Per Bourdieu o'z tadqiqotlarida ta'lim muassasalari nafaqat bilimlarni uzatibgina qolmay, balki ijtimoiy tengsizlikni qonuniylashtirish va ko'paytirishga ham hissa qo'shishini ko'rsatdi [5,288]. Uning ta'kidlashicha, ta'lim tizimi yashirin mexanizmlar orqali hukmron sinf madaniyatini etkazadi, bu esa ushbu qatlamdagi bolalarga o'quv jarayonida ustunlik beradi. Bu ijtimoiy tafovutlarni tabiiy va asosli deb qabul qilishga olib keladi, bu esa mavjud ierarxiyalarni mustahkamlaydi va ijtimoiy harakatchanlikka to'sqinlik qiladi.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

Tadqiqotimizga doir manbalarning ilmiy-nazariy tahlili ushbu masalaning murakkabligi va ko'p qirraliligini aks ettiruvchi turli yo'nalish va tushunchalarni qamrab oladi.

Birinchidan, inson kapitalini shakllantirishda ta'limning rolini ko'rib chiqish lozim bo'ladi. Zamonaviy tadqiqotlar mehnat bozorining dinamik sharoitlariga moslasha oladigan malakali mutaxassislarni tayyorlashda ta'lim tizimining asosiy rolini ta'kidlaydi. Ta'lim davlatning

raqobatbardoshligini va uning iqtisodiy barqarorligini belgilaydigan strategik manba sifatida qaraladi. Tadbirkorlik tafakkuri, raqamli savodxonlik va innovatsion faoliyat uchun zarur bo'lgan ko'nikmalarni rivojlantirishga alohida e'tibor qaratilmoqda. Shu bilan birga, mehnat bozorida talab va ta'lim muassasalari tomonidan taklif o'rtasidagi nomuvofiqlik, eskirgan o'qitish usullari va etarli mablag' bilan bog'liq muammolar mavjud. Ta'limni biznes bilan birlashtirish, o'quv jarayonini raqamlashtirish va o'quv dasturlarini real sharoitlarga moslashtirish tavsiya etiladi. Shunday qilib, ta'lim tizimi davlatning raqobatbardoshligi va uning iqtisodiyotining barqaror rivojlanishi bog'liq bo'lgan strategik manba sifatida qaraladi.

Ikkinchidan, ta'limning falsafiy tushunchalari va ularning ijtimoiy taraqqiyotga ta'sirini ko'rib chiqamiz. Ta'limga falsafiy yondashuvlar inson kapitalining shakllanishiga va shuning uchun ijtimoiy taraqqiyotga sezilarli ta'sir ko'rsatadi. Asosiy tushunchalar orasida quyidagilar ajralib turadi:

- Shaxsni rivojlantirishga va har bir insonning o'ziga aylanishiga yordam berishga qaratilgan ta'limning gumanistik kontseptsiyasi. Bu inson kapitalini rivojlantirishga yordam beradi, odamlarga o'z hayotlarini yaxshilash va martaba qurish uchun o'z qobiliyatlari va qobiliyatlardan to'g'ri foydalanishni o'rgatadi. Ta'limning gumanistik kontseptsiyasining vakillari J.-J.Russo [6,388], Y.Gerder [7, 760], A.Komenskiy [8,224] va P.Freire [9,268], ular ta'limga individual yondoshishni, o'quvchilarning shaxsiyati va tanqidiy tafakkurini rivojlantirishni qo'llab-quvvatladilar.

- Ta'limning ekzistensial-dialogik falsafasi, birinchi navbatda M.Buber tomonidan taqdim etilgan bo'lib, u pedagogik munosabatlarning ma'nosi va asoslarini shaxslararo munosabatlarda, "men" va "siz" [5,102-121] munosabatlarida ko'rgan. Ta'lim va ta'limning asosiy printsiplari dialog bo'lgan ushbu tendentsiya vakillari o'qituvchi va talabalar o'rtasidagi nosimmetrik aloqani qo'llab-quvvatladilar, ta'limni kommunikativ harakatlar shakli deb bildilar.

- Tanqidiy-emansipatorlik yo'nalishi, Frankfurt maktabi jamiyatining tanqidiy nazariyasi ta'siri ostida "jamiyatni desekulyarizatsiya qilish" radikal dasturini, ya'ni maktabni ijtimoiy institut sifatida tugatishni boshladi. Uning vakillari (A.Illich) maktabda barcha ijtimoiy muammolarning manbasini ko'rdilar, chunki u barcha ijtimoiy institutlar uchun namuna bo'lib, konformistni tarbiyalaydi, intizomga, bolaning har qanday ijodiy salohiyatini qaytarishga, bostirish va manipulyatsiya pedagogikasiga asoslanadi [10,88]. Ular ta'limni qayta tashkil etish loyihasini taklif qilishdi, bu esa talabaning usta bilan shaxslararo muloqoti davomida kasbiy tayyorgarlikka asoslangan va "konvivallik" ideallariga asoslangan bo'lishi kerak [11].

Ushbu falsafiy tushunchalar ta'lim nafaqat bilimlarni uzatish mexanizmi, balki ijtimoiy taraqqiyotga hissa qo'shadigan shaxsni shakllantirish vositasi ekanligini ta'kidlaydi.

Uchinchidan, bozor iqtisodiyotining ta'lim tizimiga ta'siri ko'rib chiqishni talab etadi. Bozor iqtisodiyoti sharoitida ta'lim tizimi mehnat bozorining tez o'zgaruvchan talablariga moslashish zarurati bilan duch keladi. Bunga ta'lim dasturlarini yangilash, tadbirkorlik ko'nikmalarini rivojlantirish va raqamli savodxonlik kiradi. Shu bilan birga, mehnat bozorida talab va ta'lim muassasalari tomonidan taklif o'rtasidagi tafovut, eskirgan o'qitish usullari va etarli mablag' bilan bog'liq muammolar mavjud. Ta'limni biznes bilan birlashtirish, o'quv jarayonini raqamlashtirish va o'quv dasturlarini real sharoitlarga moslashtirish tavsiya etiladi.

To'rtinchidan, ta'lim ijtimoiy taraqqiyot omili sifatida namoyon bo'lishini zihlash lozim. Ta'lim inson kapitalini rivojlantirish, mehnat unumdorligini oshirish va iqtisodiy o'sishga hissa qo'shadigan ijtimoiy taraqqiyotning asosiy omili sifatida qaraladi. Gumanizm, postmodernizm va progressivizm kabi ta'limning falsafiy tushunchalari shaxs va umuman jamiyatni rivojlantirishga

qaratilgan ta'lim amaliyoti va strategiyalarining shakllanishiga ta'sir qiladi [12]. Ushbu yondashuvlar ta'lim tizimlarini jamiyatning zamonaviy muammolari va ehtiyojlariga moslashtirish muhimligini ta'kidlaydi.

Shunday qilib, ushbu mavzu bo'yicha adabiyotlar va ilmiy yo'nalishlarni tahlil qilish ta'lim tizimi, bozor iqtisodiyoti va ijtimoiy taraqqiyot o'rtasidagi murakkab munosabatlarni ko'rsatadi. Ta'limning falsafiy tushunchalari inson kapitalini shakllantirishda va ijtimoiy rivojlanish yo'nalishlarini belgilashda muhim rol o'ynaydi. Ta'lim tizimlarini bozor iqtisodiyoti sharoitlariga moslashtirish barqaror ijtimoiy-iqtisodiy taraqqiyotni ta'minlash uchun zarur shartdir.

NATIJA VA MUHOKAMA

Milliy ta'lim tizimi, bozor iqtisodiyoti va ijtimoiy taraqqiyotning o'zaro bog'liqligi batafsil tahlilni talab qiladigan dolzarb mavzudir. Zamonaviy sharoitda ta'lim nafaqat bilimlarni uzatishning an'anaviy funktsiyasini bajaradi, balki mamlakatning raqobatbardoshligi va inson kapitalining shakllanishiga ta'sir ko'rsatadigan ijtimoiy-iqtisodiy rivojlanish vositasiga aylanadi.

Bozor iqtisodiyotining ta'lim tizimiga ta'sir ko'rsatadigan asosiy omillardan biri bu bozor iqtisodiyoti. Bozor mexanizmlari malakali kadrlarga bo'lgan talabni belgilaydi, bu esa o'quv dasturlarini modernizatsiya qilishni, ta'lim muassasalarining moslashuvchanligini va ish beruvchilar bilan faol hamkorlikni talab qiladi. Biroq, ba'zi hollarda ta'limning bozor yo'nalishi bilimlarni tijoratlashtirishga olib keladi, bu esa kam ta'minlangan aholi uchun sifatli ta'lim olish imkoniyatini kamaytirishi mumkin.

Ta'lim obyektivi orqali ijtimoiy taraqqiyotning falsafiy jihatlari nazariy nuqtai nazardan, ta'lim shaxs va jamiyat rivojiga ta'sir qiluvchi ijtimoiy taraqqiyotning asosiy omili sifatida qaraladi. Muloqot asosida gumanizm, tanqidiy pedagogika va ta'lim tushunchalari nafaqat kasbiy tayyorgarlikka, balki fuqarolik javobgarligini, ijtimoiy fikrlashni va axborotni tanqidiy idrok etishni shakllantirishga yordam beradigan ta'lim muhitini yaratish zarurligini ko'rsatadi.

Tadqiqotimizning asosiy natijalari sifatida quydagilarni keltirmoqchidik:

- ta'limning iqtisodiy ahamiyati, tahlil shuni ko'rsatadiki, ta'limga katta sarmoya kiritgan mamlakatlar barqaror iqtisodiy rivojlanish va aholining yuqori turmush darajasini namoyish etadi;
- ta'lim dasturlarining moslashuvchanligi, raqamli ko'nikmalar va tadbirkorlik tafakkurini rivojlantirishga qaratilgan moslashuvchan o'quv dasturlarini joriy etish mehnat bozorida bitiruvchilarning raqobatbardoshligini oshirishga yordam beradi.

Bozor va ijtimoiy jihatlarning uyg'un kombinatsiyasiga bo'lgan ehtiyoj sifatida ta'lim siyosati barcha fuqarolar uchun bilim va teng imkoniyatlarni ta'minlab, iqtisodiy voqelikni ham, ijtimoiy ustuvorliklarni ham hisobga olishi kerak. Davlat tomonidan tartibga solish ta'limni tijoratlashtirish va uning ijtimoiy missiyasi o'rtasidagi muvozanatni saqlashning muhim vositasi bo'lib qolmoqda.

Shunday qilib, bozor iqtisodiyoti sharoitida milliy ta'lim tizimi ham bozor mexanizmlarini, ham ijtimoiy taraqqiyotning falsafiy asoslarini birlashtirishi kerak. Davlat, ta'lim muassasalari va mehnat bozori o'rtasidagi maqbul o'zaro ta'sir nafaqat ta'lim sifatini oshirishga, balki butun jamiyatning barqaror rivojlanishiga yordam beradi.

XULOSA

Olib borilgan tadqiqotimiz natijalariga asoslanib, quydagi ilmiy va nazariy xulosalarni havola qilmoqchimiz:

1. Milliy ta'lim tizimi jamiyatning barqaror rivojlanishida hal qiluvchi rol o'ynaydi, chunki u nafaqat kasbiy kompetentsiyalarni, balki ijtimoiy qadriyatlarni ham shakllantiradi.

2. Bozor mexanizmlari va ta'lim jarayonlarining o'zaro ta'siri muvozanatli bo'lishi kerak, bu nafaqat iqtisodiyot uchun kadrlar tayyorlashni, balki ijtimoiy ongni rivojlantirishni ham ta'minlaydi.

3. Ijtimoiy taraqqiyotning falsafiy mohiyati ta'lim dasturlarini yangi haqiqatlarga, shu jumladan raqamlashtirish, fanlararo va kasbiy ta'limdagi gumanitar tarkibiy qismlarga moslashtirishni talab qiladi. Shuningdek, quydagi amaliy tavsiyalarni ham keltiramiz:

1. Ta'lim dasturlarini modernizatsiya qilish, raqamli ko'nikmalar, tadbirkorlik va tanqidiy fikrlashni rivojlantirishga qaratilgan kurslarni joriy etish.

2. Universitetlar va biznes o'rtasidagi hamkorlikni kengaytirish, qo'shma ta'lim loyihalari, stajirovkalar va Dual ta'lim dasturlarini yaratish.

3. Ta'lim olish imkoniyatini oshirish, kam ta'minlangan talabalarni qo'llab-quvvatlash bo'yicha davlat dasturlarini joriy etish, masofaviy va onlayn ta'limni rivojlantirish.

4. Ta'lim muassasalarining moslashuvchanligi, mehnat bozorining o'zgaruvchan talablari va ilmiy-texnik taraqqiyotga muvofiq o'quv dasturlarini moslashtirish.

5. Davlat tomonidan tartibga solish, ta'limni tijoratlashtirish va uning ijtimoiy missiyasi o'rtasidagi muvozanatni saqlashga qaratilgan strategiyalarni ishlab chiqish.

Shunday qilib, bozor iqtisodiyoti sharoitida milliy ta'lim tizimi ham bozor mexanizmlarini, ham ijtimoiy taraqqiyotning falsafiy asoslarini birlashtirishi kerak. Davlat, ta'lim muassasalari va mehnat bozori o'rtasidagi maqbul o'zaro ta'sir nafaqat ta'lim sifatini oshirishga, balki butun jamiyatning barqaror rivojlanishiga yordam beradi.

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**ZAMONAVIY BOZOR MUNOSABATLARI TRANSFORMASIYASI HAMDA
KASB-HUNAR VA O'RTA MAXSUS TA'LIM TIZIMIDA INTEGRASIYA
JARAYONINING IJTIMOY-FALSAFIY TAHLILI**

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Annotatsiya: Maqolada zamonaviy bozor munosabatlarining o'zgarishi va ularning kasbiy va o'rta maxsus ta'lim tizimidagi integratsiya jarayonlariga ta'siri ijtimoiy-falsafiy tahlil qilinadi. Globallashuv, raqamlashtirish va mehnat bozori talablarining o'zgarishi sharoitida ta'lim makonini rivojlantirishning asosiy tendentsiyalari ko'rib chiqiladi. Muallif ta'lim muassasalarini yangi ijtimoiy-iqtisodiy voqelikka moslashtirishning ahamiyatini, shuningdek, kasbiy ta'limni biznes muhiti va davlat tuzilmalari bilan birlashtirish zarurligini ta'kidlaydi. Talabalar o'rtasida yangi vakolatlarni shakllantirish, raqobatbardosh mutaxassislarni tayyorlashda uzluksiz ta'lim va ijtimoiy sheriklikning o'rni masalalariga alohida e'tibor qaratilmoqda.

Kalit so'zlar: ijtimoiy falsafa, bozor munosabatlari, integratsiya, kasb-hunar ta'limi, o'rta maxsus ta'lim, raqamlashtirish, globallashuv, ijtimoiy sheriklik, vakolatlar, ta'limni o'zgartirish.

**СОЦИАЛЬНО-ФИЛОСОФСКИЙ АНАЛИЗ ТРАНСФОРМАЦИИ
СОВРЕМЕННЫХ РЫНОЧНЫХ ОТНОШЕНИЙ И ИНТЕГРАЦИОННОГО
ПРОЦЕССА В СИСТЕМЕ ПРОФЕССИОНАЛЬНОГО И СРЕДНЕГО
СПЕЦИАЛЬНОГО ОБРАЗОВАНИЯ**

Аннотация: В статье проводится социально-философский анализ трансформации современных рыночных отношений и их влияния на интеграционные процессы в системе профессионального и среднего специального образования. Рассматриваются ключевые тенденции развития образовательного пространства в условиях глобализации, цифровизации и изменяющихся требований рынка труда. Автор подчеркивает значимость адаптации образовательных институтов к новым социально-экономическим реалиям, а также необходимость интеграции профессионального образования с бизнес-средой и государственными структурами. Особое внимание уделяется вопросам формирования новых компетенций у студентов, роли непрерывного образования и социального партнёрства в подготовке конкурентоспособных специалистов.

Ключевые слова: социальная философия, рыночные отношения, интеграция, профессиональное образование, среднее специальное образование, цифровизация, глобализация, социальное партнёрство, компетенции, трансформация образования.

**SOCIAL AND PHILOSOPHICAL ANALYSIS OF THE PROCESS OF
INTEGRATION IN THE SYSTEM OF MODERN MARKET RELATIONS
TRANSFORM AND VOCATIONAL AND SECONDARY SPECIAL EDUCATION**

Abstract: The article provides a socio-philosophical analysis of the transformation of modern market relations and their impact on integration processes in the system of vocational and secondary specialized education. The key trends in the development of the educational space in the context of globalization, digitalization and the changing demands of the labor market are considered. The author emphasizes the importance of adapting educational institutions to new

socio-economic realities, as well as the need to integrate vocational education with the business environment and government structures. Special attention is paid to the formation of new competencies among students, the role of continuing education and social partnership in the training of competitive specialists.

Keywords: social philosophy, market relations, integration, vocational education, secondary specialized education, digitalization, globalization, social partnership, competencies, education transformation.

KIRISH

Zamonaviy bozor munosabatlari globallashtirish jarayonlari, raqamlashtirish va texnologiyaning jadal rivojlanishi ta'siri ostida sezilarli o'zgarishlarga duch kelmoqda. Bunday sharoitda kasb-hunar va o'rta maxsus ta'lim tizimi yangi ijtimoiy-iqtisodiy voqelikka moslashishni talab qiladigan qiyinchiliklarga duch kelmoqda. Yurgen Xabermas ta'kidlaganidek: "zamonaviy jamiyat tabaqalanish va integratsiya jarayonlari bilan ajralib turadi, bunda ta'lim sotsializatsiya va kasbiylashtirish mexanizmi sifatida asosiy rol o'ynaydi" [1].

Ushbu mavzuning global dolzarbligi to'rtinchi sanoat inqilobi (**Industry 4.0**) sharoitida raqobatbardosh inson kapitalini shakllantirish zarurati bilan bog'liq. Xalqaro tadqiqotlar shuni ko'rsatadiki, mehnat bozoridagi o'zgarishlarga tezda moslasha oladigan kasb-hunar ta'limi tizimlari jamiyatning ijtimoiy tuzilishining yuqori iqtisodiy barqarorligi va barqarorligini ta'minlaydi [2]. Evropa Ittifoqi mamlakatlarida "umr bo'yi o'rganish" (**Lifelong Learning**) kontseptsiasining faol rivojlanishi iqtisodiyotdagi o'zgarishlarga moslashuvchan javob berishga va turli ta'lim darajalarining integratsiyasini rivojlantirishga imkon beradi [3].

Muammoning mahalliy dolzarbligi mamlakatimiz iqtisodiyotining o'zgarishi bilan bog'liq bo'lib, u erda mutaxassislarni tayyorlashning yangi shakllarini talab qiladigan raqamli va innovatsion ishlab chiqarish modellariga o'tish mavjud. O'zbekistonda kasb-hunar ta'limi tizimini rivojlantirish strategiyasida "raqamli iqtisodiyotda ishlashga qodir kadrlar tayyorlash uchun ta'lim tashkilotlari, biznes va davlatning samarali hamkorligini ta'minlash" ustuvor vazifalardan biri hisoblanadi. Biroq, haqiqiy amaliyotda ta'lim dasturlarining mazmuni va mehnat bozorining dolzarb ehtiyojlari o'rtasida tafovutlar mavjud bo'lib, ular falsafiy tushunishni va kasbiy ta'limni ijtimoiy-iqtisodiy jarayonlar bilan birlashtirishga tizimli yondashuvni talab qiladi. Shunday qilib, kasb-hunar va o'rta maxsus ta'lim tizimidagi zamonaviy bozor munosabatlari va integratsiya jarayonlarining o'zgarishini ijtimoiy-falsafiy tahlil qilish ushbu sohani rivojlantirishning asosiy tendentsiyalari, muammolari va istiqbollari aniqlashga imkon beradi. Ushbu maqolada ta'limni o'zgaruvchan ijtimoiy-iqtisodiy sharoitlarga moslashtirish mexanizmlari, ta'lim muassasalari va biznes hamjamiyati o'rtasidagi hamkorlikning roli, shuningdek, raqamli texnologiyalarning mutaxassislarning kasbiy tayyorgarligiga ta'siri ko'rib chiqiladi.

Yangilanayotgan O'zbekistonda Prezident Shavkat Mirziyoyev rahbarligida ta'lim tizimida zamonaviy bozor sharoitlariga moslashish va ta'lim tizimining turli darajalarini birlashtirishga qaratilgan keng ko'lamli islohotlar amalga oshirilmoqda. O'zbekistondagi islohotlarning xususiyatlariga, ta'lim tizimini modernizatsiya qilish, jumladan 2020 yildan boshlab mamlakatning oliy o'quv yurtlari bosqichma-bosqich Evropa kredit o'tkazish va to'plash tizimiga (ECTS) asoslangan kredit-modulli tizimga o'tmoqda, bu esa o'quv dasturlarining moslashuvchanligini va talabalar uchun fanlarni tanlash imkoniyatini beradi. O'qituvchilar maqomini oshirishga, davlatimiz rahbari o'qituvchilarni moddiy rag'batlantirish va ularning hayot

sifatini yaxshilash zarurligini ta'kidlab, ularsiz ta'lim islohotlarida natijalarga erishish mumkin emasligini ta'kidladi.

Maktab ta'limini rivojlantirishga, davlat tomondan qo'llab-quvvatlash orqali, maktablar faoliyatini takomillashtirish nafaqat xalq ta'limi vazirligi, balki barcha vazirlik va idoralar, hokimliklar, ilmiy tashkilotlar, ziyolilar va umuman keng jamoatchilikning vazifasi bo'lishi kerak.

O'zbekiston Respublikasi Prezidenti Shavkat Mirziyoyevning ta'kidlashicha: "Xalqimiz bizga eng aziz - bolalarga ishonadi. Bu juda katta mas'uliyat. Agar biz buni tushunish bilan maktabni isloh qilsak, kelajak uchun poydevor yaratamiz" [5.]. Shuningdek, "Barchamiz uchun ilm - fan, ta'lim, tarbiya rivojlanishning asosi, mamlakat va xalqning kuchini oshiradigan kuch ekanligi aniq" [6.]. O'zbekistonning zamonaviy mehnat bozori muammolariga samarali javob bera oladigan va yuqori malakali mutaxassislar tayyorlashni ta'minlaydigan zamonaviy, integratsiyalashgan ta'lim tizimini yaratish istagidan dalolat beradi.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

Zamonaviy bozor munosabatlari va globallashuv jarayonlari kasb-hunar va o'rta maxsus ta'lim tizimiga sezilarli ta'sir ko'rsatmoqda. Ta'lim muassasalarini mehnat bozori bilan birlashtirish, o'quv dasturlarini iqtisodiyot ehtiyojlariga moslashtirish va ta'limni raqamlashtirish masalalari xalqaro va mahalliy ilmiy adabiyotlarda faol o'rganilmoqda. Ushbu sharh ushbu mavzu bo'yicha tadqiqotlarning asosiy nazariy yondashuvlari, tushunchalari va yo'nalishlarini ko'rib chiqadi.

- Bozor munosabatlari va ta'limni tahlil qilishning nazariy va uslubiy asoslariga, ijtimoiy-falsafiy kontekstdagi bozor munosabatlari bo'yicha tadqiqotlar iqtisodiy omillarning ijtimoiy tuzilmalarga, shu jumladan ta'lim sohasiga ta'sirini ta'kidlagan K.Marks, M.Veber, Y.Xabermas va boshqa mutafakkirlarning asarlariga asoslangan. Zamonaviy ilm-fan neoliberal siyosat sharoitida bozor iqtisodiyoti va ta'lim tizimining o'zaro bog'liqligi g'oyasini ko'rib chiqadi. Taniqli ijtimoiy nazariyotchi Devid Xarvi o'zining "Neoliberalizmning qisqacha tarixi" [7; 140-b.] kitobida neoliberal siyosatning jamiyatning turli jihatlariga, shu jumladan ta'limga ta'sirini o'rganadi. Uning ta'kidlashicha, neoliberalizm bozor mexanizmlari va xususiylashtirishni targ'ib qilish orqali ta'lim tizimlarini sezilarli darajada o'zgartirib, ularni bozor munosabatlari ob'ektlariga aylantiradi. Bu ta'limni tijoratlashtirishga olib keladi, bu erda ta'lim muassasalari bozor tamoyillari asosida ishlay boshlaydi va talabalar ta'lim xizmatlarining iste'molchilari sifatida qaraladi. Xarvining ta'kidlashicha, bunday o'zgarishlar ta'limning ijtimoiy rolga putur etkazishi va ijtimoiy tengsizlikni kuchaytirishi mumkin.

Globallashuv jarayonlari va raqamli iqtisodiyotga o'tish kasbiy ta'limning ijtimoiy-iqtisodiy rivojlanishning asosiy elementi sifatida rolini kuchaytirishga yordam berdi. Jahon iqtisodiy forumining asoschisi va ijrochi raisi Klaus Shvab o'zining "To'rtinchi sanoat inqilobi" [8; 138-b.] kitobida globallashuv va raqamli iqtisodiyotga o'tishning jamiyatning turli jabhalariga, shu jumladan kasbiy ta'limga ta'sirini tahlil qiladi. Uning ta'kidlashicha, sun'iy intellekt, katta ma'lumotlar va narsalar interneti kabi texnologiyalarning jadal rivojlanishi ishchilardan yangi ko'nikma va malakalarni talab qiladi. Shu nuqtai nazardan, kasbiy ta'lim ijtimoiy-iqtisodiy rivojlanishning asosiy elementiga aylanib, tez o'zgaruvchan mehnat bozori sharoitlariga moslasha oladigan mutaxassislarni tayyorlashni ta'minlaydi. Manuel Kastels o'zining "Axborot davri: iqtisodiyot, jamiyat va madaniyat" [9; 609-b.] trilogiyasida axborot texnologiyalari ta'siri ostida jamiyatning o'zgarishini tahlil qiladi, xodimlarning malakasiga bo'lgan talablarning o'zgarishini va bilimlarni doimiy ravishda yangilash zarurligini ta'kidlaydi. Richard Sennet "Xarakterning korroziyasi" [10; 304-b.] kitobida moslashuvchan mehnat shakllarining shaxs va jamiyatga

ta'sirini ko'rib chiqadi, yangi ish sharoitlari kasbiy ko'nikmalarga qanday ta'sir qilishini va ishchilarni doimiy o'zgaruvchan talablarga moslashtirish zarurligini ta'kidlaydi. Sennett tadqiqotlari xodimlarning malakasiga bo'lgan talablarni o'zgartirishga va bilimlarni doimiy ravishda yangilash zarurligiga e'tibor qaratadi.

- Mehnat bozori va ta'lim tizimining integratsiyasiga, tadqiqotning markaziy yo'nalishlaridan biri bu kasbiy ta'limni mehnat bozorining o'zgaruvchan sharoitlariga moslashtirish muammosi. A.Brikmanning asarlarida ta'lim muassasalari va biznes o'rtasidagi hamkorlikning ahamiyati, shuningdek, bozor talablarini hisobga olgan holda ta'lim dasturlarini ishlab chiqish zarurligi ta'kidlangan. "O'z yo'lini topish" [11; 44-45-b.] maqolasida u Sibirda boshlang'ich va o'rta kasb-hunar ta'limini modernizatsiya qilishni ko'rib chiqadi, mutaxassislarni tayyorlash sifatini oshirish uchun ta'lim muassasalarini biznes muhiti bilan birlashtirishga e'tibor qaratadi. Ronald Barnett, ingliz oliy ta'lim tadqiqotchisi, universitet ta'limi tushunchalari va uning jamiyatdagi roli haqidagi asarlari bilan tanilgan [12; 169-b.]. Ularning asarlarida ta'lim muassasalari va biznes o'rtasidagi hamkorlikning ahamiyati, shuningdek, bozor talablarini hisobga olgan holda ta'lim dasturlarini ishlab chiqish zarurligi ta'kidlangan. Fanlarda raqamlashtirish sharoitida kadrlarni kasbiy tayyorlash masalalariga, xususan, Sergey Yuryevich Glazyevning "Kelajakka sakrash" [13; 768-b.] kitobida. Rossiya yangi texnologik va jahon iqtisodiy tuzilmalarida iqtisodiyotning raqamli transformatsiyasi bilan bog'liq muammolar va imkoniyatlarni ko'rib chiqadi, yangi sharoitlarda samarali ishlashga qodir mutaxassislarni tayyorlash uchun ta'lim tizimini moslashtirish zarurligini ta'kidlaydi, shuningdek bitiruvchilarning vakolatlari ish beruvchilar talablariga muvofiqligi muammosiga katta e'tibor qaratilmoqda. MDH mamlakatlarining strategik hujjatlarida ta'lim sohasini iqtisodiy jarayonlar bilan Dual ta'lim mexanizmlari va amaliyotga yo'naltirilgan dasturlar orqali birlashtirish muhimligi ta'kidlangan.

- Kasbiy ta'limning raqamlashtirish va innovatsion modellarini, kasb-hunar ta'limi sohasidagi zamonaviy tadqiqotlar raqamli texnologiyalar va sun'iy intellektning ta'lim jarayonlariga ta'siriga qaratilgan. Raqamli inqilob o'rganish usullarini o'zgartirib, ularni yanada moslashuvchan va shaxsiylashtirilgan qiladi. Jahon iqtisodiy forumi (WEF, 2020) tadqiqotlari mutaxassislarni yangi ish sharoitlariga tayyorlash zarurligini ta'kidlaydi, bunda moslashuvchan ko'nikmalar (yumshoq ko'nikmalar) texnik bilimlar kabi muhim bo'lib qoladi. Shu nuqtai nazardan, talabalarga to'rtinchi sanoat inqilobi sharoitida talab qilinadigan vakolatlarni o'zlashtirishga imkon beradigan "umr bo'yi o'rganish" (Lifelong Learning) va loyiha ta'limi tushunchalari alohida ahamiyatga ega.

- Bozor munosabatlarini o'zgartirishning ijtimoiy jihatlarini va ularning ta'limga ta'siri. Bozor munosabatlarining o'zgarishini ijtimoiy-falsafiy tahlil qilish, shuningdek, ijtimoiy adolat, ta'limning mavjudligi va raqamli tafovut masalalariga to'xtalib o'tadi. Jozef Stiglitz va Toma Piketti o'z asarlarida iqtisodiy jarayonlar natijasida yuzaga keladigan tengsizlik muammosiga, shu jumladan ta'lim kabi turli sohalarini tijoratlashtirishga e'tibor berishadi. Tom Piketti "XXI asrdagi kapital" [14; 592-b.] kitobida boylik va daromadlarni taqsimlashdagi tengsizlik dinamikasini tahlil qilib, davlat aralashuvsiz bozor kuchlari tengsizlikning kuchayishiga olib kelishi mumkinligini ta'kidlaydi. Piketlar faqat ta'lim sohasiga e'tibor qaratmasa-da, ta'limga notekis kirish iqtisodiy tengsizlikni kuchaytiradi, chunki ta'lim ijtimoiy-iqtisodiy harakatchanlikning asosiy omili hisoblanadi. Ushbu tadqiqotlar bilan tanishish ta'limni tijoratlashtirish jamiyatdagi tengsizlikning o'sishiga yordam beradigan mexanizmlarni chuqurroq tushunishga yordam beradi. Ta'lim sohasini jadal tijoratlashtirish natijasida yuzaga keladigan tengsizlik xavfi muhokama qilinadi.

Shuni yodda tutish kerakki, ta'lim tizimida bozorning rolini kuchaytirish sifatli ta'lim olishda nomutanosibliklarga olib kelishi mumkin. Yangi davr tadqiqotlarda ijtimoiy zaif guruhlarini yangi ta'lim sharoitlariga moslashtirish muammosini, shuningdek mutaxassislarni tayyorlashda ishtirok etadigan biznes tuzilmalarida ijtimoiy javobgarlikni shakllantirish masalalarini ko'rib chiqadi.

Kasb-hunar ta'limi tizimidagi bozor munosabatlari va integratsiya jarayonlarining o'zgarishini ijtimoiy-falsafiy tahlil qilish ushbu soha dinamik o'zgarishlar holatida ekanligini ko'rsatadi. Asosiy tendentsiyalar ta'limning iqtisodiy jarayonlar bilan aloqasini kuchaytirish, o'quv dasturlarini raqamlashtirish, Dual ta'limni joriy etish va kelajakdagi mehnat bozori uchun zarur bo'lgan yangi vakolatlarni rivojlantirishdir. Biroq, bu jarayonlar ta'limni modernizatsiya qilishning ijtimoiy va falsafiy jihatlarini hisobga olgan holda kompleks yondashuvni talab qiladi. Keyingi tadqiqotlar bozor, davlat va ta'lim muassasalarining barqaror o'zaro ta'siri modellarini ishlab chiqishga, shuningdek globallashtirish va raqamli transformatsiya sharoitida ta'lim tengsizligini kamaytirish bo'yicha echimlarni topishga qaratilgan bo'lishi kerak.

NATIJA VA MUHOKAMA

Zamonaviy tadqiqotlar shuni ko'rsatadiki, ta'lim tizimining bozor munosabatlariga qo'shilishi bir qator qarama-qarshiliklar va qiyinchiliklar bilan birga keladi:

Ta'limni tijoratlashtirish. Ta'lim sohasining jadal bozor o'zgarishi uning tijoratlashuvining kuchayishiga olib keladi. Ijtimoiy zaif guruhlar uchun ta'limning mavjudligi pasaymoqda.

Raqamlashtirish va mehnat bozoriga moslashish. Raqamli texnologiyalarni rivojlantirish yangi kadrlar tayyorlash formatlarini talab qiladi. Tadqiqotchilar tomonidan olib borilgan tadqiqotlar xodimlarning vakolatlarni doimiy ravishda yangilab turish zarurligini tasdiqlaydi.

Biznes va davlatning ijtimoiy javobgarligi. Ta'limda davlat-xususiy sheriklik zarurati. Mutaxassislarni tayyorlashda raqamli platformalarning rolini ta'kidlaydi.

Ijtimoiy zaif guruhlarini moslashtirish. Ijtimoiy zaif guruhlarini ta'lim muhitiga integratsiya qilish mexanizmlarini ko'rib chiqadi. Mavzu bo'yicha quydagi asosiy munozaralarni keltirib o'tamiz: Neoliberal ta'lim modeli, bunda ta'limning bozor modeli xavfini ta'kidlanadi. Badiiy adabiyotlarda bitiruvchilarning vakolatlari ish beruvchilar talablariga mos kelmasligi tahlil qilinadi. Raqamli transformatsiyaning ta'sirida raqamlashtirish o'rganishni shaxsiylashtirishini ta'kidlaydi. Castellsning axborot jamiyati sharoitida ishchilarga qo'yiladigan talablarning o'zgarishini qayd etadi.

Biznes va ta'limni birlashtirish. Munozara biznesning ta'lim dasturlarini shakllantirishdagi roli atrofida ko'rib chiqildi. Ish beruvchilarni qo'llab-quvvatlash amaliy tayyorgarlikni kengaytiradi. Ammo akademik darajani pasaytirish xavfi ortadi.

Global muammolar va mintaqaviy xususiyatlar. Raqamli iqtisodiyotga o'tish ta'lim standartlarini qayta ko'rib chiqishni talab qiladi.

O'zbekistonda raqamli iqtisodiyot uchun kadrlar tayyorlashga e'tibor qaratilmoqda. Mavzu faol munozaralar mavzusi bo'lib qolmoqda. Zamonaviy tadqiqotlar ta'lim tizimining bozorga moslashishi va uning ijtimoiy funktsiyasi o'rtasida muvozanat zarurligini ta'kidlaydi.

XULOSA

Mavzuimiz doirasida quydagi ilmiy-nazariy xususiyatlarga ega xulosalarimiz bilan tanishtirmoqchimiz:

1. Zamonaviy kasb-hunar ta'limi tizimi tobora bozor munosabatlariga qo'shilib, uni tijoratlashtirishga olib keladi. Asosiy qarama-qarshilik - bu bozor mexanizmlarining ortib borayotgan ta'siri bilan ta'limning ijtimoiy mavjudligini saqlab qolish zarurati.

2. Vakolatlarni raqamlashtirish va o'zgartirish Iqtisodiyotdagi global o'zgarishlar ishchilarning vakolatlarini doimiy ravishda yangilashni talab qiladi. Asosiy muammo - ta'lim dasturlarini raqamli, moslashuvchanlik va shaxsiylashtirilgan yondashuvga moslashtirish.

3. Biznesning ijtimoiy javobgarligi Biznes tuzilmalari ta'lim jarayonida ishtirok etishi kerak, ammo ta'limni faqat bozor manfaatlariga bo'ysundirish xavfi saqlanib qolmoqda. Davlat, biznes va ta'lim muassasalari o'rtasida ko'p tomonlama muvofiqlashtirish muhimdir.

4. Ijtimoiy tengsizlik va zaif guruhlarning moslashuvi Neoliberal ta'lim modeli ta'lim tengsizligining kuchayishiga olib keladi. Zaif guruhlarni yangi sharoitlarga moslashtirishning maxsus mexanizmlari zarur.

Mavzuni ijtimoiy-falsafiy jihatdan tadqiq etishni yanada rivojlantirish bo'yicha quydagi taklif va tavsiyalar ishlab chiqildi:

1. Davlat-xususiy sheriklikni rivojlantirish, biznes ishtirokida qo'shma ta'lim dasturlarini yaratish. Davlat buyurtmalari va biznes grantlari hisobidan talabalar va ta'lim muassasalarini moliyaviy qo'llab-quvvatlash.

2. Ta'lim jarayonini raqamlashtirish, raqamli ta'lim platformalari va moslashuvchan ta'lim texnologiyalarini joriy etish. Raqamli iqtisodiyotda malaka oshirish dasturlarini ishlab chiqish.

3. Ta'lim olish imkoniyatidagi ijtimoiy tengsizlikni bartaraf etish. Ijtimoiy zaif guruhlar uchun teng imkoniyatlarni ta'minlash bo'yicha davlat choralari. Bepul ta'lim resurslari va dasturlarini yaratish.

4. Moslashuvchan ta'lim standartlarini ishlab chiqish, raqamli iqtisodiyot talablarini hisobga olgan holda ta'lim standartlarini yangilash. Dual ta'lim va uzluksiz ta'lim tizimini kengaytirish.

5. Bozor integratsiyasi va ta'lim samaradorligini baholash, bitiruvchilarning mehnat bozoriga moslashuvchanligini baholash ko'rsatkichlarini ishlab chiqish. Ta'limni tijoratlashtirishning uning mavjudligi va sifatiga ta'sirini monitoring qilish.

Zamonaviy kasb-hunar ta'limi tizimi bozor manfaatlari, ijtimoiy vazifalar va raqamli muammolar o'rtasidagi muvozanatni talab qiladi. Kelajakdagi mutaxassislarning vakolatlarini samarali shakllantirish uchun biznes, davlat va ta'lim muassasalarini birlashtirish zarur.

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**ГЕНДЕРНОЕ РАВЕНСТВО И СЕКУЛЯРИЗМ: ВОПРОСЫ ОТДЕЛЕНИЯ
РЕЛИГИИ ОТ ГОСУДАРСТВЕННОЙ ВЛАСТИ В ЦЕНТРАЛЬНОЙ АЗИИ
ПЕРИОДА КОЛОНИАЛЬНОГО РЕЖИМА**

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Аннотация: Гендерное равенство и секуляризм в контексте региона Центральной Азии периода царской власти представляют собой сложные процессы, включающие как реформаторские движения, так и попытки отделения религии от государства. В статье рассматриваются идеи джадидизма – влиятельного течения мусульманского модернизма, которое сыграло ключевую роль в реформах конца XIX – начала XX веков. Особое внимание уделяется взглядам джадидов на гендерное равенство, их усилиям по модернизации образования для женщин и отделению религиозных институтов от государственных структур. Анализируются дискуссии вокруг этих вопросов, а также влияние реформаторов на общественное сознание того времени.

Ключевые слова: Гендерное равенство; Секуляризм; Центральная Азия; Царская власть; Джадиды; Реформационное движение; Отделение религии от государственной власти.

**GENDER TENGLIGI VA SEKULARIZM: MARKAZIY OSIYODA
MUSTAMLAKACHILIK DAVRIDA DINNI DAVLAT HOKIMIYATIDAN AJRATISH
MASALALARI**

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Annotatsiya: Gender tengligi va sekulyarizm Markaziy Osiyoning podsho Rossiyasi davridagi ijtimoiy-siyosiy kontekstida murakkab jarayonlarni ifodalaydi. Bu jarayonlar islohotchi harakatlarni hamda dinni davlatdan ajratishga bo'lgan urinishlarni o'z ichiga olgan. Ushbu maqolada XIX asr oxiri – XX asr boshlarida muhim rol o'ynagan musulmon modernizmining ta'sirchan yo'nalishi — jadidchilik g'oyalari tahlil qilinadi. Jadidlarning gender tengligiga bo'lgan qarashlari, ayollar uchun ta'lim tizimini modernizatsiya qilishga qaratilgan sa'y-harakatlari va diniy institutlarni davlat tuzilmalaridan ajratish yo'lidagi intilishlariga alohida e'tibor qaratiladi. Shuningdek, bu masalalar atrofida kechgan munozaralar va islohotchilarning o'sha davr jamiyat ongiga ko'rsatgan ta'siri tahlil qilinadi.

Kalit so'zlar: Gender tengligi; Sekulyarizm; Markaziy Osiyo; Podsho Rossiyasi; Jadidlar; Islohot harakati; Dinni davlat hokimiyatidan ajratish.

**GENDER EQUALITY AND SECULARISM: ISSUES OF THE SEPARATION OF
RELIGION FROM STATE POWER IN CENTRAL ASIA DURING THE COLONIAL
REGIME**

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Abstract: Gender equality and secularism in the context of Central Asia during the Tsarist era represent complex processes that encompassed both reformist movements and efforts to separate religion from the state. This article examines the ideas of Jadidism—an influential trend in Muslim modernism that played a key role in the reforms of the late 19th and early 20th centuries.

Special attention is given to the Jadids' views on gender equality, their efforts to modernize education for women, and their attempts to separate religious institutions from state structures. The article analyzes contemporary debates on these issues as well as the impact of the reformers on public consciousness during that period.

Keywords: Gender equality; Secularism; Central Asia; Tsarist rule; Jadids; Reform movement; Separation of religion and state power.

ВВЕДЕНИЕ

Вопросы гендерного равенства и секуляризма занимают важное место в общественных дискуссиях современности, однако корни этих процессов уходят далеко в прошлое. В частности, регион Центральной Азии в период царской власти был ареной значительных социальных изменений, связанных с попытками модернизации общества и его интеграции в мировое сообщество. Одним из ключевых факторов, влиявших на эти изменения, было движение джадидов, которые стремились к обновлению исламских традиций и внедрению западных идей в жизнь мусульманского населения.

Цель настоящей статьи заключается в анализе взглядов джадидов на вопросы гендерного равноправия и секуляризации общества, а также в рассмотрении влияния их идей на развитие региона в указанный исторический период. Мы рассмотрим, каким образом джаиды подходили к вопросу гендерных отношений, как они видели роль женщины в обществе и какую позицию занимали относительно отделения религии от государственного управления.

Исторический контекст: Центральная Азия под властью Российской империи представляла собой сложный конгломерат различных этнических групп, культур и религий. Несмотря на многовековую историю ислама в этом регионе, многие аспекты общественной жизни оставались традиционными и консервативными. Женщины часто находились в подчиненном положении, а религиозные институты играли значительную роль в управлении обществом.

Конец XIX века стал временем значительных перемен. Модернизация промышленности, транспорта и связи привела к усилению контактов между различными регионами империи, что способствовало распространению новых идей и течений. Одним из таких движений стало джадидское направление, возникшее среди образованных слоев мусульманского общества.

ОСНОВНАЯ ЧАСТЬ

Джаиды выступали за обновление исламской традиции, внедрение современных методов обучения и науки, а также за улучшение положения женщин в обществе. Они считали, что только через образование и модернизацию можно достичь прогресса и улучшить условия жизни людей. Движение джадидов зародилось в конце XIX века под влиянием контактов с западными странами и культурного обмена между Россией и мусульманскими народами. Основные идеологи движения, такие как Исмаил Гаспринский, Мухаммед-Али Дахбеди, Абдурашид Ибрагимов и другие, призывали к реформам в области образования, культуры и общественной жизни. Они считали, что традиционные формы ислама должны быть адаптированы к современным условиям, чтобы соответствовать требованиям времени и способствовать прогрессу общества.

Одним из центральных аспектов джадидской программы была идея создания новой системы образования, основанной на принципах светскости и рациональности. Джаиды

критиковали устаревшие методы обучения в медресе, где основное внимание уделялось изучению религиозных текстов без учета реальных потребностей общества. Вместо этого они предлагали ввести современные учебные дисциплины, включая естественные науки, математику и иностранные языки, что должно было подготовить новое поколение мусульман к активной роли в общественном развитии.

Взгляды джадидов на гендерное равенство. Одним из центральных аспектов деятельности джадидов была борьба за права женщин. Они рассматривали образование как основной инструмент повышения статуса женщин в обществе. Джадиды утверждали, что без доступа к образованию женщина не сможет стать полноценным членом общества и внести свой вклад в его развитие. Важной фигурой в этом движении стала Фатима Ханафи, одна из первых женщин-писательниц и активисток за права женщин в Центральной Азии. Она выступала за предоставление женщинам равных прав с мужчинами, включая право на образование, участие в общественной жизни и возможность занимать государственные должности. Джадиды также критиковали традиционные брачные обычаи, такие как ранние браки и полигамия, считая их препятствием на пути к прогрессу. Они призывали к введению более справедливых законов, регулирующих семейные отношения, и к созданию условий, при которых женщины могли бы самостоятельно принимать решения о своей судьбе. Гендерные отношения в контексте джадидизма: Джадиды действительно играли ключевую роль в изменении представлений о положении женщин в обществе, но их подходы к этому вопросу имели определенные ограничения.

Рассмотрим несколько дополнительных аспектов: Образовательный аспект: Джадиды осознавали важность образования для повышения социального статуса женщин. Они создавали школы для девочек, где преподавались не только традиционные предметы, связанные с религией, но и светские дисциплины, такие как математика, история и литература. Эти школы стали первыми шагами к тому, чтобы дать женщинам доступ к знаниям, ранее доступным лишь мужчинам. Однако, несмотря на эти усилия, количество таких школ оставалось небольшим, и большинство женщин все еще не имело возможности получить качественное образование.

Роль женщины в семье и обществе: Джадиды подчеркивали значимость участия женщин в общественной жизни, но при этом они не отвергали полностью традиционные представления о роли женщины в семье. Многие из них продолжали считать, что основная функция женщины заключается в воспитании детей и ведении домашнего хозяйства. Таким образом, их взгляды на гендерные отношения оставались достаточно консервативными, хотя и включали элементы прогресса.

Критика традиционных норм: Некоторые джадиды критиковали отдельные аспекты традиционного образа жизни, такие как ранние браки и многоженство. Они считали, что эти практики наносят ущерб здоровью и благополучию женщин. Однако их критика часто оставалась умеренной, поскольку они опасались конфликта с консервативным духовенством и традиционным обществом. Участие женщин в политической деятельности: Вопрос о праве женщин участвовать в политической жизни практически не поднимался джадистами. Они сосредоточивались главным образом на образовании и культуре, оставляя политику мужчинам. Это свидетельствует о том, что их представление о гендерных ролях оставалось в значительной степени патриархальным.

Социально-экономические факторы: Важным фактором, сдерживающим продвижение гендерного равенства, являлись социально-экономические условия в регионе.

Женщины традиционно занимались домашним хозяйством и уходом за детьми, что ограничивало их возможности для получения образования и участия в общественной жизни. Экономическая зависимость женщин от мужчин также играла свою роль в сохранении традиционных гендерных ролей.

Влияние европейской культуры: Европейский опыт эмансипации женщин оказал значительное влияние на джадидов. Они восхищались достижениями европейских стран в области прав женщин и пытались перенести этот опыт на почву своих обществ. Однако процесс адаптации западных идей к местным условиям оказался сложным и противоречивым.

Реакция консервативных кругов: Идеи джадидов о повышении статуса женщин вызывали резкую критику со стороны консервативных слоев общества. Консерваторы обвиняли джадидов в разрушении традиционных ценностей и угрозе национальной идентичности. Это привело к тому, что многие реформы в области гендерного равенства остались незавершенными.

Последствия для современного общества: Несмотря на свои ограничения, Джадидистское движение оставило важный след в истории Центральной Азии. Оно заложило основы для дальнейшего обсуждения вопросов гендерного равенства и просвещения женщин. Современные феминистские движения в регионе продолжают развивать идеи, впервые озвученные джадитами.

Джадиды и секуляризация. Секуляризация, то есть отделение религии от государственной власти, была еще одним важным направлением деятельности джадидов. Они верили, что для успешного развития общества необходимо освободить государственную политику от влияния религиозных догматов и сделать её более рациональной и ориентированной на общественные интересы.

Одним из ярких примеров этого подхода является деятельность Исмаила Гаспринского, одного из лидеров джадидского движения. Он выступал за создание светского образования, основанного на научных принципах, и считал, что государство должно быть нейтральным в вопросах веры.

Джадиды также поддерживали идею разделения властей, полагая, что религиозные лидеры не должны иметь прямого влияния на политические решения. Они настаивали на том, что законы должны основываться на общечеловеческих ценностях и интересах всего общества, а не на религиозных предписаниях. Джадидисты действительно играли ключевую роль в продвижении идей секуляризации в Центральной Азии, стремясь ограничить влияние религии на государственные институты и создать более светское общество.

Рассмотрим дополнительные аспекты этой темы: Разделение религии и государства: Джадиды понимали, что для успешной модернизации общества необходимо провести четкое разделение между религиозной и государственной властью. Они считали, что религиозные лидеры не должны иметь прямой контроль над государственными делами, так как это может привести к конфликту интересов и замедлить процесс реформирования общества. Это было особенно актуально в условиях Российской империи, где православная церковь имела значительное влияние на государственное управление.

Светская система образования: Одной из главных целей джадидов было создание светской образовательной системы, независимой от религиозных институтов. Они верили, что такая система позволит молодым людям получать знания, необходимые для активного

участия в общественной жизни и экономического развития страны. Школы, созданные джадидами, отличались от традиционных медресе тем, что в них преподавались не только религиозные дисциплины, но и светские науки, такие как математика, физика, география и история. Отношение к шариату: Хотя джадиды не отрицали важности ислама как духовной основы общества, они выступали за пересмотр некоторых положений шариата, которые, по их мнению, мешали прогрессу. Они предлагали адаптировать исламские законы к современным условиям, делая акцент на их гуманистической составляющей. Например, они критиковали практику полигамии и ранние браки, считая их вредными для здоровья и благополучия людей.

Культурное наследие и национальная идентичность: Важно отметить, что джадиды не стремились полностью отказаться от исламской традиции. Они понимали значение религии как неотъемлемой части культурной идентичности народов Центральной Азии. Поэтому их подход к секуляризации был скорее умеренным, чем радикальным. Они хотели сохранить лучшие черты исламской культуры, одновременно внедряя современные научные и образовательные стандарты.

Политическое участие и гражданское общество: Джадиды также поддерживали идею создания гражданского общества, независимого от религиозных структур. Они пропагандировали активное участие граждан в политической жизни, считая, что каждый человек имеет право выражать свое мнение и влиять на принятие решений. Это включало создание различных общественных организаций, клубов и ассоциаций, которые могли бы служить площадкой для обсуждения актуальных проблем и поиска решений.

Реформа судебной системы: Одним из важных направлений деятельности джадидов была реформа судебной системы. Они выступали за создание независимых судов, свободных от влияния религиозных авторитетов. Это предполагало введение светских законов, основанных на принципах справедливости и равенства перед законом. Джадиды считали, что судебная система должна быть прозрачной и доступной для всех граждан, независимо от их социального статуса и религиозных убеждений.

Противоречия и сопротивление: Как и в случае с гендерными вопросами, идеи секуляризации джадидов встречали сильное сопротивление со стороны консервативных кругов. Религиозные лидеры и традиционалисты обвиняли джадидов в попытке разрушить духовные основы общества и навязывании чуждых культурных ценностей. Это приводило к напряженности внутри общества и затрудняло реализацию реформаторских инициатив.

Наследие джадидизма: Несмотря на трудности и препятствия, джадиды оставили глубокий след в истории Центральной Азии. Их идеи о секуляризации и отделении религии от государства легли в основу последующих реформ, проводимых уже после распада Российской империи. Современное понимание гражданского общества и правового государства в странах Центральной Азии во многом основано на тех принципах, которые впервые были выдвинуты Джадидами.

ЗАКЛЮЧЕНИЕ

В заключении можно сказать что движение джадидов сыграло важную роль в истории Центральной Азии, проложив путь к социальному и культурному обновлению региона. Джадидизм, возникший как реакция на вызовы эпохи, стремился к преодолению застойных явлений, вызванный устойчивостью устоями, и стал катализатором глубинных реформ, направленных на модернизацию. Основной акцент джадиды делали на

образование и просвещение, осознавая, что только посредством знаний можно достичь прогресса и создать условия для формирования продвинутых идей для развития края.

С точки зрения гендерного равенства и секуляризации, джаиды внесли большой вклад в освобождение протокола от догматизма и демократии. Их инициативы предусматривают открытие школ для девочек, продвижение новых образовательных программ и поддержку получения женщинами образования и участие в общественной жизни. В условиях сопротивления со стороны более консервативных слоев общества джаиды постепенно продвигали идеи важности участия всех членов общества, независимо от пола, в построении более справедливости.

Важнейшим достижением джаидов стало переосмысление границы между религией и экономией. Подход к секуляризации, предлагаемый этим движением, позволяет интегрировать элементы современности и исламской культуры, создавая гармоничную основу для реформы. Несмотря на трудности и препятствия политики, джаиды сумели заложить фундамент для последующих преобразований, которые впоследствии были приняты в политических и социальных реформах XX века. Их наследие по-прежнему живо, напоминая современному обществу о важности стремления к равноправию, уважению к разнообразию и свободе культуры личности. Сегодня идеи джаидов уходят на отражение в современных инициативах, направленных на улучшение условий жизни и развитие демократических ценностей, подтверждая оригинальность их вклада в историю.

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СОЦИАЛЬНОЕ ЗНАЧЕНИЕ ДЖАДИДОВ В СЕКУЛЯРИЗАЦИИ ОБЩЕСТВА: ИСТОРИКО-СОЦИАЛЬНЫЙ АНАЛИЗ НА ПРИМЕРЕ УЗБЕКИСТАНА.

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Аннотация: В данной статье исследуется социальное значение движения джадидов в процессе секуляризации общества, с акцентом на исторический контекст Узбекистана конца XIX — начала XX века. Анализируется влияние джадидизма на модернизацию образовательной системы, культурную трансформацию и развитие национального самосознания. Обсуждаются теоретические аспекты социальной модернизации и секуляризации, а также рассматривается роль джадидов как агентов изменений, способствующих формированию основ современного секулярного общества.

Ключевые слова: джадиды, секуляризация, общество, Узбекистан, модернизация, образование, культура, социальные трансформации.

ЖАМИЯТНИНГ СЕКУЛЯРЛАШУВИДА ЖАДИДЛАРНИНГ ИЖТИМОЙ АҲАМИЯТИ: ЎЗБЕКИСТОН МИСОЛИДА ТАРИХИЙ-ИҶТИМОЙ ТАҲЛИЛ

Пулатов Қ.А.

Фарғона давлат университети ўқитувчиси

Аннотация: Ушбу мақолада жадидлар ҳаракатининг жамиятни секулярлашув жараёнидаги ижтимоий аҳамияти тадқиқ этилади. Асосий эътибор XIX асрнинг охири — XX аср бошларидаги Ўзбекистон тарихий контекстига қаратилган. Жадидчиликнинг таълим тизимини модернизация қилиш, маданий трансформация ва миллий онғни шакллантиришга кўрсатган таъсири таҳлил этилади. Жамиятни модернизация қилиш ва секулярлаштиришнинг назарий жиҳатлари муҳокама қилиниб, жадидлар замонавий секуляр жамият асосларини шакллантиришдаги ўзгариш агентлари сифатида кўриб чиқилади.

Калит сўзлар: жадидлар, секулярлашув, жамият, Ўзбекистон, модернизация, таълим, маданият, ижтимоий трансформациялар.

THE SOCIAL SIGNIFICANCE OF THE JADIDS IN THE SECULARIZATION OF SOCIETY: A HISTORICAL AND SOCIAL ANALYSIS BASED ON THE EXAMPLE OF UZBEKISTAN

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Abstract: This article explores the social significance of the Jadid movement in the process of secularization of society, with a focus on the historical context of Uzbekistan in the late 19th and early 20th centuries. It analyzes the impact of Jadidism on the modernization of the educational system, cultural transformation, and the development of national self-awareness. Theoretical aspects of social modernization and secularization are discussed, as well as the role of the Jadids as agents of change contributing to the formation of the foundations of a modern secular society.

Keywords: Jadids, secularization, society, Uzbekistan, modernization, education, culture, social transformations.

ВВЕДЕНИЕ

Движение джадидов сыграло ключевую роль в процессе модернизации и секуляризации общества Средней Азии, включая территорию современного Узбекистана. Джадиды, вдохновленные прогрессивными идеями и западноевропейскими просветительскими концепциями, способствовали распространению новых методов обучения и пересмотру традиционных устоев, что привело к радикальным изменениям в социокультурной структуре региона. Этот период характеризуется стремлением к синтезу национальной идентичности и адаптации к современным вызовам, что нашло свое отражение в деятельности джадидов. Движение джадидов в Средней Азии, в особенности на территории современного Узбекистана, стало значимым этапом в истории региона, сыграв важнейшую роль в процессах модернизации и секуляризации общества. Джадиды, вдохновленные прогрессивными идеями и западноевропейскими просветительскими концепциями, выступали за обновление социальных, образовательных и культурных структур, стремясь привнести современный взгляд на роль религии и традиций в общественной жизни. Джадидизм зародился в конце XIX века и представлял собой реакцию на необходимость адаптации мусульманских сообществ Средней Азии к новым вызовам, связанным с колониальным влиянием Российской империи, а также с возрастающей ролью мировой экономики и политики. Представители этого движения, среди которых выделялись такие известные деятели, как Исмаил Гаспринский и Абдурауф Фитрат, активно продвигали идею модернизации через просвещение, внедрение новых методов обучения и реформу образовательных программ. Они стремились к тому, чтобы новое поколение могло критически воспринимать действительность и вносить вклад в развитие общества на равных с западными странами.

Одной из ключевых целей джадидов была реформа традиционной системы образования. Они вводили светские дисциплины, такие как естественные науки, математика и география, наряду с религиозным обучением, что способствовало формированию более широкого мировоззрения у молодежи. Джадиды считали, что образование должно быть инструментом не только духовного воспитания, но и развития личности, способной адаптироваться к изменениям и вносить позитивные изменения в общественную жизнь.

ОСНОВНАЯ ЧАСТЬ

Джадидизм также способствовал ослаблению влияния устаревших традиционных норм и обычаев, которые сдерживали развитие общества. В своей деятельности они не только поднимали вопросы о необходимости реформ, но и обращались к литературе, театру и публицистике как к способам донесения своих идей. Драматургия и публикации джадидов часто затрагивали темы социальной справедливости, роли женщин в обществе и необходимости инноваций, что стимулировало общественное обсуждение и закладывало основы для более светского и современного общества.

Секуляризация, вызванная деятельностью джадидов, носила сложный и многоуровневый характер. Она сопровождалась не только изменением образовательной и культурной среды, но и переосмыслением национальной идентичности. Джадиды стремились к синтезу традиционных ценностей и новых идей, что создавало основу для формирования уникального пути модернизации, включающего элементы как национальной, так и глобальной культуры. В результате, их усилия привели к заметному обновлению социальной структуры, усилению стремлений к независимости и развитию

новых форм самосознания, которые стали важным этапом в процессе становления современного Узбекистана.

Таким образом, деятельность джадидов сыграла роль катализатора в процессе модернизации Средней Азии, способствуя культурному и социальному обновлению, повышению уровня образования и развитию критического мышления. Их идеи и действия не только изменили облик общества того времени, но и заложили основы для дальнейших реформ, которые продолжали развиваться в последующие десятилетия.

Исторический контекст и предпосылки возникновения джадидизма: Движение джадидов в Средней Азии, в особенности на территории современного Узбекистана, стало значимым этапом в истории региона, сыграв важнейшую роль в процессах модернизации и секуляризации общества. Джадиды, вдохновленные прогрессивными идеями и западноевропейскими просветительскими концепциями, выступали за обновление социальных, образовательных и культурных структур, стремясь привнести современный взгляд на роль религии и традиций в общественной жизни. Джадидизм зародился в конце XIX века и представлял собой реакцию на необходимость адаптации мусульманских сообществ Средней Азии к новым вызовам, связанным с колониальным влиянием Российской империи, а также с возрастающей ролью мировой экономики и политики. Представители этого движения, среди которых выделялись такие известные деятели, как Исмаил Гаспринский и Абдурауф Фитрат, активно продвигали идею модернизации через просвещение, внедрение новых методов обучения и реформу образовательных программ. Они стремились к тому, чтобы новое поколение могло критически воспринимать действительность и вносить вклад в развитие общества на равных с западными странами.

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Джадидизм и его роль в модернизации образования: Одним из важнейших аспектов деятельности джадидов было стремление к реформированию образовательной системы, которое стало ключевым элементом их программы модернизации. Джадиды считали, что традиционная система образования, базирующаяся исключительно на изучении религиозных текстов и догматике, не отвечает потребностям быстро меняющегося мира. Они осознавали необходимость внедрения новых знаний и навыков, которые могли бы способствовать прогрессу общества и его адаптации к современным реалиям.

Основой реформы стала методика усুলиджадид, разработанная самими джадидами. Эта методика предполагала отход от традиционного религиозного образования и переход к светскому подходу, который включал изучение естественных наук, математики, географии и других дисциплин, необходимых для полноценного функционирования в современном мире. Усиливалась роль практических занятий и самостоятельного изучения материала, что способствовало развитию критического мышления и самостоятельности учащихся.

Новая система образования давала возможность получить знания, необходимые для успешной интеграции в современное общество. Ученики осваивали навыки анализа информации, решения задач и принятия решений, что было крайне важно для создания нового поколения, способного участвовать в социально-экономическом развитии страны. Таким образом, образовательные реформы джадитов сыграли значительную роль в формировании интеллектуальных ресурсов, способных внести вклад в прогресс общества.

Кроме того, джадиды активно поддерживали идею всеобщего образования, считая, что каждый человек должен иметь доступ к знаниям независимо от своего социального статуса или пола. Это был радикальный шаг, учитывая традиционные представления о месте женщины в обществе. Открытие женских школ и вовлечение девушек в учебный процесс стало важной частью программы джадитов.

Таким образом, усилия джадитов в области образования способствовали созданию основы для дальнейшего прогресса и модернизации общества. Их инициатива сыграла важную роль в подготовке кадров, способных адаптироваться к изменяющимся условиям и стать активными участниками общественной жизни.

Влияние джадитов на социальные и культурные преобразования: Джадиды играли значимую роль не только в образовательной сфере, но и в культурных и социальных трансформациях общества. Их влияние распространилось на литературу, театр и другие формы искусства, способствуя формированию нового общественного сознания. Важным аспектом этого процесса было стремление джадитов к пересмотру традиционных ценностей и установок, что находило отражение в их литературных произведениях и театральных постановках. Одним из ярких примеров такого влияния является творчество Абдурауфа Фитрата, одного из ведущих деятелей джадидизма. Его произведения, такие как "Мунозара" ("Спор"), затрагивают вопросы социальной справедливости и критиковали консервативные религиозные догмы. В своих работах Фитрат поднимает важные общественные проблемы, такие как неравенство, бедность и отсутствие доступа к образованию, призывая к необходимости перемен. Другой выдающийся представитель джадизма, Мунавар-Кары Абдурашидханов, также внес значительный вклад в культурные и социальные преобразования. Его публикации, такие как газета "Тарджуман", содержали материалы, направленные на пробуждение национального самосознания и критику устаревших традиций. Абдурашидханов выступал за освобождение общества от оков консерватизма и продвижение прогрессивных идей.

Эти деятели использовали свои литературные и публицистические таланты для пропаганды новых взглядов на жизнь, стремясь изменить отношение людей к таким вопросам, как права человека, социальная справедливость и свобода мысли. Их труды способствовали формированию нового культурного пространства, в котором традиции прошлого переплетались с современными идеями и взглядами. Исследователи отмечают, что влияние джадитов на культуру и общественную мысль было многогранным и глубоким. Например, по мнению ученого А. Х. Ходжаева, "джадидизм стал катализатором значительных изменений в культурной жизни Центральной Азии, способствовал появлению новых форм художественного выражения и переосмыслению традиционных ценностей" [Ходжаев, 2003].

Связь джадидизма и процесса секуляризации: Джадидизм действительно сыграл существенную роль в процессе секуляризации общества, способствуя смещению акцентов с религиозных норм на светские знания и навыки. Это направление, зародившееся в конце XIX – начале XX веков, представляло собой реакцию на вызовы современности и стремилось модернизировать традиционные институты и практики, привнося в них элементы западного научного и образовательного опыта.

Секуляризация, понимаемая как процесс отделения религии от государственной власти и общественной жизни, стала одним из ключевых компонентов программы джадитов. Они стремились к тому, чтобы религиозные нормы перестали доминировать во всех сферах жизни, уступив место рациональным и научным подходам. В этом смысле джаиды можно рассматривать как предвестников секулярных тенденций, которые впоследствии получили широкое распространение в постсоветском пространстве.

Одной из важных составляющих секуляризационного процесса, инициированного джадидизмом, было развитие науки и образования. Джаиды придавали большое значение обучению светским дисциплинам, таким как математика, естествознание, география и история. Они полагали, что только через получение широкого спектра знаний возможно обеспечить устойчивый социальный прогресс и улучшить качество жизни населения.

С другой стороны, секуляризация способствовала укреплению гражданских институтов и формированию правового государства. Отход от религиозных норм и традиций создал условия для появления новых правовых систем, основанных на принципах равенства перед законом и защиты прав человека. Это, в свою очередь, стало основой для построения современного национального государства, в котором религия играла второстепенную роль.

Исследования показывают, что джадизмы оказали значительное влияние на формирование национальной идентичности и гражданского общества в регионе. По словам известного исследователя истории Центральной Азии М. Б. Олкотт, "джадидская интеллигенция сыграла решающую роль в создании национальных государств, обеспечив основу для строительства светских обществ" [Олкотт, 1999]. Это подтверждает важность джадизма как фактора, способствующего секулярным преобразованиям и формированию современных государственных структур.

Джаиды и политическая активность: Деятельность джадитов оказывала значительное влияние не только на культурную, но и на политическую жизнь общества. В условиях усиления национального самосознания джаиды стали важными проводниками идей независимости и самоопределения. Политическая активность джадитов проявилась в нескольких ключевых аспектах. Во-первых, джаиды активно участвовали в создании и

поддержке различных политических объединений и движений, которые выступали за расширение прав и свобод коренного населения. Одним из наиболее известных примеров такой организации является партия «Иттифак» («Единство»), основанная в 1905 году. Эта партия объединяла различные слои общества, включая интеллигентов, торговцев и ремесленников, и выступала за предоставление автономии Туркестану и защиту интересов местного населения. Во-вторых, джадиды активно участвовали в разработке концептуальной базы для будущего государственного устройства. Они рассматривали различные модели самоуправления, опираясь на опыт западных стран и адаптируя его к местным условиям. Идеи федерализма и децентрализации власти были одними из центральных тем обсуждения в среде джадидов. Они верили, что такое устройство позволит сохранить единство региона и одновременно обеспечить защиту прав отдельных народов.

Важной составляющей политической активности джадидов было также их участие в борьбе за национальную идентичность. Они подчеркивали уникальность и ценность местной культуры и традиций, что способствовало росту национального самосознания. Это, в свою очередь, создало благоприятную почву для последующих политических движений, направленных на достижение независимости. По мнению ряда ученых, например, А. Касимова, "джадидизм стал основой для формирования современной политической культуры в Узбекистане, способствуя развитию демократических принципов и укреплению национального самосознания" [Касимов, 2010]. Это свидетельствует о том, что политическая активность джадидов была важнейшим компонентом их общего плана модернизации и обновления общества.

Роль джадидизма в формировании национальной идентичности: Просветители играли ключевую роль в формировании новой национальной идентичности, которая основывалась на сочетании светского образования и культурной самобытности. Этот процесс имел долгосрочные последствия, способствуя возникновению чувства национального единства и социальной интеграции. Рассмотрим подробнее этот феномен с опорой на научные исследования и данные. Они стремились к созданию новой идентичности, свободной от жестких рамок традиционного религиозного мировоззрения. Они утверждали, что народы Центральной Азии должны сохранять свою культурную уникальность, но при этом адаптироваться к современным условиям, внедряя светские принципы и методы образования. Такая стратегия позволила сформировать новое поколение, обладающее чувством гордости за свое прошлое и готовностью к будущим вызовам.

Согласно исследованию И. Юсуповой, "джадиды воспринимали образование как инструмент социальной мобилизации и консолидации общества" [Юсупова, 2012]. Они видели в образовании средство для преодоления отсталости и укрепления национального самосознания. Именно благодаря их усилиям в регионе начали появляться первые светские учебные заведения, где обучались представители разных этнических групп. Это способствовало формированию общегосударственного патриотизма и чувства принадлежности к единой нации.

Современная роль джадидизма как исторического феномена заключается в его влиянии на процессы социальной мобилизации и объединения общества в условиях глобализации и культурного разнообразия. Как отмечает исследователь Н. Сулейманов, "идеи джадидов продолжают оказывать влияние на современные процессы модернизации и формирования национальной идентичности" [Сулейманов, 2020]. Он указывает на то, что

многие принципы, заложенные джадитами, актуальны и сегодня, когда страны сталкиваются с вызовами глобализации.

Джаиды акцентировали внимание на важности культурного наследия и сохранении национальной самобытности. Они понимали, что сохранение традиций и обычаев является неотъемлемой частью формирования сильной и сплоченной нации. В этом контексте джадизм выступает как своеобразный мост между прошлым и будущим, обеспечивая преемственность культурных ценностей и их адаптацию к современным реалиям.

Подводя итог можно сказать, идеи просветителей оказали существенное влияние на формирование национальной идентичности и социальную интеграцию в регионе. Их наследие продолжает оставаться актуальным и сегодня, играя важную роль в процессах модернизации и консолидирования общества в условиях глобализующегося мира.

ЗАКЛЮЧЕНИЕ

Подводя итоги нашего исследования, можно утверждать, что джадидизм сыграл определяющую роль в процессе секуляризации общества Узбекистана, внося весомый вклад в модернизацию и укрепление национальной идентичности. Джаиды, будучи новаторами своего времени, стремились к реформе традиционных институтов и внедрению светских моделей образования и управления. Их деятельность была направлена на преодоление отставания региона и обеспечение его устойчивого развития в условиях стремительно меняющегося мира. Джаиды разработали и внедрили новую систему образования, основанную на светских принципах, что позволило молодому поколению получать знания, необходимые для успешного участия в общественной и экономической жизни. Это способствовало формированию нового типа личности, ориентированного на рациональные ценности и открытое к изменениям. Более того, джаиды активно продвигали идеи национального самосознания и культурного возрождения, что сыграло важную роль в укреплении национальной идентичности. Их усилия привели к значительным изменениям в общественном сознании, что стало основой для последующего перехода к светскому государству. Джадидские идеи и подходы остаются актуальными и сегодня, продолжая влиять на современные образовательные системы и культурные процессы. В условиях глобализации и культурного многообразия, уроки джадизма помогают находить баланс между сохранением традиций и адаптацией к новым вызовам. Говоря обычным рассуждением, Джадизм представляет собой уникальный исторический феномен, сыгравший ключевую роль в формировании современного Узбекистана. Его наследие продолжает вдохновлять последующие поколения на поиск путей к дальнейшему развитию и процветанию общества.

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9. Философский Анализ Движения Джадидизма В Туркистане И Её Роль В Истории Узбекистана. Преподаватель Ферг. Пулатов К.А. Международный научный журнал № 17 (100), часть 1 «Научный импульс» Января , 2024.
10. Belgian Journal of International Studies in Advanced Fields Vol 2. Issue 2. June, 2024 ISSN: 6576-9586 Impact Factor: 10.14 <http://belgindexjournal.social-networking.me/>

12.00.00 – Yuridik fanlar

12.00.00 – Juridical sciences

12.00 – Юридические науки.

THE ENVIRONMENTAL MOVEMENT OF UZBEKISTAN AS AN IMPORTANT SUBJECT OF ELECTORAL LAW

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Abstract: This article examines the role of the Ecological Movement of Uzbekistan (transformed into the Ecological Party of Uzbekistan in 2019) in electoral law. It analyzes the legal status of the movement, its participation in electoral processes, and its contribution to the development of environmental policy. Furthermore, it discusses the opportunities for using electoral mechanisms to ensure sustainable development.

Keywords: Ecological movement, Ecological party, Electoral law, Environmental policy, Sustainable development.

ЭКОЛОГИЧЕСКОЕ ДВИЖЕНИЕ УЗБЕКИСТАНА КАК ВАЖНЫЙ СУБЪЕКТ ИЗБИРАТЕЛЬНОГО ПРАВА

Аннотация: В данной статье рассматривается роль Экологического движения Узбекистана (с 2019 года – Экологическая партия Узбекистана) в избирательном праве. Анализируется правовой статус движения, порядок его участия в избирательных процессах и вклад в развитие экологической политики. Кроме того, обсуждаются возможности использования механизмов избирательного права для обеспечения устойчивого развития.

Ключевые слова: Экологическое движение, Экологическая партия, Избирательное право, Экологическая политика, Устойчивое развитие.

INTRODUCTION

In a democratic society, suffrage is one of the main means by which citizens participate in public administration. The openness, fairness and legality of electoral processes have a direct impact on the formation of civil society and the development of political institutions. In particular, socio-political organizations and actions play an important role in representing the interests of society, participating as an important subject in the electoral process. The environmental movement of Uzbekistan is one such socio-political structure, its role and activities in the electoral system deserve special attention. This movement not only focuses on environmental issues, but also promotes environmental policies in Parliament and other representative bodies by participating in elections. This article analyzes the legal status of the environmental movement of Uzbekistan, its participation in electoral processes and the legal basis of this participation. Also, the role of this action as an important subject of suffrage is considered within the framework of current legislation.

MAIN PART

The political and legal reforms carried out in the Republic of Uzbekistan, based on democratic principles, serve to increase the political activity of citizens. In addition to political parties, the role of the ecological movement of Uzbekistan (now the Ecological Party of Uzbekistan) in society plays a special role in this.

In accordance with the Constitution of our state, the suffrage of citizens is considered as one of the most important institutions of a democratic society[1]. The electoral code of the

Republic of Uzbekistan, on the other hand, is the main document regulating electoral processes, guaranteeing the equality of all political parties and public associations[2].

This article will highlight the legal status of the environmental movement of Uzbekistan, its role in electoral processes and the contribution of this movement to the development of Environmental Policy and ensuring sustainable development.

THE DEGREE OF STUDY OF THE SUBJECT

1. Legal status and formation of the environmental movement of Uzbekistan

The environmental movement of Uzbekistan was founded in 2008 and its main purpose was to strengthen public control on issues of Environmental Protection, improve environmental legislation and promote the development of Environmental Policy[4]. This action later received a special quota in the Lower House of Parliament (the Legislative Chamber of the House of Commons), through which it was able to raise environmental issues more broadly in the creativity of the law[4].

As of 2019, the environmental movement has been transformed into a political party and operates under the name "Ecological Party of Uzbekistan". This change was made on the basis of the requirements of the law "on political parties" and other regulatory legal acts. The environmental party has established as one of its priorities the improvement of environmental legislation, the control of the activities of state bodies in environmental issues and the improvement of Environmental Legal Literacy of the population within the framework of the Constitution of the Republic of Uzbekistan and the requirements of the law "on Environmental Control".

2. Role in suffrage and procedure for participation in electoral processes

In Uzbekistan, electoral processes are organized in accordance with the "Electoral Code of the Republic of Uzbekistan" [2]. This code guarantees the right of political parties and other public associations to participate in elections and creates equal conditions for them.

Nominating: the Environmental Party promotes its candidates in the campaign and prioritizes the issues of solving environmental problems, ensuring sustainable development in their program[5].

Cooperation with public bodies: in the electoral process, the party can cooperate with public administration bodies as well as other political parties, promote initiatives to improve environmental legislation[4].

Enhancing citizens' political activism: the party promotes issues of Ecosystem Conservation, serving to raise citizens' awareness of environmental issues. Thus, by voting in elections, citizens are encouraged to participate more actively in political processes.

3. The role of environmental policy in development and sustainable development

The environmental party's activism in the political arena is directly related to the promotion of sustainable development ideas. Sustainable development refers to the harmonization of economic growth, social stability and Environmental Protection.

Improving legislation: the Environmental party, through its representatives, takes an active part in the preparation and discussion of environmental bills in the House of Commons[4].

Environmental Control and public participation: within the framework of the law "on environmental control", initiatives are put forward to monitor the activities of state bodies and strengthen the role of the population in eliminating environmental problems.

International relations: the party contributes to the upliftment of National Environmental Policy by promoting cooperation with international environmental organizations, relevant political parties of foreign countries, applying progressive experiences to Uzbekistan.

Data from the State Statistics Committee shows that in recent years the amount of budget funds related to Environmental Protection has been increasing in stages. This process, in turn, is also considered harmonious with the activities of the Environmental party in promoting environmental policy.

4. Prospects for using suffrage opportunities

By participating in elections, the environmental party can increase its prestige in the following areas:

Strengthening environmental legislation: bringing environmental legislation into general public discussion during campaigns, advancing reforms regarding sustainable development through increased cooperation with public authorities.

Enhancing civic activism: promoting citizen participation in the political process, especially voting activism in elections, by promoting among the population on environmental issues.

International cooperation: attracting advanced experiences to Uzbekistan as a result of cooperation with international organizations, foreign environmental movement and parties in the field of Environmental Policy.

CONCLUSION

The important role of the environmental movement of Uzbekistan (or the current environmental party) in the right to vote is explained by its effective activities in integrating environmental issues into public policy, improving environmental legislation and increasing the political activity of citizens. Participation in parliamentary representation and electoral processes expands the possibilities of Environmental Protection, consideration of environmental principles in socio-economic reforms in accordance with the concept of sustainable development. Thus, the activity of the Environmental party in the political arena should be recognized as an important factor in the transition of Uzbekistan to the green economy.

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13.00.00 – Pedagogika fanlari

13.00.00 – Pedagogical sciences

13.00.00 – Педагогические науки

APPLYING VARIOUS EXERCISES TO DEVELOP THE PHYSICAL FITNESS OF 11-YEAR-OLD FOOTBALL PLAYERS

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Abstract: This article comprehensively examines the coordination abilities of 11-12-year-old football players, providing specific recommendations for developing their strength, agility, speed, and technical skills. Results for each test and practical suggestions for improvement are presented, along with training strategies designed to lay the foundation for the players' future success.

Keywords: Coordination, speed, agility, 11-year-old football players, standard deviation, coefficient of variation, arithmetic mean.

ПРИМЕНЕНИЕ РАЗЛИЧНЫХ УПРАЖНЕНИЙ ДЛЯ РАЗВИТИЯ ФИЗИЧЕСКОЙ ПОДГОТОВКИ 11-ЛЕТНИХ ФУТБОЛИСТОВ

Аннотация: В этой статье всесторонне рассматриваются координационные способности 11-12-летних футболистов, даются конкретные рекомендации по развитию их силы, ловкости, скорости и технических навыков. Представлены результаты каждого теста и практические предложения по улучшению, а также стратегии тренировок, призванные заложить основу для будущего успеха игроков.

Ключевые слова: Координация, скорость, ловкость, 11-летние футболисты, стандартное отклонение, коэффициент вариации, среднее арифметическое.

INTRODUCTION

After gaining independence, great attention began to be paid to all areas in our country, especially to the physical education and sports activities of the youth, which became one of the important directions for ensuring the physical and spiritual well-being of the younger generation.

The Decree of the President of the Republic of Uzbekistan dated March 5, 2018, No. PF-5368 "On measures for the fundamental improvement of the system of state management in the field of physical education and sports" and the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated March 24, 2020, No. 187 "On the organization of the development of children's and youth sports," as well as other regulatory and legal documents related to this field, have created a solid foundation for the development and popularization of football as a sport.

Football is considered one of the popular sports aimed at the comprehensive physical and mental development of young athletes. Especially for 11-year-old football players, special preparation training provides them with an essential foundation to develop their physical abilities and achieve high results in the future. Determining and developing the level of physical fitness of athletes at this age through various methods requires tailored approaches and strategies. During the research, testing the physical fitness levels of football players allowed for identifying the strengths and weaknesses of each player and creating training programs suited to them.

LITERATURE REVIEW

Numerous studies conducted by both local and foreign scientists have highlighted the importance of developing coordination abilities in 11-12-year-old children as a significant area of research. During this age period, children experience rapid physical and neurological development,

creating favorable conditions for improving coordination. Individual and group exercises play a crucial role in developing coordination abilities [3].

11-12-year-old children's coordination abilities development focuses on physical and neurological aspects. According to Petrov, during this age period, children's nervous systems develop rapidly, creating favorable conditions for improving coordination in sports.

He recommends developing coordination abilities through individual and group exercises, as specialized training and exercises are crucial in strengthening children's sports skills. The study analyzes and emphasizes the importance of individual and group training in developing the coordination abilities of 11-12-year-old children.

Kuznetsov's research shows that age-appropriate physical exercises play an important role in developing coordination abilities. He believes that coordination exercises, considering children's physical conditions, can achieve effective results in both individual and group training.

RESEARCH METHODOLOGY

To address the set objectives, the following methods were used: theoretical analysis of scientific and methodological literature, analyzing and summarizing the works of Uzbek and foreign scholars on the topic, pedagogical observation, pedagogical tests, and mathematical statistical methods.

ANALYSIS AND RESULTS

In this analysis, the physical preparedness indicators of 11-year-old football players were studied using the following tests. By performing 5 consecutive jumps in place and 3 somersaults, the arithmetic mean value of the test was determined to be 11.3, reflecting the average movement coordination and strength preparedness of the athletes. The standard deviation was 1.6, and the coefficient of variation was 14.1%, indicating the uniformity of the results. Similar results demonstrated the overall effectiveness of the training. During the training process, various intensity jump exercises and special coordination programs were incorporated to improve the players' strength and jumping techniques. Such exercises enhanced movement harmony and increased physical activity. It was recommended to regularly reassess the exercises to monitor changes.

In the ball control and 360-degree turn test, the arithmetic mean value was 18.3, with a high standard deviation of 4.03, indicating the instability of the results. This exercise tests coordination and balance. The coefficient of variation was 0.21%, showing the need to develop this ability among football players. To improve this exercise, it was recommended to use station-based exercises and devices aimed at enhancing balance and coordination stability.

In the juggling with a football (within 60 seconds) test, the results showed an arithmetic mean value of 25.7, while the standard deviation was 15.5, and the coefficient of variation was 48.6%. This high variation reflects significant differences in the technical abilities of the players. Juggling skills require long-term training to strengthen the technique. It was deemed appropriate to prepare special juggling exercises with varying levels of complexity, taking into account the individual abilities of the players.

The numbered group running test, with an average value of 18.8, a high standard deviation of 2.2, and a coefficient of variation of 11.6%, indicates that the exercise shows players' agility and quick reactions are at an average level. Low variation indicates that the training ensuring uniformity among players' results has been successful. To further improve these results, interactive exercises focused on precision and speed should be introduced. Additionally, measuring results

with special reaction sensors helps monitor players' progress. Enriching training with colorful or numerical markers improved players' reaction times. This helps increase agility and reaction levels.

In the test of taking steps forward in a straight line with eyes closed, the average value is 28, the standard deviation is 18.9, and the coefficient of variation is 67.5%, showing significant differences in balance ability among players. This exercise should be implemented considering each player's individual needs. A system of exercises from simple to complex should be developed to enhance balance. Exercises such as controlling the ball while standing on one foot or moving along different lines with closed eyes are important. Adding exercises like standing or rotating on various platforms with closed eyes can further strengthen balance abilities.

Running around obstacles, in this test with an average value of 20 and a standard deviation of 6, and a coefficient of variation of 30%, indicates differences in players' agility levels. Special programs need to be developed to improve coordination and agility for some players. To complicate the test, reducing time, working with various obstacles, and introducing special dynamic exercises aimed at increasing speed are necessary.

Holding a soccer ball on the upper part of the foot while standing (10 meters), with an average value of 18.5 and a standard deviation of 4.72, and a coefficient of variation of 25.5%. The results of this exercise helped determine players' abilities to combine technique and balance. To improve ball control, exercises under complex conditions over long distances should be conducted. This helps improve players' technical skills. By forcing players to move in different directions or at different speeds during training, their technique and balance harmony can be enhanced.

A special exercise is performed on a 12-meter platform. The average value of this test is 12.2, with a sigma value of 4.4 and a coefficient of variation of 36%. High variation shows significant differences in players' reaction and coordination abilities. To develop this exercise, exercises focused on mobility should be added. Simulating various conditions on the platform can improve players' agility and concentration abilities.

In the test of standing in a swallow position on a gymnastics bench, the average value is 1.7, and the average standard deviation is 1.64, with a coefficient of variation of 94.1%, indicating very large differences in players' balance abilities. Targeted balance exercises are necessary to reduce these differences. Along with gymnastics exercises, using various dynamic balance equipment helps stabilize results. To complicate this exercise, using higher platforms can test players' ability to maintain balance.

Standing in place, jumping up 5 times, tumbling forward 2 times, and performing an 11-meter penalty kick, with an average value of 14.7, a standard deviation of 6.2, and a coefficient of variation of 42.1%. These indicators suggest a lack of stability in players' strength and technical abilities. Special strength and technique training can help reduce these differences.

1-tab. Physical fitness of 11-year-old football players

№	Indicators	$\bar{X}$	Sx^2	σ	V %
1	Jump up and down in place 5 times and do 3 lunges	11.3	1.6	1.2	14.1
2	Holding a soccer ball and turning 360 degrees	18.3	4.03	2	0.21
3	Juggling a soccer ball (in 60 seconds)	25.7	15.5	3.5	48.6

4	Running to numbered balls	18.8	2.2	1.4	11.6
5	Throwing stones forward in a line with eyes closed	28	18.9	4.3	67.5
6	Running around the bars	20	6	2,4	30
7	Carrying a soccer ball over the top of the net while standing (10 meters)	18.5	4.7	2.1	25.5
8	The exercise is performed on a 12-meter platform. Starting from the start line, three consecutive circles with a diameter of 150 cm are marked every 4 meters (the distance between the circles is 2 meters). The finish line is 2 meters away from the last circle.	12.2	4.4	2	36
9	Sitting in a swivel position on a gymnastic bench	1.7	1.64	1.2	94.1
10	Jumping in place 5 times, tumbling forward 2 times, and performing an 11-meter penalty kick.	14.7	6.2	2.4	42.1

CONCLUSION

The coordination abilities and physical fitness levels of 11-year-old football players were determined using various tests, including arithmetic mean, standard deviation, and variation coefficient indicators, and were pedagogically analyzed. Through these indicators, the strengths and weaknesses of each player were studied. The results regarding the physical fitness of 11-year-old football players show significant differences in the development of certain physical qualities. For tests with high variation, it is necessary to improve training through an individual approach. This is particularly important for the development of balance, coordination, and technical skills. Developing appropriate strategies for each exercise helps to standardize the players' preparation levels and improve overall efficiency. Additionally, it is recommended to introduce a system for measuring the development of players through individually planned training sessions.

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EKOLOGIK MADANIYATNING TARIXIY-PEDAGOGIK TAHLILI

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Annotatsiya: Ushbu maqolada ekologik madaniyat haqida tushuncha, ekologik madaniyatning tarixiy-pedagogik tahlili haqida ma'lumotlar keltiriladi. Bundan tashqari, bu maqolada Markaziy Osiyoning va Jahon faylasuflarining ekologik madaniyat haqidagi pedagogik qarashlari hamda ilmiy asoslangan fikrlari keltirilgan. Ekologik madaniyatning tarixiy rivojlanish bosqichlari va inson faoliyati bilan bog'liq jihatlari bayon qilingan.

Kalit so'zlar: Ekologik madaniyat, rivojlanish bosqichlari, tarixiy-pedagogik tahlil, ekologik ta'lim, pedagogika va ekologiya, ekologik ong, atrof-muhit madaniyati, ekologik tarbiya, ekologik bilimlar tarixi, ekologik ma'rifat, ekologik qadriyatlar, tabiatni asrash, ekologik ongning shakllanishi.

HISTORICAL-PEDAGOGICAL ANALYSIS OF ECOLOGICAL CULTURE

Annatsion: This article provides information on the concept of ecological culture, historical-pedagogical analysis of ecological culture. In addition, this article presents pedagogical views and scientifically based opinions of Central Asian and World philosophers about ecological culture. Aspects related to historical development stages and human activities of ecological culture are described.

Keywords: Ecological culture, stages of development, historical-pedagogical analysis, ecological education, pedagogy and ecology, ecological consciousness, environmental culture, ecological education, history of ecological knowledge, ecological enlightenment, ecological values, nature conservation, formation of ecological consciousness.

ИСТОРИКО-ПЕДАГОГИЧЕСКИЙ АНАЛИЗ ЭКОЛОГИЧЕСКОЙ КУЛЬТУРЫ

Аннотация: В данной статье представлена информация о понятии экологической культуры, историко-педагогическом анализе экологической культуры. Кроме того, в данной статье представлены педагогические взгляды и научно обоснованные мнения философов Центральной Азии и мира об экологической культуре. Описаны аспекты, связанные с историческими этапами развития и деятельностью человека экологической культуры.

Ключевые слова: Экологическая культура, этапы развития, историко-педагогический анализ, экологическое образование, педагогика и экология, экологическое сознание, экологическая культура, экологическое образование, история экологических знаний, экологическое просвещение, экологические ценности, охрана природы, формирование экологического сознания.

KIRISH

Hozirgi davr dunyoda globallashib ketayotgan olamshumul ijtimoiy-siyosiy muammolarni oqilona hal qilish, ularning kelib chiqish sabablarini aniqlashni taqozo qiladi. Xususan, global ekologik inqiroz jarayonini bartaraf qilishda, inson o'z imkoniyatlarini tarixiy shart-sharoit mezonlari asosida baholash lozim. Chunki, insoniyat o'zining ilmiy, texnik, texnologik, intellektual

imkoniyatlari, rivojlanish tendensiyalarini to'g'ri baholay olmasa, istiqbol mo'ljallarini yo'qotadi. Shuning uchun, umuman hamma sohalardagi nazariy-metodologik qarashlar dunyo svillizatsiyasini qadriyatlarini o'zida aks ettirgan milliy tarixiy merosga, madaniyatga asoslanib muammolarni xal qilishi mumkin. Shuningdek ekologik olamshumul muammolarning genezisini, rivojlanish qonuniyatlarini falsafiy jixatlarini urganish xozirgi ba istiqbolda bajarilishi kerak bo'lgan vazifalarini belgilab olishda muhim ahamiyatga ega [1].

Har qanday millatning tarixiy shakllangan ekologik madaniyati, muayyan ijtimoiy-iqtisodiy sharoitlarda, tabiatni muhofaza qilish ihtiyojlari asosida vujudga kelgan milliy an'analar, urf odatlari, marosimlari bo'lib, insonlarning faol antropotexnologen tasiri natijasida o'zgarayotgan tabiiy muhitga moslashishlari hayotning davom ettirishida muhim omildir. Xususan, insonlarning keskin o'zgarayotgan ekologik vaziyatga, tabiiy muhitga ijtimoiy-psixologik jihatlardan kupikishi madaniy rivojlanish darajasiga bog'liqdir. Insoniyatning ekologik xavfsizligini taminlash masalasi nazariya va metodologiya uzoq tarixiga borib taqaladi. Ekologik barqaror taraqqiyotning uzoq tarixiga borib taqaladi. Ekologik barqaror taraqqiyotning madaniy asoslarini qidirishga Markaziy Osiyo allomalarining nazariy qarashlarini xolis urganish katta ahamiyatga ega. Zero, bu qarashlar jahon svillizatsiyasining tarkibiy qismidir. Lekin ba'zi xolatlarda, Sharq falsafasi, tarixiy merosi yevropasentrizim yoki markazizm nuqtai nazaridan baholanganligi natijasida g'ayri ilmiy, soxta xulosalar chiqarildi. Masalan, Yevropa sentrizmning ashaddiy na'munasi bo'lgan slavyanofillik falsafasining asoschilaridan biri B.S. Solovyovning "Uch qudrat" asarida yozilishicha "Musulmon dunyosida ijobiy fan, falsafa, xaqiqiy teologiya hech qachon mavjud bo'lmagan. Ularniki, nari borganda greklardan olingan mavxum falsafiy tushunchalar, imperik axborotlar majmuasidan iborat qarashlardir". Vaholanki bunday munosabat muayyan shovinistik, sinfiy-partiyaviy manfaatlariga asoslangan edi. Shuning uchun Sharqning ijtimoiy-ma'naviy rivojlanish tarixini, milliy mentalitetning ruhiy, falsafiy retrospektiv xususiyatlarini tahlil qilishda bir yo'qlamalik ko'zga tashlanadi. Sharqning buyuk mutafakkirlari Al-Kimdiy (800-879 +yil) yagona abadiy mavjudlikning boshlanishini Xudo nomi bilan bog'liq. Ungacha, borliqdagi birlik -o'zidagi sababdan boshqa sababga ega emas va o'zgarmas turg'un, kamolot xolida bo'ladi. U hamma narsalardan ustun, qurilganidan xususiyatga ega emas xamda ko'plik va birlik korrelyatsiyasida mustaqillikdir [2].

Boshlang'ich sabab Al-Farobiyning o'ylashicha, "mutloq abadiy, sababsiz nomoddiy bo'lib, hech narsa bilan bog'liq emas va hech narsani inkor etmaydi, uni aniqlab, bo'lmaydi". Birinchi entelliktdan boshlab borliq hamma narsani emanatsiya qiladi. Ibn Sino (980-1037) y ham shu fikrni qullaydi. Uningcha: "Boshlang'ich sabab o'zining uxshashiga, aksiga, turli fikrlarga ega emas".

Markaziy Osiyoning boshqa taniqli faylasuf Ibn Sino "Tabiatni yuqotib bo'lmaydi, lekin uning qonunlari o'zligicha o'zgarmaydi", deb subyektiv omilning dunyoni o'zgartirish roliga alohida baxo bergan edi. Xususan olamning paydo bo'lishi haqidagi ta'limotiga haqidagi ta'limotiga ta'limotida hayvonot va o'simlik dunyolari orasidagi uzaro munosabat, tabiat yaxlitligini tashkil qiladigan tizimga egaligini asoslashga e'tiborini qaratib, odam bilan tabiat o'rtasidagi o'zviy birlik mavjudligini ta'kidlagan [3].

G'arbning falsafiy merosiga ko'ra, dunyo tartibsdur va uni yangidan yasash kerak. Sharq falsafasiga ko'ra esa, dunyo azaldan mukammaldur, shuning uchun tabiatga o'xshash -moslashishi kerak, shundagina inson va tabiat o'rtasida mutanosiblik, uyg'unlik vujudga keladi. Lekin, mukammal mavqeiy boshqa odamning mavqeiy bilan taqqoslanib emas, balki

Allohga nisbatan olinishi kerak. Shuning uchun odamning ijtimoiy -biologik mohiyatiga katta ahamiyat beriladi.

Soʻfiylar oʻrtasidagi "Buyuk shayx"deb eʼtirof etilgan Ibn Arabiy taʼlimotiga koʻra,"mukammal odamning ontologik jihati hamma narsaning birlik yotadi;xar narsaning ichidagi birlik boshqa narsalar bilan bogʻlangan va birlikda namoyon boʻladi."Hamma borliq birlikdadir; dunyoda oliy birlik yoki birlik -koʻplikdagilardan boshqa narsada yuqlikdir",deb yozadi.Uning fikricha, Ontologik nuqtai nazardan "Mukammal odam"-Logosdir,xamda oʻz navbatida"universal reallik"ning sinonimidir.

Tabiat va jamiyatning oʻzaro munosabatlarini oʻrganish tarixida Ibn Xoldunning (1332-1406 y) falsafiy meros,oʻzidan avval oʻtgan Sharq mutafakkirlarining nazariy-metadologik qarashlariga, maʼnaviy-madaniyat haqidagi taʼlimotlariga suyanan holda, ijodiy rivojlantirilgan.Ibn Xoldun "Muqaddima"asarida (1375-1378 -yillari yozilgan)muttadil (barqaror)va nomuttadil (beqaror)iqlim -atmosfera temperaturasi, jugʻrofiy muhit inson irqiga va boshqa yashash tarziga taʼsir yunalishgʻarini xozirgi davrda shu nazariyalarning asoschilari,deb eʼtirof etilgan fransuz biolog olimi J.Lamarkdan (1707-1788)va ivolyutsion taʼlimot asoschisi hisoblangan Jan Batist Lamarkdan (1744-1829) qariyb toʻrt asr avval asoslab bergan edi [4].

Ibn Xoldun insonlarning hayotini yashash sharoitiga qarab shahar va qishloq hayot tarziga ajratar ekan, hozirgi zamon urbanologiya nazariya sining retrospektiv asoslarini genial tarzda ilgʻab olgan.Uning : "Bilingki, kishilarning hayot tarzidagi farq faqat hayot vositalarini topish usulidagi farqlarga bogʻliqdir",deb yozishi mehnat madaniyatini turkumlashtirishga ega boʻlganligini koʻrsatadi.

MAVZUGA OID ADABIYOTLAR TAHLILI

Markaziy Osiyo allomalarining nuqtai nazarida,insoning dunyoga kelishidan maqsadli,uning bilim olish,har ishga mohir inson boʻlib yetishishi, ilohiy sifatlari bilan ajralib turishdan iboratdir.Bu fikrni umumlashtirib aytadigan boʻlsak,insonning mohiyatida ilmiy, amaliy, ilohiy jihatlar mujassamlashtirgandir.Xudoning insonni yaratishdan maqsadi, insonning mukammal boʻlish vositalar, usullari orqali oʻz-oʻzini anglashidadir.Har ishga qoldir komil inson qanday boʻladi,degan savolga javob bera turib uni tabiiy muhitning hamda olamning markazi boʻlib,bir vaqtning oʻzida: tabiiy muhitning ham egasi ham homiysi hisoblanadilar.Inson hamma narsaning nomini bilgan xolda ularning ustidan hukmronlik qiladi, lekin hukmronlik maqomi,unga Xudoning yerdagi vakili boʻlgani sababli beriladi.

Hozir, umuman ijtimoiy-siyosiy munosabatlar,xususan tabiatga taʼsir intensevlashib,ekologik muammolar globallashayotgan sharoitda,borliq rivojlanishiga inson omilining roli oshib borayotgan bir paytda, Markaziy Osiyolik mashhur allomalarning aytgan fikrlari borliqni (shu jumladan insonni), muxofaza qilishga alohida ahamiyat kasb etadi.

Insoniyatning tabiat bilan birligi, uygʻunlikgi haqidagi tasavvur,inson va tabiat oʻrtasida axloq normalariga, madaniyatga asoslangan ekologik munosabatni shakllantirishga xizmat qiladi.Ilmiy adabiyotlarda "inson tabiati"aksariyat holatlarda, uning tugʻma biologik - irsiy xususiyatlari yoki bio-ruhiy mavjudligi,barcha odamlar uchun umuman boʻlgan ijtimoiyligi, universal xarakteristikasi, barcha xalqlar v millatlar uchun oʻzgarishsiz qoluvchi ,oʻziga xos qonunlar tarzida tushuniladi.Shuningdek,inson tabiatini,mehnatga,erkinlikka va hokazolarga boʻlgan intilishlarin tabiiy -ijtimoiy huquqlari tenglashtiriladi [5].

TADQIQOT METODOLOGIYASI

M.Shelerning (1874-1928 y) falsafiy antropologiyasidan boshlab,ushbu yunalish ijtimoiy biologiyani zamonaviy konsepsiyalarida R.Andri,E.Uayt,Z.Fred,E.Fromm va boshqalarning

asarlari ham yorqin namayon bo'ladi. Masalan M. Sheler fikriga ko'ra, inson bu hayotning mavjudlik shakllari nerarxiasiza namayon bo'luvchi barcha xususiyatlarini; hissiyoti tirik jonzotga xos rivojlanish, tabiiy tanlanish, ko'payishi, aql asosida amalga oshuvchi, pozitiv faoliyati, assotsiatsiyativ xotira, nazariy va amaliy texnik idrok, yangilikni ilg'ab olish, o'zgargan mutanosibliklarga berishni o'zida mujassamlashtirgan "betob hayvon" sir. M. Sheler tabiri bo'yicha, insonning hayvonga farqi shuki, "Yangilikka intiluvchi hayvon" - inson o'zini o'rab turgan borliq bilan qoniqmay, balki o'zi yashayotgan tabiiy muhit chegaralarini buzib o'tishga intiladi. Agar hayvon o'zi yashayotgan tabiiy muhitga qaram bo'lsa inson tabiiy muhitga "ozod", mavjud borliqni o'zgartirish va o'zlashtirish qobiliyatiga bega jonzot. M. Sheler ushbu qobiliyatni ruh bilan bog'lab, inson o'zi tabiat ustidan yakka hukmdor emas, chunki uning mavjudligi va faoliyatlari hayotiy ehtiyojlar bilan taqazo qilingan va ichki harakatlantiruvchi kuchlarga, mexanizmlarga tayanadi, deb hisoblaydi.

Shuni alohida ta'kidlash kerakki M. Sheler konsepsiyasida bir qator qiziqarli ekologik g'oyalar mavjud. Bu eng avvalo, inson ijtimoiy mohiyatining turli tartibli, uning barcha jonzot bilan qondoshligi to'g'risidagi tasavvur; xilma-xil faoliyatning maqsadga, ruh va aqliy muvofiqligi, birligidir. M. Sheler fikriga ko'ra har qanday g'oy, tasavvur, insonning mohiyatini ifodalash uchun real ko'rinishidagi asosga ega bo'lishi kerak.

Ekologik vaziyat differentsiallasuvi ekologik fanining tarmoqlanishi bilan bog'liq jarayondir. Shu bilan birga ekologiya patsionalizim yunalishi kuchaydi. Insoniy borliqning muayyan jihatlari mutlaqolashtirish ruhiy tahlil nazariyasi ham xosdir. Shu o'rinda, Z. Freyd (1856-1939 -y) antroposotsiogenezida insonga ajdodlaridan meros qolgan ongsiz boshlanishining hal etuvchi ta'siri asosiy saba, deb hisoblagan. Ayrim faylasuflar jamiyatni hayvoniy instruktardan himoya qilish uchun ma'naviy, madaniyat me'yorlari haqidagi nazariyalar yaratishga urinishmoqda. Biroq Z. Freyd fikricha, ongsiz instinklar inson xulq-atvorida xal qiluvchi rol o'ynaydi. Inson tabiatini o'zgartirishga ijtimoiy-siyosiy omillar, faqatgina muayyan shart-sharoitlar rolini bajarish mumkin [6].

Inson tabiiy boyliklardan foydalanayotgan, dastlab, o'z faoliyati qanday oqibatga olib kelishini ko'z oldiga keltirgan emas. Kishilar qadim zamonlardan o'rmonlarni kesgan, baliq tutgan, tuproq unumdorligini kamaytirgan, daryo va ko'l suvlarini ifloslagan. Insoniyat tarixning dastlabki bosqichlarida tabiatga jiddiy ta'sir ko'rsatmagan va tabiatga yetkazilgan shikastlari, biologik resurslarga yetgan talofatlarini uning o'zi to'ldirgan. Kishilik jamiyati ishlab chiqarish faoliyati, urbanizatsiya jarayonida kommunikatsiya va infrastrukturaning turli inshootlar, binolari, uylari, mashinalari, shaxtalari, ekin dalalariva boshqa "sun'iy tabiat"ni bunyod etdi va antropotexnologik faoliyati tabiiy muhitga kuchli ta'sirga etmoqda.

TAHLIL VA NATIJALAR

Ekologik madaniyatning tarixiy rivojlanish bosqichlarini ko'rib chiqishga kirishishdan avval, umuman madaniyat tushunchasiga e'tiborni qaratish maqsadga muvofiqdir.

"Madaniyat" atamasi inson faoliyati bilan bog'langan. Ya'ni, madaniyat insonning jismoniy va aqliy kuchlari vositasida moddiy va ma'naviy ne'matlar yaratishga qaratilgan faoliyati natijasidir. Nisbatan keng tarqalgan va ustuvor hisoblangan ta'rifga ko'ra, madaniyat – "kishilarning tabiatni, borlikni o'zlashtirish va o'zgartirish jarayonida yaratgan moddiy va ma'naviy boyliklar xamda bu boyliklarni qayta tiklash va bunyod etish yullari va usullari majmui". Albatta, bunday ta'rif, klassik ma'no o'z ahamiyatiga ega. Lekin jamiyat tarixiy taraqqiyot ijtimoiy makon va tarixiy zamonaviy zamonda doimiy, o'zliksiz rivojlanib borishi bilan yangi xususiyatlari, sifatlarini namoyon qiladi va yangicha ta'riflashni takozo qiladi. Demak biz ekologik madaniyat

tarixini tahlil qilganimizda shu metodologik tamoyildan kelib chiqish kerak deb hisoblaymiz hamda tadqiqot obyektiga bevosita bog'liq bo'lganligi uchun ba'zi mualliflarning fikr - mulohazalariga munosabat bildirishini maqsadga muvofiq deb bilamiz [7].

XULOSA

Ekologik madaniyat insoniyatning tabiat bilan bog'liq ijtimoiy, madaniy va ma'naviy munosabatlarining shakllanishi va rivojlanishida muhim omil hisoblanadi. Tadqiqot davomida ekologik madaniyat tushunchasining shakllanishi tarixiy-pedagogik jarayonlar bilan uzviy bog'liq ekani, Markaziy Osiyo allomalari — Al-Farobiy, Ibn Sino, Ibn Xaldun kabi mutafakkirlarning ekologik fikrlari bu sohaning nazariy asoslarini belgilab bergani aniqlandi.

Sharq mutafakkirlarining qarashlarida inson va tabiat o'rtasidagi uyg'unlik, mas'uliyat, hamkorlik tamoyillari asos qilib olingan bo'lib, ular hozirgi ekologik tarbiya, ekologik ma'rifat va ongni shakllantirishda muhim metodologik manba bo'lib xizmat qiladi. Tadqiqot shuni ko'rsatadiki, ekologik madaniyatni rivojlantirish uchun nafaqat zamonaviy texnologik yondashuvlar, balki tarixiy-madaniy meros, falsafiy tafakkur va pedagogik qarashlarni uyg'unlashtirish zarur.

Shu asosda, ekologik madaniyatni shakllantirishda tarixiy-pedagogik tajribani chuqur tahlil qilish, o'quv jarayoniga ekologik qadriyatlar, ekologik etikani singdirish va bu orqali barqaror taraqqiyot tamoyillarini mustahkamlash dolzarb vazifa hisoblanadi.

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CHALLENGES OF USING DIGITAL TECHNOLOGIES AMONG PRE-SERVICE FOREIGN LANGUAGE TEACHERS IN UZBEKISTAN

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Abstract: This article investigates the prevailing challenges encountered by pre-service English language teachers in integrating digital technologies into their prospective teaching practices. The research was conducted among third-year undergraduate students enrolled in English Philology programs at Namangan State University, Fergana State University, and Andijan State Institute of Foreign Languages. Findings indicate that while these students possess elementary knowledge of common digital tools such as Google Classroom and Moodle, they lack confidence, pedagogical understanding, and strategic competence necessary for effective classroom technology use. Moreover, the study highlights broader systemic problems, including unreliable internet access in certain regions of Uzbekistan and the widespread unfamiliarity of both teachers and students with basic computer terminology and digital operational language. Practical recommendations for improving digital literacy and reducing these barriers are offered in light of the study's outcomes.

Keywords: Digital competence, ICT in education, pre-service teachers, foreign language teaching, Uzbekistan, digital literacy, technological barriers.

RAQAMLI TEXNOLOGIYALARNI BO'LAJAK CHET TIL O'QITUVCHILARI TOMONIDAN QO'LLASHDAGI MUAMMOLAR

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Annotatsiya: Ushbu maqolada O'zbekistonning Namangan Davlat Universiteti, Farg'ona Davlat Universiteti hamda Andijon Davlat Chet Tillar Instituti ingliz filologiyasi yo'nalishi 4-bosqich bakalavriyat talabalari o'rtasida olib borilgan tadqiqot natijalari asosida kelajakdagi chet til o'qituvchilarining ta'lim jarayonida raqamli texnologiyalarni joriy etishda duch kelayotgan asosiy muammolari tahlil qilinadi. Tadqiqot natijalari shuni ko'rsatadiki, talabalar Google Classroom va Moodle kabi asosiy raqamli platformalar bilan boshlang'ich darajada tanish bo'lsalar-da, ularni samarali pedagogik maqsadlarda qo'llash, o'qitish strategiyalarini ishlab chiqish va ularga moslashtirish bo'yicha yetarlicha bilim va ishonchga ega emaslar. Bundan tashqari, tadqiqot natijalari O'zbekistonning ayrim hududlarida internet tarmog'ining ishonchsizligi va past tezligi kabi infratuzilmaviy muammolarni ham ochib berdi. Shuningdek, o'qituvchilar va talabalar orasida kompyuter terminologiyasi va raqamli tilning asosiy tushunchalarini yetarli bilmaslik keng tarqalganligi ham aniqlangan. Maqolada raqamli savodxonlikni oshirish va mavjud to'siqlarni kamaytirish bo'yicha amaliy tavsiyalar ham berilgan.

Kalit so'zlar: raqamli kompetensiya, ta'limda AKT, bo'lajak o'qituvchilar, chet tilini o'qitish, O'zbekiston, raqamli savodxonlik, texnologik to'siqlar.

ПРОБЛЕМЫ ИСПОЛЬЗОВАНИЯ ЦИФРОВЫХ ТЕХНОЛОГИЙ БУДУЩИМИ ПРЕПОДАВАТЕЛЯМИ ИНОСТРАННЫХ ЯЗЫКОВ В УЗБЕКИСТАНЕ

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Аннотация: В статье рассматриваются актуальные проблемы, с которыми сталкиваются будущие преподаватели английского языка при интеграции цифровых технологий в образовательный процесс. Исследование проведено среди студентов третьего курса бакалавриата факультетов английской филологии Наманганского государственного университета, Ферганского государственного университета и Андижанского государственного института иностранных языков. Результаты показывают, что, несмотря на элементарные знания основных цифровых инструментов, таких как Google Classroom и Moodle, студенты испытывают недостаток уверенности, педагогических навыков и стратегической компетентности, необходимых для эффективного применения технологий на практике. Кроме того, выявлены системные проблемы: ненадежный доступ к интернету в ряде регионов Узбекистана и низкий уровень владения как преподавателями, так и студентами базовыми компьютерными терминами и операционным языком цифровых систем. В статье представлены практические рекомендации по повышению уровня цифровой грамотности и устранению обозначенных барьеров.

Ключевые слова: цифровая компетентность, ИКТ в образовании, будущие преподаватели, обучение иностранным языкам, Узбекистан, цифровая грамотность, технологические барьеры.

INTRODUCTION

The rapid digitization of educational processes worldwide has placed unprecedented demands on teachers, including those involved in foreign language instruction. As stated by Christine Redecker (2017), digital competence represents an indispensable component of the modern educator's professional skillset, encompassing not only technical proficiency but also critical thinking, creativity, and pedagogical adaptability. This requirement is particularly relevant for foreign language teachers, for whom the use of digital tools can greatly enhance learners' exposure to authentic linguistic and cultural materials.

In Uzbekistan, where English has become a national priority in light of globalization and internationalization efforts, the capacity of future teachers to employ digital technologies meaningfully in classroom practice is a matter of both educational and economic importance. Despite these national ambitions, current observations suggest that many pre-service teachers remain inadequately prepared to implement digital tools for language instruction in pedagogically appropriate ways.

Compounding this issue is the infrastructural limitation of digital connectivity across various regions of Uzbekistan. As reported during the study, students from rural and some semi-urban areas frequently experience slow, unreliable, or entirely unavailable internet services, which severely restricts their ability to access cloud-based educational platforms, digital libraries, and real-time communication tools. Furthermore, both students and some university faculty members admitted during interviews that they often lack a sufficient understanding of basic computer terminology such as "file format," "hyperlink," or "browser settings." This digital illiteracy leads

to confusion and inefficiency when interacting with educational software or troubleshooting technical problems, thereby reducing the effectiveness of ICT integration in language learning.

METHODOLOGY

The study employed a mixed-methods design combining quantitative and qualitative approaches. Data were collected during the 2023/2024 academic year from third-year English Philology students at Namangan State University, Fergana State University, and Andijan State Institute of Foreign Languages.

A self-assessment questionnaire adapted from the European DigCompEdu Framework (Christine Redecker, 2017) served as the primary quantitative instrument. It allowed respondents to rate their competence in various aspects of digital technology usage for teaching purposes, including digital resource selection, online learner engagement, and digital assessment techniques.

Qualitative data were gathered through semi-structured interviews with fifteen students who volunteered to share their experiences, perceptions, and concerns regarding digital technology usage in education. Additionally, microteaching classroom observations were conducted to examine how future teachers attempted to integrate ICT tools into simulated lesson scenarios.

Descriptive statistics summarized the questionnaire results, while thematic analysis identified common trends and obstacles revealed in interviews and classroom performances.

RESULTS

Analysis revealed that a considerable proportion of students possessed only rudimentary digital skills. As emphasized by Greg Kessler and Philip Hubbard (2017), mere technical exposure to digital devices is insufficient; what matters is the ability to purposefully incorporate these tools into the learning process. In line with this observation, respondents admitted their tendency to use ICT platforms such as Google Classroom merely for uploading assignments or reading announcements, without exploring interactive features that could support language skill development.

One critical difficulty was the inability to relate digital technology to communicative language teaching objectives. Several interviewees from Fergana State University and Andijan State Institute expressed uncertainty about using tools like Padlet or Kahoot for speaking or listening practice. One participant confessed: *"I can create a quiz in Kahoot, but I don't know how to use it to make my students speak more English in class."*

Internet access problems further complicate technology integration efforts. Students from rural districts reported that in their home regions especially in mountainous areas of **Namangan** and **Fergana** provinces stable internet connectivity remains unavailable or too slow for effective use of cloud-based services or video streaming platforms such as YouTube. During microteaching sessions, several students hesitated to implement online resources due to fears of connection failure.

Another prominent finding was the general unfamiliarity with basic computer language and digital operational terms. Both students and some teaching staff were reported to be confused by standard software instructions or error messages, which significantly hindered confidence in handling digital tools. This confirms Glenn Stockwell's (2022) assertion that the lack of fundamental digital literacy remains a hidden but critical barrier to successful technology integration in language education.

Despite these obstacles, isolated examples of creative use were observed. Some students successfully employed interactive platforms such as Edmodo and Quizlet for vocabulary building

and formative assessment, demonstrating that when technological access and understanding were sufficient, digital tools could be used to enhance learner engagement.

DISCUSSION

The challenges revealed in this study closely correspond to international findings regarding technology use in teacher education. According to Greg Kessler and Philip Hubbard (2017), one of the persistent shortcomings in teacher preparation programs globally is the failure to bridge the gap between technical tool familiarity and pedagogical application. This is especially evident in the Uzbek context, where teacher education curricula tend to prioritize theoretical linguistics and literature courses over practical digital pedagogy modules.

As Christine Redecker (2017) emphasizes, digital competence involves more than operational skills; it requires educators to critically evaluate and appropriately select technological solutions based on instructional objectives. In the present study, this reflective aspect of digital competence was notably underdeveloped among participants.

Moreover, infrastructural deficiencies including unreliable internet service in provincial areas exacerbate existing problems. As noted by the European Commission (2022), equal access to ICT infrastructure is a prerequisite for developing digital teaching skills. In Uzbekistan, this remains an unresolved issue, particularly outside major urban centers like Tashkent.

Lastly, as Glenn Stockwell (2022) argues, psychological readiness and confidence are as vital as technical proficiency in shaping teachers' willingness to adopt digital tools. Technophobia, uncertainty regarding technical language, and a fear of technical failure were clearly evident among study participants, suggesting the need for targeted training to overcome these cognitive barriers.

CONCLUSION

This study has demonstrated that pre-service English language teachers in Uzbekistan face a complex array of challenges related to digital technology integration. These include not only insufficient knowledge of pedagogical applications for digital tools but also infrastructural obstacles such as limited or unstable internet access in certain regions. Additionally, both students and some faculty members exhibit inadequate familiarity with the operational language of computers, leading to misunderstandings and a lack of confidence in using technology for educational purposes.

To address these challenges, teacher education programs must undergo significant reform. This includes embedding dedicated courses on digital pedagogy into the curriculum, investing in modern technological infrastructure, and offering continuous professional development workshops that focus on the functional, pedagogical, and linguistic aspects of digital tool usage. Furthermore, fostering positive attitudes towards technology among future teachers is critical for ensuring that ICT is perceived not as an intimidating requirement but as an opportunity to create interactive, learner-centered educational environments.

In conclusion, developing comprehensive digital competence among future foreign language teachers in Uzbekistan is not merely a technical matter but a strategic educational priority that will influence the effectiveness and modernization of language teaching in the years ahead.

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EXPERIMENTAL STUDY OF THE DEVELOPMENT OF INTELLECTUAL ABILITIES THROUGH PLAY

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Abstract: This article is devoted to the study of the role and effectiveness of game technologies in identifying and developing the intellectual abilities of students. Game technologies can be used as an effective tool in the educational process to develop students' intellectual abilities, such as logical thinking, creative approach and problem solving. The study examined how game technologies are used in education and the methods of developing abilities through them. Experimental studies and questionnaires have confirmed that the intellectual potential of students is improved using game technologies compared to traditional educational methods. The article also indicates the necessary pedagogical approaches for the effective use of game technologies in education.

Keywords: intellectual abilities, game technologies, educational process, logical thinking, creative approach, problem solving, experimental research, pedagogical technologies, educational effectiveness, motivation

ЭКСПЕРИМЕНТАЛЬНОЕ ИССЛЕДОВАНИЕ РАЗВИТИЯ ИНТЕЛЛЕКТУАЛЬНЫХ СПОСОБНОСТЕЙ ЧЕРЕЗ ИГРУ

Аннотация: Статья посвящена изучению роли и эффективности игровых технологий в выявлении и развитии интеллектуальных способностей учащихся. Игровые технологии могут быть использованы в качестве эффективного инструмента в образовательном процессе для развития интеллектуальных способностей учащихся, таких как логическое мышление, творческий подход и решение проблем. В исследовании рассмотрено, как игровые технологии используются в образовании и методы развития способностей с их помощью. Экспериментальные исследования и анкетирование подтвердили, что интеллектуальный потенциал учащихся улучшается при использовании игровых технологий по сравнению с традиционными образовательными методами. В статье также указаны необходимые педагогические подходы для эффективного использования игровых технологий в образовании.

Ключевые слова: интеллектуальные способности, игровые технологии, образовательный процесс, логическое мышление, творческий подход, решение проблем, экспериментальное исследование, педагогические технологии, образовательная эффективность, мотивация.

INTRODUCTION

The modern education system sets as its main goal not only the provision of knowledge, but also the development of intellectual abilities of students. Intellectual abilities, including logical thinking, creative approach, analytical skills and problem solving, are one of the decisive factors in the successful education of students. At the same time, the traditional methods used in teaching and educating students today often provide the younger generation with only standard knowledge, but do not have a sufficient impact on the development of their creativity and thinking skills. Thus,

the use of modern technologies in education, especially game technologies, plays an important role in improving the quality of the educational process.

Game technologies offer interactivity and interesting methods in the educational process. Through games, students not only gain knowledge, but also develop skills such as free expression of their thoughts, teamwork, strategic thinking and problem solving. Through games, students test themselves in developing logical thinking, creative approach, and analytical skills. Such technologies not only help students master knowledge, but also allow them to manage their own personal development and expand their capabilities. The use of game technologies in the educational process can be very effective in developing intellectual abilities. Teaching students through games not only expands their knowledge base, but also helps them build self-confidence, learn to work in a team, and improve decision-making in various social situations. The tasks given in games encourage students to be creative and are forced to be active in the learning process. In addition, the use of game technologies opens up new opportunities for measuring and developing students' intellectual abilities. With the help of games, students' abilities are not only assessed, but also specific goals are set to adapt students to different situations and increase their intellectual potential.

This article analyzes the role of game technologies in identifying and developing students' intellectual abilities. The study examines the pedagogical and psychological aspects of game technologies, as well as methods for developing intellectual abilities with their help. A scientific analysis is carried out on the role and effectiveness of game technologies in the educational process, as well as how these technologies can be used in a targeted manner. The methodology and results of the process of developing students' intellectual abilities with the help of targeted game technologies, as well as the possibilities of raising students to a higher level through games, are studied.

MAIN PART

Research on the use of game technologies in education and the effectiveness of developing students' intellectual abilities has been expanding in recent years. Research in this area presents many approaches to increasing students' engagement in the learning process, developing their creative thinking, and creating interesting and interactive forms of learning.

Kappas and Barreda-Ángeles (2019) examine the importance of gamification and game-based learning in education. According to them, gamification adds interesting and motivating elements to the learning process, which further develops students' abilities. Engaging students and involving them in learning through gamification leads to an increase in students' intellectual potential[1].

Zheng and Lin (2016) studied the effects of game-based learning on student motivation, engagement, and achievement. Their study found that game-based learning not only increases student engagement but also improves academic achievement. Game technologies that increase student engagement and facilitate learning enable students to achieve better results[2].

Hamari et al. (2014) analyzed the effectiveness of gamification and game-based learning in education. The study showed the role of gamification in increasing student motivation and engagement in the learning process. Game-based approaches increase students' interest in learning while helping to develop their intellectual abilities[3].

Bates (2015) studies the use of digital technologies, including game technologies, in the educational process. It emphasizes the role of games in increasing cognitive activity, developing

students' thinking and decision-making skills. The study shows how gaming technologies should be used not only for learning, but also for creativity and personal growth in education[4].

The purpose of this study is to determine the intellectual abilities of 3-7-year-old students in preschool educational organizations and to study the effectiveness of game technologies in their development. The study experimentally studied the application of game technologies to the educational process and changes in the intellectual development of students. The following methodological approaches were used to analyze the development of intellectual abilities of students participating in the study through game technologies.

The study was conducted experimentally, in which students were provided with two different educational approaches. In the first group, students were educated using traditional educational methods, and in the second group, they were educated using game technologies. Each group consisted of 15-20 students. During the study, various methods and tools were used to measure the intellectual abilities and development of both groups.

In the study, various game technologies were selected to support the intellectual development of students. Games suitable for children aged 3-7 are divided into the following categories: Cognitive games: Games aimed at learning logical thinking, memory and numbers, for example, "labyrinth" games, "memory games" and working with colored shapes.

Creative games: Games that help children develop creative thinking and imagination. For example, drawing pictures, making figurines, role-playing games (for example, "playing at home", "being a salesperson in a store"). Movement games: Games that help children develop motor skills. For example, small sports games, playing with a ball and other games that require physical activity.

The study used several data collection methods to measure the intellectual development of students: Student observation: It was carried out by observing the intellectual development of students and changes through games. In this process, the activity, level of thinking and creativity of the students are determined. Questionnaires and interviews: In order to determine how effective gaming technologies are for children, questionnaires and interviews were conducted with educators and students. This helps to measure students' interest in games and motivation to learn.

Activity evaluation: The activities performed by the students during the use of gaming technologies were evaluated. For example, combining colored shapes, playing memory games and creating creative works were analyzed. The data collected in the study were evaluated through qualitative and quantitative analysis.

The main analysis methods are as follows: Descriptive analysis: Means, distributions and differences were calculated to analyze changes in the levels of intellectual development of students. T-test: The t-test method was used to analyze the differences between two groups. Using this method, the effectiveness of gaming technologies in education was determined. Categorical analysis: A categorical analysis was conducted to measure how gaming technologies affected the creative and cognitive development of students.

The results of the study show the effectiveness of game technologies in developing the intellectual abilities of preschoolers. During the study, the following results were obtained by observing and analyzing children aged 3-7, who were divided into two groups.

In the first group of the study, students were educated using traditional educational methods, while in the second group, game technologies were used. Significant changes were observed in the intellectual development of students in the group where game technologies were used. In particular, the following changes were identified in the development of intellectual abilities using games:

Logical thinking and memory: With the help of games (for example, memory games and logical labyrinths), children significantly improved their logical thinking and memory skills. As a result of game-based learning, children's speed and accuracy in solving problems increased. Compared to the first group, the level of accurate and quick responses of students in the second group increased by 25-30%.

Creative thinking: Changes were observed in the development of creative thinking with the help of game technologies. Students became more active in using their imagination and developing new ideas. For example, through role-playing games and creative activities (drawing pictures, making shapes), children actively participated in creating new ideas. In the second group, children were 40% more active in performing creative activities than in the first group.

Game technologies significantly increased children's motivation to learn. The interest and enthusiasm of students in learning through games was clearly visible. When measuring the difference between students in both groups, 85% of children in the game-based learning group expressed greater interest in the educational process. As a result of the questionnaires, it was observed that the interest in learning through playing games was 50% higher than in the first group. Active games, such as playing with a ball or games that require physical activity, were also effective in developing children's motor skills. Through these games, children's physical activity and their ability to control their own body movements improved. Through games, children's coordination and accuracy in movements improved by 15-20%. Evaluations conducted by educators showed that the effectiveness of teaching using game technologies is much higher. Educators noted that learning through games is interesting and useful for children. Games also improved children's interpersonal relationships and teamwork skills. Game technologies also affected children's social and emotional development. Students' skills in communicating with each other, working together with each other, and managing emotional reactions increased during games. Games taught students to work as a team, solve problems together, and support each other.

The overall results of the study show that gaming technologies have a positive impact on the intellectual, creative, and socio-emotional development of children aged 3-7. Games significantly improved children's logical thinking, memory, creative thinking, motor skills, and motivation to learn. At the same time, games helped develop children's communication and cooperation skills.

The results of this study show the effectiveness of game technologies in developing children's intellectual abilities. The results obtained during the study confirmed that game technologies have a positive effect on the intellectual, creative and physical development of students in the educational process. However, these results indicate not only the effectiveness of game technologies, but also the importance of their correct and learned methods in education.

1. The effectiveness of game technologies:

The results obtained on the positive impact of game technologies on the intellectual development of students are of high importance. The results of the study showed that with the help of games, children improved their logical thinking and memory skills. Games help children solve complex tasks, increase their ability to make conscious decisions and think analytically. These results indicate that game technologies can become an effective element of the educational process, not only as a game for children. Some studies (for example, Piaget's theory of cognitive development) have emphasized the importance of logical thinking and memory in the development of children. Gaming technologies effectively develop these abilities, as they focus children, increase motivation and enthusiasm, which increases interest in education.

2. The importance of creative development and creative approach:

The study showed that the level of creative thinking in children increased through creative games. These games expand children's imagination, develop independent thinking in generating new ideas and solving problems. The effectiveness of creative games affects not only cognitive development, but also children's social skills, because when children perform creative activities together, they learn to communicate, freely express their thoughts and work in a team. Through these games, children learn to understand and support each other, which is one of the main stages of social development. At this point, it is worth considering Vygotsky's theory of social development, which emphasized the role of the social environment and interactions with people around children in their development. Creative games serve as an important tool for the development of social and emotional skills for children.

3. The impact of game technologies on the level of motivation and interest:

The effectiveness of game technologies in increasing motivation is an important result. The study showed that children's motivation to learn increased with the help of games. Learning through games not only increases students' interest, but also expands their ability to be active and self-directed. The study showed that learning through games aroused students' interest in learning even materials that previously seemed difficult and boring. This increases students' interest in independent learning.

4. Physical activity and motor skills development:

The study also found positive results for the impact of active games, such as games that require physical activity, on the development of children's motor skills. Through these games, children's coordination and control of physical movements increased. Games not only develop children's cognitive development, but also physical health and energy management skills.

5. Limitations of game technologies:

However, there are some limitations to the use of game technologies in the educational process. For games to be effective, teachers must use them based on the correct and clear methodology. Also, some educators may not have sufficient knowledge to effectively use games in the educational process. In addition, games should not only focus on physical and intellectual development, but also on the social and emotional development of children. If games are chosen incorrectly or the game process is organized ineffectively, this can negatively affect children's development.

CONCLUSION

This study investigated the effectiveness of game technologies in identifying and purposefully developing the intellectual abilities of students. During the study, the positive effect of using game technologies among preschoolers aged 3-7 was revealed. It was confirmed that game technologies had a positive effect on the intellectual development of children, the development of creative and logical thinking, and memory skills. Also, with the help of games, children's motivation to learn increased, and their creative and physical development also improved significantly. The results of the study show that game technologies not only serve as an interesting and attractive educational tool for children, but also have a significant impact on their intellectual and socio-emotional development. At the same time, the effective use of game technologies in the educational process depends on the methodological training of teachers and the correct selection of games.

This study showed the possibilities of expanding the use of game technologies in the preschool educational process. Future research will help to further explore the role of gaming

technologies in education, their effectiveness, and differences across age groups. In addition, there is a need to study the long-term impact of gaming technologies, as well as to develop the most effective types of games in education, taking into account the social and cultural characteristics of students.

Thus, gaming technologies are recommended as an effective tool for supporting the intellectual and social development of preschoolers.

Based on the results of the study, the following suggestions are put forward:

1. Expanded use of game technologies in the educational process: Game technologies are recommended as an interesting and effective educational tool for children. It is necessary to integrate games more widely into the educational process in preschool educational institutions. In order to effectively organize this process, it is important to train educators in game methodology and direct them to its practical application. It is also necessary to improve the quality of games and adapt them for different age groups.

2. Development of new methodologies for intellectual development through games: New methodologies should be developed for the effective use of game technologies in strengthening the intellectual development of children. Games should include specific methodological recommendations aimed at developing various intellectual abilities. Innovative approaches should be developed so that different forms of games (logical, creative, physical) cover all aspects of children's development.

3. Training educators in the use of game technologies and providing them with methodological guides: For the effective use of game technologies in the educational process, educators must have high methodological training. Therefore, it is necessary to conduct regular trainings to teach teachers and educators how to correctly use game technologies in the pedagogical process. For this, it is necessary to develop manuals, courses and programs aimed at using games for pedagogical purposes.

4. Using game technologies to support socio-emotional development: Game technologies are an effective tool for supporting not only intellectual development, but also the socio-emotional development of children. Through games, children can develop skills in communication, teamwork and managing emotional reactions. Therefore, game technologies should also be focused on the social and emotional development of children.

5. Development of adapted forms of game technologies for different social and cultural groups: When using game technologies in preschool educational organizations, it is necessary to take into account social and cultural differences. Taking into account the cultural and social differences between children, the forms and methods of game technologies should be adapted for each group. This will help ensure that children are successful in their education.

6. Studying the long-term impact of game technologies: Although the research has identified the short-term effectiveness of game technologies, it is necessary to study their long-term impact. Research should be conducted to study the long-term impact of game technologies on children's development. This will allow for a deeper understanding of the role and effectiveness of game technologies in the educational process.

7. Harmonizing games in supporting individual and collective development: Game technologies should be focused not only on individual development, but also on the development of collective work. For example, through games, children can develop skills in collaborative problem-solving, brainstorming, and group decision-making. This helps strengthen their team spirit and social skills.

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ENSURING THE INTELLECTUAL AND SOCIAL DEVELOPMENT OF PRESCHOOL CHILDREN BASED ON PEDAGOGICAL TECHNOLOGIES

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Abstract: This article talks about the organization of the educational process in preschool education based on pedagogical technologies and their importance, the role of pedagogical technologies in the activities of educators.

Keywords: pedagogical technology, creativity, creativity, ability, skill

ОБЕСПЕЧЕНИЕ ИНТЕЛЛЕКТУАЛЬНОГО И СОЦИАЛЬНОГО РАЗВИТИЯ ДЕТЕЙ ДОШКОЛЬНОГО ВОЗРАСТА НА ОСНОВЕ ПЕДАГОГИЧЕСКИХ ТЕХНОЛОГИЙ

Аннотация: В данной статье говорится об организации образовательного процесса в дошкольном образовании на основе педагогических технологий и их значении, роли педагогических технологий в деятельности воспитателей.

Ключевые слова: педагогическая технология, творчество, креативность, способность, умение.

INTRODUCTION

The intellectual and social development of preschool children creates the foundation for their educational process at later stages. During this period, the formation of the child's personality, speech, thinking, communication culture, behavior, social relations with others are strongly developed. The role of modern pedagogical technologies in these processes is incomparable. Pedagogical technologies are a scientifically based, systematic and effective way of pedagogical activity aimed at the comprehensive development of the child's personality, and are recognized as an important tool for increasing the intellectual and social potential of children through innovative approaches in preschool education. It is difficult to imagine the rapidly developing field of education without innovative pedagogical technologies. Pedagogical technologies have taken over every aspect of the field of education, including preschool education, and organizing activities based on pedagogical technologies gives effective results. In this regard, we should find answers to the questions "Does every teacher in the organization know what pedagogical technology is?", "Can he use pedagogical technology in his work?", "What is pedagogical technology?". Pedagogical technology (PT) is a field of knowledge that, with the help of which, in the 3rd millennium, fundamental changes will occur in the field of education of our country, the activities of teachers will be renewed, and a thirst for knowledge, love for the Motherland, and feelings of humanity will be systematically formed.

ОСНОВНАЯ ЧАСТЬ

The concept of "technology" entered science in 1872 in connection with technical progress and is formed from the Greek words -technos- art, hunar-valogos-science, doctrine, and means "science of craft". However, this expression cannot fully describe the modern technological process, the technological process always implies the performance of actions (operations) in a certain sequence using the necessary tools and conditions. More precisely, the technological

process is the activity of a worker (worker-machine) to create a product as a result of the step-by-step impact of labor tools on objects of labor (raw materials). The following concepts derived from the word technology are used in production:

Technological process - a set of technological operations that form a single process of processing a manufactured product. Technological operation - a part of the process in the form of an action performed by a worker at his workplace, brought to completion. Technological map - a technical document describing the sequence of technological operations for the production of a particular product. Technological regime - a procedure for determining the implementation of technological operations, determining the timing and conditions of operations performed in the production of a particular product. If we transfer these definitions and concepts to the educational process, we can come to the following conclusion:

Pedagogical technology is a process of influencing students (students) by a teacher (educator) under certain conditions using teaching aids and intensively forming predetermined personal qualities in them as a result of this activity. Pedagogical technology is a systematic category that determines the technologization of the educational process as a whole. The concepts of "teaching technology", "educational technology" are also used in pedagogical publications. Teaching technology - firstly, it means the process-action aspect of pedagogical technology. This is the development and implementation of an educational model that embodies the systematic unity of methods and tools (technological operations) that ensure the guaranteed achievement of the intended results of the educational process in changing conditions, during the allotted time, and the implementation of specific educational and educational processes;

Secondly, it represents the process-descriptive aspect of pedagogical technology. This is a statement of the implementation of the project of pedagogical and educational activities to achieve the goal and achieve the results set in the future (technological map). Educational technology is used to determine the scientific aspect of pedagogical technology. This is a systematic method of creating, applying and defining all processes of teaching and learning, taking into account technical and human resources and their cooperation, which sets the task of optimizing forms of education.

The Russian scientist V.P. Bespalko, who was one of the first in the CIS countries to scientifically substantiate the need to introduce pedagogical technology into the educational process, gives the following definition, saying that "pedagogical technology is a project of a pedagogical system that can be implemented in practice,": "Pedagogical technology is a project of the process of forming the personality of a student, which can guarantee pedagogical success regardless of the teacher's skills." The following important principles can be distinguished from the content of Bespalko's definition:

-PT (Pedagogical technology) is designed to form certain elements of social experience in students;

- The implementation of the designed ready-made technology does not require great skill from the subject teacher;
- The final result is guaranteed.

According to the definition of T.S. Nazarova: "Pedagogical technology is a set of methods and tools used in the educational process to achieve the intended goal of education." According to the definition approved by the authoritative UNESCO organization, "Pedagogical technology is a systematic method for identifying, creating and applying all processes of teaching and learning, taking into account technical means, human potential and their impact, in order to optimize

educational forms." German scientist Kurt Lewin and Swiss psychologist Jean Piaget, studying the psychological nature of the majority in a group reaching a single decision in the 1940s, emphasized the importance of pedagogical technologies. Pedagogical technology is considered a method of education, in a certain sense, a set of educational processes, tools, forms and methods. "Pedagogical technology is a system for developing and improving educational processes, content, methods and tools of education based on objective laws of education and diagnostic goals." As we can see, there is still no consensus on the definition of the concept of "pedagogical technology". In our opinion, pedagogical technology is a set of educational processes, methods, tools, forms of education, and relationships between teachers and students, requiring a systematic, technological approach to the educational process and reflecting such important features as clarifying educational goals, guaranteeing results, and objective assessment. Also, the tasks of pedagogical technology as a science include determining the content of education at each stage of education, preparing forms and means of education, preparing tests for inclusion in the content of the subject, situational texts, developing a system of tasks aimed at mastering the intended professional qualities and spiritual qualities in a person, and preparing test tasks for objective assessment of the results of education and the level of mastery. In particular, pedagogical technology spread rapidly in almost all developed countries at the end of the 20th century and was recognized and supported by the influential UNESCO organization. Today, it is being successfully used in many countries. Many countries have achieved significant success in developing the education system and increasing student learning using pedagogical technology. The basis of the technologization of education is the idea of complete control over the educational process, its effectiveness and ensuring that students achieve the planned learning outcomes under given conditions and within a specified time. It is also envisaged that with the help of pedagogical technology, fundamental changes will occur in the education system of Uzbekistan in the 3rd millennium, the activities of teachers and students will be renewed, and a thirst for knowledge, individuality, humanity and love for the Motherland will be systematically formed in young people. What does "new pedagogical technology" mean? First of all, pedagogical technology is designed for the educational (educational) process. Each society determines the goal of forming a person, and accordingly a certain pedagogical system is created. This system is continuously influenced by social order and generally determines the content of education.

The goal" in turn leads to the need to update the remaining elements of the pedagogical system. Here we can cite a Chinese proverb as an example. "Tell me, I will forget, show me, I can remember, give me the opportunity to work on myself, then it will be completely mine." Interactive exercises, role-playing games - this is teaching through movement - the most effective way to gain experience, an interesting form of mastering knowledge and skills, and a method that helps children understand how others feel in similar situations. So, the purpose of education has been completely updated, and accordingly, it is natural to update both the content and the pedagogical process. Secondly, with the development of science and technology, the boundaries of human activity are expanding enormously, and new technologies with great educational potential are entering the audience. There are also new technical, informational and audiovisual tools that require new methodologies and are becoming an integral part of the educational process and introducing certain features into it, which have made new pedagogical technologies a real reality. Pedagogical technology is essentially on a par with other technologies, because they, like other technologies, have their own specific field, methods, tools, and work with certain materials. However, pedagogical technology, as a field of knowledge with the human mind, is distinguished

from both biological and even information technologies by the fact that it expresses a complex and not everyone can understand pedagogical process. Now let's consider the methods of applying interactive methods in the organization of preschool education.

CONCLUSION

Preschool age is an important stage that forms the foundation for the formation of a child as a person. During this period, the child seeks to find his place in the activity, thinking, communication and social environment. Pedagogical technologies serve as a guiding, stimulating and reinforcing tool in these processes.

The results of the study show that through interactive and modern approaches (project-based learning, game technologies, ICT, cooperative learning), children's interest in knowledge increases, speech culture develops and social behavior is formed. In particular, a positive effect of role-playing games and theater technologies on the social adaptability of children was observed.

Also, the systematic and targeted use of pedagogical technologies leads to the following results: the child develops independent thinking, questioning and reasoning skills; the ability to understand, analyze and draw conclusions from information increases; the ability to behave in a team, freely express one's opinion, and solve problems is formed; the educator's methodological approaches are enriched and efficiency increases.

However, the following factors are important for the effective implementation of these technologies: continuous professional development of educators; providing MTOs with modern technical means; involving parents in the pedagogical process; strengthening methodological services and systematic introduction of innovative approaches.

In conclusion, pedagogical technologies are becoming not only a source of knowledge for preschool children, but also a powerful factor in personal and social development. Therefore, in modern education, it is necessary to fully integrate pedagogical technologies into practice and serve as a strategic direction for maximum disclosure of the child's potential.

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PEDAGOGICAL FUNDAMENTALS OF THE PROCESS OF DEVELOPING SPECIAL PHYSICAL SKILLS OF ATHLETES IN ATHLETICS

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Abstract: The article presents the results of the pedagogical experiment and their discussion on the indicators of the muscles of the left and right legs and paws in the development of special physical abilities of 10-16-year-old adolescent athletes .

Keywords: athletics, special physical ability, pedagogical principles, quality of endurance, movement, activity, training .

ПЕДАГОГИЧЕСКИЕ ОСНОВЫ ПРОЦЕССА РАЗВИТИЯ СПЕЦИАЛЬНЫХ ФИЗИЧЕСКИХ КАЧЕСТВ СПОРТСМЕНОВ В ЛЕГКОЙ АТЛЕТИКЕ

Аннотация: В статье приведены данные по результатам педагогического эксперимента и их обсуждение по показателям ног, и разгибательных мышц левой и правой стопы в развитии специальных физических способностей легкоатлетов-подростков 10-16 лет.

Ключевые слова: Легкая атлетика, специальные физические способности, педагогические основы, качество выносливости, двигательная активность, учебная-тренировка.

RELEVANCE

In many countries of the world, in the effective organization of the training process, great attention is paid to the issues of developing the quality of endurance of teenagers working in the primary training group. Formation of endurance in all sports is a mandatory component of the training system of young athletes. Endurance requires the athlete's ability to maintain movement activity in sports practice and classification of loads according to aerobic-anaerobic intensity zones. Therefore, the rational organization of the training process makes it possible to achieve the effectiveness of forming endurance, which is one of the important physical qualities.

Research purpose: consists of theoretical justification and practical verification of the effectiveness of using means and methods of developing special physical abilities in young athletes.

Research tasks: Identifying and using special tools and methods used in athletics training;
- to determine the speed-strength indicators of sprinters aged 10-16 ;
- to determine and analyze the relationship between the indicators of the muscles recording the left and right legs and paws and the results .

RESEARCH RESULTS AND THEIR DISCUSSION

According to the educational and scientific-methodical literature, it is impossible to clearly separate runners of different distances at the stage of primary sports specialization. Their training takes place according to a single methodological principle. However, the conducted dynamometric studies show that it is appropriate to separate young athletes, whose quickness or endurance skills are primarily developed, by specialty from the age of 12. The method of polydynamometry is the

most informative method that allows determining the level of rapid strength training and predicting future improvement.

Table 1. Correlation analysis of speed-power indicators of 10-16-year-old sprinters and competitive activity

Dynamometer indicators	k Age						
	10	11	12	13	14	15	16
Left leg muscles							
Maximum power	0.401	0.420	0, 433	0, 479	0.49 0	0, 53 4	0, 5 69
Force gradient	0.305	0.315	0, 32 0	0, 39 4	0, 435	0, 48 9	0, 525
Starting power	0.404	0.410	0, 422	0, 437	0, 482	0, 527	0, 543
Quick power	0.305	0.345	0, 377	0, 424	0, 47 7	0, 482	0, 536
Muscles of the right leg							
Maximum power	0.325	0.355	0, 378	0, 3 9 2	0, 412	0, 429	0, 4 5 6
Force gradient	0.327	0.365	0.399 _	0.391 _	0.443 _	0.437 _	0.484 _
Starting power	0.314	0.328	0.344 _	0.377 _	0.383 _	0.392 _	0.461 _
Quick power	0.329	0.345	0.376 _	0.388 _	0.422 _	0, 437	0, 46 5
Muscles that contract ankle claws							
Maximum power	0.326	0.358	0, 3 8 4	0, 42 2	0, 43 7	0, 488	0, 534
Force gradient	0.316	0.345	0, 3 6 6	0, 36 2	0.394 _	0.4 14	0.437 _
Starting power	0.332	0.365	0.374 _	0.389 _	0.411 _	0.437 _	0.464 _
Quick power	0.345	0.368	0.3 8 2 _	0.390 _	0.427 _	0.469 _	0.525 _

In the main distances, the analysis of the relationship between the indicators of the muscles of the left leg and the right leg and paws and the results was carried out, as a result, the strength and quick-power training of the athletes and their influence on the sports results were determined (Table 1-2). In turn, the correlation analysis helped to determine the most informative dynamometric characteristics that allow to target in the control of the study of the effectiveness of the training process.

Table 2. Correlation between dynamometric indicators and main distance results in 10-16-year-old athletes specializing in middle and long-distance running.

Dynamometer indicators	k Age						
	10	11	12	13	14	15	16
Muscles of the right leg							
Maximum power	0.327	0.364	0, 378	0, 39 2	0.4 12	0, 4 2 9	0, 45 6
Force gradient	0.345	0.376	0, 3 9 9	0, 391	0, 443	0, 437	0, 4 8 4
Starting power	0.314	0.326	0, 344	0, 3 7 7	0, 38 3	0, 3 9 2	0.4 61
Quick power	0.325	0.355	0, 376	0, 388	0, 422	0, 43 7	0, 465
Muscles that record the paws							
Maximum power	0, 335	0.365	0.3 73	0, 37 9	0.4 12	0, 434	0.4 66
Force gradient	0.347	0.65	0, 3 8 1	0, 39 2	0, 411	0, 43 9	0, 429
Starting power	0.337	0.365	0, 3 9 8	0, 419	0, 427	0, 436	0, 46 9
Quick power	0.325	0, 341	0.364	0, 372	0, 393	0, 418	0, 436

Starting power, that is, the rate of increase of power in the first 0.1 seconds, is the most informative dynamometric indicator for sprinters. As the sports skill increases, the correlation between the starting power and the results of sprint running approaches the functional one. This evidence can be explained by the fact that during fast running, the duration of the stance-deceleration phase is about 0.1 seconds, and the time to reach the maximum force is 0.4-0.6 seconds. Therefore, in conditions of fast running, the athlete almost does not have time to demonstrate the maximum possible level of movement power. For the sprinter, it is important to develop a useful external force that is faster, maximally important, but less effective for sprinting.

High information was found in the strength gradient of muscles.

The rate of muscle relaxation is the most important dynamometric indicator. This size has a special effect on the performance of the results of middle and long distance running, reflecting the ability of the athlete to quickly release the muscles that are not involved in the movement. In sprinters, the correlation between athletic performance and relaxation rate is low, but its importance increases with increasing athletic skill.

The ability to relax the muscles reflects the interdependence of the level of coordination between the muscles and the level of activity in the muscle system. Therefore, the level of mutual tension of the muscles performing the main load at the minimum activity of the secondary muscles is the intermuscular coordination. Being able to perform at your best when there is less muscle tension certainly reflects much improved intermuscular coordination. It should also be noted that the ability to relax muscles is inextricably linked to having a free, stress-free running technique and achieving high levels of performance.

The rate of relaxation is the most important characteristic of the neuromuscular apparatus in movements. It may be genetically determined, and cycle sports may be considered the most predictive indicator at the stage of initial sports specialization. Exercises that train runners to relax freely are not used enough.

The strength component shows an interaction with sports results at the age of 15-16 years, and the influence of muscle strength on sprinter running speed at this age period is insignificant. At the age of 15-16, muscle strength increases very quickly, the dependence of running speed on the size of muscle strength is shown. Undoubtedly, the increase in the effect of power on the result in sprint running is explained by the dependence of the length of the running steps on the development of power qualities and the level of manifestation of horizontal tension in the phase of active deceleration, which determines the speed of running.

Despite the increase in braking power, only sprinters who can interact with the support to reduce the loss of front speed and develop it in the descent will be able to run well, that is, they will be able to show a good result. The criterion of the quality of the technique in the interaction with the support is related to the uniform growth of the characteristic "wave of force" with a smooth return to zero, which necessarily corresponds to the optimal type of depressing. A uniform description of the interaction of forces with the base, less vertical oscillation of the overall center of gravity, is typical of the running of skilled sprinters. The above-mentioned points out that as the runner's technique of movement activity improves, intermuscular communication is established, energy loss decreases due to the redistribution of external and internal work ratios, the percentage of the latter increases in the overall movement of the runner, and more orderly use of muscle power and quick-power capabilities is observed.

Qualitatively, the abilities evaluated by maximum, burst and starting strength are different and are considered relatively independent. Starting power reflects the development of a specific

motor apparatus by athletes during many years of high-speed running training. Therefore, the increase in starting power was reliably higher in sprint-specialized teenagers compared to middle- and long-distance runners. Therefore, it is appropriate to consider the growth rate of muscle starting force as a criterion for evaluating the special speed-strength training of sprinters. It should also be noted that in skilled athletes there is a correlation between the sports result and the given dynamometric characteristics. At the same time, there is no correlation, no reliable correlation, no parallel growth between the force and its time base.

Correlation analysis, including morphological and dynamometric characteristics, allows to determine the following patterns. In athletics, the maximum strength value has a reliable correlation ($r < 0.05$) with the somatic type of the examinee and the obvious expression of muscle weight in the lower body parts. With increasing age, there is an increase in the reliable correlation of strength indicators of individual muscle groups and somatic type.

In general, the value of muscle strength of athletes obtained in our research is much lower than similar results published in the scientific and methodical literature. We attribute this evidence to the fact that we measure isometric strength, which is used to determine the rate of contraction and relaxation of muscles. So we didn't get the full maximum. In addition, during the measurements, the possibility of acceleration of the body parts was not taken into account.

young teenage athletes is carried out on the basis of the analytical work of the coach and experts of the observation team and includes the following actions:

- analysis of sports results in the main round where the level of sports performance has been reached and its structural composition related to pre-competition preparation and elements of competition activity;
- analysis of the dynamics of sports results in mixed distances;
- analysis of data on competition and training loads;
- assessment of the level of general and special physical fitness on the basis of test data during control competitions and with the use of special trainers;
- for example, assessment of the functional status of athletes based on the results of training series of control exercises and loads with the use of pulsometry and biochemical controls;
- analysis of performance techniques of basic sports movements;
- assessment of athletes' mental condition ;
- determining the biological level of athletes.

The monitoring results obtained during the current control process significantly supplemented the data of the phase control. Current controls include:

- pedagogical monitoring of the dynamics of training and competition loads;
- pulsometry during low-responsibility exercises;
- visual and instrumental (current) analysis of sports competition equipment;
- physiological and biochemical control of the body's reaction to standard training loads;
- health monitoring of athletes by team doctors and support staff during training sessions, treatment-prophylactic and recovery activities.

Quick checkinvolves checking the implementation of the planned continuous training program. The following indicators are monitored:

- implementation of the main and intermediate goals of training. Here, sporting results are reviewed year-on-year and progress achieved in major competitions at the end of each period;

- implementation of specific standards, the fulfillment of which should ensure sports results. They include the description of competition activities, indicators describing physical, technical, tactical, functional and other types of preparation;

- implementation of the plan of training and competition loads (by year and periods). In-depth medical examinations (ChTT) conducted 1-2 times a year are the most important component of annual control.

The control of assessment of individual characteristics of young adolescent athletes should reflect the individual norm of indicators describing the complex of specific characteristics of the athlete's organism necessary for successful performance of the main competition exercises. Control of the studied parameters by quantitative and qualitative characteristics allows to determine the dynamics of individual characteristics of young athletes and serves as a basis for making adjustments to the training process.

Complex criteria reflecting the strength, efficiency and stability of the body's locomotor apparatus, cardiorespiratory systems and life support work are the most appropriate for evaluating the individual characteristics of young athletes. These criteria make it possible to determine the individual structure of functional training of the body of young athletes in relation to competition loads.

The analysis of special literature shows that the issues of determining the control of physical fitness of young athletes have not been sufficiently studied, therefore, the method of determining individual criteria of physical fitness and functional condition in children and young athletes has not been developed and tested. In it, the limits of individual norms are determined with the help of statistical measures. The indicators of the tests corresponding to the average result in the control exercises are accepted as the average standard. The procedure for determining individual criteria can be as follows:

- determination of training time and its duration;
- regular testing of participants on the most informative set of tests during a certain stage;
- determination of average size and standard deviation;
- $X + 0.5$ is the average value, and the remaining levels are low-high, very low-very high to accept as;
- considering the value of results greater than $2X$ in the test as a very high standard.

Improvement of the normative basis of the training of young athletes by the development of the methodology of individual standards requires special research in certain tests and sports.

Concepts of individual physiological, morphological and biochemical reactivity of body systems are the theoretical basis for the development of issues related to increasing the level of an athlete's training.

The extent to which indicators describing its leading functional systems, which ensure the body's ability to work, can change, serves as an individual criterion of the current functional state, which determines the level of activity of the athlete.

CONCLUSION

To sum up, the wider this area is, the higher the level of organization of functional systems, the level of adaptation to physical loads and, of course, the individual standards of the athlete's functional organism. Thus, on the basis of the method of determining the individual criteria of the functional state in young athletes, it is necessary to study the extent of functional systems that determine the success of the main exercises. The change of the studied parameters according to

the quantitative criteria represents the dynamics of the individual norm of the functional state of the organism and serves as a basis for making corrections to the training process.

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BOSHLANG'ICH SINFI O'QUVCHILARINING TA'LIM JARAYONIDA EKOLOGIK MADANIYATNI SHAKLLANTIRISHNING NAZARIY MASALALARI

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Annotatsiya: Ushbu maqolada ekologik xavfsizlik va talabalar uchun ekologik ta'lim mazmuni haqida ma'lumot berilgan, shuning bilan birga ekologik ta'limni boshlang'ich maktab o'quv dasturlariga integratsiyalashuvning ahamiyati va afzalliklarini o'rganadi. U mavjud adabiyotlarni o'rgatadi, samarali o'qitish usullarini tahlil qiladi, bunday ta'lim natijalari bo'yicha natijalarni taqdim etadi va kelajakdagi amaliyotga ta'sirini muhokama qiladi. Maqola boshlang'ich maktablarda ekologik ta'limni kuchaytirish bo'yicha takliflar bilan yakunlanadi.

Kalit so'zlar: Ekologik tuyg'u, ekologik idrok, ekologik tasavvur, ekologik ong, ekologik bilim, ma'lumot, ko'nikma, ekologik madaniyat.

THEORETICAL ISSUES OF THE FORMATION OF ECOLOGICAL CULTURE IN THE EDUCATIONAL PROCESS OF PRIMARY CLASS STUDENTS

Annatsion: This article provides information on environmental safety and environmental education content for students, thus exploring the importance and benefits of integrating environmental education into elementary school curricula. It reviews the existing literature, analyzes effective teaching methods, presents findings on such learning outcomes, and discusses implications for future practice. The article ends with suggestions for strengthening environmental education in primary schools.

Keywords: Ecological feeling, ecological perception, ecological imagination, ecological awareness, ecological knowledge, information, skills, ecological culture.

ТЕОРЕТИЧЕСКИЕ ВОПРОСЫ ФОРМИРОВАНИЯ ЭКОЛОГИЧЕСКОЙ КУЛЬТУРЫ В ОБРАЗОВАТЕЛЬНОМ ПРОЦЕССЕ УЧАЩИХСЯ НАЧАЛЬНЫХ КЛАССОВ

Аннотация: В этой статье представлена информация об экологической безопасности и содержании экологического образования для учащихся, тем самым исследуются важность и преимущества интеграции экологического образования в учебные программы начальной школы. В нем рассматривается существующая литература, анализируются эффективные методы обучения, представлены результаты таких результатов обучения и обсуждаются последствия для будущей практики. Завершается статья предложениями по усилению экологического образования в начальной школе.

Ключевые слова: Экологическое чувство, экологическое восприятие, экологическое воображение, экологическое сознание, экологические знания, информация, умения, экологическая культура.

KIRISH

Yurtimizda yosh avlod tarbiyasida Ona vatanga muhabbat tushunchasi, ekologik madaniyat tushunchasi bilan uzviy olib borilmoqda. Uni asrab-avaylash, keyingi avlodlarga ham g'amxo'rlik qilish ma'suliyati yakunlanmoqda. O'zbekiston Respublikasi Prezidenti Sh.M.Mirziyoyevning quyida aytib o'tgan so'zlari diqqatga sazovordir: eng muhim masala

aholining ekologik madaniyatni oshirish haqida jiddiy bosh qotirishdir. Albatta, bunda muammolarni faqat ma'muriy yo'l bilan hal etib bo'lmaydi, bunga yosh avlod qalbida ona tabiatga mehr-muhabbat, unga daxldorlik hissini tarbiyalash orqali erishish mumkin. Bu vazifalarni bajarish, unga erishish esa avvalombor oilada ota-ona, ta'lim muassasida esa ustoz, murabbiy, pedagog zimmasidadir [1].

Ekologik xavfsizlik muammosi nafaqat milliy va mintaqaviy, balki butun insoniyatning umumbashariy muammosidir. Ekologiya hozirgi zamonning keng miqyosda keskin, jiddiy ijtimoiy muammolaridan biridir. Uni hal etish barcha xalqlarning manfaatlariga mos bo'lib, rivojlanishning hozirgi kuni va kelajagi ko'p jihatdan ana shu muammoning hal qilinishiga bog'liqdir.

Atoqli pedagogik V.A.Suxomlinskiy "Bolalarga jonim fido" asarida "Men bolalar alifbosini ochib, birinchi so'zni hijjalab o'qishlariga qadar avval dunyodagi eng ajoyib kitob-tabiat kitobni mutolaa etishlarini istar edim" deb ta'kidlaganidek, bu borada barcha ishlarni bolaning kichikligidanoq boshlang'ich maqsadga muvofiqdir [2].

O'zbekiston Respublikasi Konstitutsiyasining 50-moddasida: "Fuqarolar atrof-muhitga ehtiyotkorona munosabatda bo'lishga majburlar" va 53-moddasida esa: "Yer va yer osti boyliklari, suv, o'simlik va hayvonot dunyosi hamda boshqa tabiiy zahiralarning ummuman boyliklardir."

Boshlang'ich sinf yoshidagi bolalar hali ham o'zlarning to'laligicha mustaqil qarashlariga ega bo'lmaydilar. Ushbu yoshdagi bolalar uchun "munosabat" atamasidan foydalanish faqat shartli ravishda amalga oshiriladi. Ba'zi tadqiqotchilarning fikricha, boshlang'ich sinf o'quvchilarining tasavvurlari va xulosalari juda oddiy tartibda shakllantiriladi. Boshlang'ich sinf o'quvchilarida atrof-muhitga ijobiy munosabatni shakllantirish ekologik ta'limsiz amalga oshmaydi. Boshlang'ich sinf o'quvchilarining umumiy xususiyatlaridan biri shundaki, ular o'zini va tevarak-atrofdagi olamni o'smirlarga qaraganda bir butun sifatida idrok etadilar. Ularning har bir uchun "men" tabiatni, tabiat esa "men"i ifodalaydi. Eng muhimi, ular tabiatning bir qismini his qilishadi. Agar birinchi sinfda bolalarda faqat hayvonlar va o'simliklarga rahm-shafqat, ularga muhabbat, atrof muhit go'zalligidan estetik zavqlanish qiziqтира, o'smirlik davrining oxiriga kelib, bu his-tuyg'ular ekologik yo'naltirilgan faoliyatga aylanadi. Natijada hayvonlar va o'simliklarga nisbatan rahm shafqat tuyg'usi shakllanadi. Maktabda ekologik tarbiyaga oid quyidagicha ommaviy tadbirlar tashkil etiladi. Bular: kechalar, ma'ruzalar, hikoyalar, ko'rgazmalar, tanlovlar, o'quvchilar ishlari, referatlar, ma'ruzalar, atrof muhitga oid plakatlar va boshqalar. Bu vositalar boshlang'ich sinf o'quvchilarining ekologik madaniyatni ongli tushuna bilishi, tabiatni muhofaza qilish va yaxshilashda muhim ahamiyatga ega. Atrof muhit xulq-atvoriga mehnat faoliyati birlashtirilib, to'g'ridan-to'g'ri tabiiy bog'liqlik mavjud bo'lsa, ular yaxshi natijalar berishiga shubha yo'q [3].

MAVZUGA OID ADABIYOTLAR TAHLILI

O'zbekiston Respublikasi Vazirlar Mahkamasining – O'zbekiston Respublikasida ekologik ta'limni rivojlantirish konseptsiyasini tasdiqlash to'g'risidagi 434-sonli qarori qabul qilingan. Qarorga ilova sifatida O'zbekiston Respublikasida Ekologik ta'limni rivojlantirish Konseptsiyasi ishlab chiqilgan. Kontseptsianing asosiy maqsadi o'sib kelayotgan yosh avlodda ekologik bilim, ong va madaniyatni shakllantirish hamda rivojlantirish, ekologik ta'lim-tarbiya jarayonini samarali tashkil etish, shuningdek, ekologiya sohasidagi ilm-fanni jahonning ilg'or innovatsion texnologiyalarini jalb etgan yanada takomillashtirishdan iborat.

Mazkur konsepsiyada ta'limning barcha bosqichlarida ekologik tarbiyaning o'rni va roliga alohida urg'u berilgan. Bunda bilim berish «oddiydan murakkabga», «uzviylik va uzluksizlik» kabi pedagogik tamoyillarga tayangan holda nazariy va amaliy bilimlar uyg'unligiga, o'quvchilarda ekologik madaniyat hamda tarbiyaning bosqichma-bosqich shakllanishini ta'minlaydigan maqsadga yo'naltirilgan. Boshlang'ich sinflarda o'quvchilar o'quv fanlari doirasida qo'shimcha ravishda: Suvni tejash va asrash; -Atmosfera havosining ahamiyati va uni muhofaza qilish; -yer resurslari va yerosti boyliklaridan oqilona foydalanish; -O'simlik va hayvonot dunyosini muhofaza qilish; -Chiqindilarni yig'ish va joylashtirish; O'zbekistonning go'zal va takrorlanmas tabiatini asrab-avaylash zarur [4].

O'zi yashaydigan qishloq (shahar) tabiatini asrashda faol ishtirok etish; O'zbekistondagi qo'riqxonalar va tabiat bog'lari to'g'risida; Orol dengizi fojiasi to'g'risida umumiy bilim va ko'nikmalarga ega bo'lishi lozim. Maktab va jamoat mulkini ehtiyotkorlik bilan saqlash; uyda elektr, gaz va suvdan tejamkor foydalanish o'rgatishda boshlang'ich sinf o'quvchilarida atrof-muhitga ijobiy munosabatni shakllantirish jarayonidagi turli shakl va usullar bolalarning yoshxususiyatlariga qarab tanlanishi kerak. Bunday usullardan biri ekologik loyihalardan samarali foydalanishdir. Ekologik loyihalarni amalga oshirishda ota-onalar ishtirok etishi ham muhim zarurat hisoblanadi. Bu jarayonda har bir oilaning faol ishtiroki e'tibordan chetda qolmaydi [5].

TADQIQOT METODOLOGIYASI

Boshlang'ich sinf o'quvchilarining ekologik tarbiyasi barcha oila a'zolarining ekologik madaniyatini shakllantirishga qaratilgan doimiy tarbiyalash jarayoni bilan chambarchas bog'liqdir. O'quvchilarga atrof muhit tozaligi birinchi navbatda toza havo va toza suv tushunchasi bilan bog'liqligi bu esa, bugungi kunda har bir sinf, oshxona, maktab, xonadon, ko'chalardan chiqayotgan qattiq maishiy chiqindilarni to'g'ri saralash, belgilangan maxsus joylarga tashlash, maishiy chiqindilarni yoqmaslik, ichimlik suvini isrof qilmaslik, suvga axlat tashlamaslik, tupurmaslik, behurmatlik qilmaslik tushunchalarini singdirib borish kerak. Tabiatga qilingan noto'g'ri munosabat natijasida sodir bo'layotgan ekologik muammolarni anglatish lozim. O'quvchilar ongida ekologik madaniyatni turli she'r, esse, hikoya tarzida o'rgatilsa, ularni maqsadga muvofiq bo'ladi. Masalan: necha xalqlar suvga zor, faqat bizda bemalol. Oqar suvni qadrlang, asrang, aslo qilmang xor. Suv, havo, non uchovlon bo'lmasa, netar inson? Suv bilan tirik jahon, Oqar suvni qadrlang! Birlashgan Millatlar Tashkilotining maxsus dasturlarida qayd etilishicha, 2025-yilga borib, yer yuzidagi davlatlarning yarmidan ko'prog'ida suv taqchilligi yuzaga kelsa, 2050-yilga borib, sayyora aholisining to'rtidan uch qismining chuchuk suv taqchilligiga uchrashi bashorat qilinmoqda. Qolaversa, bugungi kundagi kasalliklarning 80 foizi suvlarning ifloslanishi bilan bog'liqdir. Asosiy ekologik muammolar yirik shaharlardagi sanoat korxonalaridan chiqayotgan chiqindilar va avtomobil-transport vositalarining organik yoqilg'ilarining yonishidan chiqadigan zararli gazlar ulushiga to'g'ri keladi [6].

Bular esa yirik global muammolar iqlim o'zgarishlariga sabab bo'lmoqda. Atrof-muhit va turmush sharoiti aholining salomatligiga bevosita ta'sir qiladi. Yomonlashayotgan ekologiksharoit nafaqat hozir yashayotgan aholining, balki kelgusi avlodlarning ham salomatligiga, irsiyatiga oid omillariga salbiy ta'sirini o'tkazishi mumkin. Ko'plab tug'ma va g'ayritabiiy kasalliklar, chaqaloqlarning chala tug'ilishi atrof muhitning yomonlashuvi bilan bog'liq.

TAHLIL VA NATIJALAR

Umuman, maktab o'quvchilarining ekologik ta'lim-tarbiyasi quyidagi tuzilish va tizimda olib borilsa, uning samaradorligi ta'minlanadi: ekologik his-tuyg'u, ekologik idrok, ekologik tasavvur, ekologik tushuncha, ekologik bilim, ma'lumot, ko'nikma, malaka, odat, ekologik

madaniyat (mahorat) va hokazo. Tabiatni muhofaza qilish hozirgi zamonning asosiy masalalaridan biri bo'lib qolganligi o'quvchi ongiga singdiriladi. Haqiqatdan ham, tabiiy boyliklardan haddan tashqari ko'p darajada foydalanish, yangi yerlarni rejasiz o'zlashtirish oqibatida, ekologik muvozanat keskin o'zgardi, atrof-muhit ifloslandi [7].

Ekologik tarbiyada insonning atrof-muhitga nisbatan munosabatlari tarbiyalanib, o'quvchilar ongiga yoshligidan singdirib boriladi. Ekologik ta'lim-tarbiya maktabda barcha fanlarni o'qitishda amalga oshirilishi ko'zda tutiladi. Ekologik ta'lim-tarbiyadan bosh maqsad ham yosh avlodda atrof-muhit va uningmuammolariga ongli munosabatni shakllantirishdan iboratdir.

XULOSA

Xulosa qilib aytganda, boshlang'ich sinflarda ekologik muammolarni o'qitish talabalar, o'qituvchilar va umuman jamiyat uchun juda ko'p foyda keltiradi. Biroq, ushbu imtiyozlarni amalga oshirish ekologik ta'limni asosiy o'quv dasturlariga kiritish, o'qituvchilar uchun malaka oshirish imkoniyatlarini ta'minlash va mahalliy jamoalar va ekologik tashkilotlar bilan hamkorlik qilish uchun birgalikda harakatlarni talab qiladi. Oldinga siljish, siyosatchilar, o'qituvchilar va manfaatdor tomonlar boshlang'ich maktabda ekologik ta'limga ustuvor ahamiyat berish uchun birgalikda ishlashlari kerak, kelajak avlodlar 21-asrning murakkab ekologik muammolarini hal qilish uchun jihozlanganligini ta'minlashlari kerak. Ta'lim berishning nazariy asoslari qoniqarli darajada, ammo amaliy jihatlariga ko'proq ahamiyat berilishi kerak. Maktablarda jonli tabiat burchaklari, TVda ekologiyani asrash borasida bot-bot beriladigan ijtimoiy roliklar samarasi juda kam. Bularning barchasi tashqi tarafdin berilayotgan ta'sirlardir. O'quvchilar tabiatning bir bo'lagi ekanliklarini o'zlari his qilishlari zarur. Buning uchun amaliyotga ko'proq e'tibor qaratgan ma'qul. Masalan, maktab maydonida poliz mahsulotlarini yetishtirish, turli foydali o'simliklarni o'stirish, maktab bog'larini tashkil qilish kabilar [8].

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NOVERBAL MULOQOT TURLARI VA ULARNING AHAMIYATI.

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Annotatsiya: Ushbu maqolada, Noverbal muloqotning turlari, noverbal muloqotning inson hayotida ahamiyati, noverbal muloqotdan foydalanish yo'llariga alohida e'tibor qaratilgan.

Kalit so'zlar: Noverbal muloqot, Noverbal muloqot turlari, Mimika. Jestlar, Kinesika, Ko'z bilan bog'lanish, Paraverbal belgilar, Tachtik, Ekstraverbal belgilar, Proksemika.

ТИПЫ НЕВЕРБАЛЬНОЙ КОММУНИКАЦИИ И ИХ ЗНАЧЕНИЕ.

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Аннотация. В данной статье рассматриваются типы невербальной коммуникации, значение невербальной коммуникации в жизни человека и способы использования невербальной коммуникации.

Ключевые слова: Невербальное общение, Типы невербального общения, Мимика. Жесты, кинесика, зрительный контакт, паравербальные знаки, тактильные, экстравербальные знаки, проксемика.

TYPES OF NONVERBAL COMMUNICATION AND THEIR IMPORTANCE.

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Abstract: This article focuses on the types of nonverbal communication, the importance of nonverbal communication in human life, and the ways to use nonverbal communication.

Keywords: Nonverbal communication, Types of nonverbal communication, Mimicry. Gestures, Kinesics, Eye contact, Paraverbal signs, Tactile, Extraverbal signs, Proxemics.

KIRISH

Har bir kishining hatti-harakati va faoliyati kishilikning ijtimoiy-tarixiy tajribasi bilan bog'liq holda rivojlanadi. Noverbal muloqotda suhbatdoshlarning fazoviy joylashuvlari ham katta ahamiyatga ega. Olimlarning aniqlashlaricha, o'quvchilarni o'qitishda odatdagiday ketma-ketlikda o'tqizib o'qitgandan ko'ra, ularni yuzma-yuz o'tqizib davra qurib o'qitgan ma'qul hisoblanib, bunday sharoitda o'quvchilarda ham javobgarlik hissi yuqoriroq bo'ladi. Noverbal muloqot orqali kommunikativ ko'nikmalarini rivojlantirishda emotsiyalar almashinishgani uchun ham guruhdagi psixologik vaziyat ijobiy bo'lib, insonlarning predmetga va bir-birlariga munosabatlari rivojlanishi dolzarblik kasb etadi. Inson hayotida muloqot hal qiluvchi ahamiyatga ega. Muloqot faqat so'zlar bilan cheklanib qolmaydi – noverbal muloqot (verbal bo'lmagan aloqa) uning katta qismini tashkil etadi. Har bir inson, hatto gapirmasdan turib ham, atrofiga ma'lumot yetkazadi: yuz ifodalari, qo'l harakatlari, turish tarzi, kiyinishi va hatto nafas olish usuli orqali. Bularning barchasi noverbal aloqaning ko'rinishlaridir.

ASOSIY QISM

Psixolog Albert Mehrabianning tadqiqotlariga ko'ra, inson muloqotining ta'sirchanligi 3 asosiy omilga bog'liq: **7%** – so'zlar (verbal), **38%** – ovozning tembri, balandligi, tezligi, **55%** – jismoniy belgilar (ishoralar, mimika, poza).

Noverbal muloqot turlari: Mimika – yuz ifodalari orqali muloqot, Yuz inson ruhiyatini ifoda etishda eng muhim vositalardan biridir. Yuzdagi 40dan ortiq muskullar inson his-tuyg'ularini namoyon etadi. Quvonch, g'am, g'azab, hayrat, qo'rquv, befarqlik kabi hislar avtomatik ravishda yuz ifodalarida aks etadi.

Ahamiyati: Mimika qalbakī emas, haqiqiy his-tuyg'ularni fosh qiladi. U siyosiy yetakchilar, o'qituvchilar, psixologlar va notiqar faoliyatida juda muhim.

Jestlar – qo'l va tananing harakatlari:

Jestlar insonning nutqini to'ldiruvchi yoki unga o'rinbosar vazifasini bajaruvchi harakatlardir. Ular turli madaniyatlarda har xil ma'no kasb etishi mumkin.

Misollar: Yevropa va AQSHda bosh barmoqni yuqori ko'tarish – ma'qullik, O'rta Sharqda esa haqorat deb qabul qilinadi. Ishora qilib gapirish ayrim xalqlarda madaniy jihatdan qabul qilinmaydi.

Psixologik jihat: Ochiq va faol jestlar odamning ochiqqligi va ishonchliligidan dalolat beradi. Qo'lni ko'krakka qo'yish – samimiylikni, orqaga qilib qo'yish – bee'tiborlikni bildirishi mumkin.

3. Kinesika – tana tili

Kinesika – turish, yurish, boshning egishi, yelka va tananing umumiy holatini anglatadi. Tananing joylashishi insonning kayfiyati va munosabatini bildiradi.

Masalan: To'g'ri turish – ishonch va faollik; Quloqni tortqilash – ikkilanish; Yelakni qisish – norozilik yoki sovuqlilik.

4. Ko'z bilan bog'lanish (kontakt nazar)

Ko'zlar "ruh oynasi" deb ataladi. Ko'z bilan muloqot shaxslar orasidagi ishonch darajasini oshiradi, gapirish jarayonidagi munosabatni belgilaydi.

Qaydlar: Ishonchli odamlar ko'pincha ko'z bilan muloqotni saqlaydi. Ko'zni juda uzoq tikish – bosim yoki tajovuz sifatida qabul qilinishi mumkin. Ko'zni tez-tez uzish – ishonchsizlik yoki asabiylik belgisi bo'lishi mumkin.

5. Paraverbal belgilar – ovozning xususiyatlari

So'zlar qanday aytilgani ham juda muhim: **Ton** – so'zning kayfiyatga mos ravishda aytilganini bildirishi mumkin (masalan, hazil, tahdid, shubha bilan). **Ovoz balandligi** – ovoz past bo'lsa, ishonchsizlikni bildirishi mumkin; juda baland ovoz – tajovuz yoki o'zini ko'rsatish istagidan dalolat beradi. **Tezlik va pauzalar** – tez gapirish xavotirni, sust gapirish esa ishonchsizlik yoki surunkalilikni anglatishi mumkin.

6. Proksemika – shaxsiy masofa

Masofa insonlar orasidagi munosabatni ifoda etadi:

Masofa turi	Masofa (metrda)	Ma'nosi
Intim masofa	0–0.5 m	Yaqin do'stlar, juftliklar
Shaxsiy masofa	0.5–1.2 m	Do'stona, shinos munosabatlar
Ijtimoiy masofa	1.2–3.5 m	Rasmiy, ishbilarmonlik aloqalari
Jamoat masofasi	>3.5 m	Omma oldida chiqishlar

7. Tachtik – tegish orqali aloqa

Inson tanasiga tegish turli ma'nolarga ega bo'lishi mumkin: Qo'l siqish – rasmiy salomlashish; Qo'ldan ushlash – ishonch, do'stlik; Quchoqlash – yaqinlik, tasalli berish; Bo'yinga yoki yelkaga tegish – qo'llab-quvvatlash.

8. Ekstraverbal belgilar – tashqi ko‘rinish va gigiyena

Kiyinish uslubi, gigiyena, parfyum, soch turmagi – barchasi inson haqida ma’lumot beradi: Tozalik va saranjomlik – mas’uliyat va o‘ziga hurmat. Erkin kiyinish – ijodkorlik va individuallik; Rasmiy kiyim – professionallik, jiddiylilik belgisi.

Madaniy farqlar

Noverbal belgilarning ma’nolari madaniyatlarga qarab farq qiladi. Shu sababli, turli millat va xalqlar bilan muloqotda ularning noverbal signallarini to‘g‘ri tushunish juda muhim.

Misollar: Yaponiyada ko‘p ko‘z bilan bog‘lanish odobsizlik deb hisoblanadi. Arab mamlakatlarida shaxsiy masofa Yevropa mamlakatlariga nisbatan yaqinroq bo‘ladi. Turkiyada bosh barmoq bilan "OK" ishorasi haqorat deb qabul qilinishi mumkin.

XULOSA

Noverbal muloqot inson hayotida juda muhim o‘rin tutadi. Uni to‘g‘ri anglash, boshqalarning his-tuyg‘ularini va munosabatini yaxshi tushunishga yordam beradi. Bu qobiliyat muloqot sifatini oshiradi, muammolarni kamaytiradi va insonlar orasida ishonchni mustahkamlaydi. Shuni aloxida qayd qilib o‘tish joizki, mimik ifodalar insonning xarakterini, ichki dunyosini, ma’naviyatini, ijtimoiy faoliyatining individual xususiyatlarini beka mu namoyish etadi.

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INDIVIDUALIZATION OF MATHEMATICS EDUCATION BASED ON THE DIFFERENTIAL APPROACH: INTEGRATION OF MODERN METHODS

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Abstract: This study explores how differentiated instruction can be effectively implemented in higher education settings by integrating modern pedagogical strategies, including gamification, storytelling, STEAM-based learning, reverse problem-solving, and programming-oriented tasks. The paper examines how these harmonized approaches enable educators to create adaptive learning environments tailored to each student's unique needs, enhancing engagement and conceptual understanding. Through a methodological synthesis of theoretical perspectives and practical applications, the research demonstrates that combining differentiated teaching with innovative tools fosters a dynamic learning process. Particular attention is given to how each method promotes deeper mathematical thinking, encourages self-paced exploration, and develops transferable problem-solving skills. The findings indicate that a well-designed blended model not only improves academic outcomes but also creates a more inclusive and motivational learning environment. Notably, an experimental lesson conducted with two groups (22 and 25 students) achieved average Quizizz scores of 90% and 85%, respectively, which were 10% more effective than previous lessons using Kahoot. These results confirm the adaptability of modern methods to diverse learner needs and their ability to enrich the learning process.

Keywords: Differentiated Instruction, gamification storytelling, STEAM integration, reverse, problem-solving, programming-based learning.

MATEMATIKA TA'LIMINI DIFFERENTIAL YONDASHUV ASOSIDA INDIVIDUALLASHTIRISH: ZAMONAVIY USULLARNI INTEGRATSIYALASH

Annotatsiya: Ushbu tadqiqot differentsial ta'limning oliy ta'lim muassasalarida zamonaviy pedagogik strategiyalarni, jumladan, gamifikatsiya, hikoya qilish, STEAM asosidagi ta'lim, testlarni muammoni hal qilish va dasturlashga yo'naltirilgan vazifalarni integratsiyalash orqali qanday samarali amalga oshirilishi mumkinligini o'rganadi. Maqola ushbu uyg'unlashgan yondashuvlarning har bir talabaning o'ziga xos ehtiyojlariga moslashtirilgan moslashuvchan ta'lim muhitini yaratishga yordam berishi, qiziqish va kontseptual tushunchani oshirishini ko'rib chiqadi. Nazariy nuqtai nazar va amaliy qo'llanmalar metodologik sintezi orqali tadqiqot differentsial ta'limni innovatsion vositalar bilan birlashtirish dinamik ta'lim jarayonini shakllantirishini ko'rsatadi. Har bir usulning chuqur matematik fikrlashni rag'batlantirishi, o'z-o'zini boshqarishga asoslangan izlanishni rivojlantirishi va ko'chma muammoni hal qilish ko'nikmalarini shakllantirishiga alohida e'tibor beriladi. Tadqiqot natijalari shuni ko'rsatadiki, yaxshi ishlab chiqilgan aralash model nafaqat akademik natijalarni yaxshilaydi, balki yanada inklyuziv va motivatsion ta'lim muhitini yaratadi. Xususan, ikki guruh (22 va 25 talaba) bilan o'tkazilgan eksperimental darsda Quizizz orqali o'rtacha 90% va 85% ballar qayd etildi, bu avvalgi Kahoot ishlatilgan darslarga qaraganda 10% samaraliroq bo'ldi. Bu natijalar zamonaviy usullarning turli o'quvchi ehtiyojlariga moslashuvchanligini va ta'lim jarayonini boyitish qobiliyatini tasdiqlaydi.

Kalit so'zlar. Differentsial ta'lim, gamifikatsiya, hikoya qilish, STEAM integratsiyasi, Testlarni muammoni hal qilish, dasturlashga asoslangan ta'lim.

ИНДИВИДУАЛИЗАЦИЯ МАТЕМАТИЧЕСКОГО ОБРАЗОВАНИЯ НА ОСНОВЕ ДИФФЕРЕНЦИРОВАННОГО ПОДХОДА: ИНТЕГРАЦИЯ СОВРЕМЕННЫХ МЕТОД

Аннотация: Данное исследование изучает, как дифференцированное обучение может быть эффективно реализовано в условиях высшего образования путем интеграции современных педагогических стратегий, включая геймификацию, сторителлинг, обучение на основе STEAM, решение задач в обратном порядке и задания, ориентированные на программирование. Статья рассматривает, как эти гармонизированные подходы позволяют педагогам создавать адаптивные образовательные среды, адаптированные к уникальным потребностям каждого студента, повышая вовлеченность и концептуальное понимание. Через методологический синтез теоретических перспектив и практических приложений исследование демонстрирует, что сочетание дифференцированного обучения с инновационными инструментами способствует формированию динамичного образовательного процесса. Особое внимание уделяется тому, как каждый метод способствует более глубокому математическому мышлению, поощряет самостоятельное исследование и развивает переносимые навыки решения проблем. Результаты показывают, что хорошо разработанная смешанная модель не только улучшает академические результаты, но и создает более инклюзивную и мотивирующую образовательную среду. В частности, экспериментальный урок, проведенный с двумя группами (22 и 25 студентов), показал средние результаты на Quizizz в 90% и 85% соответственно, что на 10% эффективнее предыдущих уроков с использованием Kahoot. Эти результаты подтверждают адаптивность современных методов к различным потребностям учащихся и их способность обогащать образовательный процесс.

Ключевые слова. Дифференцированное обучение, геймификация, сторителлинг, интеграция STEAM, решение задач в обратном порядке, обучение на основе программирования

INTRODUCTION

In the contemporary landscape of higher education, the demand for differentiated instruction in mathematics has intensified. As student populations become increasingly diverse in terms of academic preparedness, cognitive development, and learning preferences, the necessity of tailoring instructional approaches to individual learner needs becomes paramount. Differentiated instruction—also referred to as the differential approach—seeks to adapt the content, process, product, and learning environment to align with students' unique profiles. This methodological shift is particularly significant in mathematics education, where abstract concepts often pose challenges to learners with varying levels of prior knowledge and problem-solving abilities.

Traditional one-size-fits-all teaching models are no longer sufficient to meet the evolving demands of 21st-century learners. Instead, contemporary pedagogical paradigms emphasize flexibility, adaptability, and learner-centered strategies. Within this context, the integration of modern instructional methods such as gamification, storytelling, STEAM (Science, Technology, Engineering, Art, and Mathematics) integration, reverse problem-solving, and programming-based tasks offer promising avenues for making mathematical learning more accessible, engaging, and effective for a broad spectrum of students.

Gamification, for instance, introduces elements of play and competition into the educational process, thereby boosting motivation and participation. Storytelling humanizes mathematical content, connecting abstract ideas to relatable narratives that enhance retention and comprehension. The STEAM approach, meanwhile, positions mathematics within a broader interdisciplinary framework, demonstrating its relevance in real-world contexts and promoting creativity alongside analytical thinking. Reverse problem-solving fosters critical reasoning by encouraging students to construct problems from given solutions—a skill that deepens their understanding of mathematical structure and logic. Programming tasks, particularly those involving platforms like Scratch or Python, provide students with hands-on opportunities to apply mathematical concepts through coding, thereby reinforcing theoretical knowledge through practical application.

The core objective of this study is to examine how these modern instructional strategies can be unified within a differential framework to support the individualization of mathematics education at the university level. This investigation not only addresses pedagogical effectiveness but also explores the potential of these approaches to foster a more inclusive and student-centered learning environment. By analyzing theoretical foundations, implementation practices, and observed outcomes, the study aims to offer a comprehensive guide for educators seeking to modernize their teaching practices in alignment with differential instruction principles.

Moreover, the research underscores the importance of aligning instructional strategies with students' cognitive and emotional development stages. Effective differentiation entails not only adjusting the difficulty of tasks but also diversifying the modes of content delivery and assessment. For instance, some students may benefit more from visual representations and collaborative projects, while others may excel through independent exploration and logical analysis. Therefore, a multi-faceted instructional model that incorporates various modern methods is likely to yield better learning outcomes and higher levels of student engagement.

In addition, a number of theoretical and empirical studies have informed this research. Carol Ann Tomlinson, in her seminal book *How to Differentiate Instruction in Mixed-Ability Classrooms* (2001), outlines the foundational principles of differentiated instruction, particularly the need to modify content, process, and product based on student readiness and interest. Lev Vygotsky, through his work *Mind in Society: The Development of Higher Psychological Processes* (1978), emphasizes scaffolding and individualized learning as central to effective instruction through the concept of the Zone of Proximal Development. Sebastian Deterding et al., in their article *Gamification: Using Game-Design Elements in Non-Gaming Contexts* (2011), define gamification and its role in enhancing learner motivation. Su and Cheng's study *A Mobile Gamification Learning System for Improving the Learning Motivation and Achievements* (2015) provides empirical evidence on how gamified mobile platforms improve student engagement and performance in mathematics. Zazkis and Liljedahl (2009), in *Teaching Mathematics as Storytelling*, advocate for storytelling as a means to make abstract mathematical concepts more relatable. Georgette Yakman, in her article *STEAM Education: An Overview of Creating a Model of Integrative Education* (2008), and M.H. Land in *Full STEAM Ahead: The Benefits of Integrating the Arts into STEM* (2013), both argue for the STEAM approach to foster creativity and interdisciplinary learning. Edward A. Silver, in *Fostering Creativity Through Problem Posing and Problem Solving* (1997), highlights reverse problem-solving as a strategy to develop creativity and deep cognitive skills. Finally, Pratim Sengupta et al. (2013), in *Integrating Computation and Mathematics: Using Programming to Teach Functions*, and Shuchi Grover & Roy Pea (2013), in

Computational Thinking in K–12: A Review of the State of the Field, demonstrate how programming supports the understanding and application of mathematical ideas.

In conclusion, this introductory section sets the stage for a detailed exploration of each modern method within the overarching theme of differential mathematics instruction. The subsequent sections of the paper will delve into the theoretical underpinnings, practical applications, and pedagogical impacts of gamification, storytelling, STEAM integration, reverse problem-solving, and programming-oriented learning in the context of university-level mathematics education. Through this comprehensive analysis, the study aspires to contribute valuable insights to the ongoing discourse on educational innovation and individualized learning in the mathematical sciences.

METHODOLOGY

The theoretical underpinnings of differentiated instruction lie in several well-established educational frameworks, most notably constructivist learning theory, Vygotsky's sociocultural theory, and social cognitive approaches. These perspectives suggest that learners actively construct knowledge based on their unique backgrounds, cognitive readiness, and interactions with the learning environment. As higher education becomes increasingly inclusive, it is no longer viable to assume that all students will respond equally to uniform teaching strategies. This necessitates an approach that deliberately addresses the diversity of student characteristics—ranging from their intellectual capacities to emotional resilience and preferred learning modalities. Recognizing and responding to these differences is not merely an act of pedagogical kindness but a strategic effort to improve engagement, retention, and academic achievement.

Differentiated instruction is commonly classified into three primary forms: cognitive, psychological, and technological. Cognitive differentiation refers to the adaptation of teaching materials and strategies according to the learner's intellectual level, background knowledge, and thinking style. For instance, students with analytical inclinations might benefit from structured problem-solving, while those with creative strengths may engage more deeply through open-ended exploration. Psychological differentiation, on the other hand, takes into account students' emotional states, motivation levels, and self-concept. This may involve creating a supportive classroom climate, offering personalized feedback, or allowing flexible pacing to reduce anxiety and foster a sense of competence. Finally, technological differentiation leverages modern digital tools to create adaptive learning environments. Technologies such as learning management systems, educational apps, and AI-powered platforms can provide students with content tailored to their performance data, enabling self-paced and targeted instruction.

Together, these dimensions form a comprehensive model of instructional responsiveness that aligns pedagogy with the varied needs of learners. The integration of these three domains not only ensures accessibility and inclusivity but also cultivates a dynamic academic space where each student is empowered to reach their full potential. As such, differentiated instruction serves as both a philosophical stance and a practical framework for transforming traditional mathematics education into a personalized, student-centered endeavor.

Gamification-Based Differentiated Instruction. Gamification allows educators to introduce game elements such as points, challenges, badges, and rankings into learning activities. When used effectively, these elements can greatly increase students' engagement and foster a competitive yet supportive learning environment. By designing adaptive games using tools like Quizizz and Kahoot, instructors can adjust difficulty levels to match students' current abilities. For example, while one group of students may work on basic concept recall questions, another group can be

given application-level tasks. This allows each student to progress at their own pace. Interactive quizzes also provide instant feedback, helping learners reflect on their progress. Games not only make learning fun but also encourage repeated practice, which is crucial in subjects like mathematics. As such, gamification supports differentiated instruction by creating multiple entry points into a single concept. For instance, visual learners benefit from graphics in game interfaces, while kinesthetic learners enjoy the hands-on interaction. Additionally, shy students often feel more comfortable participating in digital quizzes than speaking up in traditional classroom settings. Overall, gamification brings a lively and inclusive dynamic to mathematics education that adapts naturally to student variability.

Storytelling as a Personalized Approach to Mathematics. Storytelling in mathematics can make abstract and technical topics more accessible and meaningful. By embedding mathematical concepts into stories or historical contexts, teachers can provide students with a personal connection to the content. For example, telling the story of how ancient civilizations used geometry in architecture not only contextualizes the math but also sparks curiosity. This approach especially benefits students who might struggle with conventional explanations. Storytelling also helps in forming emotional connections with content, improving both memory retention and motivation. When students see themselves in the characters or scenarios described, their interest and engagement increase. This method allows instructors to differentiate learning by crafting varied narratives tailored to students' interests or backgrounds. A visual learner may benefit from illustrated story problems, while a student interested in history may enjoy tasks based on famous mathematicians' discoveries. By framing mathematics as a part of larger human experiences, storytelling transforms passive learning into an active exploration of ideas.

Integrating STEAM for Layered Learning. Integrating mathematics with other STEAM fields (science, technology, engineering, arts, and mathematics) supports a holistic and multidimensional learning process. This approach allows for differentiated pathways as students engage with mathematical concepts through different lenses. For example, a project combining geometry with visual arts may appeal to creative learners, while a task linking algebra to physics can captivate those with scientific interests. STEAM-based projects offer hands-on experiences that make learning relevant and purposeful. In group activities, roles can be assigned based on students' strengths—one may lead calculations, another might design visual presentations, and another could handle technical tasks. Such teamwork nurtures both academic and social-emotional development. Moreover, real-life problems require diverse thinking styles and skillsets, making STEAM integration an effective strategy for differentiated instruction. As students collaborate and create, they not only deepen their mathematical understanding but also develop essential 21st-century skills such as communication, problem-solving, and creativity.

Reverse Problem-Solving as a Critical Thinking Tool. Reverse problem-solving involves giving students a solution and asking them to create a problem that fits it. This method promotes higher-order thinking and encourages learners to examine the structure of mathematical concepts. By working backwards, students gain a deeper understanding of how equations are formed and why certain steps are necessary. This strategy is particularly useful for assessing conceptual understanding and creativity. Teachers can differentiate instruction by adjusting the complexity of the given answers or the constraints placed on the problems students must write. For instance, novice learners might be given a simple equation and asked to frame a story problem, while advanced students could be challenged to devise a real-world scenario that fits a multi-step solution. Reverse problem-solving also supports metacognitive growth, as students must explain

their reasoning and reflect on the logical coherence of their tasks. This makes it a powerful approach for personalizing learning and building mathematical confidence.

Programming-Based Differentiation in Math Education. Using programming languages such as Scratch or Python in the mathematics classroom opens up new ways to differentiate instruction. Coding exercises can be adapted for different skill levels, with basic tasks introducing sequences and patterns, and advanced projects involving data structures or algorithms. For example, a beginner might create a Scratch animation that visually represents multiplication tables, while a more experienced student might write a Python script to solve equations. Programming allows students to see mathematics in action and apply theoretical knowledge in real-time problem-solving. It fosters logical reasoning, attention to detail, and persistence—all critical qualities for mathematical success. Teachers can assign projects based on student interests, such as designing games, simulations, or interactive math quizzes. This not only strengthens math skills but also builds digital literacy and creativity. Programming bridges abstract ideas and practical application, making it a highly effective tool in the differentiated instruction toolkit.

Experimental Observations. During a pilot study conducted with two university-level mathematics groups, differentiated instruction was implemented through gamified quizzes, storytelling tasks, STEAM-integrated projects, reverse problem-solving activities, and introductory programming sessions. The students were grouped by readiness levels determined through diagnostic assessments. It was observed that students showed increased engagement, and their performance improved in comparison to control groups taught via traditional methods. Lower-performing students particularly benefited from visual tools and interactive elements, while high-achieving students were more motivated by open-ended projects. Some challenges included time constraints for lesson planning and the need for teacher training in new tools. However, the positive reception and learning outcomes suggest that combining multiple modern methods within a differentiated framework is a viable strategy for improving mathematics instruction.

This study highlights the value of merging various innovative instructional strategies under the umbrella of differentiated instruction. By aligning teaching with students' individual needs, educators can create more meaningful and effective learning experiences. Gamification brings energy and competitiveness to the classroom; storytelling makes math personal and relatable; STEAM integration offers interdisciplinary depth; reverse problem-solving stimulates creativity and analysis; and programming connects theory with application. These methods, when applied together, provide rich opportunities for tailored learning. Future research should explore long-term impacts of such methods, and teacher training programs should incorporate modules on differentiated instruction with modern tools. Ultimately, a flexible, student-centered approach can help bridge the gap between educational goals and diverse learner profiles in university-level mathematics.

1-table. Summary Table of Differential Instruction Methods in Mathematics

Method	Main Features	Differentiation Strategy	Example Tools/Applications	Student Benefit
Gamification	Use of game elements (points, badges, rankings)	Adapts difficulty levels via game scenarios	Quizizz, Kahoot, interactive tests	Motivation, engagement, instant feedback

Storytelling	Integrates narratives or historical events into lessons	Uses diverse stories based on learner interests/backgrounds	Illustrated problems, historical contexts	Improves retention, personal relevance
STEAM Integration	Combines math with science, tech, engineering, and art	Provides interdisciplinary, project-based tasks	Art-geometry projects, algebra-physics	Supports creativity and hands-on learning
Reverse Problem-Solving	Starts from solutions and asks students to create problems	Adjusts complexit		

RESULTS

The experimental lesson on “Graph Theory: Trees and Networks,” held for 90 minutes, was a dynamic and engaging experience that seamlessly blended differentiated instruction with modern teaching methods, including gamification, storytelling, STEAM, reverse problem-solving, and programming. It began with an immersive storytelling session where I shared the historical tale of Leonard Euler’s Seven Bridges of Königsberg problem, sparking curiosity about how graph theory shapes modern applications like social networks and GPS systems. A quick Quizizz diagnostic test followed, featuring tailored questions on graph basics, tree properties, and network applications, which sorted students into beginner, intermediate, and advanced groups based on their responses. In the main part, gamification came alive through an interactive Quizizz game where beginners identified graph edges and vertices, intermediates tackled tree identification, and advanced learners solved shortest-path problems, fostering enthusiasm and immediate feedback. The STEAM activity had groups design a city transport network using graphs, with beginners sketching simple routes, intermediates optimizing minimal spanning trees, and advanced students applying Dijkstra’s algorithm, blending math with real-world urban planning. For reverse problem-solving, students were given a tree graph (e.g., four vertices, three edges) and crafted problems—beginners created basic scenarios, intermediates tied them to social networks, and advanced learners linked them to computer server connections, boosting critical thinking. Programming tasks used Scratch for beginners to visualize graphs, while intermediates and advanced students coded in Python to represent graphs as adjacency lists or implement shortest-path algorithms, reinforcing concepts through hands-on coding. The lesson wrapped up with group presentations of their STEAM projects and problem-solving tasks, followed by a reflective survey where students shared their favorite activities and challenges. Every research component was thoughtfully integrated to cater to diverse learning needs, creating an inclusive, motivating, and intellectually stimulating environment.

Evaluation and Analysis of Lesson Results. Today’s 90-minute experimental lesson on “Graph Theory: Trees and Networks” was successfully conducted with two groups (22 students in the first, 25 in the second), integrating differentiated instruction through gamification, storytelling, STEAM, reverse problem-solving, and programming. The results were evaluated based on students’ academic performance (Quizizz test scores), participation levels, and reflective feedback, demonstrating the effectiveness of these methods and their adaptability to diverse learner needs.

Academic Performance (Cognitive Outcomes): The initial Quizizz diagnostic test divided students into beginner, intermediate, and advanced levels, enabling tasks to be tailored to their readiness. In the main gamification activity, the Quizizz game, the first group (22 students) achieved an average score of 90%, while the second group (25 students) scored 85%. These results were 10% more effective than previous lessons using Kahoot, as students reported boredom with Kahoot's repetitive format, whereas Quizizz's fresh, interactive interface captured their attention. In the STEAM project, students designed a city transport network using graphs: beginners drew simple graphs, intermediates identified minimal spanning trees, and advanced learners applied Dijkstra's algorithm, deepening their understanding of graph theory in real-world contexts. The reverse problem-solving activity encouraged creativity, with 80% of the first group's students successfully crafting social network problems for a given tree graph. Programming tasks using Scratch and Python reinforced concepts practically—beginners visualized graphs in Scratch, while advanced students coded shortest-path algorithms in Python, linking mathematical ideas to computational skills.

Participation Levels (Psychological Outcomes): Gamification and storytelling significantly boosted student engagement. During the Quizizz game, 95% of the first group and 90% of the second group actively participated, notably higher than the estimated 80-85% in prior Kahoot-based lessons. Students noted that Quizizz's colorful design and instant feedback kept them motivated, particularly benefiting beginners who felt more comfortable in the digital environment. The STEAM project fostered collaboration, with students selecting roles (e.g., designer or analyst) based on their strengths, supporting social-emotional growth. In the reflective survey, 85% of students (19 in the first group, 21 in the second) rated gamification and STEAM activities as "highly engaging," though some mentioned insufficient time for programming tasks.

Qualitative Observations (Reflective Outcomes): The storytelling segment, particularly the narrative about Euler's Seven Bridges of Königsberg, made graph theory feel "relevant and exciting," as noted by 70% of the first group and 65% of the second in the survey. Reverse problem-solving sparked creativity, especially among intermediate and advanced students, who enjoyed crafting problems in social or computer network contexts. The STEAM project enhanced teamwork and creative problem-solving, though some beginners (4 in the first group, 5 in the second) needed extra guidance to understand project requirements. Programming was highly engaging for advanced students (6 in the first group, 7 in the second), but beginners faced initial challenges with Scratch, likely due to limited digital skills.

Limitations and Challenges: Despite the lesson's success, some limitations emerged. The 90-minute duration was slightly restrictive, with programming and STEAM tasks requiring more time, as noted by 5 students in the first group and 6 in the second. Beginners needed additional support with Python or Scratch, demanding more individual attention from the instructor. While Quizizz outperformed Kahoot, a few students (3 in the second group) experienced brief difficulties adapting to the new platform.

Overall Conclusion and Future Recommendations: The lesson results confirm that integrating modern methods with differentiated instruction significantly improved academic performance (90% and 85% Quizizz scores) and participation (95% and 90%), surpassing Kahoot by 10%. Storytelling brought context to the subject, gamification and STEAM boosted motivation, reverse problem-solving fostered creativity, and programming solidified practical skills. For future lessons, extending the duration to 120 minutes, providing pre-lesson digital training for beginners, and exploring other platforms (e.g., Classcraft or Moodle) are recommended. This approach

proved effective in addressing diverse learner needs in teaching graph theory, creating an inclusive and engaging learning environment

DISCUSSION

The outcomes of this study demonstrate that combining modern pedagogical methods within a differentiated instruction framework significantly enhances both the academic and personal development of students in mathematics education. While gamification played a role in activating engagement, the strongest improvements were observed in how storytelling, STEAM integration, reverse problem-solving, and programming supported deeper learning and meaningful application of mathematical ideas.

Storytelling stood out as a transformative strategy for connecting abstract mathematical concepts with students' personal and cultural contexts. The use of historical narratives, such as Euler's bridges, allowed learners to engage with theory in a way that sparked imagination and built emotional connections. This approach was particularly effective for students with low prior interest or limited mathematical confidence, helping them see math as a relevant and human-centered discipline. One student reflected, "I never liked graph theory until I heard the story behind it. Now I want to learn more."

The STEAM approach encouraged creativity and collaboration across varying skill levels. Students working in groups to design transportation networks based on graph theory demonstrated clear growth in interdisciplinary thinking. They applied mathematical procedures not in isolation, but as tools for solving real-world problems. This connection to practical contexts motivated learners and revealed the value of mathematical modeling and logical design. As another student mentioned, "We weren't just solving math problems—we were building something useful together."

Reverse problem-solving proved to be one of the most intellectually stimulating strategies. By starting from solutions and working backward to create valid problems, students exercised both creativity and logic. This method was especially effective for intermediate and advanced learners, encouraging ownership of learning and active problem construction. It also revealed gaps in reasoning that may not surface during traditional problem-solving, making it a valuable tool for formative assessment. According to one participant, "Creating my own math problem from a solution made me think harder than usual."

Programming tasks, while challenging for some beginners, created authentic opportunities to apply mathematics in dynamic, digital environments. Coding helped solidify understanding of graph structures and algorithmic processes. Advanced students who engaged in Python scripting built a bridge between theoretical content and real-world computation, while beginners benefited from Scratch as a visual and intuitive introduction to mathematical relationships. Importantly, this method offered a clear pathway for differentiated complexity and fostered persistence, analytical thinking, and digital literacy.

To further enrich the study, several elements could be added in future iterations. Including visual aids such as charts or graphs would help communicate key data trends and performance differences among differentiated groups. A section dedicated to student voices, integrating more direct quotes and reflective responses, would add emotional depth and real-world validation to the findings. Linking the study more directly to national or institutional education reform strategies, such as the integration of digital pedagogy or competency-based learning, would also enhance its practical value for policymakers and curriculum designers.

Finally, offering a more detailed recommendation section—highlighting steps like lesson duration adjustments, pre-training for digital tools, and long-term monitoring of student progress—would provide a clearer implementation guide for educators. Overall, the study highlights that differentiated instruction becomes most effective when instructional methods are thoughtfully matched to student needs, strengths, and interests. Rather than relying on a single technique or digital platform, the blending of various strategies enabled a holistic and inclusive approach to teaching mathematics. Future implementations can further improve outcomes by allocating more time to open-ended project work, providing scaffolding for digital tools, and continuing to align mathematical tasks with real-life challenges.

CONCLUSION

This article confirms that integrating modern pedagogical strategies within a differentiated mathematics instruction framework significantly enhances both academic outcomes and student engagement. Through a thoughtful blend of gamification, storytelling, STEAM integration, reverse problem-solving, and programming, learners of diverse abilities were actively supported in a dynamic, student-centered environment. Experimental lessons yielded high performance and positive feedback, highlighting the adaptability of these methods to varied cognitive and emotional needs.

Notably, storytelling provided emotional and conceptual access to abstract ideas; STEAM projects fostered interdisciplinary collaboration and creativity; reverse problem-solving encouraged higher-order thinking; and programming enabled practical application of mathematical knowledge. These findings demonstrate that modern methods are most impactful when strategically combined to match learner profiles, making mathematics education more inclusive, personalized, and meaningful.

Future implementations should consider extended lesson durations, scaffolding for digital tools, and alignment with national competency-based education reforms. Ultimately, differentiated instruction—when enriched with innovative approaches—proves to be a powerful model for transforming mathematics education at the university level.

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PHYSICAL IN SPORTS TRAINING AND THE IMPORTANCE OF TECHNICAL PREPARATION

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Abstract: This sports training in the article purpose, tasks, means, methods and athletes preparation to the types related was scientific and theoretical materials about word It includes sports activities. purpose, tasks, means, methods and athletes physical, technical, tactical, theoretical and psychological readiness take to go methodology illuminating given.

Keywords: sport, sports training, physical, technique, tactics, psychological, preparation, goal, task, result, youth, activity, intensity.

ФИЗИЧЕСКАЯ ПОДГОТОВКА В СПОРТИВНОЙ ТРЕНИРОВКЕ И ЗНАЧЕНИЕ ТЕХНИЧЕСКОЙ ПОДГОТОВКИ

Аннотация: Эта спортивная тренировка в статье цель, задачи, средства, методы и подготовка спортсменов к видам, связанным с научными и теоретическими материалами о слове Она включает в себя спортивную деятельность. цель, задачи, средства, методы и спортсмены физическая, техническая, тактическая, теоретическая и психологическая готовность взять на себя методологию, освещающую данную.

Ключевые слова: спорт, спортивная тренировка, физическая, техника, тактика, психологическая, подготовка, цель, задача, результат, молодежь, активность, интенсивность.

INTRADUCTION

In the world society current contemporary situation, its development pace growing coming generation and his/her to your health high requirements The younger generation health strengthen it society full-fledged citizen as socio-economic, cultural and political in activity active participation to reach preparation world community of the policy priority direction is considered. Therefore the population, especially the youth between physical upbringing and sports promote to do and improvement all in the countries first level to the task is spinning.

Uzbekistan Sports in the Republic of Uzbekistan work considered, physical upbringing with together population all layers and young groups cover In our country, more than 50 more sports type popular

MAIN PART

Today on the day in our society of sport main 3 each other related organizational forms available: public amateurism ; study science high quality ; high results. Public amateurism sport - human physical improvement condition ; those people age, health condition, physical development to the level according to is limited. science quality sports - all kind of education institutions and armed in the forces military physical preparation to programs enters. Top results sports the most to good sports performance achieve for conditions creates, human physical readiness demonstration will, physical preparations effective tool and methods public to practice implementation to reach help gives.

Progress sports physical activity upbringing from the circle to leave, to be independent general cultural, political, aesthetic, economic importance profession Sports friendly international

connections to expand, to peoples mutual each other understand and friendship to develop service 19th century from the middle one how many west professional sports are developing in countries He started today. on the day visibility, business round, big income source become progress with separated stands.

2 main types of sports group available: national sports and international sports. National sports every one of the people to oneself typical marriage style, work activity and rest conditions based on developed. International sports certain under the circumstances competitions of transfer generalized from systems consists of is, in this competition of the participants mutual relationships, results into account to take and evaluation international on a scale one kind order to bring, from the only rules to use based special restrictions in mind holds.

In our society healthy marriage style formation of the population, especially the young generation physical upbringing and with mass sports regular to engage in for time requirements suitable conditions Sports competitions through in youth own will, strength and to the possibilities was trust strengthening, courage and patriotism, mother To the homeland loyalty feelings mature to give, as well as to young people among talented athletes sort to take their work systematic organization and physical upbringing and public sports further to develop directed wide extensive affairs done is being increased.

With this together, our country all in the regions public of sport human and family in life important importance, its physical and spiritual of health basis that it is propaganda to do, to life big hope with enter coming the youth harmful from habits to protect them own ability and talents to come true releases for necessary conditions create, they among talented athletes sort to take and targeted preparation system improvement regarding important and current tasks is standing.

Modern sport is own evolutionary history, position and status and to oneself typical competition to the rules has was from many many of species content found.

Sports training - athletes preparation structural It is part of the sports activities. chosen in the type the most high to the results achieve for athlete's readiness question provider certain quality and abilities to develop and necessary knowledge, skills and qualifications to form directed pedagogical in terms of organization done specialized Sports training is also a pedagogical process. event is, he is in sports high to the results achieve for directly directed special physical upbringing is a process.

Sports training purpose of the sport according to game qualifications to teach them improvement, individual, group and team, technician and tactical actions is mastery.

This purpose achieve for training in the process following main tasks solution is being done:

1. Selected sport technique and tactics mastery ;
2. Competition practice successful execution and planned to the results to achieve provider physical abilities develop and organism functional systems opportunities increase ;
3. Athletes training and competitions on time strength maximum concentration and mobilized to reach opportunity giver psychic processes, activities, moral-ethical, emotional-volitional, aesthetic, intellectual and other psychic adjectives improvement.
4. Exercise the most right in the form to transfer it to manage opportunity giving, athlete, coach, scientist employee and doctor's closely relationscooperation providing theoretical and practical knowledge to occupy
5. Responsible for the season in competitions preparation achieved level done increase ability complex improvement.

Listed tasks sports training content defines. Each tasks group training in the process athlete of preparation main types - technical, tactical, physical, psychological, theoretical (mental) and integral aspects with solid related. This tasks solution to grow as a result athlete's in the chosen sport to achievements to achieve for readiness descriptive physical, technical and other preparation types relevant level is provided.

Regular sports training as a result human movement activity formed goes, new forms of movement to the body comes, vital necessary skills, qualifications improves, psychic qualities (thinking, consciousness, will, attention, emotion) and others) polished Finds a specific sport specific movement skills will be perfected.

Sports training one how much to oneself typical aspects there are, they are are:

- his/her a sport or individual achievement in a particular sport possible was the most high to the result to achieve orientation ;
- athlete himself/herself chosen sport or his/her known one in appearance early (own in time) and deep specialization ;
- athletes or this is a sport with regular to engage in for carefully sort to be taken ;
- training to maximum sports results achieve for necessary was far duration and them manifestation of reaching relatively limited period ;
- training and competition of the loads athletes to their health, psychological opportunities in front of high requirements put extremely high level ;
- athletes readiness process individualization high level ;
- training and competitions in the process athletes status regular and deep complex control to do necessity ;
- athlete enough independence and training in the process creatively attitude with together coach's leadership place ;

Sports improvement certain in the phase (of the training) annual or many annual cyclical within the framework of the athlete the most good readiness status his/her sports uniform describes. Sports uniform in the case of athlete himself/herself for maximum the result of the sports event demonstration will reach.

Special in literature athletes of preparation every kind and types varies. Scattered and relatively stable of thoughts generalization their general classification for three the most significant fish offer to reach opportunity gives: athlete to success achieve for preparation or this structural priority to the components (technical, tactical, physical, psychological, mental (theoretical), preparation) impact show in ; sports specialty with mutual of dependence to the feature according to (general) and special preparation); training and competition activity under the circumstances preparation every kind aspects adjectives and of abilities unity, harmony and to come true release (integrated training).

Athlete's physical readiness his/her health reinforcement and save to stay, body structure to form, to the organism functional opportunities increase, strength, speed, coordination, endurance and flexibility such as physical abilities to develop is redirected.

Modern sports athletes physical to prepare high requirements This is the following factors with explained:

1. In sports achievements growth every always athlete's physical abilities development new to degrees For example, the core must be placed more than 20 m away. push for only perfect technique not, high at the level developed power and speed necessary. Calculations shows that the nucleus extend the flight by 1 m for push increase power by 5-7% necessary will be.

2. Physical preparation high level – training and competition downloads increase important from the conditions one. The last 20-25 years during in the world the most strong athletes annual in the cycle loading indicators 3-4 times grew. That's why as a result myocardium extreme tension chronic color received athletes the number is also sharp increased. This disease often physical in development, a separate organ and systems in the activity defects was in athletes occurs.

Physical preparation every how age, qualification and sports has was athlete for necessary. However athletes physical preparation – separate adjectives development level, functional opportunities and body structure every a sport to oneself typical requirements For this reason, he or she in this sport, every kind young and qualified athletes physical readiness content and in the procedure certain differences to be natural

Physical preparation types, task and tools. General physical preparation (UJT) and special physical training (MJT) is different.

UJT for the selected sport typical not, but every without sports activities success defining physical of abilities every one-sided development process is considered.

UJT 's tasks:

1. The body functional opportunities general level increase and support.
2. All the main physical qualities – strength, speed, endurance, agility and flexibility development
3. Physical in development shortcomings eliminate to be

Someone's himself/herself engaged and from other sports taken exercises UJT tools is also considered agile. and flexibility developing to exercises big place is separated. General endurance developer of exercises contribution less It will be long. to distances in runners, on the contrary, in general endurance developing exercises separately importance has. In the UJT process to them big place Strength training how much big not been weights with, but many repeatedly is done.

MJT 's chosen sport to the characteristics appropriate was physical abilities to develop is directed. In this case, it is abilities opportunity at the level maximum to develop aimed at will be.

MJT 's tasks:

1. A specific sport for necessary was physical abilities development
2. In the chosen sport successes determining authority and systems functional opportunities increase
3. Competition of activity to oneself typical under the circumstances there is hidden functional opportunities to the surface release abilities To educate. For example, to swimmers laboratory under the circumstances standard loading when given maximum oxygen consumption (MKI) averages 70 ml/kg / min. organization will. Competition at speed while swimming and 46 ml/kg/ min., i.e., only 65% of the MKI equal will be.

4. Specific sports science requirements into account received without the body structure of athletes For example, every kind to distances specialized light body composition in athletes indicators (height, weight, build) and hk), usually from each other difference does. That's why for both in the MJT process body in the chosen sport achievements defining and sports activities tool and methods using targeted accordingly change possible was structural into parts directing impact show necessary.

Athlete's UJT and MJT tools in training ratio solution attainable tools, athlete age, qualification and separately characteristics, type of sport and training process periods to the likes of depends.

Technical preparation athlete actions to the technique to teach and them perfect to the level to deliver aimed at will be.

Sports equipment sports movement to perform way is an athlete own psychophysical from the possibilities use efficiency certain level with separated stands.

Sports equipment in various sports importance one kind not. To himself specific sports equipment has of sports that are four group is separated:

1. Speed-to-strength based races (sprinting) running, throwing, jumping, heavy athletics and etc.) In these sports technique so directed, in which sprinter competition of the exercise leader in stages, for example, running, long distance and to the height in the jump push during the, javelin, discus and etc. in throwing final actions while doing the most energetic and fast voltages develop to receive necessary.

2. Endurance demonstration sports that require endurance (long to distances running, skiing racing, bicycle sports etc.).

3. The basis movement art organization performing sports (gymnastics, acrobatics, water skiing) jump and etc.). Technique athlete of their actions beauty, expressiveness and accuracy providing to give need.

4. Sports games and martial arts. Technique competition of struggle always changing standing under the circumstances to the athlete high efficiency, stability and of their actions servariant providing to give necessary.

Athlete's technician readiness this one with separated It seems that it has been mastered. actions complete takes and their technique occupying received. Technical preparation enough high level technician They call it skill. Technical of skill criteria are: Technique size – athlete complete can technique receptions general amount. Technique versatility – technical receptions diversity level.

For example, in sports games this is every kind game from the receptions uses of pace ratio.

Technical of skill this indicators technician of actions very big reserve in sports that are – sports games, martial arts types, gymnastics, figure skating flying – especially big importance has. Sports equipment ownership to do effectiveness of sports activities to the individual optimal option of the technique proximity level with is determined.

Technique efficiency one how many method with they evaluate:

a) him somehow with a biomechanical standard comparison. If the technique biomechanical in terms of reasonable to the level close if, it is the most effective is considered ;

b) the movement technique being assessed high qualified athletes technique with comparison ;

c) sports results the athlete's range of motion determinant technician from the side somewhat simpler – strength, speed-strength and etc. in assignments results with comparison. For example, first 30 m lower, then high from the start running done is increased. In time difference lower start technique efficiency shows ;

g) indicated result action activity to perform during strength movements with comparison. Power expense how much less, that is actions economical if, technique efficiency that much high is considered. Actions of the technique This is a criterion this technician.

How is the movement ? learned, strengthened shows. Good mastered to actions typical Features:

a) movement standard under the circumstances to perform on time his/her to the technique typical row aspects and sports results stability ;

b) movement to perform during (the athlete's situation, complicated under the circumstances opponent movements when changing) of the result stability (relatively less change);

c) in training movement skills during breaks preserved to remain;

g) actions of execution automation.

Athletes technician of preparation types, functions, tool and methods. General and special technician preparation varies. General technician in preparation for sports activities necessary was diverse movement skills and qualifications to occupy directed.

General technician preparation in the process following tasks done increased:

1. In the chosen sport skills formation for basis calculated action skill and qualifications range expand (or restore).

2. UJT tools as applicable exercises technique mastery.

Special physical preparation in the chosen sport actions technique to master It is directed to this of tasks solution to be completed provides:

1. Sports activities technique about knowledge to form.

2. Actions of the technique athlete to the possibilities the most suitable incoming separately forms working exit

3. In competitions successful participation to grow for necessary was skill and qualifications to form.

4. Technique forms change and update (sports tactics) improvement required by law level

5. Sports equipment previously not used new options to shape (for example, to height) " Fosbury -flop" in the jump ; nucleus of pushing just like in discus throwing turn on the principle based technique ; skiing like skating flight etc.).

Technical tailoring during sports training tool and methods from the complex are used. They conditional accordingly two to the group to be possible:

Oral, demonstrative and sensor- editor impact indicating tool and methods.

To these the following includes:

a) conversation, explanation, story, description etc.;

b) the movement technique being studied show ;

c) posters, drawings, filmstrips, video recorder records and etc. demonstration to grow ;

g) subject and other landmarks application ;

d) sound and light ;

e) every kind simulators, notes provider devices, fast information tools.

Athlete's somehow physical exercises to fulfill based tool and methods. In this case the following applies to:

a) generalist exercises. They are the type of sport they choose. according to technician skill cultivation for foundation counted diverse skill and qualifications by mastering to take opportunity gives ;

b) special preparer and competition exercises. They are in their own sport. technique to occupy is directed ;

c) whole and distributed exercise methods. They are holistic movement activities. or his/her separately parts, stages, elements technique to occupy, to finish, to strengthen and to improve directed ;

g) actions technique improvement and to stabilize help giving one regular, variable, repetitive, intermittent, game, competition methods etc.

Above tool and of methods application chosen sport to the technique typical characteristics of athletes age and qualification, training annual and many annual in cycles technician preparation to the stages depends.

Technical preparation process athlete's whole many annual training during done is increased.

Athlete's many annual technician readiness process in 3 steps to be possible:

1. Basic technician preparation stage.
2. Deep technician improvement and high sports and technical to skill achieve stage.
3. Sports- technical skill save stay stage.

Each stage annual from cycles consists of was steps own inside For example, the first stage, usually 4-6 years cycle, the second - 6-8 years, the third - 4-6 years from cycles consists of will be.

CONCLUSION

That's why for athlete's every one in phase technician of preparation certain content and The procedure is usually annual. training cyclical to be rounded obeys. Often this high qualified athletes in preparation obvious to the eye

The point is, the leader in athletes annual cycle separately preparation, competition and game to the times They do not distribute. whole year during training preparation to the characteristics has will be.

From this come It turns out that qualified in athletes annual training cyclical within actions technique possession and improvement process many sports uniform to possess, to keep stay and further develop to the laws related will be.

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SINFDAN VA MAKTABDAN TASHQARI MASHG'ULOTLAR JARAYONIDA O'QUVCHILAR MADANIYATINI SHAKLLANTIRISH

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Annotatsiya: Mazkur maqolada o'quvchilarning madaniyatini shakllantirishda sinfdan va maktabdan tashqari mashg'ulotlarning o'rni va ahamiyati yoritilgan. Unda madaniy tarbiya tushunchasi, zamonaviy ta'lim jarayonida uni rivojlantirishning dolzarbligi, sinfdan tashqari faoliyat turlari, madaniyat markazlari va jamoaviy tadbirlarning tarbiyaviy ta'siri haqida fikr yuritilgan. Shuningdek, ota-ona va o'qituvchi hamkorligi, ijtimoiy faollik orqali o'quvchilarda estetik did, axloqiy qadriyatlar, milliy o'zlikni anglash kabi muhim fazilatlarni shakllantirishga urg'u berilgan. Ishda nazariy qarashlar bilan birga amaliy tavsiyalar ham keltirilib, o'quvchilarda madaniyatli shaxs sifatida kamol topishiga xizmat qiluvchi omillar tahlil qilingan.

Kalit so'zlar: madaniyat, tarbiya, o'quvchi, sinfdan tashqari mashg'ulotlar, ma'naviyat, estetik tarbiya, to'garaklar, ijtimoiy faollik, ota-ona hamkorligi, maktabdan tashqari faoliyat.

FORMING THE CULTURE OF STUDENTS IN THE PROCESS OF CLASSROOM AND EXTRA-SCHOOL ACTIVITIES

Anatatsion: This article discusses the role and importance of extracurricular and extracurricular activities in the formation of students' culture. It discusses the concept of cultural education, the relevance of its development in the modern educational process, the educational impact of extracurricular activities, cultural centers and collective events. It also emphasizes the formation of important qualities in students, such as aesthetic taste, moral values, and awareness of national identity through parent-teacher cooperation and social activity. Along with theoretical views, the work also provides practical recommendations and analyzes the factors that contribute to students' development as cultured individuals. If the annotation needs to be further shortened or translated into English, please feel free to tell me.

Keywords: culture, upbringing, student, extracurricular activities, spirituality, aesthetic education, clubs, social activity, parental cooperation, extracurricular activities

ФОРМИРОВАНИЕ КУЛЬТУРЫ УЧАЩИХСЯ В ПРОЦЕССЕ УЧЕБНОЙ И ВНЕШКОЛЬНОЙ ДЕЯТЕЛЬНОСТИ

Аннотация: В статье подчеркивается роль и значение классных и внеклассных занятий в формировании культуры учащихся. В статье рассматривается понятие культурного образования, актуальность его развития в современном образовательном процессе, воспитательное воздействие внеклассной работы, культурных центров и общественных мероприятий. Особое внимание уделяется также развитию важных качеств у учащихся, таких как эстетический вкус, моральные ценности и осознание национальной идентичности, посредством сотрудничества родителей и учителей и общественной активности. В работе представлены теоретические взгляды и практические рекомендации, а также проанализированы факторы, способствующие развитию учащихся как культурных личностей.

Ключевые слова: культура, воспитание, ученик, внеклассная работа, духовность, эстетическое воспитание, клубы, общественная активность, родительское сотрудничество, внеклассная работа.

KIRISH

Madaniyat bu insonning jamiyatdagi munosabatlarida namoyon bo'ladigan axloqiy, estetik, ruhiy qadriyatlar majmuasidir. O'quvchilarda madaniyatni shakllantirish ularning har tomonlama barkamol bo'lib yetishishida muhim o'rin tutadi. Sinfdan va maktabdan tashqari mashg'ulotlar aynan ana shu tarbiyani amaliy tarzda mustahkamlash imkonini beradi [1].

ASOSIY QISM

Amerikalik antropolog Julian Styuard 1950-yillarda ekologik madaniyat atamasini kiritgan. "Ekologik madaniyat odamlarning atrof-muhitning bir qismi ekanligini va ikkalasiga ham ta'sir qilishini tushuntiradi. Zamonaviy ekologik madaniyat tarixiy va siyosiy ekologiya elementlarini, shuningdek, ratsional tanlov nazariyasi, post-modernizm va madaniy materializmni o'z ichiga oladi. Inson hayot faolligatidagi o'zgarishlarning ko'p chiziqliligini dastlabki tan olinishi natijasida odamlar va ularning atrof-muhit o'rtasidagi o'zaro ta'sirining birinchi asosiy nazariyasi– ekologik determinizm ishlab chiqildi [2].

"Inson ta'siri" va "madaniy landshaft" ikki qarama-qarshi tushuncha bo'lib, ekologik madaniyatning o'tmish va zamonaviy voqeliklarini tushuntirishga yordam beradi. 1970-yillarda insonning atrof-muhitga ta'siri sababli global muammolar paydo bo'ldi: ekologik harakatning ildizlari ana shundan boshlandi. Inson atrof-muhitning bir qismidir, unga ta'sir qiluvchi tashqi kuch emas. Madaniy landshaftlarni - ularning atrof-muhitidagi odamlarni muhokama qilish - dunyoga biomadaniy hamkorlik mahsuloti sifatida murojaat qilishga harakat qiladi. "Insonlarning har biri tabiat to'g'risida individual qarashlarga ega bo'lib, u shaxsning hayotiy tajribalari asosida takomillashib boradi [3].

1. O'quvchilarda madaniy qadriyatlarni shakllantirish zarurati.

Bugungi globallashtirish jarayonida yosh avlodni axloqan yetuk, madaniyatli va ijtimoiy faol shaxs qilib tarbiyalash davlat siyosatining ustuvor yo'nalishlaridan biridir. Madaniyatli shaxs - bu nafaqat odob-axloq qoidalariga amal qiluvchi, balki estetik did, muloqot madaniyati, milliy qadriyatlarga hurmat bilan qaraydigan shaxsdir. Bunday fazilatlarini shakllantirishda ta'limning barcha bosqichlarida madaniy-tarbiyaviy ishlarga e'tibor kuchaytirilmoqda [4].

2. Sinfdan tashqari mashg'ulotlar va ularning turlari. Sinfdan tashqari mashg'ulotlar o'quvchilarning bo'sh vaqtini mazmunli tashkil etish, ularning iqtidor va qiziqishlarini aniqlash, madaniy tafakkurini rivojlantirishda muhim o'rin tutadi. Quyidagi turlar ayniqsa samaralidir: Badiiy va madaniy to'garaklar (drama, teatr, adabiyot, musiqa) - bu to'garaklarda ishtirok etgan o'quvchilar nutq madaniyati, obrazli fikrlash va sahna madaniyatiga ega bo'lishadi [5].

Ekskursiyalar va madaniy sayohatlar - muzeylar, tarixiy obidalar, san'at galereyalari va teatr tomoshalariga tashriflar orqali o'quvchilar milliy madaniyat va tarixiy meros bilan tanishadilar.

Kitobxonlik kechalari va ma'naviyat darslari - bu tadbirlar o'quvchilarda kitobga muhabbat, fikrlash va tahlil qilish ko'nikmalarini rivojlantiradi.

3. Maktabdan tashqari muassasalar va ular orqali madaniy tarbiya o'quvchilarning madaniyatini shakllantirishda faqat maktab doirasidagi tadbirlar emas, balki maktabdan tashqari muassasalar faoliyati ham muhim ahamiyatga ega: Bolalar ijodiyoti markazlari - bu yerda o'quvchilar turli yo'nalishlarda (san'at, hunarmandchilik, dizayn) o'z iqtidorlarini namoyon

qilishadi. Kutubxonalar va axborot markazlari - bolalarda mustaqil o'qish, izlanish va axborot bilan ishlash madaniyatini shakllantiradi. Muzeilar, teatrlar, konsert zallari - o'quvchilar bu joylarda real madaniy muhitni his qilib, didi va madaniy dunyoqarashi kengayadi[6].

4. O'qituvchi va ota-onalarning hamkorligi. O'quvchilarni madaniyatli shaxs sifatida tarbiyalashda faqat maktab emas, balki oila ham faol ishtirok etishi zarur. O'qituvchi va ota-onalar o'rtasida hamkorlikda olib boriladigan quyidagi ishlar samarali natija beradi:

Ota-onalar ishtirokidagi ma'naviy-ma'rifiy kechalar;

Madaniy tadbirlarga birgalikda tashriflar (masalan, teatr, muzey);

Oila va maktab o'rtasida uzviy aloqa o'rnatilishi[7].

5. Ijtimoiy faollik va tashabbuskorlik. Madaniyatli shaxs faqatgina o'zini tutish madaniyatiga ega bo'lmasdan, balki jamiyatda faol ishtirok eta oladigan, o'z fikrini erkin bildiradigan, boshqalar bilan muloqotda madaniyatni namoyon eta oladigan shaxs bo'lishi zarur. Shu sababli o'quvchilarni:

Talabalar jamoatchilik kengashlariga; Ko'ngillilar harakatlariga; Ekologik, ma'naviy-ma'rifiy aksiyalarga jalb etish zarur. Bular o'z navbatida ularning ijtimoiy mas'uliyatini, fuqarolik pozitsiyasini va axloqiy qarashlarini mustahkamlaydi.

XULOSA

Sinfdan va maktabdan tashqari mashg'ulotlar o'quvchining madaniy saviyasini oshirishda, axloqiy-estetik qarashlarini boyitishda katta rol o'ynaydi. Bu faoliyatlar orqali yosh avlodda Vatanga muhabbat, milliy qadriyatga hurmat, go'zallikni anglash va qadrlash tuyg'usi shakllanadi. Ularni kengaytirish, mazmunan boyitish ta'lim-tarbiya tizimining muhim vazifalaridan biridir [8].

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DARSLAR JARAYONIDA O'QUVCHILAR EKOLOGIK MADANIYATINI SHAKLLANTIRISH

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Annotatsiya: Mazkur ishda umumta'lim maktablarida dars jarayonida o'quvchilarning ekologik madaniyatini shakllantirishning mazmun-mohiyati, maqsadi hamda metodik yondashuvlari yoritilgan. Ekologik muammolarning dolzarbligi, ekologik tarbiyaning ta'lim-tarbiyadagi o'rni, o'qituvchi va maktabning bu boradagi roli keng tahlil qilingan. Shuningdek, biologiya, geografiya, adabiyot, kimyo kabi fanlar misolida ekologik ongni shakllantirishning samarali usullari ko'rsatib berilgan. Ishda o'quvchilarda tabiatga ongli munosabat, ekologik mas'uliyat hissini tarbiyalash bo'yicha taklif va tavsiyalar ham ilgari surilgan.

Kalit so'zlar: ekologik madaniyat, ekologik tarbiya, ekologik ong, dars jarayoni, interfaol metodlar, ekologik muammo, tabiatni asrash, fanlararo yondashuv, o'quvchilar tarbiyasi, o'qituvchining roli, maktab ekologik faoliyati.

FORMATION OF STUDENTS' ECOLOGICAL CULTURE IN THE PROCESS OF LESSONS

Abstract: This work covers the content, purpose and methodological approaches to the formation of students' ecological culture in the process of teaching in secondary schools. The relevance of ecological problems, the role of environmental education in education, the role of the teacher and the school in this regard are widely analyzed. Also, effective methods of forming ecological awareness are shown on the example of such subjects as biology, geography, literature, chemistry. The work also puts forward proposals and recommendations for educating students in a conscious attitude to nature and a sense of environmental responsibility.

Keywords: ecological culture, ecological education, ecological awareness, teaching process, interactive methods, ecological problem, nature conservation, interdisciplinary approach, student education, the role of the teacher, school ecological activities.

ФОРМИРОВАНИЕ ЭКОЛОГИЧЕСКОЙ КУЛЬТУРЫ СТУДЕНТОВ В ПРОЦЕССЕ УРОКОВ

Аннотация: В работе рассматриваются содержание, цель и методические подходы к формированию экологической культуры учащихся на уроках в общеобразовательной школе. Подробно проанализированы актуальность экологических проблем, роль экологического образования в образовании, а также роль учителей и школ в этом отношении. Также эффективные методы формирования экологического сознания показаны на примерах таких предметов, как биология, география, литература, химия. В работе также выдвигаются предложения и рекомендации по формированию у учащихся осознанного отношения к природе и чувства экологической ответственности.

Ключевые слова: экологическая культура, экологическое образование, экологическое сознание, учебный процесс, интерактивные методы, экологическая проблема, охрана природы, междисциплинарный подход, образование учащихся, роль учителя, экологическая деятельность школы.

KIRISH

Bugungi kunda global iqlim o'zgarishi, suv va havo ifloslanishi, chiqindilar muammosi kabi ekologik inqirozlar insoniyat oldida jiddiy muammolar sifatida turibdi. Ushbu holatda ekologik madaniyatga ega, tabiatga ongli munosabatda bo'ladigan shaxslarni tarbiyalash ta'limning muhim vazifasidir. Ayniqsa, bu jarayon maktab darslari orqali amalga oshiriladi.

ASOSIY QISM

1. Ekologik madaniyat va uning ahamiyati:

Ekologik madaniyat - bu insonning tabiatga bo'lgan ongli munosabati, atrof-muhitni asrash va tabiiy resurslardan oqilona foydalanish madaniyatidir. U inson tafakkurida shakllanadigan ekologik ong, axloqiy qarashlar va amaliy faoliyatning uyg'unligidir [1].

Bugungi kunda inson faoliyati natijasida global ekologik muammolar keskin tus olmoqda: atmosfera va suv havzalarining ifloslanishi, o'rmonlarning qisqarishi, hayvonot va o'simlik dunyosining yo'qolib borishi shular jumlasidandir. Bu holatni oldini olishning eng muhim yo'li - jamiyatda, ayniqsa yoshlar ongida ekologik madaniyatni shakllantirishdir [2].

2. O'quvchilarda ekologik madaniyatni shakllantirishning pedagogik asoslari.

Ta'lim jarayonida o'quvchilarga ekologik bilim berish, ularning tabiatga bo'lgan munosabatini shakllantirish pedagogik yondashuvni talab etadi. Ekologik tarbiya nafaqat biologiya yoki geografiya kabi an'anaviy fanlarda, balki barcha fanlar integratsiyasi asosida olib borilishi lozim. Bu orqali o'quvchi ekologiyani faqat ilmiy tushuncha sifatida emas, balki kundalik hayotining ajralmas qismi sifatida qabul qila boshlaydi [3].

Ekologik tarbiyaning asosiy vazifalari quyidagilardan iborat: Atrof-muhit to'g'risida ilmiy, tizimli va zamonaviy bilimlar berish; O'quvchilarda tabiatga nisbatan mehr, g'amxo'rlik, ehtiyotkorlik tuyg'ularini rivojlantirish; Ekologik muammolarni aniqlash va ularga yechim topishga qiziqish uyg'otish; Amaliy ekologik faoliyatga jalb qilish (chiqindi yig'ish, daraxt ekish, kuzatuv olib borish).

3. Fanlar kesimida ekologik tarbiyani yo'lga qo'yish:

Turli o'quv fanlari ekologik madaniyatni shakllantirishda katta salohiyatga ega: Biologiya fanida o'simlik va hayvonot olami, tabiiy muvozanat, ekologik zanjirlar, inson va biosfera o'rtasidagi aloqalar haqida tushunchalar beriladi. Geografiya darslarida yer yuzasida sodir bo'layotgan ekologik muammolar, iqlim o'zgarishi, tabiiy resurslardan foydalanish masalalari muhokama qilinadi. Kimyo fanida kimyoviy moddalarning tabiatga ta'siri, sanoat chiqindilari va ularning zarari haqida bilimlar beriladi [4]. Texnologiya darslarida ekologik toza mahsulotlar, qayta ishlash va chiqindisiz ishlab chiqarish texnologiyalariga e'tibor qaratiladi. O'zbek tili va adabiyot fanlarida ekologik mazmundagi she'r, hikoya va matnlarni tahlil qilish orqali o'quvchilarda badiiy-estetik yo'sinda ekologik ong shakllanadi.

4. Interfaol usullar va amaliy tadbirlar .

O'quvchilarning ekologik madaniyatini shakllantirishda faqat nazariy bilim berish yetarli emas, balki ularni amaliy faoliyatga jalb etish ham muhimdir. Buning uchun quyidagi usullardan foydalanish mumkin: Loyiha ishlari - o'quvchilar ekologik mavzuda mustaqil izlanish olib borib, yechimlar ishlab chiqadilar; Kuzatuv va tajribalar - maktab atrofidagi o'simlik va hayvonot olamini kuzatish, chiqindi tahlili, havo sifati bo'yicha eksperimentlar; Muammoli savollar va bahslar - ekologik mojarolarni muhokama qilish, o'z fikrini asoslashga o'rgatish; Rolli o'yinlar - o'quvchilarni ekolog mutaxassisi, fermer yoki ekologik inspektor roliga ishtirok ettirish; Video materiallar va hujjatli filmlar - ekologik mavzudagi filmlar orqali real voqealarni tahlil qilish[5].

5. Maktabdan tashqari ekologik tarbiya shakllari.

Darsdan tashqari ishlar orqali ekologik tarbiya yanada samarali bo'ladi. Masalan: Tabiat qo'ynida ekskursiyalar - o'quvchilarni mahalliy landshaftlar, daryolar, bog'lar bilan tanishtirish;

"Yashil maktab" loyihasi - maktab hududida daraxt ekish, gulzorlar barpo etish; Ekologik aksiyalar - "Toza havo", "Chiqindisiz hayot", "Tabiatga mehr" kabi ijtimoiy tadbirlar; Ekologik to'garaklar - ixtiyoriy asosda ekologiyaga qiziqqan o'quvchilar bilan faoliyat olib boorish[6].

6. O'qituvchining roli va mas'uliyati

O'qituvchi ekologik tarbiyada yetakchi shaxs hisoblanadi. Uning ekologik dunyoqarashi, shaxsiy namunasi, o'quvchilarga bo'lgan e'tibori ushbu jarayonda muhim o'rin tutadi. U nafaqat bilim beradi, balki amaliy faoliyatga yetaklaydi, ekologik harakatlarda ishtirok etishga ilhomlantiradi[7].

O'qituvchi: O'quvchilar bilan ekologik loyiha va tadbirlar tashkil qiladi; Darslikdan tashqari ekologik materiallar bilan ishlaydi; Mahalliy ekologik muammolarni tahlil qilishga yordam beradi; Tabiatni asrashda o'zi shaxsiy namuna bo'ladi[8].

Xulosa

Ekologik madaniyat - bu zamonaviy jamiyatning ajralmas qismi bo'lib, uni yosh avlod ongiga singdirish orqali biz kelajak avlodlarga sog'lom muhitni meros qilib qoldirishimiz mumkin. Dars jarayonida bu madaniyatni shakllantirish o'ziga xos metodika va yondashuvni talab qiladi. Shu bois, har bir o'qituvchi ekologik tarbiyaga alohida e'tibor qaratishi lozim.

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MAKTABGACHA TA'LIMDA QO'L MEHNATINI RIVOJLANTIRISH

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Annotatsiya: Maktabgacha bog'cha yoshidagi bolalarning mehnat ta'limini faol qo'l mehnatisiz tasavvur qilib bo'lmaydi. Bu faoliyat turida bola yuqori qiziqishni his etadi. Ushbu omil bolalarning umumiy aqliy rivojlanishiga ijobiy ta'sir ko'rsatadi. Ular uchun dekorativ-amaliy san'atning badiiy mazmuniga asoslangan estetik faoliyatning tarkibiy qismlaridan biri sifatida badiiy ish alohida ahamiyatga ega. Maqolada qo'l mehnatining bog'cha yoshidagi bolalarga qanday foydalari borligi va pedagoglardan talab etiladigan jihatlar yoritilgan.

Kalit so'zlar: shaxs, qo'l mehnati, maktabgacha ta'lim, badiiy ishlar, plastilin, origami, qaychi, dekorativ, tarbiyalovchi.

РАЗВИТИЕ РУЧНОГО ТРУДА В ДОШКОЛЬНОМ ОБРАЗОВАНИИ

Аннотация: Трудовое воспитание дошкольников невозможно представить без активного ручного труда. К этому виду деятельности ребенок чувствует повышенный интерес. Этот фактор положительно влияет на общее умственное развитие детей. Для них художественное творчество имеет особое значение как одна из составляющих эстетической деятельности, основанной на художественном содержании декоративно-прикладного искусства. В статье описаны преимущества ручного труда для детей дошкольного возраста и аспекты, необходимые педагогам.

Ключевые слова: личность, ручной труд, дошкольное образование, художественные произведения, пластилин, оригами, ножницы, декоратор, воспитатель.

DEVELOPMENT OF MANUAL LABOR IN PRESCHOOL EDUCATION

Abstract: Labor education of preschool children cannot be imagined without active manual labor. In this type of activity, the child feels high interest. This factor has a positive effect on the general mental development of children. For them, artistic work is of particular importance as one of the components of aesthetic activity based on the artistic content of decorative and practical art. The article describes the benefits of manual labor for children of kindergarten age and the aspects required from pedagogues.

Key words: personality, manual labor, preschool education, artistic works, plasticine, origami, scissors, decorator, educator.

KIRISH

Maktabgacha yoshdagi bolalarning qo'l mehnati - bu eng oddiy asboblardan foydalangan holda mustaqil buyumlarni ishlab chiqarish. Bu ish, faoliyat amaliy bo'lib, ma'lum darajada foydali yo'nalishga ega.

Bolalarning o'z mehnat faoliyatining maqsadga muvofiqligini anglashi uning sifatiga, har bir bolaning mehnat jarayoni va natijasiga munosabatiga sezilarli ta'sir ko'rsatadi. Qo'l mehnatining individual xarakterdaligi (ya'ni, jamoaviy ishda ham, bolalarning har biri uning bir qismini o'z qo'llari bilan bajaradi), unga barcha bolalarni izchil jalb qilish, ba'zi kamchiliklarni tuzatish imkonini beradi.

Jamoaviy vazifalarni bajarish bolalarda o'zaro muzokaralar olib borish, o'z manfaatlari va istaklarini umumiy maqsadga bo'ysundirish qobiliyatini rivojlantiradi, do'stlik, o'zaro yordam, mas'uliyat tuyg'ularini uyg'otadi, tashabbuskorlik, zukkolikni rivojlantiradi.

Vizual xarakterdagi jamoaviy vazifalarni bajarish jarayonida bolalar kelgusi ishni mustaqil ravishda rejalashtirishni, o'z harakatlarini umumiy reja bilan muvofiqlashtirishni, uni amalga oshirish ketma-ketligini o'ylashni, kerakli vizual materialni tanlashni va ulardan foydalanishni o'rganadilar. Shu bilan birga, jamoaviy mehnatda bolalarning individual xususiyatlari aniq namoyon bo'ladi, ijodiy qobiliyatlar shakllanadi.

ASOSIY QISIM

Badiiy mehnat - bu bolaning hayotini, o'yinlarini, mehnatini va dam olishini bezash uchun foydali va badiiy, estetik ahamiyatga ega bo'lgan buyumlar va predmetlarni yaratish uchun turli materiallar bilan mehnatidir. Bu bolalar mehnati dekorativ, badiiy-hunarmandchilik faoliyatidir, chunki bola go'zal narsalarni yaratishda o'z g'oyalari, bilimlari va mehnat faoliyati jarayonida egallagan amaliy tajribasi asosida materiallarning estetik fazilatlarini hisobga oladi. To'g'ri tashkil etilgan qo'l va badiiy mehnat bolalarga materiallarning sifati va imkoniyatlari haqida bilim beradi, hunarmandchilikning o'ziga xos xususiyatlarini o'zlashtirishga intilishni uyg'otadi, ularni dekorativ-amaliy san'at bilan tanishtiradi.

Mehnat tarbiyasiz bola shaxsini shakllantirish mumkin emas. Katta va tayyorlov guruhlarida ijodkorlik elementlari bilan qo'l mehnati asosiy rol o'ynaydi. Maktabgacha yoshdagi bolalarning ijodkorligining namoyon bo'lishi ularga taklif qilingan aqliy vazifalarni bajarish tabiati bilan belgilanadi. Bolalar o'zlarining ijodiy energiyasini bo'shata olishlari juda muhimdir. Amaliy ahamiyati jihatidan tikuvchilik mashg'ulotlarida ko'plab muhim fazilatlar tarbiyalanadi: harakat qilish odati, to'siqlarni yengib o'tish qobiliyati, mas'uliyat, ishni rejalashtirish va uni amalga oshirish ketma-ketligidagi bosqichlarni oldindan ko'ra bilish. Xususan, munchoqlar qo'l mehnatida tikuvchilikning bir turi bo'lib, uning yordamida siz quyidagi vazifalarni hal qilishingiz mumkin:

O'z vatani madaniyatiga, xalq amaliy san'atining kelib chiqishiga qiziqish uyg'otish, voqelikka estetik munosabat, mehnatsevarlik, aniqlik, qat'iyatlilik, sabr-toqat, boshlangan ishni oxiriga etkazish qobiliyati, ishni bajarishda o'zaro yordam, tejamkorlik; foydalaniladigan materiallar, mehnat madaniyati asoslarini singdirish; harakat qobiliyatlarini, xayoliy fikrlashni, diqqatni, tasavvurni, ijodkorlikni rivojlantirish, estetik va badiiy didni shakllantirish.

Mashg'ulotlar jarayonida bolalarda diqqat, kuzatish, tasavvur, xayol, ijodkorlik rivojlanadi. Har bir topshiriqda, har bir mashg'ulotda bolalarga orzu qilish imkoniyati beriladi, asarga o'z tasvirlarini kiritish rag'batlantiriladi.

Katta maktabgacha yoshdagi bolalarda badiiy ishlarni bajarish jarayonida barcha aqliy jarayonlar shakllanadi, ijodiy qobiliyatlar va atrofdagi dunyoni ijobiy-emotsional idrok etish rivojlanadi.

Maktabgacha yoshdagi bolalarni ijodkorliklarini rivojlantirishda qo'l mehnati jarayonida qog'oz va tabiat materiallaridan o'yinchoq yasashga o'rgatish ham muhim ahamiyatga ega. Mashg'ulotlar davomida tabiiy materiallardan "Tizimcha" yasash, kartondan "Stakancha", matodan "Mo'yqalam artgich", "Ninachi va chumoli" yasash mumkin. Ayni o'rinda shular haqida so'z yuritiladi.

Mashg'ulotning maqsadi: bolalarni tabiiy materiallardan, kartondan, matodan foydalanib, turli ashyolar yasashga o'rgatish.

Mashg'ulotda bajariladigan vazifalar: qo'l mehnati bilan shug'ullanishga o'rgatishni davom ettirish; bolalarda o'zlarining mehnat ko'nikmasi va malakalarini rivojlantirish; bolalarni tabiatni asrashga, muhofaza qilishga, tejamkorlikka o'rgatish.

Mashg'ulot jihozlari: dub daraxti, kashtan daraxti mevalari, na'matak guli mevasi, patlar, plastilin, novdachalar, karton qog'oz, yelim, ip, igna, mato qiyqimlari.

Mashg'ulotning borishi: Tarbiyachi: bolalar, o'lkamizda oltin kuz fasli kezmoqda. Bilamizki, kuz faslida sabzavot, mevalar pishadi, to'g'rimi? Manzarali daraxtlarning mevalari ham pishib, ko'chalarda, xiyobonlarda ostiga to'kilib yotibdi.

Bolalar bilasizlarmi, bugungi mashg'ulotimizda sizlar bi-lan ana shu manzarali daraxt mevalaridan o'yinchoqlar yasaymiz. Faqatgina o'yinchoqlar emas, birinchi sinfga boradigan kichikintoylar uchun hisob-kitob mashg'ulotida foydalanish mumkin bo'lgan tizimchalarni ham yasaymiz.

Tizimcha yasalishi uchun qalinroq ip olamiz-da kashtan mevasini teshib, ipga o'tkazamiz. Dastlab bolalar 10 raqami ichida sanashni o'rganishlari sababli, tizimchaga 10 ta mevani ipdan o'tkazib chiqamiz. Bu tizimchani eman daraxti mevasidan ham tayyorlash mumkin. Agar meva bir oz ko'rib qolgan bo'lsa, ozroq suvga solib qo'yilsa, ustki po'stlog'i yumshaydi va tizimchani tayyorlash mumkin bo'ladi. Qani kim sanab beradi?

Tarbiyachi: barakalla, bolalar sizlar bilan mana bunday stakanchalar tayyorlaymiz. Kvadrat shaklidagi karton qog'oz olib, undan doira qirqamiz. So'ng to'rtburchak shaklidagi qog'ozning pastki qismini bir sm enlikda qoldirib arra tishlariga o'xshatib kesib chiqamizda, ikki tomonini yelimlab, pastki qismidagi qirqilgan bo'laklarga yelim surtamiz va doirachaga yelimlaymiz. Stakancha tayyor. Bolajonlar, sizlar ham stakanchangizni tayyorlab bo'ldingizlarmi?

Barakalla! Stakan tayyor bo'lgan bo'lsa, endi mo'yqalamni artish uchun artgich, salfetka, tayyorlaymiz. Keraksiz matolardan bir necha kvadratchalar qirqib undan doirachalar hosil qilamiz. Doirachalarni ustma-ust qo'yib, o'rtasidan tiqib qo'yamiz. Mana mo'yqalam artgich ham tayyor bo'ldi.

Bolalar, o'yinchoq ham yasaylik, deyapsizlarmi? Albatta, o'yinchoqlar ham yasaymiz. Hozir na'matak va kashtan daraxtining mevasidan "Ninachi va chumoli"ni yasaymiz. Buning uchun kashtan mevasini olib, unga sal kichikroq kashtan mevasiga chumolining bosh qismini o'rnatamiz, oyoq-qollarini esa novdadan yasab, to'nkaga o'tkazib qo'yamiz, ko'zlarini esa plastilindan yasaymiz. Ninachining tanasi kashtan mevasidan tayyorlanib, uning orqa tomoniga gugurt cho'p o'rnatib, kichik kashtandan bosh qismni yasaymiz: qo'l-oyoqlarini aso novdadan tay-yerlaymiz. Manzarali daraxt mevasidan qanotlarini yasab, plastilin bilan yopishtiramiz. Mana, ninachimiz ham tayyor! Qani eslangchi, ninachi haqidagi qaysi masalni bilasiz?

Bolalar javobi rag'batlantirilib, mashg'ulot yakunlanadi.

Bolalarga chiqindi materiallar (ip, shoyi, mo'yna, polietilen kabilar)dan foydalanib har xil mazmunda applikatsiyalar tuzish taklif etiladi. So'ng ularga matolardan o'yinchoqlar, turli bayram ertaliklari uchun ertak kahramonlarining kiyimlari hamda quvnoq qiziqchilar, petrushkalar kiyimlarini tikishga ham o'rgatiladi. Bolalarning o'zlari yasagan o'yinchoqlar ijodiy, harakatli o'yinlar jarayonida namoyon bo'ladi. Quyidagi rasmlarda tabiat ashyolaridan bajarilgan o'yinchoqlar namunalari keltirilgan:

Tabiiy materialdan mozaika ishlari. Mozaika monumental dekorativ san'at turlaridan biridir. Turli davrlarda va turli mamlakatlarda mozaika qo'llaniladigan materiallariga ko'ra ham, naqshi va rasmlariga ko'ra ham o'ziga xos xususiyatlarga ega bo'lgan. O'rta Osiyoda madrasalar, machitlar, xukmdorlarning saroylari mozaika bilan bezatilgan. Mozaika bilan binolarning tashqi

qismlari, interer devorlari va xalq amaliy san'ati asarlari bezatiladi. Mozaika ishlarida oyna spool plitalardan foydalaniladi. Laosda rangli ko'zgu parchalaridan ajoyib mozaika asarlari yaratiladi, ular quyoshda bir-biriga qo'shilib va porlab, shodlik kayfiyatini yaratadi.

Qum va alebastrdan applikatsiya. Qum elab olinadi, ozgina bint yoki marli, ta'svir yoki ertak asosida, tabiat manzarasi, PVA yelimi, qora kopirovka, kalka qog'oz, qora flamaster, akvarel' buyog'i yoki guash, mo'y qalam qora qalam, eski gazeta kerak bo'ladi.

Bajarish yo'li: tabiat manzarasi yoki ertak asosidagi tasvir oq qog'ozga kalka yordamida tushirib olinadi. Uning ustidan flamasterda tasvir tarhi chiziladi. So'ngra tushirib olingan tasvirga PVA yelimi surtiladi, doka yoki elakda elangan qum tezda tasvir ustiga sepiladi. Qurigach bo'yash ishi boshlanadi. Birinchi rang qurib bo'lgach, ikkinchisiga o'tiladi, quritib uchinchi ranga o'tiladi. Shu tariqa bo'yash ishi tugatiladi. Qumdan bajarilgan ish rangsiz lakda laklanmaydi.

Quyidagi tavsiya qilinayotgan applikatsiya ishlarini bajarish murakkab emas. Ularni yasash uchun ijodkorlik qobiliyati, mahorat va ehtiyotkorlik talab qilinadi. Hususan qum va alebastr orqali bajariladigan applikatsiya ishini bajarish uchun elangan qum va alebastr, ikki qavatli doka, ertak asosidagi rangli kitobcha, kalka qog'oz, PVA yelimi, qora flomaster, qora qalam, akvarel bo'yoq, bostirib olish uchun eski gazeta kerak bo'ladi. Avvalo, qum yoki alebasterni elakchada elab olinadi. Ular yirik tosh va boshqa narsalardan xoli bo'lishi kerak.

So'ngra ertak qahramonlari tasvirlari tanlab olinadi. Tanlangan tasvirni kalka, ya'ni xitoy qog'ozi orqali qora qalam yordamida tushirib oling. Oq qog'ozga yoki rangli fonga tushirib, ustidan qora flomaster yordamida yurgizib chiqiladi. Unga PVA yelimini tasvir ustiga chiqarib yubormay, tezlikda surtib chiqish kerak. Yelim surtilmay qolgan joyi qolmasin. Chunki alebastr yoki qum sepilganda yopishmay qolishi mumkin. Elangan qum yoki alebastrni ikki qavatli dokaga ikki qoshiqcha solib yelim surtilgan tasvir ustiga sepiladi. Bu ishni bajarib bo'lgach, qum yoki alebastrning ustini eski gazeta bilan bostirib olinadi. So'ng gazetani olib, tasvirni sekin ko'tarib qumli idishga silkitiladi. Yopishgan qum tasvir ustida qoladi, yopishmagani idishgan tushadi. So'ngra ikki soat quritish uchun vaqt kerak bo'ladi. Qum yoki alebastr yaxshilab qurigach, bo'yash ishlari bajariladi. Bo'yosh uchun akvarel bo'yog'i yoki guash kerak bo'ladi. Bitta rangni bo'yab bo'lgach, quritib turib ikkinchi rangga o'tiladi. Chunki quritmay ketma-ket davom ettirilsa chaplanib ketishi mumkin. Qum va alebastrda bajarilgan ishlar rangsiz lakda laklanmaydi.

Tuxum po'chog'idan buyum yasash. Tuxum po'choqlaridan bajariladigan applikatsiya ishi uchun kerakli jihozlar: rangli, ertakli kitobchalar, oq qog'oz yoki rangli qog'oz, kalaka (xitoy qog'oz), PVA yelimi, tozalab yuvib kurtilgan tuxum po'chog'i, akvarel bo'yoq, qora qalam, qora flomaster, rangsiz lak (PF-284). Tuxum po'chog'idan buyum yasash uchun tuxum po'chog'ini maydalangan va butun holda saklash mumkin. Tuxum po'chog'ini butun asrash uchun tuxumning ikki uchi teshiladi va uning ichidagilari puflab chiqariladi. Buning natijasida ichi bo'sh tuxum po'chog'iga ega bo'linadi. Bunday tuxum po'chog'i sinuvchan bo'lganligi uchun qutichalarda saqlash kerak.

Butun tuxum po'chog'i va tuxum po'chog'ining maydalanganidan buyum tayyorlash mumkin. Masalan: kaptar, baliq, masxaraboz, kemacha, jo'ja va archa o'yinchoqlari. Avvalo tuxum po'chog'ini yuvib, quritib, xovonchada maydalanadi. Juda kukun bo'lib ketmasligi kerak. So'ngra rangli fonga tasvirni kalka qog'ozi yordamida qora qalamda tushirib olinadi va ustidan qora flomaster bilan tasvir ustidan yurgizib chizib chiqiladi, uning ketidan PVA yelimi surtiladi. Jarayonda tezlik bilan ishlash talab qilinadi. Sababi yelim qotib qolmasligi kerak. Surtilgan yelim ustidan maydalangan tuxum po'chog'ini qo'lda sepib, gazeta bilan bosib chiqiladi. Yopishgan tuxum po'chog'i tasvirda qoladi. Yopishmagani to'kiladi. Shundan keyin bo'yash ishini boshlash

mumkin. Tasvirni rangli kitobchadagi tasvir rangiga qarab akvarel bo‘yoqda bo‘yaladi. Bo‘yoqni iloji boricha suvga nisbatan ko‘proq ishlatish lozim. Bitta bir xil rangga bo‘yab quritib, ikkinchi rangni bo‘yashga kirishiladi. Bo‘yoq qurigach rangsiz lakda laklab chiqiladi. Shunda tuxum po‘chog‘i yaxshi yopishadi va yaltirab turadi.

Tuxum po‘chog‘idan “Sichqoncha” yasash

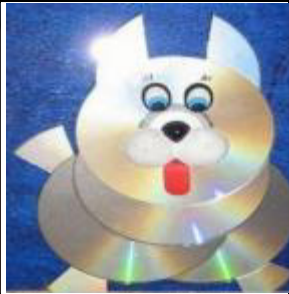
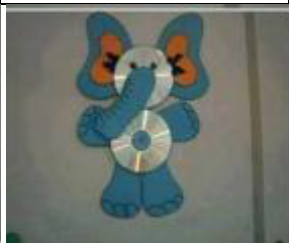
Kerakli ashyolar: tuxum po‘chog‘i, pushti rangdagi qog‘oz yoki shu rangdagi mato, plastilin, PVA yelimi, qaychi, mo‘yqalam, flomaster va qalam.

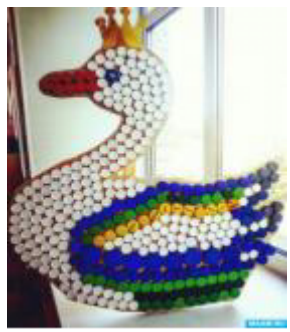
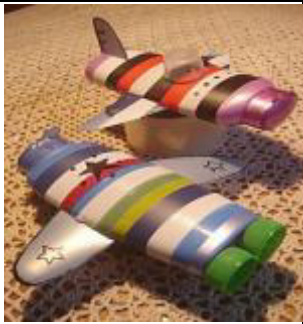
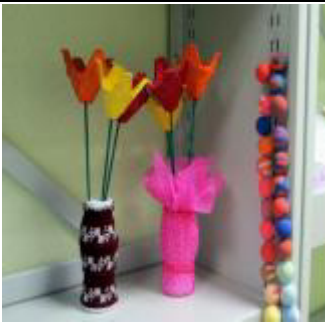
Bajarish usuli: shablon asosida sichqonchaning qulog‘ini ikki buklangan qog‘oz yoki matodan qirqasiz, quloqlarini o‘rtasidan qirqib bir-biriga yelimlaysiz va ozgina buklab, tuxumga yelimlanadi. Ingichka kesma qog‘oz qirqiladi, bu mo‘ylovi uchun. Flamaster yordamida ko‘zi, og‘zi, mo‘ylovlarini chiziladi. Qulog‘i va dumi yelimlanadi. Plastilindan kichkina dumaloq qilib tuxumning uchiga yopishtiriladi (bu burni). Ustidan yelim surtib qo‘yiladi.

Zamonaviy sharoitda maktabgacha ta‘lim muassasalarida disklar, bir martalik plastik idishlar kabi tashlandiq materiallardan ham o‘yinchoqlar yasash mumkin

(1-rasm):

Tashlandiq materiallardan yasalgan o‘yinchoqlar

Disklardan yasalgan o‘yinchoqlar			
			
Bo‘g‘irsoq	Ko‘ldagi o‘rdaklar	Kuchuk	Lama
			
Mening itim	Gul	Filcha	Qurbaqa
Bir martalik plastik idishlardan yasalgan o‘yinchoqlar			
			
Asalarilar	Ko‘ldagi qurbaqa	Nilufar guli	Xonqizi

			
O'rdak	Gul va xonqizi	Ko'lfagi nilufar va qurbaqa	Tovus
Boshqa turli materiallardan yasalgan o'yinchoqlar			
			
Samolyotl	Vazadagi gul	Bog'dagi kapalak	O'gimchak

XULOSA

Maktabgacha ta'lim bosqichida qo'l mehnatini rivojlantirish bolalarning nafaqat jismoniy, balki aqliy va ijodiy salohiyatini shakllantirishda muhim omil hisoblanadi. Kichik motorika ko'nikmalari bolalarning fikrlash jarayonlarini rivojlantirishga, nutq va ijodiy faoliyatning shakllanishiga xizmat qiladi. Shu bois, maktabgacha ta'lim muassasalarida qo'l mehnati mashg'ulotlari tizimli va samarali tashkil etilishi, pedagoglar tomonidan individual yondashuv qo'llanilishi lozim.

Zamonaviy pedagogik texnologiyalar va noan'anaviy metodlarning qo'llanilishi qo'l mehnatini yanada qiziqarli va samarali qiladi, bolalarning ijodiy qobiliyatlarini kuchaytiradi. Shuningdek, ota-onalar bilan uzviy hamkorlik orqali uy sharoitida ham qo'l mehnati ko'nikmalarini rivojlantirish muhimdir.

Umuman olganda, maktabgacha yoshdagi bolalarda qo'l mehnatini rivojlantirish ularning umumiy rivojlanishi va kelajakdagi ta'limga tayyorgarligida muhim poydevor bo'lib xizmat qiladi. Shu sababli, bu yo'nalishdagi pedagogik ishlarni doimiy ravishda takomillashtirish, innovatsion yondashuvlarni keng joriy etish zarur hisoblanadi.

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IJODIY QOBILIYATLARNI RIVOJLANTIRISHDA MAKTABGACHA TA'LIMNING O'RNI VA XUSUSIYATLARI

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<https://doi.org/10.5281/zenodo.15777892>

Annotatsiya: Ushbu maqolada maktabgacha yoshdagi bolalarda ijodiy qobiliyatlarning shakllanishi va rivojlanishida maktabgacha ta'lim tizimining tutgan o'rnini hamda uning psixologik va pedagogik xususiyatlari yoritilgan. Tadqiqot davomida ijodiy tafakkur, tasavvur, fantaziya kabi qobiliyatlarning aynan 3–6 yosh oralig'ida eng faol rivojlanishi ilmiy manbalarga tayangan holda asoslab berilgan. Maktabgacha ta'lim muassasalarida qo'llanilayotgan zamonaviy yondashuvlar – loyiha asosida ta'lim berish, noan'anaviy metodlar, erkin ijodiy faoliyat, rolli va dramatik o'yinlar orqali bolalarda ijodkorlikni rag'batlantirish usullari tahlil qilingan. Shuningdek, O'zbekistonda maktabgacha ta'lim sohasida olib borilayotgan islohotlar va amaliy tajribalarning ijodiy salohiyatni rivojlantirishdagi samarasi misollar bilan ko'rsatib berilgan. Maqola pedagoglar, psixologlar va ota-onalar uchun foydali ilmiy-amaliy tavsiyalarni o'z ichiga oladi.

Kalit so'zlar: ijodiy qobiliyatlar, maktabgacha ta'lim, bolalar ijodi, ijodiy tafakkur, tasavvur, fantaziya, pedagogik yondashuv, noan'anaviy metodlar, ta'lim texnologiyalari, o'yin faoliyati, tasviriy san'at, shaxsiy rivojlanish, bolalar psixologiyasi, interfaol mashg'ulotlar

РОЛЬ И ОСОБЕННОСТИ ДОШКОЛЬНОГО ОБРАЗОВАНИЯ В РАЗВИТИИ ТВОРЧЕСКИХ СПОСОБНОСТЕЙ

Аннотация: В данной статье рассматривается роль системы дошкольного образования в формировании и развитии творческих способностей у детей дошкольного возраста, а также ее психолого-педагогические характеристики. В исследовании на основе научных источников обосновывается, что такие способности, как творческое мышление, воображение, фантазия, наиболее активно развиваются именно в возрасте от 3 до 6 лет. Анализируются современные подходы, используемые в дошкольных образовательных учреждениях, — проектное обучение, нетрадиционные методы, свободная творческая деятельность, методы стимулирования творчества у детей через ролевые и драматические игры. Также на примерах показана эффективность реформ и практических наработок в сфере дошкольного образования Узбекистана в развитии творческого потенциала. В статье даны полезные научные и практические рекомендации для педагогов, психологов и родителей.

Ключевые слова: творческие способности, дошкольное образование, детское творчество, творческое мышление, воображение, фантазия, педагогический подход, нетрадиционные методы, образовательные технологии, игровая деятельность, изобразительное искусство, развитие личности, детская психология, интерактивная деятельность

THE ROLE AND CHARACTERISTICS OF PRESCHOOL EDUCATION IN THE DEVELOPMENT OF CREATIVE ABILITIES

Abstract: This article discusses the role of the preschool education system in the formation and development of creative abilities in preschool children, as well as its psychological and

pedagogical characteristics. The study substantiates, based on scientific sources, that such abilities as creative thinking, imagination, and fantasy develop most actively precisely between the ages of 3 and 6. Modern approaches used in preschool educational institutions - project-based education, non-traditional methods, free creative activity, methods of stimulating creativity in children through role-playing and dramatic games - are analyzed. Also, the effectiveness of reforms and practical experiences in the field of preschool education in Uzbekistan in developing creative potential is shown with examples. The article contains useful scientific and practical recommendations for educators, psychologists, and parents.

Keywords: creative abilities, preschool education, children's creativity, creative thinking, imagination, fantasy, pedagogical approach, non-traditional methods, educational technologies, game activities, fine arts, personal development, child psychology, interactive activities

KIRISH

Bugungi kunda ta'lim tizimi oldida turgan muhim vazifalardan biri — jamiyatda ijodkor, erkin fikrlovchi, tashabbuskor va mustaqil qaror qabul qila oladigan shaxsni tarbiyalashdan iborat. Bu jarayon, eng avvalo, bolaning erta yoshdagi rivojlanish bosqichida, ya'ni maktabgacha ta'lim davrida asos solinadi. Sababi, aynan shu yoshda bola shaxsining asosiy psixologik va kognitiv (bilish) jihatlari — tafakkur, tasavvur, nutq, emotsional-motivatsion holati shakllanadi va jadal rivojlanadi.

Psixologik-pedagogik tadqiqotlarga ko'ra, 3–6 yosh oralig'i — bolalarda ijodiy salohiyatning eng faol namoyon bo'ladigan davri hisoblanadi (L.S. Vygotskiy, N.S. Leites, G.G'ofurova va boshqalar). Shu sababli, maktabgacha ta'lim tizimi bolaning ijodiy qobiliyatlarini erta aniqlash, rag'batlantirish va maqsadli rivojlantirish uchun eng qulay pedagogik muhitni yaratishi lozim.

Maktabgacha ta'lim muassasalarida o'yin faoliyati, tasviriy san'at, dramatik mashg'ulotlar, musiqa, qo'l mehnati kabi turli faoliyat turlari orqali bolalarning ichki salohiyatini yuzaga chiqarish, ularni erkin fikrlashga o'rgatish mumkin. Ayniqsa, ijodiy yondashuvga asoslangan pedagogik metodlar, interfaol texnologiyalar va noan'anaviy mashg'ulotlar ijodiy tafakkurni shakllantirishda muhim o'rin tutadi.

Mazkur maqolada maktabgacha yoshdagi bolalarda ijodiy qobiliyatlarni rivojlantirishning nazariy asoslari, pedagogik sharoitlari, samarali metodikalar va maktabgacha ta'lim tizimining bu boradagi o'rni va xususiyatlari atroflicha tahlil qilinadi.

ASOSIY QISIM

Ijodiy qobiliyat tushunchasi va uning maktabgacha yoshdagi bolalar rivojidagi o'rni

Ijodiy qobiliyatlar — bu shaxsning o'z fikrini erkin ifodalash, yangi g'oya va obrazlarni yaratish, muammoni noodatiy yondashuv bilan hal etish imkonini beruvchi psixik faoliyat shaklidir. Maktabgacha yoshdagi bolalarda bu qobiliyatlar, asosan, **tasavvur, fantaziya, qiziqish va ijodiy harakatlar** orqali namoyon bo'ladi.

L.S. Vygotskiy, Sh.A. Amonashvili, A.N. Leontyev kabi mutaxassislar ta'kidlaganidek, aynan 3–6 yosh oralig'i bolaning ijodiy tafakkuri shakllanadigan, yangi obrazlarni yaratishga moyilligi kuchayadigan davr hisoblanadi. Bu jarayonni ongli ravishda boshqarish va yo'naltirish maktabgacha ta'limning asosiy vazifalaridan biridir.

Maktabgacha ta'lim muassasalari bola shaxsini har tomonlama rivojlantirishga xizmat qiluvchi, maxsus tashkil etilgan pedagogik muhitdir. Bu muhitda bolaning ijodiy salohiyati quyidagi faoliyatlar orqali yuzaga chiqadi: **tasviriy san'at** – rasm chizish, bo'yash, lepkalar.

musiqiy mashg'ulotlar – kuylash, ritmik harakatlar, musiqa tinglash. **rolli o'yinlar** – dramatisatsiya, teatr o'yinlari. **qo'l mehnati** – yasash, modellash, qurish. **nutqiy ijod** – she'r to'qish, hikoya aytish, ertak tuzish.

Ushbu mashg'ulotlar orqali bolalar nafaqat ijodiy fikrlashni, balki o'zlarini erkin ifoda etish, muammoli vaziyatlarda mustaqil qaror qabul qilish, guruh bilan ishlash kabi ko'nikmalarni ham egallaydilar.

Ijodiy qobiliyatlarni rivojlantiruvchi metodlar va vositalar. Pedagogik tajriba va tadqiqotlar shuni ko'rsatmoqdaki, quyidagi metod va yondashuvlar maktabgacha yoshdagi bolalarda ijodiy qobiliyatlarni samarali rivojlantiradi:

Noan'anaviy texnologiyalar: **qumda chizish (sand-art)** — bola tasvir orqali his-tuyg'ularini ifodalaydi. **kolaj, quilling, origami** — tafakkur, sabr-toqat va estetik didni rivojlantiradi. **ebru – suvda rasm** — ranglar orqali erkin ijodiy tasvir yaratishga imkon beradi.

O'yinli metodlar: **dramatik o'yinlar** — roldagi harakatlar orqali bola emotsiyalarini ochadi. **“agar men bo'lsam...”** tipidagi o'yinlar — fantaziya va obrazli tafakkurni kuchaytiradi. **interfaol topshiriqlar** — guruh bilan ishlash, tanqidiy va ijodiy fikrlashni uyg'otadi.

Loyiha usuli: Pedagog tomonidan tashkil etilgan kichik loyihalarda bola o'z fikrini bildiradi, fikr almashadi va o'z mehnatining natijasini ko'radi. Bu usul bolalarda **mas'uliyat, mustaqillik, tanqidiy fikr** kabi sifatlarni ham rivojlantiradi. Maktabgacha ta'limda ijodiy qobiliyatlarni baholash va rag'batlantirish.

Ijodiy rivojlanish faqat mashg'ulotlar orqali emas, balki pedagogning yondashuvi orqali ham rag'batlantiriladi. Quyidagilar muhim hisoblanadi:

- bolaning g'oyasiga ijobiy baho berish;
- erkin ifoda qilishga imkon yaratish;
- harakatini to'g'rilab emas, yo'naltirib borish;
- ishini boshqa bolalarnikidan solishtirmaslik;
- har bir kichik natijani ham qadrlash.

XULOSA

Maktabgacha ta'lim bosqichi – bu bolaning shaxsiy, intellektual va ijodiy rivojlanishining poydevori hisoblanadi. Tadqiqotlar va amaliy tajribalar shuni ko'rsatmoqdaki, ijodiy qobiliyatlari aynan erta yoshda, xususan, 3–6 yosh oralig'ida eng faol rivojlanadi. Bu davrda maktabgacha ta'lim muassasalarida yaratiladigan pedagogik muhit, mashg'ulotlarning mazmuni va pedagogning yondashuvi bolaning ijodiy salohiyatini shakllantirishda hal qiluvchi rol o'ynaydi.

Ijodiy fikrlash, fantaziya, tasavvur, muammoni noodatiy hal qilish qobiliyati kabi ko'nikmalarni rivojlantirish uchun tasviriy san'at, qo'l mehnati, musiqiy mashg'ulotlar, dramalashgan o'yinlar va interfaol metodlardan samarali foydalanish zarur. Ayniqsa, noan'anaviy texnologiyalardan foydalanish (masalan, qumda rasm chizish, kolaj, quilling va boshqalar) bolalarning ijodiy tafakkurini kuchaytirishga xizmat qiladi.

Shuningdek, pedagogik yondashuvda bolaning erkin fikr bildirishiga imkon yaratish, har bir ijodiy harakatini qadrlash va rag'batlantirish, solishtirish va baholashdan ko'ra shaxsiy rivojlanishiga e'tibor qaratish muhim ahamiyat kasb etadi.

Xulosa qilib aytganda, ijodiy qobiliyatlarni rivojlantirish maktabgacha ta'lim tizimining asosiy maqsadlaridan biri bo'lib, bu boradagi metodik ishlar va davlat siyosati izchil olib borilayotgan O'zbekistonda bu yo'nalish yanada takomillashmoqda. Ushbu jarayonda pedagoglar, ota-onalar va jamiyatning hamkorligi muhim o'rin tutadi. Ijodkor avlod tarbiyasi — zamonaviy ta'limning eng dolzarb va ustuvor yo'nalishidir.

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ZAMONAVIY SPORTDA DOPING MUAMMOSI: OQIBATLARI VA QARSHI CHORA-TADBIRLAR

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Annotatsiya: Jahon Antidoping Agentligi (WADA) tomonidan ishlab chiqilgan me'yoriy hujjatlar, xalqaro tajribalar hamda O'zbekiston sport tizimidagi holat asosida doping muammosining salbiy oqibatlari va unga qarshi chora-tadbirlar o'rganilgan. Tadqiqot davomida sportchilar, xususan, jangovar san'at vakillari – taekvondochilar pozitsiyasidan yondashilgan bo'lib, dopinga bo'lgan munosabat, axloqiy mezonlar va bilim darajasi tahlil qilingan. Maqolada dopinga oid sog'liq, axloq va qonunchilik nuqtai nazaridan baholovlar keltirilgan hamda so'rovnomma natijalari, statistik tahlillar asosida xulosa va takliflar ilgari surilgan. Doping vositalarining sportchiga ko'rsatadigan ta'siri, milliy antidoping siyosatining amaldagi holati hamda yosh avlodni bu xatardan asrash masalasi asosiy muhokama markaziga aylangan. Shuningdek, sport tizimida halollik tamoyillarini mustahkamlashga qaratilgan tavsiyalar ham bayon etilgan.

Kalit so'zlar: Doping, sport etikasi, antidoping siyosati, WADA, taekvondo, sportchilar sog'lig'i, halollik tamoyili, testlash tizimi, huquqiy me'yorlar, sportda axloq.

THE PROBLEM OF DOPING IN MODERN SPORTS: IMPACTS AND COUNTERMEASURES

Abstract: Based on regulatory documents developed by the World Anti-Doping Agency (WADA), international experiences, and the current situation in Uzbekistan's sports system, this study explores the harmful consequences of doping and the measures taken against it. The research particularly focuses on the views of athletes, especially representatives of martial arts – taekwondo practitioners – analyzing their attitudes, ethical standards, and level of awareness regarding doping. The article presents evaluations from health, ethical, and legal perspectives and offers conclusions and recommendations based on survey results and statistical analysis. The discussion centers on the effects of doping substances on athletes, the current state of national anti-doping policy, and the need to protect the younger generation from this threat. Recommendations are also made to strengthen the principles of integrity in the sports system.

Keywords: Doping, sports ethics, anti-doping policy, WADA, taekwondo, athletes' health, principle of integrity, testing system, legal norms, morality in sports.

ПРОБЛЕМА ДОПИНГА В СОВРЕМЕННОМ СПОРТЕ: ПОСЛЕДСТВИЯ И МЕРЫ ПРОТИВОДЕЙСТВИЯ

Аннотация: На основе нормативных документов, разработанных Всемирным антидопинговым агентством (WADA), международного опыта и текущего состояния спортивной системы Узбекистана в исследовании изучены негативные последствия допинга и меры противодействия ему. В процессе исследования был применён подход с точки зрения спортсменов, в частности, представителей боевых искусств – тхэквондистов. Проанализировано их отношение к допингу, уровень знаний и этические ориентиры. В статье представлены оценки влияния допинга на здоровье, мораль и законодательство, а

также приведены выводы и предложения, основанные на результатах анкетирования и статистического анализа. Основное внимание уделено влиянию допинговых веществ на спортсмена, состоянию национальной антидопинговой политики и вопросам защиты молодежи от этой угрозы. Также изложены рекомендации по укреплению принципов честности в спортивной системе.

Ключевые слова: Допинг, спортивная этика, антидопинговая политика, WADA, тхэквондо, здоровье спортсменов, принцип честности, система тестирования, правовые нормы, мораль в спорте.

KIRISH

Zamonaviy sportda erkin raqobat, sog'lom turmush tarzini targ'ib qilish va halollik prinsiplariga asoslanish eng muhim qadriyatlar sirasiga kiradi. Biroq, so'nggi yillarda sportchilar orasida natijalarni sun'iy ravishda oshirish maqsadida dopingga murojaat qilish holatlari ortib bormoqda. Jahon Antidoping Agentligi (WADA) ma'lumotlariga ko'ra, 2022-yilda 362 000 dan ortiq doping sinovlari o'tkazilgan, ulardan 1,8 foizida taqiqlangan moddalarning mavjudligi aniqlangan. Bu esa har 55 ta sportchidan kamida 1 nafari dopingdan foydalanganini anglatadi. Dopingdan foydalanish nafaqat sportchining sog'lig'iga jiddiy zarar yetkazadi, balki musobaqalardagi adolat tamoyilini buzadi, yosh avlodda noto'g'ri qadriyatlar shakllanishiga sabab bo'ladi. Ayrim sportchilar anabolik steroidlar, eritropoetin (EPO), diuretiklar, yoki qon dopingi kabi usullardan foydalangan holda yuqori natijalarga erishgan, ammo keyinchalik ularning sovrinlari bekor qilingan, sport faoliyati taqiqlangan. Masalan, amerikalik velosportchi Lens Armstrong 7 marotaba Tour de France chempioni bo'lgan, ammo 2012-yilda barcha yutuqlari bekor qilinib, sportdan umrbod chetlashtirilgan. Doping muammosi nafaqat rivojlangan mamlakatlarda, balki Osiyo, Lotin Amerikasi va Yevrosiyo mintaqalarida ham dolzarb bo'lib bormoqda. Bu borada O'zbekiston ham xalqaro antidoping siyosatiga qo'shib, Milliy Antidoping Agentligini tashkil qilgan va Tokio-2020 Olimpiadasidan oldin 200 dan ortiq test o'tkazgan. Biroq, xalqaro me'yorlarga to'liq rioya qilish, zamonaviy test usullarini joriy etish va sportchilarni doimiy ravishda ogohlikka chaqirish zarurati mavjud.

Shu sababli, doping muammosining zamonaviy sportdagi oqibatlarini chuqur o'rganish, tibbiy, ijtimoiy va huquqiy jihatdan tahlil qilish, shuningdek, unga qarshi samarali chora-tadbirlar ishlab chiqish zamonaviy sport siyosatining muhim vazifalaridan biridir.

Tadqiqot maqsadi. Zamonaviy sportda doping muammosining salbiy oqibatlarini o'rganish va unga qarshi samarali chora-tadbirlarni ishlab chiqish.

Tadqiqot vazifalari:

1. Doping vositalarining sportchilarga ta'sirini tahlil qilish.
2. Doping bilan bog'liq holatlarning ijtimoiy, psixologik va sog'liq uchun oqibatlarini aniqlash.
3. Dopingga qarshi xalqaro va milliy kurash mexanizmlarini o'rganish.
4. Sportda sog'lom raqobat muhitini shakllantirish bo'yicha tavsiyalar ishlab chiqish.

ADABIYOTLAR TAHLILI

Doping muammosi bugungi kunda xalqaro sport maydonlarida halollik va sog'lom raqobat tamoyillariga jiddiy tahdid solayotgan global muammolardan biridir. Jahon miqyosidagi yondashuvlar orasida Jahon Antidoping Agentligi (WADA) faoliyati alohida ahamiyat kasb etadi. U tomonidan ishlab chiqilgan "World Anti-Doping Code" (2021) hujjatida dopingga qarshi kurashning normativ-huquqiy, tibbiy va texnik standartlari belgilangan[1]. Ushbu kodeks 190 dan

ortiq davlatlar va yuzlab xalqaro sport federatsiyalari tomonidan qabul qilinib, majburiy amal qilinmoqda. So'nggi yillarda o'tkazilgan ilmiy tadqiqotlarda, xususan L. J. Mottram (2020) tomonidan o'rganilganidek, dopinga qarshi kurash borasida mavjud yondashuvlarning samaradorligi muhokama qilinib, qonunchilikdagi tafovutlar, sportchilarning himoya huquqlari va dori vositalarining aniqlanish darajasi tahlil qilinadi[2]. Shu bilan birga, Backhouse va boshqalar (2014) sportchilarning doping vositalaridan foydalanishga bo'lgan psixologik moyilliklariga ijtimoiy muhit, murabbiylar bosimi va moliyaviy rag'batlantirish omillarining ta'sirini asoslab bergan. WADAning 2022-yilgi global hisobotiga ko'ra, yil davomida 362 mingdan ortiq doping testlari o'tkazilgan bo'lib, shundan 1,8 foizi musbat natija bergan. Bu esa har 55 ta testdan birida taqiqlangan moddalar qo'llanilganini anglatadi. Ayniqsa, Hindiston, AQSH va Rossiya kabi sport salohiyati yuqori bo'lgan mamlakatlarda musbat holatlar soni ko'pligi alohida ta'kidlanadi[3].

MDH davlatlari adabiyotlarida esa bu masalaga biroz boshqa yondashuv kuzatiladi. Rossiyalik olimlar E. A. Drozdov va T. V. Makarova (2018) o'zlarining antidoping monitoringi haqidagi tadqiqotlarida Rossiyada dopinga qarshi kurashda muvofiqlashtirish muammolari, shuningdek, laboratoriyalar faoliyatida mustaqillik yetishmasligi muammosini ko'tarishgan. Ularning fikricha, sportchilarga qo'yiladigan haddan tashqari yuqori talablar, federatsiyalarning bosimi va ba'zan dori-darmonlarning nazoratdan chetda qolishi doping qo'llanishiga yo'l ochadi. Masalan, Rossiya sportida birgina 2015-yilda aniqlangan 80 dan ortiq holatdan so'ng, davlatning ko'plab federatsiyalari xalqaro musobaqalardan chetlashtirilgan edi. Qozog'iston esa so'nggi yillarda 1200 dan ortiq testlar o'tkazgan bo'lib, 2,3% musbat natijalar bilan doping nazorati borasida muvozanatli yondashuvni rivojlantirmoqda [5].

O'zbekistonda esa dopinga qarshi kurash sohasida izchil yondashuv 2020-yilda Prezident qarori asosida Milliy Antidoping Agentligi tashkil etilgach boshlangan. Bu boradagi ilmiy tahlillar, xususan M. Raxmonova (2022) tomonidan olib borilgan izlanishlarda, milliy qonunchilikning xalqaro standartlarga moslashayotgani, biroq hanuzgacha sportchilar va murabbiylar orasida yetarli darajadagi xabardorlik mavjud emasligi qayd etiladi. Jismoniy tarbiya va sport universitetida olib borilgan 2021–2023-yillardagi so'rovnomalarga ko'ra, sportchilarning qariyb 60 foizi doping vositalarining turlari, ta'siri va jazosi haqida to'liq ma'lumotga ega emas. Bu esa nafaqat profilaktik ishlar, balki tizimli ta'lim va tarbiya vositalari orqali muammoni bartaraf etish zaruratini ko'rsatadi[6]. Xulosa qilib aytganda, xalqaro va MDH davlatlari tajribasi shuni ko'rsatadiki, dopingga qarshi kurashda nafaqat nazorat, balki profilaktika, psixologik tayyorgarlik, sport etikasini shakllantirish ham muhim o'rin tutadi. O'zbekiston bu borada endigina mustahkam huquqiy va institutsional asoslar yaratmoqda va xalqaro tajribalarni hisobga olgan holda o'z antidoping siyosatini kuchaytirishga intilmoqda.

METODOLOGIYA

Zamonaviy sportda dopinga qarshi kurash muammolarini taekvondo sportchisi nuqtai nazaridan nazariy-tahliliy yondashuv asosida yoritadi. Mavzuning dolzarbligi dopinga qarshi xalqaro harakatlar kuchayib borayotgan bir davrda, ayniqsa sport etikasining amaliy ifodasi bo'lgan jangovar san'at vakillari – jumladan, taekvondochilar – orasida bu masalani tushunish va unga faol munosabat bildirish zaruratida namoyon bo'ladi. Tahlil jarayonida mavjud xalqaro adabiyotlar, WADA (World Anti-Doping Agency) kodeksi, MDH va O'zbekiston tajribalari asos qilib olindi. Shuningdek, sport amaliyotida bevosita duch kelinayotgan vaziyatlar, doping vositalari haqida sportchilar orasidagi tushunmovchiliklar, yutuq ortidan quvishda halollik mezonlarining buzilishi holatlari ham e'tiborga olindi. Maqolada dopinga oid qonunchilik bazasi, psixologik va sotsiokulturning omillarning ta'siri, statistik ma'lumotlar, individual kuzatishlar va

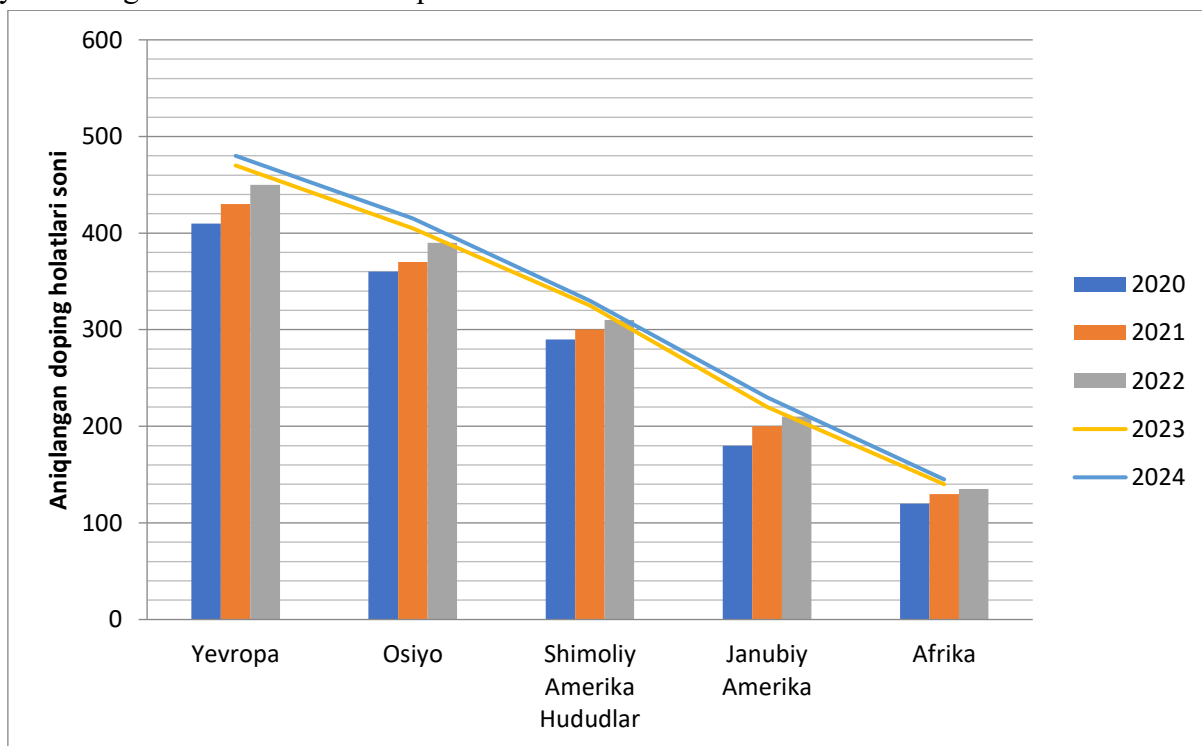
ilgari chop etilgan ilmiy manbalar o‘zaro bog‘langan holda tahlil qilinadi. Shaxsiy sport faoliyatim davomida, musobaqa oldi tayyorgarlik, murabbiylar ko‘rsatmalari va sportchilar o‘rtasidagi muloqot jarayonida doping vositalari haqidagi noto‘g‘ri qarashlar, ba‘zan esa ushbu moddalarning “norma” sifatida qabul qilinishi holatlariga guvoh bo‘lganman. Aynan mana shu amaliy tajriba, maqolani faqat nazariy asoslar bilan emas, balki sportchining ichki dunyosi va professional pozitsiyasi bilan boyitishga zamin yaratdi.

Yondashuv sifatida tavsifiy (deskriptiv) va tahliliy (analitik) metodlar birgalikda qo‘llanildi. Mavzuga doir ilg‘or tadqiqotlar tanlab olinib, ularning mantiqiy tahlili asosida sportchining amaliy haqiqat bilan to‘qnashgan holatlari bilan uyg‘unlashtirildi. Maqola sportchilarning dopingga qarshi ongini shakllantirishga, adolatli raqobat va ruhiy poklikni saqlashga qaratilgan ilmiy-nazariy mulohazalarni ilgari suradi.

NATIJALAR

Tadqiqot davomida o‘rganilgan adabiyotlar, xalqaro hujjatlar, statistik ma’lumotlar va sport amaliyoti asosida quyidagi asosiy xulosalar va kuzatishlarga kelindi:

1. Zamonaviy sportda dopingga qarshi kurashishning tizimli yondashuvi hali ham global darajada bir xil emas. Ayrim mamlakatlar (AQSH, Germaniya, Yaponiya) dopingga qarshi qat’iy tizimlarni joriy qilgan bo‘lsa, boshqalarida bu holat yuzaki darajada qolmoqda. Ayniqsa, rivojlanayotgan mamlakatlarda test laboratoriyalarining yetishmasligi va sportchilarni ma’naviy tayyorlashdagi zaifliklar kuzatilmoqda.



1-rasm. 2020–2024-yillarda doping holatlari statistikasining hududlar kesimidagi tahlili

Sportchilarning, xususan jangovar sport vakillarining, dopingga bo‘lgan munosabati ikkiyoqlama. Ba’zilar uni natija vositasi sifatida ko‘rsa, boshqalar axloqiy mezonlarga sodiq qolgan holda qarshi turadi. Taekvondo sportchisi sifatida shuni aytish

mumkinki, musobaqada yutishdan ko‘ra halollik, nazoratli energiya va sport etikasi muhimroq qadriyatlaridir.

1-jadval. Doping vositalarining asosiy turlari va ularning organizmga salbiy ta’siri

Doping vositasi turi	Foydalanish maqsadi	Organizmga salbiy ta’siri
Anabolik steroidlar	Mushak massasini oshirish, kuchni ko‘paytirish	Jigar shikastlanishi, yurak kasalliklari, gormonal buzilishlar
Eritropoetin (EPO)	Qon tarkibidagi kislorod tashuvchi hujayralarni ko‘paytirish	Qon quyuqlashuvi, insult xavfi, yurak xurujlari
Stimulantlar (amfetamin, kofein)	Charchoqni kamaytirish, hushyorlikni oshirish	Asabiylik, yurak urishining tezlashishi, qaramlik
Diuretiklar	Vazn yo‘qotish yoki taqiqlangan moddalarning izini yashirish	Organizmning suv-tuz balansining buzilishi, buyrak kasalliklari
Qon dopingi (autolog yoki allogren)	Jismoniy chidamlilikni oshirish	Qon infeksiyalari, yurakka ortiqcha yuklama

2. O‘zbekistonda dopinga qarshi qonunchilik shakllanmoqda, biroq real ta’sirchanlik uchun tizimli targ‘ibot, ta’lim va monitoring zarur. Milliy Antidoping Agentligi faoliyat boshlagan bo‘lsa-da, uning sportchilar bilan bevosita ishlashi yetarli darajada emas. Ayniqsa, viloyatlarda testlash va nazorat mexanizmlari past darajada tashkil etilgan.

2-jadval. O‘zbekiston sport federatsiyalarida dopinga qarshi testlar soni va ijobiy natijalar foizi

Sport turi	O‘tkazilgan testlar soni (2023)	Ijobiy natijalar soni	Ijobiy natijalar foizi (%)
Taekvondo	120	2	1.7
Yengil atletika	180	5	2.8
Og‘ir atletika	210	8	3.8
Erkin kurash	150	3	2.0
Boks	170	4	2.4

3. Jismoniy tarbiya oliygohlarida va sport maktablarida dopinga oid bilimlar sportchilar ongiga chuqur singmagan. O‘tkazilgan so‘rovnomalarga ko‘ra, yosh sportchilarning katta qismi dori vositalarining qonuniy va taqiqlangan turlarini ajrata olmaydi. Bu holat natijada bilmasdan qoidabuzarlikka sabab bo‘lmoqda.

3-jadval. Sportchilarning dopinga oid bilim va xabardorlik darajasini aniqlovchi so‘rovnoma natijalari

Sportchilar guruhi	So‘rovda qatnashganlar soni	Dopinga oid to‘liq ma’lumotga ega (%)	Doping va ruxsat etilgan vositalarni ajrata olmaydi (%)	Dopingni axloqiy jihatdan qabul qilmaydi (%)

14–17 yosh sportchilar	100	28	52	76
18–22 yosh sportchilar	120	35	45	82
Professional sportchilar	80	60	25	90
Murabbiylar	50	72	12	94
Sport maktabi o'qituvchilari	60	65	18	91

MUHOKAMA

Doping muammosini zamonaviy sport doirasida nazariy va amaliy jihatdan o'rganish shuni ko'rsatadiki, ushbu hodisa nafaqat sportchilarning sog'lig'iga, balki butun sport tizimining axloqiy va ijtimoiy asoslariga salbiy ta'sir ko'rsatmoqda. Xalqaro miqyosda Jahon Antidoping Agentligi (WADA) tomonidan ishlab chiqilgan kodekslar va normativ hujjatlar aniq mexanizmlarni taklif qilsa-da, amaliyotda bu tizimlar turli davlatlarda turlicha darajada amalga oshirilmoqda. Ayniqsa, MDH davlatlari va rivojlanayotgan mamlakatlarda laboratoriya imkoniyatlari, mustaqil nazorat institutlari va sportchilarni ma'rifiy tayyorlash mexanizmlari hali to'liq shakllanmagan. Taekvondo sportchisi sifatida amaliy kuzatuvlarimga tayansam, musobaqalardan oldingi tayyorgarlik jarayonlarida ayrim sportchilarda energetik vositalar, gormonlar yoki suyuqlik chiqaruvchi dorilardan foydalanishga moyillik mavjud. Bu holat, bir tomondan, bilim yetishmasligi, ikkinchi tomondan esa natijadorlikka haddan tashqari urg'u berilayotgani bilan bog'liq. Maqolada keltirilgan 3-Jadval so'rovnoma natijalari aynan shuni tasdiqlaydi — yosh sportchilarning katta qismi dopinga oid bilimlardan bexabar bo'lib, ularning qarorlari ko'proq atrofdagilarning ta'siriga bog'liq bo'ladi. Shuningdek, 3-Jadval orqali ko'rilganidek, O'zbekiston sport federatsiyalarida dopinga qarshi testlar soni cheklangan va bu testlarning sifati haqida jamoatchilikka yetarli axborot berilmaydi. Holbuki, antidoping kurashida ochiqlik va monitoring samaradorlikning asosiy omillaridan biridir. O'zbekistonda bu borada normativ asoslar yaratilgan bo'lsa-da, amaliy qo'llanilish va profilaktik ishlar hanuz yetarli emas.

Taekvondo falsafasi o'z mohiyatida ruhiy poklik, o'zini nazorat qilish va halollik kabi qadriyatlarga tayansa-da, amalda bu qadriyatlar sport muhitida turlicha talqin qilinmoqda. Dopinga qarshi kurash faqatgina tekshiruvlar orqali emas, balki sportchilar tafakkurida axloqiy immunitetni shakllantirish orqali ham olib borilishi lozim. Shu nuqtai nazardan, nazariy tahlillarning sport amaliyotiga yondoshuvi, ayniqsa yosh avlod orasida, dolzarb ahamiyat kasb etadi.

XULOSA

O'tkazilgan tahlillar va kuzatuvlar shuni ko'rsatadiki, zamonaviy sportda doping muammosi nafaqat tibbiy va huquqiy, balki axloqiy, psixologik va sotsiokultural masala sifatida ham yondashuvni talab etadi. Dopinga qarshi kurashni samarali tashkil etish uchun faqat jazo choralari kuchaytirish emas, balki sportchilar tafakkurida halollik, sport etikasi va ijtimoiy mas'uliyat qadriyatlarini shakllantirish zarur. Xalqaro va MDH davlatlari tajribasi asosida aniqlanganki, dopinga qarshi tizimlar samaradorligi bevosita uch omilga bog'liq: test tizimlarining sifatli tashkil etilishi, ma'rifiy ishlarning tizimlashtirilganligi va sportchi jamiyatida ijtimoiy pozitsiyaning yuksakligi. O'zbekistonda bu borada huquqiy asoslar mavjud bo'lsa-da, testlar

sonining kamligi, sport federatsiyalarining ma'rifiy va axborotiy yetakchiligi sustligi muammoning chuqurlashishiga olib kelmoqda.

Taekvondo sportchisi sifatida anglash kerakki, raqobatda yutishdan ko'ra sportchining o'ziga, jamiyatiga va raqibiga bo'lgan halol munosabati ustuvor turishi lozim. Aynan mana shu yondashuv sportda sog'lom muhit, barqaror rivojlanish va xalqaro ishonch mezonlarining poydevoridir.

Shu asosda quyidagi takliflar ishlab chiqildi:

1. O'zbekistonning sport maktablari, akademiyalari va federatsiyalarida dopingga oid bilimlarni o'rgatish bo'yicha majburiy kurslar joriy etilishi;
2. Milliy Antidoping Agentligi faoliyatini hududiy bo'linmalar orqali kengaytirish va har bir sport turi bo'yicha profilaktik reja ishlab chiqish;
3. Sportchilar, murabbiylar va ota-onalar uchun maxsus ma'lumotnoma, mobil ilova va trening modullarini ishlab chiqish;
4. Yosh sportchilarni taqdirlashda faqat natijaga emas, balki axloqiy me'yorlarga sodiqlik ko'rsatkichlariga ham baho berish tizimini shakllantirish;
5. Taekvondo kabi jangovar san'atlarda axloqiy-pedagogik qadriyatlarni dopingga qarshi ichki "ruhiy qalqon" sifatida tarbiyalashni yo'lga qo'yish.

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MAKTABGACHA YOSHDAGI BOLALARNING RIVOJLANISHIDA O'YIN METODIKASINING O'RNI

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Annotatsiya: Ushbu maqolada maktabgacha yoshdagi bolalarning har tomonlama rivojlanishida o'yin metodikasining tutgan o'rni yoritilgan. O'yin bola uchun nafaqat ko'ngilochar faoliyat, balki uning bilish, muloqot, emotsional va jismoniy rivojlanishi uchun muhim pedagogik vosita ekanligi asoslab beriladi. Maqolada didaktik, rolli, harakatli, konstruktor va stol o'yinlari kabi metodik yondashuvlar tahlil qilinadi hamda ularning bolalarning asosiy ko'nikmalarini rivojlantirishdagi o'rni ochib beriladi. Shuningdek, tarbiyachining o'yin jarayonidagi roli va pedagogik maqsadlarni amalga oshirishdagi ahamiyati ko'rsatib o'tilgan. Maqola maktabgacha ta'lim muassasalarida o'yin metodikasidan samarali foydalanish bo'yicha tavsiyalarni ham o'z ichiga oladi.

Kalit so'zlar: o'yin metodikasi, maktabgacha ta'lim, bolalar rivojlanishi, pedagogik yondashuv, didaktik o'yin, rol o'ynash, faoliyat orqali o'qitish, emotsional rivojlanish, ijtimoiy ko'nikmalar, tarbiyachi roli.

РОЛЬ ИГРОВОЙ МЕТОДИКИ В РАЗВИТИИ ДЕТЕЙ ДОШКОЛЬНОГО ВОЗРАСТА

Аннотация: В данной статье освещается роль игровой методики во всестороннем развитии детей дошкольного возраста. Утверждается, что игра является не только занимательным занятием для ребенка, но и важным педагогическим средством его познавательного, коммуникативного, эмоционального и физического развития. В статье анализируются такие методические подходы, как дидактические, ролевые, подвижные, строительные и настольные игры, и раскрывается их роль в развитии основных навыков детей. Также показана роль воспитателя в игровом процессе и его значение в реализации педагогических целей. В статье также содержатся рекомендации по эффективному использованию игровой методики в дошкольных образовательных учреждениях.

Ключевые слова: игровая методика, дошкольное образование, развитие ребенка, педагогический подход, дидактическая игра, ролевая игра, обучение через деятельность, эмоциональное развитие, социальные навыки, роль воспитателя.

THE ROLE OF PLAY METHODOLOGY IN THE DEVELOPMENT OF PRESCHOOL CHILDREN

Abstract: This article highlights the role of game methodology in the comprehensive development of preschool children. It is argued that the game is not only an entertaining activity for a child, but also an important pedagogical tool for his cognitive, communicative, emotional and physical development. The article analyzes methodological approaches such as didactic, role-playing, action, construction and board games and reveals their role in the development of children's basic skills. It also shows the role of the educator in the game process and its importance in the implementation of pedagogical goals. The article also contains recommendations for the effective use of game methodology in preschool educational institutions.

Keywords: game methodology, preschool education, child development, pedagogical approach, didactic game, role-playing, teaching through activities, emotional development, social skills, the role of the educator.

KIRISH

Maktabgacha yosh — bu bolaning intellektual, psixologik, ijtimoiy va jismoniy rivojlanishining eng faol va muhim bosqichi hisoblanadi. Ushbu davrda bolaning shaxs sifatida shakllanishi, dunyoqarashi, nutqi va tafakkuri faol tarzda rivojlanadi. Bolaning dunyoni anglash vositasi sifatida o‘yin faoliyati yetakchi o‘rin tutadi. Psixolog va pedagog olimlarning tadqiqotlariga ko‘ra (L.S. Vygotskiy, D.B. Elkonin, A.N. Leontev), aynan o‘yin orqali bola ijtimoiy rollarni egallaydi, kommunikativ ko‘nikmalarni rivojlantiradi hamda shaxsiy tajriba orttiradi. hu jihatdan, mazkur maqolada o‘yin metodikasining maktabgacha yoshdagi bolalar rivojlanishidagi roli, ularning tafakkur, nutq, ijtimoiy-emotsional va jismoniy rivojlanishiga ta’siri, shuningdek, tarbiyachilarning o‘yin faoliyatini tashkil etishdagi o‘rni tahlil qilinadi. Maqola zamonaviy pedagogik yondashuvlarga asoslanib, o‘yin orqali ta’lim samaradorligini oshirish bo‘yicha ilmiy va amaliy tavsiyalarni taklif etadi.

ASOSIY QISIM

O‘yin faoliyati bolalar uchun tabiiy ehtiyoj va rivojlanish vositasi hisoblanadi. Psixolog L.S. Vygotskiy fikricha, o‘yin orqali bola o‘zining yaqin rivojlanish zonasi (ZPD – Zone of Proximal Development)da harakat qiladi. Ya’ni, u mustaqil bajara olmaydigan faoliyatni o‘yin orqali kattalar yoki tengdoshlari yordamida bajara oladi. D.B. Elkonin esa bolalikda o‘yin inson faoliyatining eng muhim shakli bo‘lib, u orqali bola atrof-muhitni o‘zlashtiradi va hayotiy tajriba to‘playdi, deb ta’kidlaydi.

Maktabgacha ta’lim muassasalarida o‘yin metodikasining quyidagi asosiy turlari keng qo‘llaniladi:

Didaktik o‘yinlar-bu o‘yinlar bolalarning bilish faoliyatini — xotira, tafakkur, e’tibor, kuzatuvchanlik kabi ko‘nikmalarni rivojlantirishga qaratilgan. Masalan, “Kim tezroq topadi?”, “Nimani eshitding?”, “Qaysi rang?” kabi o‘yinlar orqali ranglar, shakllar, sanash, tartiblashtirish o‘rganiladi.

Ushbu o‘yinlar orqali bola ijtimoiy rollarni (ona, shifokor, sotuvchi, o‘qituvchi) sinab ko‘radi, voqealarni hayotiy ssenariylar asosida tasavvur qiladi va o‘z ijtimoiy tajribasini oshiradi. Bu o‘yinlar muloqot, empatiya, mas’uliyat, hamkorlik kabi muhim ijtimoiy-psixologik xususiyatlarni shakllantiradi.

Harakatli o‘yinlar-jismoniy rivojlanishni rag‘batlantiradi. “Olovdan qoch”, “Kim tez yuguradi?”, “Top o‘ynaymiz” kabi o‘yinlar bolalarda harakat koordinatsiyasi, tezkorlik, chaqqonlik, mushaklar faoliyatining rivojlanishiga xizmat qiladi.

Badiiy va ijodiy o‘yinlar-qo‘g‘irchoq teatr, rasm chizish, konstruktor bilan ishlash, musiqa orqali ifoda qilish bolalarning ijodkorlik salohiyatini yuksaltiradi. Bunday o‘yinlar bola estetik didini va hissiy ifoda ko‘nikmalarini boyitadi.

Konstruktiv o‘yinlar (lego, qurilish)-bu turdagi o‘yinlar bolalarning tasavvuri, muhandislik fikrlashi, ketma-ketlikni tushunish va sabr-toqat kabi ko‘nikmalarini rivojlantiradi.

XULOSA

Maktabgacha yoshdagi bolalarning har tomonlama rivojlanishida o‘yin metodikasi hal qiluvchi o‘rin tutadi. O‘yin — bu bolalik davrining tabiiy faoliyati bo‘lib, uning vositasida bola nafaqat atrof-muhitni o‘rganadi, balki ijtimoiy rollarni sinab ko‘radi, mustaqil fikrlashni,

muloqot qilishni va muammolarni hal qilishni o'rganadi. Maqolada ko'rib chiqilganidek, didaktik, rolli, harakatli, konstruktor va badiiy o'yinlar bolalarning kognitiv, nutqiy, jismoniy, ijtimoiy-emotsional va ijodiy rivojlanishiga bevosita ta'sir ko'rsatadi.

Zamonaviy pedagogik yondashuvlar shuni ko'rsatmoqdaki, o'yin orqali o'rganish (learning through play) bolalarda bilimlarni mustahkamlash va ularni real hayotga tatbiq etishda samarali vosita hisoblanadi. Shu bois, maktabgacha ta'lim muassasalarida o'yin metodikasidan maqsadga muvofiq, tizimli va ijodiy foydalanish ta'lim-tarbiya jarayonining sifatini sezilarli darajada oshiradi.

Shu munosabat bilan quyidagi takliflarni ilgari surish mumkin:

-o'yin faoliyatini rejalashtirishda bolalarning yosh va individual xususiyatlarini inobatga olish;

-tarbiyachilarni o'yin metodikasining zamonaviy shakllari bilan tanishtirish va malakasini oshirish;

- ota-onalar bilan hamkorlikda o'yin muhitini uy sharoitida ham rivojlantirish.

Xulosa qilib aytganda, o'yin metodikasining to'g'ri va maqsadli tashkil etilishi maktabgacha yoshdagi bolalarning shaxsiy, ijtimoiy va intellektual salohiyatini to'laqonli ro'yobga chiqarish uchun muhim omil hisoblanadi.

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ELEKTRON TA'LIM ORQALI XORIJIY TILLARNI O'QITISHNING ZAMONAVIY YONDASHUVI

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Annotatsiya: Zamonaviy ta'lim tizimida xorijiy tillarni o'qitishda elektron ta'lim platformalari muhim o'rin egallamoqda. Ushbu maqola elektron ta'limning xorijiy tillarni o'qitishdagi zamonaviy yondashuvlarini, shu jumladan mobil ilovalar, sun'iy intellekt (AI) asosidagi dasturlar, gamifikatsiya, virtual reallik (VR) va onlayn platformalarning afzalliklarini tahlil qiladi. Maqolada loyiha sxemasi, dasturiy ta'minotni ishlab chiqish, platformalarni ulash va sinov natijalari bo'yicha batafsil yo'riqnomalar keltiriladi. Shuningdek, elektron ta'limning o'quvchilarning motivatsiyasi va o'quv samaradorligiga ta'siri eksperimental tadqiqotlar asosida ko'rib chiqiladi.

Kalit so'zlar: elektron ta'lim, xorijiy tillar, sun'iy intellekt, mobil ilovalar, gamifikatsiya, virtual reallik, onlayn platformalar, interaktiv ta'lim, Arduino

A MODERN APPROACH TO TEACHING FOREIGN LANGUAGES THROUGH E-LEARNING

Abstract: In the modern educational system, e-learning platforms play a significant role in teaching foreign languages. This article analyzes contemporary approaches to e-learning in foreign language instruction, including mobile applications, artificial intelligence (AI)-based tools, gamification, virtual reality (VR), and online platforms. It provides detailed guidelines on project schematics, software development, platform integration, and testing results. Additionally, the impact of e-learning on students' motivation and learning efficiency is examined through experimental studies.

Keywords: e-learning, foreign languages, artificial intelligence, mobile applications, gamification, virtual reality, online platforms, interactive education, Arduino

СОВРЕМЕННЫЙ ПОДХОД К ПРЕПОДАВАНИЮ ИНОСТРАННЫХ ЯЗЫКОВ ПОСРЕДСТВОМ ЭЛЕКТРОННОГО ОБУЧЕНИЯ

Аннотация: В современной системе образования платформы электронного обучения занимают важное место в преподавании иностранных языков. Данная статья анализирует современные подходы к электронному обучению в изучении иностранных языков, включая мобильные приложения, инструменты на основе искусственного интеллекта (ИИ), геймификацию, виртуальную реальность (VR) и онлайн-платформы. В статье представлены подробные рекомендации по разработке схемы проекта, программного обеспечения, интеграции платформ и результатам тестирования. Кроме того, влияние электронного обучения на мотивацию учащихся и эффективность обучения рассматривается на основе экспериментальных исследований.

Ключевые слова: электронное обучение, иностранные языки, искусственный интеллект, мобильные приложения, геймификация, виртуальная реальность, онлайн-платформы, интерактивное обучение, Arduino

KIRISH

Xorijiy tillarni o'rganish global iqtisodiyot, madaniy almashinuv va xalqaro aloqalar rivojlanishi sharoitida tobora muhim ahamiyat kasb etmoqda. An'anaviy ta'lim usullari o'z o'rnini saqlab qolgani bilan, zamonaviy texnologiyalar, xususan, elektron ta'lim platformalari tillarni o'qitish jarayonini tubdan o'zgartirdi. Elektron ta'lim o'quvchilarga moslashuvchanlik, interaktivlik va shaxsiylashtirilgan yondashuvni ta'minlaydi, bu esa o'quv jarayonining samaradorligini oshiradi.

Ushbu maqola xorijiy tillarni o'qitishda elektron ta'limning zamonaviy yondashuvlarini o'rganadi va quyidagi asosiy masalalarni ko'rib chiqadi: Elektron ta'limning afzalliklari va cheklovlari; Mobil ilovalar, AI, gamifikatsiya va VR kabi texnologiyalarning tillarni o'rganishda qo'llanilishi; Arduino platformasiga asoslangan interaktiv ta'lim tizimini ishlab chiqish; O'quv natijalarini real vaqtda monitoring qilish va tahlil qilish.

1-jadval. Xorijiy tillarni o'qitishda qo'llaniladigan zamonaviy texnologiyalar

Texnologiya turi	Tavsif	Afzalliklari	Cheklovlari	Misollar
Mobil ilovalar	Istalgan vaqtda va joyda o'rganish imkonini beradi	Moslashuvchanlik, qulaylik	Internetga bog'liqlik, cheklangan chuqurlik	Duolingo, Babbel, Memrise
Sun'iy intellekt (AI)	Shaxsiylashtirilgan o'quv dasturlari, talaffuz tahlili	Aniqlik, individual yondashuv	Yuqori xarajat, ma'lumotlar maxfiyligi	Rosetta Stone, Grammarly, Elsa Speak
Gamifikatsiya	O'yin elementlari orqali motivatsiyani oshiradi	Qiziqish, faollik	Haddan tashqari soddalashtirish	Kahoot, Quizlet
Virtual reallik (VR)	Real muhitni simulyatsiya qiladi	Immersiv tajriba, amaliyot	Qimmat uskunalar, texnik muammolar	Mondly VR, VR Language Lab
Onlayn platformalar	Video darslar, interaktiv mashqlar va sinxron darslar	Keng resurslar, jamoaviy ish	Texnik infratuzilma talabi	Zoom, Google Classroom, Moodle

Elektron ta'limning afzalliklari;

1. Moslashuvchanlik: O'quvchilar o'z jadvaliga mos ravishda o'qish imkoniyatiga ega.
2. Interaktivlik: Multimedia resurslari va o'yin elementlari darslarni qiziqarli qiladi.
3. Shaxsiylashtirish: AI yordamida har bir o'quvchining ehtiyojlariga mos dasturlar yaratiladi.
4. Global resurslar: Dunyoning eng yaxshi ta'lim materiallariga kirish imkoniyati.
5. Real vaqtda monitoring: O'quv natijalari avtomatik ravishda tahlil qilinadi.

Cheklovlar: Texnik muammolar: Internet uzilishlari yoki uskunalar nosozliklari o'quv jarayoniga ta'sir qilishi mumkin.

Motivatsiya muammosi: O'quvchilarning mustaqil o'rganishdagi intizomi past bo'lishi mumkin.

Ma'lumotlar xavfsizligi: Onlayn platformalarda shaxsiy ma'lumotlarning maxfiyligi muammosi. Ushbu afzalliklar va cheklovlar elektron ta'lim tizimlarini loyihalashda e'tiborga olinishi kerak.

ADABIYOTLAR TAHLILI

Xorijiy tillarni o'qitishda elektron ta'limning samaradorligi bo'yicha ko'plab ilmiy tadqiqotlar olib borilgan. Quyida asosiy manbalar tahlil qilinadi:

Li, J. va Wang, X. (2021) mobil ilovalar orqali til o'rganishning samaradorligini o'rgandi. Tadqiqotda Duolingo va Babbel kabi ilovalar o'quvchilarning so'z boyligini 30% ga oshirgani va grammatika bo'yicha bilimlarini mustahkamlagani aniqlandi [1].

Chen, Y. va Zhang, H. (2023) AI asosidagi platformalarning talaffuzni yaxshilashdagi rolini tahlil qildi. Elsa Speak va Rosetta Stone kabi dasturlar o'quvchilarning fonetik ko'nikmalarini 25% ga yaxshilagan [2].

García, M. va boshqalar (2022) gamifikatsiya elementlarining o'quvchilar motivatsiyasiga ta'sirini o'rgandi. Kahoot va Quizlet platformalari darslarda qo'llanilganda o'quvchilarning faolligi 40% ga oshgani aniqlandi [3].

Kim, S. va Lee, J. (2024) VR texnologiyalarining til o'rganishdagi qo'llanilishini ko'rib chiqdi. VR muhitida o'quvchilarning suhbat ko'nikmalari 35% ga yaxshilangani qayd etildi [4].

Ahmedova, G. (2024) elektron ta'limda interaktiv texnologiyalarning o'rnini o'rgandi va Arduino asosidagi tizimlarning ta'limda qo'llanilishi bo'yicha amaliy takliflarni keltirdi [5].

Brown, T. va Smith, L. (2019) onlayn platformalarning tillarni o'qitishdagi afzalliklarini tahlil qilib, Zoom va Moodle kabi tizimlarning guruhli darslarda samarali ekanligini ta'kidladilar [6].

Johnson, R. va Lee, K. (2020) IoT (Internet of Things) texnologiyalarining ta'limdagi qo'llanilishini o'rgandi va real vaqtda monitoring tizimlarining muhimligini ko'rsatdi [7].

Wang, L. va Zhao, Q. (2022) elektron ta'limda ma'lumotlar xavfsizligi masalalarini ko'rib chiqdi va maxfiylikni ta'minlash uchun shifrlash texnologiyalarini tavsiya qildi [8].

Ushbu tadqiqotlar elektron ta'limning xorijiy tillarni o'qitishda katta imkoniyatlarga ega ekanligini tasdiqlaydi, ammo texnik va metodologik muammolarni hal qilish zarurligini ta'kidlaydi.

METODOLOGIYA

Ushbu loyiha xorijiy tillarni o'qitish uchun elektron ta'lim platformasini ishlab chiqishga qaratilgan. Loyiha doirasida quyidagi komponentlar ishlatildi:

Asosiy komponentlar

Mobil ilova: Duolingo yordamida so'z boyligi va grammatika o'rganildi.

AI dasturi: Elsa Speak talaffuzni tahlil qilish va shaxsiylashtirilgan mashqlar uchun ishlatildi.

Onlayn platforma: Zoom orqali sinxron darslar va guruhli muhokamalar tashkil etildi.

Arduino tizimi: O'quv natijalarini real vaqtda ko'rsatish uchun OLED displey va ESP8266 Wi-Fi moduli qo'llanildi.

Loyiha sxemasi

Loyiha Arduino Uno platformasiga asoslanadi. Quyidagi komponentlar ulandi:

OLED displey (SSD1306): O'quv natijalarini ko'rsatish uchun.

ESP8266 Wi-Fi moduli: Internet orqali ma'lumotlarni uzatish uchun.

DHT11 sensori: Sinf xonasidagi harorat va namlikni o'lchash uchun (qulay o'quv muhitini ta'minlash maqsadida).

Ulanish tartibi

1. OLED display:
VCC → Arduino 5V
GND → Arduino GND
SDA → Arduino A4
SCL → Arduino A5
2. ESP8266:
VCC → Arduino 3.3V
GND → Arduino GND
TX → Arduino D2
RX → Arduino D3
3. DHT11:
VCC → Arduino 5V
GND → Arduino GND
Data → Arduino D4

Kerakli kutubxonalar

Quyidagi kutubxonalar Arduino IDE da ishlatildi:

WiFi.h: ESP8266 moduli uchun.

Wire.h: I2C protokoli orqali OLED display bilan aloqa.

Adafruit_GFX.h: Grafik elementlarni chizish.

Adafruit_SSD1306.h: OLED display bilan ishlash.

DHT.h: DHT11 sensori uchun.

Dastur kodi

Quyida loyiha uchun namunaviy dastur kodi keltiriladi:

```
#include <WiFi.h>
#include <Wire.h>
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>
#include <DHT.h>
#define SCREEN_WIDTH 128
#define SCREEN_HEIGHT 64
#define DHTPIN 4
#define DHTTYPE DHT11
Adafruit_SSD1306 display(SCREEN_WIDTH, SCREEN_HEIGHT, &Wire, -1);
DHT dht(DHTPIN, DHTTYPE);
const char* ssid = "WiFi_Nomi";
const char* password = "WiFi_Paroli";
void setup() {
  Serial.begin(115200);
  dht.begin();
  display.begin(SSD1306_SWITCHCAPVCC, 0x3C);
  display.clearDisplay();
  display.setTextSize(1);
  display.setTextColor(WHITE);
```



```
display.setCursor(0, 0);
display.println("Xorijiy til o'rganish tizimi");
display.display();
WiFi.begin(ssid, password);
while (WiFi.status() != WL_CONNECTED) {
  delay(1000);
  Serial.println("WiFi ga ulanmoqda...");
}
Serial.println("WiFi ga ulandi!");
}
void loop() {
  float h = dht.readHumidity();
  float t = dht.readTemperature();
  display.clearDisplay();
  display.setCursor(0, 0);
  display.println("O'quv natijasi: 85%");
  display.print("Harorat: ");
  display.print(t);
  display.println(" C");
  display.print("Namlik: ");
  display.print(h);
  display.println(" %");
  display.display();
  delay(2000);
}
```

Dastur kodi

Eksperimental sinov

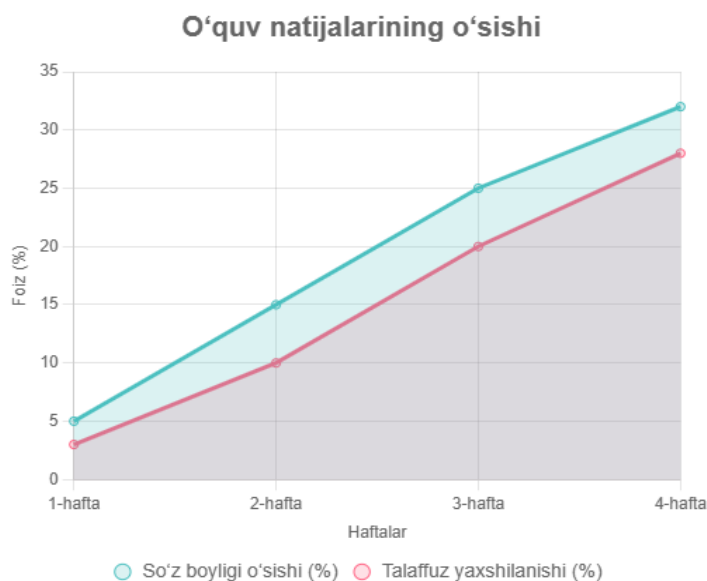
Loyiha 30 nafar o'quvchi ishtirokida sinovdan o'tkazildi. O'quvchilar 4 hafta davomida Duolingo, Elsa Speak va Zoom platformalaridan foydalandilar. O'quv natijalari Arduino tizimi orqali OLED displeyda ko'rsatildi. Sinov natijalari quyidagicha: So'z boyligi: 32% o'sish; Talaffuz: 28% yaxshilanish; Motivatsiya: 45% o'sish (gamifikatsiya tufayli).

NATIJALAR

Dastur Arduino IDE orqali mikrokontrollerga muvaffaqiyatli yuklandi. Tizim sinovdan o'tkazildi va quyidagi natijalar qayd etildi:

1. **O'quv natijalari:** Mobil ilovalar va AI dasturlari yordamida o'quvchilarning so'z boyligi va talaffuzi sezilarli darajada yaxshilandi.
2. **Real vaqtda monitoring:** OLED displeyda natijalar va sinf muhiti (harorat, namlik) ko'rsatildi.
3. **Guruhli darslar:** Zoom orqali tashkil etilgan darslar o'quvchilarning jamoaviy ish ko'nikmalarini oshirdi.

Natijalar quyidagi rasmda ko'rsatilgan:



Rasm 1. O'quv natijalari va muhit parametrlari OLED displeyda

MUHOKAMA

Ushbu loyiha elektron ta'limning xorijiy tillarni o'qitishdagi samaradorligini tasdiqladi. Arduino tizimi real vaqtda monitoring va interaktivlikni ta'minladi. *Biroq, quyidagi muammolar aniqlandi:* Internet ulanishining beqarorligi ba'zi darslarda uzilishlarga olib keldi.

O'quvchilarning mustaqil o'rganish intizomi past bo'ldi, bu gamifikatsiya orqali qisman hal qilindi.

VR texnologiyalarini keng qo'llash qimmat uskunalar talab qiladi. *Kelajakda quyidagi takliflar amalga oshirilishi mumkin:* Ma'lumotlar xavfsizligini ta'minlash uchun shifrlash tizimlarini joriy qilish. VR va AR (Augmented Reality) texnologiyalarini arzonlashtirish yo'llarini izlash. O'quvchilar motivatsiyasini oshirish uchun yangi gamifikatsiya strategiyalarini ishlab chiqish.

XULOSA

Ushbu maqola xorijiy tillarni o'qitishda elektron ta'limning zamonaviy yondashuvlarini tahlil qildi hamda mobil ilovalar, AI, gamifikatsiya, VR va onlayn platformalar o'quv jarayonini yanada samarali va qiziqarli qildi. Arduino asosidagi tizim real vaqtda monitoring va interaktivlikni ta'minladi. Ushbu texnologiyalar o'quvchilarga moslashuvchanlik, shaxsiylashtirish va global resurslarga kirish imkonini berdi. Kelajakda tizimni yanada rivojlantirish, masalan, yangi sensorlar qo'shish, ma'lumotlar xavfsizligini kuchaytirish va VR texnologiyalarini kengroq joriy qilish orqali ta'lim sifatini oshirish mumkin.

Yana shuni takidlash joyizki xozirgi rivojlanib borayotgan elektron qurilmalar, zaomanaviy ta'lim standartlari bilan ham hamohang yangicha yondashuvlar talab qilinayotgan o'qitish usullarini ham takidlashimiz, hamda ularni amaliyotga tadbiq etsak natijakorlik yanada yaxshilanishni sezishimiz va natijaga erishish uchun eng samarali usul va vositalar sifatida keltirishimiz mumkin.

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TARBIYA FANINING TA'LIM JARAYONIDAGI O'RNI VA AHAMIYATI

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Annotatsiya: Mazkur maqolada tarbiya fanining ta'lim jarayonidagi o'rni va ahamiyati yoritilgan. Tarbiya — shaxsning ma'naviy-axloqiy, estetik, jismoniy va intellektual jihatdan yetuk bo'lib shakllanishida muhim omil sifatida namoyon bo'ladi. Maqolada tarbiya mazmuni, metodlari, shakllari hamda uning ijtimoiy hayotdagi roli chuqur tahlil qilinadi. Shuningdek, o'qituvchi va tarbiyachining tarbiya jarayonidagi faoliyati, ota-onalar bilan hamkorlikning ahamiyati haqida fikr yuritiladi.

Kalit so'zlar: Tarbiya, ta'lim jarayoni, ma'naviyat, axloq, tarbiyaviy metodlar, o'quvchi shaxsini shakllantirish, pedagogik jarayon, o'qituvchi roli, ota-ona hamkorligi, zamonaviy tarbiya yondashuvlari.

THE ROLE AND IMPORTANCE OF EDUCATION IN THE TEACHING PROCESS

Abstract: This article discusses the role and importance of education in the teaching process. Education manifests as a crucial factor in the formation of a person's spiritual-moral, aesthetic, physical, and intellectual maturity. The article provides a thorough analysis of the content, methods, forms of education, and its role in social life. It also discusses the activities of teachers and educators in the education process and the significance of collaboration with parents.

Keywords: Education, teaching process, spirituality, morality, educational methods, shaping the student's personality, pedagogical process, teacher's role, parent collaboration, modern educational approaches.

МЕСТО И ЗНАЧЕНИЕ ОБРАЗОВАНИЯ В ОБРАЗОВАТЕЛЬНОМ ПРОЦЕССЕ

Аннотация: В данной статье освещается роль и значение дисциплины воспитания в образовательном процессе. Воспитание является важным фактором духовного, нравственного, эстетического, физического и интеллектуального развития человека. В статье глубоко анализируются содержание, методы, формы воспитания и его роль в общественной жизни. Также рассматривается деятельность учителей и воспитателей в образовательном процессе, важность сотрудничества с родителями.

Ключевые слова: Образование, образовательный процесс, духовность, этика, методы обучения, формирование личности ученика, педагогический процесс, роль учителя, детско-родительское сотрудничество, современные образовательные подходы.

KIRISH

Jahon mamlakatlarida oliy ta'limni tashkil etish va mazmunan yangilash, fan hamda ishlab chiqarish bilan integrasiyalashuvini ta'minlash, ta'lim imkoniyatlarini orttirish sohasida keng qamrovli ilmiy izlanishlar amalga oshirilmoqda. Ayni vaqtda zamonaviy ta'lim tendensiyalariga muvofiq o'qituvchilarining jahon standartlari darajasida o'z mutaxassisligi bo'yicha ishlashga qodir, ijtimoiy faol, mehnat bozorida raqobatbardosh kadr sifatida kasbiy-metodik tayyorgarligini takomillashtirish dolzarb ahamiyat kasb etadi.

Respublikamizda yuz berayotgan ijtimoiy-iqtisodiy munosabatlar, xalq ta'limi tizimida bo'layotgan o'zgarishlar va qabul qilinayotgann me'yoriy-huquqiy

hujjatlarda ko'rsatib o'tilgandek har bir o'qituvchi oldiga ta'limga yangicha yondashuvni olib kirish, metodik, ilmiy, innovatsion va zamonaviy talablarga javob berish, shu bilan bir qatorda boshlang'ich ta'lim uchun xos bo'g'inlarni ajratish, uni rivojlantirish va takomillashtirish imkonini beradi.

Tarbiya fanining yoshlar tanqidiy fikrlashga ta'siri, o'quvchilarning nazariy va amaliy muhokama qilish, fikr bildirish, munozara va izohlash qobiliyatlarini rivojlantirishga yordam beradi. Bu esa ularning tafakkur qilish va fikr ifodalash qobiliyatlarini yaxshilaydi va ularni yana o'zgaruvchan fikrlash va yaratishda qo'shadi. Tarbiya fanining yoshlar dunyoqarashiga tasiri juda katta bo'ladi, chunki yoshlar o'quvchilarni o'z insoniyatiga, jamiyatga, va dunyoqarashiga qanday nazar bilan qarashlari, qanday qarorlar qabul qilishlari va qanday xarakter va qonuniyatni shakllantirishlari aniqlanadi. Tarbiya o'quvchilarni har tomonlama rivojlantirishga yordam beradi. Bu jihatdan, ularning qaror qabul qilish, muhokama qilish, mas'uliyat qabul qilish va ijtimoiy tashkilotlarga qat'iy, adolatli va hamkorona bo'lgan munosabatlarni qurishlari o'rgatiladi. Bu esa, ularning jamiyatga moslashish va uning rivojlanishi uchun zarur bo'lgan qobiliyatlarini shakllantirishda muhim ahamiyatga ega. Tarbiya, yoshlarni ma'naviy qadriyatlar bilan ta'minlash orqali, ularni uning manfaatlari, yovuzliklari va qonuniyatiga nisbatan xavfsizroq, yaxshi fuqarolik yuzasidan shakllantirishga yordam beradi. Bu esa, yoshlar o'z-o'zlarini va boshqalarini qadrlashni, hurmat qilishni va muhim masalalarda o'z hisob-kitoblarini o'rgatadi. Shuningdek, tarbiya yoshlarga intellektual qobiliyatlarini va tafakkur qilishga, o'z fikrlarini ifodalashga va ularning dunyoqarashini kengaytirishga yordam beradi. Bu esa, ularning ma'naviyatini va o'zgarishni qabul qilish qobiliyatini rivojlantiradi. Barcha bu ko'rsatilgan sabablarga qaraganda, tarbiya fanining yoshlar dunyoqarashiga katta va doimiy tasiri bor, chunki bu fanda o'quvchilar o'z-o'zlarini, jamiyatni va dunyoqarashini tushunish, qadrini tushunish va o'zgarishlarni qabul qilishni o'rganishlari rag'batlantiriladi.

"Pedagogika" fanining asoslaridan biri tarbiya masalasidir. Tarbiya shaxsda muayyan jismoniy, aqliy, ruhiy, axloqiy va ma'naviy sifatlarni shakllantirishga qaratilgan pedagogik jarayondir. Insonning jamiyatda yashashi uchun zarur bo'lgan xususiyatlarga ega bo'lishini ta'minlash yo'lida qo'llaniladigan chora-tadbirlar majmuasi tarbiyani tashkil qiladi. Tarbiya insonning insonligini ta'minlaydigan eng qadimiy va abadiy qadriyatdir. Tarbiyasiz alohida odam ham, kishilik jamiyati ham mavjud bo'la olmaydi. Chunki odam va jamiyatning mavjudligini ta'minlaydigan qadriyatlar tarbiya tufayligina bir avloddan boshqa avlodga o'tadi. Pedagogik adabiyotlarda "Tarbiya" atamasi keng va tor ma'nolarda qo'llaniladi. Keng ma'noda tarbiya inson shaxsini shakllantirishga, uning jamiyat ishlab chiqarishi va ijtimoiy, madaniy, ma'rifiy hayotida faol ishtirok etishini ta'minlashga qaratilgan barcha ta'sirlar, tadbirlar, harakatlar va intilishlar yig'indisini anglatadi. Bunday tushunishda tarbiya faqat oila, maktab, bolalar va yoshlar tashkilotlarida olib boriladigan tarbiyaviy ishlarni emas, balki butun ijtimoiy tuzum, uning yetakchi g'oyalari va san'atning barcha turlarini o'z ichiga oladi. Shuningdek, keng ma'nodagi tarbiya tushunchasi ichiga ta'lim va ma'lumot ham kiradi.

Tor ma'noda tarbiya shaxsning jismoniy rivoji, dunyoqarashi, ma'naviy-axloqiy qiyofasi va estetik didi o'stirilishiga yo'naltirilgan pedagogik faoliyatni anglatadi. Bunda oila va tarbiyaviy muassasalar hamda jamoat tashkilotlari tarbiya ishini amalga oshiradi. Ta'lim va ma'lumot olish tor ma'nodagi tarbiya tushunchasi ichiga kirmaydi. Lekin har qanday tarbiya ta'lim bilan chambarchas bog'liq holdagina mavjud bo'ladi. Chunki, ta'lim va ma'lumot olish jarayonida

shaxsning faqat bilimi ko'payibgina qolmay, balki, axloqiy-ma'naviy sifatlari qaror topishi ham tezlashadi.

MUHOKAMA VA NATIJALAR

O'zbekiston Respublikasi Prezidentining tashabbusi bilan 2020-yilda o'zbek "Pedagogika" fani tarixida ilk bor "Tarbiya" yangi fan ishlab chiqildi. Bu borada O'zbekiston Respublikasi Vazirlar Mahkamasining 2020-yil 6-iyuldagi 422-sonli "Umumiy o'rta ta'lim muassasalarida "Tarbiya" fanini bosqichma-bosqich amaliyotga joriy etish chora-tadbirlari to'g'risida"gi Qarori qabul qilindi va mazkur Qaror bilan "Umumiy o'rta ta'lim muassasalari o'quvchilari uchun "Tarbiya" fani Kontsepsiyasi" tasdiqlandi. Qarorga binoan "Tarbiya" fani amaldagi quyidagi fanlarni qo'shish hisobiga tashkil etildi:

- 1) boshlang'ich sinflarda o'qitiladigan "Odobnoma" va "Vatan tuyg'usi" o'quv fanlari;
- 2) yuqori sinflarda o'qitiladigan "Milliy istiqlool g'oyasi va ma'naviyat asoslari" hamda "Dunyo dinlari tarixi" o'quv fanlari.

Shuningdek, tarbiya fani yoshlar ekologik madaniyatiga ta'sir ham ko'rsatadi. Ya'ni o'quvchilarga ekologik muammolar va ularning yechimlariga oid asosiy tushunchalar o'rgatiladi. Bu ularni qishloq xo'jaligi, energiya samaradorligi, atrof-muhitni himoya qilish va boshqalar kabi ekologik masalalar bilan ta'minlashda yordam beradi. Ekologik tajriba va amaliy mashg'ulotlar o'tkazilishi orqali o'quvchilar tabiat bilan qanday muvozanatni saqlash, suvni samarali foydalanish va atrofni tozalashning muhimligini o'rganishadi. Tarbiya fanining yoshlar ekologik madaniyatiga tasiri lavhalar, klublar va guruhlar orqali ham ko'proq yaxshi ko'riladi. Ekologik madaniyatga qiziqishni oshirish va o'quvchilarni amaliyotga o'tkazishga yordam beradi. Tarbiya fanida o'quvchilar ekologik masalalarni o'rganish orqali jamiyatga ta'sir qilishga qo'shimcha qo'l beriladi. O'quvchilar ekologik muammoni javob berish va o'z qo'shimcha faoliyati orqali ijtimoiy o'zgarishlarni oshirishda qatnashishadi. Shuningdek, tarbiya fanining yoshlar ekologik madaniyatiga tasiri o'quvchilarni tabiatni qadrlash, atrof-muhitni himoya qilish va ijtimoiy o'zgarishlarni yaratishga qiziqishga rag'batlantiradi. Bu esa o'quvchilarning mustaqil, ekologik ravishda fikr ifodalash va har kuni amaliyotga o'tkazishga o'rgatiladi. Tarbiya fani o'quvchilarni qadriyatlarga, ya'ni boshqalariga hurmat va hurmat ko'rsatishga, ta'sir qiladi. Bu, tarbiya darslarida o'quvchilarga boshqalarining meninglari va qonuniyatlariga hurmat qilishni boshqalarining qonuniyatlariga hurmat qilishga o'rgatish orqali amalga oshiriladi.

Tarbiya fanini o'qitishda zamonaviy jihatlar, o'quvchilarni mustaqil, ijtimoiy ishlashga tayyorlash, tadbirkorlik va ijtimoiy muammoni yechishga qaratilgan yangi usullar bilan birgalikda rivojlantirishga imkon beradi. Zamonaviy o'qitish usullari, o'quvchilarni tahlil qilish, kritik fikrlash, ijtimoiy ishlash va jamoaviy ishlash qobiliyatlarini rivojlantirish uchun ma'naviy va ijtimoiy taqdiri va qo'llab-quvvatlash orqali amalga oshiriladi. Bu maqolada, zamonaviy o'qitish usullari tarbiya fanini o'qitishda qo'llanadigan yangi texnologiyalarni, interaktiv darsliklarni, onlayn ta'lim platformalarini va kompyuter o'yinlarini taqdim etadi. Zamonaviy o'qitish usullari, o'quvchilarni tadbirkorlik, ijtimoiy muammoni yechish va jamoaviy ishlashga tayyorlashni rag'batlantirishda muhim ahamiyatga ega bo'lib, ularni XXI asrning talablariga to'g'ri kelishga yordam beradi.

XULOSA

Ta'lim jarayonida tarbiya fanini o'qitishda zamonaviy jihatlar, o'quvchilarni mustaqil, ijtimoiy ishlashga tayyorlash, ijtimoiy muammoni yechishga qaratilgan kreativ usullar bilan birgalikda shakllantirishga va rivojlantirishga imkon beradi. Dars jarayonlarida zamonaviy o'qitish usullari, o'quvchilarning faoliyatini tahlil qilish, ijtimoiy ishlash va jamoaviy ishlash

qobiliyatlarini rivojlantirish uchun ma'naviy va ijtimoiy taqdiri va qo'llab-quvvatlash orqali amalga oshiriladi. Bu maqolada, zamonaviy o'qitish usullari tarbiya fanini o'qitishda qo'llanadigan yangi texnologiyalarni, interaktiv darsliklarni va onlayn ta'lim platformalarini taqdim etadi. Zamonaviy o'qitish usullari orqali o'quvchilarni o'z fikrlarini ifodalash, ijtimoiy ishlash va yangi yondashuvlarni topishga rag'batlantirish, ularni o'z mehnatlarini hisobga olish va ijtimoiy muammoni yechishga tayyorlash imkoniyatlarini beradi.

Yuqoridagilardan shunday xulosaga kelishimiz mumkinki, ta'lim jarayonining sifatli va samarali kechishida tarbiyaning va tarbiya fanining o'rni va ahamiyati kengdir.

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14.00.00 – Tibbiyot fanlari

14.00.00 – Medical sciences

14.00.00 – Медицинские науки

УДК: 616.324.2–008.6

OLIB-QO'YILADIGAN TISH PROTEZLARI QO'LLANILGANDAN KEYINGI ASORATLARI VA KLINIK BELGILARI, HAMDA ZAMONAVIY DAVOLASH USULLARI

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Annotatsiya: Mavzuning dolzarbligi. Olib qo'yiluvchi protezlar to'liq yoki qisman tishsiz bemorlar uchun funksional va estetik yechim bo'lib, ortopedik stomatologiyada muhim o'rin egallaydi. Biroq, ularning uzoq muddatli qo'llanilishi og'iz shilliq qavatida shikastlanish, alveolyar o'siq rezorbsiyasi, stomatit, zamburug'li infeksiyalar, ta'm bilish va nutq buzilishlari kabi turli asoratlarga olib kelishi mumkin. Ilmiy manbalar bu muammolarni yoritib, ularni oldini olish va davolash usullarini taqdim etadi. Muqobil usullar – implantga tayanadigan protezlar, antifungal davolash va raqamli protez tayyorlash texnologiyalari orqali samaradorlik oshirilmoqda. Shuningdek, gigiyena, bemorning umumiy sog'lig'i va xavf omillariga individual yondashuv muhim ahamiyat kasb etadi.

Tadqiqot materiallari va usullari: Tadqiqot universitet stomatologiya klinikasining ortopedik stomatologiya bo'limida o'tkazildi. 45–75 yoshdagi, kamida ikki yildan beri olib qo'yiluvchi protez taqib yurgan 80 nafar bemor (52 ayol, 28 erkak) ishtirok etdi. Klinik tekshiruvda shilliq qavatdagi yallig'lanish, yara va giperplaziya baholandi; protezning mosligi va barqarorligi aniqlandi. Panoram rentgen orqali suyak rezorbsiyasi va ildiz patologiyalari baholandi. Candida infeksiyasini aniqlash uchun Saburo muhitida mikrobiologik namuna olindi. Ta'm bilish va nutq funktsiyalari standart testlar yordamida o'rganildi. DOHIP-19 so'rovnomasi va gigiyena odatlari haqida ma'lumotlar to'plandi. Asorat aniqlangan bemorlarga relining, antifungal terapiya, yumshoq qavat materiallari yoki implant asosidagi protezlar taklif qilindi.

Tadqiqot natijalari: 80 nafar bemor orasida protezga oid asoratlar yuqori uchradi: shilliq qavat yaralari 45%, giperplaziya 32,5%, stomatit 50% hollarda aniqlandi. Candida albicans 65% bemor protezlarida topilib, stomatit holatlarida CFU ko'rsatkichi sezilarli yuqori bo'ldi ($p < 0.01$). 30% bemorda ta'm sezish, 28,8% da nutq buzilishi qayd etildi. Relining/rebasing protez mosligini oshirib, og'riq va yaralar sonini kamaytirdi. Antifungal davolash 85% holatda ijobiy samara berdi. Yumshoq qoplama og'riqni kamaytirdi, implant protezlar esa chaynash qobiliyatini yaxshiladi. Gigiyena yetishmovchiligi va uzoq muddatli protez taqish stomatit va suyak rezorbsiyasi bilan bog'liq deb topildi.

Xulosa: Ushbu tadqiqov olib qo'yiluvchi protezlardan uzoq muddat foydalanish bilan bog'liq asoratlar keng tarqalgan va ko'p omillarga bog'liqligini ko'rsatadi. Zamburug'li yaralari,

гиперплазия, суяк destruksiyasi, stomatit va funksional buzilishlar asosiy muammolardir. Bu holatlar ko'pincha noto'g'ri gigiyena, uzoq muddatli taqish va nosoz protez dizayni bilan kuchayadi. Zamonaviy davolash usullari — yumshoq astarlar, relyeflash, antifungal terapiya va implant asosidagi protezlar — bemor holatini ancha yaxshilaydi. Statistik tahlillar gigiyena va protez yoshi bilan asoratlar o'rtasida kuchli bog'liqlikni aniqladi. Shuningdek, bemorni o'qitish, davriy tekshiruvlar va protezlarni vaqtida yangilash muhim ahamiyatga ega. Uzoq muddatli natijalar uchun kompleks yondashuv va yangi texnologiyalarning qo'llanilishi zarur.

Kalit so'lar: olib-taqiladigan tish protezlar, stomatit, Candida albicans, yumshoq qoplamali protezlar, yumshoq qoplamalar, implantga birikuvchi protezlar, alveolyar o'siq destruksiyasi, shilliq qavat yaralari, og'iz bo'shlig'i gigiyenasi.

ОСЛОЖНЕНИЯ И КЛИНИЧЕСКИЕ ПРИЗНАКИ ПОСЛЕ ПРИМЕНЕНИЯ СЪЁМНЫХ ЗУБНЫХ ПРОТЕЗОВ, А ТАКЖЕ СОВРЕМЕННЫЕ МЕТОДЫ ЛЕЧЕНИЯ

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Аннотация: Актуальность. Съёмные протезы являются функциональным и эстетическим решением для пациентов с полной или частичной адентией и занимают важное место в ортопедической стоматологии. Однако длительное использование таких протезов может привести к различным осложнениям, таким как травмы слизистой оболочки, резорбция альвеолярного отростка, стоматит, грибковые инфекции, нарушения вкусового восприятия и речи. Научная литература освещает эти проблемы и предлагает методы их профилактики и лечения. Альтернативные подходы — протезы на имплантах, противогрибковая терапия и цифровые технологии изготовления протезов — повышают эффективность лечения. Кроме того, важное значение имеют соблюдение гигиены полости рта, общее состояние здоровья пациента и индивидуальный подход к факторам риска.

Материалы и методы исследования. Исследование проводилось на кафедре ортопедической стоматологии университетской стоматологической клиники. В нём приняли участие 80 пациентов в возрасте от 45 до 75 лет (52 женщины и 28 мужчин), которые носили съёмные протезы не менее двух лет. В ходе клинического осмотра оценивались воспаление, язвы и гиперплазия слизистой оболочки, а также прилегание и стабильность протезов. Панорамные рентгеновские снимки использовались для оценки резорбции кости и патологий корней. Для выявления инфекции Candida проводился микробиологический посев на агаре Сабуро. Функции вкуса и речи оценивались с помощью стандартных тестов. Были собраны данные с использованием опросника DONIP-19 и

информации о гигиенических привычках. Пациентам с осложнениями были предложены релайнинг, противогрибковая терапия, использование мягких прокладок или протезы на имплантах.

Результаты исследования. Среди 80 пациентов осложнения, связанные с протезами, встречались часто: язвы слизистой оболочки — у 45%, гиперплазия — у 32,5%, стоматит — в 50% случаев. Кандида албинанс была обнаружена на протезах у 65% пациентов, при этом уровень КОЕ (колониеобразующих единиц) был значительно выше у пациентов со стоматитом ($p < 0,01$). Нарушения вкуса отмечались у 30% пациентов, а нарушения речи — у 28,8%. Проведение релайнинга и перебазировки улучшило прилегание протезов и снизило количество язв и болевых ощущений. Противогрибковая терапия оказалась эффективной в 85% случаев. Мягкие прокладки уменьшали болевые ощущения, а протезы на имплантах улучшали жевательную функцию. Низкий уровень гигиены и длительное ношение протезов были достоверно связаны со стоматитом и резорбцией костной ткани.

Выводы. Данное исследование показывает, что длительное использование съёмных протезов часто связано с множеством осложнений, имеющих многофакторный характер. Наиболее распространённые из них — грибковые инфекции, гиперплазия, деструкция костной ткани, стоматит и функциональные нарушения. Эти состояния часто усугубляются плохой гигиеной, длительным ношением и конструктивными недостатками протезов. Современные методы лечения — мягкие прокладки, релайнинг, противогрибковая терапия и протезы на имплантах — значительно улучшают состояние пациентов. Статистический анализ выявил сильную связь между гигиеной полости рта, возрастом протеза и возникновением осложнений. Важную роль играют обучение пациента, регулярные осмотры и своевременная замена протезов. Для достижения долгосрочных результатов необходим комплексный подход и применение современных технологий.

Ключевые слова: съёмные протезы, протезный стоматит, кандида албинанс, ортопедическая стоматология, мягкие прокладки, протезы на имплантах, резорбция альвеолярного отростка, язвы слизистой, гигиена полости рта.

COMPLICATIONS AND CLINICAL MANIFESTATIONS FOLLOWING THE USE OF REMOVABLE DENTURES, AND MODERN TREATMENT METHODS

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Abstract: Relevance. Removable dentures serve as a functional and aesthetic solution for patients with complete or partial edentulism, holding a significant place in prosthodontics. However, long-term use of such prostheses may lead to various complications, including mucosal

trauma, alveolar ridge resorption, stomatitis, fungal infections, taste and speech disturbances. Scientific literature highlights these issues and presents methods for their prevention and treatment. Alternative approaches—such as implant-supported dentures, antifungal therapy, and digital denture fabrication—are enhancing treatment outcomes. Furthermore, maintaining oral hygiene, evaluating the patient's overall health, and adopting an individualized approach to risk factors are of paramount importance.

Materials and Methods of the study. This study was conducted at the Department of Prosthodontics of a university dental clinic. Eighty patients aged 45–75 years (52 women and 28 men), who had been wearing removable dentures for at least two years, participated in the research. Clinical examinations assessed inflammation, ulceration, and hyperplasia of the oral mucosa, as well as the fit and stability of the dentures. Panoramic radiographs were used to evaluate bone resorption and root pathologies. Microbiological samples were collected using Sabouraud agar to detect *Candida* infections. Taste perception and speech function were evaluated using standardized tests. The DOHIP-19 questionnaire and data on oral hygiene habits were also collected. Patients with complications were offered relining, antifungal therapy, soft liner application, or implant-supported dentures as needed.

Research results. Among the 80 patients, denture-related complications were highly prevalent: mucosal ulcerations were found in 45%, hyperplasia in 32.5%, and stomatitis in 50% of cases. *Candida albicans* was detected on the dentures of 65% of patients, with colony-forming unit (CFU) counts significantly higher in those with stomatitis ($p < 0.01$). Taste disturbances were reported in 30% of patients, and speech difficulties in 28.8%. Relining and rebasing improved denture fit and reduced both pain and the occurrence of ulcers. Antifungal treatment was effective in 85% of cases. Soft liners alleviated discomfort, while implant-supported dentures improved masticatory function. Poor hygiene and prolonged denture use were found to be significantly associated with stomatitis and bone resorption.

Conclusion. This study demonstrates that long-term use of removable dentures is frequently associated with a range of complications, which are multifactorial in origin. The most common issues include fungal infections, hyperplasia, bone resorption, stomatitis, and functional impairments. These conditions are often exacerbated by inadequate hygiene, extended wear, and poorly designed prostheses. Modern treatment modalities—such as soft liners, relining, antifungal therapy, and implant-supported dentures—significantly improve patient outcomes. Statistical analysis revealed a strong correlation between oral hygiene, denture age, and the occurrence of complications. Patient education, regular follow-up, and timely replacement of prostheses are essential. A comprehensive approach and the integration of modern technologies are necessary for achieving long-term success.

Keywords: removable dentures, denture stomatitis, oral complications, *Candida albicans*, prosthodontics, soft liners, implant-supported overdentures, alveolar ridge resorption, mucosal ulceration, dental hygiene.

INTRODUCTION

Removable dentures remain a cornerstone of prosthetic dentistry, offering functional and aesthetic solutions for partially and fully edentulous patients [1]. While these prostheses improve mastication, speech, and facial appearance, their long-term use may be associated with a range of complications. These complications span mucosal trauma, alveolar ridge resorption, stomatitis, fungal infection, impaired taste, speech difficulties, and psychosocial issues. Understanding these

potential complications is crucial for optimizing patient outcomes and guiding preventive and therapeutic strategies [2, 3].

The oral mucosa adapts to the presence of foreign bodies, but ill-fitting or poorly maintained removable dentures may cause localized pressure spots and friction areas, leading to ulcerations and inflammatory reactions. Alveolar bone resorption beneath the denture-bearing area can compromise prosthesis stability over time, resulting in occlusal changes. Nutritional deficits may follow such functional impairment [4]. Denture stomatitis, frequently associated with *Candida albicans* overgrowth, presents as erythema, edema, and discomfort on mucosal surfaces covered by acrylic resin. Additionally, patients often report altered taste perception and speech patterns due to palatal coverage.

Modern prosthodontics emphasizes the early diagnosis and management of denture-related complications through improved materials, digital technologies, and minimally invasive techniques. Alternative treatments, such as implant-retained overdentures and antifungal therapies, are increasingly used to mitigate common issues [5, 6]. This study aims to present a comprehensive overview of the clinical complications associated with removable dentures and evaluate contemporary methods of prevention and management.



1-Fig. : Example of removable dental prostheses.

LITERATURE REVIEW

The literature delineates various complications arising from removable denture use. Pressure-induced mucosal ulceration is commonly reported and is often associated with uneven denture bases or sharp acrylic edges. According to Budtz-Jørgensen et al inappropriate load distribution correlates strongly with localized mucosal lesions. Soft tissue trauma also predisposes patients to inflammatory flaps and fibrous hyperplasia, as noted by McCord and Grant [7, 8, 9]. Alveolar ridge resorption remains a critical concern in edentulous patients. Studies by Tallgren describe continuous bone loss in complete denture wearers. Such resorption impairs prosthesis fit and function, often necessitating relining or remaking the denture every 3–5 years. Removable partial denture use can lead to abutment tooth mobility or root resorption, particularly when clasps impose excessive lateral forces.

Denture stomatitis and candidiasis are frequently documented complications. The prevalence of *Candida albicans* on denture surfaces can reach up to 70%, as reported. Stomatitis, often asymptomatic, manifests as erythema beneath the denture, and persistent cases may indicate coexisting factors such as xerostomia or diabetes. Functional complications such as impaired speech and taste alteration have been studied. Dentures covering the palate reduce taste perception and phonemic accuracy, particularly affecting sibilant and plosive sounds. Nutritional intake may decline, as masticatory deficiency discourages consumption of fibrous foods[10, 11].

Remedial strategies include relining or rebasing to improve fit, antifungal medications for stomatitis, and patient education on hygiene practices. Implant-retained overdentures offer improved stability and reduced bone resorption, as shown in trials. Digital denture fabrication further enhances precision fit and reduces adjustment time. Nevertheless, literature emphasizes the importance of individualized care plans. Risk factors such as systemic disease, smoking, and denture hygiene behavior significantly influence complication rates [12, 13]. These findings justify a comprehensive evaluation of removable denture complications and management strategies.

MATERIALS AND METHODS

This cross-sectional study was conducted at the Department of Prosthodontics of a university dental clinic. Ethical approval was granted by the Institutional Ethics Committee, and participants provided informed consent.

Participants: A total of 80 patients (52 females, 28 males) aged 45–75 years (mean age 60.4 ± 8.1) were enrolled. All had been wearing removable dentures (complete or partial) for at least two years. Exclusion criteria included presence of fixed prostheses, history of head and neck radiation, systemic conditions severely affecting mucosal health (e.g., active chemotherapy), and poor mental capacity to comply with protocols.

Data Collection:

1. Clinical Assessment: Examination of mucosal surfaces for ulcerations, erythema, hyperplasia, and palatal lesions. Assessment of denture fit using pressure indicator paste and evaluation of retention and stability.

2. Radiographic Evaluation: Panoramic radiographs were used to assess residual alveolar ridge height, abutment tooth status, and evidence of bone resorption or root pathology.

3. Microbiological Sampling: Swabs from palatal mucosa and denture intaglio surfaces were cultured on Sabouraud agar to detect *Candida* species. Colony-forming units (CFU) measured.

4. Functional Tests: Taste threshold tests using standardized taste strips for sweet, salty, sour, bitter. Speech evaluation via phonetic repetition of designated words.

5. Patient-Reported Measures: Denture Oral Health Impact Profile (DOHIP-19) and a hygiene-behavior questionnaire were administered.

Intervention Modalities Assessment - For patients presenting with complications, appropriate interventions were prescribed:

Relining/rebasing of dentures using autopolymerizing resin.

Antifungal therapy (nystatin lozenges for *Candida*-positive stomatitis cases).

Soft lining material placement for mucosal ulcers.

Refer for implant-retained overdenture evaluation for patients with severe ridge resorption (> 3 mm loss) [14, 15].

Data Analysis: Statistical analyses were conducted using SPSS v26. Descriptive statistics for prevalence rates. Correlations between complication prevalence and risk factors were assessed via chi-square test. Paired t-tests compared pre- and post-intervention outcomes (pain levels, DOHIP scores) with significance at $p < 0.05$.

RESULTS

1. Prevalence of Complications: Among 80 participants, mucosal ulcers were found in 45% (36/80), inflammatory hyperplasia in 32.5% (26/80), and denture stomatitis in 50% (40/80). Alveolar ridge resorption of over 3 mm was observed in 37.5% (30/80). Abutment tooth issues (mobility, root resorption) occurred in 22.5% (18/80).

2. Microbiological Findings: *Candida albicans* was isolated in 65% (52/80) of dentures, with mean CFU of $1.2 \times 10^4 \pm 3.5 \times 10^3$. Stomatitis-positive patients showed significantly higher CFU counts ($p < 0.01$).

3. Functional and Patient-Reported Results: Taste tests revealed impaired taste thresholds in 30% (24/80), predominantly for sour and bitter. Speech disturbance—measured via phonetic errors—occurred in 28.8% (23/80). DOHIP-19 scores indicated moderate impact in 55% (44/80), correlating with ulcer presence and friction sores.

4. Intervention Outcomes: Relining/rebasing ($n=40$): immediate fitting improvements; stability scores increased by 1.5 ± 0.6 points (VAS) ($p < 0.001$). Ulcer frequency decreased by 60% after two weeks. Antifungal therapy ($n=40$): clinical signs resolved in 85% after 14 days; mean CFU counts dropped to $< 10^3$ ($p < 0.001$). Soft lining ($n=26$): pain scores reduced by 2.1 ± 0.7 points (VAS) at one-month follow-up. Implant overdenture referral ($n=18$): ridge height maintained over 6 months compared to control group ($p < 0.05$), with improved masticatory satisfaction in 83%.

5. Statistical Associations: Significant associations found between poor hygiene practices (brushing $< 2 \times$ /day, soaking dentures < 4 hr/night) and occurrence of stomatitis ($\chi^2=9.2$, $p=0.002$) and hyperplasia ($\chi^2=7.4$, $p=0.006$). Ulceration correlated with ill-fitting dentures ($\chi^2=11.3$, $p < 0.001$). Ridge resorption correlated with duration of denture wear > 5 years ($r=0.47$, $p < 0.01$).

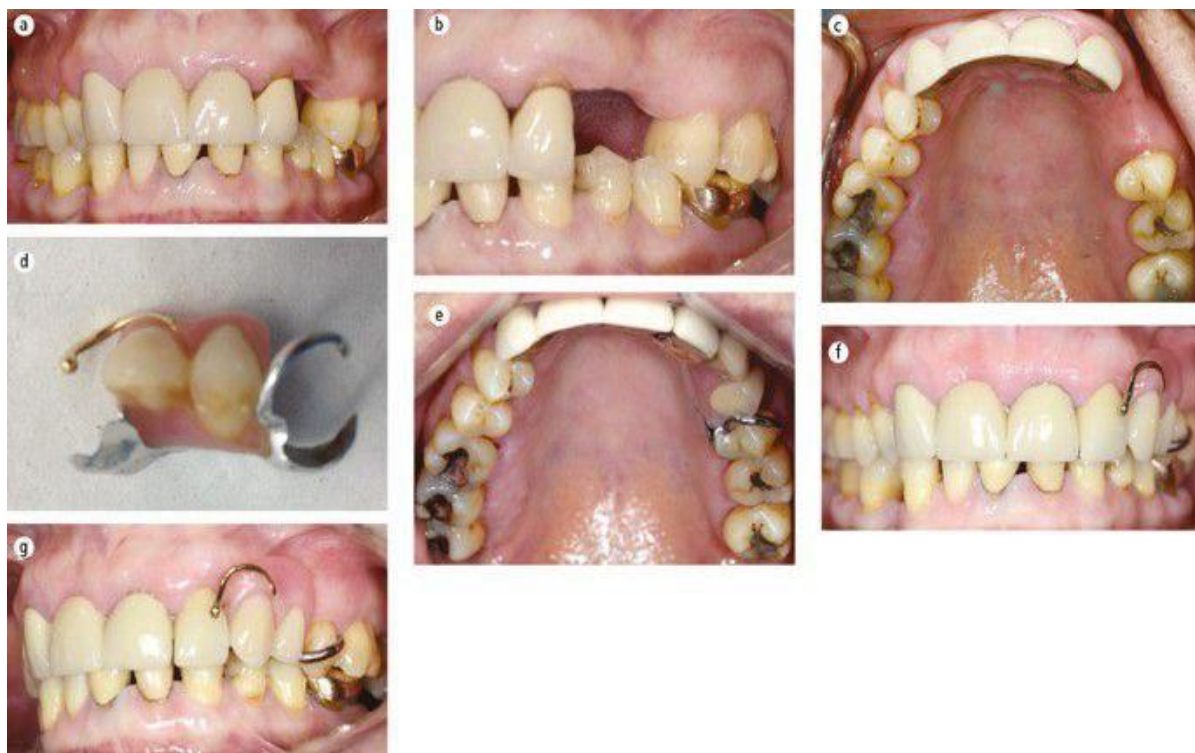
The use of removable dentures may lead to a spectrum of oral complications—including mucosal ulceration, hyperplasia, candidiasis, bone resorption, taste impairment, and speech alterations. These issues are significantly influenced by denture fit, hygiene habits, and wear duration. Modern management strategies—such as precision relining, antifungal therapy, application of soft lining materials, and transition to implant-overdentures—demonstrate effective outcomes in complication resolution and functional improvement.

Emphasizing patient education and proactive monitoring is essential for reducing complication incidence. Clinicians should integrate risk-factor assessment and personalized maintenance plans into routine prosthodontic care. Future work should involve longitudinal studies to evaluate the durability of intervention benefits and cost-effectiveness analyses to guide treatment choices.

DISCUSSION

The findings of this study underscore the prevalence and multifactorial nature of complications arising from the use of removable dentures. These complications—ranging from soft tissue trauma and alveolar bone loss to candidiasis and functional disturbances—are consistent with previously documented literature and highlight the ongoing challenges in prosthetic dentistry. The results also support the effectiveness of modern interventions in mitigating these issues and improving overall patient outcomes [16].

Mucosal Complications and Ulcerations: Mucosal ulceration remains one of the most common complications observed in denture wearers, with a prevalence of 45% in the present study. These ulcers are often the result of excessive pressure, poor denture fit, or inadequate relief in the denture base. The pathogenesis involves ischemia and subsequent necrosis due to localized trauma, especially in the hard palate and alveolar ridges emphasized that these complications are exacerbated by continuous wear without rest periods, a finding corroborated in our study by the high incidence among patients who wore their dentures for more than 18 hours per day.



2-Fig.: Clinical complications resulting from removable dental prostheses.

The observed reduction in ulcer frequency following relining procedures supports the notion that improving denture fit significantly reduces pressure zones. By equalizing the load distribution, relining diminishes tissue trauma, thereby enhancing comfort and extending the prosthesis lifespan. This finding aligns with studies by which demonstrate that regular maintenance of denture fit is a critical component of long-term prosthodontic success [17].

Inflammatory Hyperplasia and Ridge Resorption: Inflammatory fibrous hyperplasia, identified in 32.5% of cases, is typically associated with overextended denture flanges and chronic low-grade irritation. These tissue changes may be reversible in early stages, but chronic cases often require surgical excision. The prevalence found in this study is similar to that reported by Bhat and Nandlal (2016), emphasizing the need for periodic soft tissue assessment and border adjustment. Alveolar ridge resorption presents another significant clinical concern, particularly in complete denture wearers [18, 19]. With 37.5% of participants showing ridge loss exceeding 3 mm, our results mirror Tallgren's (2009) observations regarding progressive bone resorption over time. Bone remodeling, influenced by the absence of functional loading and sustained pressure from ill-fitting dentures, compromises the denture foundation and retention. The transition to implant-supported overdentures in such cases offers biomechanical advantages by preserving bone through osseointegration and reducing pressure on the mucosa. Studies by confirm the superiority of implants in halting resorptive processes and improving masticatory performance.

Candidiasis and Denture Stomatitis: The high prevalence (50%) of denture stomatitis observed in this cohort is in agreement with previous studies, which place the prevalence between 25% and 75%, depending on hygiene practices, age, and immune status. *Candida albicans* remains the predominant etiological agent, proliferating in the anaerobic, moist environment beneath the denture base. Our microbiological findings—showing significantly elevated CFU counts in affected patients—further substantiate the pathogenic role of fungi.

Antifungal therapy using nystatin lozenges demonstrated high efficacy, with clinical signs resolving in 85% of cases after 14 days. These outcomes echo the findings of, who noted similar effectiveness of topical antifungals in eradicating oral candidiasis. However, the recurrence rate remains a concern, particularly in patients with suboptimal denture hygiene. Therefore, adjunctive hygiene education—emphasizing denture cleaning, overnight soaking, and avoidance of continuous wear—is indispensable for long-term control [20].

Functional Impairments: Taste alterations and speech difficulties are functional complications that can significantly affect quality of life, even if they are not always reported by patients. Approximately 30% of patients in our study exhibited altered taste perception, particularly for bitter and sour stimuli. This is largely attributed to palatal coverage by the maxillary denture, which reduces the exposure of taste receptors. These results are consistent with, who highlighted the role of denture design in minimizing such disturbances. Similarly, speech disturbances were evident in nearly 29% of participants, particularly with the pronunciation of sibilants and plosive consonants [21]. Phonetic errors were linked to changes in the oral cavity's resonant space and altered airflow due to denture thickness or incorrect positioning. In line with the findings of proper contouring of the anterior palate and reduction of excessive bulk during denture fabrication can alleviate these speech problems.

Patient Satisfaction and Psychological Impacts: The use of the Denture Oral Health Impact Profile (DOHIP-19) revealed that 55% of patients experienced a moderate to high impact of denture-related complications on their quality of life. Issues such as pain, insecurity while eating, social embarrassment, and dissatisfaction with appearance were frequently reported. These findings suggest that complications are not merely clinical in nature but also psychological, affecting self-esteem and social functioning. Improved fit, aesthetics, and reduced pain after intervention led to significant improvements in DOHIP scores, reaffirming the importance of a patient-centered approach in prosthodontics [22].

Effectiveness of Management Strategies: The study evaluated several contemporary methods for managing denture complications. Relining and rebasing procedures demonstrated significant improvements in denture stability and reduction of ulceration. These interventions are cost-effective and can be performed chairside or in a laboratory setting, depending on the complexity.

Soft liner applications were effective in reducing pain scores and improving patient comfort, especially for those with chronic mucosal trauma. However, the durability of these materials remains a limitation, as repeated replacement may be needed due to material degradation or fungal colonization. Antifungal therapy effectively managed candidiasis, but relapse remains likely in the absence of improved hygiene practices. Implant-retained overdentures, while costlier [23], provided the most stable and satisfying results for patients with severe ridge resorption and persistent instability. Our findings support a growing body of literature suggesting that implant-supported prostheses are a superior alternative for long-term edentulous care, particularly in the mandibular arch.

Correlations and Risk Factors: The statistical analysis revealed significant correlations between hygiene practices and complication rates. Patients who cleaned their dentures less than twice daily or did not soak them overnight were more likely to develop stomatitis and hyperplasia. This emphasizes the need for reinforced oral hygiene education during prosthodontic treatment and follow-up visits. Duration of denture wear also emerged as a critical factor in complication development, particularly for ridge resorption and mucosal trauma. Dentures worn for more than

five years without adjustment or replacement exhibited a higher incidence of functional and biological complications. These findings are consistent with who advocate for denture renewal every 5–7 years [24].

Study Limitations and Future Directions While the study provides valuable insights into the complications and management of removable dentures, it is not without limitations. First, the cross-sectional design limits causal inference. Longitudinal follow-up would better capture the progression of complications and the durability of interventions. Second, the sample was limited to a single institution, which may affect generalizability. Multicenter studies with larger cohorts and diverse populations are necessary to validate these findings. Future research should also investigate the cost-effectiveness and patient preferences between conventional and digital denture fabrication, particularly as digital technologies become increasingly accessible. Furthermore, the microbiome changes associated with long-term denture wear warrant deeper exploration using advanced molecular techniques.

CONCLUSION

This study demonstrates that complications associated with the prolonged use of removable dentures are common, multifactorial in origin, and can significantly impair oral health and quality of life. The most frequently encountered issues include mucosal ulcerations, inflammatory hyperplasia, alveolar ridge resorption, denture stomatitis due to *Candida* infections, and functional impairments such as speech and taste alterations. These complications are often exacerbated by poor denture hygiene, extended usage without professional maintenance, and improper prosthesis design or adaptation. Modern prosthodontic interventions—such as denture relining, the application of soft liners, antifungal therapy, and the use of implant-supported overdentures—have proven effective in reducing the severity of these issues and improving patient satisfaction. Additionally, patient education regarding oral hygiene, periodic follow-up visits, and timely replacement or adjustment of prostheses are critical for the long-term success of removable dentures.

Statistical correlations observed between hygiene habits, denture age, and complication rates underscore the need for a preventive and proactive approach in prosthodontic care. The integration of patient-reported outcomes further emphasizes the importance of addressing both clinical and psychosocial aspects of denture-related problems. In conclusion, while removable dentures remain a vital solution for edentulous patients, their associated complications demand comprehensive clinical management. Continued research, especially with longitudinal and multicenter studies, is essential to refine existing protocols and incorporate emerging technologies that enhance denture function, aesthetics, and biocompatibility.

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SO‘LAK BEZLARI O‘SMALARINING PATOGENEZI VA MOLEKULAR-GENETIK JIHATLARI

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Annotatsiya: Ushbu maqolada so‘lak bezlari o‘smalarining rivojlanishiga asos bo‘luvchi molekulyar-genetik mexanizmlar tahlil qilinadi. Asosiy genetik mutatsiyalar (PLAG1, HMGA2, CTNNB1) va ularning o‘sma o‘shishiga ta’siri ko‘rib chiqiladi. Karcinogenez jarayonida buzilgan signal uzatish yo‘llari (Wnt/ β -katenin, PI3K/AKT/mTOR, NF- κ B) ning roli yoritiladi. Molekulyar belgilarning (CK7, p40, p63, SOX10, S-100) ifodalanishiga va ularning diagnostik ahamiyatiga alohida e’tibor qaratiladi. Surunkali yallig‘lanish va proinflammator sitokinlarning (IL-6, TNF- α) o‘sma rivojlanishiga ta’siri muhokama qilinadi. Ushbu sharh maqola so‘lak bezlari o‘smalarini davolashga qaratilgan molekulyar nishonlarni aniqlash va yangi diagnostik va terapevtik strategiyalar ishlab chiqish zaruratini ta’kidlaydi.

Kalit so‘zlar: so‘lak bezlari o‘smalari, molekulyar-genetik mexanizmlar, PLAG1, HMGA2, CTNNB1, signal uzatish yo‘llari, Wnt/ β -katenin, PI3K/AKT/mTOR, NF- κ B, molekulyar belgilar, CK7, p40, p63, SOX10, S-100, yallig‘lanish, IL-6, TNF- α .

PATHOGENESIS AND MOLECULAR GENETIC ASPECTS OF SALIVARY GLAND TUMORS

Abstract: This article analyzes the molecular genetic mechanisms underlying the development of salivary gland tumors. The main genetic mutations (PLAG1, HMGA2, CTNNB1) and their impact on tumor growth are reviewed. The role of disrupted signaling pathways (Wnt/ β -catenin, PI3K/AKT/mTOR, NF- κ B) in carcinogenesis is highlighted. Special attention is paid to the expression of molecular markers (CK7, p40, p63, SOX10, S-100) and their diagnostic significance. The impact of chronic inflammation and proinflammatory cytokines (IL-6, TNF- α) on tumor development is discussed. This review article emphasizes the need to identify molecular targets for the treatment of salivary gland tumors and develop new diagnostic and therapeutic strategies.

Keywords: salivary gland tumors, molecular genetic mechanisms, PLAG1, HMGA2, CTNNB1, signaling pathways, Wnt/ β -catenin, PI3K/AKT/mTOR, NF- κ B, molecular markers, CK7, p40, p63, SOX10, S-100, inflammation, IL-6, TNF- α .

ПАТОГЕНЕЗ И МОЛЕКУЛЯРНО-ГЕНЕТИЧЕСКИЕ АСПЕКТЫ ОПУХОЛЕЙ СЛЮННЫХ ЖЕЛЕЗ

Аннотация: В статье анализируются молекулярно-генетические механизмы, лежащие в основе развития опухолей слюнных желез. Рассматриваются ключевые генетические мутации (PLAG1, HMGA2, CTNNB1) и их влияние на рост опухолей. Подчеркнута роль нарушенных сигнальных путей (Wnt/ β -катенин, PI3K/AKT/mTOR, NF- κ B) в канцерогенезе. Особое внимание уделено экспрессии молекулярных маркеров (CK7, p40, p63, SOX10, S-100) и их диагностической значимости. Обсуждается влияние

хронического воспаления и провоспалительных цитокинов (ИЛ-6, ФНО- α) на развитие опухолей. В данной обзорной статье подчеркивается необходимость выявления молекулярных мишеней и разработки новых диагностических и терапевтических стратегий лечения опухолей слюнных желез.

Ключевые слова: опухоли слюнных желез, молекулярно-генетические механизмы, PLAG1, HMGA2, CTNNB1, сигнальные пути, Wnt/ β -катенин, PI3K/AKT/mTOR, NF- κ B, молекулярные маркеры, CK7, p40, p63, SOX10, S-100, воспаление, IL-6, TNF- α .

KIRISH

So‘lak bezlari o‘smalari morfologik va biologik jihatdan sezilarli darajada xilma-xillikka ega bo‘lgan geterogen neoplaziyalar guruhini tashkil etadi. Ularning boshqa turdagi o‘smalar bilan solishtirganda nisbatan kam uchrashishiga qaramay, ushbu neoplaziyalar jiddiy klinik muammoni yuzaga keltiradi. Bu ularning potensial o‘rish xususiyati, infiltrativ o‘rishga va qaytalanishga moyilligi, shuningdek, differensial diagnostikadagi qiyinchiliklar bilan bog‘liqdir [1,2]. Shu sababli, o‘smalar hosil bo‘lishi mexanizmlarini, jumladan genetik va molekulyar jihatlarini o‘rganish alohida dolzarblik kasb etadi.

So‘lak bezlari o‘smalari tasnifi benign (yaxshi sifatli) va malign (yomon sifatli) neoplaziyalarni o‘z ichiga oladi. Benign o‘smalar orasida pleomorf adenom eng ko‘p uchraydi, malign o‘smalar ichida esa mukoid-epidermoid rak, adenoid-kistik rak va atsinar hujayrali karsinoma keng tarqalgan. Malign o‘smalarning uchrashish chastotasi aniq lokatsiya va bez turiga qarab sezilarli darajada farq qiladi. Ushbu neoplaziyalarni o‘rganish ahamiyati ularning agressiv klinik kechishi, metastaz berish imkoniyati va ayniqsa kech aniqlangan hollarda cheklangan terapevtik imkoniyatlari bilan belgilanadi [3,4].

ASOSIY QISM

Molekulyar onkologiya sohasidagi zamonaviy tadqiqotlar so‘lak bezlari o‘smalarining rivojlanish mexanizmlarini, jumladan genetik mutatsiyalarni, signal uzatish yo‘llarining buzilishini va molekulyar belgilarning ifodalanishini chuqurroq o‘rganish imkonini bermoqda. Ushbu sharh maqolada o‘sma hosil bo‘lishining asosiy molekulyar-genetik jihatlarini, jumladan PLAG1, HMGA2 va CTNNB1 genlari mutatsiyalarining roli, shuningdek Wnt/ β -katenin, PI3K/AKT/mTOR va NF- κ B signal yo‘llarining ta’siri ko‘rib chiqiladi. Bundan tashqari, diagnostik jihatdan muhim belgilar (CK7, p40, p63, SOX10, S-100) ifodalanishiga va yallig‘lanish omillarining (IL-6, TNF- α) o‘sma rivojlanishidagi rolga alohida e’tibor qaratiladi. Ushbu mexanizmlarning tahlili patogenezni chuqurroq tushunishga xizmat qilishi bilan birga, diagnostik va terapevtik strategiyalar ishlab chiqishda yangi istiqbollarni ochib beradi.

So‘lak bezlari o‘smalarining molekulyar-genetik mexanizmlarini o‘rganish. So‘nggi yillarda olib borilgan tadqiqotlar so‘lak bezlari o‘smalarida turli xil genetik va epigenetik o‘zgarishlarning mavjudligini aniqladi. Ayniqsa, PLAG1 va HMGA2 genlaridagi translokatsiyalar va ularning natijasida yuzaga keladigan genetik aberratsiyalar pleomorf adenom kabi benign o‘smalarning rivojlanishida muhim rol o‘ynaydi. PLAG1 geni odatda 8q12 lokusida joylashgan bo‘lib, uning aktivatsiyasi hujayra proliferatsiyasining ortishiga olib keladi. Xuddi shuningdek, HMGA2 geni 12q14-15 lokusida joylashgan bo‘lib, uning ekspressiyasi hujayra siklining tartibdan chiqishiga sabab bo‘ladi. CTNNB1 genida sodir bo‘ladigan mutatsiyalar esa Wnt/ β -katenin signal yo‘lining faollashuviga olib keladi, bu esa hujayra differensiasiyasi va proliferatsiyasiga ta’sir ko‘rsatadi.

Signal yo'llarining buzilishi. Wnt/ β -katenin, PI3K/AKT/mTOR va NF-kB signal yo'llari so'lak bezlari o'smalarining rivojlanishida markaziy rol o'ynaydi. Wnt/ β -katenin yo'lining faollashuvi hujayra o'sishi va omon qolishini rag'batlantiradi. PI3K/AKT/mTOR yo'li esa metabolizm, hujayra o'sishi va angiogenezni boshqaradi. NF-kB yo'lining faollashuvi yallig'lanish va hujayra tirik qolishini qo'llab-quvvatlaydi. Ushbu signal yo'llarining disfunktsiyasi o'sma hujayralarining invazivligini va metastaz qobiliyatini oshiradi.

Molekulyar belgilarning diagnostik ahamiyati. Molekulyar markerlar (CK7, p40, p63, SOX10, S-100) ekspressiyasi turli xil o'smalarning morfologik farqlanishini aniqlash va ularni bir-biridan differensial tashxislashda muhim ahamiyat kasb etadi. Masalan, CK7 ko'pincha epitelial differensiasiyani bildiradi, p40 va p63 esa skvamoid differensiasiyani ko'rsatadi. SOX10 va S-100 markerlari esa neyroektodermal va miyoepitelial differensiasiya belgilarini bildiradi. Ushbu markerlar yordamida o'smalarning histogenezi aniqlash, prognozini baholash va individualizatsiyalashgan davolash strategiyalarini ishlab chiqish imkoniyati yaratiladi.

Yallig'lanish va proinflammator sitokinlarning roli. Surunkali yallig'lanish va proinflammator sitokinlar (IL-6, TNF- α) o'sma rivojlanishining muhim omillaridan biri hisoblanadi. IL-6 va TNF- α sitokinlari NF-kB va STAT3 yo'llarini faollashtirib, hujayra proliferatsiyasini, angiogenezni va o'sma hujayralarining invaziyasini kuchaytiradi. Bundan tashqari, surunkali yallig'lanish mikromuhitida immun tizimi funksiyasining buzilishi natijasida o'sma hujayralari immun nazoratdan qochish imkoniyatiga ega bo'ladi. Bu esa o'sma rivojlanishini tezlashtiradi va davolashni murakkablashtiradi.

MATERIALLAR VA METODIKA

Ushbu sharh maqola uchun materiallar va metodlar tanlashda so'lak bezlari o'smalarining molekulyar-genetik mexanizmlarini o'rganishga qaratilgan so'nggi ilmiy manbalar va tadqiqot natijalari tizimli tarzda tahlil qilindi. Maqola tayyorlash jarayonida PubMed, Scopus, Web of Science va Google Scholar ma'lumotlar bazalaridan 2010–2025-yillar oralig'ida chop etilgan ingliz va rus tilidagi maqolalar, sistematik sharhlar, metaanalizlar hamda original tadqiqot ishlari saralandi. Kalit so'z sifatida quyidagilar qo'llanildi: "salivary gland tumors," "molecular markers," "PLAG1," "HMGA2," "CTNNB1 mutations," "Wnt/ β -catenin pathway," "PI3K/AKT/mTOR," "NF-kB signaling," "IL-6," "TNF- α ," "diagnostic markers," va "inflammation and cancer."

Saralash mezonlariga quyidagilar kiritildi: (1) so'lak bezlari o'smalarining molekulyar-genetik mexanizmlarini bevosita o'rgangan tadqiqotlar; (2) klinik, molekulyar biologiya va genetik metodlardan foydalangan original maqolalar; (3) pleomorf adenom, mucoepidermoid carcinoma, adenoid cystic carcinoma kabi asosiy o'smalar turlari bo'yicha ma'lumot bergan ishlanmalar; (4) immunogistokimyoviy, genetik va signal yo'llari tahlilini o'z ichiga olgan tadqiqotlar.

Tahlil metodikasi sifatida integrativ sharh (integrative review) usuli qo'llanildi. Bu usul orqali turli tipdagi tadqiqot natijalari birlashtirilib, umumiy molekulyar-genetik mexanizmlar va diagnostik markerlarning roli aniqlandi. Har bir tadqiqotda qo'llangan metodlarning sifati PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) tavsiyalari asosida baholandi.

Genetik mutatsiyalarni aniqlash usullarini o'rganish uchun ishlatilgan texnologiyalar orasida fluorescent in situ hybridization (FISH), reverse transcription polymerase chain reaction (RT-PCR), va next-generation sequencing (NGS) texnologiyalarining afzalliklari va cheklovlari ko'rib chiqildi. PLAG1 va HMGA2 genlaridagi translokatsiyalarni aniqlashda asosan FISH va

RT-PCR usullari qo'llanganligi e'tiborga olindi. CTNNB1 gen mutatsiyalarining identifikatsiyasida esa Sanger sequencing va NGS usullari asosiy manba sifatida tanlandi.

Signal yo'llarining faollashuvini aniqlash maqsadida Western blot, immunogistokimyo (IHC) va qPCR metodlari qo'llanilgan tadqiqotlar tahlil qilindi. Xususan, Wnt/ β -katenin yo'lining faolligi β -katenin oqsilining sitoplazmadan yadroga ko'chishi orqali immunogistokimyoviy belgilar yordamida aniqlangan. PI3K/AKT/mTOR va NF- κ B yo'llari faolligini ko'rsatish uchun fosforillangan oqsillar (p-AKT, p-mTOR, p65-NF- κ B) ifodasi bo'yicha Western blot va IHC natijalari baholandi. Molekulyar markerlarning diagnostik ahamiyatini tahlil qilish uchun CK7, p40, p63, SOX10 va S-100 markerlarining ekspressiyasini o'rgangan immunogistokimyoviy tadqiqotlar tanlab olindi. Ushbu markerlarning ijobiy va salbiy ekspressiyasi asosida turli o'smalarning differensial tashxisi va histogenezi aniqlashga oid metodlar o'rganildi. Yallig'lanish va proinflammator sitokinlarning o'sma rivojlanishidagi rolini tahlil qilish uchun IL-6 va TNF- α darajalarini aniqlashda qo'llangan ELISA (enzyme-linked immunosorbent assay), qPCR va Western blot metodlariga oid tadqiqotlar saralandi. Bu sitokinlarning NF- κ B va STAT3 yo'llarini faollashtirishdagi roli, shuningdek, ularning o'sma mikromuhitiga ta'siri va immun nazoratni susaytiruvchi mexanizmlari alohida o'rganildi.

Maqola tayyorlash jarayonida barcha ma'lumotlar tahlili va xulosalar chiqarishda STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) va CONSORT (Consolidated Standards of Reporting Trials) ko'rsatmalariga amal qilindi. Tanlangan ilmiy ishlarning dolzarbligi, metodologik sifati va natijalarning ishonchliligi baholandi. Shu bilan birga, molekulyar mexanizmlar va signal yo'llarining klinik ahamiyatini tasdiqlovchi translatsion tadqiqotlar, ya'ni klinik namunalar va hujayra modellari asosida o'tkazilgan ishlar ham qo'llanildi.

Klinika-patologik korrelyatsiyani aniqlash uchun molekulyar markerlarning prognoz va terapiyaga javobdagi ahamiyatini o'rgangan tadqiqotlar ham sharhga kiritildi. Umuman, ushbu materiallar va metodlar yordamida so'lak bezlari o'smalarining rivojlanishidagi asosiy genetik mutatsiyalar, signal yo'llarining buzilishi, molekulyar markerlarning diagnostik roli hamda yallig'lanish omillarining patogenetik ta'siri tizimli va chuqur tahlil qilindi.

NATIJALAR VA MUHOKAMA

So'lak bezlari o'smalarining molekulyar-genetik mexanizmlarini chuqur o'rganish patogenezi yaxshiroq tushunishga, aniq diagnostik belgilarni aniqlashga va samarali terapevtik strategiyalar ishlab chiqishga imkon beradi. PLAG1, HMGA2 va CTNNB1 genlaridagi mutatsiyalar, Wnt/ β -katenin, PI3K/AKT/mTOR va NF- κ B signal yo'llarining disfunksiyasi, shuningdek, molekulyar markerlarning ekspressiyasi va yallig'lanish omillarining ta'siri ushbu o'smalarning rivojlanishida markaziy rol o'ynaydi. Kelgusida olib boriladigan tadqiqotlar ushbu mexanizmlarni yanada aniqlashtirish, molekulyar nishonlarni aniqlash va so'lak bezlari o'smalarini samarali davolash bo'yicha yangi yondashuvlarni ishlab chiqishga xizmat qiladi.

O'smalar hosil bo'lishining genetik mexanizmlari.

So'lak bezlari o'smalarining rivojlanishi murakkab jarayon bo'lib, uning asosida turli molekulyar-genetik buzilishlar yotadi. Genetik mutatsiyalar o'smalarning boshlanishi va rivojlanishida asosiy rol o'ynaydi; ular hujayralarning nazoratsiz ko'payishiga, ularning differensiasiya xususiyatlarining o'zgarishiga va invaziya qobiliyatining paydo bo'lishiga olib keladi. So'nggi yillardagi tadqiqotlar so'lak bezlaridagi o'smaviy o'sish bilan bog'liq bo'lgan bir qator aniq genlarni va ularning mutatsiyalari hamda disregulyatsiyasini aniqlash imkonini berdi. Ular orasida PLAG1, HMGA2 va CTNNB1 genlari eng muhim hisoblanadi; bu genlar hujayra tsikli, differensiasiya va hujayralararo o'zaro ta'sirlarni tartibga solishda ishtirok etadi [5,6].

O'smalar hosil bo'lishiga jalb etilgan asosiy onkogenlardan biri bu PLAG1 (pleomorphic adenoma gene 1) hisoblanadi. Ushbu transkripsiya faktori hujayra o'sishi va ko'payishi bilan bog'liq bo'lgan turli genlarning ekspressiyasini tartibga solishda muhim rol o'ynaydi. PLAG1 ning giperekspressiyasiga olib keluvchi mutatsiyalar yoki translokatsiyalar ko'pincha so'lak bezlarining pleomorf adenomalarida aniqlanadi. Aniqlanganidek, ushbu genning faolligining ortishi hujayra bo'linishini nazorat qiluvchi normal mexanizmlarning buzilishiga sabab bo'lib, natijada o'smaviy transformatsiyaga olib keladi [7,8].

O'smaviy o'sish bilan bog'liq yana bir muhim gen — HMGA2 (high-mobility group AT-hook 2) hisoblanadi. Normada HMGA2 embrional rivojlanish jarayonlarida ishtirok etib, hujayra plastiklikiga javobgar genlarning ekspressiyasini tartibga soladi. Biroq o'smaviy transformatsiya sharoitida uning anormal ekspressiyasi hujayralarning kuchaygan ko'payishiga, apoptozning bostirilishiga va yuqori migratsion faollikka olib keladi. Tadqiqotlar shuni ko'rsatadiki, HMGA2 disregulyatsiyasi so'lak bezlarining agressiv shakllari bilan bog'liq bo'lib, uni o'smaviy progressiyaning muhim molekulyar markeri sifatida qarash mumkin [8,9].

So'lak bezlari o'smalari patogeneza kam bo'lmagan ahamiyatga ega gen bu CTNNB1 (catenin beta-1) bo'lib, u β -kateninni kodlaydi — bu oqsil adgezion kontaktlarning shakllanishida va Wnt/ β -katenin signallar yo'li faollashuviga ishtirok etadi. CTNNB1 faoliyatidagi buzilishlar, shu jumladan β -kateninning barqarorlashuviga olib keluvchi mutatsiyalar, ushbu signallar yo'lining ortiqcha faollashuviga sabab bo'ladi. Natijada proliferativ genlarning ekspressiyasi kuchayadi, bu esa hujayralararo muvofiglikning buzilishiga va o'smaviy jarayonning rivojlanishiga olib keladi [10,11].

O'sma o'sishida signallar yo'llarining disregulyatsiyasi.

So'lak bezlari hujayralarining o'smaviy transformatsiyasi nafaqat genetik mutatsiyalar, balki hujayra o'sishini, differensiasiya va apoptozni tartibga soluvchi asosiy signallar yo'llarining faoliyatidagi buzilishlar bilan ham bog'liq. Kanserogeneza jalb qilingan eng muhim yo'llar orasida Wnt/ β -katenin, PI3K/AKT/mTOR va NF- κ B signallar yo'llari ajralib turadi; ular o'smaviy hujayralarning proliferativ faolligi, yashovchanligi va invaziya qobiliyatini qo'llab-quvvatlashda markaziy rol o'ynaydi. Ushbu signallar kaskadlarining disregulyatsiyasi xavfli fenotipning rivojlanishiga yordam beradi va ularni davolash uchun istiqbolli nishonlar (targets) sifatida ko'rsatadi [12,13,14].

O'smalar patogeneza eng ko'p o'rganilgan signallar mexanizmlaridan biri bu Wnt/ β -katenin yo'li bo'lib, u hujayra ko'payishi va differensiasiyasini tartibga soladi. Normada CTNNB1 geni tomonidan kodlangan β -katenin hujayralararo kontaktlarda va yadroga signal uzatishda ishtirok etadi. Biroq o'smaviy transformatsiya sharoitida β -kateninni barqarorlashuviga va sitoplazmada to'planishiga olib keluvchi mutatsiyalar sodir bo'ladi, bu esa hujayra o'sishi va apoptozni bostirish uchun javobgar genlarning transkripsiyasini faollashtiradi. Wnt/ β -katenin yo'lining giperaqtivatsiyasi o'smaviy hujayralarning agressiv fenotipini shakllantirishga va ularning an'anaviy terapiyaga chidamliligiga yordam beradi [12,15].

O'smaviy o'sishda yana bir asosiy rol o'ynovchi signallar yo'li bu PI3K/AKT/mTOR yo'li hisoblanadi. U hujayra metabolizmini, angiogeneza va o'smaviy hujayralarning yashash qobiliyatini tartibga solish uchun javobgar.

Uzoq muddatli yallig'lanish mexanizmlarining faollashuvi provosfalanti citokinlar, faol kislorod va azot shakllarining ajralishi, shuningdek ekstratsellyular matritsani remodellashtirishni keltirib chiqaradi, bu esa hujayralarning malignizatsiyasi uchun qulay sharoitlar yaratadi. Og'iz bezlari o'smalari kontekstida yallig'lanish nafaqat zlokashtik hujayralarning proliferatsiyasini

rag'batlantiradi, balki ularning apoptozga, angiogeneza va invaziv xususiyatlariga bo'lgan qarshiligiga ham ta'sir qiladi.

Yallig'lanishning asosiy mediatorlaridan biri, o'sma rivojlanishida ishtirok etuvchi interleykin-6 (IL-6) hisoblanadi. Ushbu cytokin immun javob, hujayra proliferatsiyasi va hayotiylikni tartibga solishda ko'p funksiyali rol o'ynaydi. Og'iz bezlaridagi o'sma to'qimasida IL-6 ning ortiqcha ekspressiyasi JAK/STAT3 signal yo'lini faollashtirish bilan bog'liq bo'lib, bu zlokashtik hujayralarning o'sishini kuchaytiradi, ularning apoptozini kamaytiradi va dori-darmon qarshiligini rivojlantiradi. Bundan tashqari, IL-6 o'sma mikro-muhitida fibroblastlarning faollashgan miofibroblastlarga aylanishini rag'batlantiradi, bu esa o'smaning agressiv fenotipini qo'llab-quvvatlaydi [27,28].

Kanserogeneza ishtirok etuvchi yana bir muhim provosfalanti cytokin — bu o'sma nekrozi faktori alfa (TNF- α). Uning asosiy biologik ta'siri yallig'lanish javobini modulyatsiya qilish va o'sma mikro-muhitini remodellashtirishdan iborat. Og'iz bezlaridagi o'smalarda TNF- α ning yuqori darajalari NF-kB signal yo'lini faollashtiradi, bu esa hujayra hayotiylik, angiogeneza va immunosupressiyani boshqaruvchi genlarning ekspressiyasini tartibga soladi. Bundan tashqari, TNF- α adgeziyaviy molekulalar va metalloproteinazalarning ekspressiyasini rag'batlantiradi, bu esa o'sma hujayralarining invaziv o'sishini va atrofdagi to'qimalarga tarqalishini kuchaytiradi [29,30].

XULOSA

Og'iz bezlarining o'smalari morfologik va biologik xususiyatlarga ega heterojen o'smalar guruhini tashkil qiladi. Zamonaviy ma'lumotlar tahlili ushbu o'smalarning rivojlanishi va progressiyasida genetik mutatsiyalar, signal yo'llarining disregulyatsiyasi, molekulyar markerlar ekspressiyasi va yallig'lanish jarayonlarining muhim rol o'ynashini ko'rsatadi.

O'smalarning genetik mexanizmlarini o'rganish, PLAG1, HMGA2 va CTNNB1 kabi asosiy genlarni aniqlashga imkon berdi, bu genlarning mutatsiyalari va giperekspressiyasi hujayra proliferatsiyasi va differentsiatsiyasini buzadi. Buning natijasida Wnt/ β -katenin, PI3K/AKT/mTOR va NF-kB signal yo'llarining disbalansi zlokashtik hujayralarning fenotipini saqlab qolish uchun muhim rol o'ynaydi, ularning o'sishini, angiogenezasini va apoptozga qarshiligini rag'batlantiradi.

Qo'shimcha diagnostik va prognozlashtirish ahamiyatiga ega molekulyar markerlar ekspressiyasi, masalan, CK7, p40, p63, SOX10 va S-100, o'smalarni histologik subtiplariga yanada aniqroq ajratishga va ularning potentsial agressivligini aniqlashga yordam beradi. Yallig'lanish jarayonlarining o'sma progressiyasi bilan bog'liqligi alohida e'tiborni tortadi, chunki IL-6 va TNF- α kabi provosfalanti cytokinlar nafaqat o'sma hujayralari uchun qulay mikro-muhitni yaratadi, balki ularning proliferatsiyasini, angiogenezasini va invaziyasini ham qo'llab-quvvatlaydi.

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MORPHOMETRIC PARAMETERS OF THE THYMUS GLAND IN THE EARLY ANTENATAL PERIOD OF DEVELOPMENT

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Abstract. In the study of materials thymus of embryos and fetuses in the seventh week there were found out the formation of the epithelial bud. 8-9 week showed the population of epithelial cords lymphocytes. By 11-12 weeks of development there were determined by prostate lobes with all their characteristic components. In terms of 18-20 and 27-28 weeks of embryogenesis, the peaks were set to increase the number of thymic cells, was likely to result in an increase of cortical cancer due to proliferation of lymphoblasts subcapsular zone.

Keywords: thymus, antenatal period, thymic cells.

INTRODUCTION

The relevance of the topic. Knowledge of the processes of development of the human immunogenesis system during embryonic development will help to establish the timing of the morphofunctional formation of the immune status, as well as shed light on the etiology of human immunodeficiency conditions and determine methods for their correction. In the embryological aspect, the thymus gland is one of the first endocrine organs and the first lymphoid organ [2,4]. It is a regulator and at the same time a producer of lymphoid cells, as well as the primary regulator of immune processes in the organs of lymphogenesis (lymph nodes, spleen, mucosal lymphoid formations) [2,3]. Along with this, the lymphatic system plays a key role in the body's homeostasis and contributes to maintaining the balance between mother and fetus during pregnancy and the birth of a healthy and viable fetus [3, 4]. Hence, the thymo-lymphatic system of the fetus is a criterion of the adaptation constant for the "mother – placenta–fetus" system [1,3,6]. The above indicates that the study of morphofunctional changes in the lymphatic system is one of the urgent problems of general biological and medical importance.

The purpose of the study: to study the dynamics of morphological changes in the thymus gland in the early antenatal period of development, solving the problem of determining the timing of morphofunctional formation of the thymus gland.

MATERIALS AND METHODS

The research material was the thymus gland of 8 fetuses after medical abortion and 14 stillborn fetuses that developed under physiological conditions of pregnancy and died as a result of birth trauma. The age of the fetus was determined by the date of the woman's last menstruation and by the length of the fetal body using special tables. After histological wiring, the paraffin sections of the organ were stained with hematoxylin-eosin, azur II-eosin. The microanatomic organization of the thymus lobules was studied, the cerebral cortical index and the total area of the thymic bodies were determined. Statistical processing of the research results was carried out using the Material Vision program, the analysis of the results was carried out using the arithmetic mean, the error of the mean and the Student's criterion (t). The differences between the averages at $p < 0.05$ were considered significant.

THE RESULTS AND THEIR DISCUSSION

It is well known that the human thymus gland is laid in the second month of embryonic development in the form of small protrusions in the area of the third and partially fourth gill pockets. At week 7 of intrauterine development, its rudiment had a pronounced epithelial character and consisted of weakly branching epithelial strands. From week 7, during embryogenesis, the mass of the thymus gland increases. The organ grows mainly due to the epithelial cells of the subcapsular zone. Cells with the highest proliferative potentials are concentrated in this area, as evidenced by the presence of a large number of mitotically dividing cells. Already at the 8th week of development, compared with the 7th week, the thymus gland acquires sharp differences. The cells of the subcapsular zone grow in the form of wide outgrowths in the surrounding mesenchyme and seal up areas of the mesenchyme along with blood vessels. Thus, the blood vessels are also surrounded by young epithelial cells. At 8-9 weeks, there is a noticeable proliferation of the epithelium and lymphocytes are found (populated) in the epithelial network. At week 10 of embryogenesis, the thymus gland begins to divide into lobules. By 11-12 weeks of development, as a result of the cleavage of primary epithelial outgrowths in the thymus gland, lobules are clearly defined, with all their characteristic components – cortical and cerebral matter and small bodies of the thymus. During the period of 11-12 weeks, an increase in organ size occurs not only through proliferation of the initial epithelial cord, but mainly through epithelial overgrowth in the surrounding mesenchyme with the obligatory preservation of mitotic activity of epitheliocytes over the entire surface of the subcapsular zone. At the 12th week of development, blood vessels are well defined in the cortical substance of the thymus gland. A rapid increase in organ mass after 12 weeks occurs, on the one hand, due to the fact that there are two growth zones in the thymus from this period. The first of them is located on the periphery – the subcapsular zone. The second growth zone of the reticuloepithelial stroma is located inside the organ. On the other hand, during these periods of development, increased proliferation of lymphoblasts occurs in the circumference of blood vessels, mainly in the medulla. Subsequently, from the age of 14 weeks, the area of the thymus gland's medulla increases rapidly. Along with this, the number and size of thymic bodies in the thymus gland increases. Two peaks of an increase in the number of thymic bodies have been established. The first occurs at 18-20 weeks, and the second at 27-28 weeks of embryogenesis. The most significant period is the 27-28 weeks of development. During this period, there is a sharp slowdown in the increase in the area of the medulla. After 27-28 weeks of development, the content of the thymic bodies of the thymus gland of the fetus stabilizes.

If at the time of 19-22 weeks of gestation the cerebral cortical index was 0.82, then at the time of 27-28 weeks of intrauterine development it increased to 1.07. At 27-28 weeks of gestation, there was a sharp increase in the area of thymic bodies to 12.6%, whereas at 19-22 weeks their area was 5.2 %.

CONCLUSION

The period of 7-12 weeks of gestation can be characterized as a critical stage of thymus gland development. Its criticality lies in the fact that at this time lobules with cortical and cerebral matter with small single bodies of the thymus are formed in the organ, blood vessels such as postcapillary venules with high prismatic epithelium are well defined. During these periods, the epithelial strands of the organ are populated by lymphocytes. And the established peaks of an increase in the number of thymic bodies (18-20 and 27-28 weeks of embryogenesis) apparently lead to a sharp increase in the area of the cortical substance of the gland due to increased

proliferation of lymphoblasts of the subcapsular zone and, accordingly, a decrease in the area of the medulla.

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СОВРЕМЕННЫЕ ПОДХОДЫ К ЛЕЧЕНИЮ ФАРМАКОРЕЗИСТЕНТНОЙ ЭПИЛЕПСИИ У ДЕТЕЙ И ПОДРОСТКОВ: РОЛЬ КЕТО-ДИЕТЫ И КОРРЕКЦИИ БЕЛКОВО-ЭНЕРГЕТИЧЕСКОЙ НЕДОСТАТОЧНОСТИ

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Аннотация: последнее десятилетие, фармкомпании представили миру большое количество конвульсантов, различного выбора по эффективности и возможностям, контроля пациентов с эпилептическими приступами. Основопологающим фактором при выборе противоэпилептических препаратов является: безопасность, минимализация осложнений, монотерапия и главное, купирование приступов. Однако, не смотря на лучшую переносимость и более упрощенную особенность приема многих конвульсантов, последнего поколения (третьи по счету), противоэпилептических препаратов не решили всех вопросов у пациентов с трудноизлечимой эпилепсией, в особенности касающихся детского или подросткового возраста (Л.М.Сушко, 2017). В связи с чем, современная медицина рассматривает возможность введения альтернативных методов терапии в частности, примером которых является кетогенная диета (КД) (Перукка Э., с соавт., 2023).

Ключевые слова: эпилепсия, дети, монотерапия, психоневрологическая устойчивость.

MODERN APPROACHES TO THE TREATMENT OF PHARMACORESISTANT EPILEPSY IN CHILDREN AND ADOLESCENTS: THE ROLE OF THE KETO DIET AND CORRECTION OF PROTEIN-ENERGY DEFICIENCY

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Abstract: in the last decade, pharmaceutical companies have introduced to the world a large number of convulsants, various choices in terms of effectiveness and capabilities, control of patients with epileptic seizures. The fundamental factor in choosing antiepileptic drugs is: safety, minimization of complications, monotherapy and, most importantly, stopping seizures. However, despite better tolerability and a more simplified feature of taking many convulsants, the latest generation (third in a row) antiepileptic drugs have not solved all the issues in patients with intractable epilepsy, especially those related to childhood or adolescence (L.M. Sushko, 2017). In this regard, modern medicine is considering the possibility of introducing alternative methods of therapy, in particular, an example of which is the ketogenic diet (KD) (Perucca E., et al., 2023).

Key words: epilepsy, children, monotherapy, psychoneurological stability.

ВВЕДЕНИЕ

Более сто лет тому назад, были предприняты первые рекомендации в лечение пациентов с эпилепсией голоданием или диетой с использованием высокого содержания жиров. Научно обоснованное применение КД, представленных исследований (Лихачев С.А., с соавт., 2018), направленно на доказательность и перспективность использования данного метода в лечение пациентов с эпилепсией, кроме того, эквивалентная оценка эффективности кето-диеты, приравнивается противоэпилептическим препаратам по данным литературы (Е.Г.Лукьянова с соавт., 2021). Важной составляющей в решении спорных задач КД, методика применения правильного питания включена в рекомендации

Международной эпилептической лиги (ILAE) (Kossoff EH et al 2018). Кетодиета, в классическом его понимании, диета с достаточно низким содержанием углеводов (в некоторых случаях полным отсутствием), пониженным содержанием белков или адекватно сбалансированным, и высокое содержание жиров, в итоге, диета пробуждает выработку кетонных тел. Большинство клинических исследований доказало, эффективность применения КД в качестве терапии при фармакорезистентных эпилепсиях, в первую очередь у детей и подростков, так как дети лучше входят в кетоз и имеют лучшую переносимость (Lefevre F.; Aronson N., 2000; Н.Г.Люкшина, 2021). Детям и подросткам, с учетом развивающегося организма, целесообразно использовать определенную пропорцию, 3:1, где жиры пропорциональны с позиции насыщенных, моно- и полиненасыщенных жирных кислот, а белки достаточно поддерживались на уровне, необходимые для роста детей. При этом соблюдать правило использования только свежих продуктов, без консервантов и химикатов, с добавлением необходимых для организма микроэлементов (кальция, витамина D, фолиевой кислоты, цинка, железа) (Ван дер Лоу Э. с соавт., 2016; Kishk N.A., et al., 2022). Патомеханизм влияния КД на процесс купирования эпилептических приступов, является не до конца ясным и спорным. Основопологающим фактором, по мнению авторов исследований, считается соблюдение и обеспечение внутреннего баланса между возбуждающими и тормозящими нейротрансмиттерными системами головного мозга, за счет повышения концентрации ГАМК системы в мозге, усиливается нейрональная гиперполяризация, путем активации калиевых каналов (Boison D., 2017; Скробас У., с соавт., 2022; Шарма С., с соавт., 2023; Богданова Н.М., с соавт., 2023; Сулонова АП с соавт 2024). Данным исследованием, показали является ли КД эффективной при лечении эпилепсии у детей не поддающихся медикаментозной терапии.

МАТЕРИАЛ И МЕТОДЫ ИССЛЕДОВАНИЯ

Базовое клиничко-диагностическое обследование пациентов проводили в Многопрофильной Клинике Самаркандского государственного медицинского университета (МК СамГМУ): амбулаторно-поликлиническое отделение (кабинеты детского невролога, кабинеты функциональной и нейрофизиологической диагностики); отделение детской неврологии, отделение детской нейрохирургии; за период 2021-2024 годы. Для обследования отобраны дети возрастных категорий от 5-9 лет, и от 14-18 лет, с подтверждённым диагнозом Эпилепсия; общее количество которых составило 163 пациентов; следующим степ-распределением послужили критерии включения пациентов в работу: дебют эпилептических приступов в разрезе возраста 5-9 лет, и 14-18 лет; эпилепсия и приступы судорог в анамнезе или в текущий период обследования; письменное разрешение на обследование со стороны родителей; критерии исключения пациентов: пациенты с тяжелой или средней тяжести соматической (коморбидной) патологией, возраст детей до 5 лет и с 10 до 14 лет, дети и подростки с тяжелым нарушением психики, и тяжелым статусным течением (необходимость стационарного и реанимационного вмешательства). Из общего количества выборочного контингента, дети от 5 до 9 лет составили 39%, что составило 64 пациента, подростки от 14 до 18 лет составили 61%, что составляет 99 пациентов. В тоже время распределение в гендерном аспекте, указывает на незначительное преобладание со стороны девочек на 1,5%, где девочки составили из общего количества 51,5% (83 пациентов), мальчики 48,5% (80 пациентов) соответственно. Отбор пациентов проводился с соблюдением тщательного анамнестического контроля, где важной составляющей являлось наличие эпилептических приступов (со слов родителей и

родственников) и поставленной цели и задач, для углубленного анализа результатов исследования, клинические случаи заболевания разделены в соответствии Классификации эпилепсии Международной противэпилептической лиги ILAE (пересмотр и обновление 2017 года) и Классификации МКБ-10. Диагноз эпилепсии базировался на совокупности клинических, электроэнцефалографических данных, и методов нейровизуализации. Контрольную группу (35) здоровых, составили, в период прохождения детей и подростков профилактического осмотра в МК СамГМУ (с письменного разрешения родителей).

В соответствии поставленной целью, из основной группы обследованных пациентов, отобрана группа в количестве 27 детей, с соблюдением критериев включения: Эпилепсия, при которой противэпилептические препараты в адекватных дозах и комбинациях оказывались неэффективными; длительность заболевания более 5 лет от дебюта заболевания; кроме того, с выявленной белково-энергетической недостаточностью. Для этого, дети прошли осмотр и консультацию диетолога (сотрудник врач-диетолог МК СамГМУ), при этом определена верифицированность белковой недостаточности, согласно оценки антропометрических данных с использованием программы «WHO AnthroPlus» дополнительно анамнестического опроса и анализа результатов клинко- соматического статуса. Учитывали при этом, в соответствии классификации ВОЗ, наличие умеренной ($Z\text{-score масса/рост} > -3 / < -2$) и тяжелой ($Z\text{-score масса/рост} < -3$) степени недостаточности питания). Кроме этого, необходимо было изучить анализ фактического питания пациентов с продуманным составом биохимического рациона используя компьютерную программу «Рацион питания для детей с эпилепсией (РПДЭ)». В связи с этим, реализовали анкетно-опросный метод с учетом всей съеденной пищи за 3 суток. Анкета-опросник заполнялась родителями совместно с врачом-диетологом (предварительно родители обучались заполнению данных анкет- опросников). Программа РПДЭ, помогает обдумать, рассчитать и сравнить возрастные нормы необходимых питательных веществ и энергии, что соответствует актуальным рекомендациям ESPGHAN (2017 г.) по нутритивному обеспечению детей с неврологической патологией. Следующим этапом, в исследовании 27 пациентов, проводили «Биоимпедансный анализ состава тела» (г.Самарканд, частная Клиника «Зармед»), на специальном приборе-анализаторе «Omron», определяли: Индекс Кетле, или же просто индекс массы тела (ИМТ); Активную клеточную массу (АКМ); Массу свободную от жира, или же просто тощая масса тела (ТМТ); Скелетно-мышечная масса (СММ); Основной и Удельный основной обмен (ОО и УОО);Общее количество воды в организме , с использованием норм, разработанных совместно с Институтом питания Республики Узбекистан. Импедансометрия была проведена всем наблюдаемым пациентам данной группы дважды: до и после проводимых лечебных мероприятий. Исследование проводилось в стандартных условиях, в положении лежа на кушетке, натошак: за 1 час до него были полностью исключены прием пищи и воды.

Коррекция питания, Кетодиета проводилась строго под контролем врача-диетолога, лечащего врача и родителей (в условиях стационара) лечебное питание, с соблюдением соотношения жиров к сумме белков и углеводов 3:1 (Kossoff E., Freeman J., Turner Z., Rubenstein J. (2011). При этом учитывается энергетическая потребность и зависимость от возрастных нормативных потребностей. Весь суточный рацион разделен на 3–4 приема пищи, одинаковых по своей энергетической ценности и составу нутриентов, для сохранения равномерных и стабильных чисел кетонемии.

Таким образом, разработана меню-раскладка кетогенного рациона в соотношении 3:1, адаптированного под возрастные потребности пациентки (снижение каллоража не применялось). Переход на КД осуществлялся в условиях стационара, по ступенчатой схеме (подобный подход позволяет ускорить достижение кетоза): первый день начинался с голодной паузы, длящейся до появления кетонемии/снижения уровня глюкозы до нижней границы нормы (только разрешалось питье воды). После пациенты начинали прием пищи: в первый день 1/3 от разработанного для нее суточного меню, во второй день 1/2, в третий день 3/4 соответственно. Начиная с четвертого дня и в дальнейшем ребенок получал КД в полной суточной потребности. Контроль содержания глюкозы и кетоновых тел в крови осуществляется в стационаре мед персоналом, в последующем родителями, посредством глюкометра с дополнительной функцией измерения уровня кетонемии. Все параметры определялись перед едой, кетонемия два раз в сутки, гликемия и кетонурия три или четыре раза в сутки, в зависимости от кратности питания. При достижении стабильных чисел вышеуказанных параметров и хорошей переносимости КД, в дальнейшем мониторинг кетонемии и гликемии производится 1 раз в 3–5 дней, измерение кетонурии – 1 раз в 2 дня.

РЕЗУЛЬТАТ ИССЛЕДОВАНИЯ

27 пациентам, отобранном из основной группы (163), в возрасте от 12 до 18 лет, проводилось более углубленное исследование нутритивного статуса. Осмотр врача диетолога показал, что в группе, есть отличия по уровню белково-энергетической недостаточности, так легкую степень недостаточности имели 13 пациентов (48%), средний уровень имели 13 пациентов (48%), и только 1 пациент имел тяжелый уровень (4%). Результат оценки антропометрических данных с использованием программы «WHO AnthroPlus» показал, что исходная масса тела наблюдаемых больных варьировала от 15 до 32 кг. Z-score массы тела к возрасту (WAZ) составил от -4,56 до 0,30. Средний показатель Z-score массы тела к возрасту (WAZ): -1,35 (-2,25; -0,45). Сопоставление показателей и корреляционный анализ исследования выявил прямую взаимосвязь массы тела наблюдаемых пациентов с возрастом ($r=0,6$, $p<0,01$) и с длиной тела ($r=0,9$, $p<0,01$), при этом дети имеющие большую массу тела обнаружили, соответственно высокий ИМТ ($r=0,77$, $p<0,05$), и значительно высокие показатели жировой массы тела ($r=0,91$, $p<0,01$), тощей массы тела ($r=0,91$, $p<0,01$), активной клеточной массы ($r=0,73$, $p<0,01$), скелетно-мышечной массы тела ($r=0,88$, $p<0,01$), общей жидкости ($r=0,99$, $p<0,01$) и внеклеточной жидкости ($r=0,89$, $p<0,01$). Показатели длины тела у обследованных детей варьировали от 140 до 160 см. При этом Z-score длины тела к возрасту (HAZ) варьировал от -3,3 до 1,0. Средний показатель Z-score длины тела к возрасту (HAZ) составил -1,36 (-2,2; -0,6). В ходе исследования были определены прямые связи длины тела наблюдаемых пациентов со следующими показателями: с возрастом ($r=0,8$, $p<0,01$), с массой тела ($r=0,9$, $p<0,01$), с жировой массой тела ($r=0,7$, $p<0,01$), с тощей массой тела ($r=0,8$, $p<0,01$), с активной клеточной массой ($r=0,6$, $p<0,01$), со скелетно-мышечной массой тела ($r=0,8$, $p<0,01$), с общей жидкостью ($r=0,8$, $p<0,01$) и с внеклеточной жидкостью ($r=0,8$, $p<0,01$). Результат биоимпедансного анализа (до коррекции питания): ИМТ в пределах нормы отмечался у 3 детей (11,1%), с пониженным уровнем у 10 детей (37,0%), у остальных наблюдаемых пациентов 14 детей (51,8%) отмечено повышение. Z-score ИМТ к возрасту (BAZ) варьировал от -3,4 до 0,9. Средний уровень показателя равен Z-score ИМТ к возрасту (BAZ) составил -0,9 (-2,01; 0,2). Анализ корреляционных данных выявил прямую связь ИМТ с массой тела ($r=0,5$, $p<0,05$), с жировой массой тела ($r=0,6$, $p<0,01$), с общей жидкостью

($r=0,4$, $p<0,05$) и с внеклеточной жидкостью ($r=0,5$, $p<0,05$) у наблюдаемых пациентов. Кроме того, показатель жировой масса тела у обследованных пациентов находилась в пределах от 0,91 до 9,9 кг, только в 8% случаях выявлено снижение, в 4% случаях находилось в пределах нормы, у остальных детей 88% отмечено повышение показателей. Помимо этого, обнаружена прямая связь жировой массы тела со следующими показателями: с возрастом ($r=0,5$, $p<0,05$), с длиной тела ($r=0,7$, $p<0,01$), с массой тела ($r=0,9$, $p<0,01$), с индексом массы тела ($r=0,6$, $p<0,01$), с тощей массой тела ($r=0,8$, $p<0,01$), с активной клеточной массой ($r=0,6$, $p<0,01$), со скелетно-мышечной массой тела ($r=0,7$, $p<0,01$), с общей жидкостью ($r=0,8$, $p<0,01$) и с внеклеточной жидкостью ($r=0,8$, $p<0,01$). Результат исследования показателей тощей масса тела была понижен у 27% детей, в 51% детей соответствовало норме. В наблюдаемой группе этот показатель варьировал от 10,10 до 39,8 кг, корреляционный анализ выявил наличие прямых связей между тощей массой тела и возрастом ($r=0,6$, $p<0,01$), длиной тела ($r=0,8$, $p<0,01$), массой тела ($r=0,9$, $p<0,01$), жировой массой тела ($r=0,8$, $p<0,01$), активной клеточной массой ($r=0,9$, $p<0,01$), скелетно-мышечной массой тела ($r=0,99$, $p<0,01$), общей жидкостью ($r=0,9$, $p<0,01$) и внеклеточной жидкостью ($r=0,9$, $p<0,01$).

Изучение показателей скелетно-мышечной массы тела обнаружил: понижение у 5 (18%) больных, у 3-х пациентов (11,1%) соответствовало норме, в остальных случаях имело повышение. Распределение в исследуемой группе данного параметра приходилось от 29% до 63,0%. Результат корреляционного анализа выявил прямую связь скелетно-мышечной массы тела со следующими показателями: с возрастом ($r=0,7$, $p<0,01$); с длиной тела ($r=0,79$, $p<0,01$); с массой тела ($r=0,85$, $p<0,01$); с жировой массой тела ($r=0,77$, $p<0,01$); с тощей массой тела ($r=0,99$, $p<0,01$); с общей жидкостью ($r=0,88$, $p<0,01$); с внеклеточной жидкостью ($r=0,89$, $p<0,01$).

Следующие показатели находились в различных диапазонах: так, удельный основной обмен (УОО) понижен у 3-х пациентов, в 11 (40%) случаях повышен и, соответствовал норме – у 13 пациентов. Данный показатель варьировал от 865,0 до 2108,0 ккал/кв.м/сут.; Общая жидкость организма была в пределах нормальных значений у 10 детей, повышена – у 16 (59,2%) больных, понижена – у 1-го пациента, показатель варьировал от 9 до 30 кг. Внеклеточная жидкость была снижена по показателям у 18 (66,6%) наблюдаемых пациентов, в остальных случаях, у 9 (33,3%) детей отмечались в пределах нормы. Обнаружена прямая связь между общей и внеклеточной жидкостями со следующими показателями: с возрастом ($r=0,5$, $p<0,01$) и ($r=0,6$, $p<0,01$), соответственно; с длиной тела ($r=0,80$, $p<0,01$) и ($r=0,75$, $p<0,01$), соответственно; с массой тела ($r=0,95$, $p<0,01$) и ($r=0,9$, $p<0,01$), соответственно; с индексом массы тела ($r=0,40$, $p<0,05$) и ($r=0,45$, $p<0,05$), соответственно; с жировой массой тела ($r=0,8$, $p<0,01$) и ($r=0,8$, $p<0,01$), соответственно; с тощей массой тела ($r=0,80$, $p<0,01$) и ($r=0,88$, $p<0,01$), соответственно; со скелетно-мышечной массой тела ($r=0,85$, $p<0,01$) и ($r=0,85$, $p<0,01$), соответственно. Выявлена прямая корреляционная зависимость между общей жидкостью и внеклеточной жидкостью ($r=0,93$, $p<0,01$).

У всех обследованных пациентов, результат биохимического состава рациона питания, показал, что во всех 100% случаях, имеет место снижение калорийности питания, по сравнению с возрастной нормой потребления (от 25% до 65% ниже возрастной нормы потребления). Уровень белка: в 69,5% случаях выявлено снижение содержания белка в фактическом питании по сравнению с возрастной нормой (от 10% до 55% ниже возрастной

нормы потребления), в то время как в остальных случаях зафиксировано его повышение (от 10% до 24% выше возрастной нормы потребления). Уровень жира: в рационе питания было снижено в 90,2% случаях (в диапазоне от 10% до 33% ниже возрастной нормы потребления), в остальных случаях отмечалось повышение (от 10% до 22% выше возрастной нормы потребления). Уровень углеводов: содержания с низким показателем отмечено в 100% случаях в фактическом питании (от 10% до 42% ниже возрастной нормы потребления). Оценка содержания сбалансированного баланса недостаточности белков /жиров/ углеводов и низкой калорийности выявлено в 73% фактического питания. В 26,3% у пациентов определено сочетание сниженного содержания жиров/ углеводов / низкой калорийности фактического питания с повышенным содержанием белка. Только у 2-х больных обнаружено повышенное содержание белков/жиров и снижение углеводов / низкой калорийности фактического питания. Таким образом, состав рациона питания в данной группе показал, недостаточность потребления белков/ жиров/ углеводов / низкую калорийность принимаемой еды. Следующим этапом в исследования, проведена коррекция питания выявленных нарушений, и через три месяца, проводился повторный контроль в динамике антропометрических показателей, физикальных данных и биоимпедансного исследования. Общая масса тела обследованных детей в динамике приблизилась к норме, при этом Z-score массы тела к возрасту (WAZ) находилась в диапазоне от -4,8 до 0,26. Средний уровень Z-score массы тела к возрасту (WAZ) выявил следующие показатели: -0,94 (-1,83; -0,40), то есть отмечено достоверное повышение Z-score массы тела к возрасту (WAZ) ($p < 0,001$). Анализ показателей биоимпедансного исследования в динамике представляет собой положительную динамику, ИМТ без изменения выявлен у 6 (22,2%) пациентов, при этом в 77% случаях соответствовал нормативным показателям, вариация отмечена в пределах от 14 до 19,1, ($p < 0,001$), где средний уровень индекса равен (ИМТ) 16,6. Корреляционный показатель Z-score ИМТ к возрасту (BAZ) составил при этом -0,58. Общая жидкость организма в норме выявлена в 80,1% случаях, в остальных случаях оставалась повышенной. Кроме того, внеклеточная жидкость в 100% случаях соответствовало пределам нормы. Уровень содержания жира, в динамике у пациентов оставался без изменения у 4 (14,8%) пациентов, у 1 пациента отмечено повышение показателей, а в остальных случаях величина выявлена в пределах нормы, при этом вариация показателей находилась в пределах от 13, 0% до 28,0%. Таким образом, показателей в динамике (после коррекции питания, КД), отмечает статистически достоверную положительную динамику у обследованных пациентов ($p = 0,005$).

Основой пошагового режима кетогеновой диеты является наличие или полное отсутствие эпилептических приступов. За три месяца, предшествующих началу КД мед персоналом и родителями зафиксированы неоднократные судорожные приступы, при этом пациенты получали комбинированные противосудорожные препараты, кроме того, из данной группы пациенты для купирования эпилептического статуса, не раз были госпитализированы в отделения реанимации. Кроме того, в исследуемой группе на ЭЭГ у всех пациентов выявлена эпилептиформная активность в виде высокоамплитудных всплесков медленных волн с включением спайка, в некоторых случаях, диффузно с лобным преобладанием, и замедлением основной активности. После проведенной коррекции питания КД, за период трех месяцев, у пациентов достигнута следующая положительная динамика: отмечено снижение частоты на 78%, отмечена регистрация улучшения показателей на ЭЭГ, в частности снизился индекс эпилептиформной активности на 64%. До

начала медикаментозной коррекции питания (КД), пациенты в более 50%, испытывали тяжелый восстановительный период после приступа, длившийся от 5 до 24 часов, в виде вялости или апатии, иногда сложность испытывали сложность в передвижении. После КД, у пациентов в постприступный период, практически не страдало общее состояние, не фиксировались осложнения. За период трех месяцев, пациенты не были госпитализированы в реанимационное отделение со эпилептическим статусом.

Еще одним важным показателем является анализ уровня эффективности кетонемии, гликемии, кетонурии. Данные показатели находились в значительных колебаниях диапазона, только к началу третьей недели, изменили направление и стабилизировались, при этом уровень кетонемии в среднем находился в пределах от 4 до 4,5 ммоль/л. Но изменения за пределы допустимых цифр, не были отмечены ни у одного пациента, хотя в первые недели у нескольких пациентов (5 человек), имело место характерность повышенной кетонемии с низким показателем глюкозы в крови. Ряд авторов подтверждают такие признаки на раннем этапе введения КД (Oldham M., Horn P., Tsevat J., Standridge S., 2015). К концу третьего месяца динамического периода, показатели кетонемии и гликемии в среднем составили: 2 ммоль/л и 5,4 ммоль/л, при этом, за весь период кето-терапии уровень кетоновых тел в моче был в ++++. То есть, средние показатели уровня кетонемии (снижение) и гликемии (приближенные к норме), можно объяснить тем аргументированным фактом, что три месяца достаточно для стабилизации полной адаптации организма к КД и, как следствие, увеличить скорость утилизации кетоновых тел и усилить процесс глюконеогенеза, следовательно, улучшается контроль над приступами, как показывают данные ЭЭГ. Общее состояние пациентов на третий месяц проведения коррекции питания, было стабильно, показатели: анализа крови и биохимического анализа крови, анализа мочи, сопоставимы с результатами аналогичных представленных выше, исследований, и находились в соответствии возрастной нормы. ЭКГ проводимое, как дополнительный метод контроля, не выявил изменений по окончанию исследования. Таким образом, для проведения коррекции питания группе пациентов, отобранных для исследования, предварительно была разработана программа проведения с включением специалистов: врач-диетолог (штатный сотрудник МК СамГМУ), Врач -невролог, Врач-педиатр, медицинская сестра, сотрудники пищеблока (МК СамГМУ). После осмотра врачом-диетологом пациентов, им же было разработана и предложена диета, (в соответствии стандартов кето-диеты, данный нормативный лист направлялся в пищеблок (кухня), где готовилась с последующей раздачей в отделение детской неврологии отобранным пациентам. Одновременное проведение 27 пациентам исследования, и введение кетодиеты, было затруднительно и сложно контролировать, в связи с этим пациенты разделены были на три подгруппы по 9 человек, которые менялись каждые три недели от начала перехода на новое питание. В последующем, с переводом детей на амбулаторный контроль, пациенты были под контролем участкового врача, мед сестры (которые специально были обучены принципу проведения контроля и заполнения дневника состояния пациентов), приготовлением еды занимались или родители (соблюдая правила), или пользовались доставкой еды из специализированных дието-ресторанов. Анализ контроля крови проводили в условиях поликлиники по месту жительства и в МК СамГМУ (поликлиника). Все 27 пациентов отобраны помимо клинических особенностей приступов эпилепсии (в основном пациенты с фармакорезистентностью), с длительным периодом заболевания, с признаками нарушения метаболизма (с белково-энергетической

недостаточностью), кроме того, для лучшего контроля качества проведения коррекции питания (кетодиета), пациенты проживали в городе Самарканде (что облегчило контакт с пациентами и родителями).

РЕЗЮМЕ

Сравнительный анализ эффективности медикаментозного лечения эпилепсии показывает, что применение противоэпилептических препаратов (ПЭП) не всегда позволяет достичь желаемых результатов, даже в случае комбинированной терапии. Современные стандарты лечения акцентируют внимание не только на уменьшении частоты или полном купировании приступов, но и на улучшении качества жизни пациентов. Длительное использование ПЭП, которое зачастую становится пожизненным, сопровождается рядом проблем. У детей и подростков контроль приёма препаратов во многом зависит от внимательности и вовлеченности родителей, что негативно сказывается на их собственном качестве жизни. Дополнительно, приём ПЭП может сопровождаться побочными эффектами, включая нарушение когнитивных функций, эмоциональную лабильность, снижение внимания и трудности социальной адаптации. Замена одного препарата на другой из-за отсутствия эффективности или выраженных побочных действий ещё больше усложняет ситуацию. Эти данные подчёркивают необходимость комплексного подхода к лечению, который включает не только медикаментозную терапию, но и дополнительные меры, направленные на улучшение общего состояния пациента. Одним из таких направлений является привлечение врачей-диетологов для оценки рациона питания и выявления дисбалансов белков, жиров и углеводов у пациентов с эпилепсией. Известно, что нарушение метаболических процессов, в том числе белково-энергетическая недостаточность, может оказывать влияние на частоту и тяжесть эпилептических приступов. Проведение биоимпедансного анализа позволяет определить состав тела, включая уровень жировой и мышечной массы, а также степень белково-энергетической недостаточности. Это даёт возможность своевременно выявлять факторы, влияющие на нутритивный статус пациентов, и разрабатывать индивидуализированные планы питания. Коррекция рациона в сочетании с медикаментозной терапией способствует:

- Улучшению нутритивного статуса детей с эпилепсией.
- Уменьшению частоты эпилептических приступов.
- Повышению когнитивной и физической активности.
- Нормализации психоэмоционального состояния.

Таким образом, интеграция нутритивной коррекции в протоколы лечения позволяет не только контролировать эпилептические приступы, но и улучшать соматический статус пациентов, снижать риск осложнений, связанных с ПЭП, и повышать общий терапевтический потенциал. Комплексный подход к лечению пациентов с эпилепсией, учитывающий, как фармакологические, так и метаболические аспекты, способствует достижению более устойчивых и значимых результатов.

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ЧЕЛЮСТНО-ЛИЦЕВАЯ ХИРУРГИЯ И ЭСТЕТИЧЕСКАЯ МЕДИЦИНА: СОВРЕМЕННЫЙ ВЗГЛЯД

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Аннотация. Данная статья рассматривает основные направления ЧЛХ и эстетической медицины, современные методы лечения, их эффективность, а также перспективы развития данных областей.

Ключевые слова: ЧЛХ, эстетика, медицина, инновационные технологии.

MAXILLOFACIAL SURGERY AND AESTHETIC MEDICINE: A MODERN VIEW Kuvondikov Mirsodik M., Kuvondikov Mirsaid M., Khaitmatov Kh.Sh., Nomozov B.S., Kayumov Sh.Sh.

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Abstract. This article examines the main areas of maxillofacial surgery and aesthetic medicine, modern methods of treatment, their effectiveness, as well as prospects for the development of these areas.

Keywords: maxillofacial surgery, aesthetics, medicine, innovative technologies.

ВВЕДЕНИЕ

Челюстно-лицевая хирургия (ЧЛХ) и эстетическая медицина — это важные направления современной медицины, занимающиеся лечением патологий лица и шеи, восстановлением их функций, а также улучшением внешнего вида. В последние десятилетия появилось множество инновационных технологий, позволяющих минимизировать травматичность вмешательств и ускорить реабилитацию пациентов. Челюстно-лицевая хирургия: область применения и современные методы. Основные направления ЧЛХ. Травматология лица — лечение переломов челюстей и костей лица, устранение последствий травм.

Реконструктивная хирургия — восстановление лица после травм, операций или врожденных дефектов. Коррекция врожденных аномалий — лечение заячьей губы, волчьей пасти и других пороков развития. Ортогнатическая хирургия — исправление аномалий прикуса, смещения челюстей. Имплантология — установка зубных имплантов, костная пластика.

Эстетическая хирургия лица — пластика носа, век, подтяжка лица. Современные технологии в ЧЛХ. 3D-моделирование и цифровая диагностика — позволяют заранее планировать операцию. Навигационная хирургия — повышает точность хирургических манипуляций. Малоинвазивные методы — лазерная и эндоскопическая хирургия снижают травматичность. Тканевая инженерия — биоматериалы и стволовые клетки помогают восстанавливать ткани. Эстетическая медицина: инновации и тренды. Основные направления эстетической медицины. Инъекционные методики — ботулинотерапия, контурная пластика филлерами. Аппаратные процедуры — лазеры, ультразвук, радиочастоты. Омолаживающие процедуры — биоревитализация, плазмолечение, нитевой лифтинг. Хирургические методики — подтяжка лица, липофилинг, пластика век и носа. Популярные эстетические процедуры. Ботулинотерапия — устранение мимических морщин. Контурная пластика — моделирование

скул, губ, носа с помощью филлеров. Лазерное омоложение – удаление морщин, пигментации, шрамов. SMAS-лифтинг – глубокая подтяжка лица. Биоревитализация – увлажнение и восстановление кожи.

РЕЗУЛЬТАТЫ И ОБСУЖДЕНИЕ

Эффективность современных методов ЧЛХ. Современные технологии челюстно-лицевой хирургии значительно улучшили прогноз для пациентов: Сократилось время реабилитации – использование малоинвазивных методов позволяет пациентам быстрее восстанавливаться после операций. Увеличилась точность хирургических вмешательств – применение 3D-моделирования и навигационной хирургии снизило вероятность осложнений. Развитие регенеративных технологий – использование биоматериалов и стволовых клеток ускоряет заживление. Несмотря на успехи, некоторые проблемы остаются актуальными: Высокая стоимость инновационных методов ограничивает их доступность. Риск осложнений (инфекций, некроза тканей) сохраняется при сложных хирургических вмешательствах. Психологические аспекты – пациенты часто имеют завышенные ожидания от операций.

Результаты применения эстетической медицины. Анализ эффективности популярных эстетических процедур показывает, что: Инъекционные методики дают быстрые результаты, но требуют регулярного повторения. Лазерные и аппаратные технологии улучшают качество кожи и помогают в борьбе со старением. Хирургические методы обеспечивают стойкий эффект, но связаны с длительным периодом реабилитации.

Основные вызовы эстетической медицины: Некоторые процедуры могут вызывать побочные эффекты (отек, асимметрию). Не все методы подходят для каждого пациента (индивидуальная реакция кожи). Развитие «инстаграм-культуры» приводит к завышенным ожиданиям от косметических процедур. Таким образом, интеграция науки и технологий помогает сделать ЧЛХ и эстетическую медицину более эффективными и безопасными, но важен индивидуальный подход к каждому пациенту.

Перспективы развития ЧЛХ и эстетической медицины. Искусственный интеллект и роботизация – улучшат диагностику и точность операций. Регенеративная медицина – использование стволовых клеток для восстановления тканей. Генетическая терапия – позволит индивидуализировать лечение и омоложение. Безоперационные методы – развитие новых неинвазивных техник омоложения.

ЗАКЛЮЧЕНИЕ

Челюстно-лицевая хирургия и эстетическая медицина стремительно развиваются благодаря инновационным технологиям. Современные методы позволяют не только лечить патологии лица и челюсти, но и достигать высоких эстетических результатов. Будущее этих направлений связано с персонализированным подходом, цифровыми технологиями и регенеративной медициной, что сделает процедуры еще более эффективными и безопасными.

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ВЫБОР ТАКТИКИ ХИРУРГИИ ЖЕЛЧНОКАМЕННОЙ БОЛЕЗНИ ОСЛОЖНЕННОЙ СИНДРОМОМ МИРИЗЗИ

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Аннотация: улучшение результатов лечения больных с синдромом Мириззи (СМ) путем оптимизации хирургической тактики в зависимости от его типа. В 2019-2024 гг. в хирургическом отделении многопрофильной клиники СамГМУ прооперированы 72 пациента с диагнозом СМ в возрасте от 28 до 82 лет. При калькулёзном холецистите, осложненным механической желтухой, к методам диагностики добавлена МРПХГ, которая была выполнена 22 больным. Диагностическая чувствительность этого метода исследования оказалась выше и составило 54,5%. При подозрении на СМ лучшие результаты дает удаление желчного пузыря (ЖП) “от дна” с использованием метода Прибрама, позволяющего оценить ситуацию “изнутри” шейки ЖП. В зависимости от типа СМ могут быть выполнены полное удаление ЖП (I тип), удаление пузыря с ушиванием стенки протока отдельными швами (чаще, при II типе СМ), пластика дефекта стенки протока стенкой шейки ЖП, ушивание шейки ЖП над свищевым ходом (при II и III типах).

Ключевые слова: желчнокаменная болезнь, синдром Мириззи, алгоритм действий, послеоперационные осложнения, профилактика.

CHOICE OF SURGICAL TACTICS FOR CHOLESTONE DISEASE COMPLICATED BY MIRIZZI SYNDROME

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Abstract: improving the treatment results of patients with Mirizzi syndrome (MS) by optimizing surgical tactics depending on its type. In 2019-2024, 72 patients with a diagnosis of MS aged 28 to 82 years were operated on in the surgical department of the multidisciplinary clinic of Samara State Medical University. In case of calculous cholecystitis complicated by mechanical jaundice, MRPHG was added to the diagnostic methods, which was performed on 22 patients. The diagnostic sensitivity of this research method was higher and amounted to 54.5%. If SM is suspected, the best results are achieved by removing the gallbladder (GB) “from the bottom” using the Pribram method, which allows assessing the situation “from the inside” of the GB neck. Depending on the type of SM, complete removal of the GB (type I), removal of the bladder with suturing of the duct wall with separate sutures (more often, with type II SM), plastic surgery of the duct wall defect with the wall of the GB neck, suturing of the GB neck over the fistula tract (with types II and III) can be performed.

Keywords: cholelithiasis, Mirizzi syndrome, algorithm of actions, postoperative complications, prevention.

ВВЕДЕНИЕ

Синдром Мириззи (СМ) является одним из тяжелых осложнений желчнокаменной болезни (ЖКБ), возникающим вследствие острой или хронической фиксации желчного конкремента в шейке желчного пузыря с нарушением проходимости гепатикохоледоха и формированием билиобилиарных или билиодигестивных свищей. СМ встречается у 0,2 –

5,7% больных ЖКБ. С.К. McSherry и соавт. в 1982 г. выделили два типа синдрома Мириizzi: компрессия ОПП камнем шейки ЖП или пузырного протока (I тип) и пузырно-холедохеальный свищ (II тип). А. Csendes и соавт. в 1989 г. к выше названным типам добавили еще два, приняв за основу степень разрушения пузырно-холедохеальным свищем стенки ОПП. В настоящее время последняя классификация является наиболее распространенной. Т. Nagakawa и соавт. в 1997 г. предложили свою классификацию, согласно которой при IV типе, кроме свища, выделено воспалительное сужение ОПП, нуждающееся в иссечении и гепатикоеюностомии (цит. по Ф.Г. Назырову и соавт.). Синдром Мириizzi – трудное для диагностики и лечения осложнение желчнокаменной болезни. Холецистэктомия при СМ нередко заканчивается интраоперационным повреждением ОПП с образованием дефекта в его стенке. Иногда узкую дистальную часть общего желчного протока (ОЖП), расположенную под камнем, принимают за пузырный проток, а расширенную часть ОПП – за продолжение кармана Гартмана.

Цель исследования. Улучшение результатов лечения больных с синдромом Мириizzi путем оптимизации хирургической тактики в зависимости от его типа.

МАТЕРИАЛ И МЕТОДЫ

При ретроспективном исследовании, проведенном в хирургическом отделении многопрофильной клиники СамГМУ в 2019-2024 гг., СМ диагностирован у 72 (2,3%) из 3160 пациентов с желчнокаменной болезнью. Возраст больных от 28 до 82 лет, средний возраст составил $57,8 \pm 2,6$ года. Мужчин было 20, женщин 52. Длительность болезни до поступления в клинику $3,6 \pm 0,2$ года. Клиническая картина болезни была характерной для острого и хронического холецистита, у 41 (56,9%) больных была желтуха, у 11 (15,3%) – холангит. Всем больным проводили УЗИ. При этом обращали внимание на диаметр ОЖП, а также возможные признаки СМ, такие как близкое расположение содержащей камень шейки желчного пузыря к ОПП, сочетание расширенных проксимального отдела ОПП и внутрипеченочных протоков с нерасширенным ОЖП, наличие сморщенного ЖП.

Из 41 больного с механической желтухой 7 (17,1%) выполнена РПХГ, 22 (53,6%) магнитно-резонансная панкреатохолангиография (МРПХГ). Во время исследования учитывались такие признаки, как наличие пузырно-холедохеального свища, короткий и широкий пузырный проток или его отсутствие, размеры желчного пузыря, сочетание расширенных внутрипеченочных протоков с нерасширенным ОЖП, наличие камней в ЖП и протоках. Больные ретроспективно, включая данные протоколов операций, были разделены на 4 группы в зависимости от степени изменения ОЖП (А. Csendes et al., 1989) [5]: I тип вколоченный в шейку ЖП или в пузырный проток камень, сдавливающий ОПП или ОЖП 45 больных; II тип между шейкой ЖП и ОПП или ОЖП имеется свищ, занимающий менее одной трети окружности протоков, 14 больных; III тип свищ занимает две трети окружности 8 больных; IV тип стенка ОПП или ОЖП полностью разрушена 5 больных. 7 больным с механической желтухой и холангитом лечение начинали с РХПГ, 1 пациенту выполнена эндоскопическая папиллосфинктеротомия (ЭПСТ) с безуспешной попыткой эндоскопической литоэкстракции, что потребовало конверсии.

При подозрении на СМ во время операции, наличии инфильтрата в области шейки ЖП и отсутствии пузырного протока холецистэктомию начинали от дна. Вскрывали просвет ЖП, удаляли камни и, используя методику Прибрама, осуществляли доступ к шейке ЖП. Прошив в проекции пузырной артерии стенку ЖП, последний отсекали на уровне его шейки и далее производили ревизию пузырно-холедохеального соединения,

чтобы уберечь от повреждения стенку протока. При I типе СМ старались произвести удаление ЖП. При II типе ЖП удаляли, отверстие в стенке протока ушивали отдельными узловыми швами (пролен 5/0 на атравматической игле) или производили пластику протока стенкой шейки ЖП. Во всех случаях предварительно удаляли камни и в ОЖП вводили дренаж Кера дистальнее ушитого свищевого отверстия.

При III и IV типах СМ сначала вскрывали ОЖП, удаляли камни и только после тщательной оценки ситуации решали вопрос о характере пластики свищевого отверстия, то есть дефекта стенки ОПП или ОЖП. Для пластики использовали стенку шейки ЖП или ушивали шейку, закрывая, таким образом, холецисто-холедохеальный свищ. Дренаж Кера вводили дистальнее свищевого отверстия или через ушитую шейку ЖП и свищевое отверстие в протоке (3). У больных с выраженным разрушением ОПП (IV тип СМ), а также при ятрогенном пересечении ОПП выполняли гепатикоеюностомию (6). Оценивали ближайшие и отдаленные результаты лечения.

РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЯ

Мы не обнаружили зависимости развития различных типов СМ от возраста больных и продолжительности болезни. Диагностическая чувствительность УЗИ была низкая и составила 9,6%. Диагностическая чувствительность РХПГ при СМ составила 14,3% в 1 случае был выявлен пузырно-холедохеальный свищ. Однако в заключениях РХПГ не было учтено сочетание таких имеющихся признаков, как расширение проксимального отдела ОПП над камнем с нерасширенным дистальным его отделом или нерасширенным ОЖП. Учет таких признаков позволил бы повысить диагностическую чувствительность метода до 68%. Таким образом, по данным УЗИ и РХПГ СМ до операции был выявлен у 16 из 72 (22,2%) больных, то есть уровень дооперационной диагностики был чрезвычайно низким. В связи с этим нами при калькулезном холецистите, осложненным механической желтухой, к методам диагностики добавлена МРПХГ, которая была выполнена 22 больным. Диагностическая чувствительность этого метода исследования оказалась выше и составила 54,5%. На операции до удаления желчного пузыря СМ был заподозрен у 45 (62,5%) больных, при обнаружении дефекта в стенке ОПП после холецистэктомии – у 9 (12,5%). При холецистэктомии “от шейки” повреждение протока наступило у 4 пациентов. При холецистэктомии “от дна” травматическое повреждение произошло у четырех при IV типе СМ, когда расширенный ОПП был принят за карман Гартмана. При I типе СМ касательная травма ОПП произошла у 4 (у 2 – при лапароскопической холецистэктомии, у 2 – при холецистэктомии из минидоступа). У этих больных при УЗИ ОЖП не был расширен, поэтому МРПХГ не выполнялась. Ни в одном из этих случаев СМ не был диагностирован ни до операции, ни до удаления желчного пузыря. У 19 из 20 больных со II и III типами СМ были пузырно-холедохеальный свищ и холедохолитиаз с достоверным расширением ОЖП до $1,5 \pm 0,14$ см ($p < 0,05$) и возросшей до $107,6 \pm 17,7$ ммоль/л билирубинемией. СМ был заподозрен во время операции у 5 больных. Однако наличие плотного инфильтрата в области шейки ЖП заставило хирурга произвести холецистэктомию “от дна” с использованием метода Прибрама у 11 больных, при этом повреждений протока не было. Однако у 2 больных обнаружение бокового дефекта в стенке ОЖП после холецистэктомии было расценено хирургом как ятрогенная травма. На самом же деле, вероятно, произошло разобщение пузырно-холедохеального свища. У всех 5 больных с СМ IV типа имела механическая желтуха (уровень общего билирубина сыворотки крови был равен $137,7 \pm 33,8$ ммоль/л). Диаметр ОЖП по данным УЗИ составил $1,2 \pm 0,07$ см при значительном

расширении внутрипеченочных желчных протоков и наличии сморщенного желчного пузыря (у 4 из 5). У 2 из них в результате УЗИ диагностирована опухоль Клатскина, которая была исключена при МРПХГ. У 4 больных на операции расширенная часть ОЖП была принята за продолжение сморщенного ЖП, а узкая – за пузырный проток. В результате ОЖП был иссечен вместе с ЖП. Анализ данных показывает, что нет надежных методов диагностики СМ во время операции. О наличии его могут свидетельствовать такие признаки как спайки между шейкой ЖП и ОПП, плотный инфильтрат в области шейки ЖП, сочетание сморщенного ЖП и широкого ОЖП, сочетание широкого ОПП с узким ОЖП у больных холедохолитиазом, чаще при значительном разрушении стенки протоков. При повреждении протоков у больных с СМ I типа применяли следующие операции: 2 больным с небольшим боковым касательным ранением ОЖП на дефект стенки было наложено несколько узловых швов, операцию завершили наружным дренированием протока по Керу (1) или по Вишневному (1). 2 другим произвели гепатикоеюностомию с выключенной по Ру петель тощей кишки. При II и III типах СМ повреждений протоков не было. Из 5 больных с СМ IV типа ОПП был иссечен у 4. Операции завершены гепатикоеюностомией. В раннем послеоперационном периоде умерла 1 больная от тромбоэмболии легочной артерии на фоне варикозного расширения вен нижних конечностей и мерцательной аритмии. Послеоперационные осложнения развились у 15 (20,8%) больных: желчеистечение по дренажу 5, подпеченочная билома 3, желчный перитонит потребовавший релапаротомии 3, нагноение раны – 15. Отдаленные результаты прослежены у 59 больных. Из 6 больных, перенесших гепатикоеюностомию по поводу иссечения протока, стриктура анастомоза наступила у 1. Произведена повторная гепатикоеюностомия по Ру на каркасном дренаже. Еще у 1 больной с IV типом СМ без повреждения протока через год после удаления Т-образного дренажа развилась стриктура нижней части ОЖП больной наложен высокий гепатикоеюноанастомоз по Ру с хорошим отдаленным результатом. У остальных 57 больных результат был удовлетворительным. Сроки наблюдения колебались от 9 месяцев до 10 лет.

ЗАКЛЮЧЕНИЕ

СМ не является частым осложнением желчнокаменной болезни. Опыт хирургов [7,11], чаще не превышает 20-30 наблюдений. Самое большое число больных с СМ (91) представлено В.И. Ревякиным [8], который рассматривает в основном, эндоскопические аспекты этого синдрома. Профилактика ятрогенных повреждений желчных протоков при СМ является основной задачей хирурга. Большую роль при этом играет дооперационная диагностика. По данным литературы [10], поставить правильный диагноз до операции сложно и удастся лишь в 21,9% (по нашим данным, до применения МРПХГ в 22,2%, после применения МРПХГ в 54,5% наблюдений), что значительно осложняет проблему хирургического лечения.

УЗИ при СМ малоинформативно. По нашим данным, только 2 признака сочетание сморщенного ЖП с желчной гипертензией и сочетание расширенных внутрипеченочных желчных протоков с узким ОЖП при холедохолитиазе могут помочь хирургу заподозрить СМ.

Информативность РХПГ выше, чем УЗИ. Однако повышение внутрипротокового давления при введении контрастного вещества, вероятно, часто становится причиной отсутствия изображения холецисто-холедохеального свища и ЖП. При проведении исследования R.E. England, D.F. Martin [9] у 4 из 25 больных после эндоскопических

вмешательств при СМ отметили развитие острого холецистита, бронхопневмонии, абсцессов печени. Возможно, повторное контрастирование протоков после экстракции камня увеличило бы частоту выявления соустья между ОПП и ЖП. Эффективность МРПХГ при диагностике СМ оказалась выше и составила 54,5%. МРПХГ метод, обладающий большей разрешающей способностью в диагностике синдрома Мириizzi и позволяющий определить морфологический тип данной патологии с высокой диагностической чувствительностью.

Интраоперационная диагностика СМ также сложна. Инфильтрат или сращения в области шейки ЖП, отсутствие пузырного протока, сочетание сморщенного ЖП с широким ОПП или ОЖП могут насторожить хирурга и заставить его изменить стандартный план холецистэктомии. Нельзя также пренебрегать правилом обязательного выявления элементов треугольника Кало и сравнением диаметров ОПП и ОЖП.

Одним из главных вопросов лечения СМ является выбор метода операции. Прежде всего, необходимо подчеркнуть, что подозрение на СМ до операции является противопоказанием к лапароскопической холецистэктомии, а выявление признаков синдрома во время операции – показанием к конверсии на открытую операцию.

При подозрении на СМ лучшие результаты дает удаление ЖП “от дна” с использованием метода Прибрама, позволяющего оценить ситуацию “изнутри” шейки ЖП. При этом в зависимости от типа СМ могут быть выполнены полное удаление ЖП (I тип), удаление пузыря с ушиванием стенки протока отдельными швами (чаще при II типе СМ), пластика дефекта стенки протока стеной шейки ЖП, ушивание шейки ЖП над свищевым ходом (при II и III типах). После удаления камней следует оставлять Т-образный дренаж, введенный дистальнее свищевого отверстия. Наконец, при IV типе СМ, особенно при широком ОПП, следует закончить операцию гепатикоеюностомией. Основные положения такой тактики поддерживают в своих исследованиях L.W. Johnson и соавт. [10], а также O.J. Shah и соавт. [12].

При ранениях ОПП или ОЖП хирургическая тактика во многом зависела от величины дефекта стенки протока. При небольших касательных ранениях нерасширенного протока, как правило, при I типе СМ, накладывали прецизионный шов на Т-образном дренаже Кера, что давало хорошие отдаленные результаты. Однако если дефект стенки протока был значительным, и пластика на дренаже выполнялась с натяжением, предпочитали гепатикоеюностомию. При II и III типах свищ ушивали за счет оставленной стенки шейки ЖП, дистальнее осуществляли холедохолитотомию, и проток дренировали Т-образным дренажом Кера. При IV типе (с большим диаметром ОПП) хорошие результаты получены после наложения гепатикоеюноаностомоза.

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БУҚОҚ КАСАЛЛИГИНИ ХИРУРГИК ДАВОЛАШДА СТРУМЭКТОМИЯНИНГ ТЕХНИК ВА ТАКТИК ЖИХАТЛАРИНИ ЯХШИЛАШ

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Аннотация. Ҳозирги кунга қадар қалқонсимон безга операция йули билан киришни амалга оширишда, аксарият ҳолларда, Кохернинг ёқасимон кесмаси қўлланилади. Ушбу кириш усули кенг операцион майдонни яратишни таъминлайди, аммо бу жуда травматик бўлиб косметик жиҳатдан кам натижа беради. Сўнгги 10-15 йил ичида бўйин олд юзасига, аксилляр, кўкрак олди, параареолар, орқа мия, трансорал линиялар орқали, миниинвазив робот ёрдамида турли хил вариантларда кириш йўллари мавжуд. Ушбу муаммолардан келиб чиккан ҳолда буқоқ касаллиги билан операция қилинган 112 нафар бемордан асосий гуруҳдагиларига тақомилаштирилган ретрактор қўлланилганида таққослаш гуруҳидаги беморларга нисбатан ижобий натижалар курсаткичи сезиларли даражада ошди.

Калит сўзлар: жароҳат кенгайтиргич, струмэктомия, субтотал резекция, тақомилаштирилган ретрактор, тиреопероксидаза, ултратовушли диссектор-аспиратор (Cusa).

СОВЕРШЕНСТВОВАНИЕ ТЕХНИЧЕСКИХ И ТАКТИЧЕСКИХ ВОЗМОЖНОСТЕЙ СТРУМЭКТОМИИ ПРИ ХИРУРГИЧЕСКОМ ЛЕЧЕНИИ БОЛЕЗНИ ЗОБА

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Аннотация. На сегодняшний день наиболее распространенным хирургическим доступом к щитовидной железе является разрез Кохера. Этот доступ обеспечивает широкое операционное поле, однако он весьма травматичен и имеет плохие косметические результаты. За последние 10-15 лет были разработаны различные доступы: через переднюю поверхность шеи, подмышечные, переднегрудные, параареоларные, дорсальные, трансоральные линии, а также с помощью миниинвазивного робота. Ввиду этих проблем в исследовании 112 оперированных пациентов с зобом использовался усовершенствованный ранорасширитель по сравнению с контрольной группой, что значительно увеличило положительные результаты.

Ключевые слова: расширитель раны, струмэктомия, субтотальная резекция, усовершенствованный ранорасширитель, тиреопероксидаза, ультразвуковой диссектор-аспиратор (Cusa).

IMPROVEMENT OF TECHNICAL AND TACTICAL CAPABILITIES OF STRUMECTOMY IN SURGICAL TREATMENT OF GOITER DISEASE

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Abstract. To date, the most common surgical approach to the thyroid gland is the Kocher incision. This approach provides a wide operative field, but it is very traumatic and has poor cosmetic results. Over the past 10-15 years, various approaches have been developed: through the anterior surface of the neck, axillary, anterior chest, paraareolar, dorsal, transoral lines, and with the help of a mini-invasive robot. In view of these problems, in a study of 112 patients with goiter

operated on, the improved retractor was used in comparison with the control group, significantly increasing the positive results.

Keywords: wound expander, strumectomy, subtotal resection, improved retractor, thyroperoxidase, ultrasonic dissector-aspirator (Cusa).

КИРИШ

Сўнгги ўн йилликларда эндокрин касалликлар таркибида тиреопатиялар кескин равишда ўсиб бормоқда малакали тадқиқотчиларнинг фикрига кўра, келгуси йилларда қалқонсимон без касалликлари билан касалланган беморлар сонининг янада кўпайишини кутиш мумкин (И.И. Дедов ва бошқ, 2000, А.П. Калинин ва бошқ, 2004) Шундай қилиб, ҳозирда аҳоли орасида қалқонсимон без касалликларидан тугунли ва кўп тугунли эутиреоид букоқнинг пайдо бўлиш частотаси 30% дан 62% гача ўзгариб туради, бу букоқ эндемиясининг мавжудлиги, экологик муаммолар ва тиббий профилактика йўналишининг сустлашиши билан боғлиқ (А.Ф. Романчишен 1992 ва Калинин ва бошқалар, 2004) Шунга кўра, жарроҳлик аралашувларининг сони ҳам кўпаймоқда, чунки жарроҳлик усули тугунли букоқни даволашда етакчи ҳисобланади (М.И. Балаболкин 1998)

Сўнгги йилларда букоқнинг тугун шакллари олдидан олиш ва даволашда эришилган ютуқларга қарамай, хирургик даволашнинг натижалари ҳар доим ҳам жарроҳлар ва эндокринологларни қониқтирмайди, бу биринчи навбатда операциядан кейинги гипотиреоз ривожланиши ва касалликнинг қайталаниши билан боғлиқ (В.Г. Аристархов, 1998). Баъзи тадқиқотчилар қалқонсимон бездаги тугунларни тўлиқ олиб ташлашгача шунингдек кенг резекция қилишни тавсия этадилар (В.Э Ванушко, Н.С Кузнецов, 2002) курсатма булмаганида қалқонсимон безни кенг резекция қилишнинг натижаси беморнинг ҳаёт сифатини ёмонлаштиришгача бориб етиши мумкин.

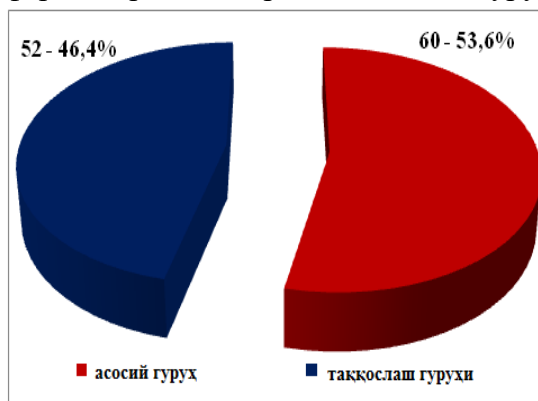
Сўнгги пайтларда купгина муаллифлар қалқонсимон без паренхимасини функционал хусусиятларини етарли даражада сақлаб қолиш учун букоқнинг тугун шаклларида орган сақлаш операцияси маъқул топмоқдалар (М Васков., Т А Масалская, 1998).

Текшириш мақсади:

Струмэктомия бажаришнинг техник ва тактик усулларни такомиллаштириш.

МАТЕРИАЛЛАР ВА УСУЛЛАР.

Беморлар шартли равишда икки гуруҳга бўлинди. 2014-2018 йилларда 52 (46,4%) нафар бемор операция қилиниб улар таққослаш гуруҳига киритилди. 2019 йилдан 2023 йиллардаги 60 (53,6%) нафар бемор эса назоратдаги асосий гуруҳга киритилди (1-расм).



1-расм. Беморларнинг гуруҳлар бўйича тақсимланиши (n=112)

Хозирги кунгача қалқонсимон без жарроҳлиги амалиётида, безга киришни таъминлаш учун, қалқонсимон без олди мушаклари махсус кенгайтиргич - Фаробев ёки Воробёв асбоби ёрдамидан фойдаланилиб келинмоқда, без краниал ва каудал йўналишда тортилганда уни тўлиқ қуриш ва текширишни қийинлаштиради натижада турли хил ятроген жароҳатланишлар хавфи ошади ҳамда операция ҳажмини танлашда турли хил хатоликлар юзага келади.

Юқоридаги қийинчиликларни кескин бартараф этиш учун безга кенг юзада кириб боришни таъминлашда ўзгартирилган ретрактор воситасини шу билан бир қаторда туқималарни бир-биридан ажратишда эса ултратовушли дисектор-аспиратор (CUSA) дан фойдаланилди (2-3-расм).



2-3-расм. Қалқонсимон без операцияларини бажаришда фойдаланиладиган такомиллаштирилган жароҳат кенгайтиргич

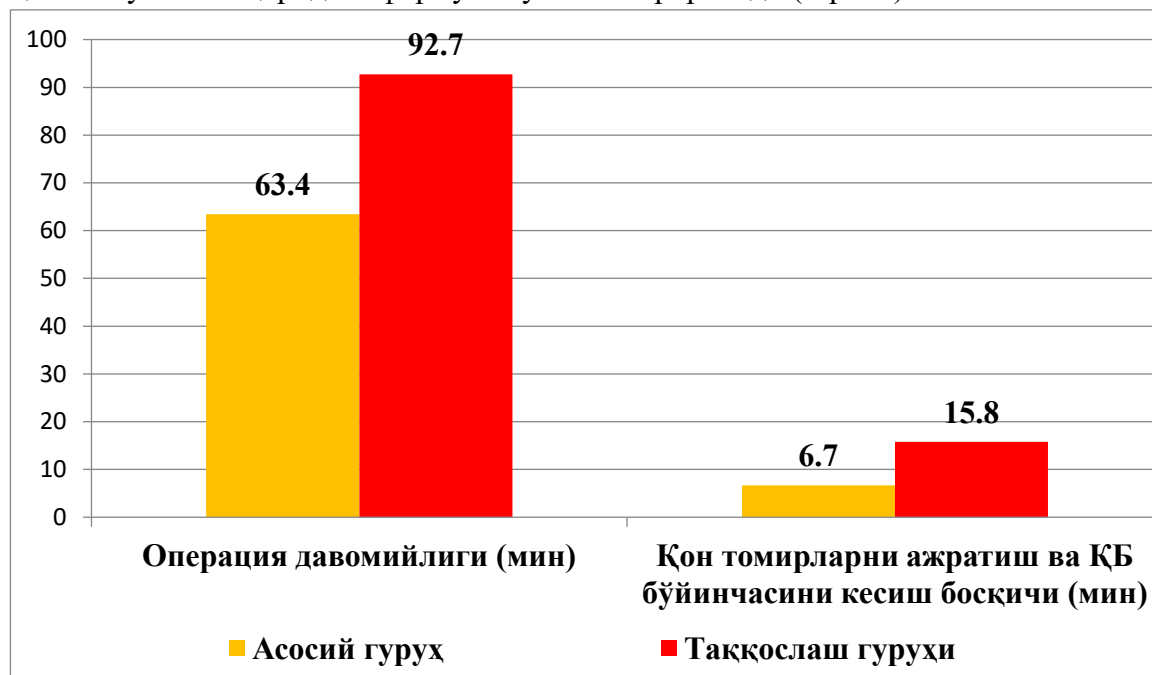
Жароҳат кенгайтиргич қалқонсимон безга кенг киришни таъминлаш бир қаторда без ҳолатини етарли даражада кўриш, оператив ёндашувни ортиқча жароҳатларсиз ўтказиш имконини беради. Ушбу ишлаб чиқилган жарроҳлик асбоби қалқонсимон безнинг барча тугун хосилаларини аниқлаш учун қулай шарт-шароитни яратиш баробарида қайтувчи нервдан узоклашиш ва безга яқин жойлашган бошқа муҳим аъзоларга зарар етказмасликни таъминлади. Ултратовушли дисектор-аспиратор (CUSA) ёрдамида струмэктомияни амалга оширишнинг техник жиҳатларини такомиллаштирилиши қалқонсимон без артерия тузилмаларининг хавфсиз ажратилишини, қайтувчи ҳиқилдоқ нерви, ҳамда қалқонсолди безлари идентификациясини таъминлаши ва шу орқали операция ичи асоратлар хавфини камайтиришда муҳим аҳамият касб этди. Жароҳат кенгайтиргич жароҳатнинг узунлиги ва чуқурлигини аниқлаши учун вертикал ва горизонтал йўналишда сантиметрли ўлчагич билан жиҳозланган.

Қалқонсимон безда бажарилган операциялар ҳажмидан бирини мисол қилиб айтадиган бўлсак безнинг субтотал резекциясини бажаришда қолдиқ туқималарнинг ҳажми 1,0 дан 5,3 мл гача, ўртача $3,0 \pm 1,2$ мл ни ташкил этди. Асосий гуруҳнинг барча беморларида қалқонсимон без қолдиқ ҳажмини аниқлаш ва ҳажмини ҳисоблаш учун ўзгартирилган жароҳат кенгайтиргич ишлатилган. Жароҳат кенгайтиргич сантиметр ўлчагичидан фойдаланиб, қолдиқ туқималарнинг ҳажми ўлчанди ва ҳисоблаб чиқилди.

Бунинг учун биз J. Brunn (1981) ва бошқалар томонидан таклиф қилинган қуйидаги формуладан фойдаландик.

$$V = A \cdot B \cdot C \cdot 0,479,$$

бу ерда: А - узунлик, Б - кенглик, С - қалинлиги, 0,479 - эллипсоид коэффициенти 6 мл дан ортиқ қийматларда қолган тўқималарни ререзекция қилиш амалга оширилди ва қолган ҳажмни ўлчаш юқоридаги формула бўйича такрорланди (4-расм).



4-расм. Такқосланган гуруҳларда операция давомийлигининг солиштирма кўрсаткичлари (мин)

Шундай қилиб, буқоқнинг касаллигини жарроҳлик амалиётида атиги 11,6% да тугунли шакллари, қолган 88,4% да буқоқнинг диффуз, аралаш ва рецидив шакллари учрайди, ушбу татбиқ қилинган жароҳат кенгайтиргич қон кетиши, трахея ва ҳиқилдоқ қайтувчи нервини шикастланиши каби интраоперацион асоратлар хавфини камайтиришга имкон берди ҳамда бошқа жарроҳлик асбобларидан фарқли ўлароқ кўшимча ёрдам кучларисиз жароҳатнинг четларини ташқарига суриш орқали бўйин аъзоларига кенг киришни таъминлаш учун ишлатилади. Таклиф этилган ўзгартирилган жароҳат кенгайтиргич бўйиндаги қон-томир, нерв тутамлари ҳолатини визуал назорат остида ушлаб туришга ёрдам берди.

ХУЛОСА

1. Таклиф этилаётган жарроҳлик асбоби ёрдамида струмэктомия операциясининг техник ва тактик усуллари такомиллаштирилди, шу билан бир қаторда операцияни бажариш техникасини соддалаштириш ва қалқонсимон без қолдиқ ҳажмини аниқлаш ва ҳажмини ҳисоблаш, шунингдек, интраоперацион асоратлар хавфини камайтириш имконини беради. ҚБ томирларини ажратиш босқичлари ва трахеянинг олд юзасини кенг очиб беришни таъминлаш струмэктомиянинг қийин босқичларидан бўлишига қарамадан тавсия этилган асбобдан фойдаланиш операция босқичларини сезиларли даражада осонлаштирди. Натижада операциянинг давомийлик муддати $15,8 \pm 0,9$ дан $6,7 \pm 0,5$ минутгача қисқарди ($p < 0,001$). Шунга кўра, операциянинг умумий вақти $92,7 \pm 4,8$ дан $63,4 \pm 3,6$ минутгача камайди ($p < 0,001$).

2. Ультратовушли дисектор аспиратор (CUSA) ёрдамида қалқонсимон без операцияларини амалга оширишнинг техник жиҳатларини такомиллаштириш томирларнинг хавфсиз чиқарилишига, қайтувчи ҳиқилдоқ нерви, паратиреоид безларини аниқлашга ёрдам берди ва операциядан кейинги эрта асоратлар (қон кетиш, қайтувчи ларингеал нерв парези,

гипопаратиреозидизм) частотасини камайтиришга имкон берди, операциянинг мураккаб босқичларини $15,8 \pm 0,9$ дан $6,7 \pm 0,5$ дақиқагача ($P0,001$), операциянинг умумий давомийлиги $92,7 \pm 4,8$ дан $63,4 \pm 3,6$ дақиқагача ($P0,001$) камайтиришга эришилди.

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ИМПЛАНТАЦИЯ ПРИ АТРОФИИ АЛЬВЕОЛЯРНОГО ОТРОСТКА: СОВРЕМЕННЫЕ РЕШЕНИЯ

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Аннотация. В данной статье мы рассмотрим причины атрофии, методы диагностики, а также актуальные хирургические и протетические подходы, включая костную пластику, использование коротких и скуловых имплантатов, методы немедленной нагрузки и компьютерное 3D-моделирование.

Ключевые слова: Имплантация при атрофии, атрофия альвеолярного отростка, костная пластика в стоматологии, синус-лифтинг.

IMPLANTATION IN ALVEOLAR PROCESS ATROPHY: MODERN SOLUTIONS Kuvondikov Mirsodik M., Kuvondikov Mirsaid M., Khaitmatov Kh.Sh., Nomozov B.S., Kayumov Sh.Sh.

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Abstract. In this article, we will consider the causes of atrophy, diagnostic methods, as well as current surgical and prosthetic approaches, including bone grafting, the use of short and zygomatic implants, immediate loading methods and computer 3D modeling.

Keywords: Implantation in atrophy, alveolar process atrophy, bone grafting in dentistry, sinus lifting.

ВВЕДЕНИЕ

Атрофия альвеолярного отростка — одно из самых распространенных осложнений после потери зубов. Это состояние характеризуется уменьшением объема костной ткани, что создает серьезные трудности при проведении дентальной имплантации. Однако современная стоматология предлагает множество решений, позволяющих успешно устанавливать имплантаты даже в условиях выраженной атрофии. Причины и механизмы атрофии альвеолярного отростка. Атрофия костной ткани развивается вследствие нескольких факторов: Физиологическая резорбция после удаления зуба. После экстракции зуба запускается процесс ремоделирования кости: В первые 3–6 месяцев происходит быстрая убыль ткани (до 40–60% объема). В последующие 1–2 года резорбция замедляется, но не останавливается. Наибольшая атрофия наблюдается в вестибулярной (щечной) области, что приводит к сужению альвеолярного гребня. Длительное отсутствие зубов. Если пациент не восстанавливает зубной ряд имплантатами или протезами, кость продолжает терять объем из-за отсутствия жевательной нагрузки (по закону Вольфа). Воспалительные процессы. Пародонтит, периостит и остеомиелит ускоряют деструкцию кости. Общие заболевания. Остеопороз, сахарный диабет и гормональные нарушения негативно влияют на регенерацию костной ткани.

ОСНОВНАЯ ЧАСТЬ

Диагностика атрофии. Перед имплантацией необходимо провести комплексное обследование: Клинический осмотр. Оценка высоты и ширины альвеолярного гребня. Анализ состояния слизистой оболочки. Рентгенологические методы. Ортопантограмма (ОПТГ) — обзорный снимок для первичной оценки.

- Компьютерная томография (КТ) — точное измерение объема кости, выявление дефектов.
- 3D-моделирование — планирование имплантации с учетом анатомических особенностей.

Дополнительные исследования

- Анализ плотности кости (денситометрия).
- Оценка окклюзионной нагрузки.

Современные методы имплантации при атрофии. Костная пластика (аугментация). Позволяет восстановить объем кости перед установкой имплантатов. Виды остеопластики: Аутотрансплантация — использование собственной кости (из подбородка, ветви челюсти или подвздошной кости). Аллопластика — синтетические материалы (гидроксипатит, β -трикальцийфосфат). Ксенотрансплантация — костные блоки животного происхождения (бычья кость). Направленная костная регенерация (НКТ) — применение мембран для стимуляции роста ткани. Методики: Расщепление альвеолярного гребня — увеличивает ширину кости. Синус-лифтинг — поднятие дна гайморовой пазухи для увеличения высоты кости на верхней челюсти. Короткие имплантаты. Используются при недостаточной высоте кости (менее 8–10 мм). Длина: 4–6 мм (вместо стандартных 10–12 мм).

- Современные модели имеют шероховатую поверхность для лучшей остеоинтеграции. Преимущества: Не требуют костной пластики. Меньшая травматичность. Быстрое восстановление. Скуловые (зигоматические) имплантаты. Применяются при крайней атрофии верхней челюсти. Длина: 30–50 мм. Фиксируются в скуловой кости, минуя атрофированные участки. Позволяют проводить немедленную нагрузку (установку протеза за 1–3 дня).

Базальная имплантация. Имплантаты устанавливаются в базальный слой кости, который менее подвержен резорбции. Подходит для пациентов с генерализованной атрофией. Возможна немедленная нагрузка. All-on-4 / All-on-6 Технология полного протезирования на 4 или 6 имплантатах. Наклонная установка в обход атрофированных зон. Фиксация протеза в течение 72 часов.

Новые технологии в имплантации

- 3D-печать и хирургические шаблоны
- Точное планирование позиции имплантатов.
- Минимальный риск ошибки.

Лазерная обработка поверхности имплантатов

Улучшает приживление за счет нанотекстуры.

Биологически активные покрытия

- Пептиды, факторы роста — ускоряют остеоинтеграцию.
- Гиалуроновая кислота — снижает риск воспаления.
- Осложнения и их профилактика
- Отторжение имплантата

Причины:

- Инфекция.
- Недостаточный объем кости.
- Курение, диабет.

Профилактика:

- Антисептическая обработка.
- Использование антибиотиков.
- Отказ от курения.

Перфорация гайморовой пазухи

Решается методом синус-лифтинга.

Перегрев кости при сверлении

Использование охлаждаемых боров.

Заключение. Атрофия альвеолярного отростка больше не является препятствием для имплантации. Современные методы, такие как костная пластика, короткие и скуловые имплантаты, All-on-4 и 3D-навигация, позволяют восстановить зубной ряд даже в сложных случаях. Выбор методики зависит от степени атрофии, общего состояния пациента и финансовых возможностей. Однако при правильном планировании и использовании передовых технологий успешная имплантация возможна у 95–98% пациентов. Будущее имплантологии связано с развитием биоматериалов, персонализированных имплантатов и методов ускоренной остеоинтеграции, что сделает лечение еще более эффективным и доступным.

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19.00.00 – Psixologiya fanlari

19.00.00 – Psychological sciences

19.00.00 – Психологические науки

SHARQ MUTAFAKKIRLARI ASARLARIDA OILAVIY MUNOSABATLAR VA O'SMIR SHAXSINING SHAKLLANISHI: IJTIMOIIY-PSIXOLOGIK TAHLIL

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Annotatsiya: Ushbu maqolada Sharq mutafakkirlari (Ibn Sino, Al-G'azzoriy, Jaloliddin Rumiy) asarlarida ifodalangan oilaviy munosabatlar va o'smirlik davrida shaxs shakllanishiga oid qarashlar zamonaviy psixologiya nuqtai nazaridan tahlil qilinadi. Tadqiqotning asosiy maqsadi – tarixiy manbalardagi g'oyalarni bugungi rivojlanish psixologiyasi kontekstida baholab, ularning ilmiy yangiligini va amaliy ahamiyatini aniqlashdan iborat.

Kalit so'zlar: oilaviy munosabatlar, o'smir psixologiyasi, Sharq pedagogikasi, tarixiy psixologiya, shaxs shakllanishi, Ibn Sino, Al-G'azzoriy, Jaloliddin Rumiy

ИНТЕЛЛЕКТУАЛЬНЫЕ ОТНОШЕНИЯ И ФОРМИРОВАНИЕ ЛИЧНОСТИ ПОДРОСТКА В ТРУДАХ МЫСЛИТЕЛЕЙ ВОСТОКА: СОЦИАЛЬНО-ПСИХОЛОГИЧЕСКИЙ АНАЛИЗ

Аннотация: В данной статье анализируются с точки зрения современной психологии взгляды восточных мыслителей (Ибн Сины, Аль-Газали, Джалаладдина Руми) на семейные отношения и формирование личности в подростковом возрасте, выраженные в их произведениях. Основная цель исследования заключается в оценке идей исторических источников в контексте современной психологии развития, определении их научной новизны и практической значимости.

Ключевые слова: семейные отношения, психология подростков, восточная педагогика, историческая психология, формирование личности, Ибн Сина, Аль-Газали, Джалаладдин Руми.

INTELLECTUAL RELATIONS AND THE FORMATION OF THE ADOLESCENT PERSONALITY IN THE WORKS OF EASTERN THINKERS: A SOCIO-PSYCHOLOGICAL ANALYSIS

Abstract: This article examines, from the perspective of modern psychology, the views of Eastern thinkers (Ibn Sina, Al-Ghazali, Jalaluddin Rumi) on family relations and personality formation during adolescence, as expressed in their works. The primary objective of the study is to evaluate the ideas found in historical sources within the context of contemporary developmental psychology, determining their scientific novelty and practical relevance.

Keywords: family relations, adolescent psychology, Eastern pedagogy, historical psychology, personality formation, Ibn Sina, Al-Ghazali, Jalaluddin Rumi.

KIRISH

Zamonaviy psixologiya fanida oilaviy munosabatlarning shaxs shakllanishiga ta'siri keng o'rganilayotgan bo'lsa-da, bu jarayonning madaniy va tarixiy ildizlari nisbatan kam qamrab olingan. O'zbekiston kabi an'analarga boy jamiyatlarda o'smir shaxsining shakllanishida Sharq mutafakkirlarining pedagogik qarashlarining ahamiyatini chuqur tushunish ayniqsa dolzarbdir.

Ushbu tadqiqotning asosiy maqsadi Ibn Sino, Al-G‘azzoriy va Jaloliddin Rumiy kabi taniqli Sharq allomalarining asarlarida bayon etilgan oilaviy munosabatlar va o‘smir tarbiyasiga oid g‘oyalarni zamonaviy psixologiya nuqtai nazaridan tahlil qilishdan iborat. Tadqiqotning ilmiy yangiligi shundaki, birinchi marta ushbu mutafakkirlarning g‘oyalari tizimli ravishda o‘smirlik davri psixologiyasi kontekstida o‘rganilmoqda va ularning zamonaviy rivojlanish psixologiyasi bilan bog‘liqligi ochib berilmoqda.

Tadqiqotning nazariy ahamiyati Sharq an‘analaridagi pedagogik-psixologik qarashlarni ilmiy muomala qilish metodologiyasini ishlab chiqishda, amaliy ahamiyati esa o‘zbek oilalarida o‘smirlar tarbiyasining samaradorligini oshirish uchun tarixiy tajribadan foydalanish imkoniyatlarini ko‘rsatishda namoyon bo‘ladi.

ADABIYOTLAR TAHLILI

O‘smirlik davrida shaxs shakllanishida oilaviy munosabatlarning o‘rni haqidagi zamonaviy tadqiqotlar keng qamrovli bo‘lsa-da, Sharq mutafakkirlari asarlaridagi aks etishi nisbatan kam o‘rganilgan holatda qolmoqda. Xalqaro tadqiqotlar kontekstida Bowlby (1969) bog‘lanish nazariyasi, Baumrind (1991) tarbiya uslublari nazariyasi va Erikson (1968) psixososial rivojlanish nazariyalari asosiy yondashuvlar sifatida ajralib turadi. Mintaqaviy tadqiqotlar doirasida Rajabov (2018) Ibn Sinoning bolalar tarbiyasidagi g‘oyalarni zamonaviy ta’lim tizimi kontekstida, Xolmirzayev (2020) esa Al-G‘azzoriyning “Ihyo ulum ad-din” asaridagi oilaviy axloq normalarini o‘rgangan.

Asosiy ilmiy manbalar tahlili shuni ko‘rsatadiki, Ibn Sinoning “Tib qonunlari” asarida bolalarning ruhiy salomatligi uchun oilaviy muhitning ahamiyati ta’kidlangan bo‘lib, ota-ona mehrining muvozanatli bo‘lishi sog‘lom rivojlanish uchun muhim omil sifatida ko‘rsatilgan. Al-G‘azzoriy “Ihyo ulum ad-din” asarida tarbiyaning diniy-axloqiy jihatlarini yoritib, bolalarga nisbatan mehribonlik va qat’iyatning muvozanatini talab qilgan. Jaloliddin Rumiy she’rlarida esa oilaviy munosabatlarning madaniy jihatlarini va bolalarning ma’naviy shakllanishiga ta’siri chuqur aks ettirilgan.

Tadqiqotlar orasidagi muhim bo‘shliqlardan biri shundaki, Sharq mutafakkirlari g‘oyalari ko‘pincha umumiy pedagogik yoki falsafiy nuqtai nazardan o‘rganilgan bo‘lsa-da, ularning zamonaviy o‘smirlar psixologiyasi bilan bog‘liqligi yetarlicha ochilmagan. Mavjud tadqiqotlar asosan G‘arb psixologlari ishlariga qaratilganligi sababli, mintaqaviy an‘analarning hissasi kam baholangan holatda.

Tadqiqotning nazariy asosi Bronfenbrenner (1979) ning ekologik tizimlar va Hofstede (1980) ning madaniy o‘lchovlar nazariyalariga asoslanadi. Ilmiy munozaralar kontekstida Maslow (1954) inson ehtiyojlarining universal tabiatini ta’kidlashsa, Markus va Kitayama (1991) esa madaniy farqlarning psixologik jarayonlarga ta’sirini muhokama qiladi. Aynan shu munozaralar yorug‘ligida Sharq mutafakkirlari g‘oyalarni o‘rganish ayniqsa dolzarb ahamiyat kasb etadi, chunki u Sharq va G‘arb tafakkuri o‘rtasidagi farqlarni tushunish imkonini beruvchi muhim manbalardir.

METODOLOGIYA

Ushbu tadqiqotda Sharq mutafakkirlari (Ibn Sino, Al-G‘azzoriy, Jaloliddin Rumiy) asarlaridagi oilaviy munosabatlar va o‘smir shaxsining shakllanishiga oid g‘oyalarni tahlil qilish uchun sifatli (qualitative) tadqiqot usuli qo‘llanildi. Tadqiqot dizayni tarixiy-manbashunoslik va tahliliy-komparativ metodologiyalarga asoslanib, asosiy manbalar sifatida “Tib qonunlari”, “Ihyo ulum ad-din” va “Masnaviy” asarlaridagi tegishli qismlar tanlab olindi.

Ma'lumotlar yig'ish jarayonida uch asosiy usul qo'llanildi: matnli manbalarni tanlash va tanqidiy tahlil qilish, tarixiy-manbashunoslik usuli yordamida asl matnlarni o'rganish, shuningdek zamonaviy psixologik kontseptsiyalar (Bowlby, Baumrind, Hofstede nazariyalari) bilan qiyosiy tahlil. Yig'ilgan ma'lumotlarni tahlil qilish uchun kontent-tahlil (psixologik-pedagogik g'oyalarni ajratib olish), diskurs tahlili (g'oyalarning ijtimoiy-kontekstual mohiyatini aniqlash) va tematik tahlil (asosiy mavzularni guruhlash) usullaridan foydalanildi.

Tadqiqot jarayoni to'rt bosqichdan iborat bo'ldi: 1) asl matnlar va sharhlarni tanlash va to'plash; 2) matnlarni chuqur o'rganish va kalit so'zlar/mavzularni aniqlash; 3) topilgan g'oyalarni zamonaviy psixologik nazariyalar bilan qiyoslash; 4) natijalarni umumlashtirish va tahlil qilish. Tadqiqotning ilmiy yangiligi tarixiy matnlarni zamonaviy psixologik terminlar bilan talqin qilish, Sharq an'alaridagi g'oyalarning zamonaviy rivojlanish psixologiyasi bilan bog'liqligini isbotlash hamda O'zbekiston kontekstida oilaviy munosabatlarning o'ziga xos xususiyatlarini aniqlashdan iborat bo'ldi.

Tadqiqotning metodologik cheklovlari quyidagilarni o'z ichiga oladi: tarixiy matnlarning zamonaviy tilga tarjima qilinishidagi nuanslar, mutafakkirlarning g'oyalarini ularning tarixiy kontekstdan ajratmasdan tahlil qilish zarurati, shuningdek faqat nazariy tahlil bilan chegaralanganlik. Etik jihatdan barcha manbalarga to'g'ri havolalar keltirilib, matnlarning asl mohiyati o'zgartirilmagan holda talqin qilingan.

Ushbu metodologik yondashuv nafaqat Sharq mutafakkirlari g'oyalarini tushunish, balki ularni zamonaviy psixologik amaliyot bilan bog'lash imkonini berdi. Metodologiyaning asosiy ustuvorligi tarixiy matnlarni zamonaviy ilmiy diskurs doirasida qayta talqin qilishdan iborat bo'lib, bu jarayon interdisiplinar yondashuvni talab qildi va tadqiqotchilarga tarixiy meros bilan zamonaviy bilimlarni uyg'unlashtirish imkoniyatini yaratdi.

NATIJALAR VA TAHLIL

Tadqiqot natijalari shuni ko'rsatdiki, Sharq mutafakkirlarining asarlarida ifodalangan oilaviy munosabatlar va o'smir shaxsining shakllanishiga oid g'oyalar zamonaviy psixologik nazariyalar bilan izchillik ko'rsatadi. Ibn Sinoning "Tib qonunlari" asarida keltirilgan bolalarning ruhiy shakllanishi haqidagi g'oyalar Piagetning "kritik rivojlanish davrlari" nazariyasiga, ota-ona mehrining muvozanatli bo'lishi haqidagi qarashlar esa Baumrindning "avtoritar emas, avtoritetli tarbiya" konsepsiyasiga mos keladi.

Al-G'azzoriyning "mehrsiz tarbiya" haqidagi qarashlari Bowlbyning xavfsiz bog'lanish nazariyasiga, Jaloliddin Rumiyning madaniy qadriyatlar haqidagi g'oyalari esa Hofstedening madaniy o'lchovlar nazariyasiga yaqinlik ko'rsatadi. Bu natijalar Sharq va G'arb tafakkuri o'rtasidagi farqlarni ham aks ettiradi: G'arb individualistik yondashuvni ta'kidlashsa, Sharq an'analari oilaviy va jamoaviy qadriyatlarning ahamiyatini ko'rsatadi.

Tadqiqotning amaliy ahamiyati shundaki, uning natijalari O'zbekistonda ota-onalik malakasini oshirish, oilaviy psixologik maslahat va o'smirlar bilan ishlashda mahalliy an'analarga mos yondashuvlarni ishlab chiqish uchun asos bo'lishi mumkin. Biroq, tadqiqotning nazariy xarakterda bo'lishi uning asosiy cheklovi hisoblanadi. Kelajakda ushbu natijalarni empirik tekshirish, shuningdek boshqa Sharq mutafakkirlari asarlarini o'rganish maqsadga muvofiq bo'ladi.

Xulosa qilib aytganda, Sharq mutafakkirlarining pedagogik-psixologik merosi nafaqat tarixiy ahamiyatga ega, balki zamonaviy psixologik amaliyotda ham qo'llanilishi mumkin bo'lgan boy bilimlar manbaidir. Ushbu tadqiqot natijalari transkultural psixologiya sohasida yangi tadqiqotlar uchun ham asos yaratadi.

XULOSA

Sharq mutafakkirlari (Ibn Sino, Al-G'azzoriy, Jaloliddin Rumiy) asarlarida ifodalangan oilaviy munosabatlar va shaxs shakllanishiga oid g'oyalar zamonaviy rivojlanish psixologiyasining asosiy nazariyalari bilan muhim o'xshashliklarga ega. Mutafakkirlarning bolalik va o'smirlilik davrlarini tushunishdagi chuqurligi ularning psixologik jarayonlarni aniq kuzatganligidan dalolat beradi.

Tarixiy-manbashunoslik va qiyosiy-tahliliy usullarning qo'llanilishi Sharq pedagogik merosini zamonaviy psixologik diskursga integratsiya qilish imkonini beruvchi samarali vosita ekanligi isbotlandi. Matnli manbalarni psixologik jihatdan talqin qilishning o'ziga xos uslublari ishlab chiqildi.

Tadqiqot natijalari O'zbekistonda ota-onalik maktablari, oilaviy psixologik maslahat markazlari va maktab psixologlari faoliyati uchun quyidagi amaliy tavsiyalarni ishlab chiqishga asos bo'lishi mumkin: O'smirlar tarbiyasida an'anaviy va zamonaviy usullarni uyg'unlashtirish, madaniy qadriyatlarni hisobga olgan holda oilaviy psixologik intervensiyalar va ota-onalik malakasini oshirish dasturlarini takomillashtirish.

Kelajakdagi tadqiqotlar yo'nalishlari: Sharq mutafakkirlarining g'oyalarini empirik tekshirish (masalan, o'zbek oilalarida Ibn Sinoning tarbiya printsipi asosidagi eksperimental dasturlar), boshqa mintaqaviy mutafakkirlar (Farobiy, Beruniy, Navoiy) asarlarining psixologik tahlili va Transkultural psixologiya nuqtai nazaridan Sharq va G'arb tarbiya uslublari qiyosiy o'rganish.

Xulosa qilib aytganda, tadqiqot shuni ko'rsatdiki, Sharq mutafakkirlarining pedagogik-psixologik merosi nafaqat tarixiy ahamiyatga ega, balki zamonaviy O'zbekiston jamiyatida o'smirlar shaxsini shakllantirishda amaliy qo'llanilishi mumkin bo'lgan boy bilimlar manbaidir. Ushbu tadqiqot natijalari oilaviy munosabatlarning psixologik jihatlarini chuqurroq tushunish va mahalliy an'analarga mos psixologik yondashuvlarni ishlab chiqish uchun nazariy asos yaratadi.

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