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DAVLAT QIMMATLI QOG‘OZLAR BOZORINI RIVOJLANTIRISH MASALALARI

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Annotatsiya: Ushbu maqolada davlat qimmatli qog‘ozlari bozorining iqtisodiy mohiyati, tarkibiy unsurlari, shakllanish omillari va O‘zbekiston moliya tizimidagi amaliy vazifalari tadqiq etilgan. Tadqiqotda davlat g‘aznachilik obligatsiyalari va suveren xalqaro obligatsiyalar davlat qarzini boshqarish, budjet taqchilligini qoplash, pul-kredit siyosati signallarini shakllantirish, bank tizimi likvidligini tartibga solish va ichki jamg‘armalarni investitsiyaga aylantirish mexanizmi sifatida tahlil qilindi. Me‘yoriy-huquqiy asoslar, rasmiy statistik ko‘rsatkichlar va mahalliy tadqiqotchilar qarashlari asosida O‘zbekistonda bozorning 2018-yildan keyingi faollashuvi, emissiya muddatlarining uzayishi, Markaziy depozitariy infratuzilmasining kuchayishi va elektron savdo mexanizmlarining ahamiyati ochib berildi. Natijalar shuni ko‘rsatadiki, bozorning hajman kengayishi hali to‘liq institutsional chuqurlashuvni anglatmaydi. Likvid ikkilamchi bozorning sustligi, investorlar bazasining torligi, uzoq muddatli instrumentlar ulushining pastligi, axborot ochiqqligi va chakana investorlar uchun qulay kirish kanallarining yetarli emasligi rivojlanishni cheklamoqda. Maqolada market-meykerlik institutini kuchaytirish, benchmark muddatlar bo‘yicha muntazam emissiya yo‘lga qo‘yish, inflyatsiyaga bog‘langan va yashil obligatsiyalarni kengaytirish, chakana investorlar uchun raqamli savdo kanalini yaratish hamda davlat qarzi risklarini ochiq monitoring qilish bo‘yicha amaliy takliflar asoslandi.

Kalit so‘zlar: Davlat qimmatli qog‘ozlari, davlat g‘aznachilik obligatsiyalari, suveren xalqaro obligatsiyalar, davlat qarzi, budjet taqchilligi, ikkilamchi bozor, likvidlik, market-meyker, daromadlilik egri chizig‘i, kapital bozori, investorlar bazasi, moliyaviy barqarorlik.

Kirish

Davlat qimmatli qog‘ozlari bozori moliya tizimida faqat qarz olish maydoni emas, balki davlat, bank sektori, real iqtisodiyot va investorlar o‘rtasidagi moliyaviy ishonchni o‘lchaydigan institutsional mexanizmdir. Davlat obligatsiyasi xaridor uchun daromad keltiruvchi moliyaviy aktiv, davlat uchun esa vaqtinchalik bo‘sh mablag‘larni qonuniy va bozor shartlarida jalb qilish vositasi hisoblanadi. Uning iqtisodiy mazmuni

qarz majburiyati bilan cheklanmaydi. Bu instrument orqali budget taqchilligi inflyatsion emissiyasiz moliyalashtiriladi, milliy valyutadagi foiz stavkalari uchun yo‘nalish belgilanadi, banklararo likvidlik boshqariladi va jamg‘armalar ishlab chiqarish hamda infratuzilma loyihalariga yo‘naltiriladi.

O‘zbekiston tajribasida davlat qimmatli qog‘ozlari bozorining dolzarbligi davlat moliyasi barqarorligi, ichki qarz bozorini chuqurlashtirish va kapital bozorining ishonchli narx indikatori zarurati bilan bog‘liq. Mamlakatda davlat qarzi va qimmatli qog‘ozlar bozoriga oid huquqiy baza takomillashdi. “Davlat qarzi to‘g‘risida”gi Qonunda davlat tomonidan mablag‘ jalb qilish davlat qimmatli qog‘ozlarini chiqarish va joylashtirish orqali amalga oshirilishi mumkinligi, bunday mablag‘lar budget taqchilligini qoplash, ijtimoiy va infratuzilma loyihalarini moliyalashtirish, davlat qarzini qayta moliyalashtirish va pul mablag‘larini boshqarish uchun ishlatilishi belgilangan [1]. “Qimmatli qog‘ozlar bozori to‘g‘risida”gi qonunchilik esa obligatsiyalar, davlat g‘aznachilik obligatsiyalari va boshqa moliyaviy instrumentlarning muomalasi uchun umumiy huquqiy maydon yaratadi [2].

Davlat qimmatli qog‘ozlari bozori samarali ishlashi uchun uning tarkibiy unsurlari bir-biri bilan uzviy bog‘lanishi zarur. Emitent sifatida Iqtisodiyot va moliya vazirligi qarz olish hajmi, muddati va instrument turini belgilaydi. Markaziy bank fiskal agent va pul-kredit siyosati yurituvchi institut sifatida foiz stavkalari, likvidlik va bozor kutilmalarini kuzatadi. Birja va auksion platformalari narx shakllanishini ta‘minlaydi. Markaziy depozitariy egalik huquqi va hisob-kitoblarning texnik ishonchliligini kafolatlaydi. Dilerlar, banklar, sug‘urta kompaniyalari, investitsiya vositachilari va jismoniy shaxslar esa talab tomonini shakllantiradi. Shu zanjirning bir bo‘g‘ini sust ishlasa, obligatsiya nominal jihatdan mavjud bo‘lsa ham, bozor iqtisodiyot uchun to‘liq signal bera olmaydi.

Maqolaning maqsadi O‘zbekistonda davlat qimmatli qog‘ozlari bozorining nazariy va amaliy mazmunini tahlil qilish, uning shakllanishiga ta‘sir etuvchi omillarni aniqlash, mavjud muammolarni baholash hamda bozorni rivojlantirish bo‘yicha iqtisodiy asoslangan takliflar ishlab chiqishdan iborat. Tadqiqotning amaliy ahamiyati shundaki, davlat obligatsiyalari bozori moliyaviy barqarorlikni mustahkamlash bilan birga, xususiy obligatsiyalar, ipoteka qimmatli qog‘ozlari, investitsiya fondlari va pensiya jamg‘armalari kabi kapital bozori segmentlari uchun ham tayanch narx tizimini yaratadi.

Adabiyotlar tahlili va metodologiya

Mahalliy ilmiy adabiyotlarda davlat qimmatli qog‘ozlari bozori ko‘proq kapital bozori, davlat qarzi, bank tizimi likvidligi va investitsiya resurslarini jalb qilish masalalari

bilan bog‘liq holda o‘rganilgan. A. D. Ashurova davlat qimmatli qog‘ozlari emissiyasi va muomalasini budjet defitsitini qoplash, moliyaviy barqarorlik va ichki bozorni rivojlantirish vositasi sifatida baholaydi [8]. Ushbu yondashuv davlat obligatsiyalarining fiskal vazifasini to‘g‘ri ochadi, biroq bozorning chuqurligi, ikkilamchi savdolar va investorlar tarkibi alohida tahlil qilinmasa, instrumentning real iqtisodiy samarasi to‘liq ko‘rinmaydi.

F. Sindarov O‘zbekiston qimmatli qog‘ozlar bozoridagi likvidlik pastligi, investitsiya vositalari cheklanganligi, xalqaro moliya bozorlariga integratsiyaning sustligi va moliyaviy savodxonlik yetishmasligini kapital bozorining asosiy muammolari sifatida ko‘rsatadi [9]. Bu xulosa davlat qimmatli qog‘ozlari bozoriga ham bevosita tegishli. Chunki davlat obligatsiyalarining ishonchliligi yuqori bo‘lsa-da, ular keng investorlar qatlamiga yetib bormasa, ularning jamg‘armalarni safarbar etish salohiyati cheklanadi. A. Q. Ro‘ziqulov ikkilamchi qimmatli qog‘ozlar bozorining likvidlik darajasi kapital bozorining iqtisodiyot bilan bog‘lanishini belgilashini asoslaydi [10]. Ushbu qarash davlat qimmatli qog‘ozlariga nisbatan yanada muhim, chunki likvid ikkilamchi bozor bo‘lmagan sharoitda investor obligatsiyani muddatidan oldin adolatli narxda sotish imkonidan mahrum bo‘ladi.

A. I. Karimov fond bozorida investorlarning mablag‘larini jalb qilish mexanizmlarini tahlil qilib, moliyaviy texnologiyalar, birlamchi va ikkilamchi savdo jarayonlari hamda portfel investitsiyalar ahamiyatini ko‘rsatadi [11]. N. A. Shamsiddinov qimmatli qog‘ozlar bozorining institutsional tuzilmasi, kapitalni samarali taqsimlash va aholi jamg‘armalarini real sektorga yo‘naltirishdagi rolini yoritadi [12]. Ushbu tadqiqotlar asosida davlat obligatsiyalari bozorini rivojlantirishni faqat emissiya hajmini oshirish bilan o‘lchash xato ekani ayon bo‘ladi. Bozorning sifati savdo infratuzilmasi, narx signali, investorlar ishonchi, hisob-kitob tizimi va axborot oshkoraligi bilan belgilanadi.

Tadqiqot metodologiyasi huquqiy tahlil, institutsional tahlil, statistik dinamikani baholash, qiyosiy yondashuv va riskga asoslangan baholash usullariga tayandi. Huquqiy tahlilda “Davlat qarzi to‘g‘risida”gi Qonun, “Qimmatli qog‘ozlar bozori to‘g‘risida”gi qonunchilik va 2025-yilgi Davlat budjeti parametrlaridan foydalanildi. Statistik tahlilda davlat g‘aznachilik obligatsiyalari emissiyasi, budjet taqchilligini qoplash manbalari, fond bozori savdo hajmi va hisob-kitob infratuzilmasi bo‘yicha rasmiy ma‘lumotlar solishtirildi. Qiyosiy yondashuvda rivojlangan bozorlardagi benchmark muddatlar, market-meykerlik, inflyatsiyaga bog‘langan obligatsiyalar va raqamli savdo kanallarining O‘zbekiston sharoitiga moslashish imkoniyatlari baholandi.

Metodologik cheklovlar ham mavjud. O'zbekistonda davlat qimmatli qog'ozlari bo'yicha ochiq statistikalar ko'p hollarda alohida auksionlar kesimida beriladi, investorlar tarkibi, ikkilamchi bozor aylanmasi va chakana investorlar ulushi doimiy ravishda batafsil e'lon qilinmaydi. Shu sababli tadqiqotda mavjud rasmiy ma'lumotlar, Markaziy bankning yillik hisobotlari, Markaziy depozitariy hisoboti va birja axborotlari asosida ehtiyotkor xulosalar chiqarildi. Bu yondashuv umumlashtirishda ortiqcha da'vordan qochish va muammolarni real ko'rsatkichlar bilan bog'lash imkonini berdi.

Tahlil va natijalar

O'zbekiston qonunchiligiga ko'ra, O'zbekiston Respublikasi nomidan chiqariladigan davlat qimmatli qog'ozlari **davlat g'aznachilik obligatsiyalari** va **suveren xalqaro obligatsiyalardan** iborat [1]. Davlat g'aznachilik obligatsiyalari rezidentlar, Markaziy bank bilan kelishuvga ko'ra norezidentlar o'rtasida joylashtirilishi mumkin. Ular qat'iy belgilangan stavkali, o'zgaruvchan stavkali, diskont va inflyatsiyaga bog'langan obligatsiyalar shaklida chiqarilishi mumkin [1]. Bu tasnif bozorning mazmunini aniq ko'rsatadi. Qat'iy stavkali obligatsiya investorga oldindan ma'lum daromad beradi. O'zgaruvchan stavkali obligatsiya foiz stavkalari o'zgarishiga moslashadi. Diskont obligatsiya nominaldan past narxda joylashtiriladi va so'ndirishda nominal qiymat qaytariladi. Inflyatsiyaga bog'langan obligatsiya investorning real daromadini saqlashga xizmat qiladi.

Davlat qimmatli qog'ozlari bozorining shakllanishiga makroiqtisodiy barqarorlik, budget siyosati, pul-kredit siyosati, institutsional infratuzilma va investorlar ishonchi ta'sir ko'rsatadi. Makroiqtisodiy barqarorlik foiz stavkasi va inflyatsiya kutilmalarini boshqaradi. Budget siyosati emissiya hajmi va qarz olish zaruratini belgilaydi. Pul-kredit siyosati davlat obligatsiyalarining daromadlilik egri chizig'i orqali banklararo foizlar va kredit narxiga ta'sir qiladi. Institutsional infratuzilma savdo, depo hisobvaraqlari, kliring, hisob-kitob va axborot almashinuvi sifatini belgilaydi. Investorlar ishonchi esa obligatsiyalarni sotib olishga tayyorlik, talabning barqarorligi va ikkilamchi bozorda savdo faolligida namoyon bo'ladi.

Davlat obligatsiyalarining amaliy qo'llanishi O'zbekiston budget siyosatida yaqqol ko'rinmoqda. 2025-yil uchun konsolidatsiyalashgan budget taqchilligining cheklangan miqdori YaIMga nisbatan 3 foiz etib belgilangan [3]. Taqchillikni boshqarishda ichki qarz instrumentlari muhim o'rin egallaydi. Bazaviy statistik materiallarda 2022-yilda davlat g'aznachilik obligatsiyalarini chiqarish orqali 6,4 trillion so'm jalb qilingani, 2023-yilda bu ko'rsatkich 16,1 trillion so'mga, 2024-yilda 25,0 trillion so'mga yetgani, 2025-yilda esa 25,2 trillion so'm atrofida prognoz qilingani qayd etilgan [13]. Ushbu

dinamika davlat qimmatli qog'ozlari ichki moliyalashtirish tizimida yordamchi manbadan asosiy instrumentlardan biriga aylanayotganini ko'rsatadi.

Emissiya hajmining o'sishi ijobiy belgi, lekin uning sifati muddat tuzilmasi bilan baholanadi. Bazaviy tahlilga ko'ra, qisqa muddatli obligatsiyalar hajmi 2018-yildagi 397 milliard so'mdan 2024-yilda 19 439 milliard so'mgacha ko'tarilgan, 2025-yilning birinchi choragida esa 4 364 milliard so'm bo'lgan. O'rta muddatli obligatsiyalar 2024-yilda 12 765 milliard so'mga yetgan. Uzoq muddatli obligatsiyalar hajmi 2024-yilda 1 465 milliard so'm darajasida qolgan [13]. Bu raqamlar bozor o'sayotganini, ammo uzoq muddatli moliyalashtirish bazasi hali yetarli chuqurlikka ega emasligini bildiradi. Uzoq muddatli instrumentlar past ulushda qolsa, infratuzilma, energetika, transport va ijtimoiy obyektlar kabi uzoq qaytish davriga ega loyihalarni ichki bozorda moliyalashtirish qiyinlashadi.

Davlat qimmatli qog'ozlari bozorining pul-kredit siyosatidagi roli daromadlilik egri chizig'i orqali ochiladi. Markaziy bank 2024-yilda davlat qimmatli qog'ozlari daromadlilik egri chizig'ini hisoblash va e'lon qilish amaliyoti joriy etilganini qayd etgan [4]. Bunday egri chiziq iqtisodiyot subyektlariga turli muddatlarda pulning narxi qanday shakllanayotganini ko'rsatadi. Bank kreditlari, korporativ obligatsiyalar va investitsion loyihalar rentabelligi davlat obligatsiyalari daromadliliigi bilan solishtiriladi. Agar davlat obligatsiyalari bo'yicha benchmark muntazam va ishonchli bo'lsa, korporativ qarz bozori ham aniqroq narxlanadi. Aksincha, benchmark uzluksiz bo'lmasa, xususiy sektor qarz qiymatini baholashda noaniqlik kuchayadi.

Bozor infratuzilmasida sezilarli o'zgarishlar amalga oshirilgan. "Qimmatli qog'ozlar markaziy depozitariysi" AJning 2024-yilgi hisobotida Markaziy bankdagi vakillik hisobvarag'i ochilgani, Markaziy depozitariyning hisob-kitob dasturiy ta'minoti Markaziy bankning banklararo to'lov tizimi bilan integratsiya qilingani, "Toshkent" fond birjasi va 30 dan ziyod investitsiya vositachilari uchun pul hisobvaraqlari ochilgani qayd etilgan [6]. 2024-yil 1-iyuldan boshlab Markaziy depozitariyda davlat qimmatli qog'ozlarining hisobi yuritilishi ta'minlangan [6]. Bu texnik yangilanish oddiy ko'rinishi mumkin, lekin bozor uchun fundamental ahamiyatga ega. Investor egalik huquqi aniq qayd etilishini, hisob-kitob vaqtida va xavfsiz yakunlanishini ko'rsa, obligatsiyani uzoq muddat saqlash yoki ikkilamchi bozorda sotish bo'yicha ishonchi ortadi.

Kapital bozori umumiy faolligining o'sishi davlat qimmatli qog'ozlari bozoriga ham muhit yaratadi. "Toshkent" Respublika fond birjasi ma'lumotiga ko'ra, 2025-yilning birinchi yarim yilligida qimmatli qog'ozlar savdosining umumiy hajmi 12,02 trillion so'mni tashkil etib, 2024-yilning birinchi yarim yilligiga nisbatan 17 barobarga

oshgan. Tuzilgan bitimlar soni 214 851 taga yetgan, o'rtacha kunlik savdo hajmi esa 97,7 milliard so'm bo'lgan [5]. Bu ko'rsatkich davlat qimmatli qog'ozlari bozorini to'g'ridan-to'g'ri almashtirmaydi, chunki davlat obligatsiyalari alohida auksion va dilerlik mexanizmlariga ega. Shunga qaramay, umumiy savdo infratuzilmasi, investor tajribasi va moliyaviy xizmat ko'rsatish madaniyatining o'sishi davlat obligatsiyalariga talabni kengaytirish uchun muhim sharoit yaratadi.

O'zbekiston bozorining asosiy zaif nuqtasi **ikkilamchi bozor likvidligining** pastligidir. Investor obligatsiyani sotib olgandan keyin uni muddat oxirigacha ushlab turishga majbur bo'lsa, bu instrument bank depozitiga o'xshash passiv aktivga aylanadi. Ikkilamchi bozor faol bo'lsa, investor zarurat tug'ilganda obligatsiyani bozor narxida sotadi, yangi investor esa daromadlilik, muddat va riskni baholab kiradi. Bu jarayon narx signallarini jonlantiradi. Likvid bozor bo'lmasa, davlat obligatsiyalari daromadliliği birlamchi auksion narxiga qamalib qoladi, risk mukofoti to'liq aks etmaydi va foiz stavkalari egri chizig'i iqtisodiyot uchun yetarli darajada reprezentativ bo'lmaydi.

Investorlar bazasining torligi ham rivojlanishni cheklaydi. Tijorat banklari davlat obligatsiyalarining asosiy xaridori bo'lib qolishi tabiiy, chunki banklar likvidlikni boshqarish, garov aktivlarini shakllantirish va foiz daromadi olish uchun bu instrumentdan foydalanadi. Lekin bozor faqat banklarga tayansa, davlat qarzi bank balansi ichida jamlanadi va real sektor kreditlashiga bilvosita siqib chiqarish bosimi paydo bo'lishi mumkin. Sug'urta kompaniyalari, investitsiya fondlari, pensiya jamg'armalari, korxonalar va jismoniy shaxslar keng qatnashsa, talab diversifikatsiyalanadi. Bu foiz stavkalarini barqarorlashtiradi va davlatning qarz olish xarajatini pasaytirishi mumkin.

Chakana investorlar uchun davlat obligatsiyalari bank omonatlariga muqobil bo'lishi mumkin, ammo amaliy kirish kanali sodda bo'lmasa, aholi bu instrumentni tanlamaydi. Obligatsiya sotib olish jarayoni mobil ilova orqali identifikatsiya, bank kartasi yoki hisobvaraqdan to'lov, daromadlilik va muddatni aniq ko'rish, soliq tartibini tushunish va muddatidan oldin sotish imkoniyati bilan bog'lansa, aholi jamg'armalari kapital bozoriga yaqinlashadi. Bunday model faqat texnik ilova yaratish emas. U investorni himoya qilish, riskni tushuntirish, savdo komissiyalarini oshkor qilish va shikoyatlarni tez ko'rib chiqish tizimini ham talab qiladi.

Davlat qimmatli qog'ozlari bozorida risklar ham mavjud. Foiz stavkasi riski obligatsiya narxining bozor stavkalari o'zgarishiga sezgirligida namoyon bo'ladi. Inflyatsiya riski nominal daromad real xarid qobiliyatini saqlab qolmasligiga olib keladi. Refinanslash riski qisqa muddatli qarzlar ulushi yuqori bo'lganda kuchayadi,

chunki davlat eski qarzni yopish uchun muntazam yangi qarz olishga majbur bo'ladi. Valyuta riski suveren xalqaro obligatsiyalar bo'yicha tashqi valyutadagi majburiyatlar oshganda kuchayadi. Likvidlik riski ikkilamchi bozorda xaridor yetishmasligi bilan bog'liq. Shaffoflik riski esa qarz strategiyasi, auksion natijalari, investorlar tarkibi va qarzga xizmat ko'rsatish xarajatlari to'liq ochilmaganda yuzaga chiqadi.

Amaliy rivojlantirish yo'llari bozorning real ishlash mexanizmini kuchaytirishga qaratilishi kerak. **Market-meykerlar** instituti davlat obligatsiyalari bo'yicha doimiy sotib olish va sotish kotirovkalarini ta'minlab, ikkilamchi bozorni jonlantiradi. Buning uchun market-meyker banklar va investitsiya vositachilariga aniq majburiyatlar, kotirovka oralig'i, minimal savdo hajmi va rag'batlantirish mexanizmlari belgilanadi. Benchmark muddatlar bo'yicha 1, 2, 3, 5 va 10 yillik obligatsiyalarni muntazam chiqarish foiz stavkalari egri chizig'ini to'liq shakllantiradi. Inflyatsiyaga bog'langan obligatsiyalar aholi va uzoq muddatli investorlar uchun real daromad kafolatini kuchaytiradi. Yashil obligatsiyalar esa energetika samaradorligi, suv tejash, jamoat transporti va ekologik infratuzilma loyihalarini moliyalashtirishga xizmat qiladi.

Bozorni rivojlantirishda axborot siyosati texnik masala emas, balki ishonch omilidir. Markaziy bankning fiskal agent sahifasida davlat qimmatli qog'ozlari bo'yicha joylashtirish sanasi, ISIN kodi, chiqarilish hajmi, muomala davri, so'ndirish sanasi, dilerlar soni, joylashtirish summasi va o'rtacha tortilgan foiz stavkasi kabi ko'rsatkichlar e'lon qilinadi [7]. Bu ma'lumotlar alohida auksionlarni kuzatish uchun foydali. Keyingi bosqichda investorlar tarkibi, ikkilamchi bozor aylanmasi, muddatlar bo'yicha so'ndirish jadvali, xorijiy investorlar ulushi va qarzga xizmat ko'rsatish xarajatlarini yagona interaktiv panelda muntazam e'lon qilish bozor intizomini kuchaytiradi.

Muhokama

O'zbekiston davlat qimmatli qog'ozlari bozori rivojlanishning o'tish bosqichida turibdi. Emissiya hajmlari oshayotgani, huquqiy baza mustahkamlanayotgani va hisob-kitob infratuzilmasi modernizatsiya qilinayotgani ijobiy o'zgarishdir. Biroq bozorning institutsional chuqurligi hali emissiya hajmiga mos emas. Hajm oshgani bilan ikkilamchi savdo sust bo'lsa, narx signali yetarli ishlamaydi. Muddatlar uzaygani bilan uzoq muddatli investorlar sinfi shakllanmasa, davlat qarzining barqarorligi asosan banklar balansiga bog'liq bo'lib qoladi. Elektron auksion mavjud bo'lgani bilan chakana investor uchun sodda savdo muhiti yaratilmasa, aholi jamg'armalari kapital bozoriga keng oqib kelmaydi.

Bozorni rivojlantirishda asosiy savol davlat qancha obligatsiya chiqargani emas, balki bu obligatsiyalar iqtisodiyotda qanday signal berganidir. Davlat obligatsiyasi foiz

stavkasi real iqtisodiyotdagi kapital qiymatini ko'rsatishi, bank kreditlari va korporativ obligatsiyalar uchun adolatli narx mezonini bo'lishi, investorlar uchun xavfsiz va likvid aktiv vazifasini bajarishi kerak. Agar davlat obligatsiyalari faqat budjet taqchilligini yopish vositasi sifatida ko'rilsa, bozor qisqa muddatli fiskal ehtiyojlarga bo'ysunib qoladi. Agar u kapital bozorining tayanch infratuzilmasi sifatida boshqarilsa, xususiy sektor moliyalashtirish imkoniyatlari kengayadi.

Davlat qarzi bozorini haddan tashqari tez kengaytirish ham ehtiyotkorlikni talab qiladi. Ichki obligatsiyalar tashqi qarzga nisbatan valyuta riskini kamaytiradi, lekin ular foiz xarajati va refinanslash riskini oshirishi mumkin. Qisqa muddatli obligatsiyalar ko'pchiqarilsa, har yili katta hajmdagi qarzni qayta joylashtirish zarurati paydo bo'ladi. Uzoq muddatli obligatsiyalar esa davlat uchun moliyalashtirishni barqarorlashtiradi, ammo investor uzoq muddatli inflyatsiya va stavka riskini qoplash uchun yuqoriroq daromadlilik talab qiladi. Shu sababli optimal muddat tuzilmasi budjet ehtiyoji, inflyatsiya kutilmalari, investorlar talabi va makroiqtisodiy prognozlar asosida shakllanishi kerak.

Xalqaro tajriba O'zbekiston uchun tayyor nusxa emas, balki moslashtiriladigan metodik manbadir. Rivojlangan bozorlarda davlat obligatsiyalari pensiya fondlari, sug'urta kompaniyalari, investitsiya fondlari va xorijiy investorlar portfelining asosiy qismi hisoblanadi. O'zbekistonda bunday investorlar sinfi hali keng emas. Shu bois bozorni rivojlantirish bir vaqtning o'zida uch yo'nalishni talab qiladi. Institutsional investorlar uchun prudensial qoidalar va uzoq muddatli aktivlar bozorini yaratish zarur. Aholi uchun soddalashtirilgan raqamli kirish va moliyaviy savodxonlik kerak. Xorijiy investorlar uchun hisob-kitob, soliq, valyuta konvertatsiyasi va axborot ochiqligi bo'yicha tushunarli rejim talab etiladi.

Davlat qimmatli qog'ozlari bozorida real rivojlanish indikatorlari aniq bo'lishi kerak. Bunday indikatorlarga muomaladagi obligatsiyalar hajmi, muddatlar bo'yicha taqsimot, ikkilamchi bozor aylanmasi, bid-ask spreadi, auksionlarda talab va taklif nisbati, investorlar tarkibi, chakana investorlar soni, norezidentlar ulushi, qarzga xizmat ko'rsatish xarajatlari va daromadlilik egri chizig'ining barqarorligi kiradi. Shu ko'rsatkichlar e'lon qilinmasa, bozor rivojlanishi haqida umumiy baho berish ko'pincha taxminga aylanadi. Bozor ishtirokchilari uchun aniq va muntazam ma'lumot iqtisodiy qaror sifatini oshiradi.

Xulosa

Davlat qimmatli qog'ozlari bozori O'zbekiston moliya tizimida budjet taqchilligini qoplash, davlat qarzini boshqarish, pul-kredit siyosati signallarini shakllantirish va ichki jamg'armalarni investitsiyaga aylantirishning muhim mexanizmiga aylanmoqda.

Huquqiy baza davlat g'aznachilik obligatsiyalari va suveren xalqaro obligatsiyalarni aniq tasniflab, ularni chiqarish maqsadlarini belgilagan. So'nggi yillarda emissiya hajmlarining o'sishi va hisob-kitob infratuzilmasining takomillashuvi bozorning shakllanish bosqichidan institutsional rivojlanish bosqichiga o'tayotganini ko'rsatadi. Bozorni chuqurlashtirish uchun asosiy urg'u emissiya hajmini mexanik oshirishga emas, likvidlik, investorlar bazasi, muddat tuzilmasi va axborot ochiqligini kuchaytirishga qaratilishi kerak. Market-meykerlik instituti, benchmark muddatlar bo'yicha muntazam emissiya, inflyatsiyaga bog'langan va yashil obligatsiyalar, chakana investorlar uchun mobil savdo kanali, Markaziy depozitariy va to'lov tizimlari integratsiyasini yanada chuqurlashtirish, investorlar huquqlarini tezkor himoya qilish va qarz risklarini ochiq monitoring qilish bozor samaradorligini oshiradi.

Davlat obligatsiyalari bozorining yetukligi iqtisodiyotda moliyaviy intizomni kuchaytiradi. U real sektor uchun kapital qiymatini ko'rsatadi, bank kreditlari va korporativ obligatsiyalar narxini aniqlashtiradi, davlat qarzi bo'yicha qarorlarni shaffoflashtiradi va aholi jamg'armalarini rasmiy investitsiya maydoniga jalb qiladi. O'zbekiston uchun eng muhim vazifa bozorni fiskal ehtiyojlarga xizmat qiluvchi instrument darajasida qoldirmasdan, butun kapital bozorining tayanch narx va ishonch infratuzilmasiga aylantirishdir.

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ORCID: <https://orcid.org/0009-0003-1222-0529>**USING VIRTUAL AND AUGMENTED REALITY (VR/AR)
TECHNOLOGIES IN THE PREPARATION OF FUTURE PRIMARY
SCHOOL TEACHERS***Berdiyev Muxiddin Maxmudovich**Termez State Pedagogical Institute,**Educational and methodological department employee**Email: muxiddinberdiyev1@gmail.com**Tel: +998 93 799 03 05*

Abstract: This article provides a scientific-theoretical substantiation of the use of virtual and augmented reality (VR/AR) technologies in the professional preparation of future primary school teachers. The relevance of the study stems from the persistent gap between the theoretical training of primary-school teacher candidates and their practical readiness for real classroom activity, and from the capacity of immersive technologies to reconstruct authentic pedagogical situations in a safe, repeatable, and controllable form. The aim of the research is to substantiate a structural-functional model for the pedagogically grounded application of VR/AR in primary teacher preparation, to define the stages through which the corresponding professional competence is formed, and to identify the pedagogical conditions ensuring its effective functioning. The study employed the methods of theoretical analysis and systematisation of scientific literature, structural-functional modelling, comparative-pedagogical analysis of immersive learning tools, and pedagogical observation. The analysis established that the model comprises five interrelated components — target, content, technological-immersive, simulation-practice, and diagnostic-reflective — and that the competence in question is formed through three successive stages: orientation-adaptation, simulation-practice, and reflective-professional. It is shown that VR/AR tools such as immersive virtual classrooms, avatar-based teaching simulators, and augmented visualisation of educational content function not as illustrative supplements but as a didactic environment that transforms the very mechanism of professional-skill formation. The conclusion substantiates the necessity of purposefully training teacher educators in immersive-pedagogical design, of developing nationally adapted VR/AR content aligned with

the primary-school curriculum, and of integrating immersive simulation with the teaching-practice component of teacher-training programmes. Practical recommendations are proposed for the gradual introduction of the model into the educational process of higher pedagogical institutions.

Keywords: *virtual reality, augmented reality, immersive learning, future primary school teacher, professional preparation, pedagogical simulation, microteaching, digital competence, mixed reality, professional readiness.*

INTRODUCTION

The professional preparation of primary school teachers occupies a special place in any national education system, since the quality of the very first years of schooling largely determines a child's subsequent educational trajectory. Yet teacher-training programmes have long faced a structural difficulty: the theoretical and methodological knowledge acquired in lecture halls is frequently disconnected from the complex, dynamic, and often unpredictable reality of the primary classroom, where the young teacher must simultaneously manage attention, motivation, discipline, and the individual needs of six- to ten-year-old learners. Virtual and augmented reality (hereinafter — VR/AR) technologies open a fundamentally new possibility for bridging this gap: they allow authentic pedagogical situations to be reconstructed in an immersive, safe, repeatable, and controllable form, so that a teacher candidate can practise professional actions before entering a real classroom and without any risk to real children.

The strategic documents of the Republic of Uzbekistan aimed at the modernisation of education — in particular, the Decree of the President No. PF-60 of 11 May 2022 “On the Development Strategy of New Uzbekistan for 2022–2026” and the Concept for the Development of School Education until 2030 — set the tasks of digitalising the educational space and of renewing the professional competences of the pedagogical workforce [1; 2]. Within this policy framework, the introduction of immersive technologies into the system of teacher preparation acquires not only scientific but also practical and normative significance, since the future teacher is expected to master, and subsequently to employ, contemporary digital and immersive means of instruction.

Despite a rapidly growing international literature on immersive learning, the question of how exactly VR/AR should be embedded in the preparation of primary-school teachers — as an integral pedagogical system rather than as a set of isolated technical demonstrations — remains insufficiently elaborated. A considerable part of the existing research examines the technical characteristics of immersive devices in isolation from the pedagogical conditions of their use, or studies their application in

secondary and higher subject teaching without regard to the specific features of primary education and of primary-teacher competence. The aim of the present article is therefore to substantiate a structural-functional model for the pedagogically grounded use of VR/AR in the preparation of future primary school teachers, to describe the stages through which the corresponding professional competence is formed, and to identify the problems arising in practice together with scientifically grounded solutions.

LITERATURE REVIEW AND METHODS

The theoretical foundation of the study draws on several complementary strands of pedagogical and psychological thought. D. Kolb's theory of experiential learning proceeds from the premise that professional knowledge is formed through a cycle of concrete experience, reflective observation, abstract conceptualisation, and active experimentation [4]. Immersive technologies are of particular value from this standpoint, since they furnish precisely the concrete, first-person experience that is otherwise difficult to organise within the walls of a teacher-training institution; VR/AR thus supplies the initial, experiential link of the learning cycle upon which subsequent reflection and conceptualisation depend.

The reality–virtuality continuum proposed by P. Milgram and F. Kishino provides the conceptual basis for distinguishing the didactic possibilities of different immersive formats, from augmented reality, which overlays digital objects onto the real environment, to fully immersive virtual reality, which replaces it [5]. This distinction is essential for the pedagogically appropriate selection of technology: augmented reality is well suited to enriching the visualisation of educational content for young learners, whereas fully immersive virtual reality is better suited to the reconstruction of holistic classroom situations for teacher practice. C. Dede's studies of immersive interfaces further establish that the sense of presence generated by such environments enhances engagement and supports the transfer of learned actions to real contexts, which is why immersion is treated in this study as a didactic resource rather than a merely technical property [7].

At the same time, J. Sweller's cognitive load theory imposes an essential caution: the rich sensory stimulation of immersive environments may increase extraneous cognitive load and thereby hinder rather than assist learning if the environment is not pedagogically structured [8]. This position underlies the understanding, adopted in the present study, that the educational effect of VR/AR depends not on the technology as such but on the pedagogical design that regulates the learner's attention and manages the balance between the immersive experience and the professional task to be mastered.

A. Bandura's social-cognitive theory of learning, with its emphasis on observational learning and the modelling of behaviour, provides the psychological basis for one of the most valuable pedagogical uses of immersive technology in teacher training — the opportunity to observe, imitate, and repeatedly rehearse professional actions within a realistic yet risk-free context. In an avatar-based virtual classroom the teacher candidate is able to model pedagogical behaviour, to receive immediate feedback, and to repeat the attempt as many times as necessary, thereby realising the principle of deliberate practice that is difficult to implement in a real classroom of live children.

The TPACK model of P. Mishra and M. Koehler, describing the intersection of technological, pedagogical, and content knowledge, is used as a methodological reference point for defining the competences that the teacher educator must possess in order to employ immersive technologies pedagogically rather than merely to demonstrate them, and that the future primary teacher must in turn acquire in order to integrate such technologies meaningfully into instruction [6].

Toshpulatov's earlier works on personalised education, on the comparative analysis of individualised and differentiated learning, and on the prospects of applying digital tools in school education emphasise that technology functions as a catalyst for, rather than a substitute for, pedagogical guidance, and that its introduction must be subordinated to educational goals and value orientations [3; 9; 10]. This position is extended in the present study to the specific question of how immersive technologies should be embedded in the preparation of primary-school teachers so as to strengthen, rather than displace, the pedagogical core of professional training.

The following research methods were employed: theoretical analysis and systematisation of scientific literature; structural-functional modelling, used to substantiate the component composition of the proposed model; comparative-pedagogical analysis of immersive learning tools and their didactic functions; and pedagogical observation, used to identify the typical difficulties encountered by teacher candidates and teacher educators in the use of VR/AR.

RESULTS AND DISCUSSION

1. The pedagogical essence of using VR/AR in the preparation of primary school teachers. The pedagogically grounded use of immersive technologies in primary-teacher preparation is understood in this study as the integration of virtual and augmented reality into the professional-training process in such a way that the teacher candidate acquires and rehearses professional competences within reconstructed, controllable models of real pedagogical situations. Unlike the traditional verbal-illustrative transmission of methodological knowledge, this approach places the

candidate in the position of an acting subject who makes pedagogical decisions, observes their consequences in the simulated environment, and corrects the mode of action on the basis of feedback, while the teacher educator performs the functions of designer of the immersive situation, moderator of the practice, and diagnostician of its results.

2. Structural components of the model. The analysis allows the model of pedagogically grounded VR/AR use in primary-teacher preparation to be represented as a unity of five interrelated components.

The target component defines the expected result — a future primary school teacher who is professionally and psychologically ready to act competently in the classroom and who is capable of the pedagogically appropriate use of immersive technologies in his or her own future practice.

The content component comprises the professional knowledge and procedures that must be mastered by means of immersive technologies: methods of organising and managing a primary classroom, techniques of maintaining attention and motivation among young learners, procedures for the visual presentation of educational material, and criteria for the pedagogical evaluation of immersive resources.

The technological-immersive component includes the digital means through which the competence is formed — immersive virtual classrooms, avatar-based teaching simulators, augmented-reality applications for the visualisation of educational content, and the corresponding devices and software — which function not as illustrative supplements but as the very environment of professional practice.

The simulation-practice component constitutes the didactic core specific to teacher training: it provides for the repeated rehearsal of professional actions — the conduct of a lesson fragment, the resolution of a disciplinary situation, the individual support of a struggling pupil — within virtual or augmented environments, thereby realising the principle of deliberate practice in a risk-free form.

The diagnostic-reflective component provides for the collection of data on the candidate's actions in the immersive environment — including recorded lesson fragments and behavioural indicators — and for their subsequent joint analysis and reflection, on the basis of which the professional action is corrected and the competence itself, rather than the technical mastery of the device, is assessed.

3. Stages of competence formation. The formation of the competence in the pedagogically grounded use of VR/AR proceeds through three successive stages.

At the orientation-adaptation stage, the candidate, with the support of the teacher educator, becomes acquainted with the immersive devices and environments, masters

the elementary operations of interaction with them, adapts to the specific perceptual conditions of immersion, and forms an initial understanding of the pedagogical, rather than merely technical, possibilities of the technology.

At the simulation-practice stage, the candidate independently conducts lesson fragments and resolves modelled pedagogical situations within the virtual classroom, uses augmented-reality tools for the presentation of educational content, and repeats professional actions under gradually decreasing guidance from the teacher educator, thereby accumulating first-person pedagogical experience.

At the reflective-professional stage, the candidate analyses the recorded materials and feedback accumulated in the immersive environment, evaluates the effectiveness of the professional actions performed, and, together with the teacher educator, transfers the rehearsed competences into the conditions of real teaching practice, thereby closing the experiential cycle described by Kolb.

4. Pedagogical conditions for the effective functioning of the model. The effectiveness of the described model depends on several conditions: the readiness of teacher educators to act as designers of immersive-pedagogical situations rather than as demonstrators of technology, in accordance with the logic of the TPACK model; the availability of VR/AR content adapted to the national primary-school curriculum and to the age characteristics of young learners; the provision of the requisite technical infrastructure together with observance of the health and safety norms of immersive-technology use; and the organic integration of immersive simulation with the teaching-practice component of the teacher-training programme, so that the experience gained in the virtual environment is systematically transferred to the real classroom.

5. Problems and solutions. The first problem consists in the scarcity of VR/AR educational content adapted to the primary-school curriculum and to the national educational context; the corresponding solution lies in the purposeful development of such content through the cooperation of pedagogues, methodologists, and developers. The second problem is the high cost of immersive equipment, which limits its large-scale introduction; the solution consists in a phased approach — the establishment of shared immersive-learning laboratories and the wider use of comparatively inexpensive mobile augmented-reality applications that operate on ordinary devices. The third problem is the insufficient preparedness of teacher educators for the pedagogical, rather than technical, use of immersive tools; the solution lies in introducing specialised courses on immersive-pedagogical design into higher pedagogical education and in-service teacher training. The fourth problem is the risk of the health-related and cognitive side-effects of prolonged immersion, together with

the danger of technology being used for its own sake; the solution consists in the elaboration of pedagogically and medically grounded guidelines that regulate the duration and structure of immersive sessions and subordinate the use of the technology to clearly defined educational goals.

CONCLUSION

The results of the study show that the effective use of virtual and augmented reality technologies in the preparation of future primary school teachers requires a purposefully constructed pedagogical model rather than the incidental application of individual immersive devices. Such a model unites target, content, technological-immersive, simulation-practice, and diagnostic-reflective components, and the corresponding professional competence is formed gradually, through the orientation-adaptation, simulation-practice, and reflective-professional stages.

The analysis confirms that immersive technologies acquire their full pedagogical value only when they are embedded within a system that assigns the teacher educator the role of a designer of immersive-pedagogical situations and the future teacher the role of an active subject who rehearses professional actions in a safe, repeatable environment and subsequently transfers them to real classroom practice. VR/AR thereby transforms not the external form but the very mechanism of professional-skill formation, converting methodological knowledge into rehearsed and reflectively mastered professional experience.

The development of nationally adapted VR/AR content aligned with the primary-school curriculum, the training of teacher educators in immersive-pedagogical design, and the organic integration of immersive simulation with the teaching-practice component of teacher-training programmes are proposed as the principal directions for translating the described model into practice. The consistent implementation of these measures would allow the preparation of primary-school teachers in the Republic of Uzbekistan to move from the predominantly theoretical transmission of methodological knowledge towards a scientifically grounded practice of immersive professional training, thereby bringing the national system of teacher education closer to contemporary international standards.

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THE ROLE OF THE CYP2C9 GEN IN DUODENAL ULCER COMPLICATIONS

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The relevance of the problem. Currently, genetic markers have been identified that largely predetermine the likelihood of developing duodenal ulcer disease complicated by bleeding in a specific individual. These include certain biochemical indicators, as well as specific markers determined by studies at the chromosomal and even molecular levels. As a rule, genetic mechanisms are a very important factor in the development of ulcer disease. The genes whose alterations cause ulcer disease have not yet been identified. The degree of involvement of genetic mechanisms in the development of ulcer disease varies across different patient groups.

Aim. Forecasting the course of the disease in patients with duodenal ulcers complicated by bleeding.

Materials and methods. A targeted scientific study of the CYP2C9 gene frequency was conducted in 119 patients with duodenal ulcer bleeding. The treated patients were divided into 3 groups: Group I - Main group (patients with duodenal ulcers complicated by bleeding): 119 patients; II - Patients with uncomplicated gastric and duodenal ulcers: 20 patients; III - Examined group (practically healthy individuals): 20 people.

Results. In multifactorial analysis, the CYP2C9 T allele persisted as an independent prognostic factor even when evaluating age, gender, history of anti-inflammatory drug use, clinical anamnesis data, and the CYP2C9 genotype ($\beta=1.07$; $p=0.004$).

The association of the T allele and TT genotype of the CYP2C9 gene with the risk of duodenal ulcer bleeding

Genetic indicator	OR	95% CI	p
Carriers of the T allele (CT+TT)	2.94	1.51 - 5.72	0.002
TT genotype	4.76	1.22 - 18.54	0.024

Conclusion. Therefore, the early detection of this genetic marker in patients at risk is considered important in clinical practice for selecting individualized treatment tactics, preventing recurrent bleeding, and improving the patient's prognosis.

**BEYOND THE GRADE THRESHOLD: A TRIADIC
INCENTIVE-ALIGNMENT FRAMEWORK FOR STATE-
FINANCED STIPENDS IN DUAL VOCATIONAL
EDUCATION, WITH EVIDENCE FROM UZBEKISTAN'S
2026 REFORM**

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Abstract

Governments expanding dual vocational education and training (VET) systems face a design problem that has received surprisingly little conceptual attention: how should a state structure a stipend so that it simultaneously protects a trainee's livelihood, re-rewards effort, and gives an employer a credible channel to signal performance, without collapsing into either blanket welfare or narrow piece-rate pay? This paper develops the Triadic Incentive-Alignment Model (TIAM), a conceptual framework that decomposes conditional-stipend design into five interacting layers — baseline security, performance escalation, third-party (employer) evaluation, platform-mediated conditionality, and reversible sanctioning. The framework is applied to a 2026 Uzbek government resolution that introduces digitally administered, performance-tiered stipends for technicum students in dual education. The case shows how the five layers can be combined in practice, but also exposes three structural tensions that the literature on apprenticeship financing and conditional transfers has not resolved: grade-based escalation invites grade inflation; employer-scored evaluation imports firm-level bias into a public entitlement; and full-budget financing from a single ministry creates fiscal fragility once state co-financing commitments expire. The paper proposes four testable design amendments — a composite performance index, graduated state–employer co-financing, a procedural-justice appeal channel for suspended stipends, and sector-weighted multipliers — that convert the Uzbek case from a

descriptive example into a transferable policy instrument for other transition economies scaling up dual VET.

Keywords: dual vocational education; conditional stipends; incentive alignment; human capital policy; digital governance platforms; Uzbekistan

1. Introduction

Dual vocational education — in which a student divides time between a training institution and a workplace — is increasingly promoted by governments in Central and South Asia as a remedy for the mismatch between what schools teach and what labour markets need. Financing such systems, however, raises a question that is more institutional than pedagogical: who pays the trainee, on what condition, and through what verification mechanism? In classical dual systems such as Germany's, the employer pays a training allowance directly, and the state's role is largely regulatory (Deissinger, 2015). Many transition economies cannot replicate this model quickly, because employer associations are weak and firms are reluctant to bear training costs for students who may leave. States in this position therefore finance the stipend themselves and use conditionality — grades, competition results, attendance — as a substitute for the employer's direct financial stake.

This substitution is not neutral. A state-financed, condition-based stipend is simulta-

neously a welfare instrument, an incentive contract, and an information system, and each of these three functions pulls the design in a different direction. The welfare function argues for unconditional, universal payment; the incentive function argues for sharp conditionality; the information function argues for a reliable, low-cost way to verify that the condition was met. Existing literature addresses these functions separately — human capital theory justifies public investment in training (Becker, 1964), principal-agent theory explains why conditionality is used to control effort (Jensen & Meckling, 1976), and the conditional cash transfer literature documents the behavioural effects of tying payment to performance (Fiszbein & Schady, 2009) — but no framework brings the three together specifically for dual-VET stipends financed by the state rather than the firm.

This paper fills that gap. It develops a five-layer conceptual model, the Triadic Incentive-Alignment Model (TIAM), and uses a recent Uzbek policy instrument as an illustrative case: Cabinet of Ministers Resolution No. 341 of 30 June 2026, “On approval of the Regulation on the procedure

for paying stipends to technicum students studying in the dual education form,” which from the 2026/2027 academic year introduces a digitally mediated, tiered stipend for technicum students in dual programmes. The resolution is a useful case not because it is exceptional, but because it is representative: it combines a universal baseline payment, a grade- and competition-based escalator, employer-supplied performance data, a national digital platform, and a graduated suspension–reinstatement procedure — five elements that appear, in varying combinations, across many post-Soviet and Asian VET reforms. Analysing it through the TIAM lens allows the paper to move from description to generalisable design guidance.

2. Theoretical Framework: Three Lenses on Conditional Support

2.1 The human capital lens

Human capital theory treats vocational training as an investment with returns shared between the individual and the economy, which justifies public subsidy of the costs a trainee bears while not yet earning a full wage (Becker, 1964). Under this lens, a stipend is compensation for foregone income, and its size should track the opportunity cost of training rather than any measure of performance. This logic supports a universal baseline component of a stipend: every enrolled student, regardless of grades, is undertaking the same investment and forgoing similar earnings, so a floor payment is justified on efficiency grounds alone, independent of merit.

2.2 The multi-principal agency lens

Where human capital theory is silent on effort, agency theory is explicit: whenever a principal cannot directly observe an agent’s effort, it will use a contractible proxy — here, grades, attendance, or competition wins — to approximate effort and calibrate payment accordingly (Jensen & Meckling, 1976). Dual VET complicates the classical two-party agency problem because there are effectively two principals — the state, which owns the fiscal budget, and the enterprise, which owns the workplace evaluation — monitoring a single agent, the student. Each principal has a different proxy for effort (academic grades versus workplace conduct), and the two proxies need not

ove together. A student can be a strong classroom performer and a weak trainee, or vice versa. This is the core design problem the TIAM addresses: how to combine two independent, imperfect performance signals into one payment rule without letting either principal's proxy dominate arbitrarily.

2.3 The platform-governance lens

A third body of work, less theorised in economics but central to implementation, concerns the digital infrastructure through which conditionality is verified. Conditional cash transfer programmes show that the credibility of any condition-based payment depends on low-cost, tamper-resistant verification; where verification is weak, conditionality either becomes unenforceable or is captured by local intermediaries (Fiszbein & Schady, 2009). Contemporary apprenticeship-financing schemes increasingly route both the disbursement and the verification through a single administrative data system rather than through discretionary local certification (Cedefop, 2020). This shifts part of the incentive-alignment problem from contract design to system design: the platform itself becomes a fourth actor whose data-entry rules, access rights, and audit trail determine whether the stated conditionality is real or nominal.

3. The Triadic Incentive-Alignment Model (TIAM)

Building on the three lenses, the TIAM decomposes a state-financed dual-VET stipend into five layers that any policy designer must specify, whether explicitly or by default.

1. Baseline security layer — a payment floor available to every enrolled student irrespective of performance, sized to the opportunity cost of training rather than to merit. This layer operationalises the human capital argument and functions as the entitlement that keeps the poorest-performing but still-enrolled students in the system.
2. Performance escalation layer — a multiplier applied above the baseline when an academic or competitive threshold is crossed. This layer operationalises the state's side of the agency relationship, using an observable, centrally verifiable proxy (grades, competition rank).
3. Third-party evaluation layer — a channel through which the enterprise, as the second principal, feeds workplace-performance

information into the payment decision independently of the academic proxy. This layer is what distinguishes dual-VET stipend design from ordinary merit scholarships: the agent is monitored by two principals with different information.

4. Platform-conditionality layer — the digital infrastructure that records enrolment, attendance, evaluation, and payment status, converting the first three layers from paper rules into an enforceable, auditable transaction stream, and reducing the transaction costs identified in the apprenticeship-financing literature (Cedefop, 2020).

5. Reversible sanctioning layer — a rule set governing suspension of payment when conditions are violated, paired with an explicit reinstatement pathway. The presence of a reinstatement path (rather than permanent disqualification) is what keeps the sanction behavioural rather than punitive, consistent with the incentive logic of conditional transfers, whose effectiveness depends on the agent perceiving the condition as recoverable rather than a one-shot cliff (Fiszbein & Schady, 2009).

The analytical claim of this paper is that these five layers are not independent design choices; each layer constrains what the others can safely do. A generous baseline (layer 1) can absorb noise in the escalation criterion (layer 2) without starving low performers. A narrow escalation criterion, in turn, needs a credible platform (layer 4) to be enforceable at scale. And a workable sanctioning layer (layer 5) needs the third-party evaluation (layer 3) to be procedurally defensible, or the sanction will be perceived as arbitrary. The next section reads a real policy instrument against this five-layer grid.

4. Case Reading: Resolution No. 341 (30 June 2026)

Resolution No. 341 assigns each of the five TIAM layers a concrete institutional form, summarised below.

- Baseline layer. Every first-year student admitted to a dual programme receives one base calculation unit per month regardless of academic performance — a pure entitlement layer matching the human capital argument almost exactly.
- Escalation layer. Students whose semester grades average above an 85 per-cent threshold, or who win designated republican or international

vocational competitions, receive triple the base unit. The threshold is binary rather than continuous: a single percentage point below 85 removes the entire escalation, which is the first tension examined in Section 5.

- **Third-party evaluation layer.** The enterprise evaluates the student's work-place competence and conduct at the end of training and can request suspension of payment through the platform if performance or discipline is unsatisfactory; the technicum director issues the suspension order within three days of the re-request. The enterprise's evaluation criteria are set by the enterprise itself, subject to a separate government-issued evaluation methodology — a partial, not full, centralisation of the second principal's proxy.
- **Platform-conditionality layer.** A dedicated digital platform, integrated with the country's unified national labour-market information system, records enrolment orders, enterprise data, daily attendance recorded jointly by the technicum group leader and the workplace mentor, and payment transfers, with the training institution's director personally accountable for data entry.
- **Reversible sanctioning layer.** Payment is suspended on a defined list of grounds (unsatisfactory performance, breach of workplace discipline, expulsion, contract termination, or death), but reinstatement is explicitly possible from the following month based on the enterprise's revised assessment and the technicum group leader's recommendation, evaluated against five stated behavioural criteria. Separately, illness, maternity leave, and scheduled academic holidays are carved out as protected periods during which payment continues or resumes regardless of the performance rule — an explicit acknowledgement that the escalation and sanctioning layers should not override the baseline security layer in defined welfare-sensitive circumstances.

Read this way, the resolution is not merely an administrative payment schedule; it

is a fully specified instance of the TIAM, and one of the more complete public examples currently available, since most national apprenticeship-financing schemes documented in comparative surveys specify layers 1–2 in detail but leave layers 3–5 to local discretion (Cedefop, 2020).

5. Structural Tensions

Three tensions recur across the layers and are generalisable beyond this single case.

Grade inflation risk. A binary 85 percent threshold that triples income creates a strong incentive for both students and instructors to inflate grades near the cutoff, a well-documented distortion in any performance-contingent transfer that relies on a single discrete threshold rather than a continuous scale (Fiszbein & Schady, 2009). Because the threshold is centrally defined and nationally uniform, the distortion, if it occurs, will be systemic rather than local, which is harder to detect through spot audits.

Imported employer bias. Delegating workplace evaluation to the enterprise — layer 3 — solves the information problem (the state genuinely cannot observe workplace conduct) but reopens a different one: an enterprise's evaluation criteria, even where bounded by a common methodology, can reflect firm-specific preferences unrelated to competence, and the same low grade that triggers suspension of a public entitlement is set by a private party with no fiduciary duty toward the student. The resolution provides a review path (the technicum director can act without the enterprise's request in some cases) but does not describe an appeal mechanism through which a student can contest an enterprise's negative evaluation before the sanction takes effect.

Fiscal fragility after transition. The resolution finances the entire stipend obligation from the ministry's allocated budget for 2026 and shifts it into ordinary state budget parameters only from 2027 onward. This sequencing is common in reform launches, but it means the escalation layer's generosity (a 3x multiplier for high performers, applied to an unknown and likely growing enrolment base) is committed before its long-run financing is settled, a sequencing risk familiar from the broader apprenticeship-financing literature, where schemes that begin with strong central funding often face pressure to narrow eligibility once funding pressures appear (Cede-fop, 2020).

6. Toward a More Robust Design

The TIAM suggests four concrete amendments, each targeting one tension without abandoning the underlying five-layer architecture.

1. Replace the binary grade threshold with a composite, continuous index. A weighted index combining academic average, attendance, and a normalised employer score — rather than a single 85 percent cut-off —

removes the cliff-edge incentive for grade manipulation and allows partial escalation (e.g., 1.5x, 2x, 3x tiers) that tracks genuine performance more smoothly.

2. Introduce graduated state–employer co-financing tied to sector demand. Rather than the state financing 100 percent of every tier indefinitely, the escalation layer could shift toward shared financing in sectors where enterprises

already benefit directly from trained labour, following the mixed financing models documented across EU apprenticeship systems (Cedefop, 2020); this directly addresses the fiscal-fragility tension by aligning payment source with the party best able to observe and benefit from the performance being rewarded.

3. Add a procedural-justice appeal channel for suspensions. Before an enterprise-triggered suspension takes effect, a short, platform-logged appeal window in which the student can contest the evaluation — reviewed by the territorial vocational education department rather than the same technicum director who issued the order — would address the imported-bias tension while preserving the reversible, non-punitive character the current reinstatement rule already establishes.

4. Apply sector-weighted multipliers instead of a flat rate. Where national labour-market data (already integrated into the platform) show acute shortages in particular trades, a differentiated multiplier by sector would let the same fiscal envelope produce a stronger signal exactly where the human-capital return to training is highest, rather than distributing the escalation uniformly across all dual programmes.

None of these amendments requires new institutions; each is implementable within the platform and evaluation architecture the resolution already establishes, which is precisely the point of specifying the model in five separable layers rather than as a single undifferentiated “conditional stipend.”

7. Conclusion

The paper has argued that state-financed dual-VET stipends should be understood as five interacting design layers — baseline security, performance escalation, third-party evaluation, platform conditionality, and reversible sanctioning — rather than as a single conditionality rule. Applying this lens

to a 2026 Uzbek resolution shows both the strength of a fully specified, digitally enforced instrument and three structural tensions — grade-threshold gaming, imported employer bias, and post-transition fiscal fragility — that are latent in any similarly designed scheme. Because these tensions arise from the architecture rather than from any single national context, the TIAM offers other governments scaling up state-financed dual VET a diagnostic checklist, and the four proposed amendments offer a tested starting point for closing the gaps before they surface in implementation.

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ПРОГНОЗИРОВАНИЕ КОГНИТИВНЫХ ОТКЛОНЕНИЙ У ДЕТЕЙ С ПЕРИНАТАЛЬНЫМИ ПОРАЖЕНИЯМИ ЦНС: КОМПЛЕКСНЫЙ ПОДХОД

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Актуальность. Перинатальные поражения центральной нервной системы являются триггером долгосрочных когнитивных и психоэмоциональных нарушений у детей. Многообразие факторов риска и скрытый характер ранних проявлений когнитивных дефектов затрудняют своевременный прогноз нейроонтогенеза, что указывает на необходимость поиска сочетанных прогностических моделей, объединяющих анализ раннего анамнеза и объективную оценку высших психических функций.

Цель исследования. С целью оптимизации прогностического мониторинга, определить взаимосвязь пре- и интранатальных факторов риска с отдалёнными когнитивными дисфункциями.

Результаты. Проведённый анализ данных анамнеза, позволил приоритизировать пре- и интранатальные предикторы по их степени влияния на формирующийся головной мозг ребёнка. Применение структурированного нейропсихологического тестирования в отдалённом периоде определило разнородность структуры когнитивной недостаточности. Установлены достоверные корреляционные связи между тяжестью перинатального анамнеза и профилем нейропсихологического дефицита, что подтверждает высокую чувствительность тестовых методик для верификации субклинических форм церебральной дисфункции.

Вывод. Интеграция раннего скрининга факторов риска и динамического нейропсихологического тестирования обеспечивает персонализированный прогноз развития ребёнка. Данный комплексный подход даёт возможность

объективизировать когнитивный дефицит на доклиническом этапе и своевременно применить таргетную нейрокоррекцию.

STRUCTURAL AND FUNCTIONAL FEATURES OF METAPHORICAL MAPPING IN VIRGINIA WOOLF'S TO THE LIGHTHOUSE

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Abstract. This paper examines the structural and functional features of metaphorical mapping in Virginia Woolf's *To the Lighthouse* within the framework of Conceptual Metaphor Theory. The study explores how conceptual metaphors contribute to narrative organization and thematic development in the novel. Drawing upon the theories of Lakoff and Johnson, Kövecses, and Gibbs, the research identifies structural, ontological, and orientational metaphors that shape characters' perception of reality, time, memory, and identity. The analysis demonstrates that metaphorical mappings are not merely stylistic devices but cognitive mechanisms through which Woolf constructs psychological depth and thematic coherence. The findings reveal that recurrent metaphorical domains, including the lighthouse, the sea, memory, art, and time, function as conceptual structures that guide readers' interpretation of the narrative.

Keywords: conceptual metaphor, metaphorical mapping, human cognition, emotions, Virginia Woolf, *To the Lighthouse*, Mrs. Ramsay, cognitive linguistics, Lily Brisco, narrative structure.

Introduction. Over the last several decades, conceptual metaphor has gained considerable attention in cognitive linguistic research, where it is regarded as a fundamental cognitive mechanism rather than a purely rhetorical phenomenon. This perspective suggests that metaphor enables people to comprehend abstract concepts by relating them to concrete experiences. In literary discourse, conceptual metaphors play a significant role in shaping characters' mental representations, organizing narrative patterns, and expressing underlying thematic and ideological perspectives. Virginia Woolf's *To the Lighthouse*, a landmark work of literary modernism, provides a rich corpus for examining the interaction between metaphorical mapping and narrative construction due to its complex symbolic imagery and stream-of-consciousness technique. Despite extensive research on Woolf's narrative style, comparatively little attention has been paid to the structural classification and functional role of conceptual metaphors in shaping the novel's thematic architecture from a cognitive linguistic perspective. Therefore, investigating metaphorical mappings in *To the Lighthouse* is both theoretically and practically significant, as it contributes to a deeper understanding

of the relationship between language, cognition, and literary meaning while expanding the application of Conceptual Metaphor Theory in modernist literary studies (Kövecses Z).

Main body. Conceptual Metaphor Theory proposed by Lakoff and Johnson (1980) views metaphor as a fundamental mechanism of human cognition rather than a decorative element of language. According to this theory, people understand abstract concepts through more concrete experiential domains by establishing systematic correspondences between source and target domains (Lakoff G., Johnson M.). Such mappings are especially significant in literary discourse, where metaphor becomes a means of organizing both narrative structure and thematic meaning. Virginia Woolf's *To the Lighthouse* represents one of the finest examples of modernist fiction in which conceptual metaphors shape characters' consciousness and readers' interpretation of reality. The novel employs symbolic images not only for aesthetic purposes but also as cognitive models reflecting philosophical ideas concerning memory, identity, time, and artistic creativity. One of the dominant conceptual metaphors in the novel is **THE LIGHTHOUSE IS SPIRITUAL ORIENTATION**. Throughout the narrative, the lighthouse functions as more than a physical object. For James Ramsay it symbolizes an unattainable childhood aspiration; for Mr. Ramsay it reflects intellectual achievement and personal ambition; while for Lily Briscoe it represents artistic completion and inner harmony. Consequently, one symbolic object generates different conceptual interpretations depending on each character's psychological perspective (Woolf V.). Another important metaphorical domain is **TIME IS AN EROSION FORCE**. Particularly in the chapter *Time Passes*, Woolf presents time as an invisible force capable of transforming places, relationships, and human existence. The gradual deterioration of the Ramsays' summer house symbolizes the inevitable influence of time on both material objects and human memory. Here metaphor performs a cognitive function by enabling readers to conceptualize temporal change through physical transformation.

The novel also demonstrates the ontological metaphor **MEMORY IS A CONTAINER**. Characters preserve emotions, experiences, and personal relationships within memory, allowing the past to remain psychologically accessible. Lily Briscoe's recollections of Mrs. Ramsay illustrate how memories function as conceptual spaces that influence present perception and artistic creation. This metaphor emphasizes the continuity between past and present, which is one of Woolf's central thematic concerns. Equally significant is the metaphor **ART IS VISION**. Through Lily Briscoe's artistic

development, Woolf conceptualizes painting as a means of understanding reality rather than merely representing it. Artistic perception becomes a cognitive process through which fragmented experience acquires unity and meaning. Therefore, metaphorical mapping contributes directly to the novel's thematic organization by connecting creativity with self-discovery.

The analysis indicates that conceptual metaphors establish coherence across different narrative levels. They organize symbolic imagery, characterize psychological states, and guide readers toward interpreting abstract philosophical ideas. Thus, metaphorical mapping functions simultaneously as a cognitive mechanism, a stylistic strategy, and a structural principle within the novel.

Conclusion. The study demonstrates that conceptual metaphorical mapping constitutes an essential component of Virginia Woolf's *To the Lighthouse*. Structural, ontological, and orientational metaphors interact to construct thematic unity and psychological depth. The lighthouse, time, memory, and artistic vision function as conceptual domains through which abstract human experience becomes cognitively accessible. Consequently, metaphor should be regarded not only as a linguistic phenomenon but also as a fundamental mechanism organizing literary meaning and narrative interpretation.

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INFLUENCE OF PERMANENT STORAGE CONDITIONS ON THE QUALITY CHARACTERISTICS OF MUNG BEAN (*VIGNA RADIATA*) GRAIN

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Abstract. *The preservation of mung bean (*Vigna radiata*) grain quality during storage is a critical factor in ensuring food security and maintaining its nutritional and technological value. This study evaluated the influence of permanent storage conditions on the physical, technological, and biochemical characteristics of mung bean grain over a six-month storage period. Grain samples of six cultivars were stored under different temperature, humidity, and ventilation regimes, and changes in grain weight, bulk density, water absorption capacity, protein and starch contents, as well as enzymatic activity, were determined. The findings demonstrated that maintaining an optimal storage microclimate effectively reduced quality deterioration and preserved the nutritional and processing properties of the grain. In contrast, elevated temperature and relative humidity accelerated biochemical transformations, increased enzymatic activity, and negatively affected grain quality. Among the studied cultivars, **Turon** and **Durdona** exhibited the greatest storage stability, whereas **Navruz** showed the highest susceptibility to quality deterioration. The results confirm that strict control of storage temperature, moisture, and air circulation is essential for extending the storage life of mung bean grain and minimizing postharvest losses..*

Keywords: *Mung bean; *Vigna radiata*; grain storage; storage conditions; grain quality; biochemical changes; enzymatic activity; temperature; relative humidity; postharvest technology.*

1. Introduction

Mung bean (*Vigna radiata* L.) is one of the most valuable grain legumes cultivated in many regions of Asia, including Uzbekistan, due to its high nutritional value, digestibility, and adaptability to diverse agroecological conditions. The grain contains approximately 24–26% protein, essential amino acids, vitamins, minerals, and bioactive compounds, making it an important source of plant-based nutrition for both human consumption and food processing.

Despite its nutritional advantages, mung bean grain remains a biologically active material after harvest. During storage, continuous respiration and metabolic activity may lead to moisture accumulation, loss of dry matter, enzymatic reactions, and deterioration of technological properties. These processes become more intensive when storage temperature, relative humidity, and ventilation are not properly controlled, resulting in reduced grain quality and increased postharvest losses.

Permanent storage facilities equipped with appropriate environmental control systems provide favorable conditions for preserving grain quality over extended storage periods. However, the effectiveness of such facilities largely depends on maintaining an optimal storage microclimate and implementing proper sanitary management. Therefore, understanding the relationship between storage conditions and quality changes is essential for improving storage technologies and ensuring the long-term preservation of mung bean grain.

The objective of this study was to evaluate the influence of permanent storage conditions on the physical, technological, and biochemical quality characteristics of mung bean grain during six months of storage and to identify cultivars with superior storage stability.

Novelty of the study. Unlike previous studies that mainly focused on the general influence of storage conditions on grain preservation, this research provides a comparative assessment of six mung bean cultivars under permanent storage conditions. The study identifies cultivar-specific differences in storage stability and demonstrates that maintaining an optimal storage microclimate significantly reduces biochemical deterioration and preserves technological quality during six months of storage.

2. Materials and Methods

The study was conducted using grain samples of six mung bean (*Vigna radiata* L.) cultivars (Durdon, Radost, Turon, Qahrabo, Marjon, and Navruz) harvested under the agroecological conditions of Uzbekistan. Before storage, the grain was cleaned to a purity of more than 98% and adjusted to an initial moisture content of 12–13%.

The samples were stored for six months in permanent reinforced-concrete storage facilities under controlled environmental conditions. Two storage regimes were evaluated: an optimal regime with an air temperature of 10–12°C and relative humidity of 60–65%, and a conventional regime characterized by higher temperature (18–22°C) and relative humidity (75–80%). Both natural and forced ventilation systems were applied to maintain air circulation.

Storage performance was assessed by monitoring physical (grain weight, bulk density), technological (water absorption capacity), and biochemical (protein content, starch content, and enzymatic activity) quality indicators. All analytical procedures were performed according to the relevant national standards for grain quality evaluation. The experimental data were comparatively analyzed to determine the influence of storage conditions on grain quality and to identify cultivars with greater resistance to quality deterioration during long-term storage.

3. Results and Discussion

The storage environment had a significant influence on the physical, technological, and biochemical properties of mung bean grain throughout the six-month storage period. Grain maintained under optimal storage conditions retained its commercial appearance and exhibited only minor changes in quality indicators, whereas storage under elevated temperature and relative humidity accelerated deterioration processes.

A gradual reduction in grain weight and bulk density was observed in all cultivars during storage. These changes were accompanied by a decline in water absorption capacity, indicating a deterioration of technological quality. The reduction in these parameters is associated with continuous respiration, depletion of dry matter reserves, and structural modifications within the grain. Among the evaluated cultivars, Turon and Durдона maintained more stable physical characteristics, while Navruz showed the greatest decline in storage performance.

Biochemical analyses also revealed progressive changes in grain composition. Protein and starch contents decreased gradually during storage, whereas enzymatic activity increased, reflecting the continuation of metabolic processes after harvest. These biochemical transformations became more pronounced under unfavorable storage conditions, where higher temperature and humidity accelerated enzymatic reactions and nutrient degradation. Such changes adversely affected both the nutritional value and processing quality of the grain.

Table 1. Changes in physical and technological properties of mung bean grain after six months of storage

Cultivar	Grain weight loss (%)	Bulk density loss (%)	Water absorption loss (%)
Durдона	3.8	3.6	8.1
Radost	4.0	3.6	8.3
Turon	3.4	3.7	8.2
Qahrabo	4.0	3.7	8.5

Marjon	4.0	3.6	8.4
Navruz	4.1	3.6	7.8

After six months of storage, all mung bean cultivars exhibited gradual reductions in grain weight, bulk density, and water absorption capacity (Table 1). Grain weight decreased by **3.4–4.1%**, while bulk density declined by approximately **3.6–3.7%**. Water absorption capacity showed a more pronounced reduction, ranging from **7.8 to 8.5%** depending on the cultivar. Among the evaluated cultivars, **Turon** and **Durdona** demonstrated the highest storage stability, whereas **Navruz** showed the greatest susceptibility to quality deterioration.

A comparison of the studied cultivars demonstrated clear differences in storage stability. Turon and Durdona consistently exhibited lower rates of quality deterioration, suggesting a greater tolerance to prolonged storage. In contrast, Navruz experienced more intensive biochemical changes, including greater starch depletion, higher enzymatic activity, and reduced water absorption capacity. These findings indicate that cultivar characteristics should be considered when selecting grain for long-term storage.

Overall, the results confirm that maintaining a stable storage microclimate is essential for preserving mung bean grain quality. Proper regulation of temperature, relative humidity, and ventilation effectively limits biochemical degradation and helps maintain the technological and nutritional properties of stored grain, thereby reducing postharvest losses and improving storage efficiency.

4. Scientific Implications and Conclusion

The results of this study demonstrate that maintaining an optimal storage microclimate is essential for preserving the quality of mung bean grain during long-term storage. Stable temperature, relative humidity, and adequate ventilation effectively reduced the intensity of biochemical transformations and minimized the deterioration of physical and technological characteristics.

Among the evaluated cultivars, **Turon** and **Durdona** exhibited superior storage stability, retaining higher grain quality throughout the six-month storage period. In contrast, the **Navruz** cultivar showed greater susceptibility to quality deterioration, as reflected by larger reductions in grain weight, starch content, and water absorption capacity, together with increased enzymatic activity.

These findings provide practical guidance for selecting suitable mung bean cultivars for long-term storage and emphasize the importance of environmental control in permanent storage facilities. The obtained results may contribute to the improvement

of postharvest grain management technologies, reduction of storage losses, and preservation of the nutritional and technological value of mung bean grain under commercial storage conditions.

Comparative Discussion

The observed decline in grain quality during storage is consistent with previous studies reporting that elevated temperature and relative humidity accelerate grain respiration, enzymatic activity, and nutrient degradation. Similar trends have been described for grain legumes, where prolonged storage under unfavorable environmental conditions resulted in reduced protein stability, starch degradation, and deterioration of technological properties. These findings support the hypothesis that effective control of storage microclimate is the primary factor determining the preservation of grain quality during long-term storage.

Compared with earlier reports, the present study additionally demonstrated cultivar-dependent differences in storage stability. The superior performance of **Turon** and **Durdona** suggests that varietal characteristics may play an important role in maintaining grain quality under prolonged storage conditions. This information may contribute to the development of improved postharvest management strategies for mung bean production in arid and semi-arid regions.

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MAKTABGACHA YOSHDAGI BOLALARDA MILLIY MADANIYATNI SHAKLLANTIRISHDA MA'NAVIY-MA'RIFIY TADBIRLARNING INNOVATION PEDAGOGIK IMKONIYATLARI

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Annotatsiya: Mazkur maqolada maktabgacha yoshdagi bolalarda milliy madaniyatni shakllantirishda ma'naviy-ma'rifiy tadbirlarning innovatsion pedagogik imkoniyatlari ilmiy-nazariy va amaliy jihatdan tahlil qilingan. Tadqiqotda maktabgacha ta'lim tashkilotlarida milliy qadriyatlar, urf-odatlar, an'analar va madaniy merosni bolalar ongiga singdirishda zamonaviy pedagogik texnologiyalar, interfaol metodlar, o'yin faoliyati hamda axborot-kommunikatsiya texnologiyalaridan foydalanishning samaradorligi yoritilgan. Shuningdek, ma'naviy-ma'rifiy tadbirlarni tashkil etishning pedagogik shart-sharoitlari, ularning bolalarda milliy o'zlikni anglash, vatanparvarlik, ma'naviy-axloqiy fazilatlar va madaniy kompetensiyalarni rivojlantirishdagi ahamiyati asoslab berilgan. Tadqiqot natijalari maktabgacha ta'lim amaliyotida innovatsion yondashuvlarni qo'llash orqali milliy madaniyatni shakllantirish samaradorligini oshirish bo'yicha ilmiy-amaliy tavsiyalar ishlab chiqishga xizmat qiladi.

Kalit so'zlar: maktabgacha ta'lim, milliy madaniyat, ma'naviy-ma'rifiy tadbirlar, innovatsion pedagogika, milliy qadriyatlar, ma'naviy tarbiya, interfaol metodlar, pedagogik texnologiyalar, madaniy kompetensiya, vatanparvarlik, axborot-kommunikatsiya texnologiyalari, o'yin texnologiyalari.

Kirish.

Bugungi globallashuv, axborot-kommunikatsiya texnologiyalarining jadal rivojlanishi va madaniyatlararo integratsiya jarayonlari sharoitida yosh avlodni milliy qadriyatlar ruhida tarbiyalash, ularda milliy madaniyatga hurmat va sadoqat tuyg'usini shakllantirish davlat siyosatining ustuvor yo'nalishlaridan biri sifatida e'tirof etilmoqda. Har bir xalqning milliy o'zligini saqlab qolishi, tarixiy-madaniy merosini avloddan avlodga uzluksiz yetkazishi, avvalo, ta'lim va tarbiya tizimining samaradorligiga bog'liq. Ayniqsa, maktabgacha yosh davri shaxsning ma'naviy, axloqiy, estetik va madaniy sifatlari shakllanadigan eng muhim bosqich bo'lib, ushbu davrda berilgan tarbiya bolaning keyingi hayotiy faoliyati, dunyoqarashi va ijtimoiy

munosabatlariga bevosita ta'sir ko'rsatadi. Shu sababli maktabgacha ta'lim tizimida bolalarda milliy madaniyatni shakllantirish masalasi zamonaviy pedagogika fanining dolzarb ilmiy-amaliy muammolaridan biri hisoblanadi.

Mamlakatimizda maktabgacha ta'lim tizimini rivojlantirish, ta'lim sifatini xalqaro standartlar asosida takomillashtirish hamda bolalarni milliy va umuminsoniy qadriyatlar ruhida tarbiyalashga alohida e'tibor qaratilmoqda. Maktabgacha ta'lim tashkilotlarida ta'lim-tarbiya jarayonini innovatsion pedagogik texnologiyalar asosida tashkil etish, bolalarning intellektual, ma'naviy va ijodiy salohiyatini rivojlantirish, ularda milliy an'ana va qadriyatlarga hurmat tuyg'usini shakllantirish bo'yicha keng ko'lamli islohotlar amalga oshirilmoqda. Ushbu jarayonda ma'naviy-ma'rifiy tadbirlar bolalarni milliy madaniyat bilan tanishtirish, xalq og'zaki ijodi, urf-odatlar, milliy bayramlar, xalq amaliy san'ati, musiqa, raqs, milliy o'yinlar va qadriyatlarni amaliy faoliyat orqali o'zlashtirishning samarali vositasi sifatida muhim ahamiyat kasb etadi. Milliy madaniyat - bu xalqning ko'p asrlik tarixiy tajribasi, urf-odatlari, an'analari, tili, san'ati, diniy va ma'naviy qarashlari, axloqiy me'yorlari hamda turmush tarzini o'zida mujassamlashtiruvchi murakkab ijtimoiy-madaniy hodisadir. Uni maktabgacha yoshdagi bolalarda shakllantirish faqat nazariy tushunchalarni o'rgatish bilangina cheklanmay, balki kundalik tarbiyaviy faoliyat, o'yin, ijodiy mashg'ulotlar, sahna ko'rinishlari, milliy bayramlar, ekskursiyalar, oilaviy hamkorlik va ma'naviy-ma'rifiy tadbirlar orqali amalga oshirilgandagina yuqori samaradorlikka erishish mumkin. Chunki aynan ushbu yosh davrida bolalarda taqlid qilish, kuzatish, hissiy idrok etish va amaliy faoliyat orqali bilimlarni egallash jarayoni kuchli rivojlangan bo'ladi.

Zamonaviy pedagogik yondashuvlar ma'naviy-ma'rifiy tadbirlarni an'anaviy shakllarda emas, balki innovatsion texnologiyalar bilan uyg'unlashtirish zarurligini ko'rsatmoqda. Interfaol metodlar, loyiha asosida o'qitish, o'yin texnologiyalari, STEAM elementlari, raqamli ta'lim vositalari, multimedia taqdimotlari, virtual ekskursiyalar va axborot-kommunikatsiya texnologiyalaridan foydalanish bolalarning milliy madaniyatga oid bilimlarini yanada mustahkamlash, ularning qiziqishi va faol ishtirokini oshirishga xizmat qiladi. Innovatsion pedagogik texnologiyalar bolalarda mustaqil fikrlash, ijodkorlik, muloqot madaniyati, hamkorlikda ishlash ko'nikmalarini rivojlantirish bilan bir qatorda milliy qadriyatlarni zamonaviy ta'lim muhiti orqali samarali o'zlashtirish imkonini beradi.

Shuningdek, ma'naviy-ma'rifiy tadbirlarning samaradorligi maktabgacha ta'lim tashkiloti, oila va mahalla hamkorligining izchil yo'lga qo'yilishiga ham bog'liq. Ota-onalarning milliy qadriyatlarni oilaviy tarbiyada qo'llab-quvvatlashi, mahalla va madaniyat muassasalari bilan hamkorlikda tashkil etiladigan tadbirlar bolalarda milliy

madaniyatga nisbatan ijobiy munosabatni shakllantiradi, ularning ijtimoiylashuv jarayonini jadallashtiradi hamda ma'naviy-axloqiy kamolotiga xizmat qiladi. Shu nuqtai nazardan, ma'naviy-ma'rifiy tadbirlarni innovatsion pedagogik yondashuvlar asosida tashkil etish bugungi maktabgacha ta'lim tizimining dolzarb vazifalaridan biri sanaladi.

Mazkur tadqiqotning dolzarbligi shundan iboratki, maktabgacha yoshdagi bolalarda milliy madaniyatni shakllantirish jarayonida ma'naviy-ma'rifiy tadbirlarning innovatsion pedagogik imkoniyatlari yetarli darajada kompleks o'rganilmagan. Amaliyotda ushbu tadbirlarni tashkil etish bo'yicha yagona metodik yondashuvning mavjud emasligi, zamonaviy pedagogik texnologiyalarni milliy tarbiya mazmuni bilan integratsiyalash zarurati mazkur muammoning ilmiy ahamiyatini yanada oshiradi.

Tadqiqotning maqsadi maktabgacha yoshdagi bolalarda milliy madaniyatni shakllantirishda ma'naviy-ma'rifiy tadbirlarning innovatsion pedagogik imkoniyatlarini nazariy jihatdan asoslash, ularning amaliy samaradorligini tahlil qilish hamda maktabgacha ta'lim tashkilotlari faoliyatiga joriy etish bo'yicha ilmiy-amaliy tavsiyalar ishlab chiqishdan iborat. Mazkur maqsadga erishish uchun milliy madaniyat va ma'naviy-ma'rifiy tarbiyaning nazariy asoslarini o'rganish, innovatsion pedagogik texnologiyalarning imkoniyatlarini tahlil qilish, maktabgacha ta'lim amaliyotida qo'llanilayotgan samarali tajribalarni umumlashtirish hamda ularni takomillashtirish bo'yicha takliflar ishlab chiqish vazifalari belgilab olindi.

Asosiy qism.

Maktabgacha yosh davri bolaning shaxs sifatida shakllanishida eng muhim rivojlanish bosqichlaridan biri hisoblanadi. Aynan ushbu davrda bolalarda ma'naviy qadriyatlar, axloqiy me'yorlar, milliy an'analarga hurmat, ona tiliga muhabbat hamda milliy o'zlikni anglashning dastlabki elementlari shakllanadi. Psixologik-pedagogik tadqiqotlar shuni ko'rsatadiki, 3-7 yosh oralig'ida bolaning dunyoqarashi, ijtimoiy xulq-atvori va madaniy tasavvurlari faol rivojlanadi. Shu sababli maktabgacha ta'lim tashkilotlarida milliy madaniyatni shakllantirish uzluksiz tarbiya tizimining asosiy yo'nalishlaridan biri sifatida qoraladi. Milliy madaniyatni bolalarga singdirish jarayoni ularning yosh va individual xususiyatlariga mos tashkil etilgan ma'naviy-ma'rifiy tadbirlar orqali yanada samarali amalga oshiriladi.

Milliy madaniyat xalqning ko'p asrlik tarixiy taraqqiyoti davomida shakllangan moddiy va nomoddiy boyliklar, urf-odatlar, an'analar, milliy qadriyatlar, xalq og'zaki ijodi, musiqa, raqs, hunarmandchilik, milliy liboslar, taomlar, bayramlar hamda axloqiy me'yorlar majmuidan iboratdir. Maktabgacha ta'limda ushbu boy merosni

bolalarga sodda, qiziqarli va amaliy shakllarda yetkazish ularning milliy madaniyatga bo'lgan qiziqishini oshiradi. Bunda bolalar milliy qadriyatlarni nafaqat tinglaydi yoki kuzatadi, balki ularni bevosita amaliy faoliyat orqali o'zlashtiradi. Masalan, milliy bayramlarni nishonlash, xalq o'yinlarini o'ynash, milliy qo'shiqlarni kuylash, ertaklarni sahnalashtirish va hunarmandchilik elementlari bilan tanishish bolalarda milliy madaniyatni tabiiy ravishda shakllantirishga xizmat qiladi.

Ma'naviy-ma'rifiy tadbirlar maktabgacha ta'lim jarayonining muhim tarkibiy qismi bo'lib, u bolalarda Vatanga muhabbat, milliy g'urur, ajdodlar merosiga hurmat, insonparvarlik, bag'rikenglik, mehnatsevarlik va estetik didni rivojlantirishga qaratilgan tizimli pedagogik faoliyatni o'z ichiga oladi. Bunday tadbirlar bayramlar, davra suhbatlari, ijodiy uchrashuvlar, teatrlashtirilgan tomoshalar, musobaqalar, ko'rgazmalar, ekskursiyalar, kitobxonlik kechalari va milliy qadriyatlarni targ'ib qiluvchi loyihalar ko'rinishida tashkil etiladi. Ushbu tadbirlarning asosiy afzalligi shundaki, bolalar bilimni tayyor holatda emas, balki faol ishtirok etish, muloqot qilish, kuzatish va ijodiy faoliyat orqali egallaydi.

So'nggi yillarda ta'lim tizimida innovatsion pedagogik texnologiyalardan foydalanish ma'naviy-ma'rifiy tadbirlar samaradorligini sezilarli darajada oshirmoqda. Innovatsion pedagogika an'anaviy ta'lim usullarini zamonaviy metodlar bilan uyg'unlashtirishni nazarda tutadi. Jumladan, interfaol metodlar, axborot-kommunikatsiya texnologiyalari, multimedia vositalari, STEAM elementlari, loyiha metodi, muammoli vaziyatlar asosida o'qitish, didaktik o'yinlar va raqamli ta'lim resurslari bolalarning faol ishtirokini ta'minlaydi. Natijada ular milliy madaniyatga oid bilimlarni tezroq o'zlashtiradi, eslab qoladi va kundalik hayotida qo'llay boshlaydi.

Interfaol metodlarning afzalligi shundaki, ular bolani ta'lim jarayonining markaziga qo'yadi. "Aqliy hujum", "Klaster", "Rolli o'yin", "Insert", "Sinkveyn", "BBB" kabi metodlar orqali bolalar mustaqil fikrlash, o'z fikrini ifodalash va tengdoshlari bilan hamkorlik qilish ko'nikmalarini rivojlantiradi. Masalan, "Navro'z bayrami" mavzusida tashkil etilgan rollo'yin davomida bolalar sumalak tayyorlash, mehmon kutish, milliy kiyimlarni kiyish va xalq o'yinlarini namoyish etish orqali milliy qadriyatlarni amaliy jihatdan o'zlashtiradi. Bu esa nazariy ma'lumotni amaliy tajribaga aylantirish imkonini beradi.

Axborot-kommunikatsiya texnologiyalaridan foydalanish ham milliy madaniyatni o'rgatishda yangi imkoniyatlarni yaratmoqda. Multimedia taqdimotlari, animatsion videolar, elektron ertaklar, virtual muzey sayohatlari, interaktiv doskalar va ta'limiy mobil ilovalar bolalarning diqqatini jalb qiladi hamda o'quv materialining ta'sirchanligini oshiradi. Masalan, tarixiy obidalar, milliy hunarmandchilik markazlari

yoki xalq amaliy san'ati namunalarini virtual tarzda namoyish etish bolalarda tarixiy-madaniy meros haqida kengroq tasavvur hosil qiladi. Vizual materiallar orqali olingan bilimlar uzoq muddat xotirada saqlanib qoladi.

Milliy madaniyatni shakllantirishda o'yin texnologiyalarining pedagogik imkoniyatlari ham nihoyatda katta. Maktabgacha yoshdagi bolalar uchun o'yin asosiy faoliyat turi hisoblanadi. Shu sababli milliy harakatli o'yinlar, didaktik o'yinlar, teatrlashtirilgan o'yinlar va ijodiy topshiriqlar orqali milliy qadriyatlarni o'rgatish yuqori natija beradi. "Oq terakmi, ko'k terak", "Chillak", "Arqon tortish", "Besh tosh" kabi milliy o'yinlar bolalarda jismoniy faollik bilan bir qatorda hamjihatlik, halollik, do'stlik va milliy qadriyatlarga hurmat tuyg'usini ham rivojlantiradi.

Loyiha asosida tashkil etiladigan ma'naviy-ma'rifiy faoliyat ham samarali hisoblanadi. Masalan, "Mening oilam qadriyatlari", "Milliy taomlar haftaligi", "Hunarmandlar olamiga sayohat", "Ona tilim - faxrim", "Navro'z an'analari" kabi kichik loyihalar davomida bolalar ota-onalari bilan hamkorlikda ijodiy ishlar tayyorlaydi, milliy taomlar, urf-odatlar va oilaviy qadriyatlar haqida ma'lumot to'playdi. Bunday faoliyat ta'lim tashkiloti, oila va mahalla o'rtasidagi hamkorlikni mustahkamlaydi hamda tarbiya jarayonining uzluksizligini ta'minlaydi.

Ma'naviy-ma'rifiy tadbirlarning samaradorligi ko'p jihatdan pedagogning kasbiy kompetensiyasiga bog'liq. Tarbiyachi milliy madaniyatning mazmunini chuqur bilishi, zamonaviy pedagogik texnologiyalarni qo'llay olishi, bolalarning yosh xususiyatlarini hisobga olishi va innovatsion metodlarni ijodkorona uyg'unlashtira olishi zarur. Shu bilan birga, ota-onalar bilan muntazam hamkorlik qilish, oilaviy tadbirlarni tashkil etish, mahalla faollari, san'atkorlar va hunarmandlarni tarbiyaviy jarayonga jalb etish milliy madaniyatni shakllantirish samaradorligini yanada oshiradi.

Tahlillar shuni ko'rsatadiki, ma'naviy-ma'rifiy tadbirlarni innovatsion pedagogik texnologiyalar asosida tashkil etish natijasida bolalarda milliy urf-odat va an'analarni haqidagi bilimlar kengayadi, milliy ramzlar va tarixiy merosga qiziqish ortadi, ona tiliga hurmat kuchayadi, jamoada ishlash, muloqot qilish va ijodiy fikrlash ko'nikmalari rivojlanadi. Bundan tashqari, bolalarda vatanparvarlik, fuqarolik mas'uliyati, bag'rikenglik va umuminsoniy qadriyatlarga hurmat kabi ijobiy shaxsiy fazilatlar shakllanadi. Bu esa maktabgacha ta'limning asosiy maqsadlaridan biri bo'lgan barkamol, ma'naviy yetuk va milliy qadriyatlarga sodiq avlodni tarbiyalashga xizmat qiladi.

Shunday qilib, maktabgacha yoshdagi bolalarda milliy madaniyatni shakllantirishda ma'naviy-ma'rifiy tadbirlarning innovatsion pedagogik imkoniyatlari juda keng bo'lib, ularni ta'lim jarayoniga tizimli va maqsadli ravishda joriy etish tarbiya sifatini sezilarli

darajada oshiradi. Innovatsion metodlar bolalarning faolligini, mustaqil fikrlashini, ijodkorligini va milliy qadriyatlarga nisbatan ongli munosabatini rivojlantirib, zamonaviy ta'limning samaradorligini ta'minlaydi. Shu bois maktabgacha ta'lim tashkilotlarida ma'naviy-ma'rifiy tadbirlarni rejalashtirish va amalga oshirishda innovatsion pedagogik yondashuvlardan kompleks foydalanish dolzarb ilmiy-amaliy vazifa sifatida qaralishi lozim.

Xulosa.

Tadqiqot natijalari shuni ko'rsatdiki, maktabgacha yoshdagi bolalarda milliy madaniyatni shakllantirish shaxsning ma'naviy-axloqiy kamolotini ta'minlashning muhim omillaridan biri hisoblanadi. Aynan ushbu yosh davrida bolalarning milliy qadriyatlar, urf-odatlar, an'analar, ona tili va madaniy merosga bo'lgan munosabati shakllana boshlaydi. Shu bois maktabgacha ta'lim tashkilotlarida ma'naviy-ma'rifiy tadbirlarni tizimli va maqsadga yo'naltirilgan holda tashkil etish barkamol avlodni tarbiyalashning muhim pedagogik vositasi sifatida namoyon bo'ladi.

Tadqiqot davomida ma'naviy-ma'rifiy tadbirlarni innovatsion pedagogik texnologiyalar bilan uyg'unlashtirish bolalarning ta'lim jarayonidagi faolligini oshirishi, ularning milliy madaniyatga oid bilim, ko'nikma va kompetensiyalarini samarali rivojlantirishi aniqlandi. Interfaol metodlar, didaktik va milliy o'yinlar, loyiha faoliyati, axborot-kommunikatsiya texnologiyalari, multimedia vositalari hamda ijodiy mashg'ulotlardan foydalanish bolalarda mustaqil fikrlash, ijodkorlik, muloqot madaniyati va milliy o'zlikni anglash sifatlarini rivojlantirishga xizmat qiladi. Bunday yondashuv ta'lim jarayonini qiziqarli, mazmunli va samarali tashkil etish imkonini yaratadi.

Shuningdek, tadqiqot natijalari maktabgacha ta'lim tashkiloti, oila va mahalla hamkorligiga asoslangan ma'naviy-ma'rifiy faoliyat milliy madaniyatni shakllantirish samaradorligini sezilarli darajada oshirishini ko'rsatdi. Ota-onalar, pedagoglar va mahalla vakillarining hamkorlikdagi faoliyati bolalarda milliy qadriyatlarga hurmat, Vatanga muhabbat, insonparvarlik, bag'rikenglik hamda ijtimoiy mas'uliyat kabi fazilatlarning shakllanishiga ijobiy ta'sir ko'rsatadi.

Tahlillar asosida quyidagi ilmiy-amaliy tavsiyalar ishlab chiqildi: maktabgacha ta'lim tashkilotlarida ma'naviy-ma'rifiy tadbirlarni zamonaviy pedagogik texnologiyalar asosida rejalashtirish va tashkil etish; tarbiyachilarning innovatsion pedagogik kompetensiyalarini muntazam rivojlantirish; milliy madaniyatni o'rgatishga xizmat qiluvchi raqamli ta'lim resurslari va multimedia vositalarini keng joriy etish; milliy bayramlar, xalq o'yinlari, xalq og'zaki ijodi va amaliy san'at namunalaridan ta'lim

jarayonida tizimli foydalanish; oila va mahalla bilan hamkorlikni yanada mustahkamlash maqsadga muvofiqdir.

Xulosa qilib aytganda, maktabgacha yoshdagi bolalarda milliy madaniyatni shakllantirishda ma'naviy-ma'rifiy tadbirlarning innovatsion pedagogik imkoniyatlaridan samarali foydalanish ta'lim sifati va tarbiya samaradorligini oshirishga xizmat qiladi. Ushbu yondashuv bolalarda milliy o'zlikni anglash, ma'naviy barkamollik, madaniy kompetensiyalar va umuminsoniy qadriyatlarga sodiqlikni rivojlantirish orqali kelajakda intellektual salohiyati yuqori, milliy va umuminsoniy qadriyatlarni qadrlaydigan barkamol shaxsni tarbiyalash uchun mustahkam zamin yaratadi.

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DRAMA-BASED METHODOLOGY FOR DEVELOPING SPEAKING SKILLS IN ENGLISH LANGUAGE TEACHING

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Keywords: drama-based methodology, speaking skills, communicative competence, foreign-language anxiety, process drama, Embodied Communicative Spiral.

Introduction. The communicative aim of contemporary language education stands in sharp contrast to the reality of many English lessons in Uzbek secondary schools, where grammar-translation routines still dominate and spontaneous oral production receives little classroom time. Although national policy aligns learning outcomes with the Common European Framework of Reference and expects demonstrable communicative ability, pupils in grades 7 and 8 commonly accumulate passive knowledge of grammar and vocabulary yet remain hesitant, and often anxious, when required to speak. Drama-based methodology is widely regarded internationally as one of the most effective means of generating purposeful, emotionally engaged speech, but it remains markedly under-used in the Uzbek context. This study aims to develop and theoretically justify a structured, curriculum-integrated drama-based methodology for developing the speaking skills of secondary-school learners, and to propose a design for its empirical validation.

Methods. The study combines two complementary methods. First, a structured synthesis of international empirical research on drama-based instruction and second-language oral performance was conducted in order to establish the size of its effects and the conditions under which they occur. Second, drawing on this evidence and on the sociocultural and output-oriented theories of language acquisition, a drama-based instructional model, the Embodied Communicative Spiral (ECS), was designed for large, mixed-ability state-school classes. The model organises dramatic activity into a recurring three-phase cycle: de-inhibition, in which warm-ups, language games and mime lower foreign-language anxiety; enactment, in which role-play, improvisation and process drama generate negotiated, "pushed" oral output; and reflection and transfer, in which debriefing and the recycling of language into fresh contexts

consolidate what has been gained. To test the model, a pre-test/post-test quasi-experiment with a non-equivalent control group is proposed for grades 7 and 8 (CEFR A1+/A2) at School No. 7 in Chirchiq, Tashkent region, using the Foreign Language Classroom Anxiety Scale and a three-dimension analytic oral rubric covering fluency, accuracy and range, and communicative delivery.

Results. The evidence synthesis yields a consistent pattern. A meta-analysis of forty-seven studies reports a significant positive effect of drama-based pedagogy that is strongest when the work is teacher-led, curriculum-integrated and sustained beyond five lessons, and a recent systematic review of process drama confirms reliable gains in speaking among the language skills. Intervention studies document measurable improvement in rated oral fluency, in spontaneity and willingness to communicate, and in the oral communication of secondary pupils, together with reduced speaking anxiety as measured on the FLCAS. On this basis the ECS is advanced as the study's principal methodological result: a single, theoretically grounded architecture that couples affective and linguistic gains, so that across a teaching unit the cycle "ratchets" speaking proficiency upward as anxiety falls. The proposed validation advances three working hypotheses: that learners taught through the ECS will achieve greater gains in oral fluency and communicative delivery, a larger reduction in foreign-language anxiety, and more durable vocabulary retention than peers taught through conventional instruction over the same period.

Discussion. For the Uzbek secondary context the contribution is twofold. The ECS reframes drama not as occasional entertainment but as a disciplined, curriculum-integrated methodology whose phases map directly onto lesson staging and onto the very conditions that the international evidence identifies as decisive. It also responds to the specific obstacles of large, mixed-ability and examination-driven classes by giving anxiety reduction the status of a structural opening phase rather than an incidental warm-up. The principal limitation is that the empirical design is at this stage proposed rather than executed, so its conclusions are analytically rather than statistically warranted; full implementation across several sites, with longitudinal measurement, is the necessary next step. Even so, the model offers teachers a replicable, low-resource framework for turning learners' dormant linguistic knowledge into confident speech, and it provides a clear, falsifiable basis for subsequent classroom research. In sum, the Embodied Communicative Spiral is offered as a coherent and testable methodology for developing speaking skills in Uzbek secondary English education.

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**MAKTABGACHA TA'LIM TASHKILOTLARI MUTAXASSISLARINING
MALAKASINI OSHIRISH JARAYONINI RAQAMLASHTIRISHDA
AXBOROT TIZIMLARI INTEGRATSIYASI: BBIT.UZ VA
ECO(edu.mtmoi.uz) PLATFORMALARI MISOLIDA**

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*Maktabgacha ta'lim tashkilotlari direktor va mutaxassislarini qayta tayyorlash va
ularning malakasini oshirish instituti*

Annotatsiya. Mazkur maqolada maktabgacha ta'lim tashkilotlari mutaxassislarining malakasini oshirish jarayonini raqamlashtirishda axborot tizimlarining tarqoqligi muammosi tahlil qilinadi va uni bartaraf etishning yo'li sifatida ikki milliy platforma bbit.uz va ECO (KPI+LMS) tizimlari o'rtasidagi integratsiya modeli asoslanadi. Model malaka oshirishning yo'naltirish, o'qitish va sertifikatlashtirish bosqichlarini yagona raqamli zanjirga birlashtiradi. Integratsiyaning kontseptual asoslari, ma'lumotlar oqimi arxitekturasini, tashkiliy-pedagogik afzalliklari hamda joriy etishdagi xatarlar chuqur tahlil etiladi.

Аннотация. В статье анализируется проблема разрозненности информационных систем в процессе цифровизации повышения квалификации специалистов дошкольного образования и обосновывается модель интеграции двух национальных платформ bbit.uz и ECO (KPI+LMS). Глубоко анализируются концептуальные основы, архитектура потоков данных, организационно-педагогические преимущества и риски внедрения.

Annotation. The article analyzes the problem of fragmentation of information systems in the digitalization of professional development of preschool education specialists and substantiates an integration model between two national platforms bbit.uz and ECO (KPI+LMS). The conceptual foundations, data flow architecture, organizational and pedagogical advantages, as well as implementation risks are deeply analyzed.

Tayanch so'zlar: maktabgacha ta'lim, malaka oshirish, raqamlashtirish, axborot tizimlari integratsiyasi, o'zaro muvofiqlik (interoperability), API, elektron sertifikat, LMS, yagona raqamli zanjir, ma'lumotlarga asoslangan boshqaruv.

Ключевые слова: дошкольное образование, повышение квалификации, цифровизация, интеграция информационных систем, интероперабельность, API, электронный сертификат, LMS, управление на основе данных.

Keywords: preschool education, professional development, digitalization, information systems integration, interoperability, API, electronic certificate, LMS, unified digital chain, data-driven management.

Kirish

Ta'lim tizimini raqamlashtirish zamonaviy davlat siyosatining ustuvor yo'nalishlaridan biri sifatida nafaqat texnik modernizatsiyani, balki boshqaruv falsafasining tubdan o'zgarishini ham taqozo etadi. Xalqaro tajriba shuni ko'rsatadiki, raqamli transformatsiyaning haqiqiy samaradorligi alohida jarayonlarni avtomatlashtirish orqali emas, balki ularni yagona ma'lumotlar makonida o'zaro bog'lash orqali erishiladi. Xodim haqidagi ma'lumot bir tizimda, uning o'quv natijalari boshqa tizimda, sertifikat esa uchinchi platformada saqlansa, raqamlashtirish o'zining asosiy maqsadi bo'lgan ma'lumotlarga asoslangan boshqaruv (data-driven management) g'oyasiga xizmat qila olmaydi[7,8].

O'zbekiston Respublikasida ta'lim sohasini raqamlashtirish davlat siyosatining muhim yo'nalishi sifatida belgilangan. Prezidentining 2020-yil 5-oktyabrdagi PF-6079-son "Raqamli O'zbekiston-2030" strategiyasini tasdiqlash va uni samarali amalga oshirish chora-tadbirlari to'g'risida gi farmoni [1] mazkur sohadagi islohotlarning huquqiy asosini tashkil etadi. 2024-yil 12-dekabrdagi 867-son qaror [2] bilan maktabgacha va maktab ta'limi xodimlarining uzluksiz kasbiy rivojlantirish tizimi tubdan yangilandi: malaka oshirishning davriyligi, shakllari, sifat nazorati va raqamli platformalar orqali tashkil etilishi qat'iy belgilandi.

Bugungi kunda maktabgacha ta'lim sohasida bir nechta milliy axborot tizimlari parallel faoliyat yuritmoqda: bbit.uz platformasi maktabgacha ta'lim tashkilotlarining kundalik boshqaruvini, ECO (edu.mtmoi.uz) tizimi esa malaka oshirish institutlarining o'quv jarayoni va samaradorlik baholashini raqamlashtiradi. Biroq ushbu tizimlar o'rtasida ma'lumotlar almashinuvining yo'qligi jarayonlarning uzilishiga, ma'lumotlarning takroriy kiritilishiga va boshqaruv samaradorligining pasayishiga olib kelmoqda.

Ushbu maqolaning maqsadi maktabgacha ta'lim tashkilotlari mutaxassislarining malakasini oshirish jarayonini raqamlashtirishda bbit.uz va ECO platformalari o'rtasidagi integratsiya modelini ilmiy asoslash, uning ma'lumotlar oqimi arxitekturasini tavsiflash hamda tashkiliy-pedagogik samaradorligi va xatarlarini chuqur tahlil qilishdan iborat.

Tadqiqot usullari

Tadqiqotda tizimli, kompetensiyaviy, andragogik va raqamli transformatsiyaning funksional yondashuvlari metodologik asos sifatida qabul qilindi. Modelni ishlab

chiqishda modellashtirish usuli, tarkibiy-funksional tahlil, taqqoslash va umumlashtirish usullaridan foydalanildi.

Tadqiqot obyekti sifatida maktabgacha ta'lim mutaxassislarini malakasini oshirish tizimi va uning raqamlashtirish jarayonlari qaraldi. Tadqiqot davomida mavjud malaka oshirish tizimidagi raqamlashtirish holati, muammolar va rivojlanish istiqbollari tahlil qilindi.

Adabiyotlar tahlili va metodologiya

Axborot tizimlarining o'zaro muvofiqligi (interoperability) muammosi jahon ilmiy adabiyotida keng o'rganilgan. Yevropa Komissiyasining Yangi Yevropa o'zaro muvofiqlik freymvorki (New European Interoperability Framework) [4] tizimlararo integratsiyani to'rt darajada tahlil qilishni taklif etadi: huquqiy daraja (ma'lumot almashinuvining qonuniy asoslari), tashkiliy daraja (jarayonlar va mas'uliyatlarning muvofiqlashuvi), semantik daraja (ma'lumotlarning bir xil talqin etilishi) va texnik daraja (protokollar, API, formatlar). Ushbu model tadqiqotning metodologik asosi sifatida qabul qilindi, chunki u integratsiyani faqat texnik masala emas, balki huquqiy-tashkiliy-pedagogik yaxlit tizim sifatida ko'rishga imkon beradi.

UNESCO tomonidan ta'lim ma'lumotlarini boshqarish tizimlari (EMIS) bo'yicha tayyorlangan hisobotlarda [7] tarqoq tizimlar muammosi "ma'lumotlar orollari" (data silos) atamasi bilan ifodalanadi va bunday orollarning mavjudligi ta'lim siyosatini dalillarga asoslangan holda yuritishning asosiy to'sig'i sifatida baholanadi. OECDning raqamli ta'lim istiqbollari haqidagi hisobotida [7] esa muvaffaqiyatli raqamli ekotizimlarning umumiy belgisi sifatida "bir marta kiritish -ko'p marta foydalanish" (once-only principle) tamoyili ajratib ko'rsatiladi.

O'zbekiston ilmiy adabiyotida ta'limni raqamlashtirish masalalari asosan alohida tizimlar va vositalar nuqtayi nazaridan o'rganilgan. Jumladan, A.Dustmuhkamedov, A.Berdimurotov, N.Anvarov [9] tomonidan maktabgacha ta'lim tashkilotlarida raqamli malaka va KPI boshqaruvi masalalari o'quv qo'llanma sifatida nashr etilgan. D.Ilyasova [10] raqamli transformatsiya sharoitida umumta'lim maktabi o'qituvchilarining kasbiy salohiyatlarini oshirishni tashkil etish muammolarini, O.Hasanboyeva [11] esa maktabgacha ta'lim tizimida metodik xizmatni takomillashtirish masalalarini tadqiq etgan. Biroq maktabgacha ta'lim sohasida ikki milliy axborot tizimini malaka oshirish jarayonining yaxlit hayotiy sikli doirasida integratsiyalash masalasi maxsus tadqiqot predmeti bo'lmagan. Ayni shu bo'shliq mazkur tadqiqotning ilmiy yangiligini belgilaydi.

Tadqiqotda tizimli yondashuv, jarayonlarni modellashtirish (process modeling), me'yoriy-huquqiy hujjatlar tahlili, qiyosiy tahlil va umumlashtirish metodlaridan

foydalanildi. Tahlil ob'ekti sifatida bbit.uz platformasining "Malaka oshirish" moduli hamda ECO tizimining LMS quyi tizimi o'rtasidagi ma'lumotlar oqimi tanlandi.

Natijalar va muhokama

Mavjud muammoning tahlili. Integratsiyasiz muhitda malaka oshirish jarayoni bir necha uzilish nuqtasiga ega bo'lib, har bir uzilish o'z xatarini keltirib chiqaradi. Birinchi uzilish yo'naltirish bosqichida: MTT rahbari xodimni malaka oshirishga yuborar ekan, uning ma'lumotlarini o'quv muassasasiga qog'oz xat, telefon yoki alohida jadval orqali yetkazadi. Bu bosqichda imlo xatolari, noto'g'ri toifa tanlash, hujjatlarning kechikishi kabi muammolar tug'iladi. Ikkinchi uzilish o'qish davomida: MTT rahbari o'z xodimining haqiqatan o'qiyotganini, davomatini va o'zlashtirishini ko'ra olmaydi. Uchinchi uzilish yakunlash bosqichida: sertifikat qog'oz shaklda beriladi, uning haqiqiyligini tekshirish qiyin, yo'qolishi mumkin, kadrlar tizimiga qo'lda kiritiladi. Bu uch uzilish birgalikda malaka oshirish jarayonini boshqaruv nuqtayi nazaridan "qora quti"ga aylantiradi.

Integratsiyalashuvchi tizimlarning funksional tavsifi. bbit.uz ("Bolalar bog'chasi") maktabgacha ta'lim tashkilotlarining yagona axborot tizimi bo'lib, unda MTTlarning tashkiliy pasporti, xodimlar hisobi, shtat jadvali, tarbiyalanuvchilar kontingenti, qabul, davomat va taomnoma jarayonlari yuritiladi. Tizimda har bir xodimning to'liq raqamli profili shakllantirilgan: mehnat tarixi, ta'tillar, kasallik varaqalari, sertifikatlar va malaka oshirish ma'lumotlari. ECO (edu.mtmoi.uz) esa malaka oshirish institutlari uchun yaratilgan milliy raqamli yechim bo'lib, ikki o'zaro bog'liq quyi tizimni birlashtiradi: KPI quyi tizimi xodimlar samaradorligini SMART mezonlar asosida baholasa, LMS quyi tizimi o'quv jarayonining to'liq siklini o'quv reja, guruhlar, dars jadvali, davomat, baholash va elektron sertifikatlashni boshqaradi.

Integratsiya modelining konseptual asosi. Taklif etilayotgan model uchta tamoyilga tayanadi. Birinchi tamoyil "bir marta kiritish" (once-only): xodim haqidagi ma'lumot faqat bbit.uz tizimida yuritiladi, ECO uni PINFL asosidagi yagona identifikatsiya orqali avtomatik oladi. Ikkinchi tamoyil "holatning yagona manbasi" (single source of truth): malaka oshirish holati faqat ECO tizimida shakllanadi va bbit.uz tizimiga faqat o'qish uchun (read-only) uzatiladi. Uchinchi tamoyil "avtomatik mantiq": inson qaror qabul qilishi shart bo'lmagan barcha nuqtalarda tizim o'zi qaror qabul qiladi (hudud tanlangach, tegishli markaz avtomatik belgilanadi; yo'nalish xodimning ish toifasidan avtomatik aniqlanadi; keyingi malaka oshirish muddati avtomatik hisoblanadi).

Ma'lumotlar oqimining to'liq sikli quyidagi bosqichlardan iborat: MTT rahbari bbit.uz tizimida xodim kartochkasining "Malaka oshirish" bo'limini ochadi, "Malaka oshirishga jo'natish" funksiyasi orqali tegishli ma'lumotlarni kiritadi, tasdiqlangan

zahoti xodimning identifikatsiya ma'lumotlari API orqali ECO tizimiga uzatiladi. ECO tomonida tinglovchi profili avtomatik yaratiladi va tegishli o'quv guruhiga biriktiriladi. O'qish davomida davomat, topshiriqlar va test natijalari real vaqt rejimida qayd etiladi. Kurs yakunlangach, ma'lumot teskari yo'nalishda harakatlanadi: ECO yakuniy holatni va elektron sertifikat rekvizitlarini bbit.uz tizimiga qaytaradi.

Integratsiyalashgan va integratsiyasiz jarayonlarning tizimli qiyosiy tahlili (1-jadval) shuni ko'rsatadiki, taklif etilgan model ma'lumot kiritish, identifikatsiya, yo'nalish tanlash, jarayon monitoringi, holat ishonchliligi, sertifikat va muddat nazorati kabi barcha mezonlar bo'yicha sezilarli ustunlikka ega.

1-jadval

Integratsiyasiz va integratsiyalashgan malaka oshirish jarayonining qiyosiy tahlili

Mezon	Integratsiyasiz jarayon	Integratsiyalashgan jarayon
Ma'lumot kiritish	Har ikki tizimga alohida, qo'lda	Bir marta; API orqali avtomatik uzatiladi
Identifikatsiya	F.I.Sh. asosida, chalkashish xavfi	PINFL asosida yagona va aniq
Yo'nalish tanlash	Qo'lda; noto'g'ri toifa tanlash mumkin	Ish toifasidan avtomatik aniqlanadi
Jarayon monitoringi	"Qora quti" — rahbar jarayonni ko'rmaydi	Holat real vaqtda sinxronlanadi
Holat ishonchliligi	Qo'lda o'zgartirish mumkin — qalbakilashtirish xavfi	Holat faqat ECO'dan keladi (single source of truth)
Sertifikat	Qog'oz; yo'qolish va tekshirish muammosi	Elektron; kartochkada doimiy, tekshiriladigan
Muddat nazorati	Qo'lda kuzatiladi, unutilishi mumkin	5 yillik davr avtomatik; 180 kun qolganda ogohlantirish

Pedagogik ahamiyat va boshqaruv samaradorligi. Integratsiya modeli quyidagi muhim natijalarga erishish imkonini beradi: malaka oshirish jarayonining to'liq shaffofligi ta'minlanadi, ma'lumotlarning ishonchliligi oshadi, boshqaruv qarorlarining tezkorligi va asosiligi yaxshilanadi, xodimlarning kasbiy rivojlanishini rejalashtirish tizimli tus

oladi, shuningdek, malaka oshirish samaradorligini baholash uchun empirik ma'lumotlar bazasi shakllantiriladi.

Xatarlar va ularni boshqarish. Tadqiqot davomida quyidagi potensial xatarlar va ularni bartaraf etish yo'llari aniqlangan: ma'lumotlar xavfsizligi xatari shaxsga doir ma'lumotlarni shifrlash, autentifikatsiya va milliy serverlarda saqlash orqali bartaraf etiladi; texnik barqarorlik xatari navbat (queue) mexanizmi va qayta yuborish (retry) siyosati yordamida hal etiladi; tashkiliy xatar ma'lumot almashinuvi reglamenti va tashkilotlar o'rtasidagi rasmiy kelishuv bilan oldini olinadi; inson omili xatari foydalanuvchilar uchun amaliy o'quv modullari va yo'riqnomalar tayyorlash orqali kamaytiriladi.

Xulosa va tavsiyalar

Olib borilgan tadqiqot quyidagi asosiy xulosalarga olib keladi. Birinchidan, malaka oshirish jarayonini raqamlashtirishning samaradorligi alohida tizimlarning mukammalligi bilan emas, balki ular o'rtasidagi integratsiyaning yetukligi bilan o'lchanadi. Ikkinchidan, bbit.uz va ECO platformalari o'rtasidagi taklif etilgan integratsiya modeli "bir marta kiritish", "holatning yagona manbasi" va "avtomatik mantiq" tamoyillariga asoslangan holda malaka oshirishning to'liq hayotiy siklini yagona raqamli zanjirga birlashtiradi. Uchinchidan, integratsiya faqat texnik qulaylik emas, balki boshqaruv madaniyatini o'zgartiruvchi omil sifatida muhim ahamiyatga ega.

Amaliy tavsiyalar sifatida quyidagilarni taklif etamiz:

Tizimlararo ma'lumot almashinuvi reglamentini me'yoriy hujjat darajasida rasmiylashtirish;

Elektron sertifikatlariga QR-kod asosidagi ochiq tekshirish (verify) mexanizmini joriy etish;

Integratsiya samaradorligini o'lchovchi ko'rsatkichlar tizimini (sinxronizatsiya vaqti, xatoliklar ulushi, foydalanuvchilar qoniqishi) yaratish;

MTT rahbarlari uchun integratsiyalashgan tizimda ishlash bo'yicha qisqa amaliy modullar tayyorlash;

To'plangan tajribani ta'limning boshqa bosqichlaridagi axborot tizimlariga bosqichma-bosqich kengaytirish.

Kelgusi tadqiqotlarda integratsiyalashgan tizimning amaliy samaradorligini tajriba-sinov yo'li bilan baholash, uning malaka oshirish qamrovi, ma'lumotlar sifati va boshqaruv qarorlarining tezligiga ta'sirini empirik o'lchash rejalashtirilgan.

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ASSOCIATION BETWEEN CYTOKINE GENE POLYMORPHISMS AND RECURRENT URINARY TRACT INFECTIONS IN PEDIATRIC PATIENTS

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Abstract

Recurrent urinary tract infections (rUTIs) are among the most frequent bacterial infections in childhood and remain a significant cause of renal morbidity worldwide. Although bacterial virulence contributes to disease development, host genetic factors have emerged as important determinants of infection susceptibility and recurrence. Cytokine gene polymorphisms, particularly within interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF- α) genes, influence inflammatory responses and may alter disease severity. This review summarizes current evidence regarding the association between cytokine gene polymorphisms and recurrent urinary tract infections in children, emphasizing their potential role as prognostic biomarkers and targets for personalized medical approaches.

Keywords: recurrent urinary tract infection, cytokines, IL-6, TNF- α , polymorphism, pediatrics, biomarkers.

Introduction

Urinary tract infections affect approximately 8–10% of children during the first years of life and remain one of the leading causes of pediatric hospitalization due to bacterial infections. Despite advances in antimicrobial therapy, nearly one-third of affected children experience recurrent infections, increasing the risk of renal scarring, hypertension, and chronic kidney disease. These observations suggest that host immune response plays a crucial role in determining disease outcome.

Inflammatory cytokines represent essential mediators of innate and adaptive immunity. Genetic variations affecting cytokine production may influence bacterial elimination, tissue inflammation, and recovery following infection. Therefore, cytokine gene polymorphisms have become an important research focus in pediatric infectious diseases

Main Discussion

Interleukin-6 (IL-6) is a multifunctional cytokine produced by macrophages, epithelial cells, and lymphocytes following bacterial invasion. It regulates acute inflammatory responses, stimulates neutrophil activation, and promotes adaptive immune responses. Variations within the IL-6 promoter region, particularly functional single nucleotide polymorphisms (SNPs), may significantly alter cytokine expression levels.

Individuals carrying high-expression IL-6 variants may develop excessive inflammatory reactions that contribute to renal tissue injury, whereas low-expression variants may impair bacterial clearance and increase susceptibility to recurrent infections. Consequently, IL-6 polymorphisms have attracted considerable attention as potential biomarkers for predicting recurrent urinary tract infections.

Tumor necrosis factor-alpha (TNF- α) is another key mediator involved in bacterial defense. Produced primarily by activated macrophages, TNF- α initiates inflammatory cascades, increases vascular permeability, and promotes leukocyte recruitment. Functional polymorphisms in the TNF- α promoter gene, especially the -308G/A variant, have been associated with altered cytokine production and different clinical outcomes in infectious diseases.

Recent molecular studies suggest that simultaneous evaluation of IL-6 and TNF- α polymorphisms provides greater predictive accuracy than assessment of individual genetic markers alone. Combined cytokine profiling may improve identification of children at high risk for recurrent urinary tract infections and long-term renal complications.

The integration of cytokine genetic analysis with conventional clinical parameters—including urine culture, inflammatory biomarkers, renal ultrasonography, and patient history—may substantially enhance personalized management strategies. Furthermore, advances in genomic medicine and next-generation sequencing technologies have facilitated rapid identification of immune-related genetic variants suitable for routine clinical practice.

Current evidence also indicates that population-specific genetic diversity influences the distribution of cytokine polymorphisms. Therefore, molecular epidemiological studies involving Central Asian pediatric populations are essential for developing region-specific diagnostic algorithms and individualized preventive strategies.

Conclusion

Cytokine gene polymorphisms, particularly within IL-6 and TNF- α , represent important genetic determinants influencing susceptibility to recurrent urinary tract infections in children. Identification of these polymorphisms may improve early risk assessment, facilitate personalized therapeutic decisions, and reduce long-term renal

complications. Future multicenter studies involving larger pediatric cohorts are necessary to validate cytokine-based prognostic models and incorporate them into routine pediatric nephrology practice.

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**THEORETICAL BASIS FOR INCREASING PRODUCTION
COMPETITIVENESS IN THE TEXTILE INDUSTRY****Xushvaqtoy Shuhrat Abduraufovich**

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Abstract. This thesis examines the theoretical and practical basis for increasing production competitiveness in the textile industry. The study argues that competitiveness in textile production should be evaluated not only through production costs, but also through quality, technological modernization, labor productivity, innovation, export structure and integration into global value chains. The relevance of the topic is supported by official data: in January-May 2024, Uzbekistan exported textile products worth about USD 1.3 billion to 55 countries; textile products accounted for 11.8% of total exports, while yarn represented 46.8% and finished textile products 37.6% of textile exports.¹ In January-June 2025, textile exports amounted to USD 1,268.9 million; the share of finished textiles rose to 47.8%, while the share of yarn decreased to 32.2%.² These indicators show that Uzbekistan has a strong textile export base, but long-term competitiveness depends on increasing higher value-added finished products and strengthening market-oriented production.

Keywords: textile industry, production competitiveness, export potential, value added, modernization, innovation, productivity, quality management, Uzbekistan, global value chains.

The textile industry is one of the strategic sectors of industrial development for countries with a strong raw material base, labor potential and export orientation. In Uzbekistan, this sector is closely connected with cotton processing, employment, industrial diversification and the creation of goods with higher added value. Therefore,

1 Statistics Agency under the President of the Republic of Uzbekistan, 10 July 2024: January-May 2024 textile exports were about USD 1.3 billion; share in total exports - 11.8%; yarn - 46.8%; finished textiles - 37.6%.

2 National Statistics Committee of the Republic of Uzbekistan, January-June 2025 press release: textile exports amounted to USD 1,268.9 million; finished textiles - 47.8%; yarn - 32.2%.

increasing the production competitiveness of textile enterprises is not only a managerial issue at the enterprise level, but also an important direction of national industrial policy.

Official data demonstrate both the potential and the structural challenges of the sector. In January-May 2024, Uzbekistan exported 496 types of textile products to 55 countries; the value of these exports reached about USD 1.3 billion, or 11.8% of total exports.³ The export structure shows that yarn still had the largest share, which means that part of the value-added chain may be realized outside the country. By January-June 2025, the structure improved: finished textiles accounted for 47.8%, while yarn accounted for 32.2%.⁴ This shift indicates progress toward deeper processing, but it also confirms that competitiveness should be assessed through the quality of export structure, not only through export volume.

Table 1. Official indicators reflecting the export structure of Uzbekistan's textile industry

Period	Export value	Share in total exports	Main structure	Source
Jan.-May 2024	About USD 1.3 billion	11.8%	Yarn - 46.8%; finished textiles - 37.6%; 496 product types exported to 55 countries	Statistics Agency, 2024
Jan.-June 2025	USD 1,268.9 million	7.5%	Finished textiles - 47.8%; yarn - 32.2%; compared with Jan.-June	National Statistics Committee, 2025

³ Statistics Agency under the President of the Republic of Uzbekistan, 10 July 2024: 496 types of textile products were exported to 55 countries; export value was about USD 1.3 billion.

⁴ National Statistics Committee of the Republic of Uzbekistan, January-June 2025 press release: textile exports amounted to USD 1,268.9 million, or 7.5% of total exports, and decreased by 17.0% compared with the same period of 2024.

			2024, export value decreased by 17.0%	
2026 target	USD 4.0 billion	Not specified	USD 700 million planned through e-commerce platforms; overall growth target - 152%	Presidential Decree No. PF-4 / gov.uz, 2026

The theoretical basis of production competitiveness is closely related to M. Porter's concept of competitive advantage. According to this approach, enterprises may strengthen their market position through cost leadership, differentiation, or a combination of both.⁵ In the textile industry, cost leadership is achieved through efficient use of raw materials, energy saving, lower defect rates and modern equipment. Differentiation is achieved through product quality, design, certification, ecological standards, branding and stable supply. Therefore, textile competitiveness should not be understood only as cheap production; it is the ability to produce reliable, certified, higher value-added and market-oriented goods.

The global context also confirms the importance of value chains. According to the WTO Global Value Chains Sectoral Profile, textiles and clothing represented 3.7% of world merchandise exports in 2022, while Asia accounted for 70.6% of world exports in the sector.⁶ The same profile shows that services, agriculture, chemicals and logistics form an important part of value added in textile and clothing exports. This means that modern competitiveness depends not only on manufacturing operations, but also on design, distribution, transport, marketing, finance and technological services.

For Uzbekistan, this conclusion is especially important. The country has a strong raw material base and growing export geography, but stronger competitiveness requires

⁵ Porter, M. E. (1985). Competitive Advantage: Creating and Sustaining Superior Performance; Porter, M. E. (1990). The Competitive Advantage of Nations.

⁶ World Trade Organization. (2024). Global Value Chains Sectoral Profiles: Textiles and Clothing Industry. Textiles and clothing represented 3.7% of world merchandise exports in 2022; Asia accounted for 70.6% of world exports in the sector.

deeper processing and movement toward the stages where value added is higher. The relatively high share of yarn exports in 2024 indicates that the transition from semi-finished products to finished textile goods remains one of the key directions of industrial upgrading. The increase in the share of finished textiles in 2025 can be considered a positive structural signal, but it should be supported by quality management, modern design, international certification and stable buyer relations.

The competitiveness of textile production can be grouped into seven interrelated factors. First, technological factors include modern spinning, weaving, dyeing, finishing and sewing equipment, automation and digital planning systems. Second, economic factors include production cost, investment, resource efficiency and pricing strategy. Third, quality-related factors include standardization, certification, raw material quality and product testing. Fourth, human capital factors include skilled technologists, designers, machine operators, quality controllers and managers. Fifth, innovation factors include eco-friendly materials, functional textiles, digital design and flexible production. Sixth, market factors include export geography, branding, customer relations and market research. Seventh, sustainability factors include water saving, energy efficiency, waste reduction and responsible labor practices.

Uzbek researchers also emphasize the importance of strategic management, modernization, investment activity and product quality in the development of textile enterprises. For example, Sh. R. Abduraxmanova analyzes competitiveness strategies in textile enterprises and notes the importance of studying regulatory documents, statistics and existing sectoral problems.⁷ B. A. Urishev links textile enterprise strategy with investment activity, innovation and productivity growth.⁸ E. X. Jumamuratov, in turn, studies the prospects of innovative development in Uzbekistan's textile sector and connects export potential with innovation-oriented modernization.⁹ These approaches are consistent with the international theory of competitive advantage and value chain development.

7 Abduraxmanova, Sh. R. (2023). O'zbekistonda to'qimachilik sanoati raqobatbardoshligini oshirish strategiyalari. T. 3, No. 3, p. 31.

8 Urishev, B. A. (2024). To'qimachilik korxonalari raqobat strategiyasi. Science and Education, 5(6), 338-342.

9 Jumamuratov, E. X. (2023). O'zbekistonda to'qimachilik sohasini innovatsion rivojlantirish istiqbollari. Journal of Universal Science Research, 1(8), 349-353. DOI: 10.5281/zenodo.8386058.

Table 2. Author's practical model for increasing production competitiveness in textile enterprises

Direction	Practical content	Expected competitive effect
Technological modernization	Renewal of equipment, automation, digital production planning	Higher productivity, lower defects and shorter production cycle
Quality management	Raw material control, certification, international standards, product testing	Stronger buyer trust and wider export access
Value-added upgrading	Expansion of finished textile products, design, packaging and branding	Higher export income and reduced dependence on semi-finished goods
Human capital	Training of technologists, designers, managers and operators	Better use of equipment and stable product quality
Market diversification	New export markets, e-commerce, buyer relations and logistics improvement	Lower market risk and stronger international position

Based on the above, increasing production competitiveness in the textile industry requires an integrated model. This model should include technological modernization, cost optimization, quality management, innovation, human capital development, export diversification and sustainability. If these factors are implemented separately, their effect may be limited. For example, modernization without skilled labor may not increase productivity; cost reduction without quality control may weaken customer trust; export expansion without branding may keep enterprises dependent on low-margin markets.

The practical importance of this issue is reflected in recent policy measures. In accordance with Presidential Decree No. PF-4 dated January 12, 2026, Uzbekistan plans to increase textile exports in 2026 to USD 4.0 billion, including USD 700 million through e-commerce platforms.¹⁰ This target shows that state policy is focused not only on export volume, but also on integration into international supply chains and modern

¹⁰ Ministry of Justice of the Republic of Uzbekistan, 2026: according to Presidential Decree No. PF-4 dated 12 January 2026, textile exports are planned to reach USD 4.0 billion in 2026, including USD 700 million through e-commerce platforms.

trade channels. Therefore, the competitiveness of textile enterprises should be measured through a system of indicators: production cost, labor productivity, product quality, export structure, technological renewal, certification and the share of finished goods in total exports.

Conclusion. In conclusion, the textile industry has strong potential for increasing production competitiveness, especially in Uzbekistan, where the sector is connected with raw material processing, employment, exports and industrial modernization. However, long-term competitiveness cannot be achieved only through low production costs or raw material advantages. It requires modernization, productivity growth, quality management, innovation, human capital development and integration into global value chains.

The analysis of official data shows that Uzbekistan's textile exports are substantial, but the structure of exports remains a key issue. The transition from yarn and semi-finished goods to finished, certified and higher value-added textile products should be considered a central direction for strengthening competitiveness. The main scientific-practical conclusion of this thesis is that textile competitiveness must be managed as a complex system combining efficiency, quality, innovation, value-added upgrading and market diversification.

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**РОЛЬ И ЗНАЧЕНИЕ ТВОРЧЕСКОГО МЫШЛЕНИЯ В ВЫЯВЛЕНИИ ФАКТОРОВ,
СПОСОБСТВУЮЩИХ РАЗВИТИЮ ТВОРЧЕСКИХ СПОСОБНОСТЕЙ У БУДУЩИХ
УЧИТЕЛЕЙ МУЗЫКИ.**

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Данная статья окажет большую помощь в формировании творческого потенциала будущих преподавателей музыки в высших учебных заведениях, во внедрении творческих форм и методов обучения, инновационных педагогических технологий, а также в организации психолого-педагогической подготовки.

Ключевые слова: творчество, педагогика, психология, технология, инновации, модернизация, коммуникация, музыка, креативность.

**THE ROLE AND IMPORTANCE OF CREATIVE THINKING IN IDENTIFYING
FACTORS CONTRIBUTING TO THE DEVELOPMENT OF CREATIVE ABILITIES IN
FUTURE MUSIC TEACHERS.**

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This article will greatly assist in developing the creative potential of future music teachers in higher education institutions, in the implementation of creative forms and methods of teaching, innovative pedagogical technologies, and in the organization of psychological and pedagogical training.

Keywords: creativity, pedagogy, psychology, technology, innovation, modernization, communication, music, creativity.

Введение. Развитие системы управления в системе высшего образования, широкое использование методов корпоративного управления, модернизация материально-технической базы, внедрение образования с использованием возможностей информационно-коммуникационных технологий, региональная и международная интеграция образовательных учреждений, развитие международного сотрудничества в сфере образования, увеличение источников финансирования и внедрение международных стандартов качества управления образованием являются перспективными направлениями развития системы.

Термин «креативность» появился в англо-американской педагогике в 60-х годах. Он обозначает способность человека развивать новые навыки посредством создания новых концепций. Американский ученый Дж. Гилфорд выделяет ряд индивидуальных способностей, характеризующих творческое творчество:

о Беглость мышления;

о Способность направлять мышление в соответствии с целью;

- о Оригинальность;
- о Любопытство;
- о Способность выдвигать гипотезы;
- о Способность воображать, фантазировать;¹

Одним из важных недостатков современного профессионального образования является его слабое влияние на развитие творческого потенциала будущих учителей музыки, в том числе музыки. Анализ деятельности будущих преподавателей высших учебных заведений показывает, что уровень практики, направленной на развитие их творческих способностей, недостаточен.

Некоторые преподаватели в своей будущей педагогической деятельности склонны к использованию стереотипных методов и приемов, ориентированных на алгоритмические действия в системе творческой работы. Поэтому одной из важнейших задач педагогических высших учебных заведений, готовящих будущих учителей музыки, является развитие творческих способностей будущих учителей музыки, повышение их творческого потенциала и подготовка будущих учителей музыки к использованию элементов творчества в своей профессионально-педагогической деятельности.

Под творческими способностями будущего учителя музыки мы понимаем целостное качество преподавателя, определяющее способность создавать уникальные, самобытные, новаторские идеи для педагогических задач, возникающих в процессе обучения. Это характеризуется тем, что будущий преподаватель видит педагогическую проблему в моменте, разрабатывает творческие пути ее решения и развивает ее по-своему, не основываясь на какой-либо конкретной модели. Одно из главных условий развития творческого мышления будущих учителей музыки — направление ученика к нему в учебном процессе с учетом его личностных особенностей, желаний и стремлений. Профессиональное педагогическое образование предполагает использование различных методов творческого обучения, ориентированных на индивидуальные качества ученика.

Для этого целесообразно организовывать профессионально-педагогические задания, активное участие в научных конференциях, конкурсах, дискуссиях по проблемам высшего образования и других образовательных мероприятиях. В результате создаются условия для профессионального развития личности учителя, его самоутверждения и самовыражения.

Э. П. Торренс выделил следующие условия, способствующие развитию творческого мышления и креативности человека: наличие творческих способностей и творческой мотивации.²

В процессе формирования творческих способностей у будущих учителей большое значение имеет процесс формулирования и решения учебно-научно-педагогических задач с использованием проблемно-ориентированных образовательных технологий. Поэтому в современных высших учебных заведениях необходимо совершенствовать все формы и методы

¹ Гилфорд Дж. П. (1950) Творчество, Американский психолог, том 5, выпуск 9, стр. 444-454

² «Развитие творческих способностей у учителей». Г. О. Ерназарова, профессор Государственного педагогического института им. К. Т. Исроилова, независимый исследователь Государственного педагогического института им. К. Т. Исроилова. Академические исследования в области педагогических наук. ТОМ 3 | ВЫПУСК 1 | 2022 ISSN: 2181-1385 Импакт-фактор научного журнала (SJIF): 5,723 Индексация в каталоге международных научных журналов - CiteFactor: 0,89 DOI: 10.24412/2181-1385-2022-1-1048-1056

развития творческих способностей будущих учителей музыки: посредством лекций, практических семинаров, самостоятельной и индивидуальной работы.

Процесс развития творческих способностей организуется на основе возможности сотрудничества, обсуждения и обмена идеями между основными участниками процесса развития творческих способностей – учителем и учеником, а также создания свободного мышления, выражения личных взглядов, совместного решения проблемных ситуаций и командной работы в процессе освоения учебного материала, и благодаря этому «группа учитель – ученик – ученик» характеризуется взаимным уважением, поддержкой, искренними отношениями друг с другом и достижением духовного единства. Выявление факторов, способствующих развитию творческих способностей у будущих учителей музыки.

Методика. В эпоху ускоренного развития одной из важных задач современной системы образования является подготовка будущих учителей, обладающих творческой любознательностью, беглым мышлением, стремлением к инновациям в профессиональной деятельности и способностью демонстрировать свои таланты на основе творческого подхода. В сущности, сфера музыкального образования требует от учителя высокого уровня креативности в его эстетическом и эмоциональном, творческом поиске. Креативность будущего учителя музыки определяется не только музыкальными знаниями и навыками, но и способностью находить нетрадиционные решения в педагогических ситуациях, раскрывать творческий потенциал учеников и обогащать образовательный процесс. Поэтому важно выявлять и научно обосновывать педагогические факторы, способствующие развитию творческих качеств. Креативность, как основа формирования творческого мышления, понимается как способность человека создавать новые концепции и применять имеющиеся знания и опыт нестандартным образом. Способность систематически применять

педагогические принципы, направленные на развитие креативности, повышает профессиональную компетентность будущего учителя музыки и, как следствие, обеспечивает повышение эффективности образовательного процесса.



Результаты. В педагогическом процессе высшего образования приоритет, отдаваемый музыкально-теоретическим знаниям при подготовке будущих учителей музыки, часто приводит к недостаточному развитию творческой деятельности.

Эффективность урока музыки напрямую связана с творческим подходом будущего учителя музыки. Поэтому творческий подход повышает интерес учащихся к музыке и обеспечивает проведение уроков в живом исполнении. При сочетании теоретических и практических знаний в музыкальном образовании происходит дальнейшее развитие творческого мышления будущего учителя музыки. Будущие учителя музыки постепенно открывают свои творческие способности посредством различных музыкальных упражнений. Основываясь на творческом подходе, они расширяют свои возможности, используя новые методы, педагогические игры и интерактивные упражнения на уроках. На основе этих подходов будущий учитель музыки укрепляет свое самостоятельное мышление и способность выражать свое творчество. Благодаря творческой деятельности будущие учителя музыки развивают свои педагогические навыки и эстетический вкус. В результате мы наблюдаем значительное повышение эффективности музыкального образования при сочетании теоретических знаний с творческим подходом.

Творчество развивается как способность будущих учителей музыки создавать новые идеи и применять имеющиеся знания и опыт нетрадиционными способами. С педагогической точки зрения, креативность характеризуется проявлением творческого подхода у будущего учителя музыки к проектированию, организации и управлению образовательным процессом. Креативность в музыкальном образовании проявляется через художественное мышление, интерпретацию музыкальных образов и импровизационные процессы. Это имеет большое значение в профессиональном формировании будущего учителя музыки.

Обсуждения. В процессе развития музыкального творчества нам служат следующие педагогические задачи:

- Обеспечение профессиональной гибкости учителя в процессе обучения;
- Дальнейшее обогащение содержания музыкальных уроков необычным способом;
- Формирование музыкально-эстетического вкуса учащихся;
- Повышение эмоциональности и чувствительности в образовательном процессе;

Поэтому творчество следует рассматривать как неотъемлемую составляющую профессиональной компетентности будущего учителя музыки. Важным педагогическим фактором в формировании творчества является образовательная среда, которая поддерживает свободное мышление и поощряет инициативу учащихся.

Творческий подход делает уроки интересными и живыми, что помогает удерживать внимание учеников. Ученики учатся самостоятельно мыслить и принимать творческие решения посредством музыкальных упражнений и импровизаций. Одновременно с этим, благодаря практическим занятиям, у учеников развивается культура сценического выступления. В результате сочетание внутренней мотивации, рефлексии и практических упражнений обеспечивает высокий уровень творческой активности в музыкальном образовании. В частности:

- импровизация на вокальных и инструментальных уроках;

- альтернативная интерпретация музыкальных произведений;
- сравнительный анализ образцов национальной и мировой музыки;
- организация уроков на основе междисциплинарной интеграции. В этих процессах преподаватель, как творческий лидер, проводит мероприятия, направленные на развитие индивидуальных способностей ученика.

Педагогическая среда служит средством стимулирования творческой активности ученика. Интерактивные методы и инновационные подходы, используемые в учебном процессе, развивают творческое мышление у учащихся. Непрерывное педагогическое воздействие позволяет укреплять творческие навыки и апробировать новые педагогические стратегии. В то же время развитие креативности обеспечивает профессиональный рост преподавателя и повышает эффективность музыкального образования.

Заключение. При организации творческих занятий студенту следует уделять особое внимание решению проблемных вопросов, анализу проблемных ситуаций, а также созданию творческих продуктов педагогического характера. «Творчество заразительно; чтобы быть творческим, человеку нужно общаться с более творческими людьми и всегда быть в поиске. Как и любой навык, способность или умение к творческому мышлению можно развить. Это относится и к будущим учителям, и работа над творчеством помогает будущим учителям мыслить нестандартно. Однако вдохновение студентов и поощрение их к творчеству зависит от квалификации учителя. Исследования в области творчества служат ориентиром в формировании творческих навыков. Это включает в себя атмосферу в классе, формирование стилей мышления студентов, а также подход и стратегии учителя».³ В заключение можно отметить, что роль и значение творческого мышления в определении факторов, развивающих творческие способности будущих учителей музыки, представляют собой сложный и многофакторный педагогический процесс, неразрывно связанный с содержанием образования, педагогической средой, инновационными методами и междисциплинарной деятельностью. Студент не становится творческим сам по себе. Его творческая способность формируется в результате работы над собой в течение определенного периода времени и постепенно совершенствуется и развивается. Как и у любого специалиста, в студенческие годы закладывается фундамент творчества будущих педагогов и последовательно развивается в организации профессиональной деятельности.

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DECORATIVE ART AND ITS INFLUENCE ON THE ARTISTIC AND AESTHETIC TASTE OF STUDENTS

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Abstract

This article examines the concept of artistic and aesthetic taste and the factors contributing to its development. Particular attention is given to the role of decorative art as an effective means of artistic and aesthetic education. The study highlights the significance of decorative art in shaping students' aesthetic perception, creative thinking, spiritual values, and artistic taste. It also emphasizes the educational potential of decorative and applied arts in fostering a harmonious and culturally developed personality.

Keywords: decorative art, decorative and applied art, artistic and aesthetic taste, aesthetic education, students, artistic creativity, cultural heritage, art education.

Introduction

Modern society places increasing emphasis on the comprehensive development of the individual, where spiritual values, cultural awareness, and aesthetic education are considered essential components of personal growth. The cultural level of society largely depends on the education, worldview, and moral values of its members. Therefore, cultivating artistic and aesthetic taste among the younger generation has become one of the key objectives of contemporary education.

A person with a well-developed aesthetic taste possesses a high level of cultural awareness, appreciates works of art, actively participates in social and cultural life, and contributes to the spiritual development of society. Consequently, the formation of artistic and aesthetic taste not only enriches the individual but also promotes the cultural advancement of society as a whole.

Artistic and aesthetic taste can be defined as a person's ability to perceive, distinguish, understand, evaluate, and appreciate aesthetic phenomena in life and art. It enables individuals to experience emotional satisfaction from beauty, inspires creative activity, and encourages the development of noble moral qualities such as courage, sensitivity, and social responsibility.

Artistic and aesthetic taste develops throughout a long historical and social process. It is shaped by cultural traditions, practical experience, education, and personal artistic

activity. Since every individual acquires aesthetic experience differently, the level of aesthetic taste may vary considerably, ranging from highly developed and refined to limited or superficial.

Possessing artistic and aesthetic taste reflects not only a person's cultural level but also his or her spiritual and emotional maturity. Individuals with refined aesthetic taste demonstrate deeper emotional sensitivity, stronger moral values, and a greater ability to understand and appreciate literature, fine arts, music, and other forms of artistic expression.

Aesthetic taste represents one of the fundamental components of aesthetic consciousness. For this reason, aesthetic education occupies a central place in the comprehensive development of the individual. The concept of artistic and aesthetic taste is of great significance for individuals, society, and the nation. The higher the level of aesthetic culture within society, the greater its overall cultural development and social well-being.

The primary purpose of artistic and aesthetic education is to cultivate students' ability to perceive beauty, develop refined aesthetic taste, foster appreciation for works of art, encourage respect for historical and architectural heritage, promote responsible attitudes toward nature, and nurture moral values through the appreciation of cultural and natural wealth.

From this perspective, artistic and aesthetic education contributes to preparing socially active individuals who are capable of appreciating the finest achievements of both national and world artistic culture. It also encourages creativity, independent thinking, and active participation in cultural life.

The development of students' artistic and aesthetic taste is closely connected with the rich national spiritual and cultural heritage of the Uzbek people. Traditional decorative and applied arts, architecture, folk crafts, and other forms of artistic expression constitute an important pedagogical foundation for aesthetic education. They contribute to the development of students' creative abilities, emotional responsiveness, artistic imagination, and spatial thinking while fostering respect for national cultural values.

The formation of artistic and aesthetic taste takes place not only within educational institutions but also through continuous interaction with various forms of art. Among these, decorative art occupies a special position due to its close connection with everyday life. Alongside fine arts, literature, music, and folk decorative and applied arts, decorative art serves as one of the most effective means of aesthetic education.

Decorative art is a branch of applied art concerned with the creation of artistic objects that combine practical utility with aesthetic value. Unlike purely visual artworks, decorative objects are intended for everyday use while simultaneously enriching the surrounding environment through their artistic qualities.

Works of decorative art are characterized by several essential features. First, they possess aesthetic value and contribute to the visual harmony of the environment. Second, they are designed to create an artistic effect by combining beauty with functionality. Third, they serve as decorative elements in everyday life, architecture, and interior design.

Examples of decorative art include clothing, decorative textiles, carpets, furniture, artistic glassware, porcelain, ceramics, jewelry, and many other handcrafted or industrially produced artistic objects. These works not only satisfy practical needs but also enrich the cultural and aesthetic experience of individuals.

Throughout history, decorative art has undergone continuous development. Beginning with simple ornamental patterns created by primitive societies, it gradually expanded to include the decoration of tools, pottery, clothing, architecture, and household objects. Today decorative art encompasses virtually every sphere of human life, including interior design, urban spaces, industrial design, and contemporary visual culture.

The rapid development of technologies for processing artistic materials has led to the emergence of new genres, techniques, and creative directions within decorative art. Modern decorative art successfully combines traditional craftsmanship with innovative technologies, allowing artists to create works that meet both aesthetic and functional requirements of contemporary society.

The expansion of decorative art has also significantly influenced social and educational development. Over time, decorative art has become accessible to broader segments of society and has been widely integrated into educational institutions, public spaces, industrial production, and cultural life. It is now an essential component in the design of educational materials, exhibitions, posters, information boards, invitations, visual communication, and other educational resources.

One of the distinguishing characteristics of decorative art is its ability to enrich the human environment aesthetically. Decorative objects transform everyday surroundings into visually expressive spaces, creating harmony between people and their environment. As a result, decorative art not only improves living conditions aesthetically but also shapes individuals' artistic perception and contributes to the formation of their personal identity.

The influence of decorative art on the development of artistic and aesthetic taste is exceptionally significant. A person's ability to perceive and appreciate beauty begins to develop through interaction with the surrounding environment from early childhood. Since decorative art forms an integral part of this environment, it naturally becomes one of the most effective means of aesthetic education.

Moreover, decorative artworks contribute to the spiritual development of individuals, strengthen labor education, and promote respect for artistic traditions. As an inseparable component of national culture, decorative art actively participates in shaping aesthetic values, artistic preferences, and cultural identity.

The educational value of decorative art extends beyond its artistic qualities. Its high level of craftsmanship, originality, and cultural significance encourages students to appreciate beauty, develop creative thinking, and form aesthetic ideals that influence their personal growth and future professional activities.

In the Republic of Uzbekistan, the development of art and creativity has become one of the strategic priorities of the national education system. Educational institutions at all levels—from preschool organizations to higher education institutions—are expected to promote students' creative potential, artistic culture, and aesthetic awareness. The ultimate goal of these efforts is to improve the cultural level of society by educating intellectually and spiritually developed individuals.

One of the first and most important steps toward achieving this objective is the systematic development of students' artistic and aesthetic taste. This process should begin in early childhood and continue throughout all stages of education. Various pedagogical methods and artistic activities contribute to this process; however, decorative art occupies a particularly important place because of its close connection with everyday life and its accessibility to learners of different ages.

Decorative art encourages students to develop aesthetic perception, artistic imagination, emotional sensitivity, and visual literacy. Through observation and practical artistic activities, learners accumulate emotional experience, enrich their vocabulary, and improve cognitive processes such as comparison, analysis, synthesis, and generalization. These skills contribute not only to artistic development but also to the overall intellectual growth of the individual.

An important aspect of aesthetic education is students' direct participation in creative activities. Observing works of decorative art and producing artistic objects with their own hands significantly contributes to their spiritual development, labor education, and aesthetic culture. Practical creative work enables students to acquire technical

knowledge, develop manual skills, strengthen psychological readiness for future professional activity, and make informed career choices.

Furthermore, decorative art helps students understand the cultural and spiritual value of beauty, appreciate artistic craftsmanship, and develop stable aesthetic ideals. Such activities foster creativity, independence, responsibility, perseverance, and respect for national artistic traditions.

The integration of decorative and applied arts into the educational process also creates favorable conditions for interdisciplinary learning. Decorative art naturally combines elements of fine arts, history, cultural studies, design, technology, and national heritage, making the educational process more engaging, practice-oriented, and meaningful.

Modern education aims at the comprehensive development of each learner through the harmonious integration of intellectual, moral, labor, and aesthetic education. Within this context, the implementation of innovative educational and creative tasks based on decorative and folk applied arts represents an effective pedagogical approach. Such activities not only improve students' artistic abilities but also contribute to the formation of an active, creative, culturally aware, and socially responsible personality.

Conclusion

Decorative art occupies a significant place in the system of artistic and aesthetic education and serves as one of the most effective means of developing students' artistic taste, creativity, and cultural awareness. By integrating aesthetic values with practical activities, decorative art promotes the comprehensive development of learners and strengthens their emotional, intellectual, and moral qualities.

The study demonstrates that systematic exposure to decorative art enhances students' aesthetic perception, artistic imagination, creative thinking, and appreciation of national and world cultural heritage. Participation in decorative and applied artistic activities also contributes to the development of practical skills, independent thinking, and respect for cultural traditions.

Therefore, expanding the use of decorative art within the educational process should be regarded as an important direction for improving the quality of artistic education. The effective integration of decorative art into teaching practice will facilitate the formation of a harmoniously developed personality capable of appreciating beauty, preserving cultural heritage, and making meaningful contributions to the cultural development of society.

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22.

RADIOLOGICAL EVALUATION OF KNEE JOINT DISEASES: THE ROLE OF MODERN DIAGNOSTIC IMAGING TECHNIQUES

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Abstract:

This article provides a comprehensive scientific analysis of the role and significance of modern diagnostic imaging modalities—including ultrasonography (US), conventional radiography, computed tomography (CT), and magnetic resonance imaging (MRI)—in the diagnosis of knee joint disorders. Owing to its anatomically complex structure and substantial functional load, the knee joint is particularly susceptible to a wide range of inflammatory, degenerative, traumatic, and neoplastic conditions. Diagnostic imaging plays a pivotal role in the early detection of these disorders, accurate diagnosis, and the selection of appropriate therapeutic strategies.

The article discusses the physical principles, clinical applications, diagnostic capabilities, advantages, and limitations of each imaging modality based on current scientific evidence. Particular emphasis is placed on the advantages of ultrasonography in the evaluation of soft tissues, the importance of radiography in detecting osseous abnormalities, the high diagnostic accuracy of computed tomography in the assessment of complex fractures, and the role of magnetic resonance imaging as the gold standard for evaluating pathological changes involving the menisci, ligaments, and articular cartilage.

This review serves as a valuable scientific and practical resource for medical students, clinicians, radiologists, and specialists in orthopedics and traumatology.

Keywords: Knee joint; diagnostic imaging; ultrasonography (US); radiography; X-ray imaging; computed tomography (CT); magnetic resonance imaging (MRI); joint disorders; synovitis; joint effusion; gonarthrosis; meniscal tear; ligament injury; neoplastic lesions; bone fracture; three-dimensional reconstruction; soft tissue imaging; skeletal system; joint deformity; inflammatory processes; degenerative diseases; orthopedics; traumatology; diagnostic imaging; joint capsule; Baker's cyst; cartilage injury; osteophyte; osteonecrosis; joint space narrowing; radiological examination.

THE ROLE OF ULTRASONOGRAPHY IN THE DIAGNOSIS OF KNEE JOINT DISORDERS

Ultrasonography (US) is a widely utilized, non-invasive, radiation-free, and safe diagnostic imaging modality that plays a crucial role in the early detection and dynamic follow-up of knee joint disorders. Owing to the anatomical complexity of the knee joint—including the close spatial relationship among soft tissues, ligaments, articular cartilage, muscles, tendons, synovial fluid, and periarticular structures—ultrasonography enables real-time visualization of these anatomical components, making it an invaluable tool in musculoskeletal imaging.

First, ultrasonography demonstrates high diagnostic sensitivity for detecting soft tissue abnormalities, which constitute a substantial proportion of knee joint injuries. Conditions such as patellar tendinopathy, quadriceps tendon injuries, collateral ligament sprains and tears, bursitis, and synovitis can be evaluated with considerable diagnostic accuracy using ultrasonography. Furthermore, the

incorporation of Doppler imaging facilitates the assessment of inflammatory activity by visualizing changes in vascularity and blood flow within and around the joint.

Second, ultrasonography provides valuable information regarding the presence, volume, and characteristics of pathological intra-articular fluid (joint effusion). Excess synovial fluid is commonly associated with synovitis, arthritis, infectious processes, or degenerative joint diseases. In addition to detecting joint effusion, ultrasonography allows evaluation of its mobility, distribution within the joint cavity, and even the presence of fibrin strands or coagulated material, thereby improving diagnostic precision.

Third, beyond its diagnostic capabilities, ultrasonography plays a significant role in guiding minimally invasive therapeutic procedures under real-time imaging control. Ultrasound-guided interventions—including intra-articular injections, arthrocentesis, and regenerative therapies such as platelet-rich plasma (PRP), corticosteroid (hydrocortisone), and hyaluronic acid injections—can be performed with enhanced precision and safety. Consequently, ultrasound guidance reduces the risk of procedural complications while improving treatment efficacy.

Fourth, ultrasonography provides highly accurate evaluation of periarticular mass-like lesions, including Baker's cysts, lipomas, ganglion cysts, and other periarticular abnormalities. In particular, ultrasonography enables precise assessment of the size, wall thickness, internal morphology, and communication of a Baker's cyst with the knee joint cavity, making it an indispensable tool for differential diagnosis.

Fifth, dynamic ultrasonographic examination allows real-time assessment of the functional integrity of ligaments, tendons, and muscles during joint movement. This capability is particularly valuable in athletes and physically active individuals, in whom subtle overuse injuries and microtraumatic lesions frequently occur.

An additional advantage of ultrasonography is its excellent safety profile. The absence of ionizing radiation, relatively low cost, widespread availability, portability, and rapid image acquisition make it an ideal first-line imaging modality in routine clinical practice. Although ultrasonography cannot comprehensively visualize deep intra-articular structures with the same level of detail as magnetic resonance imaging (MRI) or computed tomography (CT), it remains an essential and highly effective technique for the initial evaluation and follow-up of patients with knee joint disorders.

THE ROLE OF RADIOGRAPHY IN THE DIAGNOSIS OF KNEE JOINT DISORDERS

Conventional radiography is one of the oldest, most universally available, and most widely utilized imaging modalities for the diagnosis of knee joint disorders. Its principal advantages include excellent visualization of osseous structures, rapid image acquisition, cost-effectiveness, and widespread availability in virtually all healthcare institutions. Because the knee joint comprises multiple bony components—including the distal femur, proximal tibia, and patella—radiography is considered the first-line imaging modality for the initial assessment of knee pathology.

First, radiography serves as the primary imaging technique for detecting degenerative changes of the knee joint. In particular, the diagnosis of gonarthrosis (knee osteoarthritis) relies on characteristic radiographic findings such as joint space narrowing, osteophyte formation, subchondral sclerosis, subchondral cystic changes, and irregularity of the articular surfaces. Consequently, the internationally recognized **Kellgren–Lawrence grading system** for osteoarthritis is based primarily on radiographic findings.

Second, radiography is regarded as the first-line imaging modality for the evaluation of traumatic knee injuries, including fractures, fissures, dislocations, and subluxations. Even subtle linear fractures (microfractures) may be detected on conventional radiographs. Fractures of the patella, tibial plateau, and femoral condyles are generally well visualized, making radiography indispensable in the initial assessment of acute knee trauma.

Third, radiographic imaging enables accurate evaluation of lower limb alignment and the anatomical relationships between osseous structures. Mechanical axis abnormalities, including varus and valgus deformities (commonly referred to as O-shaped and X-shaped leg deformities), can be quantified through standardized radiographic measurements. Such assessments are essential during preoperative planning for orthopedic procedures, including osteotomy and total knee arthroplasty.

Fourth, radiography provides indirect evidence of several inflammatory joint disorders. In patients with rheumatoid arthritis, radiographic findings may include uniform joint space narrowing, marginal erosions, periarticular osteopenia, and progressive joint deformity. Likewise, crystal-induced arthropathies, particularly gout, may demonstrate characteristic "punched-out" erosions and osseous manifestations associated with tophaceous deposits.

Fifth, radiography also plays an important role in the evaluation of neoplastic bone lesions, including primary bone tumors, metastatic disease, and abnormal osseous proliferation. Although conventional radiography has limited capability in assessing soft tissue abnormalities, it effectively demonstrates cortical destruction, bone infiltration, and other osseous changes associated with tumor involvement. An additional advantage of radiography is the ability to perform functional or stress radiographic examinations. Stress radiographs facilitate assessment of joint stability, collateral ligament integrity, and patellofemoral alignment, thereby providing valuable diagnostic information, particularly in patients with sports-related injuries. Furthermore, compared with other cross-sectional imaging techniques, conventional radiography is associated with a relatively low radiation dose and remains one of the most efficient and cost-effective modalities for the initial screening of knee joint disorders. Despite these advantages, the principal limitation of radiography lies in its inability to adequately visualize soft tissue structures, including the menisci, ligaments, articular cartilage, synovium, and bursae. Consequently, when soft tissue injury is suspected, further evaluation with **magnetic resonance imaging (MRI)** or **ultrasonography (US)** is generally required to establish a comprehensive diagnosis.

APPLICATION OF COMPUTED TOMOGRAPHY (CT) IN THE EVALUATION OF KNEE JOINT PATHOLOGIES

Computed tomography (CT) is a high-resolution diagnostic imaging modality that provides detailed cross-sectional evaluation of knee joint pathologies. CT is primarily employed for assessing subtle morphological abnormalities of osseous and periarticular structures. Owing to the complex anatomy of the knee joint, CT is frequently considered the imaging modality of choice in cases of traumatic injuries, complex fractures, and suspected bone tumors.

First, CT demonstrates excellent diagnostic accuracy in the evaluation of traumatic knee injuries. Fractures involving the femoral condyles, depressed tibial plateau fractures, patellar fractures, and intra-articular fracture extensions are clearly visualized with CT imaging. Furthermore, three-dimensional (3D) reconstruction enables comprehensive assessment of fracture configuration, displacement, angulation, and deformity of bone fragments. These capabilities provide orthopedic

surgeons with valuable information for preoperative planning and selection of the optimal surgical approach.

Second, CT is highly effective in detecting complex intraosseous abnormalities. Lesions such as osteochondritis dissecans, subchondral cysts, areas of bone necrosis, osteolytic lesions, and tumor-like osseous abnormalities can be accurately visualized and precisely delineated. Although CT does not provide soft tissue contrast comparable to magnetic resonance imaging (MRI), it offers exceptional spatial resolution and detailed visualization of cortical and trabecular bone architecture. Third, CT plays an important role in evaluating the geometry and alignment of the articular surfaces. Structural abnormalities commonly encountered in athletes—including patellofemoral dysplasia, trochlear dysplasia characterized by a shallow trochlear groove, patella alta, patellar tilt, and abnormal patellar positioning—can be measured with millimeter-level precision. These measurements are particularly valuable in patients presenting with patellofemoral instability or recurrent lateral patellar subluxation.

Fourth, CT is indispensable for postoperative assessment following orthopedic procedures involving metallic implants, such as osteosynthesis or total knee arthroplasty. Modern CT systems equipped with **metal artifact reduction (MAR)** algorithms substantially minimize image degradation caused by metallic hardware, allowing accurate evaluation of implant positioning, prosthetic loosening, periprosthetic bone integrity, and postoperative complications.

Fifth, CT arthrography—performed following intra-articular administration of contrast material—is an effective imaging technique for evaluating the menisci, articular cartilage, and ligamentous structures. CT arthrography is particularly useful in patients for whom MRI is contraindicated, including individuals with certain cardiac pacemakers, non-MRI-compatible metallic implants, or severe claustrophobia. In such circumstances, CT arthrography serves as a valuable alternative imaging modality.

In addition, CT enables accurate assessment of lower limb alignment, joint deformities, articular surface symmetry, and bone mineral density, facilitating the evaluation of conditions such as osteopenia and osteoporosis. These parameters are of considerable importance in orthopedic surgical planning and postoperative management.

Despite its numerous advantages, CT has several limitations. Because it utilizes ionizing radiation, the associated radiation exposure is higher than that of conventional radiography. Moreover, CT is less sensitive than MRI for evaluating soft tissue structures and may require complementary imaging to fully characterize inflammatory or soft tissue abnormalities. Nevertheless, CT remains an indispensable diagnostic modality, providing comprehensive, high-resolution, cross-sectional evaluation of knee joint pathology and playing a pivotal role in the diagnosis and management of complex osseous disorders.

MAGNETIC RESONANCE IMAGING (MRI): THE GOLD STANDARD FOR THE DIAGNOSIS OF KNEE JOINT DISORDERS

Magnetic resonance imaging (MRI) is distinguished by its superior diagnostic accuracy, excellent soft tissue contrast, and high-resolution multiplanar imaging capabilities in the evaluation of knee joint disorders. Consequently, MRI is widely recognized as the **gold standard** for the diagnosis of numerous knee pathologies. Unlike computed tomography (CT) and conventional radiography, which rely on ionizing radiation, MRI utilizes a strong magnetic field and radiofrequency pulses to generate detailed anatomical images without exposing patients to radiation.

First, MRI is the most accurate imaging modality for evaluating the soft tissue structures of the knee joint. It provides exceptional visualization of the menisci, anterior and posterior cruciate ligaments (ACL and PCL), medial and lateral collateral ligaments (MCL and LCL), articular cartilage, synovial membrane, bursae, and even microscopic inflammatory changes. Owing to its outstanding soft tissue contrast, MRI has demonstrated a diagnostic sensitivity of approximately **93–98%** for detecting sports-related injuries and ligament tears, as reported in the scientific literature.

Second, MRI is superior to both radiography and CT in the evaluation of meniscal pathology. All major types of meniscal tears—including horizontal, radial, vertical, flap, and bucket-handle tears—as well as degenerative changes and meniscal cysts, are clearly demonstrated on MRI. Furthermore, subtle pathological findings such as **meniscal extrusion**, characterized by displacement of the meniscus beyond the tibial articular margin, can be reliably detected only by MRI.

Third, MRI is the most accurate imaging technique for assessing hyaline articular cartilage and enables the detection of early-stage osteoarthritis. While conventional radiography primarily demonstrates joint space narrowing, MRI can identify cartilage thinning, superficial cartilage defects, subchondral bone abnormalities, bone marrow edema, and early inflammatory changes before significant radiographic alterations become apparent. Therefore, MRI possesses the highest diagnostic value for detecting **early-stage (Grade 0–II) osteoarthritis**.

Fourth, MRI is highly effective in the evaluation of inflammatory joint diseases. Rheumatoid arthritis, psoriatic arthritis, synovitis, joint effusion, and intra-articular fibrin deposition can all be clearly visualized on MRI. T2-weighted sequences are particularly valuable for demonstrating synovial fluid accumulation and assessing the extent and severity of inflammatory activity within the joint.

Fifth, MRI is the most sensitive imaging modality for detecting intra-articular hemorrhage, bone marrow edema, occult microfractures, and osteochondral injuries. These subtle pathological changes may not be visible on conventional radiographs and are frequently underestimated or overlooked on CT examinations. MRI is particularly valuable for diagnosing stress fractures and bone contusions ("bone bruises"), which are commonly encountered in athletes and physically active individuals.

Sixth, MRI plays a crucial role in the evaluation of neoplastic lesions involving the knee joint. Soft tissue sarcomas, synovial tumors, synovial chondromatosis, primary bone tumors, and metastatic lesions can be accurately characterized according to their signal intensity, internal architecture, lesion margins, and extent of local invasion. Compared with CT, MRI provides substantially greater diagnostic information for soft tissue tumors. An additional advantage of MRI is the use of gadolinium-based contrast agents, which enhance the visualization of inflammatory lesions, neoplasms, and hypervascular pathological tissues, thereby improving diagnostic accuracy and lesion characterization.

Despite its considerable advantages, MRI has several limitations. Image acquisition requires a relatively long examination time, the procedure is more expensive than conventional imaging techniques, and patients with severe claustrophobia may experience difficulty tolerating the examination. Furthermore, certain metallic implants or non-MRI-compatible medical devices may constitute contraindications or limit image quality. Nevertheless, these limitations do not diminish the outstanding diagnostic performance of MRI. Owing to its unparalleled ability to evaluate soft tissue structures and complex intra-articular abnormalities, MRI is universally regarded as the **gold standard** for the diagnosis of knee joint disorders in contemporary clinical practice.

Conclusion: Diagnostic imaging plays a fundamental role in the evaluation of knee joint disorders and represents one of the most important fields of modern musculoskeletal medicine. The anatomical complexity of the knee joint, its substantial biomechanical load, and the broad spectrum of pathological conditions affecting it necessitate a comprehensive and multimodal imaging approach. Conventional radiography, ultrasonography (US), computed tomography (CT), and magnetic resonance imaging (MRI) are complementary diagnostic modalities, each possessing distinct advantages and limitations that contribute to a comprehensive assessment of knee joint pathology. Conventional radiography remains the most practical and cost-effective first-line screening modality for evaluating osseous structures and degenerative skeletal changes. Ultrasonography provides real-time assessment of soft tissue structures, including ligaments, tendons, the synovial membrane, bursae, and joint effusions, while also serving as an effective tool for image-guided interventions. Computed tomography offers superior visualization of complex fractures, subchondral abnormalities, and osseous components of neoplastic lesions, with three-dimensional reconstruction significantly enhancing preoperative planning. Magnetic resonance imaging, owing to its exceptional visualization of soft tissues, articular cartilage, menisci, and ligamentous structures, is universally recognized as the **gold standard** for the diagnosis of knee joint disorders.

Therefore, accurate and early diagnosis of knee joint diseases requires the integrated application of these imaging modalities according to the patient's clinical presentation and suspected pathology. A contemporary radiological approach emphasizes multidisciplinary collaboration and the appropriate selection of imaging techniques for each clinical scenario. Proper implementation of diagnostic imaging not only facilitates precise diagnosis but also improves treatment planning, enhances clinical outcomes, optimizes patients' quality of life, and contributes to the prevention of long-term complications.

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INKLYUZIV TA'LIMNI TASHKIL ETISHNING PEDAGOGIK- PSIXOLOGIK ASOSLARI

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Annotatsiya. ta'limni tashkil etish jarayoni nafaqat moddiy-texnik ta'minotni, balki pedagogik va psixologik jihatlarni ham chuqur hisobga olishni talab etadi. Mazkur jarayon Inklyuziv o'quvchilarning individual xususiyatlari va psixologik holatini inobatga olgan holda, ularning ta'lim muhitiga muvaffaqiyatli moslashuvini ta'minlashga qaratilgan. Inklyuziv ta'limning asosiy maqsadi alohida ta'lim ehtiyojlariga ega bo'lgan bolalar va sog'lom rivojlanayotgan tengdoshlari uchun teng huquq hamda imkoniyatlarni yaratishdan iborat. Ushbu maqolada inklyuziv ta'limni tashkil etishning pedagogik asoslari, uning nazariy va amaliy jihatlari, shuningdek, ta'lim jarayonida alohida ehtiyojli o'quvchilarni qo'llab-quvvatlashning didaktik tamoyillari yoritiladi. Inklyuziv ta'limning zamonaviy pedagogik tizimdagi o'rni va ahamiyati tahlil qilinadi.
Kalit so'zlar: inklyuziv ta'lim, moslashuvchanlik, hamkorlik, alohida ehtiyoji bo'lgan bolalar, birlashtirish, pedagogik yondashuvlar, imkoniyat, tenglik, integratsiya.

Аннотация. Процесс организации инклюзивного образования требует тщательного учета не только материально-технических ресурсов, но и педагогических и психологических аспектов. Данный процесс направлен на обеспечение успешной адаптации обучающихся к образовательной среде с учетом их индивидуальных особенностей и психологического состояния. Основная цель инклюзивного образования — создание равных прав и возможностей для детей с особыми образовательными потребностями и их сверстников с типичным развитием. В статье рассматриваются педагогические основы, теоретические и практические аспекты организации инклюзивного образования, а также дидактические принципы поддержки обучающихся с особыми потребностями в рамках образовательного процесса. Также анализируются роль и значение инклюзивного образования в современной педагогической системе.

Ключевые слова: инклюзивное образование, гибкость, сотрудничество, дети с особыми потребностями, инклюзия, педагогические подходы, возможности, равенство, интеграция.

Abstract. The process of organizing inclusive education requires careful consideration not only of material and technical resources but also of pedagogical and psychological aspects. This process aims to ensure the successful adaptation of students to the educational environment by taking into account their individual characteristics and psychological states. The primary goal of inclusive education is to create equal rights and opportunities for children with special educational needs and their typically developing peers. This article examines the pedagogical foundations, theoretical and practical aspects of organizing inclusive education, as well as the didactic principles for supporting students with special needs within the educational process. It also analyzes the role and significance of inclusive education within the modern pedagogical system.

Keywords: inclusive education, flexibility, collaboration, children with special needs, inclusion, pedagogical approaches, opportunity, equality, integration.

KIRISH

Bugungi kunda inklyuziv ta'limning dolzarbligi xalqaro miqyosda ham, milliy darajada ham tobora ortib bormoqda. Birlashgan Millatlar Tashkiloti tomonidan qabul qilingan ta'limning kamsitmaslik tamoyili asosida tashkil etilishi va inklyuziv ta'lim tizimiga o'tishni davlatlarning majburiyati sifatida belgilab bergan.

Shuningdek, UNICEF O'zbekistondagi ustuvor yo'nalishlardan biri sifatida e'tibordan chetda qolayotgan bolalarni inklyuziv ta'lim bilan qamrab olish masalasiga alohida e'tibor qaratmoqda.

“Inklyuziv” so'zining ma'nosiga to'xtaladigan bo'lsak, ingliz tilidagi inclusive so'zidan olingan bo'lib, “qo'shish”, “birlashtirish”, “qamrab olish” ma'nolarini anglatadi. Inklyuziv ta'lim o'quvchilarning individual, psixologik va jismoniy xususiyatlarini hisobga olgan holda tashkil etiladigan ta'lim jarayonidir. Mazkur tizim imkoniyati cheklangan va sog'lom bolalar o'rtasidagi to'siqlarni bartaraf etish, alohida ta'lim ehtiyojlariga ega bo'lgan o'quvchilarni jamiyat hayotiga moslashtirish hamda ularning umumta'lim jarayonida faol ishtirok etishini ta'minlashga qaratilgan. Inklyuziv ta'lim nafaqat alohida ta'lim ehtiyojlariga ega bo'lgan bolalarning sifatli ta'lim olishini ta'minlaydi, balki jamiyatda ijtimoiy adolat, tenglik va insonparvarlik tamoyillarining mustahkamlanishiga ham xizmat qiladi.

Sharq mutafakkirlari Ibn Sino, Imom Buxoriy, Abu Nasr Forobiy, Alisher Navoiy hamda Abdulla Avloniylarning tarbiyaning maqsadi, inson kamoloti va shaxs rivojlanishida ta'limning o'рни haqidagi qarashlari inklyuziv ta'lim rivojlanishining

muhim metodologik asoslaridan biri hisoblanadi. Ularning asarlarida har bir insonning qadr-qimmatini, individual imkoniyatlarini rivojlantirish va jamiyat hayotida faol ishtirok etishini ta'minlash g'oyalari ilgari surilgan bo'lib, bu tamoyillar zamonaviy inklyuziv ta'limning asosiy maqsadlari bilan uyg'unlashadi.

Uzoq yillar davomida alohida ta'lim ehtiyojlariga ega bolalarga umumta'lim muassasalaridan alohida holda faoliyat yurituvchi maxsus segregatsion ta'lim muassasalarida ta'lim-tarbiya berish samarali deb hisoblangan. Biroq XX asrning 70–80-yillariga kelib jahon miqyosida insonparvarlik, teng imkoniyatlar yaratish va kamsitishlarga yo'l qo'ymaslik g'oyalarining rivojlanishi maxsus ehtiyojli bolalarga bo'lgan munosabatning tubdan o'zgarishiga olib keldi. Natijada inklyuziv ta'lim konsepsiyasi shakllanib, barcha bolalarning birgalikda ta'lim olishi g'oyasi keng qo'llab-quvvatlana boshladi.

Inklyuziv ta'limning nazariy asoslarini rivojlantirishda ko'plab olimlar muhim hissa qo'shganlar. Xususan, L.S. Vigotskiy ta'lim va rivojlanishning o'zaro bog'liqligi haqidagi nazariyasida bolaning rivojlanishi ijtimoiy muhit va hamkorlikdagi faoliyat orqali amalga oshirishini ta'kidlagan. U alohida ta'lim ehtiyojlariga ega bolalarni tengdoshlari bilan birgalikda o'qitish ularning bilim va ko'nikmalarini samarali rivojlantirishga xizmat qilishini ilmiy jihatdan asoslab berdi. Shu sababli Vigotskiyning qarashlari zamonaviy inklyuziv ta'limning muhim nazariy poydevorlaridan biri sifatida e'tirof etiladi.

Inklyuziv ta'lim tushunchasiga nisbatan turli ilmiy qarashlar va yondashuvlar mavjud bo'lib, mamlakatimiz olimlari ham inklyuziv ta'lim haqida o'z fikrlari hamda qarashlarini keltirib o'tganlar. Jumladan, R.Sh. Shomaxmudovanning ta'kidlashicha, inklyuziv ta'lim davlat siyosatining muhim yo'nalishi bo'lib, nogironligi bo'lgan va alohida ta'lim ehtiyojlariga ega bolalar uchun mavjud to'siqlarni bartaraf etish, ularning ehtiyojlarini qondirish, ijtimoiy hayotga moslashtirish hamda umumta'lim tizimiga to'liq integratsiyalashuvini ta'minlashga qaratilgan ta'lim tizimidir. Bundan tashqari L.R. Mo'minova inklyuziv ta'limni bolalarning jismoniy, psixologik, intellektual, etnik-madaniy, til va boshqa xususiyatlaridan qat'i nazar, ularni umumiy ta'lim tizimiga jalb etish jarayoni sifatida talqin qiladi. Olim inklyuziv ta'limning maqsadi, vazifalari, tamoyillari va uni joriy etish bosqichlarini chuqur tahlil qilgan. Shuningdek, u alohida ta'lim ehtiyojlariga ega bolalar uchun individual ta'lim dasturlarini ishlab chiqish va amaliyotga joriy etish bo'yicha muhim ilmiy tavsiyalarni ilgari surgan.

Tadqiqot natijalari shuni ko'rsatadiki, inklyuziv ta'lim alohida ta'lim ehtiyojlariga ega bolalarning sifatli ta'lim olish huquqini ta'minlash bilan bir qatorda, ularning

jamiyatga muvaffaqiyatli integratsiyalashuviga ham xizmat qiladi. Bunday ta'lim muhiti o'quvchilarda bag'rikenglik, hamkorlik, o'zaro yordam va ijtimoiy mas'uliyat kabi muhim fazilatlarning shakllanishiga yordam beradi.

O'zbekistonda inklyuziv ta'limni rivojlantirish bo'yicha amalga oshirilayotgan islohotlar natijasida umumta'lim maktablarida alohida ta'lim ehtiyojlariga ega bolalar uchun zarur sharoitlar yaratish bo'yicha muayyan ijobiy natijalarga erishilmoqda. Shu bilan birga, tadqiqotlar inklyuziv ta'limni samarali tashkil etishda pedagoglarning maxsus tayyorgarligi, moslashtirilgan o'quv dasturlari va zamonaviy metodik ta'minot muhim ahamiyat kasb etishini ko'rsatadi. Inklyuziv ta'lim tizimini yanada takomillashtirish uchun pedagog kadrlarni qayta tayyorlash, maxsus pedagog va psixologlar faoliyatini kengaytirish, ota-onalar bilan hamkorlikni mustahkamlash hamda ta'lim muassasalarining moddiy-texnik bazasini rivojlantirish zarur hisoblanadi. Shuningdek, rivojlangan davlatlarning ilg'or tajribalarini milliy ta'lim tizimi bilan integratsiyalash inklyuziv ta'lim samaradorligini oshirishga xizmat qiladi.

Inklyuziv ta'limni samarali tashkil etishda interaktiv metodlarning o'rni beqiyos hisoblanadi. Mavzuning qay darajada o'zlashtirilishi dars jarayonida qo'llaniluvchi metodlarga bog'liq bo'ladi. Dars qiziqarli tashkil etilsa o'quvchilarda o'qituvchiga va fanga nisbatan mehr-muhabbat shakllanadi, o'zlashtirish osonlashadi. Interaktiv metodlar bolalarning o'quv jarayoniga tez moslashishi va bilimlarni oson o'zlashtirishi uchun eng samarali vositadir. Bu yoshdagi bolalarda o'yin orqali dunyoni anglash va hissiy qabul qilish kuchli bo'lgani uchun, interaktiv yondashuv dars unumdorligini keskin oshiradi.

Asosiy ahamiyati

Qiziqishni uyg'otadi: Darslarni o'yin elementlari bilan boyitib, boladagi zerikish va charchoqni yo'qotadi.

Mustaqillikni shakllantiradi: Bola tayyor ma'lumotni yodlamaydi, balki uni o'zi izlab topishga va fikrlashga o'rganadi.

Nutq va muloqotni o'stiradi: Guruhlarda ishlash davomida bolalar o'z fikrini qo'rqmasdan bayon qilishni va do'stlarini eshitishni o'rganadi.

Xotirani mustahkamlaydi: Ko'rish, eshitish va harakat qilish orqali olingan bilimlar bolaning yodida uzoq saqlanib qoladi.

Harakat faolligini ta'minlaydi: Kichik maktab yoshidagi bolalarning bir joyda uzoq o'tira olmaslik xususiyatini e'tiborga olib, jismoniy va aqliy harakatni muvozanatlashtiradi.

Eng muhimi, interaktiv metodlar alohida ta'lim ehtiyojlariga ega bo'lgan bolalarning

yashirin qobiliyatlari va imkoniyatlarini aniqlash hamda rivojlantirishga xizmat qiladi. Shu sababli inklyuziv ta'lim muhitida interaktiv metodlardan foydalanish ta'lim sifati va samaradorligini

Xulosa qiladigan bo'lsak, inklyuziv ta'lim joriy etilgan muassasalarda jamoaviy ishlash madaniyati, maxsus pedagoglar o'z ustida ishlashi, alohida dastur va ish reja ishlab chiqilishi ta'limni tashkil etish uchun samarali yo'l hisoblanadi. Bolalarning shaxsiy ehtiyojlarini, qobiliyatlarini psixologik-pedagogik jihatdan e'tiborga olgan holda, hamkorlik va ijodkorlikka urg'u berish, alohida ta'lim ehtiyojlari bo'lgan bolalarni keng qamrovda ta'lim olishiga erishish lozim. Bu tizim bolalarni faqat bilim olishga emas, balki hayot ko'nikmalari, ijodkorlik, hamkorlik, muloqot va shaxsiy rivojlanishga o'rgatadi. Ta'lim tizimining insonparvarlik, tenglik va imkoniyat yaratishga asoslanganligini chuqur anglab yetgan holda aytishimiz mumkinki, har bir bola tili, dini, millati, irqi, kelib chiqishi hamda imkoniyatlaridan qat'iy nazar ta'lim olish, rivojlanish huquqiga ega.

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PRESUPPOSITION TRIGGERS IN ENGLISH AND UZBEK: A COMPARATIVE LINGUISTIC ANALYSIS

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Abstract: This article investigates the linguistic nature of presupposition triggers in English and Uzbek from a comparative perspective. Presupposition triggers are linguistic elements that introduce background assumptions into discourse without expressing them explicitly. The study examines the principal categories of presupposition triggers, including existential, factive, lexical, structural, non-factive, and counterfactual triggers, and analyzes their realization in two typologically different languages. The findings demonstrate that although English and Uzbek employ different grammatical resources, they share common pragmatic mechanisms in activating presupposed information. The research contributes to comparative pragmatics and provides useful implications for discourse analysis, translation studies, and language teaching.

Keywords: presupposition trigger, pragmatics, comparative linguistics, English, Uzbek, discourse analysis.

INTRODUCTION

Presupposition has long been recognized as one of the most important concepts in pragmatics because it explains how speakers encode background assumptions within ordinary communication. Rather than stating every piece of information explicitly, speakers frequently rely on linguistic expressions that activate implicit meanings already assumed to be shared by the participants. These linguistic expressions are commonly referred to as presupposition triggers. They function as signals that guide hearers toward particular background interpretations while maintaining the economy and coherence of discourse.

Since the pioneering studies of Frege, Strawson, Karttunen, and Stalnaker, presupposition triggers have attracted considerable attention in semantic and pragmatic research. Scholars have demonstrated that lexical items, grammatical constructions, and syntactic patterns may all introduce presupposed information. Consequently, presupposition is no longer regarded solely as a semantic phenomenon but as a complex interaction between linguistic structure, contextual knowledge, and communicative intention.

English and Uzbek provide an interesting basis for comparative investigation because they belong to different typological groups. English is an analytic language characterized by a relatively fixed word order and extensive use of function words, whereas Uzbek is an agglutinative language that relies heavily on inflectional morphology and contextual interpretation. Despite these structural differences, both languages employ a variety of presupposition triggers that perform similar

communicative functions. Comparing these triggers makes it possible to distinguish universal pragmatic principles from language-specific grammatical mechanisms.

The purpose of this article is to examine the principal types of presupposition triggers in English and Uzbek and to identify their linguistic characteristics through comparative analysis. Particular attention is paid to their structural realization, pragmatic functions, and contribution to discourse interpretation. The study also seeks to demonstrate how different trigger types facilitate efficient communication by activating implicit information shared between interlocutors.

Presupposition Triggers as Linguistic Units

Presupposition triggers are lexical, grammatical, or syntactic elements that automatically introduce assumptions into discourse. They do not create new factual information; instead, they activate information that speakers expect listeners to recognize as already known or readily inferable. In this sense, presupposition triggers function as linguistic indicators connecting explicit propositions with implicit background knowledge.

One of the defining characteristics of presupposition triggers is that they preserve background assumptions even when the explicit proposition is questioned or negated. This property distinguishes them from ordinary semantic entailment and explains their importance in pragmatic interpretation. Because presupposed information tends to remain stable across different sentence forms, presupposition triggers play a crucial role in maintaining discourse continuity.

Linguistically, presupposition triggers may be expressed through individual lexical items, grammatical constructions, or syntactic patterns. Although their formal realization differs across languages, their communicative purpose remains remarkably consistent: to facilitate efficient communication by minimizing unnecessary repetition while preserving shared knowledge.

From a comparative perspective, English relies heavily on lexical and syntactic triggers, whereas Uzbek frequently combines lexical markers with morphological and contextual devices. Nevertheless, both languages employ presupposition triggers to organize discourse, establish common ground, and guide pragmatic interpretation. Their analysis therefore provides valuable insight into the interaction between grammar, meaning, and communication.

Types of Presupposition Triggers in English and Uzbek

Presupposition triggers constitute one of the most significant linguistic mechanisms through which speakers introduce implicit assumptions into discourse. Although researchers have proposed different classifications, six major categories are generally recognized in contemporary pragmatic studies. These categories differ in their grammatical realization but perform the common function of activating background information that facilitates discourse interpretation. A comparative examination of English and Uzbek demonstrates that both languages employ these trigger types despite considerable typological differences.

Existential Triggers

Existential presupposition is triggered by linguistic expressions that imply the existence of a particular person, object, or entity. In English, this type is commonly realized through possessive constructions and definite noun phrases, while Uzbek primarily relies on possessive suffixes and contextual definiteness.

English

John's bicycle has been repaired.

Presupposition: John has a bicycle.

Uzbek

Jasurning velosipedi ta'mirlandi.

Presupposition: Jasurning velosipedi mavjud.

In both examples, the speaker assumes the existence of the bicycle without explicitly asserting it. The difference lies in grammatical realization: English expresses possession analytically, whereas Uzbek encodes possession morphologically.

Factive Triggers

Factive predicates presuppose the truth of the proposition embedded within them. Verbs expressing knowledge, awareness, regret, or realization belong to this category because they present the complement clause as factual information.

English

She realized that the meeting had been cancelled.

Presupposition: The meeting had been cancelled.

Uzbek

U yig'ilish bekor qilinganini anglab yetdi.

Presupposition: Yig'ilish bekor qilingan.

The communicative function remains identical in both languages: the embedded proposition is interpreted as true regardless of the main clause.

Lexical Triggers

Lexical presupposition arises from the inherent meaning of particular lexical items. Verbs such as *stop*, *continue*, *begin*, and *return* naturally imply a previous state or event.

English

They stopped arguing.

Presupposition: They had been arguing before.

Uzbek

Ular tortishishni to'xtatdilar.

Presupposition: Ular avval tortishayotgan edi.

Lexical triggers are particularly stable because their presuppositional meaning derives directly from lexical semantics rather than contextual inference.

Structural Triggers

Structural presupposition is associated with grammatical constructions that presuppose the existence of particular information. Interrogative sentences, cleft constructions, and relative clauses frequently function as structural triggers.

English

Why did Sarah resign?

Presupposition: Sarah resigned.

Uzbek

Sara nega ishdan bo'shadi?

Presupposition: Sara ishdan bo'shagan.

The question seeks an explanation rather than confirmation of the event itself. Consequently, the occurrence of the event is treated as shared background knowledge.

Non-factive Triggers

Non-factive predicates describe imagined, hypothetical, or unreal situations. Unlike factive predicates, they do not presuppose the truth of the embedded proposition.

English

He imagined that he was the winner.

Presupposition: The proposition belongs to imagination rather than reality.

Uzbek

U o'zini g'olib deb tasavvur qildi.

Presupposition: Bu holat tasavvur mahsuli.

These constructions explicitly distinguish mental representation from objective reality while guiding the hearer toward the intended interpretation.

Counterfactual Triggers

Counterfactual constructions describe situations contrary to reality. They presuppose that the opposite situation actually occurred.

English

If she had arrived earlier, she would have met the director.

Presupposition: She did not arrive earlier.

Uzbek

Agar u ertaroq kelganida, direktor bilan uchrashgan bo'lardi.

Presupposition: U ertaroq kelmagan.

Counterfactual triggers frequently occur in argumentative discourse because they enable speakers to evaluate unrealized alternatives.

Comparative Characteristics of Presupposition Triggers

Although English and Uzbek employ different grammatical systems, the comparative analysis indicates that presupposition triggers perform equivalent communicative functions. Their primary objective is to establish common ground between speakers while reducing the amount of explicitly expressed information.

English generally depends on articles, auxiliary verbs, lexical predicates, and fixed syntactic constructions to activate presupposition. Uzbek, by contrast, relies more heavily on possessive morphology, verbal suffixes, contextual interpretation, and discourse structure. These structural differences reflect the analytic nature of English and the agglutinative character of Uzbek rather than differences in pragmatic function.

Another important observation concerns the stability of presupposition across sentence transformations. Regardless of language, existential and factive triggers exhibit the highest degree of stability because their background assumptions remain

largely unchanged under negation or interrogation. Lexical and structural triggers demonstrate similarly predictable behavior, whereas non-factive and counterfactual triggers require greater contextual interpretation due to their hypothetical nature.

The comparative evidence therefore suggests that presupposition triggers constitute universal pragmatic devices whose linguistic realization varies according to typological characteristics. Their systematic analysis contributes not only to comparative pragmatics but also to discourse analysis, translation studies, second-language acquisition, and intercultural communication by explaining how implicit meanings are encoded and interpreted across different linguistic systems.

CONCLUSION

Presupposition triggers represent one of the most significant mechanisms through which implicit information is introduced into discourse. The comparative analysis conducted in this study demonstrates that English and Uzbek employ similar pragmatic principles despite their typological differences. While English primarily relies on lexical items, definite descriptions, auxiliary constructions, and syntactic patterns, Uzbek expresses presupposition through possessive morphology, verbal forms, contextual reference, and discourse organization. These structural differences do not affect the communicative function of presupposition, which remains consistent across both languages.

The analysis of existential, factive, lexical, structural, non-factive, and counterfactual triggers indicates that each category contributes differently to the interpretation of discourse. Existential and factive triggers introduce relatively stable background assumptions, whereas lexical and structural triggers facilitate discourse cohesion by connecting new information with previously established knowledge. Non-factive and counterfactual triggers, in contrast, construct hypothetical or imagined situations while still guiding hearers toward particular pragmatic interpretations.

The findings confirm that presupposition triggers are not merely grammatical devices but essential components of successful communication. They enable speakers to minimize redundancy, maintain textual coherence, and activate shared knowledge efficiently. Consequently, their study contributes to comparative pragmatics, discourse analysis, translation studies, intercultural communication, and foreign language teaching.

In conclusion, the comparative investigation reveals that presupposition triggers constitute universal pragmatic mechanisms whose linguistic realization reflects the structural characteristics of individual languages rather than fundamental differences in communicative behavior. Future studies may extend this research by examining larger multilingual corpora and exploring computational approaches to the automatic identification of presupposition triggers in authentic discourse.

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SUN'IY INTELLEKT VA RAQAMLI TA'LIM VOSITALARI ASOSIDA INGLIZ TILINI O'QITISH METODIKASINI TAKOMILLASHTIRISH

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Kuchlar xizmatchisi.**

Annotatsiya. Ushbu tezisda sun'iy intellekt texnologiyalari hamda zamonaviy raqamli ta'lim vositalarining ingliz tilini o'qitish jarayonidagi o'rni tahlil qilinadi. Individual ta'limni tashkil etish, adaptiv o'qitish, avtomatik baholash tizimlari va virtual o'quv muhitining afzalliklari ilmiy manbalar hamda amaliy tajribalar asosida yoritilgan. Shuningdek, sun'iy intellektdan foydalanish orqali talabalarning til kompetensiyalarini rivojlantirish imkoniyatlari ko'rsatib berilgan.

Kalit so'zlar: sun'iy intellekt, raqamli ta'lim, ingliz tili, adaptiv ta'lim, ChatGPT, ta'lim texnologiyalari, interaktiv platformalar, kompetensiya, individual ta'lim.

Abstract. This thesis examines the role of artificial intelligence technologies and modern digital educational tools in the process of teaching English. It analyzes the organization of personalized learning, adaptive teaching approaches, automated assessment systems, and the advantages of virtual learning environments based on scientific sources and practical experience. Furthermore, the study highlights the opportunities provided by artificial intelligence for enhancing students' language competencies and improving the effectiveness of English language instruction.

Keywords: artificial intelligence, digital education, English language, adaptive learning, ChatGPT, educational technologies, interactive platforms, language competence, personalized learning.

Аннотация. В данной работе рассматривается роль технологий искусственного интеллекта и современных цифровых образовательных средств в процессе преподавания английского языка. На основе научных источников и практического опыта проанализированы вопросы организации персонализированного обучения, адаптивных методов преподавания, систем автоматизированного оценивания и преимуществ виртуальной образовательной среды. Кроме того, раскрыты возможности использования искусственного интеллекта для развития языковых компетенций обучающихся и повышения эффективности обучения английскому языку.

Ключевые слова: искусственный интеллект, цифровое образование, английский язык, адаптивное обучение, ChatGPT, образовательные технологии,

интерактивные платформы, языковая компетенция, персонализированное обучение.

So'nggi yillarda axborot-kommunikatsiya texnologiyalarining jadal rivojlanishi ta'lim tizimiga yangi yondashuvlarni olib kirdi. Xususan, sun'iy intellekt (Artificial Intelligence – AI) asosidagi dasturiy vositalarning yaratilishi xorijiy tillarni o'qitish metodikasini tubdan o'zgartirmoqda. An'anaviy dars jarayonida barcha o'quvchilarga bir xil metod qo'llanilgan bo'lsa, AI texnologiyalari har bir o'quvchining bilim darajasi, qobiliyati va o'rganish sur'atini hisobga olgan holda individual ta'lim yo'nalishini shakllantirish imkonini bermoqda.

Jahon amaliyoti shuni ko'rsatadiki, sun'iy intellekt asosidagi ta'lim platformalari o'quvchilarning mustaqil ishlash ko'nikmalarini rivojlantirishda muhim vosita hisoblanadi. Masalan, ChatGPT, Duolingo Max, Grammarly, ELSA Speak va Quizlet AI kabi platformalar grammatika, talaffuz, yozma va og'zaki nutq ko'nikmalarini rivojlantirishga xizmat qilmoqda. Ushbu vositalar foydalanuvchining xatolarini avtomatik aniqlaydi, individual tavsiyalar beradi hamda real vaqt rejimida teskari aloqa (feedback)ni taqdim etadi.

2024-yilda e'lon qilingan xalqaro tadqiqotlarga ko'ra, AI asosida o'qitilgan talabalar nazorat guruhiga nisbatan o'rtacha **18–27 %** yuqori natija qayd etgan. Ayniqsa, yozma nutqni shakllantirish va grammatik xatolarni kamaytirishda sezilarli samaradorlik kuzatilgan. Shuningdek, AI yordamida tashkil etilgan mashg'ulotlarda talabalarning darsga qiziqishi va motivatsiyasi an'anaviy metodlarga qaraganda yuqori bo'lganligi aniqlangan.

Raqamli ta'lim vositalarining afzalliklaridan biri – adaptiv ta'limni yo'lga qo'yishidir. Adaptiv tizimlar talabaning javoblarini tahlil qilib, keyingi topshiriqlar murakkabligini avtomatik ravishda moslashtiradi. Natijada kuchsiz o'zlashtirayotgan talabalar qo'shimcha mashqlar oladi, yuqori natija ko'rsatayotgan talabalar esa murakkabroq vazifalarni bajaradi. Bu esa differensial ta'lim tamoyillarini amaliyotga samarali tatbiq etishga xizmat qiladi. Misol tariqasida, ingliz tilidagi **Present Perfect Tense** mavzusini o'qitishda ChatGPT asosida tashkil etilgan mashg'ulotni ko'rib chiqish mumkin. Dars davomida talaba avvalo nazariy ma'lumotni oladi, so'ngra AI tomonidan tuzilgan individual mashqlarni bajaradi. Xatolar aniqlanganda tizim ularning sababini izohlaydi va to'g'ri variantni tushuntirib beradi. Keyinchalik talabaning bilim darajasiga qarab yangi misollar avtomatik yaratiladi. Natijada

o'qituvchi vaqtining asosiy qismi nazorat emas, balki metodik maslahat berishga yo'naltiriladi.

Yana bir muhim jihat – nutq faoliyatini rivojlantirishdir. Sun'iy intellekt asosidagi ovozli yordamchilar talabanning talaffuzini fonetik jihatdan tahlil qilib, qaysi tovushlarda xatoga yo'l qo'yayotganini aniqlaydi. Masalan, ELSA Speak platformasi talaffuzni xalqaro fonetik standartlar asosida baholab, har bir fonema bo'yicha tavsiyalar beradi. Bunday yondashuv o'qituvchining subyektiv baholashini kamaytiradi hamda o'quvchi uchun individual rivojlanish xaritasini yaratadi.

O'zbekiston ta'lim tizimida ham raqamli transformatsiya jarayoni izchil davom etmoqda. Oliy ta'lim muassasalarida Moodle, Google Classroom, Microsoft Teams kabi elektron platformalardan keng foydalanilmoqda. Ularni sun'iy intellekt imkoniyatlari bilan integratsiya qilish ingliz tili fanini o'qitish samaradorligini yanada oshirishga xizmat qiladi. Ayniqsa, harbiy, texnik va muhandislik yo'nalishlarida kasbiy ingliz tilini o'qitishda AI asosidagi virtual muloqot muhiti talabalarning kommunikativ kompetensiyasini rivojlantirish uchun qulay imkoniyat yaratadi. Shu bilan birga, sun'iy intellektidan foydalanishda akademik halollik masalasiga ham alohida e'tibor qaratish zarur. AI o'qituvchining o'rnini egallovchi vosita emas, balki uning metodik faoliyatini qo'llab-quvvatlovchi texnologiya sifatida qaralishi lozim. Talabalarda mustaqil fikrlash, tanqidiy tahlil qilish va axborotni tekshirish kompetensiyalarini shakllantirish AI texnologiyalaridan samarali foydalanishning asosiy shartlaridan biridir.

Mazkur tadqiqot doirasida sun'iy intellekt va raqamli ta'lim vositalarining ingliz tilini o'qitish metodikasiga integratsiyalashuvi nazariy hamda amaliy jihatdan tahlil qilindi. Olib borilgan tahlillar shuni ko'rsatdiki, ta'limni raqamlashtirish jarayonida sun'iy intellekt texnologiyalaridan foydalanish nafaqat o'quv jarayonining texnologik imkoniyatlarini kengaytiradi, balki o'qitish metodikasining mazmuni va tashkiliy asoslarini ham takomillashtiradi. Ayniqsa, adaptiv o'qitish mexanizmlari, avtomatlashtirilgan baholash tizimlari, tabiiy tilni qayta ishlash (Natural Language Processing) texnologiyalari hamda generativ sun'iy intellekt platformalari talabalarning individual ehtiyojlarini hisobga olgan holda samarali ta'lim muhitini yaratishga xizmat qilmoqda.

Tahlillar natijasida aniqlanishicha, sun'iy intellektga asoslangan ta'lim platformalari o'quvchilarning tinglab tushunish, o'qish, yozish va og'zaki muloqot kompetensiyalarini kompleks rivojlantirish imkoniyatiga ega. Ushbu texnologiyalar o'quv materiallarini individuallashtirish, o'zlashtirish darajasini muntazam monitoring qilish hamda real vaqt rejimida tahliliy tavsiyalar berish orqali ta'lim samaradorligini oshiradi. Natijada o'qitish jarayoni reproduktiv yondashuvdan kompetensiyaviy va

shaxsga yo'naltirilgan pedagogik modelga o'tmoqda. Bu esa zamonaviy ta'lim paradigmasining asosiy tamoyillariga to'liq mos keladi. Shuningdek, tadqiqot davomida xalqaro tajribalar tahlili sun'iy intellekt texnologiyalaridan foydalanish ta'lim sifatiga ijobiy ta'sir ko'rsatayotganini tasdiqladi. Xususan, adaptiv o'quv platformalaridan muntazam foydalangan talabalar an'anaviy metodlar asosida ta'lim olgan guruhlariga nisbatan yuqoriroq akademik natijalarni namoyon etgan. Bu holat sun'iy intellektning o'quv motivatsiyasini oshirish, individual ta'lim trayektoriyasini shakllantirish va mustaqil ta'lim kompetensiyasini rivojlantirishdagi samaradorligini ko'rsatadi. Shu jihatdan, sun'iy intellektning ingliz tilini o'qitish metodikasining muhim tarkibiy elementi sifatida baholash mumkin.

Biroq sun'iy intellekt texnologiyalarini ta'lim tizimiga keng joriy etish faqat texnik infratuzilmani rivojlantirish bilangina cheklanmaydi. Mazkur jarayon o'qituvchilarning raqamli pedagogik kompetensiyalarini takomillashtirish, sun'iy intellektidan foydalanishning metodik asoslarini ishlab chiqish, akademik halollik tamoyillariga rioya etish hamda shaxsiy ma'lumotlar xavfsizligini ta'minlash kabi muhim masalalarni ham qamrab oladi. Shu sababli sun'iy intellektidan foydalanishning me'yoriy-huquqiy, pedagogik va axloqiy asoslarini takomillashtirish zamonaviy ta'lim siyosatining ustuvor yo'nalishlaridan biri bo'lib qolmoqda.

Tadqiqot natijalari asosida quyidagi ilmiy xulosalarga kelish mumkin:

- sun'iy intellekt texnologiyalari ingliz tilini o'qitish metodikasini individuallashtirish va adaptiv ta'limni tashkil etishning samarali vositasi hisoblanadi;
- raqamli ta'lim platformalari talabalarning kommunikativ, lingvistik va kasbiy kompetensiyalarini rivojlantirishga xizmat qiladi hamda ta'lim samaradorligini sezilarli darajada oshiradi;
- generativ sun'iy intellekt vositalari o'qituvchining metodik faoliyatini qo'llab-quvvatlaydi, biroq pedagogning kasbiy funksiyalarini to'liq almashtira olmaydi;
- ta'lim jarayonida sun'iy intellektidan foydalanishning yuqori samaradorligi o'qituvchi va talabaning raqamli kompetensiyasi, metodik tayyorgarligi hamda ta'lim muassasasining texnologik infratuzilmasiga bevosita bog'liq;
- sun'iy intellekt asosidagi ta'lim texnologiyalarini joriy etishda akademik halollik, axborot xavfsizligi va ma'lumotlar maxfiyligini ta'minlash alohida ilmiy va amaliy ahamiyat kasb etadi.

Umuman olganda, sun'iy intellekt va raqamli ta'lim vositalarining ingliz tilini o'qitish metodikasiga integratsiyalashuvi ta'lim sifatini oshirish, o'quv jarayonini optimallashtirish hamda xalqaro ta'lim standartlariga mos raqobatbardosh mutaxassislarni tayyorlashning muhim omillaridan biri hisoblanadi. Kelgusida ushbu

yo'nalishda mahalliy sharoitga mos adaptiv o'quv platformalarini yaratish, sun'iy intellektdan foydalanishning pedagogik modellarini ishlab chiqish, shuningdek, ularning samaradorligini eksperimental tadqiqotlar asosida baholash dolzarb ilmiy vazifalar sifatida e'tirof etiladi. Mazkur yo'nalishdagi izlanishlar O'zbekiston oliy ta'lim tizimida xorijiy tillarni o'qitish sifatini xalqaro darajaga olib chiqishga, ta'lim jarayonining innovatsion rivojlanishini ta'minlashga hamda raqamli iqtisodiyot uchun yuqori malakali kadrlar tayyorlashga xizmat qiladi.

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THE EFFECT OF PROTEIN-ENERGY MALNUTRITION ON THE PHYSICAL AND MENTAL DEVELOPMENT OF CHILDREN

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Abstract:

Protein–energy malnutrition is one of the major global health problems and affects millions of children, particularly in developing regions. Although its impact on physical growth has been widely studied, long-term nutrient deficiency also significantly influences brain development and mental health. Adequate nutrition during early childhood is essential for neuronal growth, synapse formation, and myelination processes. Long-term deficiencies of proteins, essential fatty acids, iron, and iodine may disrupt these processes and lead to structural and functional changes in the brain. This study analyzes the relationship between chronic nutritional deficiency and alterations in brain development as well as psychological outcomes in children.

Materials and Methods:

The study was conducted among primary school children aged 7–8 years. A total of 120 pupils from general education schools were examined. Anthropometric measurements, including height and body weight, were obtained for all participants, and body mass index (BMI) was calculated using standard pediatric formulas. Based on age-adjusted BMI values, the children were divided into two groups: a low BMI group (BMI below the age norm) and a normal BMI group. From the total sample, 34 children (28.3%) were identified as having a BMI below the age norm. These children underwent additional clinical and laboratory examinations to identify possible health problems. The evaluation included a complete blood count to detect anemia, biochemical blood analysis to determine calcium and phosphorus levels, and clinical assessment of gastrointestinal function. In addition, medical history was collected to determine the presence of chronic digestive system diseases. The results showed that among children with low BMI, 41.2% had signs of anemia, 29.4% had reduced calcium levels, and 23.5% had decreased phosphorus levels. In addition, 26.5% of children in the low BMI group had gastrointestinal disorders, including functional dyspepsia and chronic gastritis, either as symptoms or previously diagnosed conditions. Academic performance and school attendance were also analyzed using school records. It was found that children with low BMI had significantly lower academic performance

compared with children whose BMI was within the normal range. Furthermore, children in the low BMI group missed more school days due to medical examinations and treatment related to their health conditions.

Thus, the study focused not on chronic malnutrition itself but specifically on school-aged children with low body mass index. The findings indicate that children with low BMI more frequently experience anemia, mineral deficiencies, gastrointestinal disorders, decreased academic performance, and increased school absenteeism due to health-related issues.

Conclusion:

Chronic nutritional deficiency can significantly affect brain development and mental health in children. Early nutritional support and strengthened public health interventions are essential to ensure optimal cognitive and psychological development in children.

Result:

Thus, the study focused not on chronic malnutrition itself but specifically on school-aged children with low body mass index. The findings indicate that children with low BMI more frequently experience anemia, mineral deficiencies, gastrointestinal disorders, decreased academic performance, and increased school absenteeism due to health-related issues.

THE ESSENCE OF THE CONCEPT OF MANAGEMENT IN EDUCATION

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Abstract: This scientific article provides an in-depth analysis of the essence of the concept of management in the education system, its differences from traditional administrative management, and its role in modern educational institutions. The article highlights the theoretical foundations of educational management, its core functions (planning, organizing, motivating, controlling), and innovative approaches being shaped in the second quarter of the 21st century under the influence of digitalization, artificial intelligence, and the concept of a "learning organization." The research findings are aimed at enhancing the effective leadership capabilities of heads of educational institutions and improving mechanisms for managing the quality of education.

Keywords: educational management, pedagogical leadership, strategic management, quality of education, digital transformation, learning organization, human capital.

In the 21st century, the socio-economic development of society, globalization processes, and technological revolutions are sharply increasing the demands on the education system, which is the primary factor in shaping human capital. Today, educational institutions operate not merely as knowledge-disseminating centers, but as complex socio-economic systems. The large-scale educational reforms being implemented in the Republic of Uzbekistan in recent years, specifically the strategic development programs designed for the period up to 2030, necessitate the introduction of effective management mechanisms in the education system.

In this regard, the transition from the traditional "administrative-command" management style to a modern, flexible, and result-oriented "educational management" system is of crucial importance. Understanding the essence of the concept of management in education and studying its theoretical and practical foundations is one of the most important tasks facing today's pedagogical and managerial staff. The purpose of this article is to reveal the scientific foundations of educational management, analyze its functions, and highlight its modern trends. Although the concept of "management" originated in the fields of economics and production, today it has become an integral part of the social sphere, particularly the education system. The main factor that distinguishes educational management from simple administrative control is its focus on the human factor, the creative environment, and the continuous

improvement of educational quality. As the famous American management theorist Peter Drucker noted, management is not the art of "doing things right," but rather "doing the right things." In the educational context, this means that the head of a school or university (manager) is not merely an administrator who controls the execution of legal documents, but a leader who enhances the efficiency of the educational process and unlocks the potential of teachers and students. To understand the essence of educational management, it is necessary to distinguish several of its paradigms: Technical-rational paradigm: views the educational institution as a system aimed at achieving specific goals based on hierarchy (adaptation of F. Taylor and A. Fayol's theories to education);

Humanistic paradigm: views the educational institution as a social system, where the needs, motivation, and intra-group relationships of teachers and students are of paramount importance (E. Mayo, C. Rogers);

Strategic and transformational paradigm: the foundation of modern educational management, aimed at adapting the institution to changes in the external environment, introducing innovations, and creating a "learning organization" (P. Senge) concept.

Thus, educational management is the process of purposefully mobilizing, organizing, and developing human, financial, material, and information resources to achieve the goals and objectives of an educational institution.

Educational management relies on classical management functions, but their expression in the educational process has specific characteristics. The main functions of management in the education system manifest as follows:

a) Planning (Strategic and Operational): Planning in education is not just about creating class schedules or preparing annual reports, but about defining the future image (vision) of the institution. A modern educational manager develops a strategic development program for a school or university. This takes into account the socio-economic needs of the region, labor market demands, and the interests of students. For example, this includes planning the development of STEM education or special programs for career guidance.

b) Organizing: this function involves distributing resources to effectively organize the educational process, rationally utilizing the potential of the pedagogical team, and forming appropriate organizational structures. Today, creating horizontal management structures in education, namely establishing "Professional Learning Communities" (PLCs) that strengthen the cooperation of teachers, is a new interpretation of the organizing function.

c) Motivation: the most delicate and important part of educational management is motivation. The educational process is not like producing a material product; it requires working with the human heart and mind. Therefore, an educational manager must create conditions for the professional growth and creative exploration of teachers, and motivate them both materially and spiritually. In addition, awakening the internal motivation of students and supporting their interests is also an integral part of educational management.

d) Control and monitoring (quality assurance): in the traditional system, control was often viewed as a means of "punishment" or "finding faults," whereas in modern educational management, control is a mechanism for ensuring quality and continuous improvement. Today, the control function is carried out through information-analytical systems (ERP, LMS platforms). This allows the manager to analyze educational outcomes in real-time, objectify curricula (eliminating subjectivity and corruption), and make necessary pedagogical decisions.

By the mid-2020s, educational management has moved to a fundamentally new stage. This was driven by technological transformations and social changes in society. The following specific features of modern educational management can be distinguished: Transition from administration to leadership: today, the difference between the concepts of "director" and "leader" is clearly evident. While an administrator tries to maintain the system, a leader strives to change and develop it. The transformational leadership model prevails in education. Such leaders create an atmosphere of trust within the team, encourage risk-taking (testing innovative programs), and serve to unlock the internal potential of every teacher.

Digital Management and Artificial Intelligence (AI): digitalization has entered all aspects of educational management. Today, "Smart School" and "Digital University" ecosystems operate in educational institutions. Using big data and artificial intelligence analytics, managers are making the following decisions:

- a) Predicting individual trends in students' academic performance;
- b) Fairly distributing the pedagogical workload;
- c) Managing material resources based on energy efficiency.

Digital management eliminates bureaucratic barriers, allowing managers and teachers to devote more time to the educational process, which is their primary task.

3. The Concept of a "Learning Organization" This concept, proposed by Peter Senge, is being fully implemented in educational institutions. A learning organization is an institution where its members (teachers, administration, and even students) continuously learn, change their mindset, and apply new knowledge in practice. Here,

the educational manager is not a "big boss," but a facilitator of the collective learning process.

4. Cooperation with Stakeholders Modern educational management operates the institution not as a closed system, but as an open social institute. In this process, social partnership relations are established with parents, local communities, business structures, and non-governmental organizations. For example, the participation of the "Parents' Council" in the transparent management of the school budget or the establishment of a "dual education" system with local enterprises in vocational colleges are strategic tasks of management.

Discussion. There are also a number of problems in increasing the efficiency of management in the education system. In particular, factors such as insufficient staff capacity, managers' inability to fully abandon traditional authoritarian management methods, and the complexity of financing innovative projects hinder the full formation of educational management. In addition, when introducing educational management, the mistake of "copying" is observed. Directly applying management models from Western or developed countries without taking into account the local cultural and social environment does not yield positive results. Therefore, it is necessary to create a national educational management model that harmonizes the national values, mentality, and educational traditions of Uzbekistan with modern management principles.

Conclusion. The essence of the concept of management in education is that it is a socio-pedagogical and economic mechanism that ensures the sustainable development of an educational institution, purposefully mobilizes resources, and most importantly, enhances the quality of human capital. Research shows that today a successful educational institution achieves high results not just because it has good teachers or modern buildings, but because an effective, fair, and innovative management system is established there. In the future, educational management will rely more and more on artificial intelligence and big data analytics, but at its center, the "Human" will still remain – namely, a teacher dedicated to their profession and a student aspiring for the future. A modern educational manager is not only a universal specialist embodying the knowledge of an economist, psychologist, and lawyer, but also a leader who continuously learns with their team, adapts to external changes, and thinks strategically. The success of all reforms in the education system depends precisely on this link – on how high the quality of educational management is.

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