

YANGI O'ZBEKISTON: 2026

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2018-2026



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**ЯНГИ ЎЗБЕКИСТОН:
ИЛМИЙ
ТАДҚИҚОТЛАР 1-
ҚИСМ**

**НОВЫЙ УЗБЕКИСТАН:
НАУЧНЫЕ ИССЛЕДОВАНИЯ
ЧАСТЬ-1**

**NEW UZBEKISTAN:
SCIENTIFIC
RESEARCH PART-1**

ТОШКЕНТ-2026



УЎК 323(575.1)(063)

КБК 66.3(5Ў)я43

И-18

DOI 10.5281/zenodo.11390854

«ЯНГИ ЎЗБЕКИСТОН: Илмий тадқиқотлар» [Тошкент; 2026]

«Янги Ўзбекистон: Илмий тадқиқотлар» мавзусидаги республика 84-қўп тармоқли илмий маърифий онлайн конференция материаллари тўплами, 31 январь 2026 йил. - Тошкент: «Tadqiqot», 2026. – 92 б.

Ушбу Республика-илмий онлайн даврий анжуманлар «Харакатлар стратегияси — Тараққиёт стратегияси сари» тамойилига асосан ишлаб чиқилган етти устувор йўналишдан иборат 2022 – 2026 йилларга мўлжалланган Янги Ўзбекистоннинг тараққиёт стратегияси мувофиқ: — илмий изланиш ютуқларини амалий-тажриби жиҳат йўли билан фан соҳаларини ривожлантиришга бағишланган.

Ушбу Республика илмий анжуманлари таълим соҳасида меҳнат қилиб келаётган профессор - ўқитувчи ва талабалар-иштирокчилар томонидан тайёрланган илмий тезислар киритилиб бориб, унда таълим тизимида илғор замонавий ёндашувлар, натижалар, муаммолар, ечимлар, статистик вазиятлар ва илмий-тараққиётнинг истиқболли режалари таҳлил қилинади конференцияси.

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Page maker/Верстка/Сахифаловчи: Хуршид Мирзахмедов

Контакт редакции журнала.

www.tadiqiqot.uz

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ITALIYA OAV TIZIMIDA SUN'IY INTELLEKTNING RIVOJI

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ANNOTATSIYA: Ushbu maqolada Italiya jurnalistikasida sun'iy intellekt texnologiyalarining joriy etilishi, jurnalistlarning bu jarayonga bo'lgan munosabati va professional standartlarga ta'siri tahlil qilinadi. 2024-2025 yillarda Italiya Milliy matbuot kengashi va LUMSA universiteti tomonidan o'tkazilgan sotsiologik tadqiqot natijalariga asosan jurnalistlarning sun'iy intellektdan foydalanishdagi ishtiroki, normativ-huquqiy tartibga solish zarurati hamda inson jurnalistikasining asosiy qadriyatlarini saqlab qolish masalalari yoritilgan. Shuningdek, IL Foglio gazetasi tomonidan to'liq sun'iy intellekt yordamida chiqarilgan maxsus raqamli tajriba misolida mualliflik, ishonchlilik va jurnalistik mas'uliyat muammolari muhokama qilinadi. Tadqiqot natijalari sun'iy intellekt jurnalistikani to'liq almashtiruvchi emas, balki uning samaradorligini oshiruvchi yordamchi vosita ekanini ko'rsatdi.

KALIT SO'ZLAR: Sun'iy intellekt, Italiya jurnalistikasi, raqamli jurnalistika, avtomatlashtirilgan jurnalistika, professional standartlar, media etika, IL Foglio

Sun'iy intellekt texnologiyalarining jadal rivojlanishi jurnalistika sohasida ham sezilarli o'zgarishlarni yuzaga keltirmoqda. Italiyada o'tkazilgan so'nggi ilmiy-amaliy tadqiqotlar shuni ko'rsatmoqdaki, jurnalistlarning katta qismi bu jarayonni oddiy texnologik yangilik sifatida emas, balki kasbning kelajagini belgilaydigan strategik omil sifatida baholamoqda. Milliy OAV kengashi va LUMSA universiteti bilan hamkorlikda 2024 yil oxiri va 2025 yil boshida o'tkazilgan keng qamrovli so'rovnomalar natijalari jurnalistlarning sun'iy intellektga bo'lgan qarashlarini chuqurroq o'rganishga imkon berdi. Unda 972 nafar jurnalist va publitsist ishtirok etib, ularning aksariyati 43-58 yosh oralig'ida va yirik tahririyat markazlariga ega hududlardan - Rim, Milan, Latsio, Lombardiya va Toskana kabi mintaqalardan bo'lgan.¹ Bu, o'z navbatida, tadqiqot natijalarining davlat axborot makonidagi yetakchi professional qatlamni aks ettirishini ta'minladi.

Olingan ma'lumotlar shuni ko'rsatmoqdaki, jurnalistlarning sakkizdan o'ntasi sun'iy intellekt vositalaridan foydalanishda qat'iy tartib va normativ-huquqiy normalarni joriy etish zarurligini ta'kidlamoqda. Bu, avvalo, sun'iy intellekt qo'llanilgan materiallarda shaffoflikni ta'minlash, ya'ni uning qo'llanilganini aniq ko'rsatish bilan bog'liq. Shu bilan birga, respondentlarning mutlaq ko'pchiligi jurnalistika o'z mazmun-mohiyatini yo'qotmasligi kerak, deb hisoblaydi. Ularning

¹ Rainews.it 03.03.2025 <https://www.rainews.it/articoli/2025/03/intelligenza-artificiale-otto-giornalisti-su-dieci-chiedono-di-regolamentarla-8c1aa80b-a397-419f-b0b7-371bc3917fd1.html>



82 foizi "haqiqiy jurnalist" har qanday sharoitda dala tadqiqotlari, bevosita kuzatuvlar va ma'lumotlarni tanqidiy tekshirishga tayangan holda ishlashi kerakligini ta'kidladi. Demak, sun'iy intellekt jurnalistikani to'liq almashtiruvchi emas, balki yordamchi mexanizm sifatida qaralishi kerakligi haqida aniq professional konsensus shakllanmoqda.

Tadqiqot jurnalistlarning sun'iy intellekt texnologiyalaridan xabardorlik darajasi yetarli darajada yuqori emasligini ham ko'rsatdi. Asosan avtomatik tarjima vositalari keng qo'llaniladi, chunki ular bevosita global axborot almashinuviga xizmat qiladi. Rasm yaratish dasturlari ham biroz qo'llanilmoqda, lekin ijtimoiy tarmoqlarni boshqarish, avtomatik fakt-cheking, video va audio kontent ishlab chiqish kabi sohalarda sun'iy intellekt deyarli joriy etilmayapti. Shu bilan birga, jurnalistlar ushbu vositalarning samaradorlikni oshirishdagi imkoniyatlarini inkor etmaydi: 63,3 foizi kontent yaratish jarayonidagi vaqtni qisqartirish, 60,8 foizi esa ma'lumot yig'ish jarayonida sun'iy intellekt foydali bo'lishini ta'kidlagan. Lekin faqat har beshinchi jurnalistgina manbalarni tekshirish sifatini yaxshilash mumkin, - deb hisoblaydi.

Bunday qarama-qarshi munosabatlar jurnalistlarning xavotirlari bilan ham bog'liq. Tadqiqot natijalariga ko'ra, 50,2 foiz respondent sun'iy intellekt vositalaridan foydalanish natijasida kontent sifatining pasayishidan qo'rqadi. Shuningdek, tahririyat ichida avlodlar o'rtasidagi tafovutning ortishi va soxta yangiliklarning ko'payishi ham katta xavotir uyg'otmoqda. Bu esa sun'iy intellektning joriy etilishi jurnalistikaning rivojlanishi bilan bir qatorda, uning professional standartlari va ijtimoiy mas'uliyatini ham xavf ostiga qo'yishi mumkinligini anglatadi.

Biroq, bunday xavotirlarga qaramasdan, jurnalistlarning o'z kasbiy kompetensiyalarini rivojlantirishga qiziqishi yuqori ekani seziladi. Respondentlarning 70 foizi sun'iy intellekt bo'yicha maxsus o'quv kurslarida qatnashishga to'liq yoki juda katta qiziqish bildirgan. Yana 20 foizi esa o'rta darajada qiziqishini qayd etgan. Ko'pchilik jurnalistlar avvalo kirish darajasidagi umumiy kurslarga ehtiyoj sezayotganini ta'kidlagan bo'lsa, qolganlari sun'iy intellekt yordamida ma'lumot yig'ish va tahlil qilish bo'yicha amaliy mashg'ulotlarga ehtiyoj sezmoqda. Bundan tashqari, avtomatlashtirilgan fakt-cheking va sun'iy intellektning axloqiy va huquqiy jihatlari bo'yicha o'qishda muhim talablar sifatida paydo bo'lgan.

Tadqiqotda Italiya hukumati vakillari ham ishtirok etib, sun'iy intellektni tartibga solish bilan bog'liq qarashlarini bildirdi. Xususan, Prezident Administratsiyasi huzuridagi Davlat kotibi Alberto Barachini sun'iy intellekt bo'yicha mavjud tahdid va imkoniyatlar o'rtasidagi an'anaviy ziddiyatni ortda qoldirish zarurligini ta'kidladi. Uning fikricha, hukumat tomonidan ishlab chiqilgan qonun loyihasi Senat muhokamasida bo'lib, unda uchta asosiy tamoyil belgilangan: mualliflik huquqini himoya qilish, sun'iy intellekt yordamida o'zgartirilgan materiallarni ochiq ko'rsatish va deepfeykni alohida jinoyat turi sifatida belgilash. Ushbu tadbirlar, ta'kidlanishicha, axborot tizimi yaxlitligi va jamoatchilik ishonchini saqlab qolish uchun strategik ahamiyatga ega.



Shu o'rinda, tadqiqot natijalari bir muhim haqiqatni ko'rsatadi: Italiyadagi jurnalistlar sun'iy intellektni o'z faoliyatidan chetga surishni emas, balki uni ongli, mas'uliyatli va tartibli tarzda qo'llashni xohlaydi. Ular uchun bu texnologiya kasbni inqirozga olib boruvchi omil emas, balki zamonaviy axborot makonida raqobatbardoshlikni ta'minlashga xizmat qilishi mumkin bo'lgan vosita sifatida ko'rilmogda. Lekin bu jarayon faqat ochiqlik, professional standartlarga sodiqlik va uzluksiz ta'lim orqali muvaffaqiyatli bo'lishi mumkin.

2025-yil 18-mart kuni Italiyaning konservativ-liberal kundalik gazetasi IL Foglio dunyoda birinchi bo'lib to'liq sun'iy intellekt yordamida ishlab chiqarilgan gazeta sonini chop etganini e'lon qildi.² Bu tajriba global jurnalistika tarixida muhim bosqich bo'lib, u nafaqat texnologik yutuq, balki ommaviy axborot vositalarida mualliflik, ishonchlik va professionallik kabi an'anaviy tushunchalarning qayta ko'rib chiqilishiga turtki bo'ldi. Gazeta muharriri Klaudio Cherasa ta'kidlaganidek, ushbu sonning yaratilishida jurnalistlarning vazifasi faqat savollar berish va sun'iy intellektdan olingan javoblarni tartibga solish bilan cheklangan. Boshqa barcha jarayonlar - matnlarni yozish, mavzular tanlash, iqtiboslar keltirishda - to'liq sun'iy intellekt tomonidan amalga oshirilgan.

IL Foglio AI sonining mazmuni o'ziga xos tarzda an'anaviy gazeta tuzilmasini takrorladi: bosh sahifada Donald Tramp fenomeni bilan bog'liq italyan trampchilari paradoksi, Vladimir Putinning yigirma yillik siyosatidagi buzilgan va'dalar va bekor qilingan kelishuvlar, Italiya iqtisodiyotidagi ijobiy o'zgarishlar haqida maqolalar chop etildi. Bundan tashqari, "La Giornata" rukni ostida Italiya birligi kuniga bag'ishlangan tantanalar va xalqaro siyosiy jarayonlar, jumladan, Tramp va Putin o'rtasidagi telefon muloqoti yoritildi. Ikkinchi sahifada esa yosh yevropaliklarning shaxsiy munosabatlaridagi yangi ijtimoiy tendensiyalar tahlil qilindi. E'tiborlisi, barcha materiallar grammatik jihatdan sof, aniq va izchil yozilgan, lekin birorta maqolada insonlarning bevosita fikrlari yoki iqtiboslari bo'lmagan.

Bu tajriba bir qarashda provokatsion bo'lsa-da, aslida jurnalistikada texnologiyalardan foydalanishning istiqbolli yo'nalishlarini ko'rsatib berdi. Sun'iy intellektning asosiy afzalligi - tezkorlik, aniqlik va katta hajmdagi ma'lumotlarni qayta ishlash qobiliyatidir. Shu bilan birga, bu jarayon bir qator fundamental savollarni yuzaga keltiradi: agar gazeta butunlay sun'iy intellekt tomonidan yozilsa, unda inson jurnalistning o'rni qanday bo'ladi? Mualliflik huquqi va axloqiy javobgarlik kimning zimmasida qoladi? Eng muhimi, o'quvchi uchun ishonchlik mezonlari qanday aniqlanadi?

IL Foglio tajribasi ko'rsatadiki, sun'iy intellekt yordamida tayyorlangan kontent tashqi ko'rinishidan professional jurnalistik mahsulotga juda yaqin bo'lishi mumkin. Lekin unda inson tuyg'ulari, real guvohlar ovozi, ijtimoiy hayotdan bevosita olinadigan nozik detallar yetishmaydi. Shuning uchun sun'iy intellekt jurnalistikasi hozircha inson jurnalistni to'liq almashtira olmaydi, balki unga ko'makchi sifatida qarash maqsadga muvofiq. Shu jihatdan Italiya tajribasi butun

² <https://www.theguardian.com/technology/2025/mar/18/italian-newspaper-says-it-has-published-worlds-first-ai-generated-edition> (04.09.2025)



dunyo ommaviy axborot vositalari uchun katta ahamiyatga ega: u nafaqat yangi imkoniyatlarni, balki yangi xavf-xatar va mas'uliyatlarni ham ko'rsatdi.

IL Foglio AI soni sun'iy intellekt jurnalistikada qanday ishlashi mumkinligini amalda ko'rsatgan tarixiy voqea sifatida qaraladi. U jurnalistika nazariyasi va amaliyotiga yangi cheklovlarni ochib berdi, lekin shu bilan birga, inson jurnalistikasining qadriyatlari - erkin fikr, tanqidiy yondashuv va axloqiy mas'uliyat - hanuzgacha o'rnini to'ldirib bo'lmashligini yaqqol isbotladi. Bu tajriba kelajakda jurnalistikaning inson va texnologiya o'rtasidagi hamkorlik asosida rivojlanishi zarurligini ko'rsatadi.

Foydalanilgan adabiyotlar ro'yxati:

1. Rainews.it 03.03.2025 <https://www.rainews.it/articoli/2025/03/intelligenza-artificiale-otto-giornalisti-su-dieci-chiedono-di-regolamentarla-8c1aa80b-a397-419f-b0b7-371bc3917fd1.html>
2. <https://www.theguardian.com/technology/2025/mar/18/italian-newspaper-says-it-has-published-worlds-first-ai-generated-edition> (04.09.2025)



NEOLOGISMS IN INTERNET ENGLISH: MECHANISMS OF WORD
FORMATION AND SEMANTIC CHANGE

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Abstract: The rapid expansion of digital communication has transformed English into a highly dynamic linguistic system characterized by continuous lexical innovation. This article examines neologisms in Internet English, focusing on the dominant mechanisms of word formation and the processes of semantic change that accompany them. Drawing on examples from social media, online forums, and digital discourse, the study identifies morphological creativity, semantic shift, and pragmatic recontextualization as core drivers of neologism formation. The findings reveal that Internet English not only accelerates lexical change but also reshapes meaning through metaphor, metonymy, and evaluative reorientation. The study contributes to contemporary lexicological research by demonstrating how digital environments function as laboratories for linguistic innovation.

Keywords: *Internet English, neologisms, word formation, semantic change, digital discourse, lexicology*

1. Introduction

The emergence of the Internet as a dominant communicative space has profoundly influenced the evolution of the English lexicon. Online platforms such as social networking sites, blogs, and instant messaging services facilitate rapid interaction, creative expression, and linguistic experimentation. Within this environment, neologisms—newly coined words or expressions—proliferate at an unprecedented rate, reflecting technological innovation, social change, and shifting cultural values.

Unlike traditional lexical expansion, which often occurs gradually, Internet-driven neologization is immediate, collective, and globally disseminated. Neologisms in Internet English frequently emerge in response to novel communicative needs, digital practices, and identity construction. This article explores how such neologisms are formed and how their meanings evolve through



semantic change, emphasizing the interplay between form, meaning, and discourse context.

2. Literature Review

Lexicological studies traditionally classify neologisms according to morphological processes such as derivation, compounding, and borrowing. Recent research, however, highlights the role of digital discourse in intensifying these processes and introducing new patterns of word creation. Scholars argue that Internet English favors brevity, expressiveness, and multimodality, encouraging linguistic economy and innovation.

Studies on semantic change identify metaphor, metonymy, amelioration, pejoration, and generalization as key mechanisms through which meanings evolve. In online contexts, these mechanisms operate at an accelerated pace due to constant repetition, recontextualization, and audience interaction. While existing research acknowledges the productivity of Internet neologisms, fewer studies systematically link word-formation mechanisms with semantic transformation. This study seeks to bridge that gap by analyzing both structural and semantic dimensions of digital neologisms.

3. Methodology

The study employs a qualitative descriptive methodology grounded in lexicological and semantic analysis. Data were collected from publicly accessible digital sources, including social media posts, online forums, memes, and technology-related blogs. Neologisms were selected based on frequency of occurrence, contextual stability, and evidence of semantic development beyond initial usage.

Each neologism was analyzed according to its word-formation mechanism and semantic trajectory. Contextual analysis was applied to identify pragmatic functions and evaluative meanings. To enhance reliability, examples were cross-checked against online dictionaries and digital corpora documenting emerging vocabulary.

4. Results

The analysis revealed several dominant mechanisms of word formation in Internet English neologisms:

1. **Blending**

Blending combines parts of existing words to create new lexical items, such as *netiquette* (network + etiquette) and *infotainment* (information + entertainment). These blends compress complex concepts into concise forms, reflecting the efficiency-driven nature of digital communication.

2. **Clipping and Acronymization**

Internet discourse favors shortened forms, including clippings (*app*, *bio*) and acronyms (*LOL*, *DM*, *FOMO*). These forms enhance speed and informality while fostering in-group identity among users.

3. **Affixation and Refunctionalization**

Productive affixes such as *-able*, *-ish*, and *un-* generate neologisms like *scrollable*, *trendy-ish*, and *unfriend*. Notably, *unfriend* demonstrates verb



formation from a noun and reflects the social mechanics of online interaction.

4. Semantic Shift and Conversion

Existing words acquire new meanings in digital contexts. For example, *cloud* shifts from a meteorological term to a metaphor for data storage, while *feed* evolves from a noun denoting nourishment to a stream of online content.

5. Discussion

The findings indicate that neologisms in Internet English are shaped by both structural creativity and semantic flexibility. Word-formation mechanisms such as blending and acronymization respond to the communicative demands of speed, space limitation, and immediacy. However, semantic change plays an equally significant role in embedding these neologisms within digital discourse.

Metaphorical extension emerges as a central mechanism of semantic change. Terms like *viral* and *troll* exemplify how biological or folkloric concepts are recontextualized to describe online phenomena. The metaphorical use of *viral* reframes information spread as an uncontrollable biological process, intensifying emotional impact and evaluative stance. Similarly, *troll* undergoes semantic narrowing and pejoration, shifting from mythological creature to a label for disruptive online behavior.

Another prominent process is **semantic bleaching**, whereby words such as *like* lose their original affective intensity and function as discourse markers or quantitative indicators. Conversely, some neologisms undergo **semantic intensification**, acquiring strong evaluative meanings, as seen in *cancel* or *toxic*, which extend beyond literal definitions to signal moral judgment within online communities.

Importantly, Internet neologisms often function pragmatically as markers of identity, stance, and group affiliation. Their meanings are negotiated collectively through repeated use, memes, and intertextual references. This confirms that semantic change in digital contexts is not linear but dialogic, shaped by user interaction and cultural circulation.

6. Conclusion

Neologisms in Internet English reflect the dynamic interplay between word-formation mechanisms and semantic change within digital discourse. The study demonstrates that online environments accelerate lexical innovation while simultaneously reshaping meaning through metaphorical extension, pragmatic reorientation, and evaluative shift.

Understanding these processes is essential for contemporary lexicology, as Internet English increasingly influences standard language use. Future research may adopt corpus-based or diachronic approaches to examine the long-term stabilization of digital neologisms and their integration into mainstream English.

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O'ZBEK TALABALARIGA INDONEZ TILINI O'QITISHDA RAQAMLI VA SUN'IY INTELLEKTGA ASOSLANGAN VOSITALARNI QO'LLASH.

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ANNOTATSIYA: Ushbu ilmiy maqolada o'zbek talabalarga indonez tilini o'qitishda raqamli va sun'iy intellektga asoslangan vositalardan foydalanish masalalari tahlil qilinadi. Tadqiqotda mobil ilovalar, sun'iy intellekt bilan qo'llab-quvvatlangan platformalar hamda raqamli ta'lim resurslarini o'quv jarayoniga integratsiya qilishga asoslangan innovatsion metodologiyalar yoritiladi. Indonez tiliga ixtisoslashgan o'quv ilovalarining lug'at boyligini oshirish, tinglab tushunish va og'zaki nutq ko'nikmalarini rivojlantirishdagi o'rni alohida ta'kidlanadi. Shuningdek, o'quvchilarning mustaqil ta'lim olish imkoniyatlarini kengaytirish hamda o'zbek va indonez tillari o'rtasidagi qiyosiy-lingvistik yondashuvning ahamiyati ko'rsatib beriladi. Oliy ta'lim muassasasida o'tkazilgan empirik kuzatuvlarga asoslangan holda, raqamli va sun'iy intellektga asoslangan vositalar ta'lim samaradorligini sezilarli darajada oshirishi aniqlangan.

Kalit so'zlar: *Indonez tili, o'zbek talabalari, raqamli vositalar, sun'iy intellekt, til o'rganish ilovalari, innovatsion metodologiya, mobil ta'lim, aralash ta'lim, o'quvchi mustaqilligi, kommunikativ kompetensiya, lug'at boyligi, tinglab tushunish, og'zaki nutq, qiyosiy tilshunoslik.*

APPLYING DIGITAL AND AI-BASED TOOLS IN TEACHING INDONESIAN TO UZBEK STUDENTS

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ABSTRACT: This article examines the application of digital and artificial intelligence (AI)-based tools in teaching Indonesian language to Uzbek students. The study focuses on innovative teaching methodologies that integrate mobile applications, AI-supported platforms, and digital resources into the language learning process. Particular attention is given to the practical implementation of Indonesian-specific learning applications and their role in developing vocabulary, listening comprehension, and speaking skills. The article also highlights the importance of learner autonomy and comparative linguistic approaches between Uzbek and Indonesian. Based on empirical observations conducted in a higher education context, the findings indicate that digital and AI-based tools significantly



enhance learner motivation, communicative competence, and overall learning effectiveness.

Keywords: *Indonesian language, Uzbek students, digital tools, artificial intelligence, language learning applications, innovative methodology, mobile learning, blended learning, learner autonomy, communicative competence, vocabulary acquisition, listening skills, speaking skills, comparative linguistics.*

Introduction

In recent years, the integration of digital technologies and artificial intelligence into foreign language education has become a crucial aspect of modern pedagogy. Traditional language teaching methods are no longer sufficient to meet the demands of contemporary learners, who increasingly rely on mobile applications, online platforms, and AI-based tools for autonomous learning. This trend is particularly relevant in the context of less commonly taught languages, such as Indonesian, where access to qualified teachers and authentic learning materials may be limited in certain regions.

For Uzbek learners, studying Indonesian presents both opportunities and challenges. On the one hand, Indonesian has a relatively simple grammatical structure, no verb conjugation, and a phonetic writing system, which makes it accessible to learners from different linguistic backgrounds. On the other hand, the lack of localized teaching resources and direct Uzbek–Indonesian learning materials creates difficulties in the learning process. In this context, digital and AI-based tools play a significant role in bridging this gap. This article aims to examine how digital applications and AI-powered tools can be effectively applied in teaching Indonesian to Uzbek learners, with a particular focus on practical classroom and self-study implementation.

Furthermore, cultural exchanges, such as literature, religious texts, and administrative terminology, have contributed to the development of similar lexical items despite the structural differences between the two languages. Ultimately, the findings provide a clearer understanding of the linguistic, cultural, and educational implications of lexical similarities between Uzbek and Indonesian. Recognizing these parallels can enhance language teaching strategies, improve dictionary compilation, and facilitate multilingual competence in learners. Moreover, the integration of innovative digital technologies in linguistic research demonstrates the potential for a more precise and data-driven approach to comparative linguistics, offering new opportunities for studying language contact, lexical evolution, and cross-cultural communication.

Main Body

1. Specialized Digital Applications for Learning Indonesian

Unlike general language learning platforms, several applications have been specifically designed to teach the Indonesian language, particularly since the late 2010s and early 2020s, when digital language education experienced rapid growth. These applications offer systematically structured lessons, high-quality native



speaker audio recordings, and culturally relevant content that reflect authentic Indonesian communication practices.

From approximately 2018 to 2023, the development of Indonesian-focused digital tools has increasingly emphasized communicative competence, learner autonomy, and contextualized language use.



Terima kasih.

Thank you!



Sama-sama.

You're welcome.



Halo.

Hello.



Selamat pagi.

Good morning.

As a



IndonesianPod101.com

result, such applications provide learners with not only linguistic input but also cultural awareness, which is essential for meaningful language acquisition. Due to their pedagogical design and language-specific focus, these tools are particularly suitable for academic analysis and practical implementation in Indonesian language education..

1.1 IndonesianPod101

IndonesianPod101 is a comprehensive digital learning platform specifically dedicated to teaching the Indonesian language to foreign learners. It provides a wide range of audio-visual lessons covering proficiency levels from beginner to advanced, with a strong emphasis on real-life communication and everyday language use. The lessons are structured around common communicative situations such as greetings, travel, daily routines, and social interactions, which makes the learning process more practical and context-based.

The platform includes systematically organized vocabulary lists, detailed grammar explanations, and culturally informative notes that introduce learners to Indonesian customs, politeness strategies, and speech conventions. For example, learners are exposed to frequently used expressions such as “*selamat pagi*” (good morning), “*terima kasih*” (thank you), “*apa kabar?*” (how are you?), and “*sampai jumpa*” (see you again), which are essential for basic communication. These elements collectively contribute to the development of communicative competence rather than mere grammatical knowledge. For Uzbek learners, IndonesianPod101 can be effectively used as a supplementary learning tool alongside formal classroom instruction.



Its
supports
crucial
Picture



Pic 1. The view of IndonesianPod101.com

audio-based format significantly listening comprehension and pronunciation accuracy, which are in mastering Indonesian phonetics (1). Moreover, the availability of lesson transcripts allows learners to

independently analyze sentence structures such as “*Saya sedang belajar bahasa Indonesia*” (I am learning Indonesian), facilitating deeper grammatical awareness and autonomous learning skills.

1.2 Hello-Hello Indonesian

Hello-Hello Indonesian primarily emphasizes practical communication through situational and dialogue-based learning. The application is designed around real-life scenarios, including ordering food, introducing oneself, shopping, and asking for directions. These situational dialogues reflect authentic Indonesian speech patterns and everyday usage, making the app particularly suitable for communicative language teaching.

Pic 2. The icon of “Hello-Hello Indonesian” application

The app includes high-quality native speaker recordings, interactive vocabulary exercises, and repetition-based speaking tasks. Learners encounter commonly used expressions such as “*saya mau pesan makanan*” (I would like to order food), “*berapa harganya?*” (how much is it?), and “*tolong bantu saya*” (please help me), which are directly applicable in real communicative contexts. Such exposure helps learners internalize natural sentence rhythm and intonation.

In the Uzbek educational context, Hello-Hello Indonesian can be effectively integrated into speaking-focused lessons. Students may practice dialogues provided by the app and subsequently adapt them to their own communicative needs by modifying lexical items or sentence patterns. This approach encourages creative language use and supports the transition from controlled practice to free communication, which is a key objective of modern foreign language pedagogy.

1.3 Memrise (Indonesian Course)

Memrise offers an Indonesian language course enriched with AI-supported features such as spaced repetition, adaptive review cycles, and native speaker video clips. The primary focus of the application is vocabulary acquisition and listening



comprehension, which are fundamental components of early and intermediate language learning stages.

Memrise introduces learners to frequently used Indonesian words and phrases, including *makan* (to eat), *minum* (to drink), *rumah* (house), *belajar* (to study), and *sekolah* (school), through short video segments recorded by native speakers. This multimodal input allows learners to associate meaning with visual context, pronunciation, and real-life usage simultaneously. For Uzbek learners who rely heavily on visual and auditory learning strategies, Memrise proves particularly effective. Its ramified structure, which includes points, streaks, and progress tracking, increases learner motivation and promotes consistent daily practice. Such repetition is essential for long-term vocabulary retention and automatic recall, especially when learning a foreign language that lacks extensive local exposure.

2. Practical Implementation for Uzbek Learners

The practical implementation of digital and AI-based tools in teaching Indonesian to Uzbek learners can be effectively realized through a blended learning approach that combines classroom instruction with independent digital practice. In this model, teachers integrate mobile applications and AI-supported platforms as supplementary learning resources, while maintaining the classroom as a space for interactive activities. Classroom time can then be dedicated to communicative tasks such as group discussions, role-play activities, and systematic error correction based on students' digital learning experiences.

In addition to structured classroom integration, digital tools significantly promote learner autonomy among Uzbek students. Mobile applications allow learners to manage their own learning schedules and engage in language practice anytime and anywhere, which is particularly beneficial for university students and adult learners with limited classroom exposure. Through repeated interaction with digital content, learners gradually develop self-regulated learning habits, improve consistency, and increase confidence in using Indonesian in practical contexts such as introducing oneself (*perkenalkan diri*), expressing opinions (*menyampaikan pendapat*), or describing daily activities (*kegiatan sehari-hari*). Furthermore, AI-based tools enable a comparative linguistic approach that is especially effective for Uzbek learners. By facilitating the comparison of lexical items and semantic patterns between Uzbek and Indonesian, AI applications help learners identify familiar elements, particularly vocabulary derived from Arabic loanwords such as *kitab* – *kitab* (book) and *ilm* – *ilmu* (knowledge). This comparative analysis enhances metalinguistic awareness and reduces cognitive load during the learning process, allowing learners to comprehend new material more efficiently. As a result, the integration of digital and AI-based tools not only supports language acquisition but also fosters deeper linguistic understanding and cross-linguistic competence among language learners.

Conclusion



This study has examined the application of digital and AI-based tools in teaching the Indonesian language to Uzbek learners, with particular attention to practical implementation and empirical observation within the higher education context. The findings indicate that the integration of specialized Indonesian language applications and AI-supported platforms significantly enhances the effectiveness of foreign language instruction when combined with traditional classroom methods.

The empirical research conducted at *Uzbekistan State World Languages University* demonstrates that Uzbek learners benefit from a blended learning model in which digital tools support vocabulary acquisition, listening comprehension, and speaking confidence. Students who engaged regularly with digital and AI-based resources showed measurable improvement in their ability to comprehend and use common Indonesian expressions, as well as increased motivation and learner autonomy. These results confirm that technology-enhanced learning environments are particularly effective for languages such as Indonesian, where direct exposure to native speakers may be limited.

In conclusion, the study suggests that the systematic integration of digital technologies and artificial intelligence into Indonesian language teaching at Uzbek higher education institutions can significantly improve learning outcomes. Future research may focus on larger-scale empirical studies, longitudinal analysis, and the development of localized Uzbek–Indonesian digital learning resources to further enhance instructional effectiveness.

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COGNITIVE PERSPECTIVES ON COMPLEX SYNTACTIC CONSTRUCTIONS

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Abstract: *The cognitive approach to syntax offers a meaning-centered and usage-based perspective on complex syntactic constructions, viewing them as reflections of human conceptualization rather than purely formal grammatical configurations. This article explores how complex syntactic constructions are analyzed within the framework of cognitive linguistics, with particular attention to clause combining, subordination, and embedding. Drawing primarily on English examples, the study examines how complex sentences encode conceptual relations between events, mental spaces, and perspectives. The analysis demonstrates that syntactic complexity arises from cognitive processes such as conceptual integration, construal, attention, and information packaging. The article argues that the cognitive approach provides a comprehensive and explanatory account of complex syntactic constructions by integrating syntax, semantics, and cognition.*

Key Words: *cognitive linguistics, complex syntactic constructions, clause combining, conceptual integration, construal, mental spaces, syntax–semantics interface, cognitive processing*

Complex syntactic constructions represent an advanced level of grammatical organization, allowing speakers to express relationships between multiple events, states, and propositions within a single sentence. Traditional formal approaches to syntax have largely focused on the structural properties of such constructions, explaining complexity in terms of hierarchical rules, transformations, and abstract representations. While these approaches have significantly contributed to the understanding of sentence structure, they often treat syntax as an autonomous system, largely independent of meaning and cognition.

The cognitive approach to linguistics challenges this autonomy by emphasizing that language structure is grounded in general cognitive abilities and conceptual organization. From this perspective, syntax is not an independent module but a symbolic system that pairs form with meaning. Complex syntactic constructions are therefore analyzed as meaningful units that reflect how speakers conceptualize experience and organize information for communication (Langacker, 1987). This article aims to examine how the cognitive approach accounts for the formation, interpretation, and use of complex syntactic constructions, focusing primarily on English data.

Cognitive linguistics emerged as a reaction against purely formal and generative models of grammar. Central to this approach is the assumption that



linguistic structures are motivated by meaning and shaped by usage. According to Langacker (1987, 2008), grammatical constructions are symbolic assemblies that link phonological form with semantic content. As a result, complex syntactic constructions are viewed not as mechanically derived structures but as conventionalized patterns that speakers learn and use to express complex conceptual relations.

A key concept in cognitive grammar is *construal*, which refers to the speaker's choice in how a situation is mentally represented and linguistically encoded. Different syntactic constructions may describe the same objective situation but impose different perspectives, levels of prominence, or degrees of specificity. This notion is crucial for understanding why languages possess multiple complex constructions that appear structurally different yet semantically related.

From a cognitive perspective, complex syntactic constructions arise through the integration of multiple conceptual events into a single cognitive structure. Clause combining reflects the speaker's decision to conceptualize events as interconnected rather than independent. Subordinate clauses, in particular, represent events that are conceptually dependent on a primary event.

Example: *When the lecture ended, the students left the hall.*

In this sentence, the temporal clause *when the lecture ended* provides a cognitive anchor for the main event *the students left the hall*. The two events are conceptualized as part of a single scenario, and the complex syntactic construction mirrors this integrated mental representation (Langacker, 2008).

Similarly, causal clauses reflect cognitive reasoning about cause and effect:

Example: *She stayed at home because she felt unwell.*

Here, the subordinate clause expresses a reason that motivates the main action. Cognitively, the speaker construes the state of feeling unwell as explanatory and backgrounded relative to the main event.

Cognitive linguistics also employs the concept of *mental spaces* to explain syntactic complexity. Mental spaces are temporary conceptual domains constructed during discourse to represent hypothetical, conditional, or reported situations (Fauconnier, 1994). Complex syntactic constructions often signal shifts between such spaces.

Example: *If he had known the truth, he would have acted differently.*

This conditional construction creates a hypothetical mental space distinct from reality. The subordinate clause establishes a non-actual scenario, while the main clause expresses its imagined consequence. The syntactic form reflects the cognitive operation of reasoning about alternative realities.

Reported speech and complement clauses similarly involve multiple mental spaces:

Example: *She believes that the plan will succeed.*

The complement clause *that the plan will succeed* represents the content of another person's belief, embedding one mental space within another. This cognitive embedding is directly reflected in the syntactic structure.



Relative clauses are particularly informative for cognitive analysis because they demonstrate how speakers profile information within a noun phrase. From a cognitive perspective, a relative clause functions to refine or elaborate the conceptual representation of a referent.

Example: *The book that I bought yesterday is expensive.*

The relative clause *that I bought yesterday* narrows the conceptual scope of *the book*, helping the listener identify the intended referent. Cognitive grammar explains this process in terms of *profiling*, where certain aspects of a conceptual structure are highlighted while others remain in the background (Langacker, 1987).

Non-restrictive relative clauses, by contrast, add supplementary information without altering reference:

Example: *My sister, who lives in Canada, is a doctor.*

Here, the relative clause contributes background information, reflecting a different construal of the same referent. The distinction between restrictive and non-restrictive clauses thus reflects cognitive choices rather than purely syntactic constraints.

Psycholinguistic research supports the cognitive approach by demonstrating that complex syntactic constructions are subject to processing limitations. Sentences with multiple embeddings are more difficult to comprehend and produce, suggesting that syntactic complexity is constrained by working memory and attention (Gibson, 1998).

Example: *The report that the manager who I met yesterday approved was confidential.*

Although grammatically acceptable, this sentence is cognitively demanding due to nested relative clauses. Speakers often avoid such constructions in spontaneous speech, preferring simpler structures or dividing information across multiple sentences. Cognitive linguistics interprets this tendency as evidence that grammar is shaped by usage and cognitive efficiency.

One of the main strengths of the cognitive approach is its explanatory power. Rather than merely describing structural patterns, it explains why complex syntactic constructions exist and how they are used. By grounding syntax in general cognitive processes, this approach accounts for cross-linguistic similarities, language change, and variation in usage. It also bridges the gap between syntax and semantics, treating them as inseparable components of linguistic knowledge.

The cognitive approach provides a comprehensive framework for analyzing complex syntactic constructions by emphasizing meaning, conceptualization, and usage. From this perspective, complex sentences are not abstract formal products but meaningful constructions that reflect how speakers organize experience and communicate complex ideas. English examples demonstrate that clause combining, subordination, and embedding are motivated by cognitive processes such as conceptual integration, construal, and mental space construction. By integrating insights from cognitive linguistics and psycholinguistics, the cognitive approach deepens our understanding of syntactic complexity and highlights the close relationship between language and human cognition.



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THE CONCEPTUAL COMPONENTS OF SPEAKING IN FOREIGN LANGUAGE CLASSROOMS AND THEIR IMPLICATIONS FOR ASSESSMENT

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Abstract: Speaking is widely recognized as a fundamental skill in foreign language education, yet its complexity is often underestimated in instructional and assessment practices. Rather than constituting the mechanical production of memorized structures, speaking represents an interactive and cognitively demanding process that integrates linguistic, socio-pragmatic, and discourse-oriented abilities. This article examines the conceptual components of speaking—pronunciation, fluency, accuracy, interactional competence, and discourse organization—and discusses their pedagogical implications for assessment in school-based foreign language contexts. The argument put forward is that assessment criteria must reflect the multidimensional nature of spoken communication to support valid evaluation and guide learner development.

Introduction

Among the four major language skills, speaking occupies a central position in the goals of foreign language education, as it enables learners to engage in communicative interaction and actively participate in social and academic environments. However, speaking remains one of the most challenging skills to acquire and assess because spoken communication unfolds in real time and requires the simultaneous coordination of several competencies. Learners must retrieve vocabulary quickly, select grammatically appropriate forms, articulate sounds intelligibly, monitor interlocutor reactions, and structure discourse coherently while maintaining fluency.

Theoretical literature widely acknowledges that oral proficiency is composed of multiple interrelated components, yet many assessment practices continue to emphasize surface-level correctness at the expense of communicative performance. To align classroom evaluation with the actual demands of speaking, teachers must therefore understand how specific components shape oral production and how these dimensions can be translated into observable assessment indicators. This article reviews the major elements that constitute speaking proficiency and offers guidance for integrating them into assessment frameworks in school-based settings.

Speaking as a Multidimensional Construct

Pronunciation and intelligibility

Pronunciation directly affects a speaker's comprehensibility and is thus foundational



to successful communication. Accurate articulation of consonants and vowels supports clarity, while suprasegmental features such as stress, intonation, and rhythm contribute to naturalness and meaning. Learners with strong grammatical knowledge may still struggle to be understood if their prosodic patterns deviate significantly from listener expectations. For this reason, pronunciation cannot be viewed as a peripheral skill; instead, it forms a key component of oral proficiency that requires continuous instructional attention and explicit assessment criteria focused on intelligibility rather than native-like accuracy.

Fluency and speech flow

Fluency captures the temporal dimension of speaking. It refers to the smooth progression of ideas with minimal excessive hesitation and without long pauses that disrupt communication. Fluency does not necessarily imply fast speech; rather, it involves maintaining speech rhythm while attending to meaning. In early stages, learners often sacrifice accuracy to express thoughts rapidly, whereas at more advanced levels they develop the automaticity required to balance both dimensions. Assessment rubrics should therefore consider fluency as an evolving indicator of processing ability and communicative confidence.

Accuracy and linguistic precision

Accuracy encompasses control over vocabulary, grammar, and syntax. It enables learners to convey precise meanings and formulate utterances that align with target-language norms. Although excessive focus on error correction may hinder fluency, accuracy plays a decisive role in ensuring that meaning is not distorted or misunderstood. Effective assessment recognizes that accuracy develops gradually and evaluates it alongside fluency, allowing learners to strengthen both aspects without compromising oral participation.

Interactional competence

Speaking is inherently social, and its success depends not only on individual production but also on the ability to collaborate with interlocutors. Interactional competence includes turn-taking, requesting clarification, responding to questions, signaling understanding, and maintaining the conversational channel. These behaviors demonstrate pragmatic awareness and contribute to successful communication beyond mere structural correctness. Incorporating interactional features into speaking assessment ensures that learners are evaluated on skills reflective of real-world communicative exchanges.

Discourse organization

Extended speaking tasks require learners to structure ideas coherently across multiple utterances. Discourse organization involves sequencing information logically, using cohesive devices, and adapting message structure to communicative intent—whether narrative, descriptive, or argumentative. Learners who organize discourse effectively are better able to sustain audience engagement and convey meaning with clarity. Assessment indicators targeting coherence and cohesion recognize that speaking proficiency extends beyond sentence-level production.

Implications for Assessment

The components outlined above have significant implications for how speaking



should be assessed in foreign language classrooms. Traditional assessment practices that prioritize grammatical accuracy tend to overlook the interactional and discourse dimensions of oral performance, thereby limiting the validity of evaluation. A multidimensional rubric, however, allows performance to be decomposed into observable criteria aligned with pronunciation, fluency, accuracy, interactional competence, and discourse organization. Such an approach not only supports fair and comprehensive assessment but also provides learners with specific developmental targets that guide improvement. Additionally, assessment tasks should mirror authentic communicative conditions to ensure that learners demonstrate the full range of oral competencies. Pair and group interactions, problem-solving activities, role-plays, and extended presentations offer opportunities to elicit spontaneous speech and observe how learners manage real-time communication. When assessment aligns with the conceptual nature of speaking, it reinforces the role of oral proficiency as both an instructional priority and a measurable learning objective.

Conclusion

Speaking in foreign language education is a complex construct requiring coordination of linguistic, cognitive, and socio-pragmatic processes. Pronunciation, fluency, accuracy, interactional competence, and discourse organization operate together to shape learners' oral proficiency and determine their ability to communicate meaning effectively. For assessment to support learning, it must reflect this multidimensional nature and translate conceptual constructs into practical, observable criteria. A comprehensive understanding of speaking components thus contributes to more valid assessment practices and fosters learner development toward autonomous and confident oral communication.

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ZAMONAVIY TILSHUNOSLIKDA MEDIA TUSHUNCHASIGA TA'RIF: TURLI YONDASHUVLAR

Ahmedov Davronbek G'ayratbek o'g'li

Andijon davlat chet tillari institute
mustaqil tadqiqotchisi

Annotatsiya. Mazkur tezis zamonaviy tilshunoslikda *media* tushunchasining mazmuni va talqinlariga bag'ishlanib, uni ta'riflashga qaratilgan turli nazariy yondashuvlarni tahlil etadi. Tadqiqotda *media* kommunikativ-texnologik, diskursiv-ideologik, sotsiolingvistik hamda semiotik-madaniy hodisa sifatida izohlanib, G'arb olimlarning qarashlari asosida uning lingvistik mohiyati yoritiladi. *Media* til va jamiyat o'rtasidagi o'zaro munosabatlarni belgilovchi muhim maydon sifatida talqin qilinib, uning til me'yorlari, ma'no hosil bo'lish jarayonlari hamda ijtimoiy ongni shakllantirishdagi roli ochib beriladi.

Kalit so'zlar: media, media mahsulot, til, lingvistik omillar, ekstralingvistik omillar, diskursiv yondashuv, kommunikativ yondashuv, semiotik yondashuv, madaniy yondashuv.

Kirish. XXI asr axborot makoni va globallashgan kommunikatsiya sharoitida ommaviy axborot vositalari til va madaniyatning shakllanishiga bevosita ta'sir ko'rsatayotgan omilga aylandi. *Media* axborot uzatish va almashinish vositasi bo'lish bilan birgalikda, lingvistik va madaniy hodisa sifatida ham talqin qilina boshlandi. Uni lingvistik hodisa deya izohlanishiga sabab, *media* vositalari orqali muayyan adabiy til me'yorlari ommaga tarqatiladi, madaniy hodisa deyilishiga sabab esa, ma'lum bir xalqning madaniy qarashlari, urf-odatlari va milliyligini aks ettiruvchi birliklar boshqa xalqlarga, aynan media vositalari yordami bilan tanishtiriladi, kirib boradi.

“*Media*” atamasi keng ma'noda axborotni yetkazib beruvchi platformalar, kanallar majmuini anglatadi, bu o'z ichiga an'anaviy bosma va efir OAV (gazeta, jurnal, radio, televideniya), raqamli va ijtimoiy tarmoqlarni oladi. Mazkur tushunchani lingvistik va madaniy fenomenon sifatida o'rganilganda esa, turli fanlararo yondashuv talab etiladi, jumladan, lingvistika doirasida *media* ommaviy axborot tili, diskurs tahlilda ideologik jarayon, sotsiologiyada tilning jamiyatda qo'llanish va o'zgarish konseptsionalari, semiotikada belgi va matn tizimi, madaniyatshunoslikda madaniy birliklarni uzatuvchisi sifatida talqin etiladi.

Media tushunchasining kommunikativ vazifasini Kanadiyalik tilshunos olim M. Maklyuen tadqiq etadi va shunday izoh beradi: “*Vosita – xabarning o'zidir*” (*The medium is the message*). Uning *media* ekologiyasi nazariyasiga ko'ra, har qanday kommunikatsiya vositasi yoki texnologiyasi – bu inson a'zolari va idrokining “kengaytmasi” (ekstentsiyasi)dir. Maklyuen shunday yozadi: “*Barcha texnologiyalar – bizning jismoniy va asab tizimlarimizning davomidir, ular inson qudrati va tezligini oshiradi*”. Demak, *media* – insonning fikrlari, dunyoqarashini



texnik vositalar yordamida kengaytirishdir, bunda texnikaviy vositalar yordamida odam o'z imkoniyatlarini kengaytiradi va yangi sharoitga moslashadi.

M.Mallyuening nazariyasida *media* tushunchasi ommaviy axborot vositalari bilan ifodalanibgina qolmay, barcha turdagi texnologiyalarni o'z ichiga oladi. U, hatto tilni ham *media* deb hisoblagan, chunki nutq va yozuv inson ichki tafakkuri va hissiyotlarini tashqariga "chiqaruvchi" texnologiyadir. Shu bois, tilshunosning nazariyasiga ko'ra, til ilk nutq texnologiyasi hisoblanib, inson ongida sodir bo'layotgan voqealarni ifodalovchisi bo'lgan, o'z navbatida, tilning paydo bo'lishi inson madaniy taraqqiyotida ham ulkan burilish yasagan. Keyinchalik paydo bo'lgan har bir yangi *media* vositalari, jumladan, yozuv, kitob, bosma nashrlar, telefon, radio, televideniya, internet insonning fikrlarini o'z jamiyatidagina emas, balki global miqyosda ifodalanishiga zamin yaratdi. Endilikda *media* global tarmoq sifatida kengaya boshladi. Bu borada M.Maklyuen elektron kommunikatsiya davrida dunyo "global qishloq"qa aylanishini allaqachon aytib o'tgan, ya'ni elektronarmoqli *media* butun insoniyatni bir vaqtning o'zida bog'lab, yagona axborot makonida birlashtiradi. "*Yangi elektr texnologiyalarimiz fikr va hislarimizni global doirada ifodalashimizga imkon yaratib beradi, bu esa tilning kelajagiga beqiyos ta'sir o'tkazadi*", deb ta'kidlagan. Kommunikativ yondashuv doirasida *media*, asosan, texnologik-vositali tushuncha bo'lib, u kommunikatsiyaning shaklini o'zgartiruvchi, jamiyat ongini transformatsiya qiluvchi vositadir. Mazkur nazariya *media* mazmunidan ko'ra *media* shaklining o'zi ijtimoiy ong va madaniyatga ko'proq ta'sir qilishini ta'kidlaydi, chunki aynan *media* odamlar muloqot tarzi va dunyoqarashini belgilaydi.

Mediani diskurs sifatida talqin etgan olimlardan biri Teun A. van Deyk bo'lib, uning nazariyasiga ko'ra, *media* ijtimoiy-kontekstual jarayonning bir qismidir. Bunda ommaviy axborot vositalarida uzatilayotgan matn va nutq *media* mahsulot hisoblanib, undagi lingvistik birliklar bilan bir qatorda ekstralingvistik omillar, ya'ni so'zlovchining nutq so'zlayotgandagi zamon va makoni, holati, yuz ifodasi, tomohabin yoki tinglovchining bunga munosabati kabilar ham tahlil etilishi zarur deb hisoblanadi. Van Deyk o'z tadqiqotlarida *media* xabarlarini alohida janr sifatida shakllangan matn va nutq deb qaraydi. Ular *media* matnlarining tarkibiy tuzilmasi, mavzularning tashkil qilinishi (makrostrukturasi), janr me'yorlari hamda nutq uslubini tahlil qilish orqali, *mediada* qanday ideologiyalar va ijtimoiy munosabatlar aks etishini ko'rsatib beradilar.

Media tushunchasining yana bir talqini semiotika va madaniyatshunoslik doirasida bo'lib, bunda *media* – bu belgilar va matnlar tizimi, undagi xabarlar turli belgilar (sign) va ma'nolarni anglatishi tahlil etiladi. Semiotik yondashuv *media* matnlarini (masalan, reklamalar, gazeta xabarlari, kino kadrlar) tahlil qilib, ularning yuzaki mazmuni ortida yotgan konnotativ va madaniy ma'nolarni aniqlaydi. Fransuz olimi R.Bart ommaviy axborot vositalaridagi matnlarini tahlil qilarkan, *media* mahsulot belgi va matn uyg'unligidan paydo bo'ladi, deya ta'rif beradi. Shuningdek, u kundalik ommaviy axborot matnlari (reklama, jurnalidagi fotosuratlar, yangiliklar) jamiyatga qanday ta'sir o'tkazayotganini ham ko'rib chiqadi, ularning tarkibidagi yashirin mafkuralarni tahlil qilib beradi.



Amerikalik *media* nazariyotchisi J.Fisk esa ommaviy madaniyat va televideniya matnlarini tahlil qilish orqali *media* xabarlarining ko'pma'noliligi (polisemantik xarakteri) ga e'tibor qaratdi. Uning fikriga ko'ra, televideniya kabi *media* matnlari tarkibidagi belgilar tizimi shunday tuzilganki, ular turli auditoriyalar tomonidan turlicha talqin qilinishi mumkin. Tomoshabin faol ishtirokchi bo'lib, *media* matndagi belgilarni o'z tajribasi va dunyoqarashidan kelib chiqib anglashi mumkin. J.Fisk kommunikatsiya nazariyasiga "*semiotik demokratiya*" atamasini kiritgan bo'lib, bu hodisa auditoriyaning *media* ma'nolarini mustaqil yaratishini anglatadi.

Xulosa o'rnida aytish joizki, zamonaviy lingvistika va unga yondosh fanlarda "*media*" tushunchasi turli nazariy yondashuvlar asosida o'rganilib kelinmoqda. M.Maklyuenning kommunikativ yondashuv nazariyasiga ko'ra, *media* texnologik va psixologik omillarni o'z ichiga olib, inson ongi, tafakkuriga bevosita ta'sir o'tkazadi. Teun A. van Deykning diskursiv yondashuvida esa, *media* mahsulotlarida lingvistik va ekstralingvistik hodisalar birdek muhimdir. Sotsiolingvistik qarashlar *mediani* tilning ijtimoiy muhitdagi namoyon bo'lish shakli deb bilib, OAVning til me'yorlari va o'zgarishlariga ta'sirini o'rganadi, ya'ni *media* orqali adabiy til me'yorlari tarqalishi, yangi til birliklari paydo bo'lishi yoki yo'qolishi, auditoriya til madaniyatining shakllanishi kabi jarayonlar tahlil etiladi. Semiotik va madaniy yondashuvlar esa *mediaga* madaniy matnlar yig'indisi deb qarab, undagi belgilarning o'zaro aloqasi, ma'no qatlamlari hamda tomoshabinlarning ularni talqin qilishdagi rolini yoritadi.

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UNIVERSALS OF SUBORDINATION IN COMPLEX SYNTACTIC CONSTRUCTIONS

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Abstract: *Subordination is one of the most fundamental mechanisms in the formation of complex syntactic constructions, enabling languages to express hierarchical relations between events, states, and propositions. Despite considerable cross-linguistic variation in form, subordination displays a number of universal properties that reflect shared cognitive, semantic, and communicative principles. This article examines the universals of subordination in complex syntactic constructions from typological, functional, and cognitive perspectives. Drawing on data from multiple languages, with illustrative examples primarily from English, the study identifies core universal features such as hierarchical dependency, semantic asymmetry between clauses, and functional motivation. The analysis demonstrates that while languages employ diverse morphosyntactic strategies to realize subordination, the underlying principles governing clause dependency and meaning integration remain remarkably consistent across linguistic systems.*

Key Words: *subordination, complex syntactic constructions, linguistic universals, clause embedding, hierarchical dependency, functional syntax, cognitive linguistics, discourse structure, typological variation*

Complex syntactic constructions play a central role in human language, as they allow speakers to combine multiple propositions within a single grammatical structure. Among the mechanisms used to achieve such complexity, subordination stands out as a key strategy for encoding logical, temporal, causal, and conceptual relations between clauses. Subordinate clauses are structurally and semantically dependent on a main clause, forming hierarchical configurations that distinguish them from coordinate constructions. The study of subordination is therefore essential for understanding both the formal organization of syntax and the ways in which language reflects human cognition.

Linguistic universals have long been a central concern of theoretical and typological research. Scholars have sought to determine which aspects of language structure are shared across languages and which are language-specific. In the domain of complex syntax, subordination provides a particularly fruitful area for investigating universals, as it appears in all known languages, albeit in different formal realizations. Whether expressed through conjunctions, complementizers, relative pronouns, non-finite verb forms, or morphological markers, subordinate relations consistently encode dependency and semantic integration. This article aims to explore the universal properties of subordination in complex syntactic



constructions and to demonstrate how these properties emerge across diverse linguistic systems.

In traditional grammar, subordination is defined as a syntactic relation in which one clause depends on another and functions as one of its constituents, such as a subject, object, modifier, or adverbial element. This definition has been refined and expanded in modern linguistic theories, which emphasize hierarchical structure and abstract dependency relations. In generative grammar, subordination is analyzed in terms of clause embedding, where a subordinate clause occupies a position within the syntactic structure of a higher clause (Chomsky, 1981). This embedding creates asymmetry between the clauses, with the matrix clause governing the subordinate one.

Functional approaches conceptualize subordination primarily in terms of meaning and discourse function. From this perspective, subordinate clauses serve to elaborate, specify, or contextualize the information expressed in the main clause (Halliday & Matthiessen, 2014). The subordinate clause is backgrounded relative to the main clause, reflecting differences in informational prominence. Cognitive linguistics further interprets subordination as a reflection of conceptual dependency, whereby one event is mentally construed as secondary or supportive to another (Langacker, 2008). Despite differences in theoretical orientation, these approaches converge on the view that subordination is characterized by dependency, hierarchy, and semantic integration.

One of the most robust universals of subordination is hierarchical dependency between clauses. In all languages, subordinate clauses are structurally dependent on a main clause and cannot function independently as complete utterances in the same way that main clauses can. This dependency is reflected in syntactic structure, prosody, and semantic interpretation. Even in languages that lack overt subordinating conjunctions, subordination is marked through word order, verb morphology, or intonation patterns (Comrie, 1989).

Example: *She left early because she was tired.*

In this sentence, the causal clause *because she was tired* is dependent on the main clause *she left early* and cannot stand alone as a complete communicative unit in the given context. This hierarchical relationship is a universal feature of subordination, regardless of how it is formally encoded.

Another universal property of subordination is semantic asymmetry between the main and subordinate clauses. The subordinate clause typically expresses information that is logically, temporally, or pragmatically secondary to that of the main clause. This asymmetry is evident in various types of subordinate clauses, including temporal, causal, conditional, and concessive clauses. Cross-linguistic research shows that subordinate clauses consistently encode relations such as cause–effect, condition–result, or background–foreground, which are grounded in general cognitive principles (Givón, 2001).

Example: *If it rains, the match will be cancelled.*

Here, the conditional clause *if it rains* establishes a prerequisite for the realization of the main clause event. The semantic dependence of the main clause on



the subordinate clause reflects a universal conceptual pattern of conditional reasoning.

Functional universals of subordination are closely tied to discourse organization. Across languages, speakers use subordinate clauses to manage information flow, distinguish between foregrounded and backgrounded content, and guide the listener's interpretation. Main clauses typically convey the central message of an utterance, while subordinate clauses provide supporting or contextual information. This pattern has been observed in both spoken and written discourse and is considered a discourse universal (Givón, 1984).

Example: *Although he was inexperienced, he completed the task successfully.*

The concessive clause *although he was inexperienced* functions to background an unexpected condition, allowing the main clause to remain discourse-prominent. This foreground–background distinction is a universal discourse function of subordination.

From a cognitive perspective, subordination reflects how humans conceptualize complex situations. Cognitive linguistics argues that subordinate clauses correspond to secondary mental spaces that are dependent on a primary conceptual frame (Langacker, 1987). This cognitive asymmetry explains why subordinate clauses are often reduced or non-finite in form across languages, as reduced forms reflect their conceptual dependency.

Example: *Having finished the report, she left the office.*

The non-finite subordinate clause *having finished the report* represents a backgrounded event that is conceptually integrated with the main action. The use of a reduced clause reflects a universal cognitive tendency to economize linguistic expression for secondary information.

While the universals of subordination are conceptually stable, their formal realization varies significantly across languages. Some languages rely heavily on subordinating conjunctions and complementizers, while others use participial constructions, serial verbs, or morphological markers. Despite this diversity, typological studies confirm that all languages possess systematic means of encoding clause dependency (Dryer, 2005). This supports the view that subordination is a universal grammatical phenomenon grounded in shared communicative and cognitive needs.

The analysis of subordination in complex syntactic constructions reveals a set of universal principles that transcend language-specific forms. Hierarchical dependency, semantic asymmetry, functional backgrounding, and cognitive integration emerge as core universals of subordination across languages. While languages differ in how they encode these relations morphosyntactically, the underlying principles remain consistent, reflecting fundamental aspects of human cognition and communication. Understanding these universals not only enriches syntactic theory but also contributes to typology, discourse analysis, and applied linguistics. Future research integrating corpus-based, experimental, and cross-linguistic approaches will further clarify how universal principles of subordination interact with language-specific systems.



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THE EFFECTIVENESS OF PLAY-BASED LEARNING IN TEACHING ENGLISH TO PRESCHOOL CHILDREN

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Annotation: This article investigates the effectiveness of play-based learning in teaching English to preschool children. Drawing on established theories of early childhood education and language acquisition, the study emphasizes the role of games, songs, role-play, and movement-based activities in developing young learners' vocabulary, pronunciation, and basic speaking skills. Previous studies suggest that play-based learning creates a low-anxiety environment and enhances motivation and language retention. The findings of this study confirm that integrating play into English lessons significantly improves preschool learners' engagement and language performance.

Keywords: Play-based learning, preschool education, English language teaching, young learners, early language acquisition, motivation

1. Introduction

The importance of teaching English at an early age has been widely recognized in recent years. English has become a global language, and early exposure to it provides children with long-term cognitive and linguistic benefits. Preschool education represents a critical period for language development, as children are more receptive to new sounds, vocabulary, and structures. However, teaching English to preschool children differs significantly from teaching older learners. According to Cameron, young learners learn best when they are actively involved in meaningful activities rather than through formal instruction (Teaching Languages to Young Learners).³ Traditional, teacher-centered methods often fail to meet preschool learners' developmental needs. Therefore, play-based learning has emerged as one of the most effective approaches in early English language education.

2. Theoretical Background of Play-Based Learning

Play is an essential element of early childhood development. Educational psychologists argue that play supports children's intellectual, emotional, and social growth. Through play, children explore their environment and construct knowledge based on their experiences. From a language learning perspective, play-based learning aligns with constructivist theory, which emphasizes learning through interaction and experience. Pinter states that young learners acquire language more effectively when learning is meaningful and enjoyable (Teaching Young Language Learners).⁴ Play provides opportunities for natural repetition and contextualized language use, which are crucial for vocabulary retention. Furthermore, play-based

³ Teaching Languages to Young Learners. Cameron, L. (2001). Cambridge University Press.

⁴ Teaching Young Language Learners. Pinter, A. (2017). Oxford University Press.



learning reduces anxiety and fear of making mistakes. When children are engaged in games, they focus on the activity rather than on language accuracy, which encourages spontaneous language use.

3. Role of Play-Based Learning in Preschool English Education

3.1 Vocabulary Development

Vocabulary learning is one of the main objectives in preschool English classes. Games such as picture matching, guessing games, and object identification help children associate words with visual and physical experiences. According to Harmer, vocabulary learned through meaningful interaction is more likely to be retained than vocabulary memorized in isolation (How to Teach English). Play-based activities allow children to repeat words naturally without boredom. Repetition embedded in games strengthens memory and understanding.

3.2 Pronunciation and Listening Skills

Songs, chants, and rhymes are particularly effective in improving pronunciation and listening skills. Brewster, Ellis, and Girard emphasize that songs help young learners develop a natural sense of rhythm and intonation in English (The Primary English Teacher's Guide).⁵ Listening to songs and repeating them helps children internalize correct pronunciation patterns. In addition, songs create a relaxed atmosphere that increases learners' confidence.

3.3 Speaking Skills and Interaction

Role-play and dramatic play encourage children to use English for communication rather than memorization. Simple dialogues related to daily routines enable learners to practice speaking in meaningful contexts. Pinter notes that interaction is a key factor in developing young learners' speaking skills, as it promotes active language use (Teaching Young Language Learners). Play-based speaking activities also support social development and cooperation among children.

3.4 Total Physical Response (TPR) and Movement-Based Learning

Total Physical Response (TPR) is widely used in preschool English education. Movement-based activities link language with physical actions, making comprehension easier. Cameron explains that physical involvement helps young learners understand meaning without translation (Teaching Languages to Young Learners).⁶ TPR activities are especially effective for active learners and help maintain attention during lessons.

4. Methodology

The study was conducted with preschool children aged 5–6 in a preschool educational institution. English lessons were organized using play-based learning techniques over several weeks. Activities included vocabulary games, songs, role-play, and TPR exercises. Data were collected through classroom observation, informal assessment, and teacher reflection. Learners' motivation, participation, vocabulary acquisition, and speaking ability were analyzed qualitatively.

5. Results and Discussion

⁵ The Primary English Teacher's Guide. Brewster, J., Ellis, G., & Girard, D. (2002). Pearson Education.

⁶ Teaching Languages to Young Learners. Cameron, L. (2001). Cambridge University Press.



The findings revealed that play-based learning had a positive impact on learners' English language development. Children demonstrated higher motivation and participation compared to traditional lesson formats. Vocabulary retention improved significantly, and learners were able to use new words in simple spoken sentences. Moreover, play-based activities reduced anxiety and encouraged shy learners to participate more actively. These results support previous research indicating that play-based learning enhances both emotional comfort and language acquisition⁷.

6. Challenges and Pedagogical Implications

Despite its advantages, play-based learning may present challenges such as classroom management difficulties and time limitations. However, these challenges can be minimized through effective lesson planning and clear instructions. Teachers should receive professional training to design age-appropriate play-based activities. Integrating play into lesson objectives ensures both enjoyment and educational value. Despite the proven effectiveness of play-based learning in teaching English to preschool children, several challenges may arise during its implementation. One of the primary challenges is classroom management. Play-based activities often involve movement and high levels of excitement, which can lead to noise and difficulty maintaining order if clear rules and routines are not established. Teachers must balance freedom and structure to ensure that learning objectives are met. Another challenge is time management. Play-based activities can be time-consuming, and teachers may struggle to complete planned lesson objectives within limited class periods. In addition, the lack of appropriate teaching materials and resources, especially in some preschool institutions, can hinder the effective use of play-based strategies. Teachers may also face difficulties due to insufficient training or limited experience in designing educational games that align with language goals. From a pedagogical perspective, these challenges highlight several important implications for preschool English teachers. First, careful lesson planning is essential. Play-based activities should be purposeful and clearly linked to specific language objectives. Second, teachers should establish clear instructions and classroom rules to maintain a productive learning environment during games and interactive tasks. Furthermore, teacher training and professional development play a crucial role in the successful implementation of play-based learning. Educators need practical guidance on selecting age-appropriate activities, managing classroom dynamics, and assessing learning outcomes in play-based contexts. The use of simple, low-cost teaching aids and locally available materials can also help overcome resource limitations. In conclusion, while play-based learning presents certain challenges, its pedagogical benefits far outweigh the difficulties. With effective planning, classroom management strategies, and ongoing teacher development, play-based learning can be successfully integrated into preschool English education to enhance both teaching quality and learning outcomes.

7. Conclusion

Play-based learning is a highly effective approach for teaching English to preschool children. Supported by theoretical and practical evidence, this method enhances

⁷ How to Teach English. Harmer, J. (2007). Longman.



motivation, reduces anxiety, and improves language outcomes. Preschool English teachers are encouraged to adopt play-based strategies to create meaningful and engaging learning environments. Play-based learning has proven to be a highly effective and developmentally appropriate approach for teaching English to preschool children. By integrating games, songs, role-play, and movement-based activities into English lessons, teachers can create a low-anxiety, motivating, and engaging learning environment that aligns with young learners' cognitive and emotional needs. The findings discussed in this study indicate that play-based learning significantly enhances vocabulary acquisition, pronunciation, listening comprehension, and basic speaking skills. Moreover, learning through play encourages active participation and helps children use English naturally and confidently without fear of making mistakes. It also supports social interaction and cooperation, which are essential aspects of early childhood development. Despite certain challenges, such as classroom management and time constraints, these can be effectively addressed through careful planning and appropriate teacher training.

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IMPROVING SPEAKING SKILLS IN THE 6TH GRADES

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Annotation: Speaking skill is one of the most significant components of language learning and plays a central role in developing learners' communicative competence. However, for many 6th grade students, speaking English remains a challenging task due to psychological barriers, limited vocabulary, and lack of practice. This article investigates effective pedagogical strategies for improving speaking skills in the 6th grades. The study focuses on communicative language teaching, interactive classroom activities, and the role of the teacher in creating a supportive learning environment. Drawing on established theories and previous research, the article demonstrates that learner-centered and interactive approaches significantly enhance students' fluency, confidence, and motivation to speak English.

Keywords: speaking skills, 6th grade students, communicative competence, English language teaching, interactive methods.

Introduction

In recent years, the importance of spoken English has increased due to globalization and the growing need for international communication. English language education aims not only to teach grammatical structures but also to enable learners to communicate effectively in real-life situations. Among the four language skills—listening, speaking, reading, and writing—speaking is often regarded as the most complex and demanding, particularly for young learners.

For 6th grade students, speaking English can be especially challenging. At this stage, learners are expected to express ideas, participate in discussions, and interact more actively in the classroom. However, many students experience anxiety, fear of making mistakes, and low self-confidence, which negatively affect their speaking performance¹. Therefore, improving speaking skills in the 6th grades requires effective teaching methods and a supportive classroom environment. This article aims to explore strategies for developing speaking skills among 6th grade learners and to highlight the role of the teacher in facilitating oral communication.

Literature Review

Speaking has been widely studied in the field of second language acquisition. Brown defines speaking as an interactive process of constructing meaning that involves producing, receiving, and processing information. According to Harmer, speaking activities should be meaningful and engaging in order to encourage learners' active participation.²



Communicative Language Teaching (CLT) has been recognized as one of the most effective approaches to developing speaking skills. Richards states that CLT emphasizes real communication and focuses on using language for authentic purposes.³ Through pair work, group discussions, and role-plays, learners are given opportunities to practice speaking in meaningful contexts.

Vygotsky's sociocultural theory also supports the development of speaking skills through social interaction. Vygotsky argues that learning occurs through interaction with others, and language development is closely connected to social communication. In this regard, collaborative activities play a vital role in improving learners' speaking abilities.

¹ Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal*, 70(2), 125–132.

² Harmer, J. (2007). *How to Teach English*. Longman.

³ Richards, J. C. (2006). *Communicative Language Teaching Today*. Cambridge University Press.

Another important factor affecting speaking performance is language anxiety. Horwitz et al. emphasize that fear of making mistakes and negative evaluation often prevents students from speaking in a foreign language classroom. Therefore, reducing anxiety and creating a positive learning environment are essential for improving speaking skills, particularly for 6th grade learners.

Characteristics of 6th Grade Learners

Understanding learners' developmental characteristics is crucial for effective instruction. Sixth grade students are generally active, curious, and willing to communicate with their peers. They enjoy interactive activities such as games, discussions, and cooperative tasks. However, they are also sensitive to peer pressure and may feel embarrassed when making mistakes in front of others.

At this stage, learners possess basic grammatical knowledge and vocabulary, but their speaking ability is often limited by pronunciation problems and lack of fluency. As Harmer notes, teachers should focus on encouraging fluency while gradually improving accuracy. A balance between these two aspects is essential for successful speaking instruction.

Methodology

This study is based on qualitative classroom observations and analysis of teaching practices in 6th grade English classes. Over a period of several weeks, various speaking activities were implemented, including role-plays, pair work, group discussions, and language games. Students' participation, confidence, and speaking performance were observed and documented.

The teaching approach was guided by the principles of communicative language teaching and learner-centered instruction. Special attention was given to:

increasing students' speaking



time, encouraging interaction among learners,

providing positive feedback and delayed error correction.

The collected data were analyzed to evaluate the effectiveness of interactive methods in improving speaking skills.

Strategies for Improving Speaking Skills: Communicative Activities

Communicative activities such as information-gap tasks, problem-solving exercises, and classroom discussions encourage learners to use English meaningfully. According to Richards such activities help students focus on communication rather than on grammatical accuracy alone.



Role-Plays and Simulations

Role-plays are particularly effective for 6th grade learners as they simulate real-life situations. Students practice everyday conversations, which improves both fluency and confidence. Role-plays and simulations are highly effective instructional strategies for developing speaking skills among 6th grade learners. These activities allow students to practice the target language in meaningful, real-life contexts while creating an engaging and motivating learning environment. By encouraging active participation and imagination, role-plays and simulations help learners overcome psychological barriers and improve their oral communication skills.

One of the main advantages of role-plays is that they provide learners with a clear purpose for speaking. In role-play activities, students are assigned specific roles and situations, such as ordering food at a restaurant, asking for directions, visiting a doctor, or introducing themselves to new classmates. These scenarios closely resemble real-life communication, enabling students to practice functional language and everyday expressions. As a result, learners gain practical speaking experience that can be transferred to real-world situations.

Simulations, which are more structured and extended forms of role-plays, allow students to participate in more complex communicative tasks. For example, students may simulate a classroom debate, a TV interview, or a school meeting. Such activities encourage learners to express opinions, explain ideas, and respond to others, thereby improving fluency, vocabulary range, and interaction skills. Simulations also promote critical thinking and problem-solving, as students must react appropriately within the given context.

Another important benefit of role-plays and simulations is their ability to reduce



learners' anxiety. Sixth grade students often feel nervous about speaking English in front of the whole class due to fear of making mistakes. Role-play activities shift the focus from the individual learner to the role being performed, which helps reduce pressure and embarrassment. When students "act" as someone else, they feel more confident and willing to speak, even if their language is not perfect.

Role-plays also encourage creativity and motivation. Learners enjoy acting, using gestures, and expressing emotions, which makes speaking activities more enjoyable and dynamic. This positive emotional engagement increases students' willingness to participate and helps create a supportive classroom atmosphere. Furthermore, repeated role-play practice helps students internalize vocabulary, sentence structures, and pronunciation patterns in a natural way.



Pair and Group Work

Pair and group work significantly increase students' opportunities to speak. Brown emphasizes that interaction with peers reduces anxiety and promotes language development.⁴ Pair and group work are among the most effective strategies for developing speaking skills in the 6th grades. These collaborative learning techniques create opportunities for learners to actively use the target language in a supportive and less stressful environment. Unlike teacher-centered instruction, pair and group work place students at the center of the learning process, encouraging them to interact, negotiate meaning, and express their ideas more freely. Activities such as information-gap tasks, role-plays, problem-solving exercises, and discussions require learners to use English for real communicative purposes. Through interaction, students learn how to ask questions, give opinions, agree or disagree, and clarify meaning. This process not only improves speaking skills but also enhances listening skills and critical thinking. In addition, collaborative work encourages peer learning. Stronger students can support weaker ones by modeling correct language use and helping them express their ideas. This cooperation fosters a sense of responsibility and teamwork in the classroom. According to communicative language teaching principles, learning occurs most effectively when students actively engage with each other rather than passively

⁴ Brown, H. D. (2001). *Teaching by Principles: An Interactive Approach to Language Pedagogy*. Pearson Education. receiving information from the teacher. The role of the teacher in pair and group work is to organize, monitor, and support the activities. Teachers should provide clear instructions, set clear objectives, and choose tasks that are appropriate for the learners' language level. While students are working, the



teacher can observe their performance, take notes on common errors, and provide feedback after the activity. This approach allows students to communicate freely without constant interruption.

One of the main advantages of pair and group work is the increase in students' speaking time. In traditional whole-class teaching, only a few students may have the chance to speak, while others remain passive listeners. However, when students work in pairs or small groups, every learner has the opportunity to participate in speaking activities. This increased exposure to spoken English helps students improve fluency, develop pronunciation, and become more confident speakers.

Another important benefit of pair and group work is the reduction of anxiety and fear of making mistakes. Sixth grade students are often sensitive to peer evaluation and may feel embarrassed when speaking in front of the whole class. Working with a partner or a small group creates a safer and more comfortable atmosphere, where learners feel less pressure and are more willing to take risks. As a result, students are more likely to experiment with new vocabulary and structures, which are essential for language development. Pair and group work also promote meaningful communication.

Games and Creative Tasks

Language games and creative activities make lessons more engaging and motivating. These activities encourage spontaneous speech and help students develop vocabulary in a natural way.

Pronunciation and Fluency Practice

Regular pronunciation practice through drills, chants, and listening activities improves clarity and intonation. Fluency-focused tasks, such as timed speaking, help learners speak more smoothly and confidently.

The Role of the Teacher

The teacher plays a key role in developing speaking skills. Rather than acting as the main speaker, the teacher should function as a facilitator and motivator. Creating a supportive atmosphere where mistakes are seen as part of learning is essential.

Error correction should be handled carefully. Immediate correction may discourage learners, while delayed feedback allows students to express themselves freely. Positive reinforcement and constructive feedback help build learners' confidence and motivation.

Results and Discussion

The findings indicate that students who regularly participated in interactive speaking activities showed noticeable improvement in fluency, vocabulary usage, and pronunciation. Their anxiety levels decreased, and their willingness to speak English increased. These results support previous research emphasizing the effectiveness of communicative and learner-centered approaches.

The study confirms that meaningful interaction and a supportive learning environment are essential factors in improving speaking skills among 6th grade learners.



Conclusion

In conclusion, improving speaking skills in the 6th grades requires the use of communicative, interactive, and learner-centered teaching methods. Teachers should focus on creating a positive classroom atmosphere, encouraging meaningful communication, and providing regular speaking opportunities. Effective speaking instruction at this level not only enhances learners' oral communication skills but also builds a strong foundation for future language learning. Improving speaking skills in the 6th grades is a vital component of effective English language education, as it directly contributes to learners' overall communicative competence. At this stage of learning, students are developing not only their linguistic abilities but also their confidence and willingness to communicate. Therefore, providing systematic and meaningful opportunities for oral interaction is essential for helping learners use English effectively in real-life situations. The findings discussed in this study emphasize the importance of communicative and learner-centered teaching approaches in enhancing speaking skills. Interactive methods such as role-plays, pair and group work, discussions, and language games encourage active participation and increase students' speaking time in the classroom. These activities help learners practice language in meaningful contexts, improve fluency, expand vocabulary, and develop more accurate pronunciation. Additionally, such methods reduce learners' anxiety and create a positive classroom atmosphere where making mistakes is considered a natural part of the learning process.

Furthermore, the role of the teacher is crucial in facilitating the development of speaking skills. Teachers should act as guides and motivators, creating a supportive and encouraging learning environment. Instead of focusing excessively on error correction, teachers should prioritize communication and provide constructive feedback at appropriate stages. This approach helps students build self-confidence and develop a positive attitude toward speaking English.

Overall, effective speaking instruction in the 6th grades requires a balanced combination of appropriate teaching strategies, interactive classroom practices, and emotional support. By implementing communicative methods and fostering a learner-friendly environment, teachers can significantly improve students' speaking abilities and motivation. Ultimately, strengthening speaking skills at this level lays a solid foundation for learners' future academic success and lifelong communication in English.

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ИҚТИСОД ФАНЛАРИНИ РИВОЖЛАНТИРИШ ЙЎЛИДАГИ
ТАДҚИҚОТЛАР

МОДЕЛИ КОНКУРЕНТНОГО ПОВЕДЕНИЯ УНИВЕРСИТЕТОВ В
УСЛОВИЯХ ФОРМИРОВАНИЯ НОВОГО УЗБЕКИСТАНА: НАУЧНО-
ИССЛЕДОВАТЕЛЬСКИЙ АСПЕКТ

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Аннотация. В статье рассматриваются модели конкурентного поведения университетов в условиях формирования Нового Узбекистана с акцентом на развитие научно-исследовательской деятельности. Показано, что усиление роли науки и рост конкуренции в системе высшего образования обуславливают необходимость выбора эффективных стратегий развития университетов. Проанализированы нишевые и универсальные (флагманские) модели конкурентного поведения, выявлены их особенности и условия результативности. Обоснована целесообразность дифференцированного подхода к формированию конкурентных стратегий университетов с учетом их научного потенциала и региональных особенностей.

Ключевые слова: Новый Узбекистан, университеты, конкурентное поведение, научные исследования, высшее образование, модели развития.

Формирование Нового Узбекистана сопровождается глубинными преобразованиями в системе высшего образования, направленными на развитие человеческого капитала и укрепление научного потенциала страны. В рамках реализуемых реформ возрастает роль университетов как ключевых центров генерации знаний, проведения научных исследований и внедрения инноваций. Усиление научной составляющей деятельности вузов становится одним из важнейших факторов их конкурентоспособности и устойчивого развития.

Современные университеты функционируют в условиях возрастающей конкуренции за финансовые ресурсы, государственную и грантовую поддержку, высококвалифицированные кадры, а также за позиции в национальных и международных академических рейтингах. В этих условиях конкурентное поведение университетов формируется как совокупность стратегических решений, направленных на создание и развитие устойчивых научно-исследовательских преимуществ. В отличие от коммерческих организаций, конкурентоспособность университетов определяется не только объемом ресурсов, но и качеством научных исследований, публикационной активностью, уровнем международного сотрудничества и степенью интеграции науки с образованием и производством.



Одной из наиболее распространённых форм конкурентного поведения университетов являются нишевые модели, ориентированные на углублённую специализацию в отдельных научных направлениях. Данная модель предполагает концентрацию кадровых, финансовых и инфраструктурных ресурсов в приоритетных областях, что позволяет университетам достигать высокой результативности научных исследований и формировать устойчивые научные школы. В условиях Нового Узбекистана нишевые модели особенно актуальны для региональных университетов, которые, опираясь на отраслевую специфику и потребности региона, способны эффективно использовать ограниченные ресурсы и вносить значимый вклад в региональное развитие.

Наряду с нишевыми моделями важную роль в развитии научно-образовательного пространства Нового Узбекистана играют универсальные (флагманские) модели конкурентного поведения университетов. Эти модели предполагают многопрофильное развитие научной и образовательной деятельности, формирование развитой исследовательской инфраструктуры и активное участие в международных научных проектах. Флагманские университеты выступают центрами концентрации научного потенциала, обеспечивая интеграцию национальной науки в глобальное академическое пространство и способствуя распространению передовых научных и образовательных практик.

Проведённый анализ показывает, что в условиях формирования Нового Узбекистана наиболее эффективным является сочетание различных моделей конкурентного поведения университетов. Дифференцированный подход к стратегическому развитию вузов, учитывающий их научный потенциал, ресурсные возможности и региональные особенности, позволяет обеспечить устойчивое развитие системы высшего образования в целом. Сочетание нишевых и универсальных моделей способствует повышению качества научных исследований, развитию инновационной активности и укреплению конкурентоспособности национальной системы высшего образования.

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ПЕДАГОГИКА ФАНЛАРИНИ РИВОЖЛАНТИРИШ ЙЎЛИДАГИ
ТАДҚИҚОТЛАР

**ВЛИЯНИЕ ВОЗРАСТНОЙ ДИФФЕРЕНЦИАЦИИ НА
ЭФФЕКТИВНОСТЬ ОБРАЗОВАНИЯ в ИЗОБРАЗИТЕЛЬНЫХ
ОТДЕЛАХ ДЕТСКОЙ ШКОЛЫ МУЗЫКИ И ИСКУССТВО
(НА ПРИМЕРЕ СТАНКОВОГО И ДЕКОРАТИВНО-ПРИКЛАДНОГО
ИСКУССТВА)**

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АННОТАЦИЯ: Художественно творческая деятельность способствует все стороннему развитию людей, даёт им возможность принимать не посредственное участие в создании материальных и духовно нравственных ценностей, приобщиться к национальной культуре. В связи с этим, в последнее время возросло значение эстетического воспитания. Его осуществление неразрывно связано с искусством. Особую актуальность приобретает обучение детей в детских школах музыки и искусство.

КЛЮЧЕВЫЕ СЛОВА: Возрастная дифференциация, Детские школы музыки и искусство, изобразительное искусство, станковое и декоративно прикладное искусство.

Детские школы музыки и искусство входят внешкольное обучение, но являются школами. В детских школах музыки и искусство есть музыкальные направления и направление искусство. В музыкальном направлении имеются следующие отделы: отдел фортепиано, отдел струнных инструментов, отдел духовых инструментов, отдел ударных инструментов, вокал и т.п. Продолжительность обучения – 7 лет, занятия проводятся индивидуально.

В направлении «Искусство» имеются следующие отделы: отдел хореографии, отдел театрального искусство, отдел изобразительного искусство — это станковое и декоративно прикладное искусство. Продолжительность обучения-5лет, проводятся групповые занятия. По уставу школы от 5-7 учащихся являются группой. От 4-3 учащихся являются пол группой, чаще всего их добавляют в другие полноценные группы смотря на подразделение младших или старших.

По уставу детских школах музыки и искусство на все направления дети набираются в 1-класс с 6-11 лет. Для того чтобы обучение было более эффективной один из важных аспектов возрастная дифференциация.



В 1-классе одновременно в группе сидят учащиеся разной возрастной категории (6-11 лет) педагогу очень сложно объяснять определённую тему всем одновременно, а также и детям сложно так как восприятие информации детей 6-ти летнего ребёнка и 11-ти летнего несравнимы.

Среди психологических особенностей детей 6-7 лет формируется произвольное внимание, благодаря чему ребёнок способен концентрироваться на неинтересном задании в течение 20-30 минут⁸. В 8-9 лет происходит расцвет творческих поясков ребёнка⁹. Рекомендуются предлагать разнообразные интенсивные творческие занятия: рисование, лепка, аппликации и поделки в компании хорошо влияют на общее психологическое состояние ребёнка, расширяют его познание в области искусства. До 9 лет дети рисуют преимущественно схематично, не стремясь добиться реалистичности изображения. Только в 10 лет появляется желание рисовать идеально, реалистично. Именно в этом возрасте ребёнок видит свои ошибки и не знает, как их исправить, вот тут нужна школа, которая научит грамотному рисунку, живописи, композиции скульптуре.

С 2016-2020 года проводилась реконструкция в рамках государственной программы детских школ музыки и искусство¹⁰. Каждая школа была снабжена новыми инструментами и инвентарём на основании учебной программы.

Для отделов изобразительного искусства были предоставлены ряд гипсовых пособий как геометрические фигуры, розетки разной сложности, капители разных ордеров, гипсовые головы, гипсовые фигуры «Гудона», «Венеры», торс человека, мольберты, столы, стулья, подставки и разные драпировки также бутафория фруктов и овощей для составления интересных натюрмортов на основании утверждённой программы по изобразительному искусству. Наши школы хорошо снабжены и предоставлены все удобства для преподавания грамотного рисунка, живописи, композиции и скульптуры. Но для полноценных и результативных уроков одно из очень важных аспектов это возрастная дифференциация учащихся на этих отделах.

Внедрение принципа возрастной дифференциации в образовательную среду предполагает: разработку ориентированных на определённую категорию возраста образовательных программ и стандартов. Учёба должна быть как родником для учащихся им она должна дать то, что им будет понятно доступно в их возрасте с учётом психологическое развитие.

Целесообразно будет детским школам музыки и искусство в изобразительных отделах принимать детей с 10-13 лет. Именно это возрастная категория позволяет заниматься изобразительным искусством, то есть станковым и декоративно прикладным искусством на более высоком уровне.

⁸ Каминская Н.Н. Психофизиология детей 6-7 лет и создание адаптивной образовательной среды: методическое пособие. – Вологда: ВИРО, 2005. – С.16-18.

⁹ Психология младшего школьника: учебно-методическое пособие. – Екатеринбург, 2018. – С.12-18.

¹⁰ Постановление Президента Республики Узбекистан «О Государственной программе по дальнейшему совершенствованию деятельности детских школ музыки и искусства на 2016-2020 годы» от 20.11.2015 г. № ПП-2435. <https://lex.uz/docs/2821559>.



Педагоги этих школ регулярно повышают профессиональную квалификацию, а также сдают очередную и внеочередную аттестацию. Школы не только в городе, но и по всей республики имеют все возможные ресурсы, чтобы дать знания профессионального уровня. После 5-летнего образования у учащихся будет высокая возможность поступить на высшие образовательные учреждения.

3 апреля 2024 года президент Узбекистана посетил новую детскую школу музыки и искусств №1. Он отметил необходимость повысить качество образования и подчеркнул, что «искусство служит воспитанию духовно богатого поколения». Глава государства поставил задачу усиления взаимодействия между школами искусств, высшими учебными заведениями, театрами и другими культурными учреждениями. Если повысить качество образования в школах искусств, для взаимодействия между школами искусств и высшими учебными заведениями дать преимущество свидетельствам об окончании определённые баллы (30 баллов) при поступлении учащихся на высшие заведения по их направлениям (станковое и декоративно прикладное искусство). Это даёт школе высокий статус и большой спрос на эти направления. И также школа будет предоставлять лучших студентов с базовыми знаниями для высших образовательных заведений

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KULINARIYA LEKSIKASI ASOSIDA TALABALARNING TIL KOMPETENSIYALARINI RIVOJLANTIRISH

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Kalit so‘zlar: til kompetensiyalari, kulinariya leksikasi, kommunikativ ko‘nikmalar, interaktiv usullar, nutqiy rivojlanish, zamonaviy metodlar.

Annotasiya: Ushbu maqola kulinariya leksikasi orqali talabalarning til kompetensiyalarini (lingvistik, sociolingvistik, diskursiv va strategik) rivojlantirish usullarini o‘rganadi. Nuqtashos darajasidagi o‘quvchilar uchun ovqatlar, reseptlar va kulinariya suhbatlari asosida so‘z boyligi, grammatika va kommunikativ qobiliyatlarni shakllantirish samaradorligi tahlil qilinadi. Interaktiv o‘yinlar, rolli o‘yinlar va loyihaviy ishlar orqali tilni hayotda qo‘llash ko‘nikmalarini yuksatish taklif etiladi.[3]

DEVELOPING STUDENTS’ LANGUAGE COMPETENCIES BASED ON CULINARY LEXICONS

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Keywords: language competencies, culinary vocabulary, communicative skills, interactive methods, speech development, modern methods.

Abstract: This article explores methods for developing students’ language competencies (linguistic, sociolinguistic, discursive, and strategic) through culinary lexicons. For students at the intermediate level, it analyzes the effectiveness of forming vocabulary, grammar, and communicative abilities based on food, recipes, and culinary conversations. It is suggested to enhance language application skills in real life through interactive games, role plays, and project-based work.[3]

Kirish

Kulinariya leksikasi talabalarning til kompetensiyalarini rivojlantirishda samarali vosita hisoblanadi, chunki ovqat tayyorlash mavzusi kundalik hayot bilan chambarchas bog‘liq. Zamonaviy til o‘qitishda kommunikativ yondashuv ustunlik qiladi, bu esa kulinariya orqali tinglov, gaplashuv, o‘qish va yozish ko‘nikmalarini bir vaqtda rivojlantiradi. Tadqiqotlar shuni ko‘rsatadiki, mavzuga oid leksika talabalarning motivasiyasini oshiradi va uzoq muddatli xotirada saqlanadi. Kulinariya leksikasi talabalarning til kompetensiyasini rivojlantirishda muhim ro‘l o‘ynaydi, chunki u kundalik hayot bilan bog‘liq mavzular orqali so‘z boyligini



kengaytiradi. Talabalar ovqatlar, materiallar va jarayonlar nomlarini o'rganib, nafaqat tilni, balki madaniy ko'nikmalarni ham egallaydilar. Bu usul tilning fonetik, leksik va grammatik tomonlarini birdaniga rivojlantiradi. Bu leksika orqali tinglab, gapirish va o'qish ko'nikmalari shakllanadi. Tadqiqotlar shuni ko'rsatadiki, mavzuga asoslangan darslar talabalarning tilda ishlatish darajasini 30-40% ga ko'taradi.

Bu usul CEFR standartlariga muvofiq til kompetensiyalarini (lingvistik va sosiolingvistik) shakllantiradi. Oliy ta'limda kulinariya loyihalari orqali talabalar mustaqil fikrlash va muhokama qilishni o'rganadilar.[2]

Asosiy qism

1. Kommunikativ kompetensiyalarni rivojlantirish

Kulinariya leksikasi orqali tinglov va gaplashuv kompetensiyalarini rivojlantirish uchun resept o'qish va takrorlash mashqlari qo'llaniladi. Masalan, "salat tayyorlash" rolli o'yinida talabalar ingredientlar nomlarini (pomidor, piyoz, sirka) va fe'llarni (aralashtirmoq, kesmoq) mustaqil ishlatadilar. Interaktiv usullar (brainstorming, round-table) kulinariya suhbatlarini faollashtiradi.

O'qish va yozishda resept yozish vazifasi grammatikani mustahkamlaydi. Talabalar o'z reseptlarini qog'ozga tushirib, fidbek oladilar, bu strategik kompetensiyani yuksaltiradi.[1]

2. Lingvistik va sosiolingvistik kompetensiyalar

Lingvistik kompetensiya uchun kulinariya glossariy yaratish (masalan, "oshxona jihozlari": pichoq, qozon) tavsiya etiladi. Juftlikdagi ishlarda talabalar "oshpazlik kitobi"dan iqtiboslarni tahlil qiladilar. Sosiolingvistik jihatda millatlararo reseptlar (plov, manti) muhokamasi odat-odatlar va ifoda farqlarini o'rgatadi.

Keys-stadi usulida "milliy taomlar festivali" ssenariyi talabalarning diskursiv qobiliyatini rivojlantiradi. Venn diagrammasi orqali o'zbek va xorijiy taomlarni solishtirish foydali.

3. Amaliy mashqlar va baholash

Blis-o'yinlarda talabalar 1 daqiqada kulinariya so'zlarini eslatadilar, bu tez fikrlashni rivojlantiradi. Loyiha: "Mening oila reseptlarim" – prezentasiya va muhokama. Baholashda o'z-o'zini baholash va fidbek shakllari qo'llaniladi.[1]

Texnologiyalar: onlayn resept platformalari (YouTube, Pinterest) orqali tinglov mashqlari.

Xulosa

Kulinariya leksikasi asosida til kompetensiyalarini rivojlantirish talabalarning motivatsiyasi va amaliy qo'llash qobiliyatini oshiradi. Interaktiv metodlar uzoq muddatli natija beradi. Kelajakda raqamli resurslarni kengaytirish taklif etiladi.



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MILLIY VA UMUMINSONIY QADRIYATLAR ASOSIDA SHAXSNI TARBIYALASHNING PEDAGOGIK MODELI

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Kirish: Hozirgi globallashuv sharoitida jamiyat taraqqiyoti, avvalo, barkamol shaxsni shakllantirish bilan bevosita bog'liqdir. Shaxs tarbiyasida milliy va umuminsoniy qadriyatlarning uyg'unligi muhim ahamiyat kasb etadi. Ta'lim-tarbiya jarayonida mazkur qadriyatlarni hisobga olgan holda pedagogik model ishlab chiqish bugungi kunning dolzarb vazifalaridan biridir.

Milliy qadriyatlar xalqning tarixiy taraqqiyoti, urf-odatlar, an'analari, tili va madaniyati bilan chambarchas bog'liq bo'lib, shaxsda vatanparvarlik, milliy g'urur, o'zlikni anglash kabi fazilatlarni shakllantiradi. Umuminsoniy qadriyatlar esa inson huquqlari, tinchlik, adolat, bag'rikenglik, mehr-shafqat kabi tushunchalarni o'z ichiga oladi.

Milliy va umuminsoniy qadriyatlarning mazmuni

Milliy qadriyatlar avloddan-avlodga o'tib kelayotgan ma'naviy boyliklar bo'lib, ular jamiyatning ma'naviy poydevorini tashkil etadi. O'zbek xalqining mehmondo'stlik, kattaga hurmat, kichikka izzat, halollik va mehnatsevarlik kabi qadriyatlari shaxs tarbiyasida muhim rol o'ynaydi.

Umuminsoniy qadriyatlar esa barcha millat va elatlar uchun umumiy bo'lib, insoniyat taraqqiyotining asosiy mezonlari hisoblanadi. Mazkur qadriyatlar shaxsni global fikrlashga, boshqa madaniyatlarga hurmat bilan qarashga o'rgatadi.

Pedagogik modelning mohiyati

Milliy va umuminsoniy qadriyatlar asosida shaxsni tarbiyalashning pedagogik modeli quyidagi tarkibiy qismlardan iborat: maqsad, mazmun, metodlar, vositalar va natija. Modelning asosiy maqsadi — ma'naviy yetuk, ijtimoiy faol va mas'uliyatli shaxsni shakllantirishdir.

Mazkur modelda tarbiya jarayoni tizimli va uzluksiz tarzda tashkil etiladi. Ta'lim muassasasi, oila va jamiyat hamkorligi ta'minlanadi. Pedagogik jarayonda interfaol metodlar, muammoli ta'lim, munozara va loyihaviy faoliyatdan foydalanish tavsiya etiladi.

Tarbiya jarayonida modelni amalga oshirish

Pedagogik modelni amaliyotga joriy etishda o'qituvchining kasbiy mahorati va shaxsiy namunalari muhim o'rin tutadi. O'qituvchi milliy va umuminsoniy qadriyatlarni o'z faoliyatida uyg'unlashtira olishi zarur.



Shuningdek, tarbiya jarayonida zamonaviy axborot texnologiyalaridan foydalanish, ijtimoiy loyihalar va madaniy tadbirlarni tashkil etish shaxs tarbiyasining samaradorligini oshiradi.

Xulosa

Xulosa qilib aytganda, milliy va umuminsoniy qadriyatlar asosida shaxsni tarbiyalashning pedagogik modeli ta'lim-tarbiya jarayonining samaradorligini oshirishga xizmat qiladi. Ushbu model shaxsda yuksak ma'naviyat, ijtimoiy mas'uliyat va fuqarolik pozitsiyasini shakllantirishda muhim ahamiyatga ega.



SUN'IY INTELLEKT TEXNOLOGIYALARIDAN FOYDALANISH ASOSIDA TA'LIM SAMARADORLIGINI OSHIRISH

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Kirish: Bugungi globallashuv va raqamli transformatsiya sharoitida ta'lim tizimini modernizatsiya qilish dolzarb masalalardan biri hisoblanadi. Axborot-kommunikatsiya texnologiyalarining jadal rivojlanishi, xususan, sun'iy intellekt (SI) texnologiyalarining ta'lim sohasiga kirib kelishi o'qitish jarayonini yangi bosqichga olib chiqmoqda. Sun'iy intellekt ta'lim jarayonini individuallashtirish, bilimlarni chuqur tahlil qilish, o'quvchilarning qobiliyat va ehtiyojlariga moslashish imkonini beradi.

O'zbekiston Respublikasida ta'lim tizimini raqamlashtirish va innovatsion texnologiyalarni joriy etish davlat siyosatining ustuvor yo'nalishlaridan biri sifatida belgilangan. Shu nuqtai nazardan, sun'iy intellekt texnologiyalaridan foydalanish orqali ta'lim samaradorligini oshirish masalasi ilmiy va amaliy jihatdan muhim ahamiyat kasb etadi.

Sun'iy intellekt va ta'lim jarayoni

Sun'iy intellekt — bu kompyuter tizimlarining inson aql-zakovati faoliyatiga xos bo'lgan tahlil qilish, o'rganish, qaror qabul qilish kabi jarayonlarni bajarish qobiliyatidir. Ta'lim sohasida sun'iy intellekt quyidagi yo'nalishlarda samarali qo'llanilmoqda:

- adaptiv o'qitish tizimlari;
- aqlli test va baholash platformalari;
- virtual tutor va chat-botlar;
- o'quvchilar faoliyatini tahlil qiluvchi analitik tizimlar;
- masofaviy ta'limni qo'llab-quvvatlovchi platformalar.

Adaptiv ta'lim tizimlari sun'iy intellekt asosida har bir o'quvchining bilim darajasi, o'zlashtirish tezligi va qiziqishlariga mos ravishda individual o'quv rejasini shakllantiradi. Bu esa an'anaviy ta'limdagi "barchaga bir xil yondashuv" muammosini bartaraf etishga xizmat qiladi.

Ta'lim samaradorligini oshirishdagi imkoniyatlar

Sun'iy intellekt texnologiyalaridan foydalanish ta'lim samaradorligini quyidagi jihatlar orqali oshiradi:

Birinchidan, **individuallashtirilgan ta'lim** amalga oshiriladi. Har bir o'quvchi o'z bilim darajasiga mos topshiriqlarni bajaradi, bu esa bilimlarning mustahkam o'zlashtirilishini ta'minlaydi.

Ikkinchidan, **baholash jarayoni avtomatlashtiriladi**. SI asosidagi tizimlar test natijalarini tez va xolis baholaydi, inson omili bilan bog'liq xatoliklarni kamaytiradi.



Uchinchidan, **o'qituvchilar yuklamasi kamayadi**. Sun'iy intellekt rutinali ishlarni (tekshirish, statistik tahlil) o'z zimmasiga oladi, o'qituvchi esa ko'proq metodik va ijodiy faoliyatga e'tibor qaratadi.

To'rtinchidan, **ta'lim sifati monitoringi yaxshilanadi**. O'quvchilarning faolligi, o'zlashtirish darajasi va muammoli jihatlarini real vaqt rejimida tahlil qilinadi.

Sun'iy intellektdan foydalanishdagi muammolar

Shu bilan birga, sun'iy intellekt texnologiyalarini ta'lim tizimiga joriy etishda ayrim muammolar ham mavjud:

- texnik infratuzilmaning yetarli emasligi;
- malakali kadrlarning yetishmasligi;
- ma'lumotlar xavfsizligi va shaxsiy hayotni himoya qilish masalalari;
- o'qituvchilar va o'quvchilarning raqamli savodxonligi darajasi.

Mazkur muammolarni hal etish uchun kompleks yondashuv, ya'ni normativ-huquqiy bazani takomillashtirish, pedagoglarni qayta tayyorlash va texnologik infratuzilmani rivojlantirish talab etiladi.

Xulosa

Xulosa qilib aytganda, sun'iy intellekt texnologiyalaridan foydalanish ta'lim samaradorligini oshirishning muhim omillaridan biri hisoblanadi. U ta'lim jarayonini individuallashtirish, sifatni oshirish va zamonaviy talablar asosida tashkil etishga xizmat qiladi. Kelajakda sun'iy intellektning ta'lim sohasidagi roli yanada kengayib, raqamli ta'lim ekotizimining ajralmas qismiga aylanishi kutilmoqda.

Shu sababli, sun'iy intellekt texnologiyalarini ta'lim tizimiga bosqichma-bosqich, ilmiy asoslangan holda joriy etish ta'lim sifatini yangi bosqichga olib chiqadi.

ТЕХНИКА ВА ТЕХНОЛОГИЯ СОҲАСИДАГИ ИННОВАЦИЯЛАР
ЙЎЛИДАГИ ТАДҚИҚОТЛАРРАҚАМЛИ ЭВОЛЮЦИЯ: СУНЪИЙ ИНТЕЛЛЕКТНИНГ ГЛОБАЛ
ИҚТИСОДИЁТ ВА ИЖТИМОЙ СОҲАЛАРГА ТАЪСИРИ

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Аннотация: Ушбу мақолада сунъий интеллект (СИ) технологияларининг глобал иқтисодиёт ва ижтимоий соҳалардаги ўрни тизимли таҳлил қилинади. Тадқиқотда етакчи давлатларнинг СИ соҳасидаги рақобати, хусусан, Хитой, АҚШ ва Ўзбекистоннинг ривожланиш динамикаси кўриб чиқилган. Шунингдек, СИнинг тиббиёт, таълим ва экология соҳаларидаги амалий аҳамияти ҳамда унинг меҳнат бозори ва инсон онгига таъсири билан боғлиқ экзистенциал хавфлар ёритилган.

Калит сўзлар: Сунъий интеллект, рақамли иқтисодиёт, тиббий диагностика, “яшил” технологиялар, киберхавфсизлик, трансформация.

Инсоният тарихи – бу аслида воситалар ва қуроллар яратиш тарихидир. XXI аср бошига келиб, инсон ўзи яратган энг мураккаб аъзоси – интеллектнинг нусхасини яратишга киришди. Бугунги кунда сунъий интеллект (СИ) нафақат технология, балки «рақамли онг» эволюциясининг бошланғичи сифатида намоён бўлмоқда. СИ технологиялари инсон меҳнатини эмас, балки инсон фикрини алмаштира олиш салоҳияти билан Тўртинчи саноат инқилобининг якуний нуктаси ёки янги бир даврнинг бошланиши сифатида баҳоланмоқда.



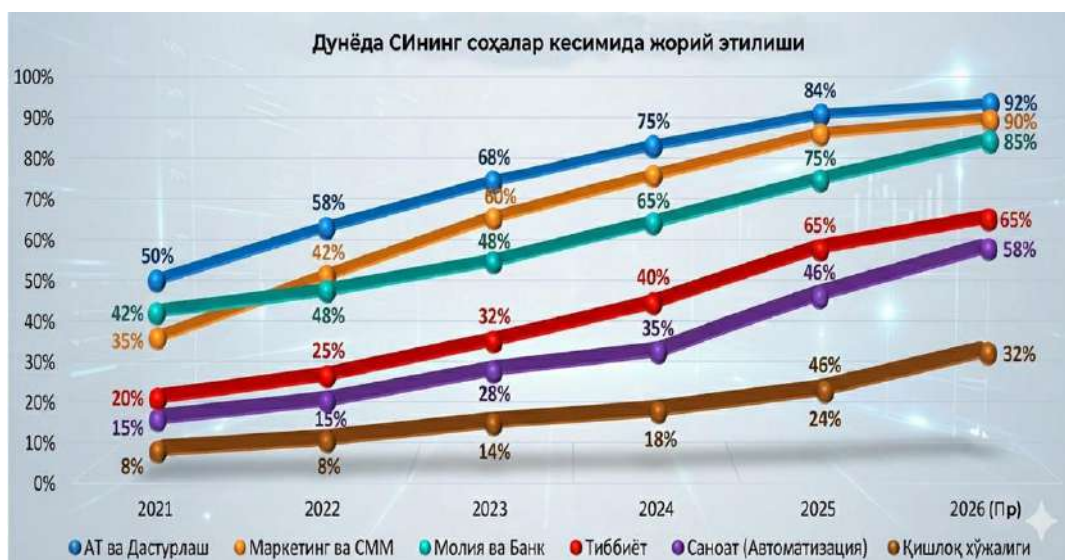
Глобал иқтисодий кўрсаткичлар ва прогнозлар СИ бозоридаги геосиёсий рақобат бугунги кунда давлатларнинг миллий хавфсизлик даражасига кўтарилган. Таҳлилларга кўра, 2026 йилга бориб Хитой (82%) ва АҚШ (80%) иқтисодиётида СИ улуши энг юқори кўрсаткичга чиқиши кутилмоқда. Ҳиндистоннинг ўсиш суръатлари ҳам диққатга сазовор бўлиб, у 2026 йилга



келиб 74% га етиши ва Европа Иттифоқини (62%) ортида қолдириши прогноз қилинмоқда.

Ўзбекистон иқтисодиётида ҳам СИ жадал суръатлар билан кириб келмоқда. Банк тизимидаги “Face ID” ва тиббиётдаги диагностик алгоритмлар бунинг яққол мисолidir. 2021 йилда 8% бўлган СИ улуши 2026 йилга келиб 36% га етиши кутилмоқда. Умумий ҳисобда, 2030 йилга келиб СИ жаҳон иқтисодиётига 15,7 трлн доллар қўшимча ҳисса қўшиши прогноз қилинган.

Сининг соҳалар кесимида татбиқ этилиши Сининг турли тармоқлардаги



иштироки экспоненциал ўсиш босқичида. Айниқса, АТ ва Маркетинг соҳалари 2026 йилга келиб деярли тўлиқ СИ назоратига ўтиши кутилмоқда.

Тиббиёт: СИ диагностика аниқлигини оширувчи стратегик ҳамкорга айланди. Масалан, Google алгоритми кўкрак беги саратонини аниқлашда "ёлғон ижобий" натижаларни 5,7% га камайтирган. Янги дори воситаларини яратиш жараёни (масалан, фиброзга қарши дори) СИ ёрдамида 5-8 йилдан 46 кунгача қисқарди.

Таълим: СИ таълимни индивидуаллаштириш орқали математика каби фанларни ўзлаштириш кўрсаткичини 30% га оширди.

Экология ва иқтисодиёт: Amazon ва Alibaba каби гигантлар логистика харажатларини 15-20% га камайтирган бўлса, "ақлли фермерлик" технологиялари кимёвий моддалар сарфини 90% гача тежаш имконини бермоқда.

Хавф-хатарлар ва этик муаммолар СИ ривожини билан бирга бир қатор муаммолар ҳам кун тартибига чиқмоқда. Биринчи навбатда, меҳнат бозорининг қайта қурилиши натижасида Call-center, таржимонлик ва график дизайн каби такрорланувчи иш ўринлари хавф остида қолмоқда. Иккинчидан, "Deepfake" технологиялари орқали дезинформация ва манипуляция қилиш хавфи ортмоқда.

Энг муҳим муаммолардан бири — "рақамли амнезия" бўлиб, инсон мияси маълумотни сақлаш функциясини СИга топшириши натижасида хотира ва мустақил қарор қабул қилиш қобилияти сусайиши мумкин.



Сунъий интеллект — Инсониятнинг охириги иштирокидаги ихтироси бўлиши мумкин, чунки кейинги барча кашфиётлар инсон ва СИ симбиозиди амалга оширилади. Келажакдаги асосий кўникма — СИга тўғри савол бера олиш ("Prompt Engineering") ва маълумотларни саралаш учун "Танқидий фикрлаш"дир. Агар биз ушбу қудратли кучни инсон кадр-қиммати ва адолат йўлида йўналтира олсак, у янги уйғониш даврига йўл очади. Зеро, асосий интеллект ҳали-ҳамон инсондадир



ТЕМИР YO‘L TRANSPORTI INFRATUZILMASINING HOLATINI KOMPLEKS BAHOLASH USLUBIYOTI VA TIZIMINI JORIY ETISH ASOSIDA POYEZDLAR HARAKATI XAVFSIZLIGINI TA‘MINLASH

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Annotatsiya: Jahonda temir yo‘l transporti infratuzilmasining texnik va texnologik imkoniyatlarini rivojlantirish, harakat xavfsizligi talablari buzilish oqibatlarini bartaraf etish usullarini tanlash va texnik-iqtisodiy baholash usullarini takomillashtirishga katta e‘tibor qaratilmoqda. Bu borada, temir yo‘l stansiyadagi poyezdlar harakat va manyovr ishlarida harakat xavfsizligini buzilish holat va tasniflari asosida hodisalarning sodir etish xavf darajalari aniqlash va harakat xavfsizligini ta‘minlashning baholash tizimini ishlab chiqish bo‘yicha tadqiqotlar hozirgi kunda dolzarb hisoblanmoqda. Shu bilan birga xavf darajalarini yordamida temir yo‘l infratuzilma obyektlari holatini kompleks baholash mezonlarining matematik modelini ishlab chiqish va tashishlar xavfsizligi talablarining buzilishini hisobga olgan holda infratuzilmalarni holatini kompleks baholash uslubiyotini takomillashtirish dolzarb vazifalardan biridir. Bu ilmiy maqolada ushbu vazifalarni amalga oshirishda, axborot texnologiyalari asosida temir yo‘llarda yuk va yo‘lovchilar tashish xavfsizligini ta‘minlashni masofadan doimiy nazorat qilish asosida temir yo‘l infratuzilma obyektlari holatining kompleks baholash tizimini ishlab chiqishda takliflar berilgan.

Kalit so‘zlar: Temir yo‘l transporti infratuzilmasi, harakat xavfsizligini ta‘minlash, axborot texnologiya, poyezd, manyovr, texnik, texnologik, stansiya.

Abstract: Worldwide, significant attention is being paid to the development of the technical and technological capabilities of railway transport infrastructure, the selection of methods to eliminate the consequences of violations of railway traffic safety requirements, and the improvement of methods for their technical and economic assessment. In this context, research aimed at identifying risk levels of incidents based on the types and classifications of safety violations during train movements and shunting operations at railway stations, as well as developing a system for assessing traffic safety assurance, is currently of high relevance. At the same time, one of the urgent tasks is to develop a mathematical model of criteria for the comprehensive assessment of the condition of railway infrastructure facilities based on risk levels, and to improve the methodology for comprehensive condition assessment of infrastructure facilities while taking into account violations of transportation safety requirements. This scientific article proposes solutions to these tasks by suggesting the development of a comprehensive assessment system for the condition of railway infrastructure facilities based on continuous remote monitoring



of freight and passenger transportation safety on railways using information technologies.

Keywords: Railway transport infrastructure, traffic safety assurance, information technology, train, shunting, technical, technological, station.

Dunyoni yetakchi mamlakatlarida transportda harakat xavfsizligini ta'minlash sifatini nazoratini amalga oshirish sohasiga raqamli texnologiyalarni qo'llashga bo'lgan talab keskin ortmoqda. Shu munosabat bilan tashishlarni tashkil etish usullariga komissiyaviy chora-tadbirlarni tatbiq qilish asosida transport infratuzilmasining holatini kompleks baholash tizimini joriy etish hamda poyezdlar harakati xavfsizligini ta'minlash usullarini izlash masalalariga alohida ahamiyat berilmoqda. Jahondagi rivojlangan davlatlar, jumladan, AQSh, Germaniya, Fransiya kabi mamlakatlarning temir yo'l transportida harakat xavfsizligi hodisalarining 70% inson omiliga to'g'ri kelishini hisobga olsak¹¹, infratuzilmaning texnik va texnologik imkoniyatlaridan samarali foydalanib, tashishlar xavfsizligi talablarining buzilish holat va tasniflarining oqibatlari asosida huquqbuzarlikning sodir etish xavf darajalari bo'yicha harakat xavfsizligini ta'minlashning kompleks yechimlarini ishlab chiqish muhim ahamiyat kasb etmoqda. Shu jihatdan, temir yo'l transportida poyezdlar harakati xavfsizligini oshirish, tashishlar xavfsizligi buzilish holatlarini bartaraf etish hamda temir yo'l transporti infratuzilma obyektlari holatini xavf darajalarini kompleks baholashda texnik iqtisodiy xarajatlarni minimallashtirishga alohida e'tibor qaratilmoqda.

Temir yo'l transporti infratuzilmasining holatini kompleks baholash uslubiyoti va tizimini joriy etish asosida poyezdlar harakat xavfsizligini ta'minlashga qaratilgan ilmiy tadqiqotlar dunyoning yetakchi ilmiy markazlarida, universitetlarida ilmiy izlanishlar olib borilmoqda. Respublikamizda ham transport va transport kommunikatsiyalari sohasini rivojlantirish, transport sohasidagi boshqaruv tizimini takomillashtirish, tashishlarning yuqori darajadagi xavfsizligini ta'minlash samaradorligini oshirish asosida harakat xavfsizligi talablarining buzilishini qisqartirishga imkon beradigan resurstejamkor usullar va zamonaviy innovatsion texnologiyalar hamda intellektual tizimlar ishlab chiqish bo'yicha chora-tadbirlar amaliyotga joriy etilmoqda.

Temir yo'l transportida harakat xavfsizligi ta'minlashning zamonaviy holati bo'yicha umumiy foydalanishdagi temir yo'llarida harakat xavfsizligini ta'minlashnishi va uni tahlili hozirgi kundagi holati, temir yo'l transportida xavfsizlikni boshqarish tizimlari bo'yicha jahon tajribasi tahlili, temir yo'l transportida harakat xavfsizligini ta'minlash bo'yicha xorijiy va mahalliy olimlarning ilmiy izlanishlari tahlil qilinib, o'rganilishi hozirgi kunda dolzarb hisoblanadi. Respublikamizda sodir bo'lgan harakat xavfsizligi buzilish hodisalarining temir yo'l stansiyasining texnologik ish jarayoniga bog'liqligi hamda unda inson omilining ta'sirining tahlillari amalga oshirildi. Natijada, poyezdlar harakati xavfsizligini oshirish temir yo'l transporti infratuzilmasining holatini kompleks baholash uslubiyoti va tizimini joriy etish usullarini izlashni talab qiladi.

¹¹ <https://cyberleninka.ru/article/n/obespechenie-bezopasnosti-truda-na-zheleznodorozhnom-transporte>



Temir yo‘l transportida infratuzilmani komissiyaviy ko‘rikdan o‘tkazish texnologiyalari temir yo‘l infratuzilmasining texnik holati poyezdlar harakati xavfsizligi va ekspluatatsion samaradorlikning asosiy omili ekanligi ilmiy jihatdan asoslanish zarur. Infratuzilma elementlarining nosozligi poyezdlar harakat grafigining buzilishi, temir yo‘l stansiyalarida harakat tarkiblarning me‘yordan ortiq turib qolishi hamda tashish jarayonlarining samarasiz tashkil etilishiga olib kelishi aniqlandi. Shu sababli infratuzilmani komissiyaviy ko‘rikdan o‘tkazish tizimini takomillashtirish harakat xavfsizligini ta‘minlashning muhimligi ko‘rib chiqildi. Amaldagi (an‘anaviy) komissiyaviy ko‘rik texnologiyasining asosiy kamchiliklaridan biri bu qog‘oz shaklida yuritilishidir. Xususan, qog‘oz hujjatlar asosida ishlash, ma‘lumotlarni qayta ishlashning sustligi va inson omiliga yuqori darajada bog‘liqlik ko‘rik jarayonining vaqt sarfini oshirishi hamda xatoliklar ehtimolini ko‘paytirishi olib keladi. Bu holat poyezdlarning texnik stansiyalarda turish vaqtini uzaytirib, uchastka tezligining pasayishiga salbiy ta‘sir ko‘rsatadi.

Raqamlashtirilgan komissiyaviy ko‘rik texnologiyasining konseptual afzalliklari asoslanib, raqamli axborot tizimlari, markazlashgan ma‘lumotlar bazasi va real vaqt rejimidagi monitoring vositalaridan foydalanish infratuzilma holatini baholashda aniqlik va shaffoflikni ta‘minlashi, inson omilini kamaytirishi va xavfli holatlarni erta aniqlash imkonini beradi.

An‘anaviy va raqamli texnologiyalar solishtirma tahlil qilinganda, tahlil natijalari, raqamli texnologiya ko‘rik o‘tkazish vaqtini sezilarli darajada qisqartirishi, ma‘lumotlar aniqligini oshirishi, hisobotlarni avtomatik shakllantirish imkonini yaratishi hamda harakat xavfsizligi darajasini yuqoriroq pog‘onaga olib chiqishi aniqlandi. Bu esa temir yo‘l infratuzilmasini boshqarishda ilmiy asoslangan qarorlar qabul qilishga xizmat qiladi.

Komissiyaviy oylik ko‘rik texnologiyalarining temir yo‘l stansiya ish ko‘rsatkichlariga ta‘siri statistik va korrelyatsion usullar yordamida baholanib, tadqiqotlar texnologik buzilishlar, texnik vositalar nosozligi va poyezdlar kechikishlari o‘rtasida kuchli o‘zaro bog‘liqlik mavjudligini ko‘rsatdi. Ayniqsa, tranzit qayta ishlanadigan poyezdlarning texnik stansiyalarda turib qolish vaqti infratuzilma holatini baholash sifati bilan bevosita bog‘liqligi aniqlanib, raqamli texnologiyani joriy etishning texnik-iqtisodiy samaradorligi oshadi.

Temir yo‘l transportida harakat xavfsizligini ta‘minlash tizimini tadqiq qilishda harakat va tashishlar xavfsizligi talablarining buzilishini tasniflash va ularni mezonlashga doir talablar, xavfsizligi talablarining buzilishi bilan bog‘liq hodisalarning ro‘y berish ehtimoli asosida xavfsizlik holatining darajasi tadqiq qilinib hamda harakat xavfsizligini baholashning matematik modeli ishlab chiqildi. Tadqiqot doirasida inson omilining ta‘siri tufayli temir yo‘l stansiyasi ishining texnologik jarayonida yuzaga kelgan xavflar tahlil qilinib va baholandi. Tadqiqot doirasida temir yo‘l uchastkalaridan poyezdlarni barqaror o‘tkazishda harakat xavfsizligiga mezonlarida keltirilgan ko‘rsatkichlariga ta‘siri qiyosiy tahlil qilinib, baholandi. Natijada, temir yo‘ldan foydalanish ish ko‘rsatkichlariga ta‘siriga ko‘ra uchastkada turli toifadagi poyezdlar harakatini tashkil etish texnologiyalarini tatbiq etish, baholash va taqqoslash, ularni qo‘llash doirasini belgilash amalga oshirildi.



Temir yo‘l transportida harakat xavfsizligi darajasini baholashda temir yo‘l transportida poyezdlar harakati xavfsizligini ta‘minlash bilan bog‘liq xarajatlarni baholash, harakat xavfsizligi ta‘minlash maqsadida aniqlangan kamchiliklarni bartaraf etish bo‘yicha takliflar, ularni ishlab chiqarishga tatbiq etish, temir yo‘l stansiyasida poyezdlar harakati xavfsizligini ta‘minlashning kompleks baholash tizimini iqtisodiy samaradorligi aniqlandi. Turli toifadagi poyezdlar harakati xavfsizligini ta‘minlashda xavflarni sodir bo‘lish ehtimoli, xavflarni darajasi, xavflar soni, stansiyalardagi texnologik amallar va boshqa omillarga bog‘liqdir. Bu omillar asosida ushbu poyezdlar xavfsizligini ta‘minlashning kompleks baholash tizimi ko‘p mezonli optimallashtirish tizimi yordamida amalga oshiriladi.

Tadqiqot doirasida temir yo‘l transportida harakat va tashishlar xavfsizligi talablarining buzilishini hisobga olgan holda infratuzilmalarni holatini kompleks baholash tizimining iqtisodiy-matematik modeli takomillashtirildi. Natijada, poyezdlar halokati, avariya yoki ishdagi alohida hodisalar orqali vagon, lokomotiv, SMB va aloqa vositalari, yuklarga yetkazilgan zararlar ko‘rsatkichlarini hisobga olgan holda aniqlashga erishildi.

Tadqiqot natijalarning ilmiy ahamiyati temir yo‘l infratuzilmalarida harakat xavfsizligi buzilishi bilan bog‘liq hodisalarning xavflilik darajalarini aniqlash, tashishlar xavfsizligini oshirishga yo‘naltirilgan harakat xavfsizligini ta‘minlash texnologiyalarining muqobil variantlarini taqqoslash usuli ishlab chiqilganligi bilan izohlanadi. Tadqiqot natijalarining amaliy ahamiyati temir yo‘l infratuzilmalarida yuzaga keladigan harakat xavfsizligi buzilishining oshishini hisobga olgan holda komissiyaviy oylik ko‘rik tizimini qo‘llash orqali tashish xavfsizligi yaxshilanishi bilan izohlanadi.

Temir yo‘l transporti infratuzilmasining holatini kompleks baholash uslubiyoti va tizimini joriy etish asosida poyezdlar harakat xavfsizligini ta‘minlash bo‘yicha olingan ilmiy natijalar asosida:

temir yo‘l transportida poyezdlar harakati va manyovr ishlaridagi nuqsonlarni baholash tizimi asosida huquqbuzarlik sodir etish xavf darajalarini aniqlash, poyezdlar harakat xavfsizligini ta‘minlashning baholash tizimi sanoat korxonalariga joriy etildi. Natijada, temir yo‘l transporti infratuzilmalaridagi xavflarni aniqlash, xavflarni bartaraf etishda inson omilini kamayishiga erishildi;

temir yo‘l infratuzilma obyektlari holatini belgilovchi mezonlarning matematik modeli hamda tashishlar xavfsizligi talablarining buzilishi bilan bog‘liq normativ hujjatlar talablarini bajarmasligini hisobga olgan holda infratuzilmalarni holatini ko‘rsatuvchi iqtisodiy-matematik uslubiyati sanoat korxonalariga joriy etilgan. Natijada, harakat xavfsizligi bilan bog‘liq hodisalar kamaytirishga erishildi.

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VIZUAL BOSHQARUV: ISHLAB CHIQARISHDA SHAFFOFLIK VA ISROFLARNI KAMAYTIRISH

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ANNOTATSIYA: Mazkur tezisda ishlab chiqarish jarayonlarida vizual boshqaruv tizimini joriy etish orqali shaffoflikni ta'minlash va isroflarni kamaytirish masalalari yoritilgan. Vizual boshqaruv ishlab chiqarish holatini real vaqt rejimida kuzatish, jarayonlardagi og'ishlarni tezkor aniqlash hamda xodimlarning jalb etilganlik darajasini oshirishga xizmat qiladi.

KALIT SO'ZLAR: vizual boshqaruv, ishlab chiqarish jarayoni, shaffoflik, isroflarni kamaytirish, sifat boshqaruv tizimi, samaradorlik, jarayonni nazorat qilish, ishlab chiqarish intizomi

Vizual boshqaruv – ish jarayonlari, ko'rsatkichlar va xavf-nuqtalarni ko'zga yaqqol, bir qarashda tushunarli ko'rinishda taqdim etish orqali ishlab chiqarishni boshqarish usulidir. Ushbu tezisda vizual boshqaruvning asosiy tamoyillari, isroflarni (kutish, ortiqcha zaxira, ortiqcha ishlov, keraksiz harakat, transport, ortiqcha ishlab chiqarish, nuqson) qisqartirishdagi roli, hamda korxonada joriy etish bo'yicha amaliy yo'l-xarita yoritiladi. Taklif etilgan ko'rsatkichlar tizimi (OEE, tsikl vaqti, nosozliklar soni, WIP, yetkazib berish aniqligi, andon chaqiruvlari tezligi) va vizual vositalar (ish joyi belgilash, “soya taxta”, rang kodlari, kanban, andon paneli, standart ish kartalari) yordamida shaffoflik oshiriladi, muammolar erta aniqlanadi va qaror qabul qilish tezlashadi. Natijada jarayon barqarorligi kuchayadi, sifat xatolari kamayadi va mahsuldorlik ortadi.

Zamonaviy ishlab chiqarishning asosiy muammolaridan biri — jarayonlarning ko'rinmasligi: ma'lumotlar tarqoq, ko'rsatkichlar kechikib keladi, muammolar esa faqat nuqson chiqqanidan keyin bilinadi. Natijada ortiqcha ishlab chiqarish, kutish, keraksiz harakat va ortiqcha zaxira kabi isroflar jamlanib boradi, buyurtmalarni bajarish muddati cho'ziladi, sifat barqarorligi esa pasayadi. Ko'p korxonalarda standart ish yozma shaklda mavjud bo'lsa-da, u ish joyida ko'zga tashlanmaydi; asbob-uskunalar joylashuvi va oqim yo'laklari belgilari eskirgan yoki umuman yo'q. Bularning barchasi ustaxonalarda “nima, qayerda, qay holatda” degan savollarga tez javob topolmaslikka olib keladi.

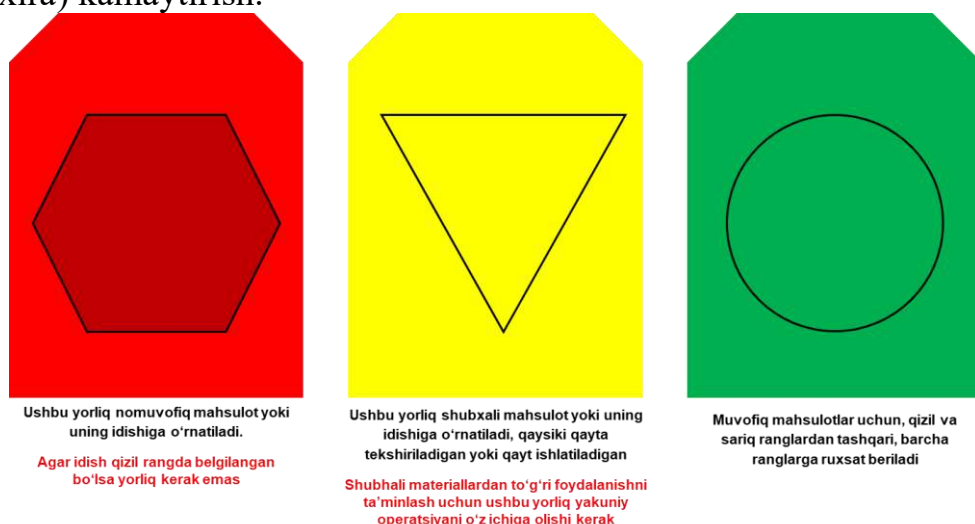
Raqobat kuchaygan, yetkazib berish zanjirlari qisqarayotgan va mijoz talabi o'zgaruvchan sharoitda shaffoflik — operativ boshqaruvning tayanchi. Ayniqsa, eksportga yo'naltirilgan korxonalar uchun muddat, sifat va xavfsizlik talablariga izchil rioya qilish zarur. Shu nuqtai nazardan, vizual boshqaruv (ish joyini belgilash, rang kodlari, “soya taxtalar”, andon signallari, kanban kartalari, kundalik KPI taxtalari) jarayon holatini “bir qarashda” anglash imkonini beradi: og'ishlar darhol ko'rinadi, sabablar tez topiladi, tuzatish choralari javob vaqti qisqaradi.



Vizual boshqaruv 5S intizomi va standart ishni ish joyining o'zida ko'rsatish orqali xodimlarni jarayon markaziga qo'yadi: kim, qachon, niman va qanday bajarishi aniq ko'rinadi. Bu usul nafaqat isroflarni kamaytiradi, balki mehnatni muhofaza qilish belgilarini yangilash, xavf zonalarini aniq ajratish orqali xavfsizlik madaniyatini ham mustahkamlaydi. Raqamli panellar va sensorlar (elektron kanban, real vaqt OEE) bilan uyg'unlashganda, vizual boshqaruv ISO talablari va ichki auditlarga tayyorgarlikni yengillashtiradi, rahbariyatga dalillarga asoslangan qarorlarni tez qabul qilish imkonini yaratadi. Shu bois vizual boshqaruv bugungi sharoitda ishlab chiqarishda shaffoflikni ta'minlash va isroflarni barqaror ravishda qisqartirishning eng samarali yondashuvlaridan biri hisoblanadi.

Vizual boshqaruv Yalpi yo'qotishlarni kamaytirish (Lean) va Toyota ishlab chiqarish tizimi (TPS) tamoyillariga tayanadi: oqimni tekislash (heijunka), o'z vaqtida yetkazish (takt + tortish), hamda jidoka (nosozlikda darhol to'xtatish). Maqsad — isroflarni ko'rinadigan qilish va muammoga zudlik bilan javob berish.

Vizual nazorat — ish joyida jarayon holati, xavfsizlik, tartib va me'yoriy og'ishlarni **bir qarashda** anglatib beruvchi ko'rgazmali belgilar va vositalar majmui. Maqsad — xodimga “nima qayerda, qaysi holatda va keyingi qadam nima?” savollariga tez javob berish, isroflarni (kutish, qidirish, keraksiz harakat, ortiqcha zaxira) kamaytirish.



1-rasm. Ishlab chiqarishni ranglar bilan belgilash

Vizual nazoratning quyidagi darajalari mavjud:

1-daraja: Ko'rsatish (ko'rinarlilikni yaratish). Bu bosqichda maqsad — ish joyida “nima qayerda” degan savolga bir qarashda javob berish. Pol chiziqlari, saqlash joylari belgisi, soya taxtalar, partiya yorliqlari va rangli stikerlar qo'yiladi. Xodimlar asbob va materialni qidirishga kam vaqt sarflaydi, lekin og'ish yuzaga kelganda tizim faqat holatni ko'rsatadi, qaror va harakat hanuz odam zimmasida.

2-daraja: Ogohlantirish (og'ish xavfini oldindan ko'rsatish). Ko'rinarlilikka vaqtli signal qo'shiladi: sariq belgilar, “WIP limitga yaqin” ko'rsatkichlari, xavf zonalar va muhim nuqtalarda ogohlantiruvchi piktogrammalar paydo bo'ladi. Maqsad — muammo sodir bo'lishidan avval e'tiborni tortish. Xodimlar qoidabuzarlikni ko'rib, o'z vaqtida to'xtatadi yoki rahbarni chaqiradi.



Shunday qilib isrof (kutish, keraksiz harakat) pasaya boshlaydi, ammo yechim hali standartlashtirilmagan.

3-daraja: Yo‘naltirish (xatti-harakatni boshqarish). Bu bosqichda vizual nazorat vizual boshqaruvga aylanadi: standart ish kartalari (rasm + 3 qadam), bir yo‘nalishli oqim belgilari, kanban kartalari va qat’iy WIP limitlari jarayonga kiritiladi. Belgilar nafaqat holatni ko‘rsatadi, balki xodimni to‘g‘ri ketma-ketlikka yo‘naltiradi. Kunlik KPI taxtalari (takt-tsikl, OEE, nuqsonlar) uchastka yig‘ilishlarida muhokama qilinadi; og‘ishlar qizil rangda ajratilib, javob choralari belgilab boriladi. Variatsiya keskin kamayadi, oqim tekislanadi.

4-daraja: Yo‘l qo‘ymaydigan tizim (xatoga chidamsiz dizayn, poka-yoke). Endi tizim xatoni ko‘rsatish yoki ogohlantirish bilan cheklanmaydi — xatoga yo‘l qo‘ymaydi. Mos kelmagan detalni qabul qilmaydigan jig, kalit-kodli idishlar, noto‘g‘ri yig‘ishni bloklovchi moslamalar joriy etiladi. Andon tugmalari va panellari nosozlikda darhol to‘xtatib, sabab va javobgarlikni ko‘rsatadi; MTTR o‘lchanadi, A3 kartalari orqali ildiz sabab bartaraf qilinadi. Natija — nuqsonlar va qayta ishlov minimal darajaga tushadi, xavfsizlik va barqarorlik oshadi.

5-daraja: Integratsiyalashgan vizual boshqaruv (raqamli + analog uyg‘unligi). Eng yuqori pog‘onada vizual tizim raqamli yechimlar bilan uyg‘unlashadi: elektron kanban, real vaqt OEE paneli, sensordan kelayotgan signal asosida andonlar, avtomatik hisobotlar. Shu bilan birga, uzilishlar bo‘lsa ishlaydigan oddiy qog‘ozli zaxira jarayonlari saqlanadi. Har qatlam (ish joyi, uchastka, sex, zavod) o‘zining 3–5 ta muhim ko‘rsatkichini boshqaradi, PDCA va haftalik gembayig‘ilishlar orqali doimiy yaxshilash ishlaydi.

Xulosa

Vizual boshqaruv — ishlab chiqarishda shaffoflikni oshirib, isroflarni (kutish, qidirish, keraksiz harakat, ortiqcha zaxira, ortiqcha ishlov, transport, nuqson) ko‘rinadigan qiladigan va ularga tezkor javob berishni ta‘minlaydigan tizimli yondashuvdir. U 5S intizomi, standart ish, kanban, andon va qatlamli (ish joyi–uchastka–sex–zavod) KPI taxtalarini yagona dizayn va yagona semantika asosida birlashtirgandagina barqaror natija beradi. Yetuklik bosqichlari bo‘yicha ko‘tarilish (ko‘rsatish → ogohlantirish → yo‘naltirish → xatoga yo‘l qo‘ymaydigan dizayn → raqamli integratsiya) korxonaga avvalo variatsiyani kamaytirish, oqimni tekislash va nuqsonlarni erta to‘xtatish imkonini beradi.

Amaliy jihatdan, vizual boshqaruvni pilot uchastkada boshlash, rang–belgi–shrift bo‘yicha standartlarni oldindan tasdiqlash, WIP limitlari va andon javob vaqtini o‘lchash, har bir belgi/taxtaga mas’ul tayinlash va haftalik 5S auditini yo‘lga qo‘yish tavsiya etiladi. “Vizual shovqin”dan (ortiqcha belgilar, chalkash ranglar) qochish, xavfsizlik piktogrammalari bilan moslikni ta‘minlash, raqamli panellar ishlamagan holatlar uchun sodda “qog‘ozli zaxira” protseduralarini saqlash zarur. Natijada shaffoflik kuchayadi, qarorlar dalillarga tayanadi, ISO talablari bo‘yicha ichki auditlar yengillashadi va ishlab chiqarishning asosiy ko‘rsatkichlari (tsikl vaqti, WIP, nuqsonlar, to‘xtashlar, OEE) tizimli ravishda yaxshilanadi.

Foydalanilgan adabiyotlar ro‘yxati



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**БИОМЕДИЦИНА ФАНЛАРИНИ РИВОЖЛАНТИРИШ ЙЎЛИДАГИ
ТАДҚИҚОТЛАР**

УДК: 616.381–002–021.3–053.2

**БОШ МИЯ ЁПИҚ ЖАРОҲАТЛАРИДАН КЕЙИНГИ ДАСТЛАБКИ
72 СОАТ ИЧИДА ГИПОФИЗДАГИ ПАТОМОРФОЛОГИК
ЎЗГАРИШЛАР**

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Аннотация: Бош мия ёпиқ жароҳатларидан кейинги 72 соатлик муддатда гипофизни морфофункционал кўрсаткичларида гемодинамик ўзгаришларни юзага келиши, тўлақонлик белгиларини шаклланиши, гипофиз стромасини плазматик бўкиши каби ўзгаришларга олиб келиши билан намоён бўлади. Бу эса, ацидофил ва базофил хужайраларни турли хил интенсивликда бўялиши ва базофил хужайралар цитоплазмасида оч эозинофил киритмаларни кўпайиши билан изоҳланади. Натижада, базофил хужайраларни тров гормон ишлаб чиқарувчи ички ресурсларини етишмовчилиги, базофил хужайраларда декомпозиция кўринишидаги вакуол дистрофияси, хужайраларни хажман катталиши каби ўзгаришлар билан намоён бўлиб, гипофизни олдинги аденогипофиз соҳаси олд ён юзаларига диапедез қон қуйилиши билан давом этади.

Калит сўзлар: Гипофиз, вакуол дистрофия, декомпозиция, плазматик бўкиш, аденогипофиз.

Муаммонинг долзарблиги. Дунё аҳолисида бош миани турли хил кўринишдаги шикастланишлар ҳар 100 мингта контингентга ўртача 80-585 тани ташкил этади. АҚШ ва Буюк Британия, Европа давлатларида 100000 та аҳолига ўртача 14-30 тани ташкил этса, ХИТой халқ республикаси, Япония ва Жанубий Кореяда 100000 тага ўртача 30-148 тани ташкил этади. Россия Федерациясида бу кўрсаткич 45-200 тани ташкил этади. МДХ давлатларида ўртача 100000 тага бу кўрсаткич 45-280 тани ташкил этса, мамлакатимизда бу кўрсаткич ўртача 100000 тага 258 тани ташкил этади (2022 йил маълумотлари).

Бош мия шикастланишларини ёшга доир жиҳатлари бўйича, 21-60 ёшлиларда кўпроқ учраши ва эркакларда 21-40 ёшни ташкил этса, аёлларда бу кўрсаткич 40-55 ёшни ташкил этади. Бош мия шикастланишларида гипоталамо гипофизар тизимни интегратив боғлиқлигини издан чиқиши бир қанча ўзгаришлар жумладан, кортико гипоталамо гипофизар дезинтеграцияга олиб келади. натижада, эндокрин безлар фаолиятини ностабил бўлиши беморлар жинси, ёши, танасининг конституционал жиҳатларига боғлиқ тарзда



ўртача 71%да ўрта, 15% да оғир ва 16%да ўта оғир кўринишдаги шикастланиши юзага келиши натижасида, гипофизар тизимни функциоанл етишмовчилиги юзага келиши билан изоҳланади. айнан, гипофизга қон қуйилиши, гипофизни шикастланиши натижасида, гипопитуитаризм кўринишда намоён бўлади. Бу эса, айниқса, 21-30 ёшлиларда, СТГ, ЛГ, ФСТ, ТТГ, АКТГ, пролактин, антидиуретик гормонларни ўткир етишмовчилигига олиб келади. бу эса, бош мия шикастланишларида гипоталамо гипофизар интеграцияни бузилишида юзага келадиган патоморфологик ўзгаришларни мохиятан тўла тўқис ўрганилмаганлигини англатади. Хозирги пайтда, айнан, 21-40 ёшлилар меҳнатга лаёқатли контингентни ташкил этиб, бош мия шикастланишидан кейинги реабилитация даврида турли хилдаги асоратларни юзага келиши эрта ногиронликка олиб келади. бу эса, ўз навбатида, муаммони долзарбдиги ва иштимой аҳамияти юқори эканлигини англатади. Оқибатда, давлатни иқтисодий иштимой тамойилларини орқада қолишига олиб келади.

Тадқиқот мақсади: Бош мия ёпиқ жароҳатларидан (БМЁЖ) кейинги даврда гипофизда юзага келадиган патоморфологик ўзгаришларини ўрганишдан иборат.

Материал ва усуллар: Материал сифатида Республика суд тиббий экспертиза илмий амалий марказида 2022-2025 йилларда бош мия ёпиқ жароҳати билан вафот этганлар аутопсиясида гипофиз материалларидан 85та гипофиз тўқималари олинди. Текшириш учун гематоксилин эозин бўяш усулидан фойдаланилди.

Натижа ва муҳокама: Бош мия жароҳатларидан кейинги 3 суткалик даврида гипофизда юзага келадиган морфологик ўзгаришларни ўзига хослиги асосан 48-72 соатдан кейин ривожланади. Бу эса, гипофизни гипоталамус билан боғлиқлигида гормонал фаол моддаларни ресурслари тугаши ва гипоталама гипофизар ва симпатoadренал тизимдаги боғлиқликни бузилиш ва дезинтеграцияси билан изоҳланади. Натижада, магистрал ва периферик томирларда тонусни пасайиши, адаптация механизмларини секинлашиши томирларни кенгайишига олиб келиши оқибатида барча аъзоларда гемодинамик бузилишларга олиб келади. Айнан, гипофизда қон айланишини бузилиши базофил ва ацидофил хужайраларни дистрофик ва некробиотик ўзгаришларига олиб келиши асосан жароҳатланишни 48-72 соатидан кейинги даврда юзага келади. Натижада, 48-72 соатдан кейинги даврда гипофиз гормонларини етишмаслиги буйрак усти беги функционал кўрсаткичларини пасайишига, қон томирлар тонусини камайиши, буйраклар етишмовчилигига олиб келишини тасдиқлайди. Бевосита гипофизни аденогипофиз қисми кортикотропоцитларни кескин дистрофик ўзгаришлари, оч эозинофил цитоплазмали, хужайралараро бўшлиқларда оралиқ шишиларни кескин ривожланиши, капиллярларда сладж феномени ва диапедез қон қуйилиш каби ўзгаришлар аниқланади. Бу ўзгаришларни туб мохиятида асосан секретор аденоцитларда дистрофик ва некробиотик ўзгаришлар, қон томирларида тўлақонлик ва стромада интерстициал шишларни юзага келиши билан намоён бўлади.



Хулосалар

БМЁЖда 48-72 соатдан кейинги даврда гипофизни морфологик жиҳатдан асосан гипатоомо-гипофизар симпатoadаренал тизими йўналишида бевосита аденогипофизда, адренкортикоцитларни дистрофик, некробиотик ўзагришлари, капиллярларда тўлақонлик, капиллярларни бўшаб қолиши, вазодилатацияси, стромани интерстициал шиши, оқибатида, қайтмас жараён гипофизда мултифокал некроз ўчоқларини юзага келиши билан давом этагналиги аниқланди.

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УДК: 616.381–002–021.3–053.2

**БОШ МИЯ ЁПИҚ ЖАРОҲАТЛАРИ ИЛК ДАВРИДА
ГИПОФИЗНИНГ МОРФОЛОГИК ЎЗГАРИШЛАР**

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Аннотация: Бош мия жароҳатларида асосан гипофизни динамикадаги морфологик ўзгаришлари бўйича, асосий жихатлари бу аденогипофиздаги стрессор троп гормонларни ишлаб чиқувчи хужайраларни гиперпродукцияси ва гиперфункцияси фисфа муддатда без хужайраларини функционал зўриқишига ва қон айланиши бузилишига олиб келиши натижасида, базофил хужайраларида дистрофик ўзгаришлари кортикотроп гормонлар етишмовчилигига олиб келиши натижасида гипонатремия ривожланишига олиб келади. бу эса, парадоксал кўринишида бош мия шиши ва гипофизни иккиламчи шикастланишига олиб келиши билан характерланади.

Калит сўзлар: Гипофиз, бош мия ёпиқ жароҳати, морфология, дистрофия, некроз.

Муаммонинг долзарблиги. Дунё аҳолисида бош мияни турли хил кўринишдаги шикастланишлар хар 100 мингта контингентга ўртача 80-585 тани ташкил этади. АҚШ ва Буюк Британия, Европа давлатларида 100000 та аҳолига ўртача 14-30 тани ташкил этса, ХИТой халқ республикаси, Япония ва Жанубий Кореяда 100000 тага ўртача 30-148 тани ташкил этади. Россия Федерациясида бу кўрсаткич 45-200 тани ташкил этади. МДХ давлатларида ўртача 100000 тага бу кўрсаткич 45-280тани ташкил этса, мамлакатимизда бу кўрсаткич ўртача 100000 тага 258 тани такшил этади (2022 йил маълумотлари).

Бош мия шикастланишларини ёшга доир жихатлари бўйича, 21-60 ёшлиларда кўпроқ учраши ва эркакларда 21-40 ёшни ташкил этса, аёлларда бу кўрсаткич 40-55ёшни ташкил этади. Бош мия шикастланишларида гипоталамо гипофизар тизимни интегратив боғлиқлигини издан чиқиши бир қанча ўзгаришлар жумладан, кортико гипаталомо гипофизар дезинтеграцияга олиб келади. натижада, эндокрин безлар фаолиятини ностабил бўлиши беморлар жинси, ёши, танасининг конституционал жихатларига боғлиқ тарзда ўртача 71%да ўрта, 15% да оғир ва 16%да ўта оғир кўринишдаги шикастланиши юзага келиши натижасида, гипофизар тизимни функциоанл етишмовчилиги юзага келиши билан изохланади. айнан, гипофизга қон қуйилиши, гипофизни шикастланиши натижасида, гипопитуитаризм кўринишда намоён бўлади. Бу эса, айниқса, 21-30 ёшлиларда, СТГ, ЛГ, ФСГ,



ТТГ, АКТГ, пролактин, антидиуретик гормонларни ўткир етишмовчилигига олиб келади. бу эса, бош мия шикастланишларида гипоталамо гипофизар интеграцияни бузилишида юзага келадиган патоморфологик ўзгаришларни мохиятан тўла тўқис ўрганилмаганлигини англатади. Хозирги пайтда, айнан, 21-40 ёшлилар меҳнатга лаёқатли контингентни ташкил этиб, бош мия шикастланишидан кейинги реабилитация даврида турли хилдаги асоратларни юзага келиши эрта ногиронликка олиб келади. бу эса, ўз навбатида, муаммони долзарбдиги ва иштимой аҳамияти юқори эканлигини англатади. Оқибатда, давлатни иқтисодий иштимой тамойилларини орқада қолишига олиб келади.

Тадқиқот мақсади: Бош мия ёпиқ жароҳатларидан (БМЁЖ) кейинги даврда гипофизда юзага келадиган патоморфологик ўзгаришларини ўрганишдан иборат.

Материал ва усуллар: Материал сифатида Республика суд тиббий экспертиза илмий амалий марказида 2022-2025 йилларда бош мия ёпиқ жароҳати билан вафот этганлар аутопсиясида гипофиз материалларидан 85та гипофиз тўқималари олинди. Текшириш учун гематоксинин эозин бўйи усулидан фойдаланилди.

Натижа ва муҳокама: Бош мия ёпиқ жароҳатлари оқибатида, гемодинамик бузилишлар, бош миёда қон айланишини бузилишда юзага келган дастлабки 6-8 соатда, хужайраларни донатор оксилли дистрофияга учраши (гиалин томчили) натижасида, кортикотропоцитларда коагуляцион некрозни дастлабки морфологик белгилари: ядрони децентрализацияси, кариопикноз, хроматин-ларни конденсацияси каби ўзгаришлар билан намоён бўлиб, айнан, кортикотропоцитларни кўп жойлашган сохаларида ушбу белгилар ривожланиши билан намоён бўлади.

Қизиқарли жихатларидан бири, капиллярларни 3/2 қисмида бўшаб қолиш каби ўзгаришлар, қонсизланиш юзага келиб, аксарият шу соҳадаги секретор эпителийларни ўткир гипоксияси, дистрофияси ва муддатга алоқадор кечиши оқибатида, мултифокал некроз ўчоқларини юзага келганлиги аниқланади. Бу эса, бир вақтни ўзида базофил бўяладиган барча троп хужайраларни тизимли некрози ривожланишига олиб келганлиги билан характерланади.

Натижада, 200х кўриш майдонида асосан, ацидофил хужайраларни полигонал учбурчаксимон кўринишида бўлиши, стромани плазматик бўйиши ва базал қаватларни нисбатан қалинлашган ўчоқларини юзага келганлиги аниқланади. Эслатиб ўтамиз, гипофиз стромаси асосан сийрак толали бирикитрувчи тўқималардан иборат бўлганлиги учун плазматик бўккан сохаларда тўқ интенсив контрасти кўринишдаги чизиксимон кўринишдаги базал мебараналарни кўпайиши, метаболизмни қисқа муддатда издан чиқиши ва стромда интерстициал шишиларни юзага келганлиги билан намоён бўлиб, бу белгилар асосан томирга алоқадор патоморфологик ўзгаришлар сифатида қабул қилинади.

Хулосалар

БМЁЖда 48-72 соатдан кейинги даврда гипофизни морфологик жихатдан асосан гипатоомо-гипофизар симпатоадаренал тизими йўналишида бевосита аденогипофизда, адренкортикоцитларни дистрофик, некробиотик ўзгаришлари,



капиллярларда тўлақонлик, капиллярларни бўшаб қолиши, вазодилатацияси, стромани интерстициал шиши, оқибатида, қайтмас жараён гипофизда мултифокал некроз ўчоқларини юзага келиши билан давом этагналиги аниқланди.

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УДК: 616.381–002–021.3–053.2

ПЕРИТОНИТДАН НОБУД БЎЛГАН БИР ЁШЛИ ЧАҚАЛОҚЛАР РЕГИОНАР ЛИМФА ТУГУНЛАРИДАГИ МОРФОЛОГИК ЎЗГАРИШЛАР

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Аннотация: Бир ёшли чақалоқларда ривожланган перитонитда регионар лимфа тугунлари морфологик жиҳатдан, пўстлоқ ва мағиз қаватларидаги барча тузилмаларининг гиперплазияси ривожланганлиги аниқланади. Пўстлоқ қаватида асосан лимфоид фолликулаларда иккиламчи герминатив марказларни шаклланганлиги, паракортикал соҳаларида, стромани ялағочланганлиги аниқланди. Паракортикал соҳаларда, мия тасмаларида оралик шишларнинг массив ривожланиши, лимфоид фолликулаларда иккиламчи герминатив марказларни шаклланиши, лимфодренаж функцияси издан чиққанлиги, лимфа тугунларини морфофункционал мажруҳ ҳолатга келганлигини аниқлатади.

Калит сўзлар: лимфа тугуни, перитонит, лимфоид фолликула, иммунотанқислик, чақалоқ.

Муаммонинг долзарблиги. Дунёда ҳозирги кунда йирингли перитонитнинг ривожланишида летал кўрсаткичлар жуда юқори бўлиб, 20-60 % ни ташкил этади. Ушбу касаллик юзага келган пайтда тезкор юзага келадиган эндоген интоксикацияни ривожланиши ва полиорган етишмовчилик билан тугалланади. АҚШ ва Европада ушбу кўрсаткич учраш даражаси 100 мингтага 10-15 тани ташкил этса, Туркия, Корея давлатларида 100 мингтага 12-17 тани ташкил этади. Россия Федерацияси ва МДХ давлатларида 100 мингтага 15-20 тани ташкил этса, Ўрта Осиё давлатлари, Озарбайжон, Арманистонда бу кўрсаткич, 100 тага 50-71 тани ташкил этиб, летал кўрсаткичи 60-85% ни ташкил этади. Мамлакатимизда, ўртача йилига турли хил перитонитлардан 1 ёшгача бўлганлар ичида 700-1300 та чақалоқлар нобуд бўлади. Перитонитларда асосий қорин бўшлиғини дренажлашда фаол ишлайдиган аъзолар фақат регионар лимфа тугунлари бўлиб, 1-3 ойликда ушбу дренажда, физиологик фалажликлар юзага келиши, қон айланишини ҳам секин бўлиши устунлик қилса, 3-6 ойликда, ичаклар перистальтикасини сустлашиши ва регионар лимфа тугунларидаги дренаж, барьер функциясини етишмовчилиги, маҳаллий инфекцияни ичак тутқич лимфа тугунларида туриб қолишига ва лимфостазларни ривожланишига олиб келади. Бу эса, ҳар бир муддатнинг ўзига хос морфофункционал жиҳатларини инобатга олган ҳолда, аниқ тавсиялар ишлаб чиқишни тақозо этади.

Тадқиқот материаллари ва усуллар. Материал сифатида Республика патологик анатомия марказига 2018-2023 йилларда келтирилган жами 71



нафар, шундан, 12 назорат гуруҳи, нобуд бўлган болалар олинган. Олинган намуналар гематоксинин ва эозинга бўйли ва ўрганилди.

Мақсад: Бир ёшгача бўлган чақалоқларда ривожланган перитонитларда регионар лимфа тугунларининг морфологик ўзгаришларини ўрганиш ва такомиллаштириш.

Муҳокама ва натижалар. Бир ёшли муддатда ривожланган перитонитда, регионар лимфа тугунларида юзага келадиган ўзгаришлар лимфа тугунидаги форсирланган дренажни ривожланиши оқибатида, тугунларни катталашishi, субкапсуляр бўшлиқларни таранг ҳолда, таркибида макрофаглар, ретикулоцитларни кўп бўлиши, кортикал соҳаларда лимфоид фолликулаларда иккиламчи герминатив марказларни такомил топганлиги, паракортикал соҳаларда Т лимфоцитларни кам сонли пролифератив фаол марказлари аниқланади. Кортикомедулляр соҳаларда асосан, ретикуляр тасмаларнинг бошланғич тармоқлари атрофида массив гиперпластик ўзгарган гигант хужайрали макрофагларни бўлиши, посткапилляр венулаларни кескин кенгайishi, мия тасмалари бўйлаб Т ва В лимфоцитларни вариабел аралашмаси ўрнида асосан ретикулоцитларни кўп микдорда бўлиши, лимфаденопатия ривожланганлигини англатади. Бу эса, ўз навбатида, перитонитда ялғиғланиш ўчоғига барча турдаги лимфоцитларни сафарбар этилганлигини тасдиқлаши билан бирга, лимфа тугунларидаги иммунокомпетент хужайраларни камайishi, ўрнида суюқликларни кўпайishi, ретикуляр тузилмаларида ретикулоцитозни ривожланганлиги аниқланади. Бу каби манзаралар лимфа тугунларида морфофункционал фалажлик юзага келганлигини тасдиқлайди.

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УДК: 616.381–002–021.3–053.2

БИР ЁШГАЧА БЎЛГАН ЧАҚАЛОҚЛАРДА РИВОЖЛАНГАН ПЕРИТОНИТЛАРДА МЕЗЕНТЕРИАЛ ЛИМФА ТУГУНЛАРИНИНГ МОРФОМЕТРИК КЎРСАТКИЧЛАРИ

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Фарғона жамоат саломатлиги
тиббиёт институти мустақил изланувчиси

Аннотация: перитонит ривожланган бир ёшгача бўлган чақалоқлар регионар лимфа тугунлари макроскопик жиҳатдан ўртача 1,2-1,7 см катталиқда бўлиши, морфологик жиҳатдан, пўстлоқ ва мағиз қаватларидаги барча тузилмаларининг гиперплазияси ривожланганлиги аниқланади. Пўстлоқ қаватида асосан лимфоид фолликулаларда иккиламчи герминатив марказларни шаклланганлиги, паракортикал соҳаларида, стромани ялағочланганлиги аниқланди. Паракортикал соҳаларда, мия тасмаларида оралиқ шишларнинг массив ривожланиши, лимфоид фолликулаларнинг атрофида ўпирилишни юзага келиши, лимфодренаж функцияси издан чиққанлиги, лимфа тугунларининг морфофункционал мажруҳ ҳолатга келганлигини англатади.

Калит сўзлар: лимфа тугуни, перитонит, лимфоид фолликула, иммунотанқислик, чақалоқ.

Муаммонинг долзарблиги. Дунёда ҳозирги кунда йирингли перитонитни ривожланишида летал кўрсаткичлар жуда юқори бўлиб, 20-60% ни ташкил этади. Ушбу касаллик юзага келган пайтда тезкор юзага келадиган эндоген интоксикацияни ривожланиши ва полиорган етишмовчилик билан тугалланади. АҚШ ва Европада ушбу кўрсаткич учраш даражаси 100 мингтага 10-15 тани ташкил этса, Туркия, Корея давлатларида 100 мингтага 12-17 тани ташкил этади. Россия Федерацияси ва МДХ давлатларида 100 мингтага 15-20 тани ташкил этса, Ўрта Осиё давлатлари, Озарбайжон, Арманистонда бу кўрсаткич, 100 тага 50-71 тани ташкил этиб, летал кўрсаткичи 60-85% ни ташкил этади. Мамлакатимизда, ўртача йилига турли хил перитонитлардан 1 ёшгача бўлганлар ичида 700-1300 та чақалоқлар нобуд бўлади. Перитонитларда асосий қорин бўшлиғини дренажлашда фаол ишлайдиган аъзолар фақат регионар лимфа тугунлари бўлиб, 1-3 ойликда ушбу дренажда, физиологик фалажликлар юзага келиши, қон айланишини ҳам секин бўлиши устунлик қилса, 3-6 ойликда, ичаклар перистальтикасини сустлашиши ва регионар лимфа тугунларидаги дренаж, барьер функциясини етишмовчилиги, маҳаллий инфекцияни ичак тутқич лимфа тугунларида туриб қолишига ва лимфостазларни ривожланишига олиб келади. Бу эса, ҳар бир муддатнинг ўзига хос морфофункционал жиҳатларини инобатга олган ҳолда, аниқ тавсиялар ишлаб чиқишни тақозо этади.



Тадқиқот материаллари ва усуллар. Материал сифатида Республика патологик анатомия марказига 2018-2023 йилларда келтирилган жами 71 нафар, шундан, 12 назорат гуруҳи, нобуд бўлган болалар олинган. Олинган намуналар гематоксилин ва эозинга бўялди ва ўрганилди.

Мақсад: Бир ёшгача бўлган чақалоқларда ривожланган перитонитларда регионар лимфа тугунларининг морфометрик кўрсаткичларини ўрганиш.

Муҳокама ва натижалар.

Перитонитда мезентериал лимфа тугунларида ривожланган ўзгаришларни аниқлаш учун хужайраларнинг сони, диаметри, ядро цитоплазма индекси, оралик модданинг эгаллаган майдони, хужайраларнинг шакли, ўлчами ва бошқа кўрсаткичлари ҳисобланади.

Тадқиқот натижасида олинган маълумотлар Пентиум—4 персонал шахсий компютерида Microsoft Excel-2010 дастурий пакетида статистик таҳлил қилинди. Ўрганилаётган кўрсаткичларнинг ўртача арифметик миқдорини (M), ўртача квадратик оғишларни (σ), ўртача стандарт хатоликларни (m), нисбий катталикларни (частота, %) ҳисобга олган статистиканинг вариацион параметрлар ва нопараметрик усулларидадан фойдаланилди. Ўртача катталикларни таққослашда олинган ўлчамларнинг статистик аҳамияти генерал дисперсия (F -Фишер мезони) ва тарқалишнинг меъёрларини (экссесс мезони бўйича) текширишда хатоликлар эҳтимоллиги (P)ни ҳисоблаган ҳолда Стюдента (t) мезони бўйича аниқланди. Қўлга киритилган миқдорий маълумотларнинг ўртача арифметик катталиги ва ўртача квадрат хатолик миқдори, ишончлилик кўрсаткичини ($P < 0,05$, $P < 0,001$) аниқлаш мақсадида статистик ишлов берилди. Сифатий катталиклар учун статистик аҳамияти χ^2 (хи-квадрат) ва x -мезонлари ёрдамида ҳисобланди.

Морфометрик текширишларни амалга ошириш мақсадида мезентериал лимфа тугунларини асосий ўзгаришларга учраган соҳалари: лимфа тугуни капсуласи, қирғоқ синуслари, пўстлоқ қават, лимфоид фолликулалар, маргинал майдони, герминатив майдони, паракортиал соҳаси, мағиз қавати, мия синуслари, мия тасмаси бўшлиғининг умумий майдони, Т майдон, В майдон ва бошқалар ҳисобланди.

Жадвал.1.

Перитонитда турли ёшдаги чақалоқлар мезентериал лимфа тугунларининг гуруҳлар бўйича морфометрик кўрсаткичлари % ва мкм ларда келтирилган.

№	Лимфа тугуни қисмлари	турли ёшдаги чақалоқлар			
		1-Гуруҳ Соғлом (n=12)	28 кунлик (n=22)	6 ойлик (n=25)	12 ойлик (n=)
1	Лимфа тугуни капсуласи %	3,5±0,01	3,28±0,28 *	4,16±0,23*	3,12±0,46**



2	Субкапсуляр бўшлиқ мкм	12,21±1,2 6	38,25±1,3 2*	34,21±2,01 *	22,36±1,22* *
3	Кортикал майдон Кенглиги мм ²	2,221	0,5312мм 2*	0,3491**	1,4312**
4	В майдон %	7,69±1,01	2,28±1,01 *	3,31±0,05*	3,74±0,05**
5	Т майдон	3,47±0,22	1,41±0,86 *	1,68±0,93*	2,29±0,01**
6	Лимфоид фолликулалар майдони %	6,35±0,33	2,41±0,22 *	3,41±0,05*	4,15±0,05**
7	Л/Ф Герминатив майдони%	0-0,21	0,01- 0,05*	0,01-0,08*	0,01-0,11**
8	мағиз қавати сатҳи %	13,41±0,0 5	36,21±0,1 5*	34,05±0,04 *	18,11±0,05* *
9	мия синуслари	4,76±0,65	12,66±1,0 2*	11,52±1,16 *	10,26±1,01* *
1 0	мия тасмаси бўшлиғининг умумий майдони	10,11±0,3 1	4,15±0,22 *	4,59±0,35*	6,12±0,53**
1 1	Пўстлоқ ва мағиз қават нисбати (Типлари бўйича)	Фрагме нтация ланган	0,35±0,01	0,18±0,01 *	0,19±0,21* *
		Компак тлашга н	0,013±0,0 1	0,019±0,0 01*	0,018±0,09 *
		оралиқ	0,041±0,1	0,071±0,1 *	0,084±0,1* *

Эслатма: *-меъёрий кўрсаткичларга нисбатан фарқланиш ишончли (*-P<0,05;
-P<0,01; *-P<0,001)

Морфометрик текширишларга асосланган маълумотлар таҳлили бўйича олинган натижаларни 1-жадвалда келтирилган рақамлари бўйича, турли муддатларда перитонит билан хасталанган чақалоқларда мезентериал лимфа тугунидаги ўзгаришларни рақамлар орқали келтирилган бўлиб, лимфа тугуни капсуласининг ҳар хил даражадаги қалинлашиш кўрсаткичи бўйича, назорат гуруҳи кўрсаткичида лимфа тугуни капсуласининг қалинлик кўрсаткичи $3,5 \pm 0,013$ дан ўсиб бориш кўринишда $4,16 \pm 0,23^*$ гача ошганлиги асосан 6 ойлик муддатда аниқланди. Субкапсуляр бўшлиқлар 28 кунлик чақалоқларда $38,25 \pm 1,32$ мкм ни ташкил этган бўлса, назорат гуруҳида бу кўрсаткич



12,21±1,26 мкм ни ташкил этганлиги аниқланади. бойлик чақалоқларда бу кўрсаткич 34,21±2,01 мкмни ташкил этган бўлса, 12 ойлик чақалоқларда бу кўрсаткични камайганлиги ва 22,36±1,22 мкм ни ташкил этганлиги аниқланди.

Демак, юқоридагиларни таққослаганда субкапсуляр бўшлиқни энг катталашган кўрсаткичи 28 кунлик чақалоқлар лимфа тугунида аниқланиб, назорат гуруҳига нисбатан 3,13 мартга ошганлиги аниқланди.

Кортикал майдонни кенглиги назорат гуруҳида 2,221 мм² ни ташкил этган бўлса, 28 кунлик чақалоқларда бу кўрсаткич 0,5312 мм² ни ташкил этганлиги аниқланди. 6 ойлик муддатдаги чақалоқлар лимфа тугуни кортикал майдонида ушбу кўрсаткич 0,3491 мм² ни ташкил этиб, 12 ойликларда бу кўрсаткич 1,4312 мм² юзани ташкил этганлиги аниқланди. Бу эса, шикастланишни энг критик нуқтаси 6 ойлик чақалоқлар лимфа тугунларида юзага келганлигини англатади.

Юқорида жадвалда келтирилган рақамли маълумотлар асосида 1 ёшгача бўлган чақалоқларда перитонит ривожланган ҳолда лимфа тугунларини барча кўрсаткичлари бўйича, 28 кунлик ва 6 ойлик чақалоқлар лимфа тугуни кўрсаткичлари ҳам айнан назорат гуруҳи ва 12 ойликларга нисбатан юқори кўрсаткичда эканлигини тасдиқлайди.

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2-ТУР ҚАНДЛИ ДИАБЕТ БИЛАН КАСАЛЛАНГАН ЭРКАКЛАРДА ГИПОГОНАДИЗМ ВА ЛИПИД АЛМАШИНУВИ ЎРТАСИДАГИ ЎЗАРО БОҒЛИҚЛИГИ

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Аннотация. Бугунги кунда 2-тур қандли диабет (ҚД2) глобал тиббий-ижтимоий муаммо ҳисобланади. У нафақат углевод алмашинувининг сурункали бузилиши, балки кўплаб эндокрин ва метаболик ўзгаришлар билан кечиши билан ҳам аҳамиятлидир. Айниқса, ҚД2 билан касалланган эркакларда андроген дефицити ва гипогонадизм ҳолатларининг юқори учраш частотаси охириги йилларда кўплаб тадқиқотларда қайд этилмоқда. Тестостерон даражаси липид алмашинуви, инсулин сезгирлиги ва юрак-қон томир тизими ҳолатига бевосита таъсир кўрсатади.

Калит сўзлар: 2-тур қандли диабет, гипогонадизм, тестостерон, липид спектри, дислипидемия, НОМА-IR индекси

Кўплаб адабиётларда берилган маълумотларга кўра, тестостерон липид алмашинувини тартибга солувчи муҳим гормонлардан бири бўлиб, у жигарда липопротеидлар синтези, липолиз жараёнлари ва атероген омилларни назорат қилишда иштирок этади. Шу сабабли гипогонадизм шароитида дислипидемиянинг атероген тури шаклланиши эҳтимоли ортади.

Тадқиқот мақсади. 2-тур қандли диабет билан касалланган эркакларда гипогонадизм ва липид спектри кўрсаткичлари ўртасидаги ўзаро боғлиқликни комплекс баҳолаш.

Материал ва усуллар. Тадқиқотда жами 80 нафар 30–552-тур қандли диабет билан касалланган эркаклар иштирок этди. Барча беморларда ADAM сўровномаси ўтказилди. Беморлар икки босқичда текширилди. Биринчи босқичда ADAM сўровномаси ўтказилиб, гипогонадизм эҳтимоли баҳоланди. Иккинчи босқичда умумий тестостерон даражасига кўра беморлар эугонад ва гипогонад гуруҳларга ажратилди. Барча беморларда липид спектри (умумий



холестерин, триглицеридлар, зичлиги паст ва юқори липопротеидлар), гликемик кўрсаткичлар ва НОМА-IR индекси аниқланди.

Натижалар. ADAM сўровномаси бўйича 60 нафар беморда мусбат натижа қайд этилди, 20 нафар беморда эса манфий жавоб кузатилди. ADAM сўровномаси бўйича мусбат жавоб берган беморлар 60 та тестостерон даражаси ишончли равишда паст экани қайд этилди. Гипогонад гуруҳда липид спектрида атероген ўзгаришлар қайд этилди: умумий холестерин ва триглицеридлар даражаси ишончли юқори, зичлиги паст липопротеидлар (ЗПЛП) ошган, зичлиги юқори липопротеидлар (ЗЮЛП) эса пасайган ($p < 0,05$). Корреляцион таҳлил натижаларига кўра, умумий тестостерон даражаси билан ЗПЛП ўртасида салбий корреляция ($p < 0,05$), шунингдек HbA1c ва НОМА-IR кўрсаткичлари билан ҳам салбий боғлиқлик аниқланди ($p < 0,001$).

Хулоса. 2-тур қандли диабет билан касалланган эркакларда гипогонадизм липид алмашинувининг атероген ўзгаришлари билан узвий боғлиқдир. ADAM сўровномаси, гормонал ва липид кўрсаткичларни комплекс баҳолаш гипогонадизмни эрта аниқлаш ва юрак-қон томир хавфини камайтиришда муҳим клиник аҳамиятга эга.

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**GINKGO BILOBA L. ҚУРУҚ ЭКСТРАКТНИНГ ТАРКИБИДАГИ
ПОЛИСАХАРИДЛАРНИНГ ИНУЛИНГА НИСБАТАН ЧИНЛИК ВА
МИҚДОРИ АНИҚЛАШ**

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Аннотация. Жаҳон Соғлиқни Сақлаш ташкилотини маълумотларига кўра, цереброваскуляр патологиялар аҳолининг деярли 14% ни ҳаётдан олиб кетади, қон томирларни ҳимоя қилишга, уларни фаолиятини тиклашга бўлган кизиқиш фанда тобора ортиб бормоқда. Бу гуруҳдаги дори воситаларни ўз вақтида қабул қилиш нафақат ҳаёт сифатини яхшилайдиган, балки психоген омиллар сабабли юзага келган соматик патологиянинг ривожланишига тўсқинлик қилади. Ўсимлик хом ашёлари асосида дори воситалари ноотроп дори воситалар гуруҳида алоҳида ўрин эгаллайди. Маълумки, синтетик моддалардан самарадорлик таъсири паст бўлмаган ўсимлик хом ашёлари асосида ноотроп таъсирга эга, ножўя таъсири нисбатан камроқ бўлади. Ноотроп таъсирга эга бўлган дори воситаларга талаб ўсиб бормоқда, ўсимлик хом ашёларни асосида олинадиган дори воситалар аксарияти экспорт ҳисобига. Доривор ўсимликлардан олинадиган дори воситалар асосан, бу *Ginkgo biloba* L. ўсимлиги асосида тайёрланган дори воситаларга тўғри келади.

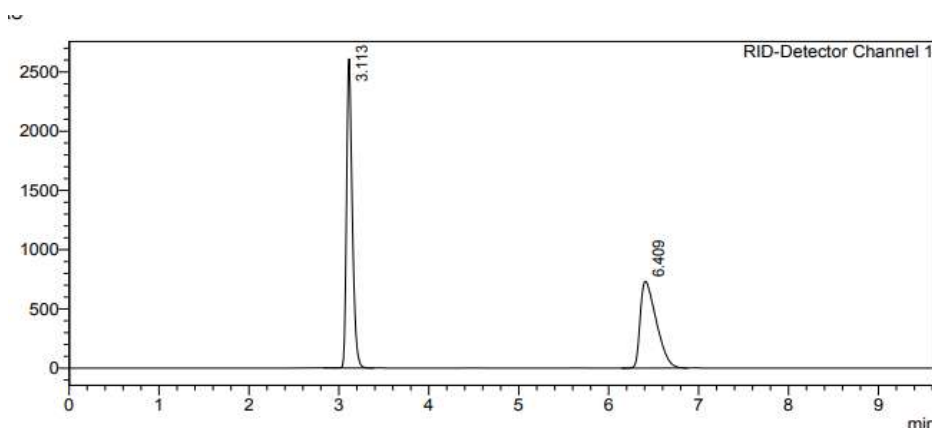
Калит сўзлар: *Ginkgo biloba* L., инулин, полисахарид, ноотроп.

Полисахариднинг чинлик реакция учун эритмага 1-2 томчи 20% нафтални спиртли эритмасидан ва 1 томчи концентрилланган сульфат кислота қўшилганда қизил-бинафша ранг ҳосил бўлди. Нафтални резорцин ва тимол билан алмаштирилганда, уларга мос равишда қизил ва пушти-қизил ўзгаради.

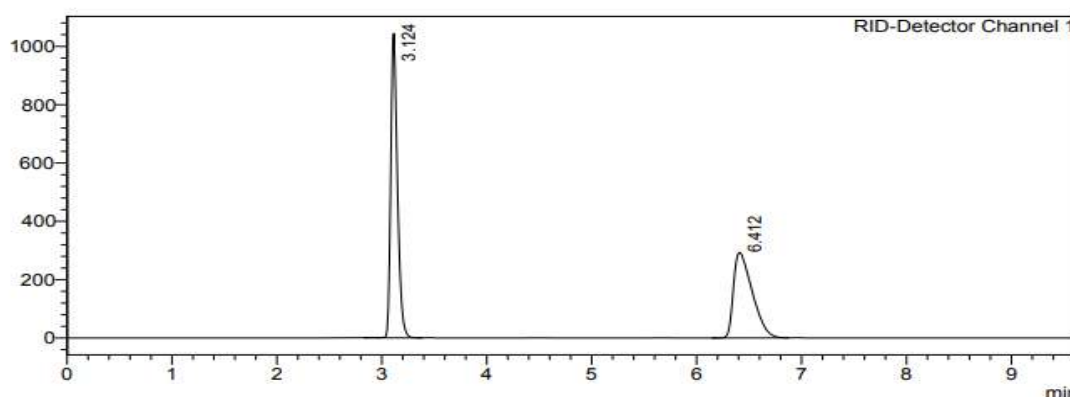
Полисахаридларнинг миқдорини юқори самарали суюқлик хроматографи орқали аниқланди. Бунда аниқ тортилган намунани колбага 1:4 нисбатда 96% этил спиртининг градуси 80-82% фоизга етгунича сув билан суюлтирилди ва колба сув ھаммомида 70-80⁰ С ҳароратда 15 дақиқа давомида қайта оқим остида қайнатилди. Сўнгра спиртли экстракт филтрланди, экстракция бир хил шароитда яна 3-4 марта такрорланди ва спиртли экстракциялар бирлаштирилди, ҳамда этил спирти 40⁰ С ҳароратдан юқори бўлгунга қадар айланувчи буғлатгичда хайдалди. Аниқлаш учун мўнжалланган нейтрал полисахаридлар таркибида зарядга эга бўлган моддалар ҳам мавжуд (аминокислоталар, пепидлар ва бошқалар). Ушбу аралашмалардан нейтрал полисахаридларни озод қилиш учун, экстрактни Даукс 50*4 ва Даукс 1*8 колонлари тўғридан тўғри жойлашган устунга бевосита уланган ҳолда, элюат йиғилади. Концентрилланган намуна миқдорий



жиҳатдан ўлчов идишга ўтказилди, ҳажми ўлчанди ва хроматография қилинди. Ҳаракатчан фаза: ацетонитрил-сув (77:23) ишлатилди. Детектирлаш – рефрактометрик. Оқим тезлиги $2,5 \text{ см}^3/\text{дақ}$. Олинган натижалар 1 расм ва 1 жадвалда келтирилган.



1 – расм. Полисахаридларнинг инулинга нисбатан стандарт хроматограммаси



2 – расм. *Ginkgo biloba* L. полисахаридларнинг инулинга нисбатан хроматограммаси

1--жадвал

Ginkgo biloba L. қуруқ экстрактининг полисахаридларга нисбатан инулин миқдорини аниқлаш усулининг метрологик тавсифи

Полисахаридларга нисбатан инулиннинг умумий улуши, мг/г	Хўр	S^2	S	t (95%,4)	ΔX	$\Delta X_{\text{р}}$	E_1 %	$E_{1\text{ўр}}$ %
3,22 3,21 3,23 3,22 3,21	3,218	0,00 0	0,00 8	2,78	0,02	0,02	0,3	0,72

Хулоса: *Ginkgo biloba* L. ўсимлик хомашёси асосида олинган қуруқ экстрактнинг таркибидаги полисахаридларнинг инулинга нисбатан чинлиги ва миқдори илк бор аниқланди.



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**TADQIQOT.UZ ТОМОНИДАН
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МАВЗУСИДАГИ РЕСПУБЛИКА 84-КЎП ТАРМОҚЛИ
ИЛМИЙ МАСОФАВИЙ ОНЛАЙН КОНФЕРЕНЦИЯ МАТЕРИАЛЛАРИ**

(1-қисм)

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Эълон қилиш муддати: 31.01.2026