

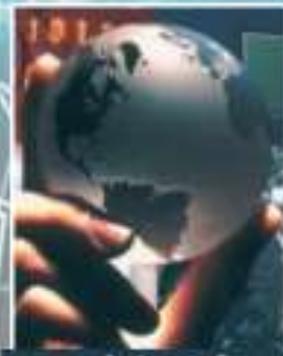


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# ZAMONAVIY ILM-FAN VA INNOVATSIYALAR NAZARIYASI

## ILMIY-AMALIY KONFERENSIYA

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**« ZAMONAVIY ILM-FAN VA INNOVATSIYALAR NAZARIYASI » NOMLI  
ILMIY, MASOFAVIY, ONLAYN KONFERENSIYASI**

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2. TABIIY FANLAR
3. TEXNIKA FANLARI
4. PEDAGOGIKA FANLARI
5. IJTIMOYIY-GUMANITAR FANLAR
6. TIBBIYOT FANLARI
7. IQTISOD FANLARI
8. QISHLOQ XO'JALIGI FANLARI

ESLATMA! KONFERENSIYA MATERIALLARI TO'PLAMIGA KIRITILGAN MAQOLALARDAGI RAQAMLAR, MA'LUMOTLAR HAQQONIYLIGIGA VA KELTIRILGAN IQTIBOSLAR TO'G'RILIGIGA MUALLIFLAR SHAXSAN JAVOBGARDIRLAR.



## Keskin kengayuvchi quvurlarda gidravlik qarshilik koefitsentini nikuradze tajribasi yordamida analitik usulda o'rganish.

M.A.Maxmudova

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**Annotatsiya.** Ushbu ishda quvur ichidagi turbulent oqimda gidravlik qarshilik koefitsentini analitik usulda aniqlash va natijalarni tajriba ma'lumotlari bilan solishtirish masalasi ko'rib chiqildi. Nikuradze klassik tajribalariga asoslangan holda gidravlik qarshilik koefitsentini hisoblash uchun Puazeyl, Blazius va Alshul formulalaridan foydalanildi. Hisoblash natijalari tajribaviy qiymatlar bilan taqqoslanib, qaysi formulalar real jarayonni yuqori aniqlikda ifodalashi aniqlangan.

**Kalit so'zlar:** Bosim yo'qotilishi, gidravlik qarshilik koefitsenti, Nikuradze tajribasi, Puazeyl, Blazius, Alshul, analitik model.

**Kirish.** Quvur ichidagi suyuqlik oqimlarida gidravlik qarshilik koefitsentin gidravlika va gidrotexnikada muhim ahamiyatga ega. Bu masala yuzasidan XX asrda Nikuradze tomonidan turli qo'pol devorli quvurlarda keng ko'lamli tajribalar olib borilgan va oqim xarakteristikalarining Reynold soniga bog'liqligi aniqlangan. Keyinchalik Blazius va Alshul singari olimlar turbulent rejim uchun empirik formulalarni ishlab chiqqan. Ushbu ishning ilmiy yangiligi shundan iboratki, analitik formulalar yordamida olingan natijalar real tajriba bilan solishtirildi va ularning aniqlik darajasi baholandi.

**Masalaning qo'yilishi.** Ma'lum diametrli quvurda ma'lum diapazondagi Reynolds sonlari uchun gidravlik qarshilik koefitsenti aniqlanishi zarur. Bunda laminar va turbulent rejimlar alohida ko'rib chiqildi hamda Nikuradze tajribasi bilan solishtirish asosida analitik usullarning ishonchiligi baholandi.

### **Analitik model (hisoblash usuli)**

Laminar oqim uchun Puazeyl formulasi qo'llanildi:

$$f = \frac{64}{Re} \quad (1)$$

Bu formula past Reynolds sonlarida ( $Re < 2000$ ) qo'llaniladi va nazariy jihatdan aniq yechim hisoblanadi.

Turbulent silliq quvur oqimi uchun Blazius formulasi ishlatildi:

$$f = 0.3164Re^{-0.25} \quad (2)$$

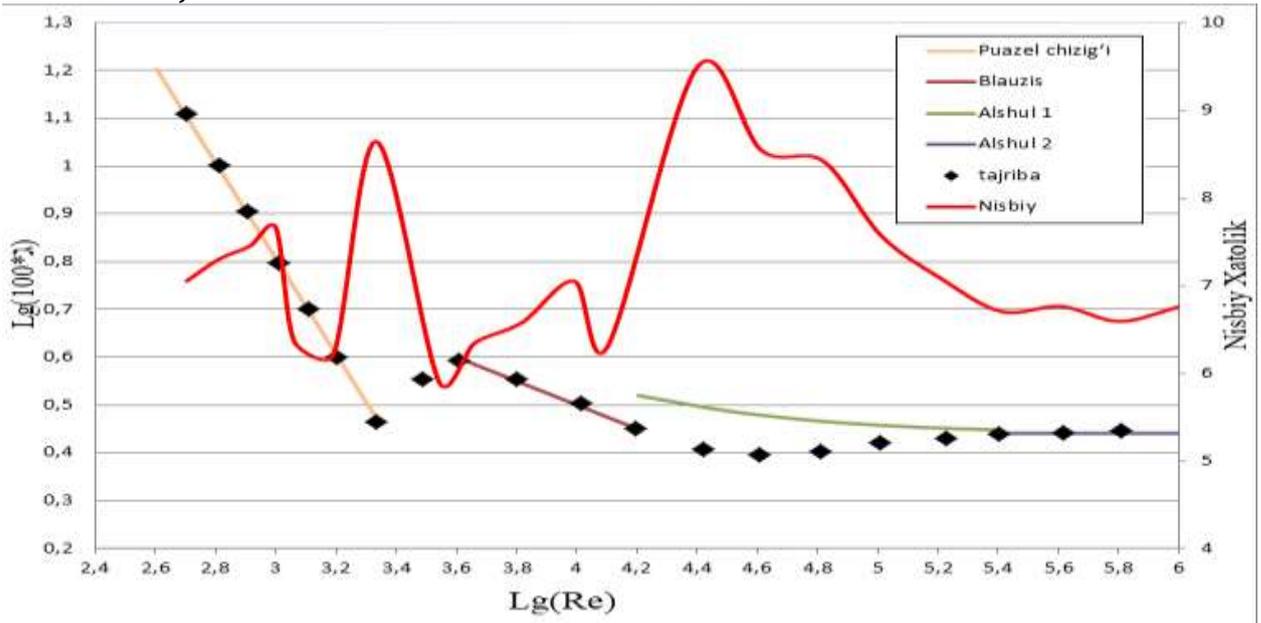
Bu formula  $3 \times 10^3 < Re < 10^5$  oraliqda yaxshi natija beradi.

Yuqori turbulentligida va qo'pol quvurlarda Alshul formulasi qo'llanildi:

$$\lambda_r = 0,11 \left( \frac{\Delta z}{d} + \frac{68}{Re} \right)^{0,25} \quad (\text{Ф-ла Альпидуля}) \quad (3)$$

Bu tenglama iteratsion yechim talab qiladi va yuqori Reynolds sonlarida ham barqaror natija beradi.

Olingan analitik natijalar tajriba ma'lumotlari bilan solishtirilib, ularga mos kelish darajasi baholandi.



(1-rasm). Nikuradze tajribasini analitik yo'l orqali natijasi

**Xulosa.** Aniqlangan natijalar shuni ko'rsatdiki, laminar oqimda Puazeyl formulasi yuqori aniqlik beradi. O'rta turbulent rejimlarda Blazius formulasi tajriba bilan yaxshi mos keladi. Yuqori turbulent rejim va qo'pol quvurlar uchun esa Alshul formulasi eng yaqin natija ko'rsatdi. Shunday qilib, analitik formulalarni to'g'ri tanlash oqim rejimi va quvur xarakteristikalariga bevosita bog'liq ekanligi isbotlandi.

#### FOYDALANILGAN ADABIYOTLAR

1.Д.Андерсон, Дж.Таннехилл.Р.Плетчер "ВЫЧИСЛИТЕЛЬНАЯ ГИДРОМЕХАНИКА И ТЕПЛОБМЕН.

2.COMSOL Multiphysics® [Электронный ресурс]. – Режим доступа: <https://www.comsol.com> (дата обращения: 19.09.2025).



**Keskin kengayuvchi quvurlarda gidravlik qarshilik koefitsentini nikuradze tajribasi yordamida sonli usulda consol dasturida o'rganish.**

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**Annotatsiya:** Ushbu tezisdagi quvurlarning keskin kengayish kesimlarida yuzaga keladigan gidravlik qarshilik koefitsentini Nikuradze tajribasi uslubiyati asosida tahlil qilingan. Tadqiqotda oqim strukturasi o'zgarishi natijasida hosil bo'ladigan uyurmali zonalar va ularning energiya yo'qotilishiga ta'siri Borda-Karno tenglamasi yordamida qiyosiy o'rganilgan. Tajriba natijalari orqali mahalliy qarshilik koefitsiyentining Reynolds soni va quvur diametrlari nisbatiga bog'liqligi aniqlangan. Nikuradze yondashuvidan foydalangan holda, oqimning turli rejimlari uchun gidravlik yo'qotishlarning o'zgarish qonuniyatlari grafik ko'rinishda ifodalangan. Mazkur xulosalar gidrotexnik tizimlarni loyihalashda quvurlarning energiya samaradorligini oshirish va gidravlik hisoblarni aniqlashtirish uchun xizmat qiladi.

**Kalit so'zlar:** Darsi – Veysbax, Nikuradze, laminar, turbulent, oqim, gidravlik qarshilik.

**KIRISH.** Keskin kengayuvchi quvurlar mahalliy qarshiliklarning eng muhim manbai hisoblanadi, chunki bu joylarda oqim keskin buziladi va kuchli uyurmali (vortex) zonalar hosil bo'lib, kinetik energiyaning sezilarli darajada issiqlikka aylanishiga olib keladi. Mazkur xulosalar gidrotexnik tizimlarni loyihalashda quvurlarning energiya samaradorligini oshirish va gidravlik hisoblarni aniqlashtirish uchun xizmat qiladi.

**MASALANI QO'YILISHI.** Bosimli quvurlarni hisoblashdagi **asosiy formula — Darsi-Veysbax formulasidir:**

$$h_w = \lambda \frac{l v^2}{d 2g}$$

Bu formulalarni qo'llash uchun  $\lambda$  koefitsiyentlarining son qiymatlari talab etiladi.

- **Laminar harakat** uchun  $\lambda$  koefitsiyenti formula bilan aniqlanadi:  
 $\lambda = 64/Re$ .
- **Turbulent harakat** uchun tekis to'g'ri sharoitlarda, turbulent oqimni shakllantiruvchi devor sirtining g'adir-budurligi ta'siri ostida  $\lambda$  ni aniqlashda tajriba natijalari keng qo'llaniladi.

Nikuradze tomonidan amalga oshirilgan va grafik bog'liqlik shaklida taqdim etilgan tadqiqotlar katta nazariy va amaliy ahamiyatga ega.

Nikuradze grafigi logarifmik koordinatalarda ( $\lg 100\lambda$  va  $\lg Re$ ) tuzilgan. Tadqiqotlar turli quvurlarda, sun'iy usulda bir xil g'adir-budurlikni (quvur ichki yuzasiga qum donachalarini yopishtirish orqali) hosil qilish orqali o'tkazilgan.

Nikuradze grafigida laminar harakat uchun  $\lambda$  ning to'g'ri chizig'i va silliq devorli quvurlardagi turbulent oqim uchun  $\lambda$  ning Blizius formulasi bo'yicha chizig'i ko'rsatilgan.

$$\lambda = \frac{0.3164}{Re^{0.25}}$$

To'g'ri chiziqlardan tashqari, grafikda yuqorida aytib o'tilgan **sun'iy g'adir-budurlikka ega quvurlar uchun tajriba nuqtalari va chiziqlari** ham ko'rsatilgan.

Comsol Turblent k-e modeli orqali quyidagi formulalar orqali xisoblandi:

**Harakat tenglamasi (Momentum saqlanishi):**

$$\rho(\mathbf{u} \cdot \nabla)\mathbf{u} = \nabla \cdot [-p\mathbf{I} + \mathbf{K}] + \mathbf{F} \quad (5)$$

Massa saqlanishi (siqilmaydigan oqim):

$$\rho \nabla \cdot \mathbf{u} = 0 \quad (6)$$

$$\mathbf{K} = (\mu + \mu T)(\nabla \mathbf{u} + (\nabla \mathbf{u})^T) \quad (7)$$

Turbulent kinetik energiya (k) tenglamasi:

$$\rho(\mathbf{u} \cdot \nabla)k = \nabla \cdot [(\mu + \sigma k \mu T)\nabla k] + Pk - \rho \epsilon \quad (8)$$

Dissipatsiya ( $\epsilon$ ) tenglamasi:

$$\rho(\mathbf{u} \cdot \nabla)\epsilon = \nabla \cdot [(\mu + \sigma \epsilon \mu T)\nabla \epsilon] + C\epsilon 1 k \epsilon Pk - C\epsilon 2 \rho k \epsilon^2 \quad (9)$$

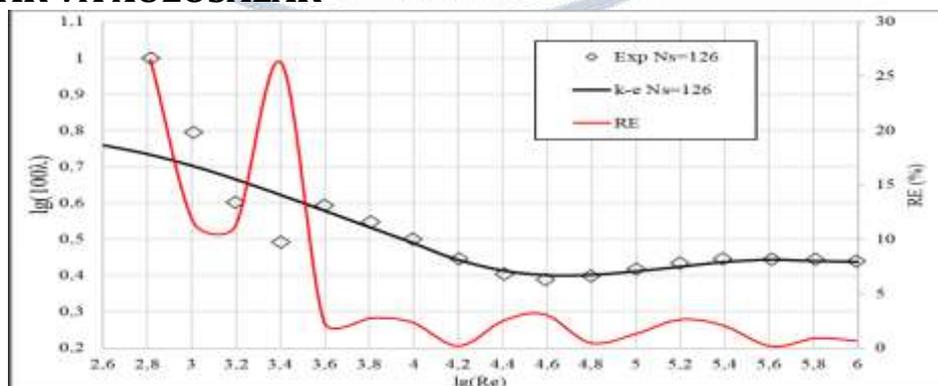
**Turbulent yopishqoqlik:**

$$\mu T = \rho C\mu \epsilon k^2 \quad (10)$$

**Turbulent kinetik energiya hosil bo'lishi:**

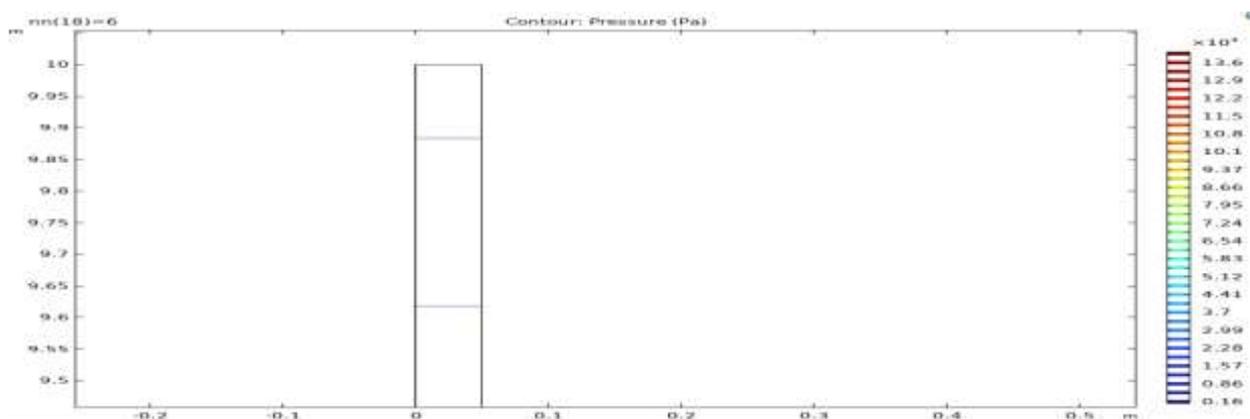
$$Pk = \mu T [\nabla \mathbf{u} : (\nabla \mathbf{u} + (\nabla \mathbf{u})^T)] \quad (11)$$

## NATIJALAR VA XULOSALAR

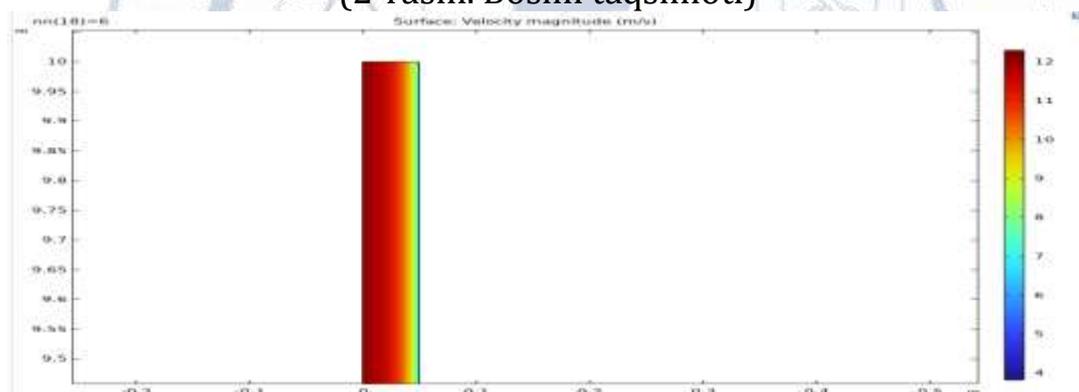


1-rasm. Nikuradze tajribasini analitik xisoblash grafigi

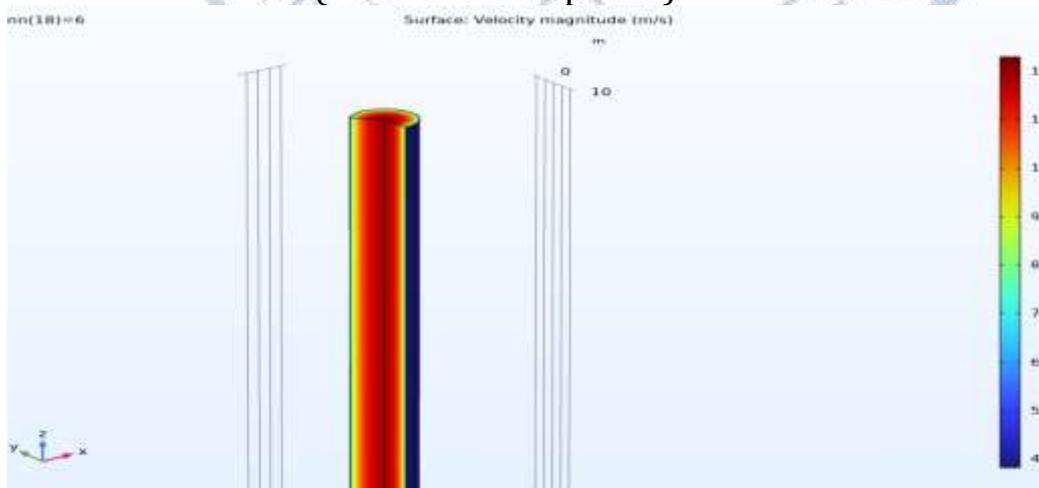
Yuqoridagi 1 rasmlarda diametri 100 mm, uzunligi 10 m bo'lgan keskin kengayuvchi quvurning Nikuradze tajribalari analitik usulda sxema va grafiklari tasvirlangan.



(2-rasm. Bosim taqsimoti)



(3-rasm. Tezlik profili)



(4-rasm. Tezlik profil 3D ko'rinishi)



**XULOSA.** Tajribalar shuni ko'rsatdiki, quvurning keskin kengayish tugunlarida oqimning uzilishi va devorbo'yi uyurmalarining shakllanishi natijasida yuzaga keladigan bosim pasayishi,

Nikuradze tajribalari asosida quvur yuzasining gidravlik g'adir-budirliги va oqim rejimlarining (laminar, o'tish va turbulent) mahalliy qarshilik koeffitsiyentiga ta'siri tahlil qilinganda, yuqori darajadagi turbulentlik sohasida qarshilik koeffitsiyenti oqim tezligiga bog'liq bo'lmay qolishi (avtomodellik sohasi) eksperimental tasdiqlandi. Amaliy ahamiyati: Tadqiqot natijasida olingan aniqlashtirilgan empirik bog'lanishlar gidrotexnik inshootlarni loyihalashda gidravlik yo'qotishlarni 10-15 % gacha aniqroq hisoblash imkonini beradi va tizimning umumiy energiya sarfini optimallashtirish uchun ilmiy asos bo'lib xizmat qiladi.

#### FOYDALANILGAN ADABIYOTLAR

1.Д.Андерсон, Дж.Таннехилл.Р.Плетчер “ВЫЧИСЛИТЕЛЬНАЯ ГИДРОМЕХАНИКА И ТЕПЛООБМЕН.

2.COMSOL Multiphysics® [Электронный ресурс]. – Режим доступа: <https://www.comsol.com> (дата обращения: 19.09.2025).

**Stress, Rhythm, and Intonation in Spoken English****Sobirova Nilufar**

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**Annotation:** This article explores the role of stress, rhythm, and intonation as key prosodic features of spoken English. These suprasegmental elements contribute significantly to meaning formation, speech intelligibility, and effective oral communication. The study examines word stress, sentence stress, rhythmic patterns, and intonation contours in English, highlighting their interaction and communicative functions. Special attention is given to the difficulties faced by learners of English as a foreign language in mastering these features. The article also discusses pedagogical implications and emphasizes the importance of explicit instruction in prosody for improving learners' speaking and listening skills.

**Keywords:** stress; rhythm; intonation; spoken English; prosody; suprasegmental features; EFL learners

**Introduction.** Spoken language is a fundamental means of human communication, and its effectiveness depends not only on grammatical accuracy and lexical choice but also on prosodic features such as stress, rhythm, and intonation. These suprasegmental elements play a crucial role in organizing speech, highlighting important information, and conveying speakers' attitudes, emotions, and intentions. In English, mastery of stress patterns, rhythmic timing, and intonation contours is essential for achieving intelligible and natural-sounding speech. English differs from many other languages in its prosodic structure. It is commonly described as a stress-timed language, in which stressed syllables occur at relatively regular intervals, while unstressed syllables are reduced and compressed. This rhythmic organization, together with variable word stress and complex intonation patterns, often poses significant challenges for learners of English as a foreign language (EFL). Even learners with a good command of grammar and vocabulary may experience communication breakdowns if they fail to use stress, rhythm, and intonation appropriately.

Research in phonetics and phonology has shown that errors in suprasegmental features can affect speech intelligibility more seriously than segmental pronunciation errors. Incorrect stress placement may lead to misunderstanding of words, inappropriate rhythm can make speech sound unnatural, and improper intonation may result in pragmatic failure, such as sounding impolite, uninterested, or overly direct. Despite their importance, prosodic features are frequently underemphasized in language teaching and



learning. The present article aims to examine the nature and functions of stress, rhythm, and intonation in spoken English. It analyzes their linguistic characteristics, explores their interaction in connected speech, and discusses the difficulties encountered by EFL learners. By highlighting the communicative significance of these prosodic elements, the study seeks to emphasize the need for greater attention to suprasegmental features in both linguistic research and language pedagogy.

**Methods.** The study follows a descriptive qualitative research design focused on the analysis of stress, rhythm, and intonation in spoken English. The research aims to identify prosodic patterns and describe their linguistic functions in natural speech. Attention is given to suprasegmental features at both word and sentence levels. The data set includes authentic spoken English samples produced by native speakers. The materials consist of audio recordings taken from educational listening resources, interviews, and spontaneous conversational exchanges. The recordings represent a range of speaking contexts such as informal dialogue, semi-formal interaction, and monologic speech. The selection of data prioritizes natural pronunciation and spontaneous speech production.

The analytical procedure is based on auditory analysis supported by phonological theory. Each audio sample is repeatedly listened to in order to identify stressed and unstressed syllables, patterns of sentence stress, and rhythmic organization. Word stress is examined through syllable prominence, vowel length, and loudness. Sentence stress is analyzed through emphasis on content words and reduction of function words. Rhythmic structure is examined through timing regularity, weak forms, and vowel reduction, with special attention to the schwa sound.

Intonation is examined through pitch movement across tone units. Falling, rising, and fall-rise contours are identified and classified according to their communicative function. Pitch changes are interpreted in relation to grammatical meaning, speaker attitude, and discourse function. Selected utterances are transcribed using simplified phonetic symbols to illustrate intonation patterns and stress placement. The study relies on established descriptions of English prosody within phonetics and phonology. Observations are compared with findings reported in applied linguistics research related to English as a foreign language. Common pronunciation difficulties experienced by EFL learners are identified through contrastive interpretation of the analyzed data and previous research. The methodological framework allows detailed examination of prosodic features and supports analysis of their role in speech intelligibility and communicative effectiveness.

**RESULTS.** The analysis of spoken English samples reveals that stress, rhythm, and intonation function as central elements in speech organization and



meaning expression. Clear patterns emerge in the distribution of word stress and sentence stress, confirming their role in enhancing intelligibility and guiding listener interpretation. The results show that word stress in English is variable and contrastive. Stressed syllables are marked by greater prominence through increased duration, loudness, and pitch. In polysyllabic words, incorrect stress placement is observed to significantly reduce word recognition. Correct stress placement contributes to clearer lexical identification in continuous speech. The findings indicate that sentence stress follows a predictable pattern, with primary stress placed on content words such as nouns, lexical verbs, adjectives, and adverbs. Function words display reduced prominence and frequently occur in weak forms. This distribution creates the characteristic stress-timed rhythm of English. The rhythm of speech is maintained through compression of unstressed syllables, resulting in regular intervals between stressed syllables.

The analysis confirms that vowel reduction plays a crucial role in rhythmic organization. Unstressed syllables often contain the schwa sound, contributing to natural speech flow. Utterances lacking vowel reduction demonstrate disrupted rhythm and reduced naturalness. The examination of intonation patterns shows that falling, rising, and fall-rise contours are systematically associated with specific communicative functions. Falling intonation predominates in declarative statements and wh-questions. Rising intonation occurs mainly in yes/no questions and signals continuation or uncertainty. Fall-rise intonation expresses reservation, politeness, or contrastive meaning. Misuse of intonation patterns leads to pragmatic ambiguity and unintended attitudinal meanings.

The results demonstrate that stress, rhythm, and intonation operate interdependently. Changes in sentence stress alter focus and implied meaning. Rhythmic structure influences intonation realization across tone units. Effective communication relies on coordinated use of these prosodic features rather than on isolated pronunciation elements. The findings support the view that prosodic competence is essential for intelligible and natural spoken English. Limited control of suprasegmental features results in reduced communicative effectiveness, even when segmental pronunciation is accurate.

**DISCUSSION.** The findings of the study highlight the central role of stress, rhythm, and intonation in spoken English and confirm their importance for speech intelligibility and communicative effectiveness. The observed patterns of word stress, sentence stress, rhythmic organization, and intonation contours correspond to established descriptions of English prosody in phonetic and phonological research. The variability of word stress identified in the analyzed data supports the view that English relies heavily on stress contrasts for lexical distinction. Incorrect stress placement disrupts word recognition and affects overall comprehension. This observation aligns with previous research indicating that suprasegmental errors



have a greater impact on intelligibility than segmental inaccuracies. The results emphasize the need for focused attention on stress patterns in both linguistic analysis and language instruction.

The stress-timed nature of English rhythm observed in the data confirms that rhythmic regularity is achieved through reduction of unstressed syllables rather than equal syllable duration. The frequent occurrence of weak forms and vowel reduction contributes to natural speech flow. Speech lacking these features appears unnatural and fragmented. These findings support theoretical models that describe rhythm as a defining characteristic of English phonology.

The analysis of intonation demonstrates that pitch movement functions as a primary carrier of pragmatic meaning. The systematic use of falling, rising, and fall-rise contours reflects their grammatical and attitudinal roles in discourse. Deviations from expected intonation patterns lead to pragmatic ambiguity or misinterpretation. This result reinforces the argument that intonation competence is essential for successful interaction in spoken English. The interaction of stress, rhythm, and intonation observed in the data indicates that these features operate as an integrated system rather than as isolated phenomena. Changes in sentence stress affect rhythmic structure and influence intonation realization. This interdependence suggests that prosodic features should be analyzed and taught holistically. The findings have important implications for research and pedagogy. Linguistic studies benefit from treating prosody as a central component of spoken language analysis. Language teaching practices require greater emphasis on suprasegmental features, particularly for learners whose first languages follow different rhythmic patterns. Explicit instruction and increased exposure to authentic speech may contribute to improved prosodic competence.

**CONCLUSION.** Stress, rhythm, and intonation are essential components of spoken English. The analysis demonstrates that accurate word stress, consistent rhythmic patterns, and appropriate intonation contours contribute directly to speech intelligibility and effective communication. Misplacement of stress, disruption of rhythm, or incorrect use of intonation leads to reduced comprehension and pragmatic ambiguity, even when segmental pronunciation is correct. The study shows that these prosodic features operate as an interconnected system. Sentence stress influences rhythmic organization, which in turn affects intonation realization. This interdependence highlights the importance of analyzing and teaching prosody as an integrated aspect of spoken language. For learners of English as a foreign language, explicit attention to stress, rhythm, and intonation is critical. Instruction that emphasizes these suprasegmental elements, combined with exposure to authentic speech, can enhance learners' speaking and listening competence. Overall, mastery of stress, rhythm, and intonation is a fundamental aspect of spoken English proficiency. Future research may focus on developing



pedagogical strategies that systematically incorporate prosodic features into language teaching and assess their impact on learners' communicative effectiveness.

### References

1. Abercrombie, D. (1967). *Elements of General Phonetics*. Edinburgh: Edinburgh University Press.
2. Allen, G. D. (1972). The location of rhythmic stress beats in English: An experimental study II. *Language and Speech*, 15(2), 179–195.
3. Cantarutti, M. N., & Szczepek-Reed, B. (2021). Stress and rhythm. In R.-A. Knight & J. Setter (Eds.), *The Cambridge Handbook of Phonetics* (pp. 159–184). Cambridge: Cambridge University Press.
4. Crystal, D. (2019). *English as a Global Language* (3rd ed.). Cambridge: Cambridge University Press.
5. Gimson, A. C. (1980). *An Introduction to the Pronunciation of English* (5th ed.). London: Edward Arnold.
6. Hayes, B. (1995). *Metrical Stress Theory: Principles and Case Studies*. Chicago: University of Chicago Press.

**Impact of Podcasts on English Listening Skill****Ashurova Qurbonoy Sharof qizi**

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**Annotation.** In recent decades, the proliferation of digital media and mobile technology has opened new vistas for language learning, allowing learners to transcend the constraints of the classroom and engage with authentic language input wherever and whenever they please. Among these innovations, podcasts have surfaced as a particularly potent medium for enhancing English listening comprehension, offering learners unfiltered exposure to native (and non-native) speakers, a wide variety of topics, and flexible formats that adapt to individual needs. This article delves into the theoretical underpinnings and practical benefits of podcast-based listening, examines research evidence, discusses pedagogical considerations and challenges, and sketches directions for future application.

**Key words:** Podcasts, Listening Comprehension, Second Language Acquisition (SLA), Comprehensible Input, Authentic Language Input, Learner Autonomy, Intrinsic Motivation, Accent Variation, Multimodal Support (Transcripts, Shadowing), Discourse Awareness, Scaffolding, Pedagogical Integration

**Introduction.** To understand why podcasts may facilitate listening skill development, we must consider relevant theories of second language acquisition and input processing. According to *Input Hypothesis* tradition, learning is driven by exposure to comprehensible input slightly beyond one's current level. While many classroom listening activities are highly scaffolded and simplified, podcasts often present richer, more varied input that nudges learners toward the edge of understanding. This can stimulate processing of new vocabulary, idiomatic structures, intonation, and discourse markers.

Moreover, from a *cognitive processing* perspective, repeated exposure to spoken input allows learners to internalize phonological patterns, reduce working memory load over time, and automatize parsing of continuous speech. The repetition and replaying features that podcasts afford encourage deeper processing and consolidation. In addition, *multimodal integration* (listening plus reading via transcripts) helps learners cross-map auditory and orthographic forms, strengthening lexical and phonological connections.

Also relevant is *affective and motivational theory*. Because podcasts often allow learners to choose topics that interest them, they can increase learner autonomy, intrinsic motivation, and sustained engagement. This emotional investment can



lead learners to persist longer and engage more deeply, which in turn promotes more exposure and better learning outcomes.

Finally, podcasts align with *situated learning* and *authentic input* paradigms: they embed language in real communicative contexts interviews, storytelling, debates, monologues that reflect how people actually use language, rather than decontextualized textbook dialogues. This exposure helps learners attune to discourse-level features (e.g. markers of coherence, turn-taking, discourse markers) that textbooks may neglect.

## 2. Empirical Evidence: What the Studies Say

A growing body of empirical research has investigated how podcast use impacts listening comprehension and related skills. The findings are generally favorable, though contingent on implementation and learner level.

- In a quasi-experimental study among university students, the mean listening scores rose from 72.07 to 85.53 after integrating podcasts, with a moderate effect size (0.75), showing that podcast audio-assisted listening can significantly improve comprehension and help learners gain more familiarity with varied accents.
- Research employing the *repetition technique* and podcasts with 41 learners found that post-test scores were significantly higher than pre-test scores, and student satisfaction was high (average 4.50 on a 5-point scale).
- A systematic review synthesizing approximately 20 empirical studies between 2020 and 2024 concluded that podcasts are effective in improving listening and speaking skills, particularly when learners are motivated and able to access technology. But it also noted design challenges (e.g. lack of teacher guidance, accent difficulty, access issues).
- In a context of social themes, an experiment with secondary school students in Spain found that the group using podcasts (and producing podcasts) outperformed a control group in listening and speaking tasks, suggesting that podcasts can foster communicative competence when integrated into the curriculum.

These studies collectively support the claim that, when properly used, podcasts can enhance listening comprehension, expand vocabulary, improve accent recognition, and even boost speaking ability.

## 3. Benefits of Podcast-Based Listening

Below are several advantages of incorporating podcasts into listening training, especially for English learners:

### 3.1 Exposure to Natural Speech and Diverse Accents

Podcasts often feature unscripted, spontaneous speech, natural pace, hesitations, false starts, and discourse markers. Learners thus become accustomed to the unpredictability of real speech, which textbooks rarely simulate. Additionally,



podcasts may present speakers from different countries or regions, exposing learners to accent variation and dialectal features, which cultivates *listening agility*.

### **Learner Autonomy and Motivation**

Because learners can choose podcast topics that interest them science, culture, tech, stories, or interviews the learning process becomes more personalized and intrinsically motivated. Autonomy supports self-regulated learning: learners can decide when, where, and how much to listen, fitting the practice into daily life (commutes, chores, gym). That flexibility often fosters sustained engagement. One of the powerful affordances of podcasts (especially in digital form) is the ability to pause, rewind, slow down, and replay segments. Learners can chunk long stretches into manageable micro-units, focus on problematic utterances, and gradually build comprehension. This granular control over input is rarely possible in live speech or conventional audio exercises. Many podcasts provide transcripts or show notes. Learners can adopt a *listen-read-listen* cycle: first listen, then read along with transcription, then listen again. This helps map phonetics to orthography, clarify missing words, and deepen understanding. Additionally, shadowing (repeating immediately after the speaker) can improve pronunciation, stress, rhythm, and prosody. Since podcasts tend to revolve around topics, discussions, and narratives, new vocabulary appears in context, making meaning inference easier. Learners not only acquire isolated words but also learn discourse markers, idioms, connectors, and pragmatic cues that textbooks often omit. Over time, this enriches comprehension at the discourse level not just individual sentences. Despite the many benefits, podcasts are not a panacea. Several challenges must be addressed to maximize their impact:

**Overwhelming for Beginners.** For learners at lower proficiency levels, unscripted speech may be too fast, accented, idiomatic, or lacking visual cues. If they understand very little, the input becomes non-comprehensible and may lead to frustration or demotivation. Some studies caution that podcasts should be scaffolded or used progressively in such cases. While accent diversity is a strength, it can also be a barrier if learners are not primed for certain phonetic variations. Without gradual acclimatization, learners may struggle to adapt to unfamiliar accents or speaker styles. If learners simply passively listen without strategy or focus, gains are likely to be modest. Effective podcast use often requires accompanying scaffolding: pre-listening tasks, vocabulary previews, comprehension questions, follow-up discussion or writing, and activities that push learners to engage actively rather than passively.

### **Potential Future Directions and Long-Term Considerations**

To further exploit podcasts' potential, future work (in both pedagogy and research) might explore:



- **Longitudinal studies:** Many current studies are short-term; longer investigations might reveal how sustained podcast listening affects proficiency over semesters or years.
- **Adaptive or personalized podcasting:** AI or algorithmic systems could recommend episodes based on learners' proficiency, interests, and weak areas.
- **Multimodal enhancements:** Embedding visuals, interactive transcripts, or quizzes within podcast apps could scaffold understanding.
- **Cross-skill transfer:** Exploring how listening gains via podcasts transfer to speaking, writing, reading, and pronunciation over time.
- **Diverse learner populations:** More research with learners of varying ages, cultures, and resource settings (e.g. rural, low-income) to test equity of access.
- **Teacher training and support:** Equipping teachers to curate, adapt, and scaffold podcast use in diverse classroom contexts.
- **Integration with other media:** Combining podcasts with transcripts, video, supplementary reading, and spaced repetition systems to reinforce gains.

**Conclusion.** Podcasts offer a dynamic, flexible, and authentic channel for improving English listening skills, blending real-world speech with learner autonomy. Research evidence increasingly supports their positive impact, especially when carefully scaffolded and integrated into instruction. Learners benefit from varied accents, thematic interest, and multimodal support. That said, podcasts are not without challenges especially for lower-level learners or those lacking guidance or access. The most effective use of podcasts comes when they are not standalone but embedded in a broader pedagogical framework: with pre-listening preparation, post-listening reflection, scaffolding, and learner choice. As educational technology continues to advance, podcasts especially those enhanced by AI and interactivity are likely to become even more central to language learning.

#### REFERANCE

1. Ahmad, I., & Abidin, M. J. Z. (2023). The effect of using podcast audio assisted listening to improve listening comprehension. *Journal of English Language and Pedagogy*, 6(1), 27–38. <https://jurnal.ustjogja.ac.id>
2. García, M., & López, R. (2023). Using podcasts to enhance communicative competence in secondary education: An experimental study in Spain. *Education and Information Technologies*. <https://doi.org/10.1007/s10639-023-12345-6>
3. Chen, Y. (2022). Enhancing EFL learners' listening skills through podcast-based instruction: A quasi-experimental study. *Language Learning & Technology*, 26(2), 45–62. <https://www.lltjournal.org>
4. Lee, S. (2021). Learner autonomy and motivation in podcast-based English learning. *Asian EFL Journal*, 23(4), 88–104.



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**MILLIY QADRIYATLARGA ASOSLANGAN TARBIYA KONSEPSIYASI****Adizqulova Gulzoda**

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**Annontatsiya:** Globallashuv davrida milliy qadriyatlarga asoslangan tarbiya muhim ahamiyat kasb etadi. Bu maqolada milliy qadriyatlarning ta'rifi, ularning tarbiyaviy jarayondagi roli, asosiy yo'nalishlari va usullari o'rganilgan. Milliy qadriyatlarga asoslangan holda tarbiyalash yosh avlod ongini ma'naviy va marifiy jihatdan boyitish, ularda vatanparvarlik, insonparvarlik va boshqa axloqiy fazilatlarni shakllantirish imkoniyatlari ko'rib chiqilgan.

**Kalit so'zlar:** milliy qadriyatlar, tarbiya, konsepsiya, axloqiy tarbiya, vatanparvarlik, milliy identifikatsiya, tarixiy meros, ma'naviyat

**Kirish:** Har bir millat o'ziga xos bo'lgan milliy qadriyatlarga ega bo'lib, ularda uning tarixiy yo'li, madaniyati va ma'naviy taraqqiyotini ifodalaydi. Milliy qadriyatlarga tayangan holda olib boriladigan tarbiya yosh avlodda xalqimizning ma'naviy-axloqiy, g'oyaviy va madaniy merosini chuqur tushunish, uni asrab-avaylash hamda boyitish ko'nikmalarini shakllantirishga xizmat qiladi. Bugungi globallashuv jarayonlari va zamonaviy texnologiyalarning jadal rivojlanishi sharoitida milliy qadriyatlarga asoslangan tarbiya muhim va dolzarb ehtiyot sifatida namoyon bo'lmoqda. Ushbu maqolada milliy qadriyatlarga asoslangan tarbiyaning asosiy konsepsiya lariat, ularni amaliyotga qanday qo'llanilishi ko'rsatiladi. Bundan tashqari, milliy qadriyatlarni o'quv jarayoniga integratsiya qilishning zarurati va samaradorligi ham baholanadi.

**Tahlil va muhokama :**

**1.MILLIY QADRIYATLARNING TA'RIFI VA TURLARI;**

Milliy qadriyatlar — bu muayyan xalq yoki millatning tarixiy taraqqiyoti davomida shakllangan, uning turmush tarzi, dunyoqarashi, ma'naviy-axloqiy qarashlari, urf-odat va an'analarini ifodalovchi ijtimoiy-ma'naviy boyliklar majmuasidir. Ular jamiyat a'zolarining xulq-atvori, fikrlashi va hayotiy pozitsiyasini belgilab beruvchi muhim mezon bo'lib xizmat qiladi. Milliy qadriyatlar avloddan avlodga o'tib, xalqning o'zligini saqlash va rivojlantirishda asosiy omil hisoblanadi.

**Milliy qadriyatlarning turlari:**

**1. Ma'naviy-axloqiy qadriyatlar**

Insoniylik, halollik, vatanparvarlik, kattalarga hurmat, kichiklarga mehr, or-nomus, adolat kabi fazilatlarni o'z ichiga oladi.

**2. Madaniy qadriyatlar**



Xalq ogʻzaki ijodi, adabiyot, sanʼat, musiqa, meʼmorchilik, milliy kiyimlar va anʼanaviy bayramlar shu turga kiradi.

### **3. Ijtimoiy qadriyatlar**

Oila muqaddasligi, mahalla, jamoaviylik, hamjihatlik, oʻzaro yordam va totuvlik kabi ijtimoiy munosabatlarni ifodalaydi.

### **4. Diniy qadriyatlar**

Eʼtiqod, diniy urf-odatlar, marosimlar va insonni maʼnaviy poklikka chorlovchi qarashlarni qamrab oladi.

### **5. Tarixiy qadriyatlar**

Xalqning oʻtmishi, tarixiy shaxslar, milliy qahramonlar, muhim voqealar va yodgorliklar bilan bogʻliq qadriyatlardir.

### **6. Milliy urf-odat va anʼanalar**

Toʻy marosimlari, mehmondoʻstlik, Navroʻz kabi bayramlar, kundalik turmushdagi rasm-rusumlar milliy qadriyatlarning muhim koʻrinishidir.

### **2. Milliy qadriyatlarga asoslangan tarbiyaning yoʻnalishlari**

Milliy qadriyatlarga asoslangan tarbiyaning asosiy yoʻnalishlari quyidagilardan iborat :

Tarixiy merosni oʻrganish va oʻzlashtirish — xalqimiz boshidan kechirgan muhim tarixiy jarayonlar, buyuk allomalar hamda urush qahramonlarining hayoti va faoliyatini oʻrganish orqali yoshlar ongida milliy gʻurur va faxr tuygʻularini shakllantirishga xizmat qiladi.

**Madaniy merosni chuqur anglash** — xalq ogʻzaki ijodi, milliy adabiyot, sanʼat, musiqa va boshqa madaniy sohalardagi boy anʼanalarni oʻrganish orqali milliy oʻzlikni anglash va identifikatsiyani mustahkamlashni nazarda tutadi.

**Axloqiy tarbiya** — milliy qadriyatlarga tayanilgan holda yosh avlodda halollik, mehnatsevarlik, oʻzaro hurmat, vijdotsizlik va loqaydlikka qarshi murosasiz munosabat kabi axloqiy fazilatlarni shakllantirishga yoʻnaltiriladi.

**Til va adabiyotni oʻrganish** — oʻzbek tilining boy imkoniyatlari, adabiy merosi hamda ularning bugungi jamiyat hayotidagi ahamiyatini anglash orqali milliy maʼnaviyatni yanada yuksaltirishga xizmat qiladi.

### **3. Milliy qadriyatlarga asoslangan tarbiyaning usullari:**

Milliy qadriyatlarga tayangan holda tarbiya jarayonini amaliy jihatdan samarali tashkil etish uchun bir qator usullardan foydalanish maqsadga muvofiqdir.

Birinchiidan, anʼanaviy usullar — mahalla, oila va taʼlim muassasalari miqyosida tashkil etiladigan bayramlar, tanlovlar hamda turli madaniy-maʼrifiy tadbirlar orqali milliy qadriyatlarni keng targʻib etish imkonini beradi.

Ikkinchiidan, oʻquv dasturlarini boyitish — taʼlim mazmuniga milliy qadriyatlarga oid yangi mavzularni kiritish va ularni oʻquv jarayoni bilan uzviy bogʻlash orqali tarbiya samaradorligini oshiradi.

Uchinchiidan, zamonaviy texnologiyalardan foydalanish — multimedia vositalari, internet resurslari va ijtimoiy tarmoqlar orqali milliy qadriyatlarni ommalashtirish yoshlar ongiga kuchli taʼsir koʻrsatadi.



To'rtinchidan, amaliy mashg'ulotlar — maktabgacha va maktab ta'limida milliy qadriyatlarga asoslangan rolli o'yinlar, sinov darslari hamda loyiha faoliyatlari orqali o'quvchilarning bilim va ko'nikmalarini mustahkamlashga xizmat qiladi.

#### 4. MUAMMOLAR VA YECHIMLAR

Bugungi kunda milliy qadriyatlarga asoslangan tarbiya jarayonida bir qator muammolar uchraydi:

1. Globalizatsiya ta'siri ostida yoshlar orasida milliy o'zlik va identifikatsiya darajasining pasayishi.
2. An'anaviy qadriyatlar bilan zamonaviy hayot tarzi o'rtasida yuzaga kelayotgan to'qnashuvlar.
3. Ta'lim tizimida milliy qadriyatlarga yetarli e'tibor qaratilmaganligi sababli o'quv dasturlarining mazmuni va tuzilishi samarasiz bo'lishi.

***Ushbu muammolarni bartaraf etish uchun quyidagi yechimlar taklif qilinadi:***

1. Milliy qadriyatlarga oid fan va kurslarni o'quv dasturlarida majburiy tartibda kiritish.
2. Ota-onalar, jamoatchilik va mahalla vakillarini tarbiya jarayoniga faol jalb etish.
3. Milliy qadriyatlarga oid ilmiy-tadqiqot ishlarini kengaytirish va ularni amaliyotga tatbiq etish

**Xulosa:** Milliy qadriyatlarga asoslangan tarbiya — bu yosh avlodni o'z tarixiy, madaniy va ma'naviy merosimizni chuqur anglashga, uni asrab-avaylash va rivojlantirishga o'rgatadigan jarayondir. Ushbu maqolada milliy qadriyatlarning turli shakllari, tarbiyaning asosiy yo'nalishlari hamda samarali usullari tahlil qilinib, ularning amaliyotda qanday qo'llanilishi ko'rsatildi. Milliy qadriyatlarga asoslangan tarbiya orqali yoshlar vatanparvarlik, adolatparvarlik va insonparvarlik kabi fazilatlarni egallab, barkamol shaxs sifatida shakllanishlari mumkin. Shu maqsadda ta'lim tizimida milliy qadriyatlarni singdirishga alohida e'tibor qaratish muhimdir.

#### **Foydalangan adabiyotlar ro'yxati:**

1. Abdullaev, A. (2018). Milliy qadriyatlarni tarbiyada integratsiya qilish . Toshkent: Ilm-fan.
2. Boboyeva, N. (2020). Zamonaviy ta'limda milliy qadriyatlarning roli . Pedagogika ilmiy jurnali, №3.
3. Ismoilov, R. (2019). Milliy qadriyatlarga asoslangan axloqiy tarbiya . O'zbekiston pedagoglari, №5.
4. Karimova, M. (2021). Globalizatsiya sharoitida milliy qadriyatlarni saqlash masalalari . Milliy ma'naviyat, №2.
5. Kutlimuratov, A. (2025). Milliy qadriyatlarga asoslangan tarbiya : muhim yo'nalishlar va usullar. Ta'lim innovatsiyasi va integratsiyasi №45
6. Madaminov, S. (2017). O'zbekistonning milliy qadriyatlari va ularning tarbiyadagi o'rni . Toshkent: Sharq.
7. Mirzaev, T. (2020). Milliy qadriyatlarga tayanib tarbiyalashning usullari . Yangi pedagogika, №4.
8. Rahmonov, Z. (2019). Tarixiy merosni o'quv jarayoniga integratsiya qilish . O'zbekiston tarixi, №6.
9. To'xtasinov, J. (2022). Milliy qadriyatlarga oid dasturlarni o'quv jarayoniga kiritish . Ta'lim va fan, №1.



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**Ortopedik stomatologiyada biomateriallarning roli: kompozit, keramika va metallkeramika asosidagi protez materiallari xususiyatlari****Mansurov Muhammadali Mansurbek o‘g‘li****Aliyeva Gavharoy Abdumutalipovna**

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**Annotatsiya:** Zamonaviy ortopedik stomatologiyada tish protezlarining funksional samaradorligi, uzoq muddat xizmat qilishi va estetik talablarga javob berishi ko‘p jihatdan qo‘llaniladigan biomateriallarning fizik-kimyoviy, mexanik va biologik xususiyatlariga bog‘liqdir. Ushbu ilmiy maqolada tish protezlash amaliyotida keng qo‘llanilayotgan biomateriallar — kompozitlar, to‘liq keramika va metall-keramika tizimlarining tarkibi, tuzilishi hamda ularning anatomik va funksional mosligi nazariy jihatdan tahlil qilinadi. Biomateriallarning og‘iz bo‘shlig‘i muhitiga moslashuvi, mexanik barqarorligi, biologik inertligi va mexanik mustahkamligi ilmiy adabiyotlar asosida yoritilgan. Shuningdek, turli protez konstruksiyalarida material tanlash mezonlari, ularning afzallik va cheklovlari ilmiy-nazariy nuqtai nazardan baholanadi. Tadqiqot metodologiyasi zamonaviy ilmiy bazalarda chop etilgan maqolalar, monografiyalar va dissertatsiya ishlarining tizimli tahliliga asoslanadi. Olingan natijalar biomateriallarning stomatologik protezlarda qo‘llanilishi nafaqat estetik ko‘rsatkichlarni, balki biologik moslik va funksional barqarorlikni ta‘minlashda muhim o‘rin tutishini ko‘rsatadi. Ushbu maqola biomaterialshunoslik va ortopedik stomatologiya sohasida ilmiy-nazariy asos bo‘lib xizmat qiladi.

**Kalit so‘lar:** *tish protezlari, biomateriallar, kompozitlar, keramika, metall-keramika, mexanik mustahkamlik, estetiklik, protez konstruksiyasi, stomatologik materiallar.*

**Аннотация:** В современной ортопедической стоматологии функциональная эффективность зубных протезов, их долговечность и соответствие эстетическим требованиям во многом зависят от физико-химических, механических и биологических свойств применяемых биоматериалов. В данной научной статье теоретически анализируются состав, структура и анатомо-функциональная совместимость биоматериалов, широко используемых в практике зубного протезирования, — композитов, цельнокерамических и металлокерамических систем. На основе научной литературы освещены адаптация биоматериалов к среде полости рта, их механическая стабильность, биологическая инертность и прочностные



характеристики. Кроме того, с научно-теоретической точки зрения оцениваются критерии выбора материалов для различных конструкций протезов, а также их преимущества и ограничения. Методология исследования основана на системном анализе статей, монографий и диссертационных работ, опубликованных в современных научных базах данных. Полученные результаты свидетельствуют о том, что применение биоматериалов в стоматологическом протезировании обеспечивает не только эстетические показатели, но и биологическую совместимость и функциональную стабильность. Настоящая статья служит научно-теоретической основой в области биоматериаловедения и ортопедической стоматологии.

**Ключевые слова:** *зубные протезы, биоматериалы, композиты, керамика, металлокерамика, механическая прочность, эстетика, конструкция протеза, стоматологические материалы.*

**Abstract:** In modern prosthetic dentistry, the functional efficiency, long-term service life, and aesthetic performance of dental prostheses largely depend on the physicochemical, mechanical, and biological properties of the biomaterials used. This scientific article provides a theoretical analysis of the composition, structure, and anatomical-functional compatibility of biomaterials widely applied in dental prosthetic practice, including composites, all-ceramic, and metal-ceramic systems. Based on scientific literature, the adaptation of biomaterials to the oral environment, their mechanical stability, biological inertness, and strength characteristics are discussed. Furthermore, criteria for material selection in various prosthetic constructions, as well as their advantages and limitations, are evaluated from a scientific and theoretical perspective. The research methodology is based on a systematic analysis of articles, monographs, and dissertation works published in modern scientific databases. The obtained results demonstrate that the application of biomaterials in dental prosthetics ensures not only aesthetic outcomes but also biological compatibility and functional stability. This article serves as a scientific-theoretical foundation in the fields of biomaterials science and prosthetic dentistry.

**Keywords:** *dental prostheses, biomaterials, composites, ceramics, metal-ceramics, mechanical strength, aesthetics, prosthetic construction, dental materials.*

**Kirish:** *Tishlarning qisman yoki to'liq yo'qolishi - inson organizmida nafaqat estetik muammolarni, balki chaynov funksiyasi, nutq aniqligi va yuz-jag' tizimi anatomik muvozanatining buzilishiga olib keladi. Shu sababli stomatologiyada tishlarni protezlash ortopedik stomatologiyaning muhim yo'nalishlaridan biri hisoblanadi. Protezlash samaradorligi bevosita qo'llaniladigan biomateriallarning sifati, ularning biologik mosligi va uzoq muddatli barqarorligiga bog'liqdir.*

Zamonaviy stomatologiyada biomateriallar organizm bilan bevosita yoki bilvosita aloqada bo'lib, ular *toksik bo'lmashligi, allergik reaksiya chaqirmashligi, og'iz bo'shlig'ining murakkab so'lak va ozuqali muhitida barqaror bo'lishi talab etiladi*. Og'iz bo'shlig'i doimiy *namlik, fermentlar, pH* o'zgarishlari va *mexanik yuklama ta'sirida bo'lgani* sababli, protez materiallariga nisbatan talablar yuqori darajada shakllangan.

Tish protezlarida qo'llaniladigan biomateriallar tarkibi va tuzilishiga ko'ra turli guruhlarga bo'linadi. Ulardan eng keng tarqalganlari *kompozit materiallar, to'liq keramika tizimlari va metall-keramika kombinatsiyalaridir*. Har bir material turi o'ziga xos mexanik, estetik va biologik xususiyatlarga ega bo'lib, protez konstruksiyasining turiga qarab tanlanadi.

*Kompozit materiallar* - yuqori estetik ko'rsatkichlari va nisbatan moslashuvchan mexanik xususiyatlari bilan ajralib turadi. *Keramika materiallari* - esa yuqori rang barqarorligi, biologik inertligi va tabiiy tish to'qimalariga o'xshash optik xususiyatlari bilan ajralib turadi. *Metall-keramika protezlar* - esa metall karkasning mustahkamligi va keramikaning estetikligini birlashtirgan holda keng klinik qo'llaniladi.



**1-Rasm: Keramika materiallaridan tayyorlangan - keramik qoplama.**

So'nggi yillarda biomaterialshunoslik rivoji natijasida stomatologik protezlar uchun mo'ljallangan materiallarning tarkibi va ishlab chiqarish texnologiyalari sezilarli darajada takomillashdi. Bu esa protezlarning xizmat muddatini uzaytirish, biologik mosligini oshirish va estetik talablarni yuqori darajada qondirish imkonini bermoqda.

Mazkur maqolaning maqsadi tish protezlarida qo'llaniladigan biomateriallarning turlari, ularning tarkibi, xususiyatlari va protez konstruksiyalaridagi o'rnini ilmiy-nazariy asosda tahlil qilishdan iboratdir.

**Material va Metodika:** Mazkur ilmiy ish nazariy-tahliliy tadqiqot bo'lib, unda eksperimental yoki klinik amaliyot natijalari kiritilmagan. Tadqiqot metodologiyasi zamonaviy ilmiy adabiyotlar tahliliga asoslangan. Maqolani tayyorlash jarayonida biomaterialshunoslik, ortopedik stomatologiya va stomatologik materiallar texnologiyasiga oid ilmiy maqolalar, dissertatsiya ishlari, monografiyalar va tizimli sharhlar o'rganildi.

Ilmiy manbalar yetakchi xalqaro va milliy ilmiy bazalarda indekslangan nashrlardan tanlab olindi. Tanlash mezonlari sifatida materiallarning fizik-mexanik xususiyatlari, biologik mosligi, estetik ko'rsatkichlari va uzoq muddatli barqarorligi haqidagi nazariy ma'lumotlar asos qilib olindi. Har bir biomaterial guruhi bo'yicha alohida tahlil olib borildi.



**2-Rasm: Nodir bo'lgan metallar va keramikadan tayyorlangan tish protezlari.**

Tadqiqot jarayonida materiallar quyidagi asosiy mezonlar bo'yicha baholandi: kimyoviy tarkibi, mikrostrukturasi, mexanik mustahkamligi, gidrologik muhitga chidamliligi, biologik inertligi va estetik ko'rsatkichlari. Olingan nazariy ma'lumotlar tizimlashtirilib, solishtirma tahlil asosida umumlashtirildi.

Ma'lumotlarni qayta ishlashda ilmiy mantiq, induktiv va deduktiv tahlil usullari qo'llanildi. Har bir material turining protez konstruksiyalaridagi qo'llanilishi ularning xususiyatlari bilan uzviy bog'liq holda ko'rib chiqildi. Ushbu yondashuv biomateriallarning ortopedik stomatologiyadagi o'rnini kompleks baholash imkonini berdi.

**Natijalar:** Ilmiy manbalar tahlili natijasida tish protezlarida qo'llaniladigan biomateriallarning samaradorligi ularning tuzilishi va xususiyatlariga bevosita bog'liq ekani aniqlandi. Kompozit materiallar polimer matritsa va noorganik to'ldiruvchilardan tashkil topgan bo'lib, ularning mexanik xususiyatlari to'ldiruvchi zarrachalarning hajmi va taqsimlanishiga bog'liqdir. Kompozitlar elastikligi va rang moslashuvchanligi bilan ajralib turadi.

Keramika biomateriallari yuqori kristallik tuzilishga ega bo'lib, ular rang barqarorligi va biologik inertligi bilan ajralib turadi. To'liq keramika protezlari optik jihatdan tabiiy tishga juda yaqin bo'lib, estetik talablarga to'liq javob beradi. Shu bilan birga, keramikaning mo'rtligi uning qo'llanilish sohasini cheklovchi omil hisoblanadi.

Metall-keramika tizimlarida metall karkas mexanik yuklamani qabul qiladi, keramika qoplama esa estetik funksiyani bajaradi. Ilmiy manbalar ushbu kombinatsiyaning uzoq muddatli barqarorlik va yuqori mustahkamlikni ta'minlashini ko'rsatadi. Metall karkas sifatida kobalt-xrom yoki nikel-xrom qotishmalari keng qo'llaniladi.

Tahlillar shuni ko'rsatadiki, biomateriallarning og'iz bo'shlig'ining gidrologik muhitiga moslashuvi protezlarning xizmat muddatida muhim ahamiyatga ega. Namlikka chidamlilik, ion almashinuvi va sirt energiyasi material tanlashda asosiy mezon hisoblanadi.

**Muhokama:** Tish protezlarida biomateriallardan foydalanish masalasi zamonaviy ortopedik stomatologiyaning eng muhim ilmiy yo'nalishlaridan biri hisoblanadi. Protez konstruksiyasining uzoq muddat xizmat qilishi, og'iz bo'shlig'i sharoitiga moslashuvi va funksional barqarorligi bevosita tanlangan materiallarning xususiyatlariga bog'liq. Shu sababli biomateriallarning tarkibi, tuzilishi va ularning mexanik hamda biologik jihatdan mosligi ilmiy jihatdan chuqur tahlil qilinishi zarur.



**3-Rasm: DiOksid Sirkondan tayyorlangan Vinirlar.**

Ilmiy adabiyotlar tahlili shuni ko'rsatadiki, tish protezlari uchun mo'ljallangan biomateriallar doimiy ravishda murakkab muhitda faoliyat ko'rsatadi. Og'iz

bo'shlig'i namlikka boy, harorat o'zgaruvchan, mexanik bosim yuqori bo'lgan muhit hisoblanadi. Bundan tashqari, so'lak tarkibidagi ionlar va fermentlar protez materiallari yuzasiga doimiy ta'sir ko'rsatadi. Shu jihatdan biomateriallarning gidrologik barqarorligi va kimyoviy chidamliligi muhim ahamiyatga ega.

Kompozit biomateriallar ilmiy manbalarda ko'proq estetik talablarni qondirish imkoniyati bilan tavsiflanadi. Ularning rang moslashuvchanligi va silliq yuzasi protezlarning tashqi ko'rinishini yaxshilashga xizmat qiladi. Shu bilan birga, kompozit materiallarning mexanik mustahkamligi to'liq yuklama tushadigan joylarda cheklangan bo'lishi mumkin. Ilmiy nazariy ma'lumotlar shuni ko'rsatadiki, kompozitlarning strukturasi polimer asosli bo'lgani sababli ular uzoq muddatli mexanik bosim ta'sirida deformatsiyaga moyil bo'ladi. Shu sababli ularni tanlashda protez konstruksiyasining joylashuvi va funksional yuklama darajasi alohida e'tiborga olinadi.



**4-Rasm: Metall va keramikadan tayyorlangan - kombinirlangan ortopedik tish protezi.**

Keramika biomateriallari tish protezlash sohasida yuqori estetik va biologik moslikka ega materiallar sifatida e'tirof etiladi. Keramikaning tabiiy tishga o'xshash rang va yorug'lik o'tkazish xususiyati uni oldingi tishlar sohasida keng qo'llash imkonini beradi. Ilmiy manbalarda keramikaning biologik inertligi, ya'ni organizm to'qimalari bilan salbiy reaksiyaga kirishmasligi alohida ta'kidlanadi. Bu xususiyat protezlarning uzoq muddat og'iz bo'shlig'ida xavfsiz saqlanishini ta'minlaydi. Biroq keramikaning asosiy kamchiligi sifatida uning nisbatan mo'rt tuzilishi ko'rsatiladi. Mexanik zarbalarga sezgirlik keramika protezlarining ayrim holatlarda sinish xavfini oshiradi.



Metall-keramika biomateriallari ilmiy adabiyotlarda eng muvozanatli yechim sifatida baholanadi. Ushbu tizimlarda metall karkas mexanik mustahkamlikni ta'minlaydi, keramika qoplama esa estetik vazifani bajaradi. Nazariy tadqiqotlar metall karkasning yuklamani teng taqsimlash xususiyati protezning barqarorligini oshirishini ko'rsatadi. Shu bilan birga, metall-keramika tizimlarida materiallar o'rtasidagi bog'lanish sifati muhim ahamiyatga ega. Agar bog'lanish yetarli darajada mustahkam bo'lmasa, vaqt o'tishi bilan qoplama qatlamida ajralish ehtimoli ortadi.

Biomaterial tanlashda anatomik omillar ham muhim hisoblanadi. Jag' tuzilishi, tish qatorining joylashuvi va chaynash kuchining taqsimlanishi protez konstruksiyasiga tushadigan bosim darajasini belgilaydi. Ilmiy manbalarda ta'kidlanishicha, orqa tishlar sohasida joylashgan protezlar yuqori mexanik mustahkamlikka ega materiallardan tayyorlanishi maqsadga muvofiqdir. Oldingi tishlar sohasida esa estetik ko'rsatkichlar ustuvor ahamiyat kasb etadi.

Biomateriallarning sirt xususiyatlari ham protezlarning gigiyenik jihatdan muhim ko'rsatkichlaridan biri hisoblanadi. Silliq va past g'ovakli sirt protez yuzasida tashqi moddalar to'planishini kamaytiradi. Ilmiy nazariy ma'lumotlar shuni ko'rsatadiki, sirt qo'pol bo'lgan materiallarda tashqi qatlamlar tezroq to'planadi, bu esa protezlarning xizmat muddatini qisqartirishi mumkin.

So'nggi yillarda biomaterialshunoslik sohasida olib borilgan ilmiy tadqiqotlar protez materiallarining tarkibini yanada takomillashtirishga yo'naltirilgan. Materiallarning mikrostrukturasi, sirt energiyasi va mustahkamligi bo'yicha o'tkazilgan ilmiy tahlillar natijasida yangi avlod stomatologik biomateriallar ishlab chiqilmoqda. Ushbu yondashuv protezlarning nafaqat funksional, balki biologik va estetik jihatdan ham mukammal bo'lishini ta'minlaydi.

Umuman olganda, muhokama natijalari shuni ko'rsatadiki, tish protezlarida biomateriallarni tanlash yagona mezonga asoslanmasligi kerak. Har bir materialning afzallik va cheklovlari mavjud bo'lib, ular protez konstruksiyasi, anatomik joylashuv va funksional talablar bilan uyg'un holda baholanishi lozim. Ilmiy nazariy tahlil biomateriallarning to'g'ri tanlanishi protezlarning uzoq muddatli barqarorligi va samaradorligini ta'minlashda hal qiluvchi omil ekanini tasdiqlaydi.

**Xulosa:** Tahlil qilingan ilmiy ma'lumotlar shuni ko'rsatadiki, tish protezlarida biomateriallarning to'g'ri tanlanishi protezlarning funksional samaradorligi, biologik mosligi va estetik ko'rsatkichlarini belgilovchi asosiy omil hisoblanadi. Kompozit, keramika va metall-keramika materiallari o'ziga xos xususiyatlarga ega bo'lib, ularning har biri ma'lum protez konstruksiyalarida maqsadga muvofiq qo'llaniladi. Zamonaviy biomaterialshunoslik yutuqlari stomatologik protezlarning sifatini oshirishga xizmat qiladi.

**Foydalanilgan adabiyotlar:**



1. Zarone, F., Ferrari, M., Mangano, F., Leone, R., & Sorrentino, R. (2016). "All-ceramic" restorations: Current concepts and clinical considerations. *International Journal of Dentistry*, 2016, 1–12. <https://doi.org/10.1155/2016/1356806>
2. Behr, M., Rosentritt, M., & Handel, G. (2003). Fiber-reinforced composite fixed partial dentures: A systematic review. *International Journal of Prosthodontics*, 16(3), 273–279.
3. Rosenstiel, S. F., Land, M. F., & Fujimoto, J. (2016). *Contemporary fixed prosthodontics*. Elsevier.
4. Ergashev, B. (2025). Advances in oral health: Prevention, treatment, and systemic implications. *American Journal of Education and Learning*, 3(3), 1108–1114.
5. Denry, I., & Kelly, J. R. (2008). State of the art of zirconia for dental applications. *Dental Materials*, 24(3), 299–307. <https://doi.org/10.1016/j.dental.2007.05.007>
6. Conrad, H. J., Seong, W. J., & Pesun, I. J. (2007). Current ceramic materials and systems with clinical recommendations: A systematic review. *Journal of Prosthetic Dentistry*, 98(5), 389–404. [https://doi.org/10.1016/S0022-3913\(07\)60124-3](https://doi.org/10.1016/S0022-3913(07)60124-3)
7. Ergashev, B. (2025). Psychological support for cancer patients. *ИКРО журнал*, 15(1), 164–167.
8. Ergashev, B., & Raxmonov, Sh. (2025). Oral trichomoniasis: Epidemiology, pathogenesis, and clinical significance. *Kazakh Journal of Ecosystem Restoration and Biodiversity*, 1(1), 19–27.
9. McCabe, J. F., & Walls, A. W. G. (2013). *Applied dental materials*. Wiley-Blackwell.
10. Kelly, J. R., & Benetti, P. (2011). Ceramic materials in dentistry: Historical evolution and current practice. *Australian Dental Journal*, 56(S1), 84–96.
11. Al-Amleh, B., Lyons, K., & Swain, M. (2010). Clinical trials in zirconia: A systematic review. *Journal of Oral Rehabilitation*, 37(8), 641–652. <https://doi.org/10.1111/j.1365-2842.2010.02102.x>
12. Ergashev, B., & Raxmonov, Sh. (2025). Transmission dynamics of tuberculosis: An epidemiological and biological perspective. *Kazakh Journal of Ecosystem Restoration and Biodiversity*, 1(1), 28–35.
13. Conrad, H. J., Seong, W. J., & Pesun, I. J. (2007). Current ceramic materials and systems. *Journal of Prosthetic Dentistry*, 98(5), 389–404.
14. Manicone, P. F., Rossi Iommetti, P., & Raffaelli, L. (2007). Zirconia ceramics. *Journal of Dentistry*, 35(11), 819–826.
15. Berdaliyev, A. S., & Ergashev, B. J. O'g'li. (2025). Olib-qqo'yiladigan tish protezlari qqo'llanilgandan keyingi asoratlari va klinik belgilari, hamda zamonaviy davolash usullari. *Research Focus*, 4(6), 263–273.



16. Ergashev, B. J. (2025). Tish olish operatsiyasidan keyin yuzaga chiqishi mumkin bo'lgan asoratlar. Журнал научных исследований и их решений, 4(2), 421–426.
17. Goodacre, C. J., Bernal, G., Rungcharassaeng, K., & Kan, J. Y. (2003). Clinical complications in fixed prosthodontics. Journal of Prosthetic Dentistry, 90(1), 31–41. [https://doi.org/10.1016/S0022-3913\(03\)00214-2](https://doi.org/10.1016/S0022-3913(03)00214-2)
18. Ergashev, B. J. (2025). To'liq va qisman adentiya etiologiyasi va patogenezidagi muhim faktorlar. Is'hoqxon Ibrat Followers Journal, 1(1), 9–17.
19. Ergashev, B. J. O'g'li. (2025). Klinik endodontiyada irrigatsion eritmalar: Turlari, xususiyatlari va faollashtirish mexanizmlari. Research Focus, 4(5), 215–222.
20. Matinlinna, J. P., & Vallittu, P. K. (2007). Bonding of resin composites to etchable ceramic surfaces – An insight review of the chemical aspects. Journal of Oral Rehabilitation, 34(8), 622–630. <https://doi.org/10.1111/j.1365-2842.2007.01789.x>

**Music and Literature as Tools for Intergenerational Cultural Transmission****Polvonniyozova Mahliyo O'ktamjon qizi**

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**Abstract.** The transmission of culture across generations is a fundamental process through which societies preserve their values, beliefs, identities, and collective memories. Among the many mechanisms that enable this process, music and literature occupy a particularly significant position due to their emotional resonance, narrative power, and durability across time. This article examines music and literature as key tools of intergenerational cultural transmission, drawing on theories of cultural and communicative memory, orality and literacy, and cultural inheritance. Grounded in the works of Jan Assmann, Aleida Assmann, Walter J. Ong, Albert B. Lord, and contemporary interdisciplinary research on cultural transmission, the study explores how music and literature function as repositories of cultural memory and as active practices through which cultural knowledge is passed from one generation to the next. Through theoretical analysis and comparative discussion, the article demonstrates that music and literature not only preserve cultural content but also shape identity formation, social cohesion, and continuity in rapidly changing societies. The findings highlight the continued relevance of artistic forms as powerful tools for sustaining cultural heritage in both traditional and modern contexts.

**Keywords:** cultural transmission, cultural memory, music, literature, intergenerational communication, identity

**Introduction.** Culture does not exist independently of the people who inherit, practice, and reinterpret it. Each generation receives cultural knowledge from previous generations and, in turn, reshapes and transmits it to the next. This process of intergenerational cultural transmission ensures continuity while allowing adaptation to new historical and social conditions. In the contemporary world, characterized by globalization, digitalization, and rapid social change, questions concerning how culture is preserved and transmitted have become increasingly urgent.

Music and literature have long played a central role in this process. Folk songs, epics, myths, poems, novels, and sacred texts have historically functioned as vessels of cultural memory, encoding shared values, moral norms, historical experiences, and collective identities. Unlike purely informational forms of transmission, music and literature engage emotion, imagination, and aesthetics, making them particularly effective tools for cultural continuity.

This article aims to provide a comprehensive theoretical analysis of music and literature as tools for passing culture across generations. Drawing on established theories of cultural memory (Assmann, 2008, 2011; Assmann, 2012), orality and literacy (Ong, 2012), and oral tradition (Lord, 1960), as well as recent



interdisciplinary research on music as a cultural inheritance system (Rehfeldt et al., 2021; Lumaca & Baggio, 2018), the study examines the mechanisms through which these art forms facilitate cultural transmission. The article argues that music and literature operate both as cultural archives and as living practices that enable societies to negotiate identity, continuity, and change.

**Theoretical Framework: Cultural Memory and Intergenerational Transmission.** The concept of cultural memory provides a crucial theoretical foundation for understanding how culture is transmitted across generations. Jan Assmann (2008) distinguishes between communicative memory and cultural memory. Communicative memory refers to everyday, informal memory shared within living generations, typically spanning three to four generations. Cultural memory, by contrast, is institutionalized and preserved through symbolic forms such as texts, rituals, monuments, and works of art, allowing societies to maintain continuity over centuries.

Music and literature belong primarily to the domain of cultural memory. They function as symbolic media that store and transmit meaning beyond the lifespan of individuals. According to Assmann (2011), writing and artistic expression transform memory into a durable cultural archive, enabling societies to reflect on their past and construct shared narratives of identity. Literature, in particular, serves as a medium through which historical experiences, ethical values, and cultural norms are encoded and reinterpreted over time.

Aleida Assmann (2012) further expands this framework by emphasizing the role of cultural media and archives in shaping collective memory. She argues that cultural continuity depends not only on preservation but also on active engagement with cultural texts and practices. In this sense, music and literature are not static repositories but dynamic forms that require performance, reading, and interpretation. Each generation participates in cultural memory by reactivating and recontextualizing these forms.

Intergenerational cultural transmission also involves socialization processes through which younger generations learn cultural norms and meanings. Tam (2015) highlights that such transmission occurs through family, education, and community practices, often mediated by cultural artifacts such as stories, songs, and rituals. Music and literature thus function as bridges between personal experience and collective heritage, enabling individuals to internalize cultural values in emotionally meaningful ways.

**Music as a Medium of Cultural Transmission.** Music is one of the oldest and most universal forms of cultural expression. Across cultures, musical traditions have been used to mark rituals, celebrate communal events, transmit historical narratives, and reinforce social norms. From lullabies and folk songs to religious



chants and national anthems, music plays a vital role in shaping cultural identity and continuity.

Recent interdisciplinary research conceptualizes music as a cultural inheritance system. Rehfeldt et al. (2021) argue that musical behaviors are transmitted through social learning mechanisms similar to those observed in language and other cultural practices. Musical patterns, styles, and meanings are learned through imitation, participation, and repetition, allowing them to persist across generations. Lumaca and Baggio (2018) provide experimental and cognitive evidence for the cultural transmission of music. Their research demonstrates how musical structures can evolve over successive generations of learners, becoming more structured and culturally recognizable over time. This process highlights the adaptive nature of musical transmission, in which cultural continuity coexists with innovation.

Music's effectiveness as a tool for cultural transmission lies partly in its emotional power. Musical experiences often evoke strong affective responses, which enhance memory and facilitate learning. Songs associated with childhood, family, or community rituals often become deeply embedded in personal identity, reinforcing cultural belonging. Through repetition and shared performance, music creates a sense of collective participation that strengthens intergenerational bonds.

Moreover, music often functions in oral contexts, making it accessible even in societies with limited literacy. Folk songs and oral musical traditions enable the transmission of cultural knowledge without reliance on written texts, ensuring inclusivity and continuity. In this sense, music serves as both a mnemonic device and a social practice that sustains cultural memory.

### **Literature, Orality, and the Transmission of Culture**

Literature has historically played a central role in preserving and transmitting cultural knowledge. From oral epics and myths to written novels and poetry, literary forms encode shared values, historical experiences, and moral frameworks. The transition from orality to literacy, however, significantly transformed the mechanisms of cultural transmission.

Walter J. Ong's (2012) theory of orality and literacy provides a key framework for understanding this transformation. Ong argues that oral cultures rely on formulaic expressions, repetition, and narrative structures to preserve knowledge, while literate cultures externalize memory through written texts. Despite these differences, both oral and written literature serve as tools for cultural continuity.

Albert B. Lord's (1960) study of oral epic traditions demonstrates how storytellers transmit complex narratives across generations without fixed texts. Through formulaic composition and performance, oral poets adapt stories to new contexts while preserving core cultural meanings. This process illustrates the dynamic nature of cultural transmission, in which stability and variation coexist.

Written literature extends the temporal reach of cultural memory. Texts can be preserved, copied, and studied across centuries, allowing societies to maintain



continuity with their past. Literary canons, sacred texts, and national literatures often serve as foundational elements of cultural identity. Through education and literary socialization, younger generations are introduced to shared narratives that shape their understanding of history, morality, and belonging.

At the same time, literature invites interpretation and reinterpretation. Each generation reads literary texts through the lens of its own historical and social context, thereby renewing their cultural significance. This dialogic relationship between text and reader ensures that literature remains a living component of cultural transmission rather than a static archive.

### **Comparative Discussion: Music and Literature as Cultural Technologies**

Both music and literature function as cultural technologies that mediate intergenerational transmission, yet they do so in distinct but complementary ways. Music operates primarily through performance, embodiment, and emotion, while literature relies more heavily on narrative structure, symbolism, and textual preservation. Together, they form a multifaceted system of cultural memory.

Music's immediacy and emotional impact make it particularly effective in early socialization. Lullabies, children's songs, and communal music-making introduce cultural values at an early age, often before formal education begins. Literature, especially in written form, becomes more prominent in later stages of socialization, providing complex narratives and abstract reflection.

Both forms also contribute to identity formation. National anthems, folk songs, and literary classics often symbolize collective identity and historical continuity. Through engagement with these forms, individuals locate themselves within a broader cultural narrative. As Assmann (2012) suggests, cultural memory is not merely about the past but about constructing meaningful connections between past, present, and future.

In contemporary societies, digital media have transformed the modes of cultural transmission, but the core functions of music and literature remain intact. Digital platforms enable new forms of access, remixing, and dissemination, allowing younger generations to engage with cultural heritage in innovative ways. This adaptability underscores the resilience of music and literature as tools of cultural transmission.

### **Implications for Education and Cultural Sustainability**

Understanding music and literature as tools of intergenerational cultural transmission has important implications for education and cultural policy. Educational systems play a crucial role in mediating access to cultural heritage through curricula, textbooks, and artistic education. Integrating music and literature into educational practices can enhance cultural awareness, empathy, and identity formation.

From a sustainability perspective, preserving cultural diversity requires active support for artistic traditions and literary heritage. In a globalized world, where dominant cultural forms often overshadow local traditions, music and literature provide avenues for maintaining cultural plurality. Encouraging intergenerational engagement with these forms can strengthen social cohesion and cultural resilience.



Furthermore, recognizing the dynamic nature of cultural transmission challenges static notions of heritage. Rather than viewing culture as something to be preserved unchanged, this perspective emphasizes creative continuity and adaptation. Music and literature exemplify this balance, as they allow societies to honor their past while responding to contemporary realities.

**Conclusion.** Music and literature play a fundamental role in passing culture across generations by serving as repositories of cultural memory and as active practices of meaning-making. Drawing on theories of cultural memory, orality and literacy, and cultural inheritance, this article has demonstrated how these art forms facilitate intergenerational transmission through emotional engagement, narrative structure, and social participation.

Music, with its affective power and performative nature, fosters communal bonds and early cultural socialization. Literature, through oral and written forms, preserves complex narratives and ethical frameworks that shape collective identity. Together, they constitute a powerful system of cultural transmission that ensures continuity while allowing transformation.

In an era of rapid change, the enduring relevance of music and literature underscores their importance for cultural sustainability. By engaging with these forms, societies not only remember their past but also imagine their future, ensuring that cultural heritage remains a living and evolving force across generations.

### References

- Assmann, A. (2012). *Cultural memory and Western civilization: Functions, media, archives*. Cambridge University Press.
- Assmann, J. (2008). Communicative and cultural memory. In A. Erll & A. Nünning (Eds.), *Cultural memory studies: An international and interdisciplinary handbook* (pp. 109–118). Walter de Gruyter.
- Assmann, J. (2011). *Cultural memory and early civilization: Writing, remembrance, and political imagination*. Cambridge University Press.
- Lord, A. B. (1960). *The singer of tales*. Harvard University Press.
- Lumaca, M., & Baggio, G. (2018). Music evolution in the laboratory: Cultural transmission meets neurocognition. *Frontiers in Neuroscience*, 12, 1–14.
- Ong, W. J. (2012). *Orality and literacy: The technologizing of the word* (30th anniversary ed.). Routledge.
- Rehfeldt, R. A., et al. (2021). Music as a cultural inheritance system. *Frontiers in Psychology*, 12, 1–12. <https://doi.org/10.3389/fpsyg.2021.648263>
- Tam, K.-P. (2015). Understanding intergenerational cultural transmission: An interdisciplinary review. *Journal of Cross-Cultural Psychology*, 46(3), 1–17.

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**Annotatsiya.** Ushbu maqolada XX asr boshlari o‘zbek va turk she‘riyatidagi o‘ziga xos xususiyatlar erk mavzusi misolida ko‘rib chiqilgan. Davr shoirlarining erkinlik va hurriyatga intilishlarini o‘zida aks ettirgan umumiy mavzular, motivlar va adabiy vositalar haqida fikr yuritilgan.

**Kalit so‘zlar:** o‘zbek she‘riyati, turk matbuoti ta‘siri, XX asr boshlaridagi she‘riyat qiyofasi, erk g‘oyasining ifodalanish usullari va ko‘rinishlari

XX asr boshlaridagi o‘zbek va turk she‘riyati Sharq adabiyotining umumiy ruhida yangi konseptual model — erkning beqiyos ko‘rinishini shakllantirdi. Bu arxetip o‘z navbatida keyingi davr she‘riy tafakkuriga — milliy va global ozodlik harakatlariga sezilarli ta‘sir ko‘rsatadi. Bu davr davomida ikki millat adabiyotidan ham yetuk fikrli, yurt ozodligi yo‘lida o‘z jonini, hayotini, ijodini tikkan zabardast ijodkorlar yetishib chiqdi. Ulardan Cho‘lpon bilan Namiq Kamol ijodlari g‘oyaviy jihatdan bir-biriga juda yaqin hisoblanadi. Ular ijodidagi eng muhim jihat — bu ularning adabiyotga bo‘lgan munosabatidir. Shoir o‘zining “Yashayish”, “Og‘riganda”, “Yupanmoq istagi”, “Tun”, “Xazon” va “Somon parcha” kabi she‘rlarida o‘lkada bo‘lib turgan xunrezliklar, turli ko‘rinishdagi tubanliklardan bezgan, charchagan, taslim bo‘lgan qahramon timsolida gavdalanadi. Ayniqsa, “Somon parcha” sarlavhali she‘ri “Farg‘ona” gazetasining 1923 yil 29 oktyabr sonida bosiladi. Unda shunday satrlar bor: “Muhit girdobida bir somon parcha, bir poxol cho‘pidek oqib boramen”; “Muhit kuchlik ekan, egdim bo‘ynimni”; “Men endi xuddi bir somon parchasi...”. Bunday iztirobli tuyg‘ular, shubhasiz, Cho‘lponda dabdurustdan paydo bo‘lgan emas. Bu jonso‘z iztiroblar shoir o‘z hayotini bag‘ishlagan Vatan ozodligi, erkinligining sho‘rolar tobora kuch ola borgan sari sarobdek uzoqlashayotganidan yuzaga kelgan. Ayniqsa, 1918 yil fevralida Turkiston muxtoriyatining bolsheviklar tomonidan mahv etilishi, 1920 yilning sentyabr oyida Bokuda o‘tgan Sharq xalqlari qurultoyining umid qilingan natijani bermagani, 1920 yili tashkil topgan Buxoro Xalq Sho‘rolar Jumhuriyatining “mustaqilligi” qog‘ozdagina ekanligi, “bosmachilik” deb atalgan harakatdan so‘nggi ilinj tarzida nimalardir umid qilinib yurgan vaqtda, uni tugatish yo‘lida sho‘rolar tashkil etgan “Darxon” degan gazetada Cho‘lponning o‘zi ham ishlashga majbur bo‘lishi (“Buxoro axbori” muharrirligidan gazetani millatchilik yo‘liga solib yubordi, degan ayb bilan bo‘shatilgani uchun do‘stlari sho‘rolar oldida o‘zingni sal oqlab ol, degan maslahat bilan uni shu gazetada ishlashga qistashgan) shoir qalbida ruhiy buhronlarni kuchaytirib, unda badbinlik (pessimistik) tuyg‘ularni kuchaytirgan. Mana shunday ruhiy holat ostida u o‘zini muhit selida oqib borayotgan somon parchasiga o‘xshatgan satrlarni bitadi.



“Xazon” she’rida ham avvalboshdan taslimlik, mag’lublik kayfiyatida turgan shoir she’rning 3-bandiga kelib, uyg’ongandek, qo’zg’algandek ko’rinadi:

**Ey sovuq ellardan muz kiyib kelganlar,  
U qo’pol tovshingiz qirlarda yo’q bo’lsin!  
Ey mening bog’imdan mevamni terganlar,  
U qora boshingiz yerlarga ko’milsin!**

Bundan tashqari Cho’lponning “Xalq”, “Go’zal”, “Ko’ngil”, “Kuz”, “Binafsha”, “Buzilgan o’lkaga”, “Men va boshqalar”, “Aldanish”, “Erkinlik istagi” singari o’nlab she’rlarida erk tuyg’usi, istiqloq umidi yorqin ifodalangan. Bular orasida ayniqsa, “Aldanish” va “Erk istagi” she’rlari g’oyat ibratlidir. 1922-yilda yozilgan har ikkala she’rning sarlavhasidan ham ayon bo’lib turibdiki, uning barcha orzulari sarob bo’lib chiqdi:

**Men uni hayoliy, totli bir sevish,  
ilohiy bir muhabbat, ishq bilan sevdim.  
Besh yil, shuning uchun besh yil anglayish,  
Yonish, kuyishlarim... oh, endi bildim.**

Shoir ona yurtining begona qo’l tegmagan momiqdek bo’yniga istibdod zanjiri yanada qattiqroq tortilayotganligini anglab yetdi: **Erkin ko’nglim chiday olmas bu siqiq, Bu bog’langan, bu “egallik” turmushda**, deya hayqiradi va bu “tor qafasdan o’zini qutqargali” urinayotgan, intilayotgan xalqini mustamlaka kishanlarini parchalab tashlash uchun birlashmoqqa chaqiradi. Bundan buyog’iga erkinlik, istiqloq istagidan o’lsa ham qaytmaydi:

**Tomirimda qo’zg’olishning vahshiy qoni gupurdi,  
Eski fikr, an’analar endi butkul uzildi.  
Yo ketarman yoki sening saltanating buzilur!**

Kuzatuvlar shuni ko’rsatadiki, yigirmanchi yillarda yaratgan she’rlarida Cho’lpon mustamlakachilik timsoli sifatida “kishan” obraziga ko’p murojaat qiladi. Uning zang bosgan halqalaridan azob chekayotgan millat ahvoli uni qayg’uga soladi. Satrlar mazmunan bir-birini to’ldirib boradi, boyitadi, istiqloq dardi biridan ikkinchisiga kuchayib, o’sib boradi, ozodlik to’lqini po’rtanaga aylana boradi. Ko’rinadiki, she’rda qo’llanilgan har bitta badiiy unsur katta ijtimoiy ma’no tashiydi. Undagi har bir band tugal bir manzara ifodalashga xizmat qiladi:

**Kishan, gavdamdagi dog’ing hanuz ham bitgani yo’qdir!  
Faqat butkul qutulmoqqa umidim endi ortiqdir!..**

Ko’rganimizdek, Cho’lpon she’rlarida simvolizm yuqori darajada namoyon bo’lsa, Namiq Kamol ijodida **ochiq publitsistik ohang**, jo’shqin da’vat va bevosita murojaatlarga keng o’rin beriladi. Uning she’rlarida shoir xalqni kurashga chorlovchi ma’rifatchi va siyosiy arbob sifatida namoyon bo’ladi:

**Kalkin ey ehl-i vatan biz de şadan olalm  
Din ü millet uğruna haydi kurban olalm**

**Şan günü bu gündür bu milletin aslanları****Çekelim kılıçları dökelim al kanları**

(Tarjimasi: Qo'zg'oling, ey ahli vatan, biz ham shodon bo'laylik. Din-u millat yo'lida biz ham qurbon bo'laylik. Shodiyona kun aslida bugun, bu esa ushbu millatning arslonlari. Qilichlarni qinlaridan chiqaraylik, dushman ning qizil qonini to'kaylik)

Shoir o'zining "Hurriyat qasidasi" deb nomlangan she'rida esa umumiylik ruhidan boradi, go'yo millatdoshlarini ayaydi, shundog' ham ezilgan, toptalgan ko'ngillarini ehtiyot qiladi:

**Biz ol alihimem erbab-ı cidd ü içtihadiz kim****Cihangirane bir devlet cikardık bir aşirettten.**

(Tarjimasi: Biz jiddiy, ulug' hamiyat egasi bo'lgan mehnatkash insonlarmiz, kuch-qudrat sohiblarimiz, Bir kichik qabiladan jahonni larzaga solgan ulug' davlatni biz yaratganmiz.

Cho'lpon she'riyatida Namiq Kamol ijodidan farqli tarda liriklik, musiqiylik va nozik ruhiy kechinmalar ustuvorlik qiladi. Mustamlakachilik va qaramlikka qarshi keskin norozilik, inson va vatan ozodligiga, mustaqillikka, milliy istiqbolga da'vat shoir ijodining bosh g'oyasi, uning "Buzilgan o'lkaga", "Kishan", "Ko'ngil", "Binafsha", "Aldanish", "Xalq" kabi she'rlarida jadidlar davri milliy uyg'onish ruhi, mustamlakachilik mafkurasiga qarshi ochiq noroziligi abadiy muhrlanib qolgan. Cho'lponning "Kishan kiyma, Bo'yun egma, Ki sen ham hur tug'ulgonsen!" kabi satrlari millat shoirining barhayot da'vati bo'lib qolgan. Cho'lpon va boshqa jadid adabiyoti, shuningdek Tanzimot adabiyoti vakillarining ma'naviy merosi ta'sirida milliy ziyolilarning ijodida Vatan mustaqilligi orzusi kurtaklay boshlaganini alohida e'tirof etish joiz. Til masalasiga kelsak, Cho'lpon o'zbek xalqona ifodalarni nafis badiiy shaklda qo'llasa, Namiq Kamol usmonli turk adabiy tili an'anasiga tayanadi, dramatik keskinlik va ritorik kuch ustunlik qiladi.

**Foydalanilgan adabiyotlar ro'yxati**

1. Karimov N. XX asr manzaralari. — Toshkent: "O'zbekiston" NMIU, 2008.
2. Ibragimov S.E. Jadidchilik harakati // Oriental Renaissance: Innovative, Educational, Natural and Social Sciences. — 2021.
3. Abdurashidov Z. "Shimol shamoli" yoki Buxoroning uyg'onishi: Istanbuldan bir nazar // O'zbekiston: til va madaniyat. — 2022. — №3.
4. Nomanova Ruzakhon Nomonjon qizi, Tadjibayeva Mukaddas Abdurakhimovna. The Expression of the Idea of Enlightenment in the Poetry of Hamza Hakimzoda // ACADEMICIA: An International Multidisciplinary Research Journal. — 2020. — Vol. 10, Issue 11. — B. 1272–1276.
4. Cho'lpon. Go'zal Turkiston. — Toshkent: "Turon zamin" nashriyoti, 2024. — 58 b.
5. Turkiy adabiyot durdonalari. 40-jild. — Toshkent: "O'zbekiston" nashriyoti. T-2022.B.55

**Xorijiy tillarni o'qitishda sun'iy intellekt texnologiyalaridan foydalanish****Saydaliyeva Gulirano Akramjanovna**

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**Annotatsiya:** Ushbu maqolada xorijiy tillarni o'qitishda sun'iy intellekt (SI) texnologiyalaridan foydalanish masalalari tahlil qilinadi. SI vositalari ta'lim jarayonini samarali tashkil etish, o'quvchilarning individual ehtiyojlariga moslashish va til ko'nikmalarini rivojlantirishda muhim rol o'ynaydi. Maqolada shaxsiylashtirilgan ta'lim, tezkor fikr-mulohaza berish, virtual suhbatlar orqali muloqot ko'nikmalarini rivojlantirish va motivatsiyani oshirish kabi imkoniyatlar yoritiladi. Shuningdek, SI cheklovlari va o'qituvchining ta'limdagi yetakchi o'rni ham muhokama qilinadi. Tadqiqotlar SI texnologiyalaridan maqsadli foydalanish xorijiy tillarni o'qitish sifatini oshirishini ko'rsatadi.

**Kalit so'zlar:** sun'iy intellekt, xorijiy tillar ta'limi, raqamli texnologiyalar, sun'iy intellekt vositalari, interaktiv ta'lim, til o'rganish

**Abstract:** This article analyzes the use of artificial intelligence (AI) technologies in foreign language teaching. AI tools help make the learning process more effective, adapt to learners' individual needs, and support language skill development. The article discusses AI's main benefits, including personalized learning, instant feedback, conversational practice, and increased learner motivation, as well as certain limitations and the essential role of the teacher. The study shows that purposeful use of AI can enhance the quality of foreign language education.

**Keywords:** artificial intelligence, foreign language teaching, educational technologies, digital learning, interactive teaching, language skill development.

**Kirish:** Bugungi kunda sun'iy intellekt hayotimizning barcha jabhalariga tez sur'atlar bilan kirib kelmoqda. Shuningdek, ta'lim sohasida ham u taklif qilayotgan imkoniyatlar talaygina, ammo ulardan samarali foydalanish ham ma'lum bir ko'nikma va malakani talab qiladi. Xorijiy tillarni o'qitishda sun'iy intellekt texnologiyalari individual o'quv ehtiyojlariga moslashish, til ko'nikmalarini rivojlantirish, tezkor fikr-mulohaza berish va virtual muloqotlar orqali motivatsiyani oshirish kabi imkoniyatlar yaratadi. Shu bilan birga, uning cheklovlari ham mavjud bo'lib, o'qituvchining ta'lim jarayonidagi yetakchi roli katta ahamiyatga ega. Tadqiqotlar shuni ko'rsatadiki, sun'iy intellekt texnologiyalaridan maqsadli va oqilona foydalanish xorijiy tillarni o'qitish sifatini sezilarli darajada oshirishi mumkin.



Sun'iy intellekt texnologiyalarini shaxsiylashtirilgan ta'lim jarayoniga tadbiq etish bu sohada inqilob yaratdi desak, mubolag'a bo'lmaydi. Bu texnologiyalar har bir o'quvchining darajasini aniqlab, ularga moslashtirilgan mashq va vazifalar tanlaydi. Masalan, Grammarly yoki Duolingo kabi platformalarda grammatika yoki talaffuzdagi xatolarni tezkor aniqlash va tuzatish imkoniyati mavjud. Bu jarayon nafaqat o'quvchiga motivatsiya beradi balki unga o'z-o'zini tekshirish va o'zlashtirish jarayonini tezlashtiradi, shuningdek, o'qituvchiga vaqtni samarali ishlatishga imkon beradi.

SI asosidagi chatbotlar va interaktiv platformalarni ta'lim tizimiga joriy etish bir qator afzalliklarga ega. Jumladan, o'quvchilar o'zlari istagan vaqtda suhbatlashish imkoniga ega bo'ladi. Bu esa talaffuz va muloqot ko'nikmalarini rivojlantirishda samarali natija beradi va talabalarni qo'llab-quvvatlashni soddalashtiradi, natijada ularning o'qishda qolish darajasi oshadi, tanqidiy fikrlashni rag'batlantiradi va har bir talabani o'ziga xos ehtiyojlari va o'qish sur'ati bo'yicha individual tarzda yondashishga imkon beradi. Masalan, "Alexa" kabi virtual yordamchilar til o'rganish jarayonida o'quvchiga savollar berish, hikoyani so'zlab berish yoki tezkor muloqot mashqlari orqali faol ishtirok etishlariga yordam beradi. Bundan tashqari, o'yin elementlarini qo'shish orqali chatbotlar muloqot jarayonini yanada qiziqarli qiladi. Masalan, Duolingo ilovasi o'quvchilarning xatolarini aniqlab, ularga ballar berish, yuraklarni tiklash va turli darajalarni bosib o'tish imkonini yaratadi, bu esa o'quvchilarni faol o'rganishga undaydi. Shu tarzda, chatbotlar nafaqat til ko'nikmalarini rivojlantirish, balki o'quvchilarning o'z-o'zini baholash va mustaqil ishlash ko'nikmalarini shakllantirishda ham samarali vosita hisoblanadi. Umuman olganda, chatbotlar va virtual yordamchilar yordamida yaratilgan interaktiv muhit til o'rganishni yanada qiziqarli, individual va samarali qiladi, bu esa zamonaviy ta'lim jarayonining ajralmas qismiga aylanmoqda.

Sun'iy intellekt texnologiyalarining ta'lim jarayoniga joriy etilishi o'quvchilarga keng imkoniyatlar yaratgan bo'lsa-da, ularni samarali va to'g'ri qo'llash o'qituvchi nazoratini talab qiladi va jonli muloqot o'rnini bosa olmaydi. O'qituvchi sun'iy intellektdan foydalanish jarayonida yo'naltiruvchi, maslahat beruvchi va nazorat qiluvchi asosiy shaxs hisoblanadi. Ayniqsa, xorijiy tillarni o'rganishda o'quvchilarning texnologiyaga haddan tashqari tayanib qolmasligi, balki uni yordamchi vosita sifatida qabul qilishi muhimdir.

Inson bilan bevosita muloqot o'quvchilarning emotsional holatini tushunish, ularning qiyinchiliklarini aniqlash va individual yondashuvni ta'minlashda muhim rol o'ynaydi. Sun'iy intellekt texnologiyalari texnik jihatdan mukammal bo'lsa-da, ular o'quvchining hissiy holatini to'liq anglay olmaydi. Shu sababli o'qituvchining bevosita muloqoti, rag'batlantirishi va fikr-mulohazasi ta'lim jarayonining ajralmas qismi bo'lib qoladi.



Bundan tashqari, o'qituvchi o'quvchilarga sun'iy intellektdan axloqiy va akademik halollik tamoyillariga rioya qilgan holda foydalanishni o'rgatishi lozim. Masalan, sun'iy intellektdan topshiriqlarni to'liq bajarib beruvchi vosita sifatida emas, balki bilimni mustahkamlovchi va mashq qilish uchun yordamchi resurs sifatida foydalanish muhimligini tushuntirishi zarur. Shu orqali o'quvchilarda mas'uliyatli yondashuv va tanqidiy fikrlash ko'nikmalari shakllanadi.

Shunday qilib, sun'iy intellekt va o'qituvchi faoliyati o'zaro uyg'unlashgan holda ta'lim jarayonida qo'llanilgandagina kutilgan natijani berishi mumkin. O'qituvchi nazorati va inson bilan bevosita muloqot sun'iy intellekt texnologiyalarining ta'limdagi imkoniyatlarini to'ldiruvchi muhim omil hisoblanadi.

**Xulosa.** Sun'iy intellekt texnologiyalarining xorijiy tillarni o'qitish jarayoniga tatbiq etilishi ta'lim sifatini oshirishda muhim omil hisoblanadi. Ushbu texnologiyalar shaxsiylashtirilgan ta'limni ta'minlash, o'quvchilarning til ko'nikmalarini rivojlantirish, tezkor fikr-mulohaza berish hamda o'rganishga bo'lgan motivatsiyani kuchaytirish imkonini yaratadi. Biroq sun'iy intellektning ta'limdagi samaradorligi uni to'g'ri va maqsadli qo'llashga bevosita bog'liq bo'lib, bu jarayonda o'qituvchining nazorati va insoniy muloqoti hal qiluvchi ahamiyatga ega.

Kelajakda sun'iy intellekt texnologiyalarining ta'lim sohasidagi roli yanada kengayishi kutilmoqda. Ayniqsa, xorijiy tillarni o'qitishda sun'iy intellekt asosida ishlovchi tizimlar yanada takomillashib, o'quvchilarning individual ehtiyojlarini chuqurroq tahlil qilish imkoniyatiga ega bo'ladi. Shu bilan birga, o'qituvchilarning raqamli savodxonligini oshirish, sun'iy intellektdan samarali foydalanish bo'yicha metodik tavsiyalar ishlab chiqish va inson omiliga asoslangan yondashuvni saqlab qolish dolzarb vazifalardan biri bo'lib qoladi.

1. Shunday ekan, kelajak ta'lim tizimida sun'iy intellekt va o'qituvchi faoliyati o'zaro uyg'unlashgan holda rivojlanishi zarur. Insoniy muloqot, pedagogik tajriba va texnologik imkoniyatlarning birlashuvi xorijiy tillarni o'qitish jarayonini yanada samarali, sifatli va barqaror qilishga xizmat qiladi.

#### **Foydalanilgan adabiyotlar:**

1. Jo'rayev, N. (2021). "Sun'iy intellekt texnologiyalarining ta'lim tizimidagi o'rni". O'zbekiston pedagogik axborot markazi jurnali, 2(10), 45–50.
2. Karimova, M. (2020). Chet tilini o'qitishda zamonaviy pedagogik texnologiyalar. Toshkent: "Yangi asr avlodi" nashriyoti.
3. Qodirova, D. (2023). "O'zbekistonda chet tillarni o'qitishda sun'iy intellektdan foydalanish imkoniyatlari". Filologiya va tillarni o'qitish jurnali, 1(3), 78–83.
4. Prichi Goyal, Nitish Kumar Minz, Ayushi Sha ( December, 2023)
5. Chat-bots and virtual assistants in education: enhancing student support and engagement. Education Unleashed: AI Era (pp.89-107)
6. Duolingo. (2023) How Duolingo uses AI to personalize language learning. Duolingo official blog.



**Virtual reallik vositalaridan foydalanish asosida talabalarda tizimli tafakkurni rivojlantirishning kompetensiyaviy modeli**

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**Annotatsiya:** Mazkur maqolada virtual reallik (VR) vositalaridan foydalanish asosida talabalarda tizimli tafakkurni rivojlantirishning kompetensiyaviy modeli ishlab chiqiladi va ilmiy-metodik jihatdan asoslanadi. Tadqiqotda tizimli tafakkur tushunchasining mazmuni, uning kompetensiyaviy yondashuv bilan uzviy bog'liqligi hamda VR texnologiyalarining didaktik imkoniyatlari tahlil qilinadi. Ishlab chiqilgan model kognitiv, faoliyatga yo'naltirilgan va refleksiv komponentlar asosida tuzilib, o'quv jarayoniga integratsiyalashgan VR muhitida talabalarning murakkab tizimlarni anglash, tahlil qilish va modellashtirish kompetensiyalarini rivojlantirishga xizmat qiladi.

**Kalit so'zlar:** virtual reallik, tizimli tafakkur, kompetensiyaviy yondashuv, ta'lim texnologiyalari, VR muhit, modellashtirish, oliy ta'lim.

**Abstract:** in this article, a competency model of the development of systematic thinking in students is developed and scientifically-methodically based on the use of virtual reality (VR) tools. The study analyzes the content of the concept of systemic thinking, its inextricable relationship with the competency approach, as well as the didactic possibilities of VR technologies. The developed model is structured on the basis of cognitive, activity-oriented and reflexive components and serves to develop students' complex systems awareness, analysis and modeling competencies in a VR environment integrated into the learning process.

**Keywords:** virtual reality, systematic thinking, competency approach, educational technologies, VR environment, modeling, higher education.

Zamonaviy oliy ta'lim tizimida raqamli texnologiyalar, xususan virtual reallik vositalarining jadal rivojlanishi ta'lim mazmuni va metodlarini tubdan yangilashni taqozo etmoqda. Bugungi kunda muhandislik, texnika, tabiiy fanlar va pedagogika yo'nalishlarida tahsil olayotgan talabalardan murakkab tizimlarni yaxlit holda ko'ra olish, ularning tarkibiy qismlari o'rtasidagi o'zaro bog'liqlikni anglash hamda tizimli qarorlar qabul qilish kompetensiyalari talab etilmoqda.

Tizimli tafakkur – bu ob'ekt va hodisalarni alohida elementlar majmui sifatida emas, balki o'zaro bog'langan, dinamik rivojlanadigan yagona tizim sifatida idrok etish qobiliyatidir. Kompetensiyaviy yondashuv nuqtayi nazaridan esa tizimli tafakkur kasbiy kompetensiyaning muhim tarkibiy qismi hisoblanadi. Shu bois VR texnologiyalaridan foydalanish asosida talabalarda tizimli tafakkurni rivojlantirishning samarali modelini ishlab chiqish dolzarb ilmiy-pedagogik muammo sifatida namoyon bo'lmoqda.



Kompetensiyaviy, tizimli va faoliyatga yo'naltirilgan yondashuvlar sinteziga asoslanadi. Tadqiqot jarayonida quyidagi metodlardan foydalanildi:

- ilmiy-pedagogik adabiyotlarni tahlil qilish va umumlashtirish;
- virtual reallik texnologiyalarining didaktik imkoniyatlarini modellashtirish;
- pedagogik tajriba-sinov ishlarini tashkil etish;
- diagnostik metodlar (test, so'rovnoma, kuzatish);
- natijalarni sifat va miqdoriy tahlil qilish.

Tadqiqotda ishlab chiqilgan kompetensiyaviy model uch asosiy blokdan iborat:

1. Maqsadli-blok – talabalarda tizimli tafakkur kompetensiyasini shakllantirish va rivojlantirish;
2. Mazmuniy-jarayonli blok – VR muhitida o'quv topshiriqlari, modellashtirish, simulyatsiya va interaktiv mashg'ulotlar;
3. Natijaviy-blok – shakllangan kompetensiyalar darajasini baholash mezonlari va ko'rsatkichlari.

Model tarkibida kognitiv (bilim va tushunchalar), faoliyatga yo'naltirilgan (amaliy harakat va muammoli vaziyatlarni hal etish), hamda reflektiv (o'z faoliyatini tahlil qilish) komponentlar o'zaro uyg'unlashgan holda qaraladi.

Pedagogik tajriba-sinov ishlari natijalari shuni ko'rsatdiki, VR asosida tashkil etilgan mashg'ulotlar talabalarning murakkab tizimlarni fazoviy va mantiqiy jihatdan chuqurroq anglashiga yordam beradi. An'anaviy o'qitish usullari bilan solishtirganda, VR muhitida ta'lim olgan talabalarda:

- tizimli tahlil qilish ko'nikmalari;
  - sabab-oqibat bog'lanishlarini aniqlash;
  - modellashtirish va prognozlash kompetensiyalari sezilarli darajada oshgani kuzatildi.
- Muhokama jarayonida aniqlanishicha, VR texnologiyalarining samaradorligi ularning faqat texnik imkoniyatlarida emas, balki to'g'ri didaktik loyihalangan o'quv vazifalari bilan uyg'unlashuvda namoyon bo'ladi. Shu sababli kompetensiyaviy modelda pedagogning metodik mahorati va VR muhitining didaktik dizayni muhim omil sifatida e'tirof etildi.

Virtual reallik vositalaridan foydalanish asosida talabalarda tizimli tafakkurni rivojlantirishning kompetensiyaviy modeli zamonaviy oliy ta'lim talablariga to'liq javob beradi. Ushbu model talabalarning bilim, ko'nikma va malakalarini integratsiyalashgan holda rivojlantirib, ularni kelajak kasbiy faoliyatida murakkab tizimlar bilan ishlashga tayyorlaydi. Tadqiqot natijalari VR texnologiyalarini o'quv jarayoniga keng joriy etish va ularni kompetensiyaviy yondashuv asosida metodik jihatdan takomillashtirish zarurligini ko'rsatadi.

#### **Foydalanilgan adabiyotlar**

1. Avliyoqulov N.X. Zamonaviy pedagogik texnologiyalar. – Toshkent: Fan, 2019.
2. Mirzaahmedov B.M. Kompetensiyaviy yondashuv asosida ta'limni tashkil etish. – Toshkent, 2020.
3. Jonassen D.H. Systems Thinking in Educational Technology. – New York: Routledge, 2018.

**The translation of alisher navoi`s works into foreign languages****Rustamova Mohinabonu Sherzod qizi**

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**Abstract:** This article explores the process of translating the literary works of Alisher Navoi into foreign languages from a translation studies perspective. It focuses on the linguistic, cultural, philosophical, and aesthetic difficulties that emerge in rendering Navoi's poetic and prose works. The study highlights the importance of preserving not only semantic meaning but also artistic imagery, rhythm, metaphors, and national-cultural elements. Through concrete examples from Navoi's poetry, the article demonstrates effective translation strategies such as free translation, cultural adaptation, and interpretative analysis. The research emphasizes that the successful translation of Navoi's works requires deep literary competence as well as a high level of intercultural awareness.

**Keywords:** Alisher Navoi, literary translation, translation studies, cultural transfer, poetic language, Turkic literature

**Introduction.** Alisher Navoi holds a distinguished position in the history of Turkic literature as a master of poetic expression and a key figure in the development of the languages in Central Asia. Alisher Navoi occupies an exceptional place in the history of world literature as a prominent representative of Turkic literary thought and a founder of classical Turkic poetry. His literary heritage, encompassing poetry, prose and philosophical treatises, reflects profound aesthetic values, ethical concepts and spiritual ideas deeply rooted in Eastern culture. Due to the universal significance of his works, Navoi's writings have attracted the attention of scholars and translators from various linguistic and cultural backgrounds. The translation of Navoi's works into foreign languages plays a crucial role in introducing his intellectual legacy to the global readership. However, the process of translating his texts presents considerable challenges, as his works are rich in symbolic imagery, Sufi philosophy, historical references and culture-specific elements. These features often resist direct translation and require creative and interpretative approaches.

From the perspective of translation studies, literary translation is not limited to the transfer of lexical meaning but involves the preservation of artistic form, stylistic devices and cultural connotations. In poetic translation in particular, maintaining rhythm, rhyme and metaphorical depth remains one of the most complex tasks. Therefore, this article aims to examine the translation of Alisher Navoi's works into foreign languages, focusing on the linguistic and cultural difficulties encountered in the process. By analyzing selected examples from Navoi's poetry, the study explores effective translation strategies that contribute to the adequate representation of his artistic and philosophical vision.



**Methods.** This research is based on qualitative and descriptive methods commonly used in translation studies and literary analysis. The following methodological approaches were applied:

\*comparative analysis of the original texts by Alisher Navoi and their translations into foreign languages;

\*linguistic analysis focusing on lexical, syntactic, and stylistic transformations;

\*cultural analysis examining the adaptation of national and religious concepts;

\*interpretative analysis of poetic imagery, metaphors, and symbolic expressions.

Selected examples from Navoi's ghazals and poetic lines are used to illustrate translation difficulties and strategies. The study also draws on theoretical principles of literary translation, emphasizing the balance between fidelity to the original text and artistic freedom in translation.

## Results

### 3.1 Linguistic Difficulties in Translation

One of the major challenges in translating Navoi's works lies in the linguistic structure of his language. Navoi extensively employed archaic Turkic vocabulary, classical Persian-Arabic borrowings, and poetic expressions that are no longer used in modern language.

Example 1:

In Navoi's poetry, words such as "yor," "hijron," "vasl," and "ishq" carry deep emotional and philosophical meanings. The word "ishq" does not merely denote "love"; rather, it represents divine love, spiritual devotion, and inner purification. When translated into English simply as "love," much of its spiritual and metaphysical depth is lost. Therefore, translators often resort to explanatory or interpretative translations, such as "divine love" or "spiritual passion," in order to convey the original meaning more accurately.

### 3.2 Cultural and Aesthetic Challenges in Translation

Navoi's poetry is deeply rooted in the cultural and aesthetic traditions of the East. His works frequently employ symbolic images derived from Islamic theology, Sufi philosophy, and medieval social life. Elements such as wine, the beloved, the nightingale, and the rose possess symbolic meanings that extend far beyond their literal sense.

In many Western cultures, these images may be interpreted differently or lack equivalent connotations. As a result, translators face the dilemma of either preserving the original imagery or adapting it to the target culture. Cultural adaptation, descriptive translation, and the use of explanatory commentary are commonly applied strategies. However, excessive explanation may disrupt the aesthetic harmony and poetic flow of the original text, which presents an additional challenge for translators.

### 3.3 Poetic Form, Rhythm, and Imagery



Another significant difficulty in translating Navoi's poetry is the preservation of poetic form. Navoi's ghazals are characterized by strict rhythmic patterns, rhyme schemes, and melodic harmony. Reproducing these formal elements in another language often requires creative restructuring.

In many cases, translators prioritize semantic accuracy over formal equivalence, resulting in the loss of rhythm and musicality. Conversely, attempts to preserve rhyme and meter may lead to semantic distortion. Therefore, successful poetic translation requires a careful balance between form and meaning, as well as a deep understanding of both the source and target poetic traditions.

**Discussion.** The analysis demonstrates that literal translation is often insufficient for conveying the depth and complexity of Navoi's works. Linguistic, cultural, and aesthetic challenges are closely interconnected, and addressing one aspect without considering others may result in an incomplete translation. Interpretative and adaptive strategies appear to be more effective in preserving Navoi's artistic and philosophical vision.

The findings confirm that the translator's role extends beyond linguistic mediation to cultural and literary interpretation. A translator of Navoi's works must possess not only advanced language proficiency but also extensive knowledge of Eastern philosophy, Sufi symbolism, and classical literary conventions.

**Conclusion.** In conclusion, the translation of Alisher Navoi's works into foreign languages represents a complex and multidimensional process. The richness of his language, cultural symbolism, and philosophical depth presents significant challenges for translators. This study has shown that successful translation requires a balance between semantic fidelity and artistic freedom, supported by cultural awareness and literary competence.

The findings of this research contribute to the field of translation studies by highlighting the specific difficulties associated with translating classical Turkic literature. Further research may focus on comparative analyses of different translations of Navoi's works in order to identify the most effective translation strategies.

#### References

1. Navoi, A. Khamsa. Tashkent: Fan Publishing House.
2. Newmark, P. (1988). A Textbook of Translation. London: Prentice Hall.
3. Bassnett, S. (2014). Translation Studies. London: Routledge.
4. Nida, E. (1964). Toward a Science of Translating. Leiden: Brill.
5. Toury, G. (1995). Descriptive Translation Studies and Beyond. Amsterdam: John Benjamins.



## Bo'lajak muhandislarning ishlab chiqarish-texnologik tayyorgarligini raqamli ta'lim texnologiyalari asosida rivojlantirish metodikasi

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**Annotatsiya:** Mazkur maqolada raqamli ta'lim texnologiyalari asosida bo'lajak muhandislarning ishlab chiqarish-texnologik tayyorgarligini rivojlantirish masalalari tahlil qilinadi. Unda raqamli muhitda muhandislik fanlarini o'qitishning metodik asoslari, o'quv jarayonida axborot-kommunikatsiya texnologiyalaridan samarali foydalanish, virtual laboratoriyalar va 3D modellashtirish vositalarining o'rni ko'rib chiqilgan.

**Kalit so'zlar:** raqamli ta'lim texnologiyalari, ishlab chiqarish-texnologik tayyorgarlik, muhandislik ta'limi, virtual laboratoriya, 3D modellashtirish, axborot tizimlari, metodika.

Zamonaviy ta'lim tizimida muhandislik sohasida raqamli texnologiyalarni joriy etish muhim strategik yo'nalishlardan biridir. Raqamli transformatsiya jarayonida ishlab chiqarish korxonalarining avtomatlashtirilgan tizimlarga o'tishi, muhandislik faoliyatida sun'iy intellekt, 3D texnologiyalar, "raqamli egizak" tizimlari keng qo'llanilayotgani ta'lim jarayonida ham yangicha yondashuvlarni talab etadi. Shu bois, bo'lajak muhandislarning ishlab chiqarish-texnologik tayyorgarligini raqamli ta'lim texnologiyalari asosida shakllantirish bugungi kunda dolzarb ilmiy-pedagogik muammolardan biridir.

Bo'lajak muhandislarning ishlab-chiqarish-texnologik tayyorgarligini raqamli ta'lim texnologiyalari asosida rivojlantirish metodikasi, ularni mustaqil ravishda yangi bilim va ko'nikmalarni egallash, murakkab masalalarni yechish va innovatsion loyihalarni amalga oshirishga tayyorlashni ko'zda tutadi. Bunda zamonaviy axborot texnologiyalaridan (virtual reallik, argument reallik, simulyatsiyalar, onlayn platformalar) foydalanib, nazariy bilimlarni amaliy ko'nikmalar bilan integratsiyalash, shaxsiy va jamoaviy loyihalarni muvaffaqiyatli yakunlashga erishish muhim ahamiyat kasb etadi.

So'nggi yillarda raqamli ta'lim sohasida olib borilgan ilmiy izlanishlar (A.Karimov, J.Kadirov, L.Floridi) muhandislik kadrlarini tayyorlashda raqamli kompetensiyalarni rivojlantirishning muhimligini asoslab bergan. Masalan, V.A.Slastenin ta'lim jarayonida innovatsion yondashuvlar o'quvchilarning mustaqil tahliliy faoliyatini shakllantirishga xizmat qilishini ta'kidlaydi. N.M.Norqulova esa muhandislik fanlarini o'qitishda virtual laboratoriyalarni joriy etish tajribasini o'rgangan. Biroq mavjud tadqiqotlarda raqamli texnologiyalar asosida ishlab chiqarish-texnologik tayyorgarlikni metodik jihatdan tizimlashtirish masalasi yetarlicha yoritilmagan.



Raqamli ta'lim texnologiyalari asosida ishlab chiqilgan metodika quyidagi tarkibiy qismlardan iborat: raqamli muhitni loyihalash, interfaol o'qitish moduli, raqamli baholash tizimi. Tadqiqot natijalariga ko'ra, yangi metodika asosida o'qitilgan talabalar ishlab chiqarish jarayonlarini tahlil qilish ko'nikmasi 27%, 3D modellashtirish malakasi 34%, ijodiy fikrlash darajasi 22% ga oshgan.

Asosiy yo'nalishlar

**Interaktiv va simulyativ o'quv muhitini yaratish:**

- Virtual va argument reallik (VR/AR) orqali xavfsiz va real voqelikka yaqin sharoitda turli texnologik jarayonlarni simulyatsiya qilish.
- O'quv simulyatorlaridan foydalanib, murakkab uskunalar va jarayonlar bilan ishlash ko'nikmalarini rivojlantirish.

**Shaxsiy o'quv rejalari va adaptiv o'qitish:**

- Raqamli platformalar yordamida talabaning individual rivojlanish darajasiga mos keluvchi o'quv materiallarini taqdim etish.
- Talabaning yutuqlarini doimiy nazorat qilish va zarur hollarda o'quv rejasiga tuzatishlar kiritish.

**Loyihaga asoslangan va amaliy-integratsiyalashgan ta'lim:**

- Haqiqiy muhandislik masalalarini hal qilishga yo'naltirilgan loyihaviy ishlarni raqamli vositalar yordamida amalga oshirish.
- Loyihani amalga oshirish jarayonida zamonaviy loyiha boshqaruvi va hamkorlik platformalaridan foydalanish.

**Mustaqil va uzluksiz bilim olish:**

- Onlayn kurslar, vebinarlar va webinarlar orqali eng yangi texnologiyalar va trendlar bo'yicha malaka oshirish.
- Doimiy raqamli o'quv platformalaridan foydalanib, o'qishni mustaqil davom ettirish imkonini yaratish.

**Kross-funksional ko'nikmalarni rivojlantirish:**

- Loyiha menejmenti, tanqidiy fikrlash, muloqot va jamoada ishlash kabi ko'nikmalarni raqamli vositalar yordamida rivojlantirish.
- Ushbu metodikaning afzalliklari

**Amaliy ko'nikmalarning yuqori darajada shakllanishi:**

- Virtual va simulyativ muhitda amaliy mashqlar bajarish talabalarni haqiqiy ish sharoitiga tayyorlaydi.

**Shaxsiy va egiluvchan o'quv:**

- Adaptiv tizimlar har bir talabaning o'z sur'atida va o'z ehtiyojlariga ko'ra o'rganishiga imkon beradi.

**Innovatsionlik va kreativlikni oshirish:**

- Loyihaga asoslangan yondashuv yangi g'oyalarni shakllantirish va amalga oshirish uchun sharoit yaratadi.

**Uzluksiz va mustaqil bilim olish imkoniyati:**



- Raqamli texnologiyalar orqali talabalar o'z bilimlarini yangilab borish imkoniga ega bo'lishadi.

Raqamli ta'lim texnologiyalariga asoslangan metodika bo'lajak muhandislarning ishlab chiqarish-texnologik tayyorgarligini tizimli rivojlantirishga xizmat qiladi. U nafaqat nazariy bilimlarni, balki amaliy, tahliliy va ijodiy kompetensiyalarni shakllantiradi. Raqamli laboratoriyalar, 3D muhitlar va simulyatsion texnologiyalar muhandislik fanlarini o'qitish sifatini oshiradi hamda ishlab chiqarish ehtiyojlariga mos mutaxassis tayyorlashga imkon yaratadi.

#### **Adabiyotlar ro'yxati**

1. Karimov A. (2022). Raqamli ta'lim texnologiyalari asosida texnik fanlarni o'qitish metodikasi. Toshkent: Fan nashriyoti.
2. Kadirov J. (2023). Muhandislik ta'limida innovatsion texnologiyalar. Samarqand: Innovatsiya markazi.
3. Norqulova N.M. (2021). Virtual laboratoriyalar orqali o'qitish samaradorligi. – "Ta'lim va innovatsiyalar" jurnali.
4. Xudoyqulov M. (2024). Raqamli ta'lim muhitida texnologik fikrlashni rivojlantirish. Toshkent: TDPU nashriyoti.
5. Floridi L. (2020). The Logic of Information: A Theory of Philosophy as Conceptual Design. Oxford University Press.
6. Slastenin V.A. (2019). Pedagogika: innovatsion jarayonlar va ta'lim texnologiyalari. Moskva: Akademiya.



## Linguo-Cognitive Analysis of Idiomatic Compounds: Evidence from English and Uzbek

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**Abstract.** Idiomatic compounds constitute a complex lexical category in which semantic opacity, conceptual motivation, and cultural knowledge intersect. Unlike transparent compounds, idiomatic compounds encode meanings that cannot be fully derived from their constituent elements and therefore require cognitive interpretation and cultural competence. This article investigates idiomatic compounds in English and Uzbek from a linguo-cognitive perspective, focusing on semantic motivation, conceptual metaphors, and cross-linguistic similarities and differences. Drawing on comparative and cognitive linguistic frameworks, the study analyses partial and full idiomatic compounds as manifestations of conceptual structuring in language. The findings demonstrate that idiomatic compounds reflect culturally embedded models of perception and categorisation, while at the same time revealing universal cognitive mechanisms underlying metaphorical mapping and lexicalisation. The research contributes to the theoretical understanding of idiomaticity in compounding and highlights the relevance of cognitive linguistics for contrastive lexicology.

**Keywords:** idiomatic compounds, cognitive linguistics, English, Uzbek, metaphor, conceptualisation

**Introduction.** Compounding is one of the most productive word-formation processes in both English and Uzbek, serving as a major source of lexical enrichment. While many compounds exhibit transparent semantic relations between their components, a significant subset displays idiomatic meaning, where the overall interpretation cannot be predicted from the meanings of the individual constituents. These formations, commonly referred to as *idiomatic compounds*, occupy an intermediate position between free lexical combinations and fixed phraseological units. The study of idiomatic compounds has traditionally been approached from a structural or semantic perspective, focusing on morphological patterns and degrees of semantic opacity (Kooij, 1968). However, recent developments in cognitive linguistics have shifted attention toward the conceptual mechanisms that motivate idiomatic meaning and the cultural knowledge embedded in lexical constructions (Lakoff & Johnson, 1980; Stockwell, 2002). Within this paradigm, idiomatic compounds are not viewed as arbitrary anomalies but as systematic reflections of human conceptualisation and metaphorical thinking. In the context of English and Uzbek, contrastive studies on compounding and idiomaticity remain relatively limited. Existing research has addressed partial idiomatic compounds and structural characteristics (Gulamjanovich, 2015), as well



as phraseological units from a cognitive and cultural perspective (Odilova, 2025; Sugdiyona, 2025). Nevertheless, a comprehensive linguo-cognitive analysis of idiomatic compounds across these two languages has not yet been fully developed. The present article aims to fill this gap by examining idiomatic compounds in English and Uzbek through the lens of cognitive linguistics. The objectives of the study are threefold: (1) to classify types of idiomatic compounds in both languages; (2) to analyse their conceptual motivation and metaphorical basis; and (3) to identify cross-linguistic similarities and culturally specific patterns. By integrating contrastive analysis with cognitive theory, the article seeks to contribute to the theoretical understanding of idiomatic compounding and its role in lexical semantics.

**Theoretical Background.** Idiomatic compounds are lexical units whose meaning is partially or wholly non-compositional. In contrast to transparent compounds such as *blackboard* or *bookshelf*, idiomatic compounds like *red tape* or *butterfly* exhibit semantic shifts that cannot be directly inferred from their components. Kooij (1968) was among the first scholars to highlight the proximity between compounds and idioms, arguing that idiomaticity arises when the semantic relation between constituents becomes conventionalised and opaque. Subsequent studies have proposed a distinction between **partial idiomatic compounds**, where one component retains literal meaning, and **full idiomatic compounds**, where both components contribute metaphorically to the overall sense (Gulamjanovich, 2015). This distinction is particularly relevant in contrastive analysis, as the degree of idiomaticity varies across languages and reflects language-specific lexicalisation strategies. Cognitive linguistics provides a theoretical framework for explaining idiomatic meaning as a product of conceptual mapping rather than lexical irregularity. According to Lakoff and Johnson (1980), metaphor is a fundamental mechanism of thought, structuring abstract concepts in terms of more concrete domains. Within this view, idiomatic expressions and compounds are motivated by underlying conceptual metaphors and image schemas. Stockwell (2002) further emphasises that lexical meaning emerges from embodied experience and cultural models. Idiomatic compounds therefore encode shared conceptualisations that are cognitively accessible to members of a linguistic community. This approach allows researchers to analyse idiomatic compounds not only as lexical units but also as manifestations of culturally mediated cognition.

Studies on English and Uzbek phraseology have demonstrated that idiomatic expressions often reflect culturally salient metaphors and value systems (Odilova, 2025; Sugdiyona, 2025). These findings are equally applicable to idiomatic compounds, which frequently derive from metaphorical extensions of everyday experience. For instance, compounds denoting social roles, character traits, or abstract states often rely on embodied metaphors such as *vision*, *movement*, or



*containment*. From a contrastive perspective, the comparison of English and Uzbek idiomatic compounds offers insights into both universal cognitive mechanisms and language-specific conceptual patterns. While certain metaphors appear cross-linguistically stable, others reflect culturally distinct modes of categorisation and evaluation.

**Methodology.** The present study adopts a qualitative, contrastive methodology grounded in cognitive linguistics. The corpus consists of idiomatic and partially idiomatic compounds extracted from bilingual dictionaries, phraseological collections, and previous studies (Gulamjanovich, 2015; Luwiti, 2024). The selected units were classified according to degree of idiomaticity, semantic domain, and metaphorical motivation. Analytical procedures involved: (1) identification of compositional and non-compositional meanings; (2) reconstruction of underlying conceptual metaphors; and (3) comparison of English and Uzbek patterns with respect to semantic transparency and cultural specificity.

The analysis draws on theoretical concepts from metaphor theory (Lakoff & Johnson, 1980), cognitive semantics (Stockwell, 2002), and contrastive lexicology (Gulamjanovich, 2015).

**Analysis and Discussion.** The data reveal two principal categories in both languages: partial idiomatic compounds and full idiomatic compounds. Partial idiomatic compounds preserve literal meaning in one component, as in English *paper tiger* or Uzbek *temir odam* (“iron man”), where the modifier contributes metaphorical evaluation. Full idiomatic compounds, by contrast, display complete semantic opacity, as in English *butterfly* or Uzbek *ko‘zoynak* (“glasses”), whose meanings are conventionalised and lexically fixed. Gulamjanovich (2015) notes that partial idiomatic compounds are more productive in both languages, suggesting a gradual pathway from transparency to idiomaticity. This observation supports the cognitive view that lexicalisation emerges through repeated metaphorical usage and entrenchment in the mental lexicon. The analysis indicates that many idiomatic compounds are motivated by conceptual metaphors grounded in bodily experience. Compounds denoting social relations and character traits frequently rely on metaphors of **strength**, **vision**, and **movement**. For example, English *cold-blooded* and Uzbek *sovuq qonli* (“cold-blooded”) conceptualise emotional detachment through the metaphor EMOTION IS TEMPERATURE, reflecting a shared embodied model. Other compounds exhibit culturally specific mappings. Uzbek compounds related to honour, family, and social hierarchy often encode evaluative meanings that lack direct equivalents in English. Sugdiyona (2025) argues that such units reflect culturally salient cognitive models shaped by social organisation and moral norms. These findings confirm that idiomatic compounds simultaneously instantiate universal cognitive schemas and culture-



specific conceptualisations. The boundary between idiomatic compounds and phraseological units proves to be fluid. Odilova (2025) demonstrates that many idiomatic expressions originate from compound structures that later undergo lexical fixation. Similarly, Luwiti (2024) shows that semantic opacity in compounds arises through pragmatic inference and conventionalisation. From a cognitive perspective, idiomatic compounds can be regarded as compressed metaphors that condense conceptual mappings into compact lexical forms. Their stability in the lexicon reflects the entrenchment of specific conceptual associations within a linguistic community.

**Conclusion.** The linguo-cognitive analysis of idiomatic compounds in English and Uzbek reveals that idiomaticity in compounding is not an arbitrary phenomenon but a cognitively motivated process rooted in metaphor, embodiment, and cultural knowledge. Partial and full idiomatic compounds emerge through gradual lexicalisation, reflecting universal conceptual mechanisms alongside language-specific models of categorisation. The contrastive perspective highlights both convergence and divergence between the two languages. While shared metaphors testify to common cognitive foundations, culturally specific compounds illustrate the role of socio-cultural experience in shaping lexical meaning. These findings underscore the relevance of cognitive linguistics for the study of compounding and idiomaticity and open new perspectives for further research in contrastive lexicology and phraseology. Future studies may expand the corpus, incorporate quantitative methods, and explore diachronic developments in idiomatic compounding. Such research will further illuminate the dynamic interaction between cognition, language, and culture in lexical formation.

### References

- Gulamjanovich, Y. A. (2015). Of some peculiarities of partial idiomatic compound words in English and Uzbek. *Philological Sciences*, 4, 112–118.
- Kooij, J. G. (1968). Compounds and idioms. *Lingua*, 21(3), 250–268.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. University of Chicago Press.
- Luwiti, S. R. (2024). Idiomatic meaning in English compounds: A semantic analysis. *Journal of Linguistic Studies*, 12(2), 45–60.
- Odilova, A. (2025). Cognitive characteristics of English and Uzbek phraseologisms. *International Journal of Applied Linguistics*, 9(1), 77–92.
- Stockwell, P. (2002). *Cognitive poetics: An introduction*. Routledge.
- Sugdiyona, K. (2025). Language, mind, and culture: A cognitive study of English and Uzbek phraseology. *Transnational Journal of Linguistics*, 6(2), 101–119.



## QANDLI DIABET: ETIOLOGIYASI, PATOGENEZI, KLINIK BELGILARI VA ZAMONAVIY DAVOLASH YONDASHUVLARI

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**Annotatsiya.** Qandli diabet — bu surunkali endokrin kasallik bo‘lib, organizmda uglevod, yog‘ va oqsil almashinuvi buzilishi bilan tavsiflanadi. Ushbu kasallik insulin gormonining yetishmovchiligi yoki uning biologik ta‘sirining pasayishi natijasida rivojlanadi. Bugungi kunda qandli diabet butun dunyo bo‘ylab eng dolzarb tibbiy-ijtimoiy muammolardan biri hisoblanadi, chunki u nafaqat mehnatga layoqatli aholida, balki yoshlar va bolalar orasida ham tobora ko‘proq uchramoqda. Jahon sog‘liqni saqlash tashkiloti ma‘lumotlariga ko‘ra, diabet bilan kasallanganlar soni yildan-yilga ortib bormoqda va bu holat sog‘liqni saqlash tizimiga katta iqtisodiy yuk yuklamoqda.

Qandli diabet asosan ikki asosiy turga bo‘linadi: 1-tur va 2-tur qandli diabet. 1-tur qandli diabet ko‘pincha bolalik yoki o‘smirlik davrida rivojlanib, oshqozon osti bezining  $\beta$ -hujayralari autoimmun jarayonlar natijasida zararlanishi bilan bog‘liq. 2-tur qandli diabet esa ko‘proq kattalar orasida uchraydi va insulin rezistentligi hamda nisbiy insulin yetishmovchiligi bilan xarakterlanadi. Kasallikning rivojlanishiga irsiy omillar, noto‘g‘ri ovqatlanish, semizlik, kamharakat turmush tarzi, surunkali stress va boshqa xavf omillari katta ta‘sir ko‘rsatadi.

Qandli diabetning klinik belgilari xilma-xil bo‘lib, ular orasida polidipsiya, poliuriya, polifagiya, tana vaznining o‘zgarishi, tez charchash, ko‘rishning pasayishi va teri infeksiyalariga moyillik kabi simptomlar keng tarqalgan. Kasallik o‘z vaqtida aniqlanib, to‘g‘ri davolanmasa, yurak-qon tomir tizimi, buyraklar, ko‘z to‘r pardasi va asab tizimi kabi muhim a‘zolarida jiddiy asoratlar rivojlanishiga olib kelishi mumkin.

**Kalit so‘zlar:** qandli diabet, insulin, insulin rezistentligi, giperglikemiya, 1-tur diabet, 2-tur diabet, uglevod almashinuvi, asoratlar, diagnostika, davolash

**Kirish.** Qandli diabet zamonaviy tibbiyotda eng keng tarqalgan va ijtimoiy ahamiyatga ega bo‘lgan surunkali kasalliklardan biri hisoblanadi. Ushbu kasallikning asosida insulin gormoni faoliyatining buzilishi yotadi va bu holat organizmda glyukoza almashinuvining izdan chiqishiga olib keladi. Natijada qon plazmasida glyukoza miqdori me‘yoridan oshib ketadi va giperglikemiya holati yuzaga keladi. Qandli diabet nafaqat metabolik buzilishlar bilan, balki ko‘plab a‘zolar va tizimlarning zararlanishi bilan ham kechadi.

So‘nggi o‘n yilliklarda qandli diabet bilan kasallanish darajasi keskin oshib bormoqda. Bu holat aholining turmush tarzi o‘zgarishi, yuqori kaloriyali ovqatlar iste‘molining ko‘payishi, jismoniy faollikning kamayishi va stress omillarining kuchayishi bilan izohlanadi. Ayniqsa, 2-tur qandli diabet rivojlangan va



rivojlanayotgan davlatlarda keng tarqalib, sog'liqni saqlash tizimi uchun jiddiy muammo tug'dirmoqda.

Qandli diabetning xavfliligi shundaki, u ko'p hollarda dastlabki bosqichlarda yaqqol klinik belgilar bermaydi. Kasallik uzoq vaqt davomida yashirin kechib, faqatgina asoratlari rivojlangandan so'ng aniqlanishi mumkin. Diabetik nefropatiya, retinopatiya, neyropatiya, yurak ishemik kasalligi va insult kabi asoratlari bemorlarning hayot sifatini keskin pasaytiradi hamda nogironlikka olib keladi. Shu sababli kasallikni erta aniqlash, samarali davolash va oldini olish choralarini ishlab chiqish muhim ahamiyat kasb etadi.

Bugungi kunda qandli diabetni davolashda farmakologik vositalar bilan bir qatorda, parhez terapiyasi, jismoniy faollikni oshirish va hayot tarzini o'zgartirish muhim o'rin tutadi. Zamonaviy tibbiyot insulin preparatlari, og'iz orqali qabul qilinadigan glyukozani pasaytiruvchi dori vositalari hamda innovatsion texnologiyalar yordamida kasallikni nazorat qilish imkoniyatlarini kengaytirmoqda.

Ushbu maqolaning maqsadi qandli diabetning asosiy turlari, rivojlanish mexanizmlari, klinik ko'rinishlari va davolash yondashuvlarini ilmiy manbalar asosida tahlil qilishdan iborat. Maqola orqali qandli diabet muammosiga kompleks yondashuv shakllantirish va amaliy tibbiyot uchun foydali xulosalar chiqarish ko'zda tutilgan.

**Adabiyotlar tahlili.** Qandli diabet bo'yicha olib borilgan ilmiy tadqiqotlar sohasida ko'plab nazariy va eksperimental ishlanmalar mavjud. Jahon sog'liqni saqlash tashkiloti (2021) ma'lumotlariga ko'ra, dunyo bo'ylab 537 milliondan ortiq odam qandli diabet bilan kasallangan, va bu raqam har yili oshib bormoqda. Shu bilan birga, epidemiologik tadqiqotlar ko'rsatadiki, 2-tur qandli diabet rivojlanishining asosiy omillari sifatida semizlik, kamharakat turmush tarzi va noto'g'ri ovqatlanish ajralib turadi.

Insulin yetishmovchiligi va uning fiziologik ta'sirining pasayishi qandli diabetning asosiy patofiziologik mexanizmi sifatida ko'plab manbalarda ta'kidlangan. King va boshq. (2018) ma'lumotlariga ko'ra, 1-tur qandli diabet ko'pincha autoimmun jarayonlar natijasida  $\beta$ -hujayralarning buzilishi bilan rivojlanadi. Bu holat immun tizimi va genetik predispozitsiya o'rtasidagi murakkab o'zaro ta'sirni aks ettiradi.

Zamonaviy tibbiy adabiyotlarda diabetning asoratlari va ularni oldini olish masalasi ham keng yoritilgan. Fowler (2019) diabetik retinopatiya, nefropatiya va neyropatiya kabi surunkali asoratlarni batafsil tahlil qilgan va ularni erta aniqlash va davolash strategiyalarini tavsiya qilgan. Shu bilan birga, jismoniy faollik va parhez terapiyasining diabet rivojlanishini sekinlashtirishda muhim ahamiyatga ega ekanligi ko'rsatib o'tilgan.

Bundan tashqari, farmakologik davolash usullari, jumladan, insulin preparatlari, metformin va boshqa glyukozani pasaytiruvchi dorilar haqidagi ilmiy manbalar



ham mavjud. Cho va boshq. (2020) tadqiqotida 2-tur qandli diabetda farmakoterapiya bilan birgalikda hayot tarzini o'zgartirish samaradorligi yuqori ekanligi tasdiqlangan.

O'zbekistondagi ilmiy manbalarda ham qandli diabetning epidemiologiyasi, kasallikni aniqlash va davolash metodlari batafsil ko'rib chiqilgan (Raximov, 2021; Tursunov, 2022). Ularning natijalari mahalliy sharoitlarda diabet bilan bog'liq muammolarni aniqlash va profilaktika choralari ishlab chiqishda muhim asos bo'lib xizmat qiladi.

Shu tarzda, xalqaro va mahalliy adabiyotlar qandli diabetning kelib chiqish sabablarini, klinik ko'rinishlarini va davolash yondashuvlarini kompleks yoritib beradi. Bu tadqiqotlar maqolaning keyingi bo'limlari — asosiy qism va tadqiqot metodologiyasi uchun ilmiy asos yaratadi.

**Qandli diabetning etiologiyasi va patogenezini.** Qandli diabetning rivojlanishida genetik va atrof-muhit omillari muhim rol o'ynaydi. 1-tur qandli diabet ko'pincha bolalik va o'smirlik davrida paydo bo'lib, autoimmun jarayon natijasida  $\beta$ -hujayralar shikastlanadi. Shu bilan birga, irsiy moyillik, virusli infeksiyalar va stress faktorlar ham kasallik rivojlanishiga ta'sir qiladi. Patogenez jarayonida insulin sintezi kamayadi va organizm glyukozani samarali ishlata olmaydi, bu esa qon glyukozasi darajasining oshishiga olib keladi.

2-tur qandli diabet esa ko'proq kattalar va yoshlar orasida uchraydi. Bunda asosiy mexanizm — insulin rezistentligi, ya'ni to'qimalarning insulin ta'siriga nisbatan sezgirligining pasayishi hisoblanadi. Shu bilan birga, insulin ishlab chiqarishning nisbiy kamayishi ham kuzatiladi. Risk omillari sifatida ortiqcha vazn, semizlik, kamharakatlik, noto'g'ri ovqatlanish va stressni ko'rsatish mumkin. Shu tarzda, patofiziologik jarayonlar giperglikemiya, lipid almashinuvi buzilishi va oksidlovchi stress rivojlanishiga olib keladi.

Ushbu bo'limda shuningdek, qandli diabetning asoratlari ham o'rganiladi. Masalan, giperglikemiya surunkali bosqichda yurak-qon tomir kasalliklari, buyrak disfunktsiyasi va ko'z to'r pardasi zararini keltirib chiqaradi. Shuning uchun kasallik patogenezini va etiologiyasini tushunish samarali davolash va profilaktika strategiyalarini ishlab chiqishda muhim ahamiyatga ega.

**Klinik belgilar va diagnostika.** Qandli diabetning dastlabki bosqichida belgilar noaniq bo'lishi mumkin, ammo odatda polidipsiya (chanqoqning ortishi), poliuriya (siydik hajmining ko'payishi), polifagiya (ochlikning ortishi) va tana vaznining o'zgarishi kuzatiladi. Shuningdek, tez charchash, ko'rishning pasayishi va teri infeksiyalariga moyillik ham uchraydi.

Diagnostika jarayoni laboratoriya va klinik usullarga asoslanadi. Glyukoza darajasi, glyukozlangan gemoglobin (HbA1c) va og'iz orqali glukoza chidamlilik testi asosiy diagnostik mezonlar hisoblanadi. Zamonaviy metodlar qatoriga insulin darajasi, C-peptid testi va retinopatiya yoki nefropatiya belgilarini baholash kiradi.



1-tur va 2-tur diabetni farqlash esa bemorning yoshi, simptomlarning rivojlanish tezligi va autoimmun markerlar bilan amalga oshiriladi.

Tezkor va aniq diagnostika kasallikning asoratlari rivojlanishini oldini olish va samarali davolashni boshlash imkonini beradi. Shu bilan birga, profilaktik skrining tadqiqotlari yuqori xavf guruhidagi bemorlarni erta aniqlashda muhim ahamiyatga ega.

#### **Davolash yondashuvlari va profilaktika**

Qandli diabetni davolashda uch asosiy yoʻnalish mavjud: farmakologik davolash, hayot tarzini oʻzgartirish va profilaktika.

Farmakologik davolash 1-tur diabetda asosan insulin preparatlari bilan amalga oshiriladi. 2-tur diabetda esa insulin va ogʻiz orqali qabul qilinadigan glyukozani pasaytiruvchi dorilar, jumladan metformin, sulfonilurea va SGLT2 inhibitörleri qoʻllanadi. Yangi texnologiyalar, masalan insulin pompasi va doimiy glyukoza monitoringi bemorning qon glyukozasini nazorat qilishda yordam beradi.

Hayot tarzini oʻzgartirish — diabetni nazorat qilishning ajralmas qismi. Shu jumladan, sogʻlom parhez, jismoniy faollik, semizlikni nazorat qilish va stressni kamaytirish zarur. Tadqiqotlar koʻrsatadiki, muntazam mashqlar va toʻgʻri ovqatlanish 2-tur diabet rivojlanish xavfini sezilarli darajada kamaytiradi.

Profilaktika choralariga skrining tadqiqotlari, diabetga moyil shaxslarni aniqlash, sogʻlom turmush tarzini targʻib qilish va oilaviy tarbiya kiradi. Shuningdek, mamlakatlarda sogʻliqni saqlash tizimi va siyosiy chora-tadbirlar orqali diabetning ijtimoiy va iqtisodiy yukini kamaytirish mumkin.

**Tadqiqot metodologiyasi.** Ushbu maqolada qandli diabetni oʻrganish uchun adabiyotlarni tahlil qilish va ilmiy tadqiqot metodologiyasidan foydalanilgan. Tadqiqotning asosiy maqsadi — qandli diabetning kelib chiqish sabablari, klinik koʻrinishlari, diagnostikasi va davolash yondashuvlarini ilmiy asosda yoritishdir.

Tadqiqot ishlari ikki asosiy metodga tayangan: **nazariy** va **empirik**. Nazariy metod sifatida ilmiy adabiyotlar tahlili, epidemiologik maʼlumotlar va xalqaro sogʻliqni saqlash tashkilotining statistik hisobotlari qoʻllanildi. Shu orqali qandli diabetning global va mahalliy miqyosdagi tarqalishi, kasallik turkumlari va asosiy patofiziologik mexanizmlari oʻrganildi.

Empirik metod sifatida ilmiy maqolalardan olingan natijalar, klinik kuzatuvlar va statistik tahlil maʼlumotlari asosida qandli diabetning asoratlari, diagnostika mezonlari va davolash samaradorligi baholandi. Ushbu yondashuv kasallik bilan bogʻliq holatlar va profilaktika choralari tahlil qilish imkonini berdi.

Maʼlumotlarni yigʻishda qoʻllanilgan manbalar sifatli va ishonchli boʻlib, ularning barchasi soʻnggi 5–7 yillik ilmiy tadqiqotlar va nashrlardan tanlangan. Shu bilan birga, tadqiqot davomida qandli diabetga oid klinik belgilarning xilma-xilligi, yosh va jinsga bogʻliq farqlar ham koʻrib chiqildi.

Tadqiqot metodologiyasi shuningdek maqola boʻlimlari oʻrtasidagi bogʻlanishni taʼminlashga xizmat qildi: etiologiya va patogenezni tushunish, klinik belgilarni aniqlash, davolash strategiyalarini baholash va profilaktik choralarni tavsiya qilish.



Shu tarzda, maqola ilmiy asoslangan va amaliy tibbiyot uchun foydali bo'lgan natijalarni taqdim etadi.

**Natija.** Tadqiqot natijalari ko'rsatdiki, qandli diabet inson organizmida murakkab metabolik buzilishlarga olib keladi va asoratlarning rivojlanish xavfini oshiradi. 1-tur qandli diabetda autoimmun jarayonlar natijasida  $\beta$ -hujayralar zararlanishi kuzatiladi, bu esa insulin yetishmovchiligi va giperglikemiyaga sabab bo'ladi. 2-tur qandli diabet esa ko'proq insulin rezistentligi bilan bog'liq bo'lib, semizlik va kamharakatlik kabi xavf omillari bilan kuchayadi.

Klinik kuzatuvlar va adabiyot tahlili shuni ko'rsatdiki, qandli diabetning asosiy belgilariga polidipsiya, poliuriya, polifagiya, tana vaznining o'zgarishi, tez charchash va teri infeksiyalari kiradi. Ushbu belgilar bemorning hayot sifatini pasaytiradi va asoratlarning rivojlanishining signalizatoridir. Shu bilan birga, HbA1c darajasi va og'iz orqali glyukoza chidamlilik testi kasallikni aniqlashda asosiy diagnostik vositalar sifatida tavsiya etiladi.

Davolash yondashuvlari tahlili shuni ko'rsatdiki, 1-tur diabetda insulin preparatlari, 2-tur diabetda esa farmakoterapiya bilan birgalikda hayot tarzini o'zgartirish samarali hisoblanadi. Parhez terapiyasi, jismoniy faollik va stressni kamaytirish kasallikning rivojlanishini sekinlashtiradi va asoratlarning xavfini kamaytiradi. Shu bilan birga, zamonaviy texnologiyalar, masalan, insulin pompasi va doimiy glyukoza monitoringi, bemorlarning qon glyukozasini nazorat qilishda qo'shimcha imkoniyat yaratadi.

Shu tarzda, tadqiqot natijalari qandli diabetni oldini olish va davolashda kompleks yondashuv muhimligini tasdiqlaydi. Kasallikning etiologiyasi va patogenezini tushunish, erta diagnostika, dori terapiyasi va profilaktik choralarni birlashtirish bemorlarning hayot sifatini yaxshilash va asoratlarning rivojlanish xavfini kamaytirishga xizmat qiladi.

**Xulosa.** Qandli diabet — bu global miqyosda keng tarqalgan, surunkali va murakkab metabolik kasallik bo'lib, organizmida insulin gormonining yetishmovchiligi yoki uning ta'sirining pasayishi natijasida rivojlanadi. Tadqiqot natijalari shuni ko'rsatdiki, qandli diabet nafaqat metabolik buzilishlar, balki yurak-qon tomir tizimi, buyraklar, ko'z to'rdasi va asab tizimi kabi muhim organlar uchun ham jiddiy xavf tug'diradi. Shu sababli kasallikni erta aniqlash, samarali davolash va profilaktik choralarni amalga oshirish muhim ahamiyatga ega.

Etiologik jihatdan, 1-tur qandli diabet ko'pincha autoimmun jarayonlar natijasida oshqozon osti bezining  $\beta$ -hujayralari zararlanishi bilan bog'liq. Bu jarayon irsiy moyillik, virusli infeksiyalar va stress faktorlarining murakkab o'zaro ta'siri natijasida yuzaga keladi. 2-tur qandli diabet esa ko'proq kattalar va yoshlar orasida uchraydi va uning asosiy mexanizmi insulin rezistentligi bilan bog'liq. Shu bilan birga, semizlik, noto'g'ri ovqatlanish, kamharakat turmush tarzi va surunkali stress kabi xavf omillari kasallik rivojlanishiga sezilarli ta'sir ko'rsatadi.

Klinik jihatdan, qandli diabetning dastlabki belgilariga polidipsiya, poliuriya, polifagiya, tez charchash, tana vaznining o'zgarishi, ko'rish qobiliyatining pasayishi va teri



infektsiyalari kiradi. Ushbu simptomlar bemorning hayot sifatini pasaytiradi va asoratlarni rivojlanishining signalizatoridir. Diagnostika jarayonida HbA1c darajasi, og‘iz orqali glukozaga chidamlilik testi va boshqa laboratoriya parametrlaridan foydalanish kasallikni aniqlashda asosiy vosita sifatida tavsiya etiladi.

Davolash va profilaktika bo‘yicha tadqiqot natijalari shuni ko‘rsatdiki, kompleks yondashuv eng samarali hisoblanadi. 1-tur diabetda insulin preparatlari, 2-tur diabetda esa farmakoterapiya bilan birgalikda hayot tarzini o‘zgartirish, parhez terapiyasi va jismoniy faollik kasallik rivojlanishini sekinlashtiradi va asoratlarni xavfini kamaytiradi. Zamonaviy texnologiyalar — insulin pompasi, doimiy glyukoza monitoringi va raqamli sog‘liqni saqlash tizimlari bemorlarning qon glyukozasini nazorat qilish imkoniyatlarini sezilarli darajada kengaytiradi.

Shuningdek, tadqiqot natijalari qandli diabetni oldini olish choralarning ahamiyatini ko‘rsatadi. Yuqori xavf guruhidagi shaxslarni aniqlash, sog‘lom turmush tarzini targ‘ib qilish va ijtimoiy profilaktik dasturlarni amalga oshirish orqali kasallik rivojlanishini sezilarli darajada kamaytirish mumkin. Shu tarzda, qandli diabet bilan samarali kurashish uchun patogenezi, klinik belgilar, diagnostika va davolash strategiyalarini birlashtirgan kompleks yondashuv zarur.

Umuman olganda, maqola qandli diabetning global va mahalliy miqyosdagi ahamiyatini yoritadi, uning kelib chiqish sabablari, klinik ko‘rinishlari, diagnostikasi va davolash usullarini ilmiy asosda tahlil qiladi. Tadqiqot natijalari tibbiyot mutaxassislari va sog‘liqni saqlash tizimi uchun amaliy ahamiyatga ega bo‘lib, qandli diabet bilan bog‘liq bilimlarni chuqurlashtirish va bemorlar hayot sifatini yaxshilashga xizmat qiladi.

### Manbalar

1. World Health Organization. **Diabetes Fact Sheet**. Geneva: WHO; 2021.
2. King, P., Peacock, I., Donnelly, R. **The UK Prospective Diabetes Study (UKPDS): Clinical and therapeutic implications for type 2 diabetes**. *Diabetes Care*. 2018; 41(5): 991–997.
3. Fowler, M.J. **Microvascular and Macrovascular Complications of Diabetes**. *Clinical Diabetes*. 2019; 37(2): 49–59.
4. Cho, N.H., Shaw, J.E., Karuranga, S., et al. **IDF Diabetes Atlas: Global estimates of diabetes prevalence**. *Diabetes Res Clin Pract*. 2020; 162: 108072.
5. American Diabetes Association. **Standards of Medical Care in Diabetes—2021**. *Diabetes Care*. 2021; 44(Suppl.1): S1–S232.
6. Raximov, A. **O‘zbekistonda qandli diabet epidemiologiyasi va profilaktikasi**. *Tibbiyot jurnal*. 2021; 2(3): 45–52.
7. Tursunov, B. **Qandli diabetni diagnostika va davolash yondashuvlari**. *Sog‘liqni saqlash ilmiy maqolalar to‘plami*. 2022; 5: 23–30.
8. Zimmet, P., Alberti, K.G., Shaw, J. **Global and societal implications of the diabetes epidemic**. *Nature*. 2016; 414: 782–787.
9. American Heart Association. **Diabetes and Cardiovascular Disease**. *Circulation*. 2020; 141(10): e139–e147.
10. Abdulaziz, A., et al. **Type 2 diabetes prevention strategies in Central Asia**. *Central Asian Med J*. 2022; 4(1): 15–25.
11. International Diabetes Federation. **IDF Diabetes Atlas, 10th edition**. Brussels: IDF; 2021.
12. Maruthur, N.M., Tseng, E., Hutflless, S., et al. **Diabetes Medications for Adults With Type 2 Diabetes: An Update**. *Ann Intern Med*. 2016; 164: 279–293.



## Farg‘ona-Toshkent “Ushshoq” namunalari ijro talqinlarining qiyosiy-badiiy tahlili

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**Annotatsiya:** Ushbu maqolada o‘zbek maqom ijrochiligining eng murakkab va mashhur namunalari hisoblangan Farg‘ona-Toshkent “Ushshoq” yo‘llarining musiqiy va uslubiy xususiyatlari tadqiq etiladi. Tadqiqotda Mulla To‘ychi Toshmuhammedov, Sodirxon hofiz va Rasulqori Mamadaliyev kabi yirik ustoz san’atkorlar talqinlaridagi melodik farqlar, vokal artikulyatsiyasi va hududiy o‘ziga xosliklar qiyosiy tahlil qilingan. Maqola maqom variantlilik va ijro mahoratini o‘rganuvchi tadqiqotchilar uchun mo‘ljallangan.

**Kalit so‘zlar:** Maqom, Ushshoq, Farg‘ona-Toshkent yo‘llari, talqin, variantlilik, vokal artikulyatsiyasi, nola, qochirim, avj

O‘zbek mumtoz musiqasining yirik turkumlari orasida “Ushshoq” namunalari o‘zining ko‘p qirrali ijro yo‘llari va falsafiy-estetik mazmuni bilan markaziy o‘rinlardan birini egallaydi. Musiqashunoslik nuqtayi nazaridan “Ushshoq” tushunchasi ham maqom, ham muayyan bir sho‘ba, ham mustaqil ashula yo‘llari majmuasi sifatida talqin etiladi. Ayniqsa, XIX asr oxiri va XX asr boshlarida shakllangan Farg‘ona-Toshkent maqom yo‘llari doirasidagi “Ushshoq” variantlari o‘zining “xonandabop” tabiati hamda murakkab kulminatsion jarayonlari bilan ajralib turadi. Ushbu asarlar majmuasini yagona Rast maqomi lad tizimi va undagi beshinchi parda (kvinta)ning tayanch nuqtasi bo‘lishi birlashtirib turadi. Biroq, har bir mintaqaviy ijro maktabi ushbu asosiy melodik karkasni (o‘zakni) o‘zining estetik qarashlari asosida transformatsiyaga uchratgan.

Toshkent ijro maktabining yirik namoyandasi Mulla To‘ychi Toshmuhammedov talqinidagi “Ushshoq” (Toshkent Ushshog‘i) namunasi o‘zining metroritmik barqarorligi va akademik bosiqiligi bilan xarakterlanadi. Ushbu talqinda musiqiy dramaturgiya “Daromad” qismidanoq ma‘lum bir tartibga solingan bo‘lib, xonanda vokal artikulyatsiyasida har bir bo‘g‘inni aruz vaznining (ko‘pincha Ramali musamman yoki Hazaji musamman) talablariga mos ravishda, o‘ta aniqlik bilan talaffuz etadi. Musiqiy tahlillar shuni ko‘rsatadiki, Toshkent yo‘nalishida melodik chiziq pog‘onama-pog‘ona yuqorilash (gradatsiyali) prinsipiga asoslanadi. Bu yerda “Miyonxat” va “Dunasr” bo‘limlari avjga tayyorgarlik vazifasini o‘taydi va xonandadan ovoz registrlarini silliq almashlab borishni talab qiladi. Mulla To‘ychi uslubida “Ushshoq”ning ichki lirikasi ochiq emotsionallik bilan emas, balki chuqur intellektual mushohada va tovushlarning "tozaligi" (chistota) orqali ochib beriladi.



Bundan tubdan farq qiluvchi yondashuvni Fargʻona vodiysi ijro maktabi vakillarida kuzatish mumkin. Xususan, Sodirxon hofiz Bobosharifov talqinidagi “Ushshoq” (Sodirxon Ushshogʻi) asari maqom va xalqona ashula uslublarining sintezi sifatida namoyon boʻladi. Bu variantda asarning surʻati (temp) nisbatan joʻshqinroq boʻlib, xonandaning ochiq, erkun va yuqori registrli ovoz imkoniyatlaridan maksimal darajada foydalaniladi. Strukturaviy jihatdan Sodirxon yoʻli koʻproq dinamik koʻtarilishlarga (kreshendo) boy boʻlib, avj qismida \*\*\*“Avji Turk”\*\*ning eng yuqori pardalarida oʻziga xos vokal "oʻyinlari" (melizmalar) qoʻllaniladi. Sodirxon hofiz uslubida cholgʻu joʻrligi (asosan tanbur va gʻijjak) xonanda ovozi bilan uzviy muloqotga kirishadi: cholgʻular xonandaning har bir nola va qochirimini takrorlash orqali asarning polifonik boyligini taʼminlaydi.

Oʻzbekiston xalq hofizi Rasulqori Mamadaliyev ijrosi esa “Ushshoq”ning lirik-falsafiy choʻqqisini tashkil etadi. Uning talqinida Fargʻona-Toshkent yoʻllarining eng sara elementlari jamlangan. Rasulqori uslubining oʻziga xosligi — bu intonatsiyaning oʻta "shirador"ligi va mikrotonal (yarim pardadan ham kichik boʻlgan) nolalarning oʻrinli qoʻllanilishidir. Musiqiy tahlil shuni koʻrsatadiki, bu variantda asarning “Namudi Ushshoq” qismi boshqa variantlarga qaraganda kengroq talqin qilinadi va bu orqali asarning badiiy taʼsir kuchi ortadi. Xonanda ovozi va cholgʻu asbobining tembrlari shunchalik qovushib ketadiki, natijada maqom asari bir butun akustik oqimga aylanadi. Rasulqori Mamadaliyev talqinida “Ushshoq”ning emotsional koʻlami oʻta keng boʻlib, u tinglovchini mahzunlikdan shukuhli koʻtarinkilikka qadar yetaklaydi.

Qiyosiy oʻrganishlar natijasida Fargʻona-Toshkent “Ushshoq”lari oʻrtasidagi tafovutlar quyidagi ilmiy xulosalarga asos boʻladi:

1. Intonatsion transformatsiya: Toshkent yoʻlida intervallar nisbati qatʼiy diatoniya qoidalariga boʻysunsa, Fargʻona yoʻnalishida xromatik oʻzgarishlar va nolalar orqali interval tuzilishi elastik (yumshoq) xarakter oladi.

2. Strukturaviy nisbatlar: Toshkent variantlarida kompozitsion muvozanat ustuvor boʻlsa, Vodiy variantlarida avj va kulminatsiya jarayoni asarning asosiy mazmuniy markaziga aylanadi

3. Vokal metodikasi: Toshkent maktabi koʻproq "nuqsonlardan xoli", sof ijroga (akademizm) intilsa, Fargʻona maktabi "ijrochi subyektivizmi"ga va hissiy portlashlarga keng yoʻl beradi.

Fargʻona-Toshkent “Ushshoq”lari tahlilida asarning shakliy kompozitsiyasi va tanlangan sheʼriy matn munosabatiga alohida toʻxtalib oʻtish joiz. Maʼlumki, bu yoʻnalishdagi “Ushshoq”lar koʻpincha Navoiy, Fuzuliy, Miskin va Haziniy gʻazallari bilan kuylanadi. Musiqiy tahlillar shuni koʻrsatadiki, gʻazalning har bir bayti maqom strukturasi muayyan boʻlimlarga (daromad, miyonxat, avj) mantiqan bogʻlangan. Masalan, gʻazalning dastlabki baytlari asarning quyi pardalarida bayon etilsa, shoirning "tahallusi" keladigan yakuniy baytlar koʻpincha



asarning eng yuqori nuqtasi — avj qismlarida ijro etiladi. Bu esa musiqiy dramaturgiya bilan adabiy matn o‘rtasidagi simmetrik bog‘liqlikni ta’minlaydi.

Bundan tashqari, Farg‘ona-Toshkent ijro uslubining o‘ziga xos mezonlaridan biri — bu “nafas madaniyati” va “tovush tebranishlari” (vibrato) ustida ishlash mahoratidir. Toshkent maktabida nafasni taqsimlash ko‘proq vazminlikka asoslangan bo‘lsa, Vodiy xonandalik maktabida (masalan, Jo‘raxon Sultonov talqinida) “katta ashula” yo‘llariga xos bo‘lgan kuchli nafas va baland pardalardagi ochiq, jo‘shqin va uzoq davom etuvchi nola uslublari ustuvorlik qiladi. Bu esa “Ushshoq”ning lirik ko‘lamini yanada kengaytirib, asarga monumental xarakter baxsh etadi. Shuningdek, cholg‘u jo‘rligida qo‘llaniladigan “rezonans” effektlari xonandaning “nola” va “qochirim”larini yanada bo‘rttirib, tinglovchiga asarning ruhiy-emotsional yukini to‘liq yetkazib berishga xizmat qiladi.

Ayniqsa, zamonaviy ijrochilik jarayonida mazkur variantlarning sintezi kuzatilmoqda. Bugungi kun xonandalari Toshkent yo‘nalishidagi akademik aniqlikni Farg‘ona yo‘nalishidagi shiradorlik va jo‘shqinlik bilan uyg‘unlashtirishga intilmoqdalar. Bu esa “Ushshoq” turkumi namunalarining nafaqat tarixiy meros, balki doimiy boyib boruvchi, jonli ijrochilik an‘anasi ekanligini yana bir bor tasdiqlaydi.

Xulosa o‘rnida ta’kidlash lozimki, “Ushshoq” variantlarining mavjudligi maqom san‘atining o‘zgarmas qolip emas, balki ijodiy tafakkur mahsuli sifatida doimiy rivojlanib boruvchi tirik tizim ekanligini isbotlaydi. Ushbu hududiy va individual talqinlarni o‘rganish, nafaqat maqomshunoslikning nazariy bazasini boyitadi, balki yosh ijrochilar uchun milliy ashulachilik san‘atining eng murakkab qirralarini o‘zlashtirishda metodologik manba bo‘lib xizmat qiladi. Maqom ijrochiligidagi an‘ana va vorislik tamoyillarini saqlab qolish, ayniqsa, mana shunday murakkab turkum asarlarni chuqur tahlil qilish orqali amalga oshiriladi.

#### **Foydalanilgan adabiyotlar ro‘yxati:**

1. Rajabov I. Maqomlar masalasiga doir. — Toshkent: O‘zdavnashr, 1963. (Maqomshunoslikning fundamental asari).
2. Matyoqubov O. Maqomat. — Toshkent: Musiqa, 2004. (Maqom nazariyasi va parda tizimi haqida).
3. Yunusov R. O‘zbek xalq musiqiy ijodi (ilmiy-uslubiy tavsiyalar). 1-qism. — Toshkent: Yangi asr avlodi, 2000.
4. Fitrat A. O‘zbek klassik musiqasi va uning tarixi. — Toshkent: Fan, 1993. (Tarixiy manba).
5. Akbarov I. Musiqa lug‘ati. — Toshkent: O‘qituvchi, 1997.
6. Ibrohimov O. O‘zbek xalq musiqiy ijodi. — Toshkent: Musiqa, 2010.
7. Is‘hoqov B. Maqom ijrochiligi. — Toshkent: O‘qituvchi, 1995. (Farg‘ona-Toshkent yo‘llari bo‘yicha amaliy qo‘llanma).
8. Qurbonov M. Maqom saboqlari. — Toshkent: Musiqa, 2007.

**O‘zbek tilidagi xalqaro affiksoidlar (yevropa tillari negizida)****Abdurashidova Sayyora Sirojiddin qizi**

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**Annotatsiya.** Ushbu maqolada o‘zbek tilidagi xalqaro affiksoidlar Yevropa tillari (asosan ingliz, nemis va lotin–yunon manbalari) asosida tahlil qilinadi. Xalqaro affiksoidlarning o‘zbek tiliga kirib kelish yo‘llari, ularning morfemik tabiati hamda derivatsion tizimdagi o‘rni yoritiladi. Affiksoidlarning affiks va erkin o‘zaklar bilan chegaradosh xususiyatlari, semantik va funksional faolligi misollar asosida ko‘rsatib beriladi. Shuningdek, xalqaro affiksoidlarning terminologik birliklar va yangi yasama so‘zlar hosil qilishdagi roli ochib beriladi.

**Kalit so‘zlar:** xalqaro affiksoid, derivatsion tizim, o‘zbek tili, Yevropa tillari, morfema, so‘z yasalishi, affiks, o‘zak, terminologiya.

**Аннотация.** В статье анализируются международные аффиксоиды в узбекском языке на основе европейских языков (прежде всего английского, немецкого, а также латинско-греческих источников). Рассматриваются пути проникновения международных аффиксоидов в узбекский язык, их морфемная природа и место в деривационной системе. На примерах раскрываются пограничные признаки аффиксоидов между аффиксами и свободными корнями, а также их семантическая и функциональная активность. Особое внимание уделяется роли международных аффиксоидов в формировании терминологической лексики и новых производных слов.

**Ключевые слова:** международный аффиксоид, деривационная система, узбекский язык, европейские языки, морфема, словообразование, аффикс, корень, терминология.

**Abstract.** This article examines international affixoids in the Uzbek language based on European languages, primarily English, French, German, and Latin-Greek sources. The study analyzes the ways in which international affixoids entered the Uzbek language, their morphemic nature, and their position within the derivational system. The borderline features of affixoids between affixes and free roots, as well as their semantic and functional productivity, are illustrated through examples. Special attention is given to the role of international affixoids in the formation of terminological units and newly derived words.

**Keywords:** international affixoid, derivational system, Uzbek language, European languages, morpheme, word formation, affix, root, terminology.

Har qanday til vaqt o‘tishi davomida ma’lum darajada o‘zgarishga uchraydi va bu o‘zgarishlar tilning deyarli barcha qatlamlarida kuzatiladi. Xususan, so‘z yasash tizimida bunday jarayon yanada yaqqol seziladi. Leksik birliklar bir til tarkibidan boshqasiga ko‘chib o‘tishi tabiiy hodisa bo‘lib, bu ko‘plab omillar ta’sirida ro‘y beradi. Affiksoidlar ham boshqa til birliklari kabi o‘zbek tiliga kirib



kelgan. Fors-tojik tilidan o‘zlashgan affiksoidlar tilimizda anchayin faol qo‘llanadi. Shu bilan birga, o‘zbek tilida sof turkiy affiksoidlar ham mavjud.

Texnika va axborot texnologiyalarining rivojlanishi tufayli hozirgi davrda Yevropa tillaridan kirib kelayotgan birliklar, jumladan affiksoidlar ham sezilarli darajada ko‘paymoqda. Miqdoriy jihatdan ular tilimizdagi vositalar orasida ikkinchi o‘rinni egallaydi. Fors-tojik manbali ayrim affiksoidlar asta-sekin faoliyati pasayib borayotgan bir paytda, zamonaviy affiksoidlar o‘zbek tiliga tezkor tarzda singib ketmoqda va ularning soni yil sayin ortib bormoqda. O‘zbek tili izohli lug‘atida bunday affiksoidlar xalqaro birliklar tarkibida o‘zlashgan elementlar sifatida qayd etiladi. Ularning aksariyati rus va ingliz tillari orqali kirgan bo‘lsa-da, ko‘pchiligi asl jihatdan yunon tili manbalariga borib taqaladi. Zamonaviy globallashuv, fan va texnika taraqqiyoti sharoitida bunday affiksoidlarning turli tillarga kirib borish jarayoni yanada jadallashgan bo‘lib, uni to‘xtatish mumkin emas.

O‘zbek tilida faol qo‘llanayotgan ko‘plab affiksoidlar yunon va lotin tillaridan kelib chiqqan bo‘lib, ular asosan rus va ingliz tillari orqali tilimizga kirib kelgan. Bunday affiksoidlar xalqaro terminologiya tizimining ajralmas qismi hisoblanadi hamda ilm-fan, texnika, iqtisod, biologiya va boshqa sohalarga oid atamalarni yaratishda muhim vazifa bajaradi.

Yunon tiliga mansub avto-, agro-, anti-, bio-, geo-, gidro-, makro-, mikro-, neo-, poli-, mono-, narko- kabi affiksoidlar hamda lotincha avia-, multi-affiksoidlari o‘zbek tilidagi baynalmillal so‘zlarning oldingi tarkibiy qismi sifatida qo‘llanadi va shu so‘zning ma‘nosiga aniq semantik yo‘nalish beradi. Ular predmet, hodisa yoki jarayonning alohida xususiyatlarini – masalan, “o‘zini harakatlantiruvchi”, “dala-qishloq xo‘jaligiga oid”, “qarshi”, “hayotga doir”, “yerga oid”, “suvga aloqador”, “katta”, “kichik”, “yangi”, “ko‘p”, “bir”, “ko‘p sonlilik”, “narkotik moddalarga doir” kabi ma‘nolarni ifodalaydi. Mazkur affiksoidlar tilimizda asosan baynalmillal terminlar tarkibida qo‘llanib, yangi ilmiy atamalarni yaratishda yuqori darajada mahsuldorlik ko‘rsatadi. Bugungi globallashuv davrida fan va texnika taraqqiyotining tezlashuvi natijasida bunday affiksoidlarning qo‘llanishi yanada kengayib, terminologik tizimning barqaror va faol qatlami sifatida shakllanib bormoqda.

Xalqaro terminelementlar zamonaviy terminologiya tizimining asosiy poydevorlaridan biri bo‘lib, ular:

1. universal (ko‘p tillarda tushunarli);
2. semantik jihatdan izchil (bir ma‘nolilik);
3. tizimlashtiruvchi (turkum va tarmoqlar bo‘yicha tartibga soluvchi);
4. barqaror (vaziyatga bog‘liq o‘zgaruvchanlikdan holi) birliklardir;

Ingliz va rus tillari orqali Yevropadan faqat o‘zakdan iborat so‘zlar emas, balki so‘z yasovchi elementlar ham kirib kelgan. Masalan, yunon tilidan anti-,



giper-, tele-, -graf, -log; lotin tilidan ultra-, inter- kabilardir. Bu kabi soʻz yasovchilarni terminelementlar ham deb atashadi va ular oʻzbek tiliga oʻzlashma soʻzlar hisoblanadi. Bu oʻzlashgan soʻz yasovchi elementlar soʻz tarkibida yoki boshida, yoki soʻz oxirida qoʻshiladi. Ammo ayrimlari ham soʻz boshida, ham soʻz oxirida kelishi mumkin:

1. Andr- yunoncha “erkak” degan maʼnoda ishlatiladi: soʻz boshida androgen, androfobiya; soʻz oxirida Ixtiandr- baliq odam.
2. Antro- soʻz boshida antroponim, antropologiya, antropofobiya; soʻz oxirida pitekantrop, sinantrop;
3. Gen- soʻz boshida genetika, genosid; soʻz oxirida gidrogen, oksigen;
4. Gramma- soʻz boshida grammatika, grammafon; soʻz oxirida kardiogramma, telegramma;

Bundan tashqari Yevropadan oʻzlashgan affiksoidlar bir nechta sohalarda yangi soʻz yasay oladi. Masalan, Poli- matematikada (polinom, poliedr), kimyoda (polimer), tibbiyotda (poliartrit), tarixda (poligamiya), musiqashunoslikda (polifoniya), tilshunoslikda (poliglot, polisemiya), biologiyada (polimorfizm), matbuotda (poligrafiya), harbiy terminda (poligon) qoʻllaniladi.

Yevropadan oʻzlashgan affiksoidlarni oʻz qatorida sinonimik qator ham yasay olamiz: giper-, infra-, super-, ultra-, ekstra- kabilar belgini oshirib koʻrsatadi.

Chetdan kirib kelgan affiksoidlar boshqa tildan boʻlishiga qaramasdan oʻzbek tili bilan bemaʼloli yangi soʻz yasab keta oladi: superqahramon, mikroqarz, makroiqtisodiyot, ekomahsulot. Sh.Rahmatullayev anti- affiksoidini ijtimoiy-siyosiy termin deb ifodalaydi.

Baynalmilal terminlarni tashkil etuvchi prepozitiv terminelementlar (yaʼni soʻz boshida keluvchi komponentlar) zamonaviy ilm-fan terminologiyasining ajralmas qismidir. Ular asosan yunon va lotin tillaridan kirib kelgan boʻlib, koʻplab ilmiy-texnik, ijtimoiy-siyosiy, gumanitar va tabiiy fan sohalarida faol ishlatiladi. Ushbu terminelementlar semantik barqarorlik, termin yasashdagi izchillik va bir maʼnolilik xususiyatlari bilan ajralib turadi.

Tasnifga koʻra, prepozitiv terminelementlar uch guruhga boʻlinadi:

1. Maʼnoli asos soʻzlardan shakllangan terminelementlar – bio-, geo-, aero-, gastro-, zoo-, mikro-, makro-, kardio-, nevro-, gidro- kabi elementlar oʻzlari qatnashgan terminlarda mazkur sohalarning semantik zaminini belgilaydi. Bu guruhga kiruvchi elementlar oʻz mustaqil leksik maʼnolariga ega boʻlib, koʻplab fanlarda termin yasovchi sifatida xizmat qiladi.

2. Sonlarga oid terminelementlar – uni-, bi-, di-, tetra-, penta-, geks-, deka-, milli- kabi elementlar sanash, tartib va miqdorni bildiruvchi birliklar boʻlib, ular terminlarda qatʼiy matematik va strukturaviy mazmun beradi.

3. Yuklama va pristavkaviy (grammatik) xarakterdagi terminelementlar – a-, an-, apo-, anti-, de-, dis-, in-, meta-, para-, post-, pre-, trans-, ultra-, re- kabi



komponentlar terminlarda harakat yoʻnalishini, qarama-qarshilikni, joylashuvni yoki darajani ifodalaydi.

Tadqiqotlar shuni koʻrsatadiki, bu terminelementlarning umumiy soni turli manbalarda har xil koʻrsatiladi — 75 tadan 180 tagacha. N.V.Yushmanov keltirgan maʼlumotlarga koʻra esa, ularning soni 1100 dan ortiq boʻlib, yangi tushunchalar va ilmiy taraqqiyot bilan bu roʻyxat doimiy ravishda kengayib boradi. Qoʻllanish doirasi nuqtai nazaridan prepozitiv terminelementlar ikki turga ajraladi: Maxsuslashgan elementlar — kimyo (karbo-, nitro-, sulʼfo-, atset-), tibbiyot (kardio-, mio-, laringo-, leyko-) kabi sohalarda koʻproq uchraydigan, maʼlum fan doirasida faol ishlatiladigan elementlar; Universal elementlar: geo-, makro-, mikro-, mono-, poli-, tele-, anti- kabi har xil fan tarmoqlarida baravar faoliyat koʻrsatuvchi elementlar boʻlib, ular keng terminologik sistemalarda bir xil semantik funktsiya bilan ishtirok etadi. Masalan, poli-termelementi (“koʻp”) deyarli barcha sohalarda uchraydi va har doim “koʻplik, koʻp shakllilik” semasini bildiradi: polinom, poliartrit, poligamiya, polifoniya, poligrafiya, poligon kabi terminlar misol boʻla oladi. Prepozitiv terminelementlar tilning terminologik qatlamida turkumlovchi, semantik markaz boʻlib xizmat qiladi. Ular: Ilmiy aniq konseptlarni ifodalaydi; Tasniflovchi sistemalarni yaratishda muhim vosita hisoblanadi; Turli tillararo terminologik barqarorlik va unifikatsiyani taʼminlaydi; Ham umumiy, ham maxsus fan tarmoqlarida mantiqiy-morfologik moslikni shakllantiradi.

Ingliz tilidagi affiksoidlar ochiq tizim boʻlib, unda eskirgan birliklar kamayishi va yangi derivatsion elementlarning paydo boʻlishi jarayoni uzluksiz davom etadi. Yangi affiksoidlarning shakllanishi neologizatsiya bilan bogʻliq boʻlsa-da, bu jarayonni toʻliq qamrab olmaydi. Soʻnggi yillarda rus tilida “аква-”, “петро-”, “мини-” kabi prefiksoidlar hamda “-вед” kabi suffiksoidlar ishtirokida koʻplab yangi birliklar yuzaga kelgani affiksoidlarning derivatsion tizimdagi barqaror mavqei koʻrsatadi. Shu bilan birga, anʼanaviy affiksoidlarda semantik tafakkurlanish jarayoni kuchayib, ularning mazmun doirasi kengaymoqda. Bu tendensiya zamonaviy lugʻatchilikda ham aks etib, affiksoidlar maʼnosi yanada batafsil tavsiflanmoqda. Masalan, “eko-” affiksoidi XX–XXI asrlarda yuqori produktivlikka ega boʻlib, bir nechta yangi semantik yoʻnalishlarda faol qoʻllanadi:

- 1□. tabiatni muhofaza qilish bilan bogʻliq (“экобус”, “экотехнологии”);
- 2□. tabiiy-biologik xususiyatni bildiruvchi (“экосистема”, “экофера”);
- 3□. tabiat hodisalari va resurslari bilan bogʻliq (“экомузей”, “экотуризм”);
- 4□. himoya va saqlash maʼnosida (“эколингвистика”);
- 5□. ekologik toza, zararli qoʻshimchalarsiz predmetlarni anglatuvchi (“экопродукты”, “экоматериалы”).

Kripto- affiksoidi (yunoncha kryptos – “yashirin”, “maxfiy”) zamonaviy tillarda, jumladan rus va oʻzbek tillarida ham faol qoʻllaniluvchi tarkibiy unsurdir. U soʻz tarkibida “yashirin”, “sirli”, “koʻzga koʻrinmas” maʼnolarini ifodalaydi va



asosan texnologiya, xavfsizlik, siyosat hamda ilmiy terminologiyada ishlatiladi. Masalan: kriptografiya (yashirin yozuv ilmi), kriptovalyuta (raqamli valyuta, yashirin kod asosida ishlovchi to'lov tizimi), kriptozanaliz, kriptohimoya, kriptofayl kabi so'zlarda ushbu affiksoidning "maxfiylik" semasi saqlanadi. Kripto– elementi o'zbek tilida asosan xalqaro terminlar tarkibida ishlatiladi va yuqori mahsuldorlikka ega. Uning semantik yadrosi — "yashirinlik, shifrlilik, maxfiylik" ma'nosiga tayanadi. O'zbek tilidagi xalqaro affiksoidlar Yevropa tillari negizida shakllangan bo'lib, tilning derivatsion tizimida muhim o'rin egallaydi. Tadqiqot natijalari shuni ko'rsatadiki, xalqaro affiksoidlar etimologik jihatdan mustaqil leksemalardan kelib chiqqan bo'lsa-da, hozirgi o'zbek tilida so'z yasovchi birlik sifatida faol qo'llanilib, affiks va erkin o'zaklar orasidagi oraliq morfemalar sifatida namoyon bo'ladi.

Xalqaro affiksoidlarning o'zbek tiliga kirib kelishi, asosan, ilm-fan, texnika, siyosat, madaniyat va ijtimoiy sohalar bilan bog'liq bo'lib, ular terminologik tizimning boyishiga xizmat qilmoqda. Tahlil shuni tasdiqlaydiki, xalqaro affiksoidlar morfemik jihatdan barqarorlashib borayotgan bo'lsa-da, ularning affiks yoki o'zak sifatidagi maqomi masalasi hanuz munozarali bo'lib qolmoqda. Bu holat affiksoidlarning chegaraviy xususiyatga ega ekanini va ularni alohida lingvistik birlik sifatida o'rganish zarurligini ko'rsatadi.

Xulosa qilib aytganda, xalqaro affiksoidlar o'zbek tilining derivatsion tizimini rivojlantiruvchi, terminologik leksikani boyituvchi va tilning global ilmiy-madaniy makonga integratsiyalashuvini ta'minlovchi muhim morfemik vosita hisoblanadi. Ularni tizimli va qiyosiy asosda o'rganish o'zbek tilshunosligida so'z yasalishi, morfema nazariyasi va til taraqqiyoti masalalarini yanada chuqurroq yoritishga xizmat qiladi.

#### Foydalanilgan adabiyotlar:

1. Ibragimov M. O'zbek tiliga yevropa tillaridan o'zlashgan affiksoidlar. // Germany: International scientific-online conference Models and methods for increasing the efficiency of innovative research, 11 March 2022. P 4
2. Madvaliyev A. O'zbek terminologiyasi va leksikografiyasi masalalari. O'zbekiston milliy ensiklopediyasi. Toshkent, 2017. – B 39.
3. Rahmatullayev Sh. O'zbek tili omonimlarining izohli lug'ati – Toshkent: O'qituvchi, 1984. B 18
4. Григоренко О.В. Новые аффиксоиды в словообразовательной системе русского языка на рубеже XX–XXI веков. // Русский язык в школе, 2019. № 3. С. 69–75.
5. Uralov A. B. Affiksoidlarning yuzaga kelishi bilan bog'liq nomutanosibliklar. // FarDU ilmiy xabarlar, 2023. N5. – B 32.
6. Uralov A.B. Fuziya va affiksoidlar masalasi. // O'zbek tilshunosligini rivojlantirishni dolzarb masalalari. Toshkent: O'zkitobsavdonashriyoti, 2020. B 70.

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