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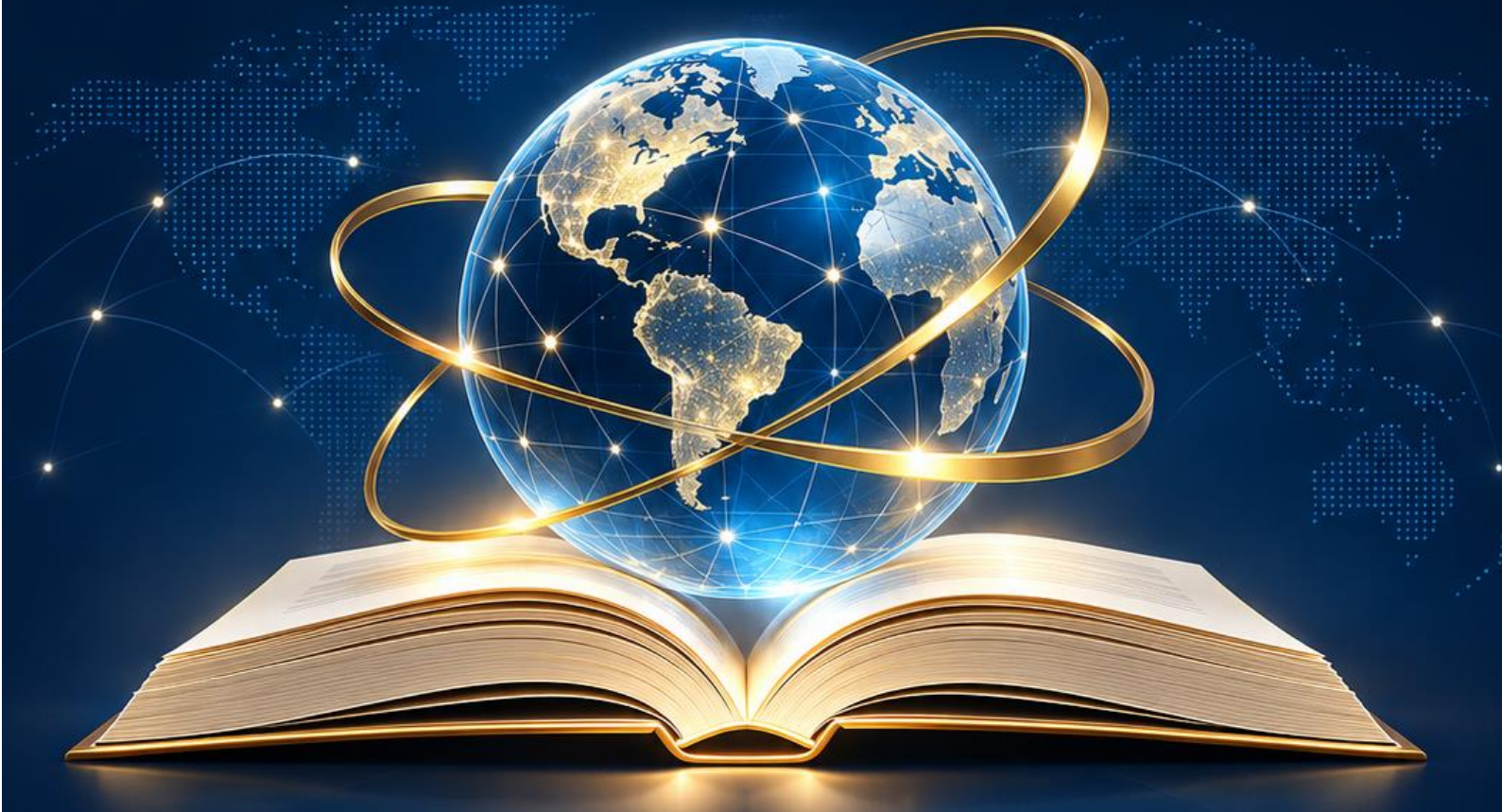

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1-SECTION

THREE "R" SOCIETY -BEST WAY OF TAKING CARE OF NATURE

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Annotation: *The article examines the further development of ecological culture and issues surrounding the prevention of environmental damage specifically the harm caused to nature through product processing, reuse, and remanufacturing at a time when environmental protection has become a matter of global urgency. The author offers optimal solutions and proposals to address these challenges.*

Key words: *ecological culture, greenery, environment, three r society, natural resourses, wastes, recycle, reuse.*

Annotatsiya: *Maqolada bugungi ekologiya, atrof-muhitni asrash dunyo miqyosida actuallik kasb etgan bir davrda ekologik madaniyatni yanada rivojlantirish, mahsulotlarni qayta ishlash, qayta foydalanish, qayta ishlab chiqish natijasida tabiatning zararlanib qolayotganligi, unga zarar yetishini oldini olish masalalari aniq misollar asosida yoritib beriladi. Muallif tomonidan bu boradagi muammolarga optimal yechim va takliflar beriladi.*

Kalit so'zlar: *ekologik madaniyat, yashillik, atrof-muhit, qayta ishlash, qayta yaratish, tabiiy resurslar, chiqindilar.*

Аннотация: *В статье рассматриваются вопросы дальнейшего развития экологической культуры и предотвращения ущерба окружающей среде в частности, вреда, наносимого природе в процессе переработки, повторного использования и восстановления продукции, в условиях, когда защита окружающей среды приобрела глобальную актуальность. Автор предлагает оптимальные решения и рекомендации для преодоления этих вызовов.*

Ключевые слова: *эко культура, озеленение, окружающая среда, переработка, восстановление, природные ресурсы, отходы.*

INTRODUCTION

Ecology, environmental cleanliness, and greenery these concepts have become pressing issues of our time. As humanity stepped into the 21st century, the global community began to confront new phenomena. Finding objective



solutions to a range of complex ecological issues—unprecedented in previous centuries and vast in both scope and impact—posed difficult challenges not only for individual nations but for the entire global population. Addressing these urgent and complex questions has become a task that cannot be postponed. This raises the question: how are ecological culture and a sense of responsibility toward the environment formed? The family and values play a crucial role in answering this question. Patriotism and a respectful attitude toward nature, cultivated within the family, stem from a higher level of consciousness. Anyone who views themselves as an integral part of nature naturally maintains a positive attitude toward the environment. A person's sense of ecological responsibility manifests not only in their treatment of nature but also in their purchasing habits and their approach to recycling when necessary. In today's era of rapid scientific and technological advancement, the ability to recycle products and restore them to a usable state for reuse is undoubtedly a necessity of the times.

Methodology. Global practice includes the concept of the "3R Society, 3R Society is a society in which natural resources, products, materials, and wastes are managed according to three fundamental principles:

Reduce → Reuse → Recycle

The three R's are a condensed version of the 5-step Waste Hierarchy, incorporating the most significant methods in a prioritised sequence. The Waste Hierarchy. These practices are essential for achieving a more sustainable and environmentally friendly society.

Results. At this point, I consider it appropriate to find an answer to the following question. Why Should We Reduce, Reuse and Recycle? While environmental preservation is the primary focus of the three R's, it should also be noted that they bring about valuable economic and social advantages. Environmental Benefits: The environmental benefits of the three R's are far-reaching, encompassing the conservation of natural resources, reduction of greenhouse gas emissions, protection of ecosystems and biodiversity, and a general reduction in the negative environmental impacts associated with waste generation and disposal. Economic Benefits: There is a clear correlation between cost savings and reduced expenses when it comes to the three R's. By decreasing

the amount of new purchases and reutilising existing items - individuals, businesses, and communities can all achieve financial savings. Moreover, the growth of the recycling industry can also create jobs. Social Benefits: Embracing the three R's often involves local communities, workplaces and families working together. What's more, the sense of duty can motivate individuals to take action and contribute to a more sustainable future in their day-to-day lives.

These practices are essential for achieving a more sustainable and environmentally friendly society. The impact on the environment is influenced by everything we produce and consume. The initial step to address this is to decrease waste production, as it addresses the problem at the source. By producing less waste, there is less to clean up, making it the most impactful of the three R's.

Eco-Friendly Shopping: When shopping, actively choose the items that use the least amount of packaging and avoid using store-provided shopping bags. In addition, many supermarkets now provide refillable options on dry goods such as pasta and cereals; and household care products such as washing up liquid and shampoo.

Avoid Single-Use Items: Swap out the disposable for the reusable and replace everyday things with alternatives that won't go to waste. For instance, using ceramic mugs instead of single-use coffee cups, opting for glass bottles instead of plastic ones, and choosing eco-friendly bags made from natural fibres rather than plastic bags.

Reduce paper usage: Make two-sided copies whenever possible or opt for electronic mail or a bulletin board instead of using multiple sheets of paper.

When considering discarding an item, consider its potential for being used again. It could still have a purpose or be valuable in a different way. This not only benefits the environment but can also be financially wise if you opt to sell it. Keep in mind that just because you no longer find something useful, doesn't mean someone else won't find it necessary.

Buy Durable Goods: Purchase items that are well-built or that carry good warranties to ensure you don't have to buy a replacement. They will last longer so you can consistently use them, saving money in the long run and reducing landfill space.

Sell or Donate: If you don't need something anymore, make sure someone else can benefit from it. You can sell almost anything second-hand, from clothes to appliances and even furniture.

Mend and Repair: Instead of discarding items like electricals, textiles, and mechanical goods for minor defects, repair them! This can also be a cost-effective solution, as it eliminates the need to buy a completely new item.

While recycling should be seen as a last option, it by no means holds less significance compared to the other two. Converting discarded items into new products to prevent the depletion of natural resources is crucial. When an item has reached its end of life and cannot be used any longer, make sure that the materials are repurposed into something new.[1]

There is one aspect that often goes unnoticed: although separate bins for different types of waste are provided worldwide—including in our own country—it is disheartening to see people mixing them together when disposing of trash. After all, recycling items like paper and glass benefits society.

Adopting the following daily habits to protect nature would yield only positive results:

When visiting mountainous areas for recreation, people should take their waste back with them; in this context, I would like to cite the following statistic: Traditional plastics take 20 to 500 years or more to break down. They never truly vanish or biodegrade into natural elements; instead, sunlight and wear break them into tiny pieces called microplastics that stay in the environment forever.

- It is advisable to dispose of waste in the specific bins designated for each type of refuse;

- Food manufacturing companies can prevent excessive waste generation by using only a single layer of packaging material;

- When shopping at supermarkets, if customers bring their own reusable bags, there is no need to acquire a new plastic bag each time. Note: Polyethylene items do not disappear in days; they take decades or hundreds of years to break down.

All the aforementioned proposals serve to further develop environmental culture and preserve the environment in its pristine state for future generations. In this context, it is worth noting that at the Eighth Assembly of the Global Environment Facility held in Samarkand, the President of Uzbekistan, Shavkat Mirziyoyev, put forward the following important initiatives aimed at ensuring environmental sustainability.

-Protection of atmospheric air;

-Improvement of the integrated waste management system;

-Comprehensive greening initiatives;

[1] https://www.glasdon.com/ie/news/three-rs-of-waste-management

-Enhancement of the environmental education system;

-Preservation of biodiversity.

Furthermore, the state plans to expand protected natural areas to 21 percent of the territory by 2030, significantly reduce harmful atmospheric emissions, and drastically increase capacities for generating alternative energy from household waste.

In conclusion, I would like to emphasize that nature does not consist of inexhaustible resources; if we use water wastefully, it too will run out, and such actions negatively impact aquatic and terrestrial wildlife. Just as we cherish and protect a mother, we must cherish and protect nature; it is the duty of each of us to pass nature on to future generations in its pristine state. If we take care nature, it will continue to reveal its gifts to us. I would like to quote the words of our great ancestor Abu Rayhan Beruni: "If humans threaten nature and flagrantly violate its laws, a time will come when nature unleashes such calamities upon them that no force on earth will be able to stop them.

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AZALEA INDICA NING BOTANIK - BIOLOGIK XUSUSIYATLARI

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Annotatsiya: *Uşbu maqolada boğdorçilikda Azalea indica nomi bilan maşhur bölgan, botanik jihatdan Rhododendron simsii Planç. va uning duragaylariga mansub manzarali ösimlikning botanik-biologik xususiyatlari adabiyotlar asosida tahlil qilingan. Ösimlikning sistematik örni (Ericaceae oilasi, Rhododendron avlodi), kelib çiqişi va tarqalişi yoritilgan. Poya, barg, gul va ildiz tizimining morfologik tuzilişi, ösiş va gullaş davrlarining öziga xos jihatlari, gul kurtaklarining şakllanişida yoruğlik va haroratning roli körib çiqilgan.*

Kalit sözlar: *Azalea indica, Rhododendron simsii, Ericaceae, morfologiya, biologik xususiyatlar, ekologik talablar, manzarali ösimlik.*

Аннотация: *В статье на основе анализа литературы рассматриваются ботанико-биологические особенности декоративного растения, известного в садоводстве как Azalea indica и относящегося ботанически к Rhododendron simsii Planç. и его гибридам. Освещены систематическое положение (семейство Ericaceae, род Rhododendron), происхождение и распространение. Рассмотрены морфологическое строение побега, листа, цветка и корневой системы, особенности роста и цветения, роль света и температуры в закладке цветковых почек.*

Ключевые слова: *Azalea indica, Rhododendron simsii, Ericaceae, морфология, биологические особенности, экологические требования, декоративное растение.*

Abstract: *The article analyses, on the basis of the literature, the botanical and biological çaracteristics of the ornamental plant known in horticulture as Azalea indica, whiç botanically belongs to Rhododendron simsii Planç. and its hybrids. Its taxonomic position (family Ericaceae, genus Rhododendron), origin and distribution are described. The morphological structure of the şoot, leaf, flower and root system, features of growth and flowering, and the roles of light and temperature in flower bud formation are considered.*

Keywords: *Azalea indica, Rhododendron simsii, Ericaceae, morphology, biological çaracteristics, ecological requirements, ornamental plant.*

Bugunki kunda tabiatda ösimliklarga bölgan munosabat biroz bölsada sezilarli darajada yomonlaşgan. Noyob ösimliklarning yöqolib borişiga ham antropogen ta'sirlar sabab bölmoqda, bir qança tarixiy ösimliklar yöq bölib ketmoqda. Şaharni kökalamzorlaştirişda manzarali gullardan foydalaniş, mahalliy tarzda xona guli sifatida sovuqqa çidamli gulli ösimlikni topiş va östiriş oson emas. Köplab noyob ösimliklar orasiga azaliya gulini ham kiritişimiz mumkin. *Azalea indica* deb ataladigan ösimlikning qabul qilingan botanik nomi *Rhododendron simsii* Planç. Bölib, bu tur nomi 1853-yilda "Flore des Serres" jurnalida e'lon qilingan va qabul qilingan nom hisoblanadi. *Azalea indica* var. *simsii* va *Azalea simsii* kabi nomlar uning sinonimlari qatoriga kiradi.[2]

"Indica" nomi tarixiy xatoga borib taqaladi: tur 1812-yilda J.Sims tomonidan Xitoy turi sifatida tasvirlangan, lekin xato ravişda yapon keç gullovçi (Satsuki) guruhiga tegişli Azalea indica nomi bilan atalgan. "Hind azaliyalari"deb ataladigan navlarning asosiy qismi aynan R.simsii dan kelib çiqqan, ularni Belgiya va Gollandiya östiruvçilari qişda xona dekorasi uçun ommaviy yetiştiradi. Turning özbekça nomi: simsii epiteti jurnalning birinçi muharriri Jon Simsning nomini abadiylaştiradi.[3]

Sistematik örni: *Ericales* tartibi, *Ericaceae* oilasi, *Rhododendron* avlodi.

Ösimlikni kelib çiqiş tarixi. Tabiiy areali janubiy Xitoydan Hindistongaça, Nansey orollaridan Tayvangaça çözilgan. Tur qarağay örmonlari, örmon çekkalari va oçiq toğ butazorlarida, dengiz sathidan 500-2700 m balandlikda ösadi. Yevropaga taxminan 1793-yilda keltirilgan[3-4].

Morfologik tavsifi. Böyi manbalarda turliça: Xitoy florasida 2 (5 gaça)m, boşqa ma'lumotlarda 0,6-2m. Xona guli sifatida tanlab olingan navlari ança past: 45-60 sm. Poyasining tuzilişi jihatidan quyidagiça: şoxlari köp va ingiçka, ziğir qönğir yassi tuklar bilan qoplangan.Tabiiy şaroitda Yoşi ötgan sari yöğonlaşadi va havo ildizlari hosil qilişi mumkin. Barg tuzilişi. Ikki xil bargli: bahorgi burglar tökiladi, yozgilari doimiy saqlanadi. Barg plastinkasi tuxumsimon yoki çözinçoq, 1,5-5 * 0,5-3sm. Barglar guldagi bilan bir xil uçki kurtakdan çiqadi, doimiy yaşil va çarmsimon. Gulining tuzilişi. Töpgulda 2-3 (6 tagaça) gul bor. Toj oq rangdan töq qizilgaça, voronkasimon, 25-60mm, yuqori bölaklarida töq doğlar bor; çangçilar 8-10 ta. Mevasi tuxumsimon kösakça (10mm gaça), ziç

[2] Planchon J.É. *Rhododendron simsii*. Flore des Serres et des Jardins de l'Europe. 1853, vol. 9, p. 78.

[3] Trees and Shrubs Online. *Rhododendron simsii* Planch. International Dendrology Society.

tukli, kosaça qoladi, pişganda oçilib, mayda uruğlarni soçadi. [4] Gulni köpaytirişda uruğidan amalga oşiriş qiyin va köp vaqt oladi, şuning uçun qalamçalaribilan köpaytiriş samarali.

Biologik xususiyatlari. Tabiiy şaroitda aprel-mayda gullaydi, iyun-avgustda meva beradi. Uzun kun vegetativ novdalarning hosil bölişiga qulay, köpçilik navlarda gul kurtaklari qisqa kunda yaxşi şakllanadi. Gullaş uçun kurtaklar 4-6 hafta davomida taxminan 2-10°C sovuqqa uçraşi kerak, gibberellin kislotasi (GA3) bu sovitişni qisman almaştira oladi. Zamonaviy işda ham kurtaklarning tinimini buziş uçun 7°C va qoronğilikda sovitiş qöllaniladi. Ösiş uçun optimal harorat 12-25°C, yuqori haroratda yangi novdalar sekin ösib, yarim tinim holatiga ötadi. Xona şaroitida 13-16°C tavsiya etiladi. Ba'zi gulli ösimliklardan farqli ravişda *Azalea indica* guli sovuq şaroitda ösişni ma'qul köradi[4-5].

Xulosa qilib aytadigan bölsak, sovuq muhitda östiriş uçun taklif etiladigan uşbu manzarali gulni berilgan ma'lumotlariga e'tibor berib köpaytiriş ma'qul. Bundan taşqari uni laboratoriya şaroitida köpaytirib, ex situ usul uçun uni tuproqqa ötkazişni sinab köriş mumkin. Gulni töğri va tez ösişi uçun östirilayotgan muhitini töğri tanlay oliş kerak. Maqola uçun tanlab olingan *azalea indicia* gulida kelajakda manzarali xona guli sifatida östiriş körsatkiçini oşiriş uçun qulay ozuqa muhitlarida tajriba sifatida östirib köriladi va amaliyotga tatbiq etiladi.

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COMPARATIVE ANALYSIS OF SILICON AND PEROVSKITE SOLAR CELLS

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Abstract. *This paper presents a comprehensive comparative analysis of the fundamental physical, optical, and technological characteristics of conventional crystalline silicon (c-Si) and emerging organic-inorganic metal halide perovskite solar cells (PSCs), representing one of the most rapidly advancing frontiers in renewable energy. Within the framework of the study, key operational parameters - including electronic band structure, optical absorption coefficients, charge carrier diffusion lengths, power conversion efficiency (PCE), manufacturing costs, environmental stability, and degradation mechanisms - are systematically examined. Furthermore, the thermodynamic and architectural principles of monolithic and mechanically stacked silicon-perovskite tandem solar cells are evaluated as a strategic pathway to surpass the single-junction Shockley-Queisser efficiency limit.*

Keywords: *crystalline silicon, metal halide perovskite, solar cell, power conversion efficiency (PCE), bandgap engineering, environmental stability, tandem photovoltaics.*

The continuous growth of global energy consumption, driven by rapid industrialization and population expansion, has accelerated the depletion of conventional fossil fuel reserves and intensified critical environmental challenges, including greenhouse gas emissions and climate change. Consequently, the transition toward sustainable, clean, and renewable energy sources - particularly solar photovoltaics (PV)-has become a strategic priority for global energy security.

Currently, the global photovoltaic market is overwhelmingly dominated by first- and second-generation solar technologies, with monocrystalline and polycrystalline silicon (Si) devices accounting for more than 90% of commercial installations. Silicon technology benefits from mature manufacturing infrastructure, proven long-term reliability, and well-understood semiconductor physics. However, inherent material limitations, such as an indirect electronic

bandgap and energy-intensive purification processes, impose fundamental constraints on further cost reductions and efficiency gains.

In recent years, solar cells based on organic-inorganic metal halide perovskite materials have emerged as the fastest-advancing photovoltaic technology in history. Combining high power conversion efficiencies with low-temperature, solution-based fabrication methods, perovskite solar cells (PSCs) pose serious competition to conventional silicon devices (Kojima et al., 2009). The objective of this study is to conduct a rigorous comparative analysis of the physical, optoelectronic, and economic characteristics of silicon and perovskite solar cells, while evaluating the prospects of silicon-perovskite tandem architectures for next-generation energy conversion.

This research employs a systematic comparative-analytical methodology based on solid-state physics and optoelectronic device modeling principles. Two primary classes of photovoltaic absorber materials were evaluated: crystalline silicon (c-Si) with a diamond cubic crystal lattice and hybrid organic-inorganic metal halide perovskites adopting the general chemical formula ABX3 (specifically methylammonium lead triiodide, CH3NH3PbI3, and formamidinium-based mixed-cation compositions).

Electronic Band Structure and Light Absorption Characteristics. A fundamental physical distinction between silicon and perovskite semiconductors lies in the nature of their electronic bandgaps. Crystalline silicon is a rigid, non-flexible semiconductor characterized by an indirect bandgap of $E_g \approx 1.12$ eV at room temperature. Because optical transitions across an indirect bandgap require the simultaneous absorption or emission of a crystal lattice phonon to conserve momentum, silicon exhibits a relatively low optical absorption coefficient in the visible and near-infrared regions. Consequently, commercial silicon wafers require a thickness of 150–200 μm to achieve sufficient photon capture, which increases material consumption and requires high crystalline purity so that photogenerated charge carriers can diffuse to the p-n junction without recombining.

In stark contrast, metal halide perovskites such as CH3NH3PbI3 possess a direct electronic bandgap ($E_g \approx 1.55$ eV) that can be continuously tuned between 1.2 eV and 2.3 eV through compositional engineering of the A-site cations, B-site metal ions, and X-site halide anions. Due to direct allowed optical transitions and high joint density of states, perovskites exhibit an optical absorption coefficient on the order of 10^5 cm^{-1} - more than an order of magnitude higher than that of crystalline silicon. As a result, a perovskite active layer with a thickness of only 300–500 nm is capable of absorbing virtually the entire

above-bandgap solar spectrum, enabling ultra-lightweight and mechanically flexible photovoltaic modules.

Photovoltaic Efficiency and Technological Performance. Over several decades of continuous engineering refinement—including passivated emitter and rear cell (PERC), tunnel oxide passivated contact (TOPCon), and silicon heterojunction (SHJ) architectures—laboratory efficiencies of single-junction crystalline silicon solar cells have reached 26.7%, approaching their practical Auger-recombination-limited theoretical ceiling (~29.4%). At the industrial scale, commercial silicon modules consistently deliver efficiencies in the range of 20–22%.

Conversely, perovskite solar cells have demonstrated an unprecedented trajectory of efficiency improvement. Following their initial demonstration in 2009 with a modest PCE of 3.8% (Kojima et al., 2009), advancements in crystallization control, defect passivation, and charge-transport layer engineering have propelled single-junction PSC laboratory efficiencies past 26.1%. Furthermore, low exciton binding energies (< 20 meV) and long ambipolar carrier diffusion lengths (> 1 μm in polycrystalline films) ensure highly efficient charge extraction with minimal voltage losses.

Perovskite absorbers, by contrast, can be synthesized from abundant chemical precursors via low-temperature (<150 °C) solution-processing techniques, including spin-coating, slot-die coating, blade coating, and roll-to-roll printing, drastically lowering manufacturing costs and energy payback time. However, the primary barrier to commercial deployment remains operational instability: ionic migration and weak chemical bonding render perovskites vulnerable to rapid degradation upon exposure to moisture, oxygen, ultraviolet radiation, and thermal stress. Current research prioritizes compositional stabilization, 2D/3D heterostructure passivation, and advanced glass-on-glass encapsulation to achieve multi-decade durability.

Table 1. Comparative physical and technical parameters of crystalline silicon and perovskite solar cells.

• **Parameter / Characteristic**	• **Crystalline Silicon (c-Si)**	• **Metal Halide Perovskite (ABX3)**
• **Bandgap Type & Energy (E_g)**	• Indirect bandgap (~1.12 eV)	• Direct, tunable bandgap (1.50–1.65 eV)
• **Optical Absorption Coefficient**	• Low (~10^2–10^3 cm^{-1} in visible range)	• Very high (~10^5 cm^{-1} in visible range)
• **Required Absorber Thickness**	• 150–200 μm (rigid wafers)	• 300–500 nm (thin, flexible films)

• **Laboratory PCE (Single-Junction)**	• 26.7%	• > 26.1%
• **Commercial / Industrial PCE**	• 20–22%	• Emerging pilot stage (18–20%)
• **Fabrication Temperature**	• High (> 1000 °C, Siemens process)	• Low (< 150 °C, solution/vapor methods)
• **Operational Lifespan & Stability**	• High (25–30 years proven)	• Moderate (sensitive to moisture, UV, heat)
• **Tandem Configuration Role**	• Bottom sub-cell (absorbs IR light)	• Top sub-cell (absorbs visible/UV light)

As summarized in Table 1, the complementary optical properties of silicon and perovskites create an ideal synergy for multi-junction tandem architectures. In a two-terminal (2T) or four-terminal (4T) perovskite-on-silicon tandem cell, a wide-bandgap perovskite top cell (~1.68 eV) efficiently captures high-energy blue and green photons while minimizing thermalization losses, whereas transmitted low-energy red and infrared photons are absorbed by the narrow-bandgap silicon bottom cell (~1.12 eV). This spectral splitting mechanism has already enabled certified laboratory efficiencies exceeding 33.9%, surpassing the theoretical single-junction Shockley-Queisser limit.

In conclusion, crystalline silicon solar cells continue to anchor the global photovoltaic industry owing to their high operational reliability, established manufacturing ecosystem, and multi-decade service life. Meanwhile, metal halide perovskite solar cells offer transformative advantages in terms of strong optical absorption, lightweight form factors, bandgap tunability, and low-temperature, cost-effective processing.

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ANALYSIS OF SEED GERMINATION AND DYNAMICS OF DAIKON (*RAPHANUS SATIVUS* L.) VARIETIES OF DIFFERENT ORIGINS UNDER HOME CONDITIONS

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Abstract*. In this study, the seed germination dynamics and germination energy of radish (Raphanus sativus L.) varieties belonging to different breeding origins were comparatively investigated under laboratory-home conditions. Plant material included varieties from South Korean and Chinese breeding, as well as a local sample. The obtained results serve to identify variations in the early growth stages of accessions with diverse geographical origins and to evaluate their adaptive potential.*

Keywords: *Raphanus sativus L., daikon, seed germination, phenotypic evaluation, germination dynamics*

INTRODUCTION

The global surge in population and rapid urbanization have significantly intensified the demand for food resources, placing unprecedented pressure on modern agricultural systems. Japanese radish or daikon (Raphanus sativus L. convar. acanthiformis Sazon.) is a highly valuable vegetable crop belonging to the Brassicaceae family. Renowned for its thick root tubers and nutritious leaves, daikon is widely cultivated and consumed in raw, pickled, or processed forms [1, 2].

To establish optimal sowing windows based on temperature-dependent seed germination kinetics [5] .In Uzbekistan, daikon is an expanding crop, yet scientific research regarding its genotype-environment interactions, artificial hybridization, self-incompatibility, and site-specific agrotechniques remains vital.Moreover, establishing efficient breeding programs relies heavily on mastering artificial emasculation and understanding genetic compatibility among local and introduced cultivars [6].

Under early sowing (first half of July), plants developed under markedly greater hydrothermal stress, and the proportion of bolted plants rose to 20 % [4].

Moisture availability during root crop formation remained the primary factor for yield stability. A strong positive correlation between yield and precipitation (r = 0.56-0.76) emphasizes that water supply is the main limiting factor under current climate change, while accumulated heat played a secondary role. These findings highlight that adaptive scheduling, rather than resource intensification, forms the basis for sustainable crop formation [3]. Based on these considerations, a comparative study of the seed germination dynamics of newly introduced and locally cultivated daikon varieties holds significant relevance for breeding and seed production practices.

Materials and Methods. The experiment was conducted under home conditions using pots on October 9, 2026. Five variety accessions were selected as research objects:

- ✓ South Korean "Daikon 1200"
- ✓ South Korean "Daikon 2021"
- ✓ South Korean "Daikon Large-fruited"
- ✓ South Korean "Daikon Local variety"
- ✓ Daikon "Chinese seed" variety

For each variety, 20 selected seeds were sown in uniform soil and favorable temperature conditions. During the observation period, initial emergence dates, time to achieve 50% germination, and total germination rates were systematically recorded.

RESULTS AND DISCUSSION

As a result of the observations, significant differences were identified in seed germination dynamics across the varieties:

Date of sowing	Name of variety / hybrid	Number of seeds	First germination date	Time to 50% germination	Time to 100% germination

09.10.2026	South Korean Daikon 1200	20	15.10.2026	22.10.2026	
09.10.2026	South Korean "Daikon 2021"	20	26.10.2026		
09.10.2026	South Korean "Daikon Large-fruited"	20	12.10.2026	18.10.2026	
09.10.2026	South Korean "Daikon Local variety"	20	12.10.2026	16.10.2026	26.10.2026
09.10.2026	Daikon "Chinese seed" variety	20	12.10.2026	15.10.2026	

Initial Emergence: Counting from the sowing date (October 9, 2026), the South Korean "Daikon Large-fruited", "Daikon Local variety", and Daikon "Chinese seed" accessions showed the fastest germination, initiating emergence in just 3 days (October 12, 2026). The South Korean "Daikon 1200" variety exhibited initial emergence on October 15, 2026 (day 6), whereas for the "Daikon 2021" accession, this indicator was recorded later—on October 26, 2026.

50% Germination Rate: The period required for more than half of the seeds to germinate varied across varieties as follows: Daikon "Chinese seed" reached the 50% germination threshold on October 15, 2026, "Daikon Local variety" on October 16, 2026, "Daikon Large-fruited" on October 18, 2026, and the "Daikon 1200" variety on October 22, 2026.

Full Germination Dynamics: During the observation period, the South Korean "Daikon Local variety" accessions demonstrated 100% full germination (all 20 seeds) by October 26, 2026.

CONCLUSION AND RECOMMENDATIONS

The conducted analyses demonstrated that daikon seeds originating from different geographical regions exhibit distinct germination energies. Specifically, the Daikon "Chinese seed", "Daikon Large-fruited", and "Daikon Local variety" accessions displayed high initial germination speed. The South Korean "Daikon Local variety" recorded the highest performance in terms of complete seed germination, indicating its superior adaptability to local conditions compared to the other accessions. Conversely, the "Daikon 2021" variety introduced from South Korea was characterized by a notably low germination capability. In

conclusion, the obtained data serve as an important scientific foundation for the future cultivation of these varieties in open fields and their implementation in breeding programs

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ASSESSMENT OF LONG-TERM AND SEASONAL CHANGES IN THE SHOHIMARDONSOY RIVER FLOW

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Abstract. *Based on monthly flow data for 1980–2025 measured at the head section of the Vodil hydraulic complex, the article assesses the long-term and seasonal variability of the Shohimardonsoy flow and shows a sharp decrease in flow since 1999. Most of the decrease falls in the growing season, especially in May–June. The article also discusses the climatic and anthropogenic factors behind this change and its consequences for groundwater.*

Keywords: *Shakhimardansay, river runoff, Mann–Kendall test, Pettitt test, seasonal runoff distribution, climate change, Fergana Valley.*

INTRODUCTION

Small rivers in the southern Fergana Valley are used mainly for irrigation, and most of them do not reach the Syrdarya (Rasulov et al., 2003, p. 301). The Shohimardonsoy is one of them: its catchment above the gauging site is 1180 km², and its flow in 1980–1985 was 0.25 km³ per year. It is fed mainly by snow and glacier meltwater (glaciers and permanent snow cover about 3% of the catchment; runoff coefficient 0.48) (Radchenko et al., 2014, pp. 3273–3278), which makes it sensitive to climate change.

In the Fergana Valley, the mean annual temperature in 1976–2010 was 1.0–1.5°C higher than in 1881–1960, and snowfall in the south of the valley is decreasing sharply (Kamalov & Soliev, 2017, p. 2; Muhitdinov & Maxammadov, 2022, p. 51); in the neighbouring Kosonsoy basin, the mean discharge fell from 7 m³/s in 1991–2000 to 3 m³/s in 2011–2020 (Soliev & Ismailov, 2025). Our previous study revealed over-abstraction of groundwater from the Yormozor deposit in the Shohimardonsoy basin in 1981–2009 and after 2013 and a decreasing river flow (Abdullayev et al., 2026, p. 24), but the decrease has not been quantified on a long-term series. This study aims to assess the long-term and seasonal changes in the Shohimardonsoy flow at the Vodil hydraulic complex and to identify their causes.

Materials and methods

Monthly flow volumes (million m³) for 1980–2025 were provided by the Syrdarya–Sokh Basin Administration of Irrigation Systems (BAIS). The flow is measured at the head of the Vodil hydraulic complex, before the water is divided between the Oltiariqsoy and Margilonsoy canals; because water is also withdrawn upstream, the data are not fully natural flow. Figures and tables are based on these data. Trends were tested with the Mann–Kendall test (Kendall, 1975; Mann, 1945) and quantified with Sen's slope (Sen, 1968); the year of abrupt change was found with the Pettitt test (Pettitt, 1979). The two resulting periods were compared by mean flow, coefficient of variation, monthly and seasonal distribution and the V.L. Shults coefficient (the ratio of July–September to March–June flow). The significance level was $p < 0.05$.

Results

Annual flow. The mean annual flow at the Vodil hydraulic complex in 1980–2025 was 140.2 million m³ and decreased significantly (Mann–Kendall $Z = -5.44$; $p < 0.001$) by 2.14 million m³ per year (Sen's slope). The Pettitt test placed the abrupt change between 1998 and 1999 ($K = 494$; $p < 0.001$) (Figure 1, Table 1).

The mean annual flow fell from 175.6 million m³ in 1980–1998 to 114.2 million m³ in 1999–2025, i.e. by 35.0%. Even the driest year of the first period had more water than the wettest year of the second (Table 1). Neither period has a significant trend of its own ($Z = -1.82$, $p = 0.07$; $Z = -0.20$, $p = 0.84$): the flow did not decline gradually but dropped to a lower level in 1999, and the coefficient of variation rose from 0.08 to 0.13. The three driest years of the series are 2025 (69.4 million m³), 2022 (89.2 million m³) and 2024 (96.6 million m³); the 2022–2025 mean (94.9 million m³) is 19.4% below the 1999–2020 mean (117.8 million m³), which may indicate a new stage of decline. In 2025, river flow in the summer irrigation season was only 65–93% of the norm (Ministry of Water Resources of the Republic of Uzbekistan, 2025).

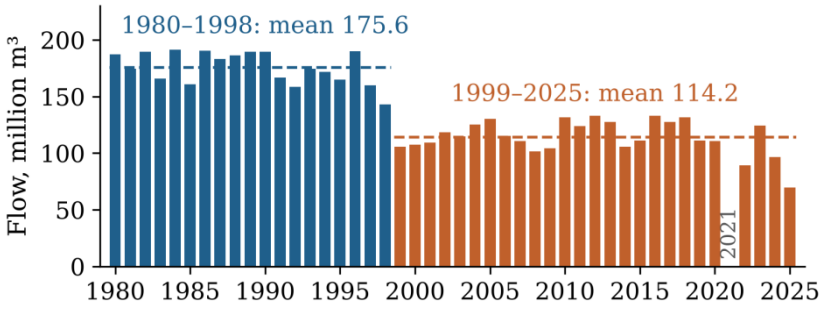

Figure 1. Annual flow of the Shohimardonsoy at the head of the Vodil hydraulic complex, million m³. Dashed lines show period means; no annual value was computed for 2021.

Table 1. Annual flow of the Shohimardonsoy by period

Period	Years	Mean flow, million m³	Mean discharge, m³/s	Coefficient of variation	Minimum, million m³ (year)	Maximum, million m³ (year)
1980–1998	19	175.6	5.57	0.08	142.9 (1998)	191.2 (1984)
1999–2025	26	114.2	3.62	0.13	69.4 (2025)	132.8 (2012)
1980–2025	45	140.2	4.44	0.24	69.4 (2025)	191.2 (1984)

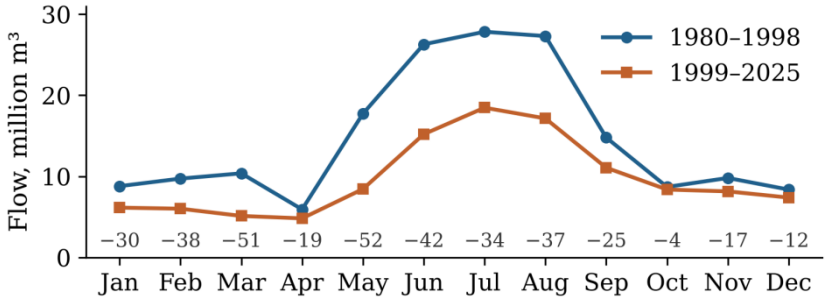

Figure 2. Mean monthly flow of the Shohimardonsoy, million m³. The bottom row shows the change in the second period relative to the first, %.

Seasonal distribution. The decrease was uneven within the year (Figure 2). In the growing season (April–September), the mean flow fell from 119.9 to 75.1 million m³ (by 37.3%), and in October–March from 55.8 to 41.2 million m³ (by 26.2%). The largest relative decreases occurred in May (−52.4%) and March (−50.7%), the smallest in October (−3.7%). The peak month shifted from August (9 of 19 years in 1980–1998) to July (17 of 27 years in 1999–2025). The median Shults coefficient rose from 1.16 to 1.43 because March–June flow decreased faster (60.3 → 33.6 million m³, about 44%) than July–September flow (69.9 → 46.7 million m³, about 33%); both values exceed 1.00, so the river remained glacier- and snow-fed (Yunusov & Ziyayev, 2018, p. 80).

Discussion

Causes of the decrease. The abrupt change coincides with the regional drought of 2000–2001 (Wegerich, 2001; World Bank, 2016, p. 50), when the flow of the Amudarya and Syrdarya was about 40% of the average (FAO/GIEWS, 2001). In 1999–2001, the mean flow at the Vodil complex was 107.6 million m³, 38.7% below the first-period mean. However, the flow did not recover after the drought: in 2002–2007 it was still 32.1% lower than in 1980–1998. The drought thus triggered the decline but cannot explain its persistence for a quarter century.

Rising temperature, decreasing snowfall and glacier shrinkage (Kamalov & Soliev, 2017, p. 2; Muhitdinov & Maxammadov, 2022, p. 51; Radchenko et al., 2014, p. 3272) reduce spring snowmelt runoff, consistent with the faster decrease in March–June flow, the higher Shults coefficient and the earlier peak. At the same time, nearly three quarters of the annual decrease falls on the irrigation season, while the months with little withdrawal changed least (October −3.7%, December −11.8%, November −16.9%). Both increased upstream withdrawal and reduced snowmelt can explain this; separating them requires meteorological and withdrawal data.

Consequences of the decrease. In the Fergana artesian basin, 40–50% of river water infiltrates into the ground (Yunusov & Ziyayev, 2018, p. 59). The estimated reserve of the Yormozor deposit (604.8 thousand m³ per day, about 220.8 million m³ per year; Abdullayev et al., 2026, p. 24) is 1.93 times the mean annual flow of the second period (authors' calculation). Although the deposit has other recharge sources, the 35% decrease in river flow worsens its recharge and increases the risk of over-abstraction.

CONCLUSION

1. The flow decreased significantly in 1980–2025 (−2.14 million m³/year).

2. The decrease was step-like: from 1999 the mean annual flow fell by 35.0% and did not recover after the 1999–2001 drought.

3. The decrease is concentrated in the growing season (−37.3%); the peak shifted from August to July (Shults coefficient 1.16 → 1.43).

4. The three driest years of the series fall within 2022–2025; droughts, climate change and upstream withdrawal contributed to the decrease.

5. Water allocation should use the 1999–2025 values (113.1 and 99.2 million m³ at 50% and 90% exceedance probability); the whole-series mean overestimates the current flow by 22.7%.

6. Groundwater in the Yormozor deposit area should be monitored together with river flow, weather and upstream withdrawal data.

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SINE–COSINE OR ONE-HOT? A BIAS–VARIANCE ANALYSIS OF ENCODING CYCLIC CATEGORICAL FEATURES

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Abstract. *Cyclic categorical features such as hour, weekday and month are usually encoded as integers, as one-hot columns or as a sine–cosine pair. A harmonic code with H harmonics covers the whole range between the circle ($H = 1$) and one-hot (all harmonics). For a linear model, the expected excess error equals $\sigma^2(2H + 1)/n$ plus the energy of the harmonics left out, which gives both the optimal H and the sample size below which a harmonic code does better than one-hot. In simulations the formula was accurate to about 1 %. On three open datasets, the predicted sign of the error difference agreed with the observed sign in all 101 resolved comparisons.*

Keywords: *cyclic features; categorical encoding; one-hot encoding; sine–cosine encoding; Fourier features; bias–variance trade-off.*

Annotatsiya. *Soat, hafta kun va oy kabi siklik kategorial belgilar butun son, one-hot ustunlar yoki sinus–kosinus juftligi bilan kodlanadi. H ta garmonikali kod aylanadan ($H = 1$) one-hot kodgacha (barcha garmonikalar) bo‘lgan oraliqni qamraydi. Chiziqli model uchun kutilgan ortiqcha xato $\sigma^2(2H + 1)/n$ va tashlab yuborilgan garmonikalar energiyasi yig‘indisiga teng; bundan optimal H va garmonik kod one-hot koddan ustun bo‘ladigan tanlanma hajmi chegarasi kelib chiqadi. Simulyatsiyada formula taxminan 1 % aniqlikda tasdiqlandi. Uchta ochiq ma’lumotlar to‘plamida xato farqining bashorat qilingan ishorasi 101 ta aniq taqqoslashning barchasida kuzatilgan ishora bilan mos keldi.*

Kalit so‘zlar: *siklik belgilar; kategorial kodlash; one-hot kodlash; sinus–kosinus kodlash; Furye belgilari; siljish–dispersiya muvozanati.*

INTRODUCTION

Hour of day, weekday and month are categorical fields whose levels repeat in a cycle, and they are often stored as text (“Monday”, “January”). Deciding how to code them numerically is part of data preparation, alongside profiling and cleaning (Junaydullaev et al., 2025) and dealing with redundant, collinear

columns (Rashidov et al., 2026). An integer (ordinal) code puts December and January eleven units apart. One-hot encoding, the usual default for nominal features (Pargent et al., 2022), ignores which levels are adjacent and uses $P-1$ parameters for P levels. The sine–cosine pair places the levels on a circle using only two columns; even so, the scikit-learn documentation reports a lower ridge-regression error for one-hot on the Bike Sharing data (scikit-learn developers, n.d.). In forecasting, several Fourier terms are common, and their number is chosen by an information criterion (Hyndman & Athanasopoulos, 2021). Here we treat the choice of encoding as a bias–variance trade-off, derive the optimal number of harmonics and the sample size at which one-hot becomes better, and test both on simulated and real data.

MAIN PART

Encodings and geometry. For levels $j = 0, \dots, P-1$, the harmonic code with H harmonics is

$$\varphi_H(j) = \left(\cos\theta_j,\ \sin\theta_j,\ \dots,\ \cos H\theta_j,\ \sin H\theta_j\right), \qquad \theta_j = \frac{2\pi j}{P}, \tag{1}$$

and $H = 1$ gives the sine–cosine pair. The distance between two levels depends on $d = |i-j|$ only:

$$\|\varphi_H(i) - \varphi_H(j)\|^2 = 4\sum_{k=1}^{H} \sin^2\frac{\pi k d}{P}. \tag{2}$$

When $H = 1$ this is the chord $2\sin(\pi d/P)$, which increases with the circular gap $\min(d, P-d)$. With all harmonics included ($H = \lfloor P/2 \rfloor$; for even P the last column is $\cos(\pi j)/\sqrt{2}$), the sum is P for every pair. The full code is thus one-hot rotated and scaled by $\sqrt{P/2}$, so ordinary least squares (OLS) with an intercept gives the same predictions with either code as long as every level is observed. The ordinal code gives $|i-j|$ (Fig. 1).

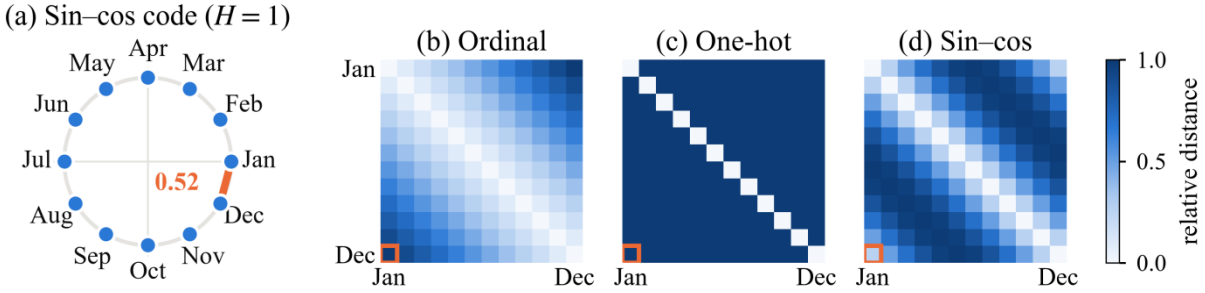

Figure 1. Encodings of a month feature ($P = 12$). (a) Sine–cosine code; the December–January chord is 0.52. (b–d) Pairwise distances relative to their maximum; orange frame: December–January.

Bias–variance trade-off. Suppose $y = f(x) + \varepsilon$ with $\mathrm{Var}(\varepsilon) = \sigma^2$, and OLS with an intercept is fitted on n rows. If the test level is drawn from the training level frequencies, a code with p columns has an expected excess error of $\sigma^2 p/n$ plus the weighted squared distance from f to its span, which is the standard result for projection estimators (Tsybakov, 2009). In a balanced design, let harmonic k of the level effects f_j have amplitude A_k and energy $E_k = A_k^2/2$. Then

$$R(H) = \frac{\sigma^2(2H+1)}{n} + \sum_{k>H} E_k\,, \qquad R_{\mathrm{OH}} = \frac{\sigma^2 P}{n}. \tag{3}$$

Adding harmonic k reduces the error only when $E_k > 2\sigma^2/n$, so the optimal H^* increases with n; this is the population version of Mallows' C_p for nested harmonic models (Mallows, 1973). A code with $H < P/2$ outperforms one-hot only below the crossover sample size

$$n_\times(H) = \frac{\sigma^2\,(P - 2H - 1)}{\sum_{k>H} E_k}. \tag{4}$$

Simulation and data. Eq. (3) was checked by Monte Carlo simulation (4,000 replicates per cell; $P = 24$, $\sigma = 1$, a two-peak hourly profile, Fig. 2a), with both balanced and random level counts. For real data we used Bike Sharing with 17,379 rows (Fanaee-T & Gama, 2014) and Beijing PM2.5 with 41,757 rows (Liang et al., 2015), both taken from OpenML (IDs 42712 and 42891; Vanschoren et al., 2014), and Metro Interstate Traffic Volume with 48,193 rows (Hogue, 2019); the target was $\log(1 + y)$. Hour, weekday and month were encoded together as ordinal, one-hot, harmonic with $H \in \{1,2,3,4,6\}$, or harmonic with H selected by C_p on the training rows, while the weather and calendar covariates were identical for all codes. In each of 30 repetitions, 30 % of the rows were held out and OLS was trained on n = 150 to 10,000 rows; the analysis plan had been frozen (SHA-256) before this run. From a fit on the full data we estimated $\hat{\sigma}^2$ and the bias excess $\hat{B}_S$ of each code S relative to one-hot, and predicted

$$\Delta\mathrm{MSE}_S(n) \approx \hat{B}_S - \hat{\sigma}^2 \left(\frac{p_{\mathrm{OH}}}{n - p_{\mathrm{OH}} - 1} - \frac{p_S}{n - p_S - 1} \right), \tag{5}$$

where $p/(n - p - 1)$ approximates the OLS variance at new random rows.

Results. In every balanced cell, Eq. (3) agreed with the Monte Carlo error to within 1.0 %, and the minimiser was the same (H^* = 3, 5 and 8 at n = 240, 960 and 4,800; Fig. 2b). With random level counts the error was higher than Eq. (3) by up to 11 % at 10 rows per level, and by no more than 3 % from 40 rows

per level onwards. For this profile, the sine–cosine pair was better than one-hot only below $n_{\times}(1) \approx 690$ rows.

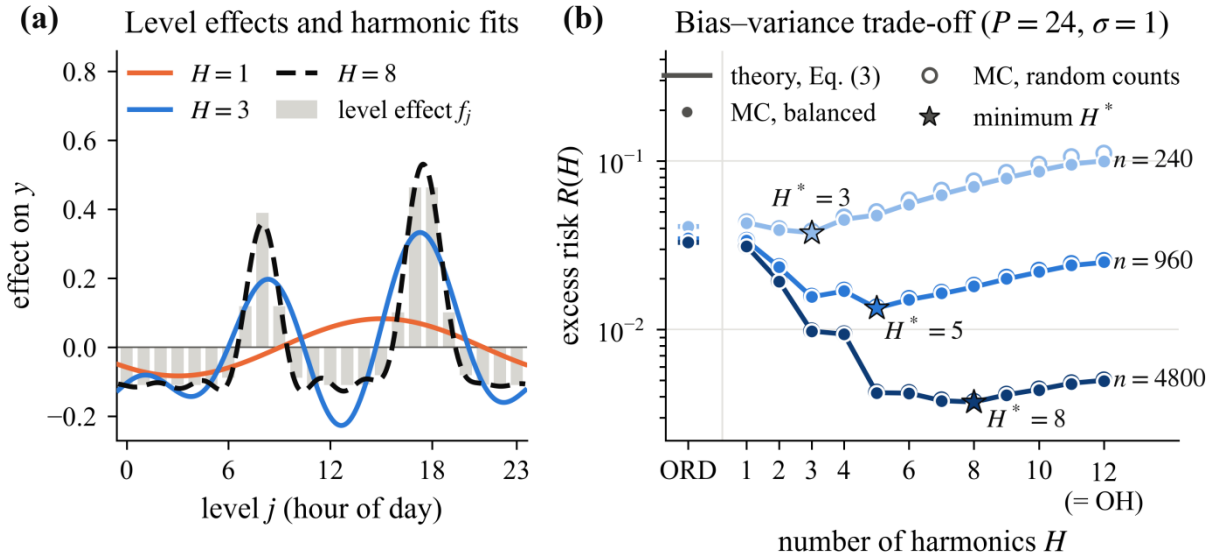

Figure 2. Simulation ($P = 24$, $\sigma = 1$). (a) Level effects f_j (bars) and harmonic fits. (b) Excess risk: Eq. (3) (lines) and Monte Carlo means for balanced (filled) and random (open) level counts; ORD = ordinal code, $H = 12$ = one-hot, stars = H^*.

On the real data (Fig. 3), all four expectations specified in advance were confirmed. First, prediction (5) had the same sign as the observed mean difference in all 101 cells whose 95 % interval excluded zero (Spearman $\rho = 0.99$ across all cells). Second, at $n = 300$ the C_p-selected code gave a lower test MSE than one-hot on every dataset: −0.010 [−0.014, −0.005] for Bike Sharing, −0.076 [−0.136, −0.016] for PM2.5 and −0.006 [−0.007, −0.004] for Metro. Third, at $n = 10{,}000$ the sine–cosine pair was worse than one-hot on all three datasets (+0.41, +0.008 and +0.20). Its predicted crossover $n_{\times}(1)$ was about 90 rows for Bike Sharing and Metro, whose daily profiles have sharp peaks, and 1,800 rows for PM2.5, where the cyclic effects are weak. Fourth, the ordinal code had the largest error at every $n \geq 1{,}200$ (+0.67, +0.11 and +0.54 at $n = 10{,}000$).

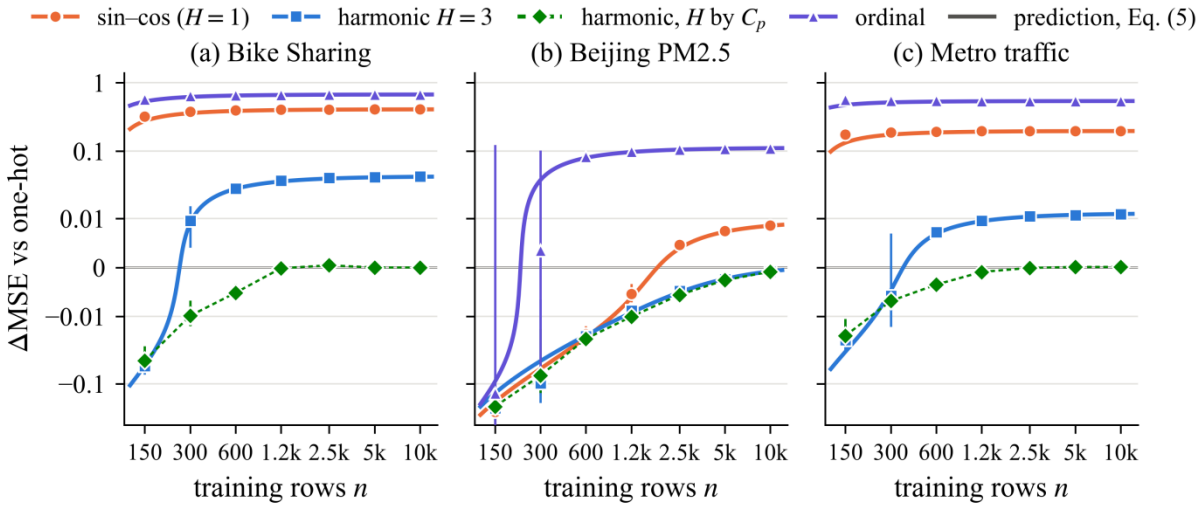

Figure 3. Test-MSE difference from one-hot (target $\log(1+y)$, asinh scale) against training rows. Markers: means over 30 splits with 95 % intervals; lines: prediction (5); values below zero favour the alternative code.

DISCUSSION

The sine–cosine pair is simply one-hot truncated to its first harmonic. Among circular codes it has the smallest variance, but it cannot capture a profile with narrow peaks, and so it falls behind as soon as the data are rich enough to estimate those peaks, as happens in the scikit-learn example. For linear models we therefore recommend harmonics selected by C_p (or by cross-validation) when there are few rows per level, one-hot when there are many, and no ordinal code for cyclic features at all. The evidence has clear limits: only linear additive models were studied (no trees, neural networks or interactions such as hour × working day), the splits were random rather than ordered in time, the intervals are approximate because repetitions share rows, and only three datasets were used.

CONCLUSION

For a linear model, choosing between ordinal, sine–cosine and one-hot codes for a cyclic categorical feature comes down to comparing the harmonic energies of the level effects with $2\sigma^2/n$. The full harmonic code is equivalent to one-hot, and the sine–cosine pair is its first harmonic. A C_p-selected number of harmonics was never more than 0.0003 worse than one-hot in test MSE, and it was better when training rows were few. It is still an open question how this rule carries over to interactions and to tree ensembles.

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EFFECT OF MODERATE SOIL SALINITY ON PHOTOSYNTHETIC PIGMENT CONCENTRATIONS IN LEAVES OF *SORGHUM BICOLOR L* CULTIVARS

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Abstract. *This article presents a comparative analysis of photosynthetic pigment content specifically chlorophyll a, chlorophyll b, total chlorophyll, and carotenoids in the leaves of four Sorghum bicolor L. cultivars Daulet, Massino, O'zbekiston-5, and Qorabosh grown under moderate soil salinity conditions, relative to a control variant. The alterations occurring within the photosynthetic apparatus and the subsequent pigment degradation induced by salt stress were systematically evaluated. The findings provide a scientific foundation for selecting salinity-tolerant cultivars and adapting them to the specific soil and climatic conditions of the region.*

Key words*: Sorghum bicolor L., soil salinity, chlorophyll a, chlorophyll b, carotenoids, photosynthetic pigments,*

INTRODUCTION

Simultaneously, irrigated agricultural lands in arid regions exhibit a profound susceptibility to salinization, with an estimated 20% of all irrigated soils currently undergoing progressive salt accumulation [1.2]. The concomitant stressors of water scarcity and soil salinization present formidable barriers to agricultural productivity, thereby jeopardizing food security within these fragile agroecosystems [3]. In response to these challenges, prioritizing the deployment of drought- and salinity-tolerant crops emerges as a crucial intervention for maintaining sustainable agricultural production in arid ecosystems.

Owing to its inherent tolerance to semi-arid conditions and soil salinity, sweet sorghum (Sorghum bicolor L. Moench) has emerged as a vital crop for bioenergy feedstock and livestock fodder in regions severely impacted by water scarcity and soil salinization [4]. Although sweet sorghum’s high adaptability to adverse environments, superior biomass yield, and rich sugar content make it an ideal crop for arid and semi-arid regions, abiotic stresses continue to severely

impair its vegetative growth, photosynthetic efficiency, biomass accumulation, and sugar synthesis—the key determinants of its agronomic and economic viability [5].

Despite its recognized resilience, the precise physiological mechanisms governing photosynthetic efficiency and sugar accumulation in sweet sorghum under varying regimes of water and salt stress remain insufficiently understood. Bridging this knowledge gap is paramount, as photosynthetic capacity directly dictates both biomass yield and carbohydrate partitioning—the primary determinants of the crop's utility for bioenergy and forage [6]. Deciphering these physiological responses is critical to optimizing sweet sorghum cultivation and maximizing its agronomic potential in vulnerable, salt-affected arid environments.

Material and methods. Leaves of four sorghum (Sorghum bicolor L.) cultivars (Massino, O'zbekiston-5, Qorabosh, and Daulet) were used as the experimental material. Photosynthetic pigment content was determined according to the method of Lichtenthaler and Wellburn (1983): 0.05 g of leaf tissue was extracted in 10 mL of 96% ethanol, and the optical density was measured spectrophotometrically at wavelengths of 664, 649, and 470 nm. Concentrations of chlorophyll a, chlorophyll b, total chlorophyll, and carotenoids (mg/g FW) were calculated using standard equations.

Results and disscussions. Quantitative evaluation of photosynthetic pigments under moderate soil salinity revealed significant genotypic variation in salt tolerance among sweet sorghum (Sorghum bicolor L.) cultivars. Exposure to saline stress induced a universal reduction in chlorophyll content; however, the magnitude of degradation was distinctly lower in tolerant genotypes. Total chlorophyll (Chl a+b) declined by only 19.3% in Daulet (from 5.180 to 4.182 $mg \cdot g^{-1}$ FW) and 20.4% in O'zbekiston-5 (from 4.800 to 3.820 $mg \cdot g^{-1}$ FW), whereas more severe pigment breakdown occurred in Massino (23.7%; 3.800 to 2.900 $mg \cdot g^{-1}$ FW) and Qorabosh (24.8%; 3.880 to 2.916 $mg \cdot g^{-1}$ FW). This decline stems primarily from stress-induced inhibition of chlorophyll biosynthesis enzymes, enhanced catalytic degradation by chlorophyllase, and thylakoid membrane destabilization caused by foliar Na+ and Cl- accumulation.

Cultivar	Treatment	Chlorophyll a (Chl a) (mg/g)	Chlorophyll b (Chl b) (mg/g)	Total Chlorophyll (mg/g)	Carotenoids (Car) (mg/g)	Chl a / Chl b (mg/g)

Massino	Control	2.850	0.950	3.800	0.420	3.00
	Moderate Salinity	2.139	0.761	2.900	0.351	2.81
O‘zbekiston 5	Control	3.650	1.150	4.800	0.680	3.17
	Moderate Salinity	2.893	0.927	3.820	0.591	3.12
Qorabosh	Control	2.900	0.980	3.880	0.440	2.96
	Moderate Salinity	2.156	0.760	2.916	0.376	2.84
Daulet	Control	3.950	1.230	5.180	0.650	3.21
	Moderate Salinity	3.129	1.052	4.182	0.567	2.97

Table 1. Effect of moderate soil salinity on photosynthetic pigment concentrations (mg·g⁻¹ FW) and Chl a/b ratios in leaves of sweet sorghum (Sorghum bicolor L.) cultivars.

A concurrent downward shift in Chl a / Chl b ratios across all cultivars (e.g., from 3.21 to 2.97 in Daulet and 3.00 to 2.81 in Massino) reflects the greater sensitivity of reaction center complexes (rich in Chl a) to enzymatic oxidation compared to light-harvesting complex II (LHCII) antenna proteins (containing Chl b). Furthermore, Daulet and O'zbekiston-5 maintained high carotenoid reserves (0.567 and 0.591 mg·g⁻¹ FW, respectively) under salinity, compared to Massino (0.351 mg·g⁻¹ FW) and Qorabosh (0.376 mg·g⁻¹ FW). These accessory pigments act as critical non-enzymatic antioxidants that quench singlet oxygen and dissipate excess energy, thereby safeguarding Photosystem II integrity against salt-induced oxidative damage. Based on photosynthetic pigment stability and photoprotective efficiency, the physiological salinity tolerance ranking of the evaluated cultivars was established as: **Massino < Qorabosh < O‘zbekiston 5 < Daulet.** Consequently, Daulet and O'zbekiston-5 are identified as salt-tolerant germplasms recommended for sustainable cultivation in saline agroecosystems and for integration into sorghum breeding programs.

SUMMARY

In conclusion, moderate soil salinity significantly impairs the photosynthetic apparatus of sweet sorghum (Sorghum bicolor L.) by accelerating chlorophyll degradation and altering pigment ratios. However, the extent of this physiological disruption is strongly genotype-dependent. Cultivars Daulet and O‘zbekiston-5 exhibited superior tolerance, maintaining higher total chlorophyll levels with minimal degradation rates (19.3% and 20.4%, respectively) alongside robust carotenoid reserves under stress. This enhanced carotenoid pool plays a vital photoprotective role in mitigating oxidative damage to Photosystem II. Conversely, Massino and Qorabosh showed greater pigment depletion (23.7%–24.8%), indicating higher salt sensitivity.

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РОЛЬ ПОЧВЕННЫХ МИКРООРГАНИЗМОВ В ПОДДЕРЖАНИИ УСТОЙЧИВОСТИ ЭКОСИСТЕМ И БИОРЕМЕДИАЦИИ ЗАГРЯЗНЁННЫХ ТЕРРИТОРИЙ

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Аннотация: *В статье рассматривается роль почвенных микроорганизмов как связующего звена между микробиологией и экологией. Обобщены данные о участии микробных сообществ в биогеохимических циклах, формировании мультифункциональности экосистем, взаимодействии с растениями в ризосфере и очистке загрязнённых территорий. Показано, что сохранение микробного разнообразия является условием устойчивости экосистем, а биоремедиация - экологически безопасным дополнением к физико-химическим методам.*

Ключевые слова*: почвенный микробиом, экология микроорганизмов, биоремедиация, ризосфера, биогеохимические циклы.*

Abstract: *The article examines soil microorganisms as a link between microbiology and ecology. It summarizes evidence on the role of microbial communities in biogeochemical cycles, ecosystem multifunctionality, plant–microbe interactions in the rhizosphere and the cleanup of contaminated sites. Preserving microbial diversity is shown to be a condition of ecosystem stability, while bioremediation is an environmentally safe complement to physicochemical methods.*

Keywords: *soil microbiome, microbial ecology, bioremediation, rhizosphere, biogeochemical cycles.*

Annotatsiya*: Ushbu maqolada tuproq mikroorganizmlarining mikrobiologiya va ekologiya o'rtasidagi bog'liqlik sifatidagi roli o'rganiladi. Unda mikrobial jamoalarning biogeokimyoviy sikllardagi ishtiroki, ekotizimning ko'p funksiyaliligining shakllanishi, rizosferadagi o'simliklar bilan o'zaro ta'siri va ifloslangan hududlarni tozalash haqidagi ma'lumotlar umumlashtirilgan. Unda mikrobial xilma-xillikni saqlash ekotizim barqarorligi*

uchun juda muhimligi va bioremediatsiya fizik-kimyoviy usullarga ekologik jihatdan qulay qo'shimcha ekanligini ko'rsatib beradi.

***Kalit so'zlar**: tuproq mikrobiomi, mikrobial ekologiya, bioremediatsiya, rizosfera, biogeokimyoviy sikllar.*

ВВЕДЕНИЕ

Микроорганизмы составляют основную часть биоразнообразия планеты и определяют работу экосистем: они разлагают органическое вещество, возвращают в оборот азот, углерод, фосфор и серу, поддерживают плодородие почв и влияют на состав атмосферы (Falkowski et al., 2008). Микробиология традиционно изучает отдельные организмы и их свойства, экология - взаимодействия организмов со средой. На стыке этих дисциплин сложилась экология микроорганизмов, которая рассматривает микробные сообщества как функциональную часть экосистемы.

Для Центральной Азии эта тема особенно актуальна: засоление и деградация почв, антропогенная нагрузка на орошаемые земли и загрязнение территорий нефтепродуктами и тяжёлыми металлами требуют методов, которые восстанавливают среду, а не только изолируют загрязнение. Цель работы - обобщить современные представления о роли почвенных микроорганизмов в устойчивости экосистем и в биоремедиации, а также определить направления прикладного использования этих знаний.

Материалы и методы

Работа выполнена как аналитический обзор научной литературы. Использованы опубликованные в рецензируемых журналах обзорные и экспериментальные работы по экологии микроорганизмов, микробиологии почв и биоремедиации. Применялись методы сравнительного анализа и систематизации данных. Собственные экспериментальные данные в статье не приводятся.

Результаты и обсуждение

Микроорганизмы и биогеохимические циклы. Ключевые превращения элементов в природе осуществляются микроорганизмами: фиксация атмосферного азота, нитрификация и денитрификация, минерализация органического углерода, окисление и восстановление соединений серы. Эти процессы определяют доступность питательных веществ для растений и обмен парниковыми газами между почвой и атмосферой (Falkowski et al., 2008; Cavicchioli et al., 2019). Следовательно,

изменения в составе микробного сообщества напрямую отражаются на состоянии экосистемы и климатических процессах.

Разнообразие и мультифункциональность. Исследования почв разных природных зон показывают, что более высокое разнообразие микроорганизмов связано с одновременным выполнением экосистемой нескольких функций: разложения, круговорота питательных веществ и продуктивности растений (Delgado-Baquerizo et al., 2016; Wagg et al., 2014). Почвенный микробиом при этом остаётся малоизученным: значительная часть его представителей не культивируется в лаборатории, поэтому всё шире применяются молекулярные методы (Fierer, 2017; Bardgett & van der Putten, 2014).

Ризосфера как зона взаимодействия. Вокруг корней растений формируется особое микробное сообщество, которое зависит от корневых выделений и, в свою очередь, влияет на питание и здоровье растения (Philippot et al., 2013). Ассоциативные и симбиотические бактерии улучшают снабжение растений азотом и фосфором, а часть из них подавляет фитопатогены. Это основа биологических препаратов, снижающих нагрузку минеральных удобрений и пестицидов на окружающую среду.

Биоремедиация загрязнённых территорий. Многие бактерии и грибы используют нефтяные углеводороды и другие органические поллютанты как источник углерода и энергии, разлагая их до менее токсичных продуктов (Das & Chandran, 2011). Применяют два основных подхода: биостимуляцию, то есть создание условий для местной микрофлоры (аэрация, внесение биогенных элементов, регулирование влажности), и биоаугментацию - внесение активных штаммов-деструкторов. Преимущества метода - относительно низкая стоимость и сохранение почвенной структуры; ограничения - зависимость от температуры, влажности и доступности загрязнителя, а также меньшая эффективность в отношении тяжёлых металлов, которые не разлагаются, а лишь меняют форму и подвижность.

Засоленные почвы. Для аридных регионов важны галотолерантные и галофильные микроорганизмы, способные сохранять активность при высокой концентрации солей (Ventosa et al., 1998). Их изучение перспективно для разработки биопрепаратов, повышающих устойчивость растений к засолению, и для биомониторинга состояния орошаемых земель.

Практическое значение. Показатели микробной активности и структуры сообщества могут служить индикаторами состояния почвы при экологическом мониторинге и оценке эффективности рекультивации. Этот подход близок к задачам производственной экологии и охраны труда: оценка загрязнения рабочих и прилегающих территорий должна включать не только химический анализ, но и биологические показатели.

ЗАКЛЮЧЕНИЕ

Микроорганизмы выступают одновременно объектом микробиологии и ключевым компонентом экосистем. Сохранение разнообразия почвенного микробиома - необходимое условие устойчивости экосистем, а биоремедиация и биопрепараты на основе микроорганизмов позволяют решать экологические проблемы с меньшим вмешательством в природную среду. Перспективными направлениями для региона являются изучение местных микробных сообществ засоленных и загрязнённых почв, подбор активных штаммов и введение микробиологических показателей в системы экологического мониторинга.

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2-SECTION

A PRE-SPECIFIED EXTERNAL TEST OF THE DATA-DEPENDENT CNN-TRANSFORMER CROSSOVER ON BRATS-AFRICA

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Abstract. *In a 45-run experiment on BraTS 2021, the paired Dice difference between a purely convolutional variant (A) and a variant with a Swin Transformer bottleneck (B) of a hybrid segmentation model decreased linearly with the logarithm of the training-set size and changed sign at about 196 cases. This study tests that law on the independent BraTS-Africa cohort (76 training, 19 validation cases). Before training it was fixed that A should lead by about +0.0025 Dice, that a paired t-test across random seeds would be used and that the best epoch should be near 45.*

Keywords: *Brain tumor segmentation, CNN-Transformer crossover, External validation, Pre-specified prediction, Random seeds, Statistical power, Winner's curse*

INTRODUCTION

Whether a convolutional or a Transformer encoder should be preferred for 3D brain tumor segmentation depends on how much annotated data is available. Convolutions impose locality and translation equivariance, which act as a prior when data are scarce, whereas self-attention learns spatial relations from data and pays off when data are abundant [1, 2]. Yet on the BraTS benchmark [3] models such as Swin UNETR [4] and nnU-Net [5] are compared on the full training set of about one thousand cases.

In the author's previous experiment with 45 training runs on BraTS 2021, the paired difference between a purely convolutional variant and a variant with a Swin Transformer bottleneck decreased linearly with the logarithm of the training-set size and crossed zero at about 196 cases. A relationship fitted on one dataset may, however, reflect features of that dataset. The strongest test of such

a law is an out-of-sample prediction fixed before the new data are seen, the principle that underlies pre-registration [6].

Such a test also raises a methodological question. Networks trained with different random seeds give different results on identical data [7-9], and in medical image segmentation this run-to-run variation is of the same order as many reported improvements [10, 11]. When the effect is small and the number of runs limited, estimates that reach or approach significance systematically overstate the true effect - the winner's curse [12, 13]. The aim of this study is to test the crossover law with a pre-specified prediction on the independent BraTS-Africa cohort [14] and to use the course of this test to quantify how the number of seeds and the size of the validation set limit the conclusions of small segmentation experiments.

2. Materials and methods. In the BraTS 2021 experiment the seed-wise difference $\Delta = \mathrm{Dice(A)} - \mathrm{Dice(B)}$ was regressed on the decimal logarithm of the number of training cases n (five sizes, three seeds each):

$$\Delta(n) = \Delta_a + \Delta_b \lg n, \qquad n^* = 10^{-\Delta_a/\Delta_b} \tag{1}$$

with slope $\Delta_b = -0.0061$ ($p = 0.0009$) and crossover $n^* \approx 196$. The best validation epoch of all 45 runs followed ($p = 1.3 \cdot 10^{-12}$)

$$e^*(n) \approx -70.6 + 61.5 \lg n \tag{2}$$

Before any training on BraTS-Africa the following were fixed: (1) because $n = 76 < n^*$, variant A outperforms variant B; (2) the expected difference is $\Delta(76) \approx +0.0025$ by formula (1); (3) the test is a paired t-test over seeds; (4) the best epoch is $e^*(76) \approx 45$ by formula (2). Five seeds per variant were run first; the final number of seeds was then set once by a power analysis and not changed afterwards.

The cohort was split once into 76 training and 19 validation cases. Variant A is a purely convolutional encoder-decoder (27.48 million parameters); variant B keeps the convolutional skip pathways and replaces the bottleneck with a 3D Swin Transformer [15] (30.45 million parameters). The protocol was identical to the BraTS 2021 experiment: 128^3 patches, 150 epochs, batch size 4, AdamW, compound loss and an equalized epoch length. Because all 76 training cases were used, a seed determined only the weight initialization and the order of sampled patches. The outcome was the mean Dice over the whole tumor (WT), tumor core (TC) and enhancing tumor (ET) at the best epoch. For k seeds the mean paired difference and its 95% confidence interval are

$$\bar{\Delta} = \frac{1}{k}\sum_{s=1}^{k}\left[D_A(s) - D_B(s)\right], \qquad \mathrm{CI}_{95\%} = \bar{\Delta} \pm t_{0.975,k-1}\frac{s_\Delta}{\sqrt{k}} \tag{3}$$

where s_Δ is the standard deviation of the seed-wise differences. The effect size and the power of the two-sided paired test ($\alpha = 0.05$) are

$$d_z = \frac{\bar{\Delta}}{s_\Delta}, \qquad 1-\beta = P\left(|T_{k-1}(\delta)| > t_{0.975,\,k-1}\right), \qquad \delta = d_z\sqrt{k} \tag{4}$$

where $T_{k-1}(\delta)$ has a noncentral t distribution with $k-1$ degrees of freedom. Region-wise p-values were corrected by the Benjamini-Hochberg (BH) procedure [16].

3. Results and discussion. Table 1 compares the predictions with the observations. In the first stage variant A won in four of five seeds (A: 0.8660 ± 0.0060; B: 0.8592 ± 0.0063) by +0.0069 (p = 0.131; one-sided 0.066), with the largest advantages in TC and ET, and the mean best epoch was 41.5, close to the predicted 45. The effect size of this stage, d_z = 0.85, implied that 13 seeds would give power 0.8 (Fig. 2b), so eight further seeds per variant were trained.

Table 1. Pre-specified predictions and observations on BraTS-Africa (n = 76)

Quantity	Prediction	5 seeds	13 seeds
Leading variant	A	A (4 of 5 seeds)	A
Dice(A) − Dice(B)	+0.0025	+0.0069	**+0.0021**
95% confidence interval	-	[−0.0032; +0.0169]	[−0.0022; +0.0064]
Paired t-test, p	-	0.131	0.31
Effect size d_z	-	0.85	≈ 0.29
Region-wise differences	-	WT +0.0030; TC +0.0092; ET +0.0084	significant only for WT (BH)
Best epoch	≈ 45	41.5	-

With all 13 seeds the difference decreased to +0.0021 (95% CI −0.0022 to +0.0064; p = 0.31). The final estimate lies almost on the line extrapolated from BraTS 2021 and differs from the prediction by only 0.0004 (Fig. 1), so the law transferred to the new cohort in direction and magnitude; the difference, however, is not statistically significant. In the 13-seed region-wise analysis only the WT advantage of variant A remained significant after correction - a pattern different from the five-seed stage and not pre-specified, hence exploratory.

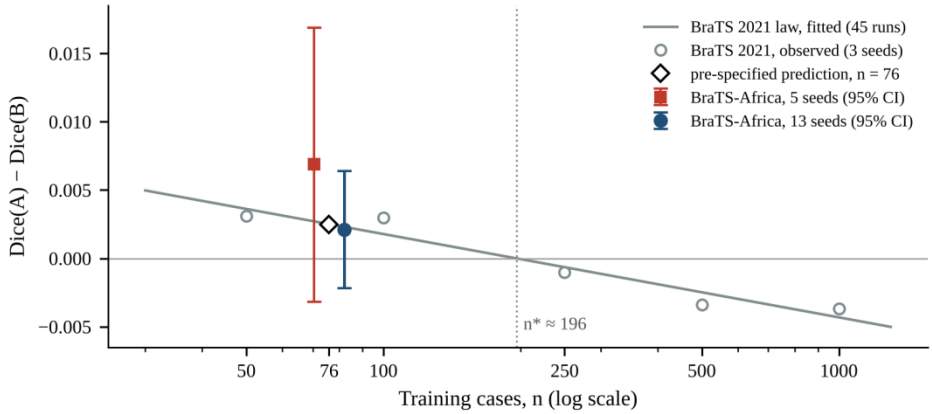

Fig. 1. The BraTS 2021 crossover law (45 runs), the pre-specified prediction for n = 76 and the BraTS-Africa estimates with five and 13 seeds (95% confidence intervals)

The sequence of the test illustrates the winner's curse directly (Fig. 2a). The first five seeds estimated the difference at +0.0069, the eight subsequent seeds averaged −0.0009, and the pooled estimate (+0.0021) is about one third of the initial one. A design planned on such a high early draw inherits its optimism. Planned for d_z = 0.85, the 13-seed test had a nominal power of 0.80; for the effect actually observed, $d_z \approx 0.29$, its power was only about 0.17, and about 93 seeds would be needed for power 0.8 (Fig. 2b). Effect sizes from a handful of runs should therefore not be used at face value for planning; they should be shrunk or taken from a pilot experiment excluded from the confirmatory analysis [12, 13], and the number of seeds must be fixed before the confirmatory runs, since adding seeds until $p < 0.05$ inflates false positives [6].

Why are so many seeds needed? The seed-to-seed standard deviation of the mean Dice was about 0.006 on BraTS-Africa (A: 0.0060, B: 0.0063), whereas in the author's multi-seed ablation on BraTS 2021 with 250 validation cases it was 0.0006-0.0018 (Fig. 2c). The ratio of about four agrees with the factor $(250/19)^{1/2} \approx 3.6$ expected if the noise of a mean over m cases scales as $1/\sqrt{m}$. In that BraTS 2021 setting, four seeds sufficed to detect a difference of 0.0052 between architectures (p = 0.0096). The required number of seeds is thus governed by the ratio of the true effect to a noise level largely set by the validation set: with 19 validation cases, differences of 0.002-0.003 Dice are practically undetectable, and rankings of methods can change with the choice of test cases [17]. Five-fold cross-validation over all 95 cases, with confidence intervals reported [18], would raise power more efficiently than adding runs. A limitation is that the extension from 5 to 13 seeds was decided after the first stage, so the design is two-stage, although the final number was set once and the analysis performed once.

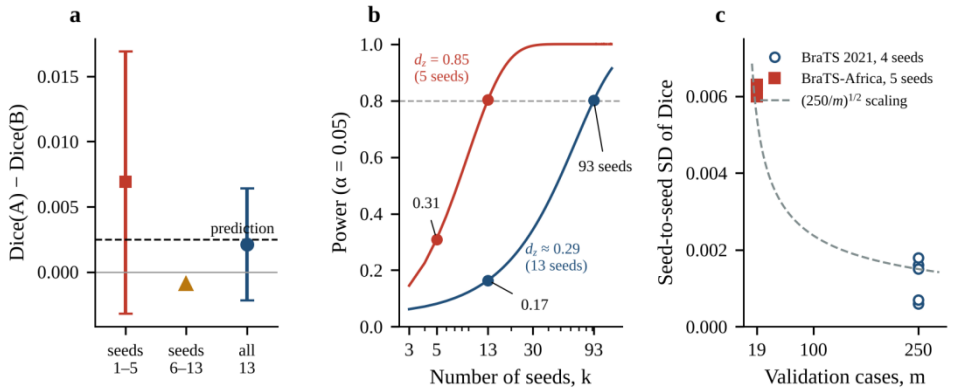

Fig. 2. Effect-size inflation and power: estimates from seeds 1-5, seeds 6-13 and all 13 seeds against the prediction (a); power versus the number of seeds for the five-seed and 13-seed effect sizes (b); seed-to-seed standard deviation versus validation-set size with a $(250/m)^{1/2}$ reference (c)

CONCLUSION

A prediction derived from a 45-run scaling experiment on BraTS 2021 was tested on the independent BraTS-Africa cohort. The convolutional variant led and the 13-seed difference (+0.0021) was close to the predicted +0.0025, but it was not statistically significant (p = 0.31): the law transferred in direction and magnitude without statistical confirmation. The first five seeds overstated the effect about threefold, so a test planned for power 0.8 had a real power of about 0.17, and roughly 93 seeds would be needed for the true effect. Since seed-to-seed noise scales roughly as the inverse square root of the validation-set size, small cohorts require cross-validation, shrunk planning effect sizes and a number of runs fixed before the confirmatory analysis.

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EFFECTIVE TRANSLATION METHODS FOR PRESERVING THE PERSUASIVE EFFECT AND CULTURAL RELEVANCE OF ADVERTISING SLOGANS

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Abstract: *The paper discuss the realisation of the identity of the brand in the advertising slogans and the use of deliberately selected language in an effort to attract the attention and interest of the target audience. Translating an advertising slogan into Russian is not only to provide a lexical equivalent but also to preserve the slogan's persuasiveness and memorability, as well as to ensure its naturalness for potential consumers. This article reviews ten international food and beverage company slogans in English and their Russian versions. A qualitative descriptive-comparative approach is used to identify the stylistic devices of each original and the translation techniques such as literal translation, transposition, modulation, idiomatic substitution and transcreation. Analysis shows that direct translation often loses the essence and intent of a slogan, while successful Russian adaptations change the wording or format to maintain the promotional message.*

Keywords: *advertising slogans, advertising translation, translation techniques, transcreation, pragmatic adaptation, memorability, brand identity.*

Аннотация: *В статье рассматривается, как идентичность бренда, которая отражается в рекламных слоганах и какую роль играет тщательно подобранный язык для привлечении внимания и интереса целевой аудитории. Перевод рекламного слогана на русский язык предполагает не просто поиск подходящего лексического соответствия. Важно также сохранить его убедительность, запоминаемость и естественное звучание для потенциальных потребителей. В работе*

анализируются десять рекламных слоганов международных компаний, производящих продукты питания и напитки, а также их русскоязычные версии. Исследование основано на качественном описательно-сопоставительном подходе, который позволяет выявить стилистические приёмы, использованные в оригинальных слоганах, и определить применённые способы перевода, включая буквальный перевод, транспозицию, модуляцию, идиоматическую замену и транскреацию. Анализ показывает, что буквальный перевод нередко не передаёт основную идею и коммуникативное намерение слогана. В то же время удачные русскоязычные варианты могут существенно отличаться от оригинала по формулировке и структуре, сохраняя при этом его рекламный посыл.

Ключевые слова: *рекламные слоганы, перевод рекламы, переводческие приёмы, транскреация, прагматическая адаптация, запоминаемость, идентичность бренда.*

INTRODUCTION

Advertising slogans are short but their phrasing is carefully designed to draw attention and shape consumers' impressions of a product. The impact of slogans frequently relies on factors beyond their literal interpretation, as elements like as music, rhythm, comedy, cultural connotations, and emotional resonance all play a role in conveying the message. Not all of these features will be preserved in translation. A memorable statement in English can come across as odd or weaken its persuasive power when rendered literally in Russian. Translators must assess not only the explicit message of a slogan but also the implications it seeks to provoke in the audience's thoughts or feelings. The intention is to emulate that communicative effect in a fashion that sounds credible in Russian.

The problem of interfacing of advertising discourse, persuasion, and culture was addressed by many world scientists. British scholar Karen Smith, who researches translation and persuasion strategies in advertising discourse, believes that the headline in advertising is supposed to attract potential customers and make them read more and eventually buy the product [3, p. 159]. She distinguishes three main types of translation: transference, source-oriented translation, and target-oriented translation.

The last approach provides the greatest freedom for the translators to substitute the rhetorical elements if the direct translation fails to generate the same effect as the original one. Marieke de Mooij, the Dutch scholar who specialises in inter-cultural communications and international marketing, thinks

that a key point of a successful advertisement translation is its cultural awareness. She argues that an effective translation should do more than just translating words; the cultural meanings and connotations should also be reflected. She emphasises the importance of adapting advertisements to the cultural milieu of the target audience. The two researchers also address the issue of the accuracy of the language used while translating advertising slogans but also taking into account persuasive rhetoric and other elements of culture.

Russian researchers have pursued the same question. Yaroslav Sokolovsky of Siberian Federal University tested Komissarov's levels of equivalence on 78 English slogans and their Chinese translations. His count is telling: the translations contained elements absent from the original at the level of words in 65 percent of cases but at the level of communicative purpose in only 14 percent [4, p. 872], which fits his rule that "under no circumstances we can sacrifice the purpose of communication" [4, p. 869]. Closer to the topic of this article, Valida Dzhabrailova and Aleksandra Bezukh examined 120 English slogans and their Russian translations from the standpoint of Skopos theory. The basic function of commercial advertising, they write, is "to stimulate the consumer to buy the product" [1, p. 95], and Skopos theory shares that orientation by putting the purpose of the original first. Yet only about one-third of the slogans were translated in line with its principles [1, p. 94]. Does the Russian version, then, achieve the same persuasive purpose as the English original?

This article takes up that question. It compares ten English slogans of international food and beverage brands with their Russian translations, identifies the linguistic features of each original and names the translation technique behind each Russian version. The research focuses on the actual wording and placement of slogans, as well as the translation choices and their effectiveness in communicating the original slogans' aims.

Research methodology

The present research aims at the features of both English (source) slogans on food and drinks and their equivalents in Russian, employing a qualitative comparative descriptive approach.

Analysis

Ten slogans from global food and beverage brands are examined. Table 1 presents the English originals alongside the Russian translations
examined in this article. Each example is considered in terms of its main linguisticfeatures and the choices made in translation. The discussion asks whether aRussian version retains the original image, humour or rhetorical structure, orchanges these features to produce a more natural expression. The

labels used fortranslation procedures describe the textual changes observed in the examples.

Table 1.

No.	Original Slogan (English)	Brand / Year	Russian Translation
1	You're Not You When You're Hungry	Snickers (2010)	Ты — не ты, когда голоден
2	Finger-Lickin' Good	KFC (1956)	Так вкусно, что пальчики оближешь
3	Red Bull Gives You Wings	Red Bull (1997)	Red Bull окрыляет
4	Have It Your Way	Burger King (1974)	Закажи по-своему!
5	I'm Lovin' It	McDonald's (2003)	Вот что я люблю!
6	Obey Your Thirst	Sprite (1994)	Не дай себе засохнуть!
7	A Taste of Paradise	Bounty (1993)	Райское наслаждение
8	Ask for More	Pepsi (1999)	Бери от жизни всё!
9	Have a Break, Have a KitKat	KitKat (1957)	Есть перерыв — есть KitKat
10	Taste the Rainbow	Skittles (1994)	Не кисни – на радуге зависни!

Hunger changes people, and the Snickers slogan *You're Not You When You're Hungry* which turns that joke into a neat piece of repetition and irony. The Russian *Ты — не ты, когда голоден* is a close fit which maintaining both the rhythm and the humorous contrast, and this is an example of literal translation, but one option is more dubious than it seems because English *you* can be formal or informal, but Russian pronoun *ты* gives the line a friendly, personal tone, a small act of pragmatic adaptation that brings the brand closer to the audience. The significance is retained and linked with this curious example which proving that the aspect of intentions during the process of comparing a translation with an original is primary because, as Sokolovsky suggests, the intention of communication must dictate the evaluation.

Finger-Lickin' Good paints a picture of delicious food and customers want to lick their fingers. The omission of the *g* in *Lickin'* imparts a casual and conversational tone. Conversely, in Russian, it would appear peculiar and fail to convey the intended message. The translator accordingly chooses idiomatic substitution which exchanging the English expression for Russian speaker knows structure *Так вкусно, что пальчики оближешь*, which articulates the reason that English leaves unstated; yet, the sentiment remains consistent, the amicable tone persists, and the slogan resembles genuine colloquial speech.

Wings, in *Red Bull Gives You Wings*, are a metaphor for energy, freedom, and the power to overcome limits, in the English phrase even shows a person sprouting them after a drink. Russian chooses another form of translation. Instead of literal meaning the translator packs it into one verb, *окрыляет*, which already means inspiring, energising and giving someone the confidence to do more which still holds the root of word *крылья* (wings). The technique is transposition and it was used to create a verb phrase with a single verb which combined with compression, a whole expression shrinks to one word, the slogan becomes shorter and punchier and it is easier to remember. This verb also carries a warm emotional colour that casts the drink as a source of inspiration which is fully recreated the massage instead of copying the words.

What does *have it* mean in a restaurant? Nothing a Russian customer would recognise. A literal version of *Have It Your Way* would sound unnatural and would not say that a meal can be chosen as one wish. In *Закажи по-своему!* the general verb *have* gives way to the specific *закажи* which fits the restaurant setting. The technique is concretisation: a general verb is replaced by a specific one through lexical substitution, while *your way* finds a ready Russian counterpart in *по-своему*. The result is short and direct, and that leaves the customer feeling that the choice is entirely theirs.

'I'm Lovin' It' purposefully breaks a grammatical convention, since *'love'* is often a stative verb, yet it is expressed in the progressive form in this instance, evoking a feeling of immediate and lively delight. Since Russian does not possess a unique progressive form to emulate, a straightforward translation would retain the essential content while sacrificing its flair. The translator relies on transposition, given that the progressive becomes the simple present *люблю* and on addition the emphatic *вот, что* points at the object of the customer's delight and compensates for the informality that is lost.

Obey Your Thirst changes the meaning of thirst from the negative to the positive with something to listen to about it. The literal translation of *Obey Your Thirst* would sound awkward and unconvincing, especially to Russian readers. The translator decides to use the stronger formulation *Не дай себе засохнуть!* The modulative transcreation with the unique attitude of the Russian audience is rather one of an affirmative order to comply with changes than that of replacing the warning not to deplete with the prophylactic measure. The wording changes a humorous and vivid image replaces the original and the advertising purpose stays intact that helps line grows more direct and livelier and it sticks in the mind of consumers.

In A Taste of Paradise, the word paradise is a noun, whereas in the Russian version, *Райское наслаждение,* it becomes an adjective, райское, describing the word наслаждение. This grammatical change allows the Russian translation to preserve the association with paradise while expressing it in a more natural way. Three techniques work in combination, transposition turns the noun phrase with *of* into an adjective plus a noun, lexical substitution exchanges *taste* for *наслаждение* and modulation shifts the focus from the cause, flavour, to its effect of pleasure. The reference to flavour becomes less explicit, but the Russian line still promises an exceptional, almost heavenly experience.

Ask for More is a plain imperative: expect more, and do not settle for less. The Russian *Бери от жизни всё!* goes much further and turns a product slogan into a statement about enjoying life to the fullest. The translator relies on transcreation, replacing the original wording with a familiar, emotionally strong Russian expression. In that new framework, modulation turns the inquiry into acquisition, *ask* turns into *бери* (take), which is more confident and proactive, semantic broadening goes further into *всё* (all) and the product into *жизнь* (life). The command is still present, and the message becomes an encouraging and appealing one that edges on the audience's desire for pleasure and for the new.

The slogan "Have a Break, Have a KitKat" was written in 1957 and has been used in Russian advertising as Есть перерыв — есть KitKat. Its strength lies in the double interpretation of *have*, which means relaxation in the first part and food in the second, the duplication of the verb connecting the two, something that helps consumers remember a brand. The Russian version keeps the skeleton intact, two parallel clauses, a noun in each, and the repetition, now carried by *есть*. The pun itself is rebuilt through compensation, as mentioned English plays on one verb with two senses, while Russian *есть* can be read as *there is* or, in the second half, as the infinitive *to eat*, so the line keeps a double reading of its own. The brand name passes over untranslated and this a case of transference.

The biggest liberty of translation demonstrated in the slogan *Taste the Rainbow* invites consumers to imagine a variety of flavours through the image of a rainbow but *Не кисни — на радуге зависни!* leaves that meaning behind and offers a playful message that grabs attention. The technique is transcreation with semantic substitution which the colloquial to the words *не кисни* and *зависни* create a fresh emotional association, and their rhyme works as phonetic compensation that giving the line a catchy rhythm and a humorous tone. It does not fully retain the original meaning, but it is easy to say and memorable, which is important for a slogan.

CONCLUSION

Ten slogans pose ten different problems. Their persuasive power comes from using specific techniques such as wordplay, metaphor, repetition, humour, and informal language, and each of these asks the translator for a different move. While some Russian versions remain close to the original, others change the wording or introduce new expressions to sound more natural, engaging and memorable to local consumers. Overall, an effective advertising translation should preserve not only the original message but also its emotional appeal and ability to connect with the target audience.

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ATTENTION MECHANISMS IN VISION TRANSFORMERS FOR IMAGE CLASSIFICATION AND THEIR APPLICATION IN MEDICINE

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Abstract. *Transformers are widely used in medicine, in particular for classifying medical images, but the quadratic cost of softmax attention makes them expensive for high-resolution inputs. This paper presents an analytical review of attention mechanisms used in vision transformers: classical softmax attention, sparse and windowed schemes, kernel-based linear attention, and alternative nonlinearities (ReLU, sigmoid, polynomial functions). The methods are compared in terms of computational complexity, quality and training stability, and recommendations for choosing a mechanism for image classification tasks, including medical ones, are formulated.*

Keywords: *attention mechanism, Vision Transformer, image classification, medical images, softmax, linear attention, computational complexity.*

INTRODUCTION

The transformer architecture, originally proposed for text processing (Vaswani et al., 2017), was transferred to computer vision in the Vision Transformer (ViT), where an image is split into patches and each patch is treated as a token (Dosovitskiy et al., 2021). Since then, transformers have become one of the main architectures for image classification and are widely used in medicine: they are applied to classify radiographs, computed tomography scans and histopathology slides.

The main limitation of classical attention is the quadratic dependence of memory and time costs on the number of tokens N. For a 1024×1024 image with 16×16 patches, this means 4096 tokens and about 16.8 million attention matrix elements per head. This is especially critical in medicine, where images have high resolution and reducing them may lose diagnostically important details. The aim of this work is to systematize modifications of the attention mechanism and assess their applicability to image classification, including medical images.

METHODS

An analytical review of studies on attention mechanisms in transformers published in 2017–2025 was carried out. Sources include NeurIPS, ICML, ICLR and ICCV proceedings and arXiv preprints. The methods were grouped by the way they reduce complexity and compared by three criteria: computational complexity, quality relative to softmax attention, and training stability.

RESULTS

Classical softmax attention.

In the standard formulation, query Q, key K and value V matrices are computed from the input tokens, and the output is defined as Attention(Q, K, V) = softmax($QK^T / \sqrt{d}$) · V, where d is the head dimension. Softmax makes the weights non-negative and row-normalized, which provides interpretability and training stability. The drawbacks of softmax attention stem from the need to explicitly compute the N×N matrix QK^T, giving $O(N^2d)$ complexity. The memory problem is partially solved by FlashAttention (Dao et al., 2022), but the quadratic number of operations remains.

Sparse and windowed attention.

The first direction for reducing complexity is to restrict the set of token pairs between which attention is computed. Sparse Transformer (Child et al., 2019) uses fixed sparsity patterns that reduce complexity to $O(N\sqrt{N})$. For images, the most successful idea has been windowed attention in Swin Transformer (Liu et al., 2021): attention is computed within windows that are shifted between layers, and complexity is linear in N. However, global context is formed only across several layers, and the patterns are hand-designed.

Linear attention.

The second direction is to replace softmax with a kernel decomposition. If similarity is written as $\varphi(q)^T\varphi(k)$, the output is computed as $\varphi(Q)\cdot(\varphi(K)^TV)$, where the d×d matrix $\varphi(K)^TV$ does not depend on N, and complexity drops to $O(Nd^2)$. Katharopoulos et al. (2020) use ELU(x) + 1 as φ, while Performer approximates the softmax kernel with random features (Choromanski et al., 2021). The problem with linear attention is a blurred weight distribution and loss of quality. To address it, cosFormer (Qin et al., 2022) uses a ReLU mapping with cosine-based positional reweighting, and FLatten Transformer (Han et al., 2023) applies a focusing power function that sharpens the attention distribution. Thus, the form of φ strongly affects quality.

Alternative nonlinearities: ReLU, sigmoid, polynomials.

The third direction questions the very necessity of softmax. Wortsman et al. (2023) show that ReLU divided by the sequence length allows ViT to reach

quality close to softmax with better parallelization. Sigmoid attention studied by Ramapuram et al. (2024) is also comparable to softmax given proper initialization and normalization. Saratchandran et al. (2025) show that what matters for training ViT is not weight normalization but implicit regularization of the attention matrix norm, which polynomial functions can also provide.

Comparative analysis.

The main characteristics of the reviewed approaches are summarized in Table 1.

Table 1 — Comparison of attention mechanisms

Approach	**Complexity**	**Advantages**	**Limitations**
Softmax	$O(N^2d)$	Reference quality, stable training, interpretable weights	Quadratic memory and time, row-wise reduction
Sparse, windowed (Sparse Transformer, Swin)	$O(N\sqrt{N})$, $O(N)$	Exploits image locality, high quality	Global context only across layers, hand-designed patterns
Kernel linear (ELU+1, Performer)	$O(Nd^2)$	Linear complexity, global context in every layer	Blurred weight distribution, lower accuracy
Focused linear (cosFormer, FLatten)	$O(Nd^2)$	Narrows the gap with softmax	Mapping form is chosen manually
ReLU, sigmoid, polynomials	$O(N^2d)$*	No row-wise normalization, easier to parallelize	Sensitive to initialization and scale

* Without factorization; with a decomposable kernel they admit a linear implementation.

DISCUSSION

The approaches form a trade-off between quality and efficiency. For classifying images of moderate resolution, softmax attention with FlashAttention is appropriate. For high-resolution images where local structure matters, hierarchical architectures with windowed attention are optimal. With many tokens, a need for global context in every layer and limited resources, focused linear attention is preferable. ReLU and sigmoid are worth considering for hardware optimization. For medical image classification, these properties are particularly important, since high resolution and limited computing resources often have to be combined.

CONCLUSION

Attention mechanisms in vision transformers are developing in three directions: restricting the set of interacting tokens, kernel linearization, and replacing softmax with other nonlinearities. At the same time, in all reviewed approaches the form of the nonlinearity is set in advance, manually and identically for all heads and layers. A promising direction for further research is the design of attention mechanisms in which the form of the nonlinearity adapts during training, and their evaluation on image classification tasks, including high-resolution medical images.

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DEVELOPING A HYBRID MODEL FOR IDENTIFYING EMPLOYEES' HIDDEN POTENTIAL AND CAREER FORECASTING THROUGH AI–HUMAN EXPERT INTEGRATION IN HR MANAGEMENT

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Abstract: *This article examined a hybrid model for identifying employees' hidden potential and predicting career development based on the integration of artificial intelligence and human expertise in HR management. The study explored the possibilities of using AI technologies, competency analysis, expert assessment, and digital monitoring tools. The findings demonstrated that this approach helped identify employees' individual abilities, assess their professional development prospects, and ensure more effective use of human resources. Furthermore, the integration of AI-based analysis with human experts' professional judgments was found to improve the accuracy and effectiveness of HR decision-making.*

Keywords: *HR management, artificial intelligence, human expert, hybrid model, employee potential, hidden competencies, career forecasting, digital technologies.*

INTRODUCTION

Today, the development of digital technologies and changes in the labor market are creating new approaches to human resource management. In particular, identifying employees' professional abilities, making effective use of their existing potential, and assessing their future career opportunities have become important tasks for modern organizations. While traditional HR management has largely relied on the subjective opinions of managers and specialists, artificial intelligence technologies provide opportunities to improve this process through data analysis.

The integration of AI technologies with human experts' knowledge and experience in HR management helps identify not only employees' existing competencies but also their hidden abilities that have not yet been fully demonstrated. This approach plays an important role in considering individual employee characteristics, determining professional development directions, and

forecasting future career prospects. Therefore, developing a hybrid model that combines human expertise with artificial intelligence capabilities is considered one of the promising directions of modern HR management. Today, identifying employees' hidden potential and accurately forecasting their future career development remain important challenges for organizations. Relying exclusively on traditional assessment methods or automated algorithms may not be sufficient to fully identify employees' individual capabilities. Combining AI-based analysis with human expert evaluation makes it possible to assess employees' potential more objectively, improve management decisions, and contribute to the long-term development of organizations. In this regard, the research topic has significant scientific and practical relevance.

The main objective of this article is to develop a hybrid model based on the integration of artificial intelligence and human expertise in HR management, examine opportunities for identifying employees' hidden potential and forecasting their career development, and formulate scientific and practical recommendations for improving this process.

MATERIALS AND METHODS

The hybrid model based on the integration of artificial intelligence and human expertise in HR management contributes to the comprehensive assessment of employees' professional competencies, individual abilities, and development opportunities. Within this approach, AI technologies analyze data related to employees' performance, while human experts evaluate their personal characteristics, professional experience, and motivation. As a result, it becomes possible to identify not only employees' existing capabilities but also their potential abilities that have not yet been fully demonstrated[1]. The study was based on modern approaches to HR management, competency-based assessment, digital analysis, and expert evaluation methods. The main criteria for identifying employees' hidden potential included professional knowledge, decision-making in challenging situations, teamwork, initiative, and the ability to acquire new skills. Career forecasting also considered employees' current performance, professional development rate, and suitability for future position requirements[2]. The proposed hybrid model was implemented through the following stages:

1. Data collection - information about employees' work performance, qualifications, experience, and professional activities was gathered.
2. AI analysis - algorithms were used to identify competencies, development trends, and hidden abilities.

3. Human expert evaluation - HR specialists compared AI-generated results with employees' individual characteristics.

4. Hybrid assessment - algorithmic analysis and expert opinions were combined to determine employees' potential levels.

5. Career forecasting - employees' future professional development directions and promotion opportunities were assessed[2].

The study employed comparative analysis, a systematic approach, expert evaluation, competency analysis, and forecasting methods. To determine the overall effectiveness of the hybrid model, the following assessment formula was proposed:

$$G = 0.6A + 0.4E$$

Where:

G - overall employee potential score;

A - analysis results obtained through artificial intelligence;

E - human expert evaluation.

This ratio represents a proposed model parameter for combining AI analysis with human expert judgment. During the final assessment, these indicators can be adjusted according to organizational activities and job requirements.

⇛ Practical Recommendations for HR Specialists

The following approaches are recommended to identify employees' hidden potential and improve career forecasting:

1. Assess not only employees' current performance but also their development opportunities.
2. Use AI to analyze competencies and professional growth dynamics.
3. Compare algorithm-generated results with human expert evaluations.
4. Develop individual career development plans for each employee.
5. Ensure personal data confidentiality and algorithmic fairness throughout the assessment process.

These approaches help organizations use human capital more effectively, identify promising employees, and improve the overall efficiency of HR management[3].

DISCUSSION AND RESULTS

The research findings demonstrated that combining artificial intelligence with human expertise in HR management played an important role in identifying employees' hidden potential and evaluating their future career prospects. While traditional assessment methods mainly focused on employees' current work

performance and existing qualifications, the hybrid approach made it possible to examine their initiative, problem-solving abilities, adaptability, and opportunities for future professional development. Within the proposed model, AI technologies performed systematic analysis of employee performance data, whereas human experts evaluated the obtained results based on professional experience and individual characteristics[4]. The combination of these two approaches created opportunities to identify employees' abilities more comprehensively and predict their suitability for future positions.

Furthermore, the integration of AI-based analysis and expert evaluation improved the process of developing individual career plans, selecting promising employees, and determining professional development directions. In this regard, scientific approaches to effective human resource management and employee development served as important theoretical foundations[5]. The findings confirmed that cooperation between AI systems and human experts created conditions for more informed decision-making in HR management. This model made it possible to evaluate employees not only according to their current work performance but also in terms of their future development opportunities. Consequently, organizations gained greater opportunities to identify promising employees, support their professional growth, and use human capital more effectively.

CONCLUSION

In conclusion, the hybrid model based on the integration of artificial intelligence and human expertise in HR management is an effective tool for identifying employees' hidden potential and forecasting their career development. The research findings demonstrated that combining AI technologies, competency analysis, and human expert evaluation made it possible to assess employees' professional abilities, initiative, adaptability, and future development opportunities more comprehensively. The practical recommendations developed for HR specialists help effectively implement this hybrid model in the personnel management processes of organizations. Through cooperation between artificial intelligence systems, HR specialists, and organizational managers, it is possible to identify promising employees, determine their individual career paths, and make rational use of human capital. Therefore, it is essential to pay particular attention to modern AI technologies in HR management, integrate them with human expertise, and introduce them consistently into organizational practice.

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ADAPTIVE ARRIVAL-TIME ESTIMATION FOR SCHOOL BUS MONITORING: ALGORITHM AND SIMULATION STUDY

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Abstract. *Static timetables ignore daily traffic conditions, so arrival times given to parents are inaccurate. An adaptive estimator scales the remaining planned segment times by a smoothed ratio of actual to planned times. It was tested by simulation of a 12-stop, 30-minute route under stable, daytime (factor 1.29, from measured speeds) and variable conditions. After six stops the mean absolute error falls from 4.9 to 1.2 min in daytime and from 3.9 to 1.0 min under variable conditions. Field validation is required.*

Keywords: *school bus, arrival time estimation, exponential smoothing, GPS monitoring, simulation, intelligent transport systems*

INTRODUCTION

Parents and school administrators need to know when a school bus will reach a stop. A printed timetable gives one number per stop, but on a given day the bus may run faster or slower than planned, and the difference is largest in the congested periods around school hours. Measurements made in Karshi, Uzbekistan, show that a car covered the same route at 35–36 km/h in the early morning and at 25–30 km/h in the daytime, i.e. about 30% slower. A timetable built for the morning conditions therefore underestimates the trip time of the daytime shift change by several minutes.

Real-time arrival prediction in transport uses a range of methods, from exponential smoothing (Hyndman & Athanasopoulos, 2021) to Kalman filtering (Kalman, 1960). For a school bus with a fixed route and a small number of stops, a simple estimator is attractive: it needs only the planned segment times and the GPS passing times, can run on a low-cost server, and is easy to explain to operators. This paper describes such an estimator and examines by simulation when it improves on the static timetable and by how much.

METHODS

Estimator. Let the route have n segments with planned times p(j), and let a(j) be the actual time of segment j, observed from GPS when the bus passes stop j. The ratio r(j) = a(j)/p(j) measures how much slower (r > 1) or faster than planned the bus is running. After the bus has passed k stops, the smoothed ratio is updated recursively,

$$R(k) = \lambda\, r(k) + (1 - \lambda)\, R(k-1), \quad R(1) = r(1) \tag{1}$$

and the predicted remaining time is the planned remaining time scaled by a weighted ratio,

$$T(k) = \sum_{j=k+1}^{n} p\,(j)[\theta\, R(k) + (1 - \theta)] \tag{2}$$

where λ is the smoothing weight and θ ∈ [0, 1] controls the reliance on the observed ratio; θ = 0 gives the static timetable. The predicted arrival time is the elapsed time plus T(k). In the simulation λ = 0.5 and θ = 1.

Simulation. A route of n = 12 segments with planned times totalling 30 min was used. The actual time of a segment is a(j) = p(j)·ρ·ε(j), where ρ is a trip-level congestion factor, ρ ~ Lognormal(ln μ, s²), and ε(j) ~ Lognormal(0, 0.10²) is independent segment noise. Three scenarios were considered: S1 stable (μ = 1.00, s = 0.08); S2 daytime (μ = 1.29, s = 0.12), where μ = 35.5/27.5 is the ratio of measured morning and daytime speeds; and S3 variable (μ = 1.10, s = 0.25). For each scenario 20 000 trips were simulated and the absolute error of the predicted arrival time at the final stop was calculated for the static timetable and the adaptive estimator after k = 2, 4, 6, 8, 10 stops.

RESULTS AND DISCUSSION

Table 1 shows the errors after six stops. In the daytime scenario the mean absolute error of the static timetable is 4.9 min, because the whole trip is systematically longer than planned; the adaptive estimator reduces it to 1.2 min (76% lower), and the 95th percentile of the error falls from 9.5 to 3.0 min. Under variable conditions the gains are similar (3.9 to 1.0 min). Even with stable traffic (S1) the estimator does not make the prediction worse and reduces the error from 1.17 to 0.93 min, since it also corrects the random deviations accumulated over the first stops.

Table 1. Arrival-time error after six stops (20 000 simulated trips per scenario)

1. **Scenario**	2.	3.	4. **MAE static, min**	5. **MAE adaptive, min**	6. **P95 static, min**	7. **P95 adaptive, min**
8. S1 stable	9.	10	11. 1.2	12. 0.9	13. 2.9	14. 2.3
15. S2 daytime	16	17	18. 4.9	19. 1.2	20. 9.5	21. 3.0
22. S3 variable	23	24	25. 3.9	26. 1.0	27. 10.8	28. 2.7

Simulation by the authors; MAE – mean absolute error, P95 – 95th percentile of the absolute error.

Fig. 1 shows how the error depends on the number of stops already passed. The static error in S2 falls only because less of the route remains to be mispredicted (the bias persists), while the adaptive error decreases from 2.1 min after two stops to 0.6 min after ten stops. The first stops carry little information about the trip-level congestion factor, so the estimator is most useful for the later stops, which is where parents waiting at the stop need an accurate prediction.

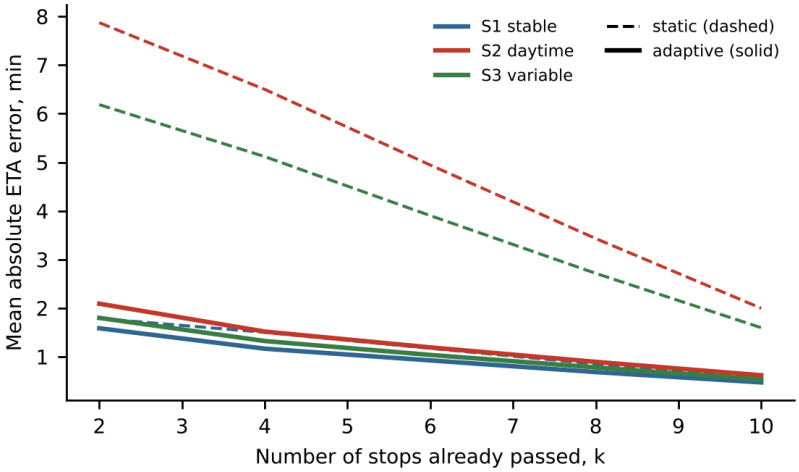

Fig. 1. Mean absolute ETA error versus the number of stops passed: static timetable (dashed) and adaptive estimator (solid)

The results depend on the simulation assumptions: a single congestion factor per trip, independent segment noise and perfect GPS timing. Real traffic has incidents and signal delays that affect single segments and cannot be extrapolated, and GPS positions have errors; both will reduce the gain. The values of λ and θ should be tuned on recorded data. The study is therefore a demonstration that the estimator is worth testing in the field, not an estimate of its field accuracy.

CONCLUSION

A simple estimator that scales the remaining planned segment times by a smoothed ratio of actual to planned times substantially improves arrival-time prediction in a simulated school bus route when traffic differs from the timetable: after six stops the mean absolute error falls from 4.9 to 1.2 min under daytime conditions and from 3.9 to 1.0 min under variable conditions. The gain is small when traffic matches the timetable. The next step is to validate the estimator on GPS recordings of real trips and to tune its parameters.

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INKLUZIV TA'LIMDA KOMPYUTER VA SUN'IY INTELLEKT TEXNOLOGIYALARIDAN FOYDALANISHNING PEDAGOGIK ASOSLARI

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Annotatsiya. *Ushbu maqolada imkoniyati cheklangan bolalarni rivojlantirish jarayonida kompyuter texnologiyalaridan foydalanishning asosiy pedagogik va texnik talablari yoritilgan. Kompyuterdan foydalanish orqali bolalarning bilim olish, mustaqil faoliyat yuritish, muloqot qilish va turli ko'nikmalarini rivojlantirish imkoniyatlari tahlil qilingan. Shuningdek, kompyuter vositalarini tanlashda bolaning individual imkoniyatlari, yoshi va rivojlanish xususiyatlarini hisobga olish, texnik xavfsizlikni ta'minlash hamda mashg'ulotlarni to'g'ri tashkil etish masalalariga e'tibor qaratilgan. Maqolada kompyuterdan foydalanish oddiy texnik jarayon emas, balki bolaning ehtiyojlariga mos tashkil etiladigan pedagogik faoliyat sifatida qaraladi.*

Abstract. *This article examines the key pedagogical and technical requirements for the use of computer technologies in the development of children with disabilities. It analyzes the potential of computer-based technologies to support children's learning, independent activity, communication, and the development of various skills. Particular attention is paid to considering the child's individual abilities, age, and developmental characteristics when selecting computer-based tools, as well as ensuring technical safety and properly organizing learning activities. The article considers the use of computers not merely as a technical process, but as a pedagogically oriented activity designed to meet the individual needs of each child.*

Аннотация. *В данной статье рассматриваются основные педагогические и технические требования к использованию компьютерных технологий в процессе развития детей с ограниченными возможностями. Анализируются возможности применения компьютерных технологий для поддержки образовательной деятельности детей, формирования навыков самостоятельной работы, коммуникации и развития различных умений. Особое внимание уделяется учёту индивидуальных возможностей, возраста и особенностей развития ребёнка при выборе компьютерных средств, а также обеспечению технической безопасности и правильной организации учебных занятий.*

Использование компьютера в статье рассматривается не только как технический процесс, но и как педагогически ориентированная деятельность, направленная на удовлетворение индивидуальных образовательных потребностей каждого ребёнка.

***Kalit so‘zlar**: Imkoniyati cheklangan bolalar, kompyuter, inklyuziv ta’lim, axborot texnologiyalari, assistiv texnologiyalar, individual yondashuv, raqamli ta’lim, rivojlantiruvchi ta’lim.*

***Ключевые слова:** Дети с ограниченными возможностями, компьютер, инклюзивное образование, информационные технологии, ассистивные технологии, индивидуальный подход, цифровое образование, развивающее обучение.*

***Keywords:** Children with disabilities, computer, inclusive education, information technologies, assistive technologies, individualized approach, digital education, developmental education.*

ASOSIY QISM

Zamonaviy ta’lim jarayonida axborot-kommunikatsiya texnologiyalaridan foydalanish o‘quv faoliyatini tashkil etishning qo‘shimcha imkoniyatlarini yaratmoqda. Ayniqsa, imkoniyati cheklangan bolalar bilan ishlashda kompyuter texnologiyalari ta’lim materiallarini bolaning individual imkoniyatlariga moslashtirish va uning ta’lim jarayonidagi ishtirokini kengaytirish imkonini beradi. O‘zbekiston Respublikasida alohida ta’lim ehtiyojlari bo‘lgan bolalar uchun inklyuziv ta’limni rivojlantirish davlat siyosatining muhim yo‘nalishlaridan biri sifatida belgilangan. Jumladan, 2020-yil 13-oktabrdagi PQ-4860-son qarorda inklyuziv ta’lim tizimini rivojlantirish konsepsiyasi tasdiqlangan.[5]

Imkoniyati cheklangan bolalarni rivojlantirishda kompyuterdan foydalanishning asosiy maqsadi bolaning mavjud imkoniyatlarini kengaytirish va ta’lim jarayonida faol ishtirok etishi uchun qulay sharoit yaratishdan iborat. Kompyuter yordamida rang, shakl, tovush, harf va sonlarni farqlash, xotira va diqqatni rivojlantirishga qaratilgan interaktiv topshiriqlarni tashkil etish mumkin.

Kompyuter texnologiyalaridan foydalanish samaradorligi, avvalo, ta’lim jarayonini bolaning individual imkoniyatlari va ehtiyojlariga mos tashkil etishga bog‘liq. Har bir bolaning rivojlanish darajasi va ehtiyojlari turlicha bo‘lgani sababli foydalaniladigan qurilma va dasturlar ham unga moslashtirilishi kerak.

[5] O‘zbekiston Respublikasi Prezidentining 2020-yil 13-oktabrdagi PQ-4860-son qarori. **“Alohida ta’lim ehtiyojlari bo‘lgan bolalarga ta’lim-tarbiya berish tizimini yanada takomillashtirish chora-tadbirlari to‘g‘risida”**. — Toshkent, 2020.

Masalan, ko‘rishida qiyinchiligi bo‘lgan bolalar uchun kattalashtirilgan tasvir yoki ovozli funksiyalardan, eshitishida qiyinchiligi bo‘lgan bolalar uchun esa vizual va matnli materiallardan foydalanish mumkin. Bunday yondashuv inklyuziv ta’limning teng imkoniyat yaratish tamoyiliga mos keladi.[6]

Kompyuter bilan mashg‘ulotlarni tashkil etishda bolaning sog‘lig‘i va qulayligini ta’minlovchi texnik hamda **ergonomik shartlar**ga rioya qilish zarur. Ish joyi bolaning yoshiga va jismoniy imkoniyatlariga mos tashkil etilishi, monitor qulay joylashtirilishi va mashg‘ulotlar davomida tanaffuslar berilishi kerak. Kompyuterdan foydalanish vaqti bolaning individual holatiga qarab belgilanib, raqamli faoliyat boshqa rivojlantiruvchi mashg‘ulotlar bilan uyg‘unlashtirilishi lozim.

Foydalaniladigan **dasturiy ta’minot** bolaning rivojlanish darajasi va mavjud imkoniyatlariga muvofiq tanlanishi lozim. Dastur interfeysi sodda, topshiriqlar tushunarli va bosqichma-bosqich murakkablashadigan shaklda tashkil etilganda bolaning mustaqil ishlash imkoniyati ortadi. Interaktiv topshiriqlar diqqat, xotira, tafakkur va mayda motorikani rivojlantirishga xizmat qilishi mumkin.

Alohida e’tibor **assistiv texnologiyalarga** qaratilishi lozim. WHO va UNICEFning Global Report on Assistive Technology hisobotida assistiv texnologiyalar insonlarning ta’lim, kundalik faoliyat va jamiyatdagi ishtirokini qo‘llab-quvvatlashda muhim vosita ekani ko‘rsatilgan.[7] Shu sababli imkoniyati cheklangan bolaning ehtiyojiga qarab maxsus klaviatura, ovozli boshqaruv, ekran kattalashtirgich yoki boshqa moslashtirilgan qurilmalardan foydalanish mumkin.

So‘nggi tadqiqotlarda imkoniyati cheklangan o‘quvchilar uchun **raqamli va assistiv texnologiyalar**dan foydalanish masalasiga ham alohida e’tibor qaratilmoqda. Xususan, N. Sayidov va J. Mirzaqosimova tomonidan 2026-yilda olib borilgan tadqiqotda inklyuziv ta’limni raqamlashtirish jarayonida zamonaviy assistiv texnologiyalardan foydalanish imkoniyatlari tahlil qilingan. Mualliflar raqamli vositalarni o‘quvchilarning individual ehtiyojlariga moslashtirish inklyuziv ta’lim samaradorligini oshirishning muhim shartlaridan biri ekanini ko‘rsatadi[4]. Ushbu yondashuv kompyuterdan foydalanishda faqat texnik vositani tanlash bilan cheklanmasdan, uning bolaning rivojlanish

[6] UNESCO. **Global Education Monitoring Report 2020: Inclusion and Education: All Means All**. — Paris: UNESCO, 2020

[7] World Health Organization; UNICEF. **Global Report on Assistive Technology**. — Geneva: World Health Organization, 2022.

xususiyatlari va ta’lim ehtiyojlariga mosligini ham hisobga olish zarurligini ko‘rsatadi.

Kompyuter mashg‘ulotlari bolaning real hayotdagi faoliyati bilan ham bog‘lanishi zarur. Masalan, kompyuterda ranglarni ajratishni o‘rgangan bola keyinchalik kundalik hayotdagi buyumlarni rangiga ko‘ra ajratishi mumkin. Shu tarzda raqamli mashq amaliy ko‘nikmaga aylantiriladi.

Ushbu jarayonning to‘g‘ri tashkil etilishida pedagog va ota-onaning muntazam kuzatuvi hamda **yo‘naltiruvchi yordam**i muhim o‘rin tutadi. Kompyuter bolaning jonli muloqoti, jismoniy faoliyati va amaliy mashg‘ulotlarini almashtirmasligi kerak. U bolaning rivojlanishini qo‘llab-quvvatlovchi yordamchi pedagogik vosita sifatida qo‘llanilishi maqsadga muvofiq.

Kompyuter texnologiyalarining rivojlanishi bilan bir qatorda sun’iy intellekt (SI) vositalaridan ta’lim jarayonida foydalanish imkoniyatlari ham kengayib bormoqda. Sun’iy intellekt ma’lumotlarni tahlil qilish, nutq va matn bilan ishlash, tasvirlarni aniqlash hamda foydalanuvchi faoliyatiga mos javoblarni shakllantirish kabi vazifalarni bajarishi mumkin. Imkoniyati cheklangan bolalar bilan olib boriladigan pedagogik faoliyatda bunday imkoniyatlar ta’lim materiallarini bolaning individual ehtiyojlariga moslashtirish, topshiriqlarni turli shakllarda taqdim etish va o‘quv jarayonini yanada qulay tashkil etishga xizmat qilishi mumkin.

Sun’iy intellektga asoslangan vositalarning muhim jihatlaridan biri ta’lim mazmunini turli qabul qilish kanallari orqali yetkazish imkoniyatidir. Masalan, matnni ovozga aylantirish funksiyasi ko‘rishida qiyinchiligi bo‘lgan bolalarga yozma materialni tinglash orqali o‘zlashtirishda yordam berishi mumkin. Nutqni matnga aylantirish vositalari esa yozishda yoki klaviaturadan foydalanishda qiynaladigan o‘quvchilar uchun muqobil imkoniyat yaratadi. Tasvirlarni tavsiflash, subtitr yaratish va vizual materiallarni soddalashtirish kabi funksiyalar ham ayrim ta’limiy vazifalarni bajarishni yengillashtiradi. Biroq mazkur vositalarning samarasi bolaning ehtiyoji, funksional imkoniyatlari va foydalanilayotgan dastur sifatiga bog‘liq.

Sun’iy intellekt yordamida moslashtirilgan topshiriqlarni taklif etish ham istiqbolli yo‘nalishlardan biridir. Jumladan, dastur bolaning topshiriqni bajarish sur’ati va javoblariga qarab mashq murakkabligini bosqichma-bosqich o‘zgartirish uchun qo‘llanishi mumkin. Pedagog bunday natijalardan bolaning qaysi mavzu yoki ko‘nikmada qo‘shimcha yordamga ehtiyoji borligini aniqlashda foydalanadi. Shu bilan birga, sun’iy intellekt tomonidan berilgan baho bolaning rivojlanishi haqida yakuniy xulosa sifatida qabul qilinmasligi, u

pedagogik kuzatuv va amaliy topshiriqlar natijalari bilan birgalikda tahlil qilinishi lozim.

Sun’iy intellekt vositalarini inklyuziv ta’limga joriy etishda xavfsizlik va axloqiy talablar alohida ahamiyatga ega. UNESCOning ta’lim va tadqiqotlarda generativ sun’iy intellektdan foydalanish bo‘yicha qo‘llanmasida inson manfaatlarini ustuvor qo‘yish, ma’lumotlar maxfiyligini himoya qilish hamda texnologiyalarning pedagogik va axloqiy jihatdan maqsadga muvofiqligini baholash zarurligi ta’kidlanadi[5]. UNICEFning bolalar va sun’iy intellektga oid siyosiy tavsiyalarida esa bolalar xavfsizligi, shaxsiy ma’lumotlarini himoya qilish, kamsitmaslik, shaffoflik va inklyuzivlik muhim talablar sifatida ko‘rsatilgan[6]. Shuning uchun bolaning shaxsiy yoki tibbiy ma’lumotlarini tegishli himoyasiz raqamli platformalarga kiritmaslik, yoshiga mos bo‘lmagan xizmatlardan foydalanmaslik va natijalarni kattalar nazoratida tekshirish zarur.

Demak, sun’iy intellekt imkoniyati cheklangan bolalar bilan ishlashda mustaqil pedagog o‘rnini egallaydigan vosita emas, balki ta’lim jarayonini individuallashtirishga ko‘maklashuvchi texnologik yordamchi sifatida qaralishi kerak. Uni tanlashda bolaning yoshi, rivojlanish xususiyatlari, ta’limiy maqsad, foydalanish qulayligi va ma’lumotlar xavfsizligi hisobga olinishi lozim. Eng muhimi, sun’iy intellektdan foydalanish jonli muloqot, pedagogning bevosita yordami, jismoniy faollik va amaliy mashg‘ulotlarni cheklamasligi, aksincha, ularni to‘ldirishi kerak.

XULOSA

Imkoniyati cheklangan bolalarni rivojlantirishda kompyuterdan foydalanish ta’lim jarayonini individuallashtirish va bolaning imkoniyatlarini kengaytirish uchun muhim vosita hisoblanadi. Kompyuter yordamida ta’lim materiallarini vizual, ovozli va interaktiv shaklda taqdim etish, mustaqil faoliyatni qo‘llab-quvvatlash hamda ayrim muloqot qiyinchiliklarini kamaytirish mumkin.

Biroq kompyuterdan foydalanish bolaning individual ehtiyojlariga mos, xavfsiz va aniq pedagogik maqsad asosida tashkil etilishi kerak. Texnik vositalarni to‘g‘ri tanlash, dasturlarni moslashtirish, foydalanish vaqtini me’yorlash va pedagogik nazoratni ta’minlash orqali kompyuter imkoniyati cheklangan bolalarning rivojlanishini qo‘llab-quvvatlovchi samarali vositaga aylanishi mumkin.

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ARTIFICIAL INTELLIGENCE-BASED ENERGY MANAGEMENT FRAMEWORK FOR SUSTAINABLE ELECTRIFICATION OF URBAN TRANSPORT SYSTEMS

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Abstract: *Transportation electrification is becoming one of the most effective approaches for reducing greenhouse gas emissions and improving energy efficiency in urban mobility systems. However, large-scale deployment of electric vehicles (EVs) introduces new challenges related to battery degradation, charging infrastructure utilization, and power demand management. This study proposes an artificial intelligence-based energy management framework for sustainable urban transport electrification. The proposed model integrates machine learning forecasting algorithms with optimization-based charging scheduling to minimize energy consumption and peak load demand while maintaining transport service reliability. A mathematical model describing energy flow, battery state of charge, and charging station utilization is developed. Simulation results demonstrate that the proposed framework can reduce peak electricity demand and improve charging efficiency compared with conventional charging strategies. The findings contribute to the development of intelligent and sustainable transportation systems aligned with global decarbonization objectives.*

Keywords: *Transportation Electrification, Artificial Intelligence, Energy Management, Electric Vehicles, Smart Charging, Sustainable Transport.*

1. INTRODUCTION

The transportation sector remains one of the largest contributors to global carbon emissions. According to international transportation electrification initiatives, electrified mobility is considered a key pathway toward sustainable transportation development and carbon reduction. Transportation electrification technologies are rapidly expanding in passenger vehicles, buses, logistics fleets, and railway systems. (ITEC + EATS 2026)

Despite these advantages, widespread adoption of electric transportation introduces operational challenges:

increasing electricity demand;

charging infrastructure congestion;
battery aging;
inefficient charging schedules;
peak-load impacts on power grids

Artificial intelligence (AI) has recently emerged as an effective tool for solving complex optimization problems in transportation systems. AI algorithms enable predictive analysis, adaptive control, and intelligent energy management.

This research proposes an AI-based framework that combines load forecasting and charging optimization for sustainable urban transport electrification.

2. Literature Review

Recent studies indicate that intelligent transportation systems increasingly rely on AI technologies for operational optimization and predictive maintenance. Transportation electrification has become a major research area due to its ability to reduce emissions and improve energy efficiency.

Researchers have investigated:
neural-network-based energy prediction;
smart charging strategies;
battery health estimation;
fleet energy optimization;
intelligent traffic-energy coordination.

However, most existing approaches focus either on battery management or charging scheduling separately. Integrated AI-driven energy management frameworks remain insufficiently explored.

3. Mathematical Model

3.1 Energy Consumption Model

The energy consumption of an electric vehicle is represented as

[E=\int_0^TP(t)dt]

where:
(E) – consumed energy (kWh);
(P(t)) – instantaneous power demand (kW);
(T) – operation time (h).

3.2 Battery State of Charge

Battery State of Charge (SOC) is calculated as

[SOC(t)=SOC_0-\frac{1}{C_b}\int_0^tI(\tau)d\tau]

Where
(SOC_0) – initial charge level;
(C_b) – battery capacity (Ah);

(I) – battery current

3.3 Charging Optimization Objective

The optimization objective is

[\minJ=\sum_{i=1}^{N}\left(C_eP_i+\lambdaD_i\right)]

where:

(C_e) – electricity price;

(P_i) – charging power;

(D_i) – battery degradation factor;

(\lambda) – weighting coefficient.

The objective simultaneously minimizes charging cost and battery aging.

4. Artificial Intelligence Framework

The proposed framework contains four layers:

Layer 1 – Data Acquisition

Input variables:

traffic intensity;

charging station occupancy;

battery status;

electricity tariff;

weather conditions.

Layer 2 – AI Prediction Module

A Long Short-Term Memory (LSTM) neural network predicts:

[Load_{t+1}=f(Load_t,Traffic_t,Weather_t)]

The model forecasts future charging demand.

Layer 3 – Optimization Engine

A genetic algorithm determines:

charging sequence;

charging duration;

charging power allocation.

Layer 4 – Decision Support System

The optimized schedule is transmitted to charging stations in real time.

5. Simulation Resultsz

A simulation involving 100 electric vehicles and 10 charging stations was conducted.

Table 1.

Performance Comparison

Indicator	**Conventional Charging**	**Proposed AI Framework**
Average Charging Efficiency (%)	81.2	92.7
Peak Load (kW)	1250	980
Average Waiting Time (min)	22	11
Battery Degradation Index	1.00	0.81
Energy Cost Reduction (%)	–	18.4

The results indicate substantial improvement in energy utilization and charging performance.

6. DISCUSSION

The obtained results demonstrate that artificial intelligence can significantly improve transportation electrification performance.

Major benefits include:

lower electricity consumption;

reduced charging congestion;

improved battery lifetime;

enhanced charging infrastructure utilization;

reduced environmental impact.

The framework is particularly suitable for smart-city transportation systems and future electric public transport fleets.

7. CONCLUSION

This study proposed an AI-based energy management framework for sustainable electrification of urban transportation systems.

The developed mathematical model integrates battery dynamics, charging optimization, and machine-learning forecasting.

Simulation results show that the proposed approach can:

reduce peak electricity demand;

improve charging efficiency;

decrease battery degradation;

Future work will focus on real-world implementation using transport data from Uzbekistan and integration with smart-grid infrastructure.

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TASHQI AVTOMOBIL OMBORLARIDA VIN RAQAMINI MOBIL QURILMALAR YORDAMIDA AVTOMATIK ANIQLASH VA MA'LUMOTLARNI SAMARALI UZATISH

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Annotatsiya. *Maqolada «UzAuto Motors» AJ tashqi omborlarida avtomobillar harakatini hisobga olish uchun ishlab chiqilgan TMM mobil axborot tizimi tavsiflanadi. VIN raqamini avtomatik aniqlashning ko'p manbali usuli taklif etilgan: stikerdagi DataMatrix kodi, kamera orqali matnni tanish (OCR) va nakladnoy rasmidan VIN ro'yxatini ajratish. Hujjat va stiker rasmlarini mobil qurilmada avtomatik qirqish va perspektivasini to'g'rilash algoritmi hamda cheklangan tarmoqda ma'lumot uzatish hajmini kamaytirish usullari ko'rib chiqilgan. Namunaviy rasmlarda rasmli so'rovlar hajmi Android'da 68%, iOS'da 36% ga kamaydi.*

Kalit so'zlar: *VIN, DataMatrix, OCR, mobil ilova, ombor hisobi, hujjatni aniqlash, perspektivani to'g'rilash, ma'lumot uzatishni optimallashtirish.*

Annotation. *The paper describes TMM, a mobile information system developed to record vehicle movements in the external warehouses of UzAuto Motors JSC. A multi-source method for automatic VIN recognition is proposed: the DataMatrix code on the vehicle label, camera-based optical character recognition (OCR), and extraction of VIN lists from photographed waybills. An on-device algorithm for cropping and perspective correction of document and label images is presented, together with techniques for reducing data transfer over constrained networks. On sample images, the size of image-bearing requests decreased by 68% on Android and 36% on iOS.*

Keywords: *VIN, DataMatrix, OCR, mobile application, warehouse management, document detection, perspective correction, data transfer optimization.*

KIRISH

Avtomobil ishlab chiqarish korxonalarida tayyor mahsulot zavoddan chiqqach, iste'molchiga jo'natilgunga qadar tashqi omborlarda saqlanadi. «UzAuto Motors» AJ ning Asaka va Xorazm hududlaridagi 20 ta tashqi

omborida bir vaqtda 50 000 tagacha avtomobil saqlanadi, kuniga o‘rtacha 1 500 ta avtomobil va 250 ga yaqin treyler qayd etiladi. Har bir avtomobil 17 belgili VIN (Vehicle Identification Number) raqami bilan aniqlanadi (International Organization for Standardization [ISO], 2009).

Korxona hisob-kitoblariga ko‘ra, an’anaviy usulda VIN raqami avval qog‘oz blankka, so‘ngra elektron jadvalga qo‘lda yoziladi. Bu kuniga taxminan 6 000 ta amal va 100 soat ish vaqtini talab qiladi, kuniga 7–8 ta VIN yozish xatosi uchraydi, real vaqtdagi qoldiq (ostatka) ma’lumoti esa faqat inventarizatsiyadan so‘ng ma’lum bo‘ladi.

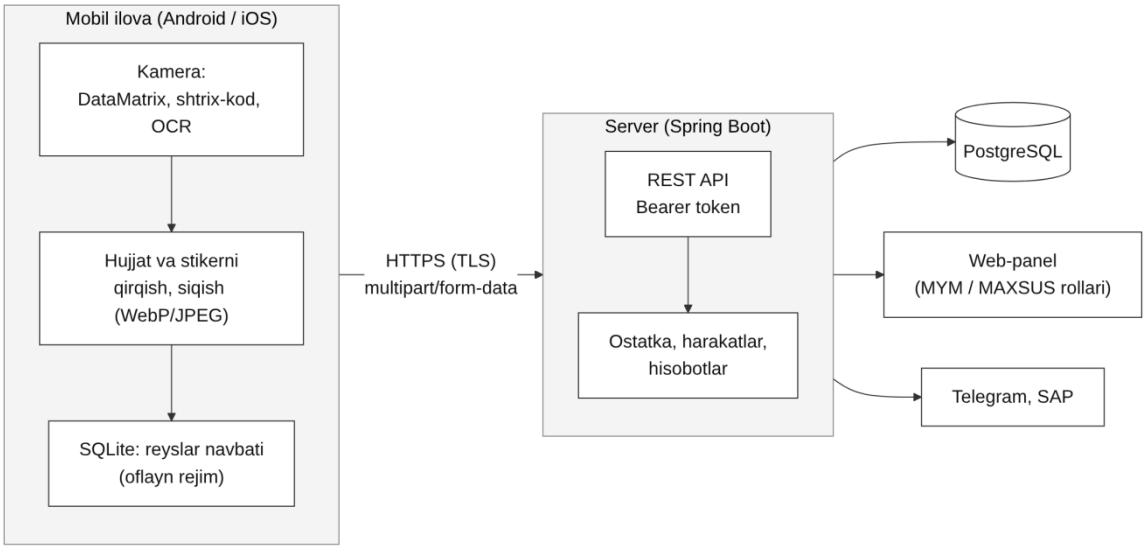
Jarayonni mobil qurilmalar yordamida avtomatlashtirishda quyidagi texnik muammolar yuzaga keladi: ochiq maydonda yorug‘lik va suratga olish burchagi o‘zgaruvchan bo‘lgani sababli stiker va hujjatlarni ishonchli o‘qish; stikerda bir nechta shtrix-kod joylashgani uchun ulardan VIN saqlovchisini tanlash; mobil aloqa sifati past hududlarda ko‘p sonli rasmlarni serverga uzatish.

Ushbu ishning maqsadi — tashqi omborlarda VIN raqamini mobil qurilmalar yordamida avtomatik aniqlash va to‘plangan ma’lumotlarni rasmlar bilan birga serverga samarali uzatish usullarini ishlab chiqish hamda ularni TMM tizimida amalga oshirishdir.

ASOSIY QISM

Tizim arxitekturasi.

TMM tizimi uch qismdan iborat (1-rasm): Android (Kotlin, CameraX, ML Kit) va iOS (SwiftUI, AVFoundation, Vision) mobil ilovalari; Spring Boot asosidagi server va PostgreSQL ma’lumotlar bazasi; rollar bo‘yicha ruxsat berilgan web-panel. Mobil ilova va server o‘rtasidagi aloqa TLS protokoli (Rescorla, 2018) bilan himoyalangan, foydalanuvchi Bearer token orqali aniqlanadi. Internet uzilganda skanerlangan ma’lumotlar qurilmadagi SQLite bazasida reys (treyler) bo‘yicha navbatga qo‘yiladi va aloqa tiklanganda avtomatik yuboriladi.



1-rasm. TMM tizimining arxitekturasi

VIN raqamini ko‘p manbali aniqlash.

VIN uchta manbadan olinadi. Birinchi manba — avtomobil stikeridagi DataMatrix kodi (ISO/IEC, 2006). Tadqiqot davomida stiker kodi dekodlanganda u 20×20 modulli ECC200 belgisi ekani va C40 rejimida «VINNOMER:XWBJA69V9VA034722» ko‘rinishidagi matnni saqlashi aniqlandi. Stikerda DataMatrix bilan birga ikkita chiziqli shtrix-kod ham joylashgani sababli, kamera bir kadrda bir nechta kodni topganda ichida to‘g‘ri VIN bo‘lgan kod tanlanadi.

Olingan matn VIN qoidalari bo‘yicha tekshiriladi: uzunligi 17 belgi, I, O va Q harflari ishlatilmaydi (ISO, 2009), birinchi belgi ishlab chiqaruvchi hududiga mos keladi (X, 1, 9, M, K, J, L). Ajratish uchun avval «VIN…:» belgili ifoda, so‘ngra [A-HJ-NPR-Z0-9]{17} muntazam ifodasi qo‘llaniladi. VIN ning birinchi uch belgisi (WMI) va to‘rtinchi belgisi bo‘yicha avtomobil modeli, o‘ninchi belgisi bo‘yicha model yili avtomatik aniqlanadi.

Ikkinchi manba — kod o‘qilmagan holatda stiker matnini optik tanish (Smith, 2007): Android’da ML Kit (Google, n.d.-a), iOS’da Vision (Apple Inc., n.d.) kutubxonasi qurilmaning o‘zida ishlaydi. Uchinchi manba — treyler nakladnoyi: hujjat rasmidagi barcha 17 belgili VIN lar OCR yordamida ajratiladi va reysdagi har bir skanerlangan VIN uchun «nakladnoyda bor/yo‘q» belgisi hisoblanadi. Bu avtomobillarning hujjatga mosligini qo‘lda solishtirish zaruratini yo‘qotadi.

Hujjat va stiker rasmini avtomatik qirqish.

OCR aniqligi va uzatiladigan hajm rasmda fon qanchalik kam bo‘lishiga bog‘liq. Shu sababli rasmga olingach, varaq yoki stiker chegarasi qurilmada aniqlanadi va faqat shu qism saqlanadi. Algoritm quyidagi bosqichlardan iborat:

1) rasm uzun tomoni 640 pikselgacha kichraytirilib, kulrang tusga o‘tkaziladi;

2) Sobel operatori bilan chegaralar topiladi, bo‘sag‘a gradient qiymatlarining 85-persentili bo‘yicha tanlanadi (Canny, 1986); rasm chetidan to‘ldirish orqali yopiq chegara bilan o‘ralgan eng katta soha ajratiladi, muqobil nomzod sifatida Otsu (1979) usuli bilan eng katta yorug‘ soha olinadi;

3) sohaning taxminiy burchaklari x+y va x−y qiymatlarining ekstremumlari bo‘yicha topiladi; har bir tomon bo‘ylab chegara nuqtalariga eng kichik kvadratlar usulida to‘g‘ri chiziq o‘tkaziladi (burchak yaqinidagi 10% va 1,5 pikseldan uzoq nuqtalar tashlanadi), burchaklar qo‘shni chiziqlar kesishmasi sifatida aniqlanadi;

4) nomzod tekshiriladi: qavariqlik, sohaning to‘rtburchakni to‘ldirish darajasi (0,82–1,25), A4 uchun tomonlar nisbati (1,2–1,75) hamda chetning ichki va tashqi tomonidagi yorqinlik farqi — bu bosma jadval chizig‘ini varaq cheti deb olishning oldini oladi;

5) proyektiv o‘zgartirish (gomografiya) bilan perspektiva to‘g‘rilanadi (Hartley & Zisserman, 2004), varaq A4 nisbatiga (1:√2) keltiriladi va fon qolmasligi uchun chegara 0,6% ichkariga suriladi.

iOS’da 1–2-bosqichlar o‘rniga Vision kutubxonasining hujjat va to‘rtburchak aniqlash vositalari ishlatiladi, 4–5-bosqichlar umumiy. Varaq topilmasa, rasm ekrandagi ramka bo‘yicha saqlanadi va foydalanuvchiga qayta olish tavsiya etiladi.

Ma’lumot uzatish hajmini kamaytirish.

Reys ma’lumoti har bir VIN uchun stiker rasmi, mavjud bo‘lsa nuqson rasmi va reysning nakladnoy rasmlarini o‘z ichiga oladi. Dastlabki variantda rasmlar JSON so‘rovi ichida Base64 ko‘rinishida uzatilgan; Base64 har 3 baytni 4 belgiga aylantirib, hajmni 4/3 marta oshiradi (Josefsson, 2006). Quyidagi choralar qo‘llanildi:

– rasmlarni multipart/form-data so‘rovining alohida ikkilik qismlari sifatida uzatish (Masinter, 2015), bunda rasm hajmi 25% ga kamayadi (1 − 3/4);

– Android’da JPEG (Wallace, 1992) o‘rniga WebP formatidan foydalanish: teng SSIM sifatida WebP fayllari JPEG’dan 25–34% kichik (Google, n.d.-b); iOS’da JPEG saqlanib, siqish sifati pasaytirildi;

– rasm o‘lchamini turi bo‘yicha moslash: VIN stikeri — 1000 piksel, nakladnoy — 1400 piksel va oq-qora, nuqson rasmi — 1200 piksel, siqish sifati — 45%;

– nakladnoy rasmlarini har bir VIN bilan emas, reysga bir marta yuborish: reysda n ta avtomobil bo‘lsa, nakladnoy trafigi n marta kamayadi;

– orqaga moslik: server yangi formatni qabul qilmasa (HTTP 415), ilova avtomatik ravishda JSON formatiga qaytadi.

Natijalar va muhokama.

Rasmning JPEG ko‘rinishidagi hajmi S bo‘lsin. Base64 bilan uzatish hajmi 4S/3 ga, WebP va multipart bilan esa kS ga teng, bu yerda k = 0,66–0,75 — WebP koeffitsiyenti. Nisbiy hajm kS/(4S/3) = 3k/4 = 0,50–0,56, ya’ni rasmli so‘rovlar hajmi 44–50% ga kamayadi (1-jadval). Oq-qora nakladnoy va o‘lcham cheklovlari qo‘shimcha tejamkorlik beradi.

1-jadval. Bitta rasmni uzatish hajmining nazariy bahosi

Uzatish usuli	Nisbiy hajm	Kamayish
JPEG + Base64 (JSON)	1,33·S	—
JPEG + multipart (iOS)	1,00·S	25%
WebP + multipart (Android)	0,66–0,75·S	44–50%

Usulni amalda baholash uchun 3 ta VIN stikeri va 1 ta nakladnoy rasmida ilovadagi siqish sozlamalari Pillow kutubxonasi (libjpeg, libwebp) yordamida takrorlandi va so‘rovdagi rasm hajmi o‘lchandi. Taqqoslash asosi — dastlabki usul: JPEG 60% sifat va Base64 (2-jadval).

2-jadval. Namunaviy rasmlarda bitta rasmni uzatish hajmi, KB

Rasm (o‘lchami, piksel)	JPEG 60% + Base64	WebP 45% (Android)	JPEG 45% (iOS)
VIN stikeri 1 (1000×746)	108,9	31,9 (−71%)	70,8 (−35%)
VIN stikeri 2 (1000×645)	80,9	26,0 (−68%)	50,5 (−38%)
VIN stikeri 3 (330×248)	17,7	8,2 (−54%)	11,3 (−36%)
Stikerlar jami	**207,4**	**66,1 (−68%)**	**132,5 (−36%)**
Nakladnoy, oq-qora (806×520)	96,6	40,1 (−59%)	60,4 (−37%)

Stiker rasmlarida uzatish hajmi Android’da 68%, iOS’da 36% ga kamaydi. Android’dagi natija 1-jadvaldagi nazariy bahodan yuqori, chunki format bilan birga siqish sifati ham 60% dan 45% ga tushirildi. Nakladnoy tasvirida mos ravishda 59% va 37% tejaldi. Namunalar soni kam bo‘lgani sababli natijalar dastlabki hisoblanadi; VIN tanish aniqligi va kiritish vaqti bo‘yicha dala sinovlari ASAKA SOP omborida davom etmoqda.

Korxona hisob-kitoblariga ko‘ra, tizim to‘liq joriy etilganda bitta amalga sarflanadigan vaqt 60 soniyadan 10 soniyagacha, avtomobilni qidirish vaqti 15 daqiqadan 3 daqiqagacha qisqarishi, qog‘oz blanklardan to‘liq voz kechilishi

kutilmoqda. VIN ni kod va OCR orqali olish hamda VIN qoidalari bo‘yicha tekshirish qo‘lda yozishdagi xatolarni amalda bartaraf etadi. Algoritmning cheklovi shundaki, oq varaq oq yuzada turganda uning chegarasi topilmasligi mumkin; bunday holatda tizim foydalanuvchini ogohlantiradi.

XULOSA

Ishda tashqi avtomobil omborlarida VIN raqamini mobil qurilmalar yordamida avtomatik aniqlash va ma’lumotlarni samarali uzatish usullari taklif etildi va TMM tizimida amalga oshirildi. Asosiy natijalar: DataMatrix, OCR va nakladnoy tahlilini birlashtirgan ko‘p manbali VIN aniqlash usuli; qurilmaning o‘zida ishlaydigan va bosma jadvalni varaq chetidan ajrata oladigan hujjat qirqish algoritmi; namunaviy rasmlarda uzatish hajmini Android’da 68%, iOS’da 36% ga kamaytirgan uzatish sxemasi. Keyingi tadqiqotlarda sinov ko‘lamini kengaytirish va VIN tanish modelini korxona ma’lumotlarida qo‘shimcha o‘qitish rejalashtirilgan.

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UO‘K 004.056.53:004.85

SUN’IY INTELLEKT ASOSIDAGI ANOMAL FAOLIYATNI ANIQLASH ALGORITMLARINI ANOMALIYA TURI KESIMIDA QIYOSIY BAHOLASH VA IKKI DARAJALI GIBRID MODEL

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Annotatsiya. *Axborot tizimlarida anomal faoliyatni erta aniqlash kiberhodisalar zararini kamaytirishning asosiy shartidir: IBM 2025 hisobotiga ko‘ra, buzilishni aniqlash va to‘xtatish o‘rtacha 241 kun davom etadi. Tadqiqot maqsadi — nazoratsiz o‘qitiladigan anomaliya aniqlash algoritmlarini anomaliya turi kesimida qiyosiy baholash va amaliy tanlov modelini asoslash. Oltita algoritm (Isolation Forest, LOF, kNN, One-Class SVM, PCA, avtoenkoder) va muallif taklif etgan kNN+IF+PCA geterogen ansambli yettita ochiq ma’lumotlar to‘plamida 20 martadan (jami 980 ta tajriba) sinaldi; natijalar ROC-AUC, o‘rtacha aniqlik (AP), Fridman va Uilkokson testlari bilan baholandi. Hech bir algoritm barcha to‘plamlarda ustun bo‘lmadi: tabiiy anomaliyalarda Isolation Forest (o‘rtacha ROC-AUC 89,4 %), sun’iy lokal va global anomaliyalarda LOF yetakchilik qildi; avtoenkoder klassik usullardan ortda qoldi (79,7 %). Taklif etilgan ansambl eng yaxshi o‘rtacha rangga (2,43) erishib, o‘z tarkibidagi kNN va PCA’dan statistik ahamiyatli ustun keldi. Natijalar asosida ikki darajali gibrid aniqlash modeli ishlab chiqildi.*

Kalit so‘zlar: *anomaliyalarni aniqlash, sun’iy intellekt, nazoratsiz o‘qitish, Isolation Forest, LOF, avtoenkoder, ansambl, kiberxavfsizlik.*

Аннотация. *Раннее обнаружение аномальной активности в информационных системах является ключевым условием снижения ущерба от киберинцидентов: по данным отчёта IBM 2025 года, выявление и локализация утечки занимают в среднем 241 день. Цель исследования — сравнительная оценка алгоритмов обнаружения аномалий без учителя в разрезе типов аномалий и обоснование практической модели их выбора. Шесть алгоритмов (Isolation Forest, LOF, kNN, One-Class SVM, PCA, автоэнкодер) и предложенный автором гетерогенный ансамбль kNN+IF+PCA протестированы на семи открытых наборах данных по 20*

повторений (980 экспериментов); использованы метрики ROC-AUC и AP, критерии Фридмана и Уилкоксона. Ни один алгоритм не доминировал на всех наборах: на естественных аномалиях лидировал Isolation Forest (средний ROC-AUC 89,4 %), на синтетических локальных и глобальных — LOF; автоэнкодер уступил классическим методам (79,7 %). Предложенный ансамбль получил лучший средний ранг (2,43) и статистически значимо превзошёл входящие в него kNN и PCA. На основе результатов разработана двухуровневая гибридная модель обнаружения.

Ключевые слова: *обнаружение аномалий, искусственный интеллект, обучение без учителя, Isolation Forest, LOF, автоэнкодер, ансамбль, кибербезопасность.*

Abstract. *Early detection of anomalous activity is a precondition for limiting the damage of cyber incidents: according to IBM's 2025 report, identifying and containing a breach still takes 241 days on average. This study compares unsupervised anomaly detection algorithms across anomaly types and derives a practical selection model. Six algorithms (Isolation Forest, LOF, kNN, One-Class SVM, PCA and an autoencoder) and a heterogeneous kNN+IF+PCA ensemble proposed by the author were evaluated on seven public datasets with 20 repetitions each (980 runs) using ROC-AUC, average precision, and the Friedman and Wilcoxon tests. No single algorithm dominated: Isolation Forest led on natural anomalies (mean ROC-AUC 89.4%), LOF led on synthetic local and global anomalies, and the autoencoder trailed the classical methods (79.7%). The proposed ensemble achieved the best average rank (2.43) and significantly outperformed its kNN and PCA components. Based on these findings, a two-level hybrid detection model is proposed.*

Keywords: *anomaly detection, artificial intelligence, unsupervised learning, Isolation Forest, LOF, autoencoder, ensemble, cybersecurity.*

KIRISH

Rasmiy ma'lumotlarga ko‘ra, 2025-yilda O‘zbekiston axborot resurslariga qarshi 107 milliondan ortiq kiberhujum qayd etilgan [1], vaholanki 2021-yilda milliy internet segmentida aniqlangan hujumlar soni 13 mln dan sal ko‘proq bo‘lgan [2]. Hisob yuritish usullari o‘zgargan bo‘lishi mumkinligini inobatga olsak ham, tahdid oqimining keskin ortgani ko‘rinib turibdi. Global miqyosda ham vaziyat og'ir: IBM 2025 hisobotiga ko‘ra, ma'lumotlar sizib chiqishining o‘rtacha qiymati 4,44 mln AQSh dollarini, uni aniqlash va to‘xtatish davri 241 kunni (181 kun aniqlash, 60 kun to‘xtatish) tashkil etadi; sun'iy intellekt (SI) va avtomatlashtirishni keng qo‘llagan tashkilotlarda bu davr 80 kunga qisqargan,

zarar esa o‘rtacha 1,9 mln dollarga kam bo‘lgan [3]. Demak, anomal faoliyatni erta aniqlash bevosita iqtisodiy samaraga aylanadi.

Milliy darajada bu yo‘nalish huquqiy asosga ega: 2022-yil 15-apreldagi O‘RQ-764-son “Kiberxavfsizlik to‘g’risida”gi Qonun kiberhodisalarni aniqlash va ularga javob berish tizimini belgilagan [4], Prezidentning 2024-yil 14-oktabrdagi PQ-358-son qarori bilan esa SI texnologiyalarini 2030-yilga qadar rivojlantirish strategiyasi tasdiqlangan [5]. Biroq amaliyotda algoritm tanlash ko‘pincha “eng aniq model” izlashga aylanib qoladi va ma’lumotdagi anomaliyalarning tabiati hisobga olinmaydi.

Tadqiqot maqsadi — SI asosidagi nazoratsiz anomaliya aniqlash algoritmlarini anomaliya turi kesimida qiyosiy baholash va axborot tizimlari uchun ikki darajali gibrid aniqlash modelini asoslash. **Vazifalar:** 1) algoritmlarni ularning “normallik” haqidagi farazi va mos anomaliya turi bo‘yicha tasniflash; 2) yettita ochiq to‘plamda takrorlanuvchi hisoblash tajribasini o‘tkazish; 3) natijalarni noparametrik testlar bilan tekshirish; 4) natijalardan kelib chiqib aniqlash modelini taklif etish. **Gipotezalar:** H1 — hech bir algoritm barcha anomaliya turlarida ustun emas; H2 — turli farazlarga tayangan algoritmlarning geterogen ansambli o‘rtacha rangda yetakchi va o‘z komponentlaridan barqarorroq bo‘ladi.

Mavzuga oid adabiyotlar tahlili

Anomaliya — ma’lumotlarning kutilgan “normal” xatti-harakatga mos kelmaydigan qismi; V. Chandola va hammualliflar uni nuqtaviy, kontekstual va jamoaviy turlarga ajratib, har bir usul guruhi qaysi farazga tayanishini ko‘rsatgan [6]. Kiberxavfsizlikda bu yondashuv signaturaga asoslangan va anomaliyaga asoslangan bosqinlarni aniqlash tizimlari (IDS) farqida namoyon bo‘ladi: ikkinchisi noma’lum, “nol kun” hujumlarini ham ushlashi mumkin, ammo yolg’on signallar ulushi yuqoriroq [7; 8]. R. Sommer va V. Paxson mashinali o‘qitish tarmoq IDS’larida kam joriy etilishining sababini aynan shu nuqtada ko‘radi: hujum kamdan-kam uchraydigan, qimmat xatoli va “yopiq dunyo” farazini buzadigan hodisadir [9].

Algoritmik yondashuvlarni uch guruhga ajratish mumkin (1-jadval). **Klassik (“sayoz”) usullar** anomaliyani izolyatsiya qilish osonligi (Isolation Forest [10]), lokal zichlik pastligi (LOF [11]), eng yaqin qo‘shnigacha masofa (kNN [12]) yoki taqsimot tayanchidan tashqarida yotishi (One-Class SVM [13]) orqali aniqlaydi. **Chuqur o‘qitish usullari** — avtoenkoderlar, chuqur bir sinfli tasniflash va hokazo — murakkab, yuqori o‘lchamli ma’lumotlarda tasvirni o‘zi o‘rganadi [14; 15]. **Ansambl usullari** turli detektorlar ballarini birlashtirib, dispersiya va siljishni kamaytirishga intiladi [16].

So‘nggi yirik benchmarklar bu guruhlar orasidagi bahsga aniqlik kiritdi. ADBench’da 30 algoritm 57 to‘plamda sinalgan va nazoratsiz usullardan birortasi qolganlaridan statistik ustun emasligi aniqlangan [17]; R. Bouman va hammualliflar 33 algoritmni 52 real to‘plamda solishtirib, to‘plamlar “lokal” va “global” guruhlarga ajralishini, lokal guruhda kNN, global guruhda kengaytirilgan Isolation Forest yetakchiligini ko‘rsatgan [18]. Bu xulosalar G. Kampos va boshqalarning baholash metrikalari va to‘plam tanlovi natijaga kuchli ta’sir qilishi haqidagi ogohlantirishi bilan uyg’un [19]. Mahalliy nashrlarda esa SI usullari ko‘proq umumiy sharh tarzida yoritiladi [20]; algoritmlarni anomaliya turi bo‘yicha takrorlanuvchi tajriba bilan solishtirish hamda natijani tanlov modeliga aylantirish masalasi ochiq qolmoqda. Ushbu maqola shu bo‘shliqni to‘ldirishga qaratilgan.

1-jadval

Anomaliya aniqlash algoritmlarining farazi va mos anomaliya turi bo‘yicha tasnifi

Algoritm (guruh)	“Normallik” farazi	Ko‘proq mos anomaliya turi	Asosiy cheklov
Isolation Forest (klassik)	Anomaliya kam va farqli, tez izolyatsiyalanadi	Global, siyrak hududdagi nuqtalar	Zich klaster ichidagi lokal og’ishlarga sezgirligi past
LOF (klassik)	Normal nuqta qo‘shnilari bilan bir xil zichlikda	Lokal, turli zichlikdagi klasterlar	k parametriga sezgir, $O(n^2)$ murakkablik
kNN (klassik)	Normal nuqta qo‘shnilariga yaqin	Lokal va global aralash	Ko‘p modali normada yolg’on signal
One-Class SVM (klassik)	Normal ma’lumot yadro fazosida ixcham tayanchga ega	Global	γ, ν tanlovi va masshtabga bog’liq
PCA, avtoenkoder (rekonstruksiya)	Normal ma’lumot past o‘lchamli ko‘pxillikda yotadi	Bog’liqlik (korrelyatsiya) buzilishi	Kichik to‘plamda o‘qitish beqaror
Geterogen ansambl	Turli farazlar xatolari o‘zaro qoplanadi	Turi oldindan noma’lum holat	Hisoblash vaqti yig’indisi ortadi

Manba: [6; 10–18] asosida muallif tomonidan tuzilgan.

Tadqiqot metodologiyasi

Tajriba Python 3 muhitida scikit-learn 1.9 kutubxonasi [21] bilan bajarildi. Ma’lumotlar sifatida kutubxona tarkibidagi UCI to‘plamlari olindi va ADBench uslubiga [17] ko‘ra anomaliya aniqlash vazifasiga moslashtirildi: bir sinf “normal”, boshqa sinfdan tasodifiy tanlangan 5 % yozuv “anomaliya” deb

belgilandi. Tabiiy anomaliyali beshta to‘plam: WDBC (n = 376, d = 30, 19 anomaliya), Wine (125; 13; 6), Iris (105; 4; 5), Digits 3/8 (193; 64; 10 — vizual o‘xshash raqamlar) va Optdigits (1704; 64; 85 — normal sinf to‘qqiz raqamdan iborat ko‘p modali to‘plam). Anomaliya turining ta’sirini ajratish uchun WDBC normal yozuvlariga ADBench usulida ikki xil sun’iy anomaliya qo‘shildi: **lokal** (normal o‘rtacha va 5 marta kattalashtirilgan kovariatsiyali normal taqsimotdan) va **global** (har bir belgi diapazonidan 10 % kengroq tekis taqsimotdan).

Oltita bazaviy algoritm standart sozlamalarda ishlatildi: Isolation Forest (200 daraxt), LOF (k = 20), kNN (10-qo‘shnigacha masofa), One-Class SVM (RBF yadro, ν = 0,1), PCA (90 % dispersiya; rekonstruksiya xatosi) va avtoenkoder (d/2–d/4–d/2 neyronli ko‘p qatlamli perseptron). Muallif taklif etgan ansambl tarkibi natijalarni ko‘rishdan **oldin**, 1-jadvaldagi farazlarning bir-birini to‘ldirishi asosida belgilandi: kNN (lokal), Isolation Forest (global) va PCA (bog’liqlik). Har bir detektor balli z-normallanadi va o‘rtachasi olinadi:

$$s(x) = \tfrac{1}{3} \cdot [\, z_kNN(x) + z_IF(x) + z_PCA(x) \,], \quad z(x) = (s(x) - \mu) / \sigma, \quad (1)$$

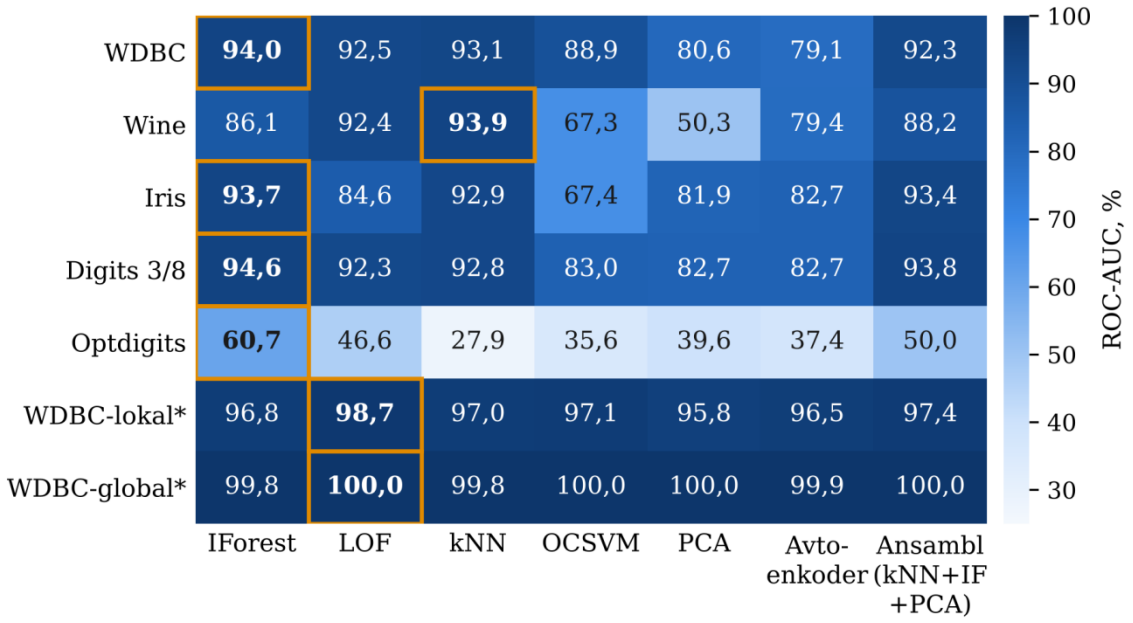
bu yerda μ va σ — tegishli detektor ballarining to‘plam bo‘yicha o‘rtachasi va standart chetlanishi. Nazoratsiz sharoitga muvofiq yorliqlar o‘qitishda ishlatilmadi; belgilar standartlandi. Har bir to‘plam 20 marta turli tasodifiy anomaliya tanlovi bilan qayta yaratildi (7 × 20 × 7 = 980 tajriba). Sifat ko‘rsatkichlari — ROC-AUC va o‘rtacha aniqlik (AP), chunki ular chegaraviy qiymatga bog’liq emas [19]. Algoritmlar to‘plamlar bo‘yicha o‘rtacha ranglari orqali Fridman testi va Neményi kritik farqi bilan solishtirildi [22]:

$$CD = q_\alpha \cdot \sqrt{(k(k + 1) / (6N))}, \quad (2)$$

bu yerda k = 7 — algoritmlar soni, N = 7 — to‘plamlar soni, $q_{0,05} = 2,949$. Ansamblni har bir komponent bilan juft solishtirishda 140 ta (7 × 20) juftlik uchun Uilkoksonning ishorali ranglar testi qo‘llandi.

Tahlil va natijalar

Natijalar 1-rasm va 2-jadvalda keltirilgan. Fridman testi algoritmlar orasidagi farqni tasdiqladi ($\chi^2 = 19,35$; $p = 0,0036$; Iman–Davenport $F = 5,12$; $p < 0,001$). Har bir to‘plamdagi g’olib turlicha: tabiiy anomaliyali to‘rt to‘plamda (WDBC, Iris, Digits 3/8, Optdigits) Isolation Forest, Wine’da kNN (93,9 %), sun’iy lokal va global anomaliyalarda LOF (98,7 % va 100 %) birinchi o‘rinni egalladi. Shu tariqa **H1 tasdiqlandi**: “universal eng yaxshi” algoritm mavjud emas.



1-rasm. Algoritmlarning to‘plamlar bo‘yicha o‘rtacha ROC-AUC qiymatlari, % (20 takror; ramkada — to‘plam g’olibi)

*Manba: muallif hisob-kitoblari. * — WDBC normal yozuvlariga sun’iy kiritilgan anomaliyalar.*

1-rasmdan ko‘rinadiki, algoritm sifati anomaliya turiga keskin bog’liq. Wine to‘plamida PCA tasodifiy darajaga tushgan (50,3 %), One-Class SVM esa 67,3 % ni ko‘rsatgan, holbuki ular global sun’iy anomaliyalarda 100 % ga yetadi. Optdigits — eng og’ir holat: normal sinf to‘qqiz xil raqamdan iborat bo‘lgani sababli “yaqin qo‘shni” farazi buziladi va kNN 27,9 % ga tushadi, ya’ni anomaliyalarni normal yozuvlardan ham pastroq baholaydi; bu sharoitda faqat Isolation Forest 60,7 % bilan tasodifiy darajadan yuqori qolgan.

2-jadval

Algoritmlarning yettita to‘plam bo‘yicha yig’ma ko‘rsatkichlari

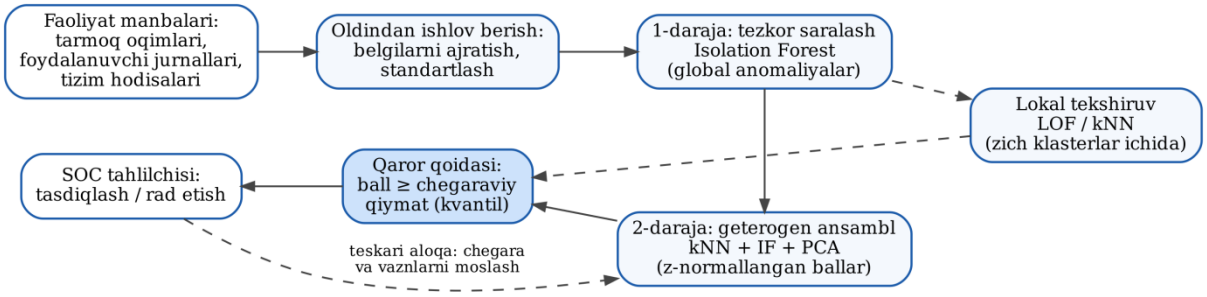
Algoritm	ROC-AUC o‘rtacha, %	ROC-AUC minimal, %	AP o‘rtacha, %	O‘rtacha rang	G’olibdan orqada qolish, p.p.	Vaqt, ms
Isolation Forest	89,4	60,7	51,6	2,71	1,40	189
LOF	86,7	46,6	45,7	2,57	4,07	4,8
kNN	85,3	27,9	45,8	3,86	5,46	3,0
One-Class SVM	77,0	35,6	37,1	5,14	13,77	7,4
PCA	75,8	39,6	33,0	5,57	14,99	1,4
Avtoenkoder	79,7	37,4	38,0	5,71	11,13	430

Algoritm	ROC-AUC o‘rtacha, %	ROC-AUC minimal, %	AP o‘rtacha, %	O‘rtacha rang	G’olibdan orqada qolish, p.p.	Vaqt, ms
Ansambl (kNN+IF+PCA)	**87,9**	**50,0**	**46,0**	**2,43**	**2,92**	194

Manba: muallif hisob-kitoblari (980 tajriba). Vaqt — bitta to‘plamda o‘qitish va baholashning o‘rtacha davomiyligi.

2-jadval taklif etilgan ansamblning o‘rnini aniq ko‘rsatadi. U eng yaxshi o‘rtacha rangga (2,43) ega va o‘z komponentlaridan ikkitasidan ishonchli ustun: kNN’dan o‘rtacha 2,5 p.p. (juftliklarning 64 % ida ustun, $p = 0,044$), PCA’dan 12,1 p.p. (89 %, $p < 0,001$). One-Class SVM va avtoenkoderdan ustunligi mos ravishda 10,8 va 8,2 p.p. ni tashkil etdi ($p < 0,001$). Ayni paytda ansambl o‘rtacha ROC-AUC bo‘yicha Isolation Forest’dan 1,5 p.p. orqada ($p = 0,005$), LOF bilan farqi esa ahamiyatsiz ($p = 0,10$). Neményi kritik farqi CD = 3,41 bo‘lib, ranglar orasidagi eng katta farq (3,28) undan kichik, ya’ni yettita to‘plamda juftma-juft ustunlikni qat’iy tasdiqlash uchun ma’lumot yetarli emas. Shunday qilib, **H2 qisman tasdiqlandi**: ansambl reyting va komponentlariga nisbatan barqarorlik bo‘yicha yutadi, lekin eng kuchli yagona algoritmni ortda qoldirmaydi.

Natijalarga tayanib, 2-rasmdagi ikki darajali gibrid model taklif etildi. Birinchi daraja — arzon va o‘rtacha bo‘yicha eng kuchli Isolation Forest bilan oqimni tezkor saralash; ikkinchi daraja — shubhali yozuvlarni geterogen ansambl bilan qayta baholash, zich klasterlar ichida esa LOF/kNN bilan lokal tekshiruv. Yakuniy qaror kvantil chegarasi bo‘yicha qabul qilinadi, xavfsizlik operatsiyalari markazi (SOC) tahlilchisining tasdiq yoki rad javobi esa chegara va vaznlarni moslash uchun teskari aloqa sifatida qaytadi.



2-rasm. Anomal faoliyatni aniqlashning ikki darajali gibrid modeli

Manba: muallif ishlanmasi (konseptual model).

MUHOKAMA

Olingan natijalar xalqaro benchmarklar bilan izchil. Yagona g’olibning yo‘qligi ADBench xulosasiga mos [17]; LOF’ning sun’iy lokal

anomaliyalardagi va kNN'ning Wine'dagi yetakchiligi Bouman va hammualliflar aniqlagan "lokal/global" bo'linishni takrorlaydi [18]. Farq shundaki, biz bu bo'linishni bir xil normal ma'lumotga turli turdagi anomaliyalarni kiritish orqali nazorat ostida ko'rsatdik: WDBC'ning o'zida tabiiy anomaliyalarda Isolation Forest, sun'iy anomaliyalarda LOF g'olib chiqdi. Demak, g'olibni ma'lumot domeni emas, anomaliyaning normal to'plamga nisbatan geometriyasi belgilaydi.

Avtoenkoderning orqada qolishi chuqur o'qitishning "har doim yaxshiroq" ekani haqidagi keng tarqalgan tasavvurga zid, ammo adabiyotdagi ehtiyotkor xulosalarga mos: chuqur usullarning ustunligi asosan tasvir va matn kabi yuqori o'lchamli ma'lumotlarda kuzatiladi [14; 15], kichik jadvalli to'plamlarda esa ular giperparametrlarga sezgir [18]. Bizda avtoenkoder natijalarining standart chetlanishi Iris va Wine'da 17–18 p.p. ga yetdi, ansamblda esa 4,2 p.p. dan oshmadi. Ansamblning Isolation Forest'dan ozgina orqada qolishini birlashtirish funksiyasi bilan izohlash mumkin: oddiy o'rtacha zaif komponent (bu yerda kNN va PCA) xatosini ham qisman meros qiladi; bu Aggarwal va Sathe ko'rsatgan siljish–dispersiya muvozanatiga mos [16]. Bundan amaliy xulosa kelib chiqadi: anomaliya turi noma'lum bo'lsa, ansambl "eng yomon holat"dan himoya qiladi (minimal ROC-AUC 50,0 % kNN'dagi 27,9 % ga qarshi), tur ma'lum bo'lsa — mos yagona algoritm afzal.

O'zbekiston sharoitida bu model muhim axborot infratuzilmasi obyektlari, banklar va tibbiyot muassasalarining SOC bo'linmalarida qo'llanishi mumkin: birinchi daraja arzon serverlarda real vaqtda ishlaydi, ikkinchi daraja faqat kichik shubhali ulushga qo'llanadi. Bu PQ-358 qarorida belgilangan SI xizmatlarini joriy etish vazifalariga [5] va O'RQ-764 Qonunidagi kiberhodisalarni aniqlash talablariga [4] amaliy javob bo'la oladi.

Cheklovlar. Tajriba jadvalli UCI to'plamlarida o'tkazildi; tarmoq trafigi (masalan, CICIDS, UNSW-NB15) va vaqt qatorlaridagi kontekstual anomaliyalar qamrab olinmadi, sababi ish muhitida tashqi to'plamlarni yuklab olish imkoni bo'lmadi. Giperparametrlar standart holatda qoldirildi, N = 7 esa Neményi testining quvvatini cheklaydi. Kelgusi tadqiqotlar modelni milliy segmentdagi real hodisalar jurnallarida sinash, vaznlarni teskari aloqa asosida moslash va ketma-ket ma'lumotlar uchun LSTM/transformer detektorlarini qo'shishga qaratiladi.

XULOSA VA TAKLIFLAR

1. Anomaliya aniqlash algoritmlari "normallik" farazi va mos anomaliya turi bo'yicha tasniflandi (1-jadval); bu tasnif algoritm tanlovini ma'lumot tavsifidan boshlash imkonini beradi.

2. 980 ta tajriba hech bir algoritm barcha to‘plamlarda ustun emasligini ko‘rsatdi (Fridman p = 0,0036): tabiiy anomaliyalarda Isolation Forest (o‘rtacha ROC-AUC 89,4 %), lokal va global sun’iy anomaliyalarda LOF yetakchi; avtoenkoder kichik jadvalli ma’lumotlarda klassik usullardan ortda (79,7 %).

3. Taklif etilgan kNN+IF+PCA ansambli eng yaxshi o‘rtacha rangga (2,43) erishdi, eng past natijani 27,9 % (kNN) dan 50,0 % gacha ko‘tardi va o‘z komponentlaridan statistik ahamiyatli ustun keldi, biroq Isolation Forest’dan 1,5 p.p. orqada qoldi.

4. Ilk bor tezkor saralash, geterogen ansambl va tahlilchi teskari aloqasini birlashtirgan ikki darajali gibrid aniqlash modeli taklif etildi (2-rasm).

Takliflar: Kiberxavfsizlik markazi va tarmoq SOC’lariga — SI asosidagi tizimlarni bitta algoritm emas, anomaliya turi bo‘yicha tanlangan algoritmlar to‘plami sifatida joriy etish; Raqamli texnologiyalar vazirligiga — PQ-358 doirasida milliy segmentdagi anonimlashtirilgan hodisalar jurnallaridan ochiq benchmark to‘plam yaratish; tashkilotlarga — modelni avval Isolation Forest bilan ishga tushirib, tahlilchi teskari aloqasi to‘plangach ansambl darajasini ulash.

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SUN’IY INTELLEKT ASOSIDAGI SHIFRLASH VA AUTENTIFIKATSIYA ALGORITMLARINING MA’LUMOTLARNI HIMOYALASHDAGI SAMARADORLIGI: MIQDORIY BAHOLASH VA ADAPTIV MODEL

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Annotatsiya. *Maqolada sun’iy intellekt (SI) asosidagi shifrlash va autentifikatsiya algoritmlarining ma’lumotlarni himoyalashdagi samaradorligi baholangan. O‘zbekistonda kiberjinoyatlar soni 2019–2024-yillarda 68 baravar oshib, 2024-yilda umumiy jinoyatchilikning 44,4 foiziga yetgani mavzuning dolzarbligini belgilaydi. IBM/Ponemon (2017–2025), Verizon DBIR 2025 va IIV ma’lumotlari dinamika, juftlangan t-mezon, Uilkokson mezoni va tarkibiy tahlil bilan qayta ishlangan. SI va avtomatlashtirishni keng qo‘llagan tashkilotlarda bitta buzilish xarajati o‘rtacha 43,6 foizga past ekani aniqlandi (95% ishonch oralig’i 34,3–53,0%; t = 8,08; p < 0,001); 2023–2025-yillarda bu samara 33–34 foiz atrofida barqarorlashgan. Milliy kiberjinoyat usullarining 76 foizi autentifikatsiya qatlamini chetlab o‘tishga qaratilgani ko‘rsatildi. Natijalar asosida bitta xavf bahosi orqali autentifikatsiya qadamini ham, shifrlash siyosatini ham boshqaradigan to‘rt bosqichli adaptiv model (SI-AShAM) taklif etildi.*

Kalit so‘zlar: *sun’iy intellekt, shifrlash, autentifikatsiya, xulq-atvor biometriyasi, xavfga asoslangan autentifikatsiya, postkvant kriptografiya, ma’lumotlar buzilishi, kiberxavfsizlik.*

Аннотация. *В статье оценивается эффективность алгоритмов шифрования и аутентификации на основе искусственного интеллекта (ИИ) в защите данных. Актуальность определяется тем, что число киберпреступлений в Узбекистане за 2019–2024 гг. выросло в 68 раз, а в 2024 г. их доля достигла 44,4% всей преступности. Данные IBM/Ponemon (2017–2025), Verizon DBIR 2025 и МВД обработаны методами анализа динамики, парного t-критерия, критерия Уилкоксона и структурного анализа. Установлено, что у организаций, широко применяющих ИИ и автоматизацию, стоимость одной утечки в среднем на 43,6% ниже (95%*

ДИ 34,3–53,0%; t = 8,08; p < 0,001), причём в 2023–2025 гг. эффект стабилизировался на уровне 33–34%. Показано, что 76% способов киберпреступлений в стране направлены на обход уровня аутентификации. Предложена четырёхэтапная адаптивная модель (ИИ-АМША), в которой единая оценка риска управляет как шагом аутентификации, так и политикой шифрования.

Ключевые слова: *искусственный интеллект, шифрование, аутентификация, поведенческая биометрия, риск-ориентированная аутентификация, постквантовая криптография, утечка данных, кибербезопасность.*

Abstract. *The article assesses how effective artificial intelligence (AI)-based encryption and authentication algorithms are in data protection. The topic is pressing: cybercrime in Uzbekistan grew 68-fold between 2019 and 2024 and accounted for 44.4% of all recorded crime in 2024. IBM/Ponemon (2017–2025), Verizon DBIR 2025 and Ministry of Internal Affairs data were analysed with trend analysis, a paired t-test, the Wilcoxon test and structural analysis. Organizations with extensive use of security AI and automation incurred, on average, 43.6% lower cost per breach (95% CI 34.3–53.0%; t = 8.08; p < 0.001); since 2023 the effect has stabilised at 33–34%. Some 76% of national cybercrime methods were found to target the authentication layer. A four-stage adaptive model (AI-AEAM) is proposed in which a single risk score governs both the authentication step and the encryption policy.*

Keywords: *artificial intelligence, encryption, authentication, behavioural biometrics, risk-based authentication, post-quantum cryptography, data breach, cybersecurity.*

KIRISH

2024-yilda O‘zbekistonda axborot texnologiyalari yordamida 62 turdagi 58 800 ta jinoyat qayd etildi, 2019-yilda esa 18 turdagi 863 ta bo‘lgan [1]. Bir yil ichida kiberjinoyatlarning umumiy jinoyatchilikdagi ulushi 6,2 foizdan 44,4 foizga ko‘tarildi, ularning 98 foizi bank kartalari bilan bog’liq [1; 2]. Veb-resurslarga hujumlar 2022-yildagi qariyb 4,5 mln dan 2023-yilda 11 mln dan ortiqqa yetgan [3].

Himoya talablari “Shaxsga doir ma’lumotlar to‘g’risida”gi (02.07.2019, O‘RQ-547) [4] va “Kiberxavfsizlik to‘g’risida”gi (15.04.2022, O‘RQ-764) [5] qonunlarda belgilangan. PQ-358-son qaror (14.10.2024) bilan tasdiqlangan Sun’iy intellekt texnologiyalarini 2030-yilga qadar rivojlantirish strategiyasi [6] va PF-38-son Farmon (10.03.2026) bilan tasdiqlangan 2026–2030-yillar

Kiberxavfsizlik strategiyasi [7] SI va kiberxavfsizlikni yagona kun tartibiga olib chiqdi.

IBM hisobotiga ko‘ra, 2025-yilda bitta ma’lumot buzilishining o‘rtacha global xarajati 4,44 mln AQSh dollarini tashkil etgan, SI va avtomatlashtirishni keng qo‘llagan tashkilotlar esa o‘rtacha 1,9 mln dollar tejagan [8]. Verizon tahlil qilgan 12 195 ta tasdiqlangan buzilishda dastlabki kirishning eng ko‘p uchragan vektori hisob ma’lumotlarini suiiste’mol qilish (22%) bo‘lgan [9]. Demak, buzilishlar ko‘pincha shifrni sindirishdan emas, autentifikatsiyani chetlab o‘tishdan boshlanadi.

Mavjud tadqiqotlar SI ning shifrlash va autentifikatsiyadagi imkoniyatlarini alohida-alohida, texnik ko‘rsatkichlar orqali baholaydi; samaraning ko‘p yillik iqtisodiy barqarorligi va O‘zbekistondagi hujumlar tuzilmasiga mosligi ochiq qolmoqda. **Maqolaning maqsadi** — SI asosidagi shifrlash va autentifikatsiya algoritmlarining samarasini miqdoriy baholash va milliy sharoitga mos adaptiv himoya modelini asoslash. **Vazifalar:** 1) SI-kriptografiya va SI-autentifikatsiya yondashuvlarini tizimlashtirish; 2) 2018–2025-yillar ma’lumotlarida SI ning buzilish xarajatiga ta’sirini statistik baholash; 3) milliy kiberjinoyat usullarini himoya qatlamlariga moslashtirish; 4) adaptiv himoya modelini ishlab chiqish. **Gipotezalar:** H1 — SI ni keng qo‘llash buzilish xarajatini statistik ahamiyatli kamaytiradi; H2 — nisbiy samara so‘nggi yillarda pasayib, barqaror darajaga chiqqan; H3 — O‘zbekistondagi kiberjinoyat usullarining ko‘pchiligi autentifikatsiya qatlamini chetlab o‘tishga yo‘naltirilgan.

Mavzuga oid adabiyotlar tahlili

Kaur va hammualliflar 236 ta asosiy tadqiqotni tizimli ko‘rib chiqib, SI ning kiberxavfsizlikdagi qo‘llanishini aniqlash, himoya va javob choralari bo‘yicha tasniflagan [10]. Biz adabiyotni ikki yo‘nalishga ajratdik (1-jadval).

SI va kriptografiya. Abadi va Andersen neyron tarmoqlar oldindan berilgan algoritmsiz, adversarial o‘qitish orqali shifrlash va deshifrlash shaklini o‘rgana olishini ko‘rsatgan, biroq mualliflarning o‘zi bunday tizimlar klassik kriptografiya kabi shaffoflik va kafolat bermasligini tan olgan [11]. SI ning kriptografiyadagi kuchliroq roli hujum va baholash tomonida ko‘rinmoqda. Gohr chuqur qoldiq tarmoqlarga asoslangan farqlovchi yordamida 11 raundli Speck32/64 ning qolgan xavfsizligini taxminan 38 bitgacha tushirgan [12]. Benadjila va hammualliflar konvolyutsion tarmoqlarning niqoblangan AES ga qarshi yon kanal tahlilida samaradorligini ASCAD bazasida ko‘rsatgan [13]. Amaliy standartlar esa matematik qiyin masalalarga tayanadi: NIST 2024-yilda panjaralarga asoslangan ML-KEM ni FIPS 203 sifatida e’lon qildi [14]. Mahalliy

tadqiqotda oqimli shifrlar qiyoslanib, xavfsiz algoritm ilova xavfsizligini kafolatlamasligi ta’kidlangan [15].

SI va autentifikatsiya. Bu yo‘nalishda SI himoyachining bevosita vositasi. TypeNet LSTM modeli klaviatura dinamikasi bo‘yicha teng xatolik darajasini (EER) fizik klaviaturada 2,2%, sensorli ekranda 9,2% da saqlagan [16]. Smartfon sensorlariga asoslangan 140 dan ortiq ish tahlili xulq-atvor biometriyasi foydalanuvchini sessiya davomida yashirin tasdiqlay olishini ko‘rsatadi [17]. Wiefling va hammualliflarning 1,8 yillik kuzatuviga ko‘ra, xavfga asoslangan autentifikatsiya (RBA) qonuniy foydalanuvchilarni kam bezovta qilgan holda maqsadli hujumchilarning 99,45 foizidan ko‘prog’ini to‘sgan [18]. Ko‘p faktorli autentifikatsiya (MFA) kompromat xavfini 99,22 foizga kamaytirgan, ilova-autentifikatorlar esa SMS dan ustun bo‘lgan [19]. NIST SP 800-63B-4 yo‘riqnomasi fishingga chidamli autentifikatorlarni (FIDO2/passkey) yuqori ishonch darajalari uchun asosiy talabga aylantirdi [20].

SI hujumchi qo‘lida ham bor: deepfake detektorlari nazoratli sharoitda 90–100% aniqlikka erishsa-da, yangi avlod soxtaliklarida umumlashuvi pasayadi [21]. Mahalliy olimlar dastxatni mashinali o‘qitish bilan tekshirishda TATU bazasida 90,04% aniqlik olgan [22].

1-jadval

SI asosidagi shifrlash va autentifikatsiya yondashuvlarining qiyosi

Yo‘nalish	SI usuli	Asosiy natija	Cheklov
Neyron kriptografiya [11]	Adversarial o‘qitish	Tarmoqlar algoritmsiz shifrlashni o‘rgangan	Xavfsizlik isbotlanmaydi
Neyron kriptotahlil [12]	Chuqur qoldiq tarmoq	11 raundli Speck32/64 xavfsizligi ~38 bitgacha	Qisqartirilgan raundli yengil shifrlar
Yon kanal tahlili [13]	CNN, ASCAD bazasi	Niqoblangan AES amalga oshirilishini baholash	Hujumchi ham qo‘llay oladi
Klaviatura dinamikasi [16]	LSTM (TypeNet)	EER 2,2% (fizik) / 9,2% (sensorli)	Qurilma va matn uzunligiga bog’liq
Xavfga asoslangan autentifikatsiya [18]	Kontekst belgilari bo‘yicha xavf bahosi	Maqsadli hujumchilarning >99,45% i to‘silgan	Belgilar tanloviga sezgir
Deepfake aniqlash [21]	CNN/RNN detektorlar	Nazoratli sharoitda 90–100% aniqlik	Yangi soxtaliklarda umumlashuv past

Manba: keltirilgan adabiyotlar asosida muallif tomonidan tuzilgan.

Sintez uchta bo‘shliqni ko‘rsatadi: kriptografiyada SI asosan tekshiruvchi va hujumchi vosita bo‘lib, algoritm o‘rnini bosmaydi, autentifikatsiyada esa faol himoya qismi; texnik metrikalar iqtisodiy samaraga o‘girilmagan; ikki yo‘nalish yagona xavf bahosi orqali bog’lanmagan va milliy hujum tuzilmasida sinalmagan.

Tadqiqot metodologiyasi

Nazariy asos — chuqurlashtirilgan himoya, xavfga asoslangan autentifikatsiya va kriptografik moslashuvchanlik (crypto-agility) tamoyillari. Manbalar: IBM/Ponemon hisobotlari (2017–2025) — global o‘rtacha xarajat hamda SI/avtomatlashtirishni to‘liq yoki keng qo‘llagan (C_1) va qo‘llamagan (C_0) tashkilotlar xarajati, 2018–2025, n = 8 [8; 23]; Verizon DBIR 2025 [9]; IIV statistikasi [1; 2]; ITU GCI 2024 [24]. Qiymatlar nominal mln AQSh dollarida. Dinamika o‘rtacha yillik o‘sish sur’ati bilan baholandi:

$$CAGR = (Y_n / Y_0)^{1/n} - 1, \quad (1)$$

bu yerda Y_0, Y_n — davr boshi va oxiridagi qiymat, n — yillar soni. Trend chiziqli regressiya va determinatsiya koeffitsienti R^2 bilan aniqlandi. SI ning nisbiy samarasi quyidagicha hisoblandi:

$$E_t = (C_{0,t} - C_{1,t}) / C_{0,t} \cdot 100\%. \quad (2)$$

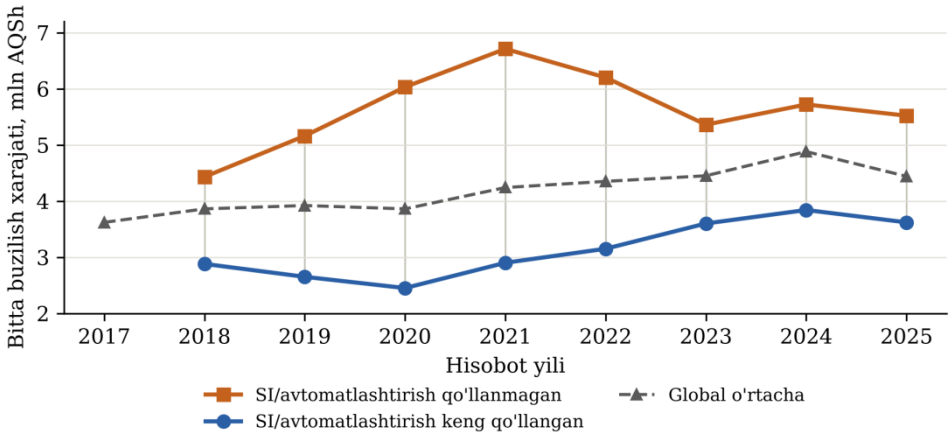
Yillik farqlar $\Delta_t = C_{0,t} - C_{1,t}$ ning nolga tengligi juftlangan t-mezon bilan tekshirildi:

$$t = M(\Delta) / (s_\Delta / \sqrt{n}), \quad df = n - 1, \quad (3)$$

bu yerda $M(\Delta)$, s_Δ — farqlarning o‘rtachasi va standart chetlanishi. Tanlov kichik bo‘lgani uchun Uilkokson mezoni va Koen d_z effekt kattaligi ham hisoblandi. H2 uchun 2018–2022 va 2023–2025-yillar Uelch t-testi bilan solishtirildi; chegara IBM hisobotlarida 2023-yildan guruh “to‘liq joriy etilgan” o‘rniga “keng qo‘llangan” deb nomlana boshlagani bilan asoslanadi [23]. H3 uchun IIV e’lon qilgan kiberjinoyat usullari muallif tomonidan uch himoya qatlamiga ajratildi: autentifikatsiya, ijtimoiy muhandislik (to‘lov tasdig’i) va shaxsni tasdiqlash (KYC). Hisob-kitoblar Python 3 (pandas, SciPy) muhitida bajarildi.

Tahlil va natijalar

Global o‘rtacha buzilish xarajati 2017–2024-yillarda 3,62 dan 4,88 mln dollargacha o‘sgan (CAGR 4,4%), 2025-yilda esa 4,44 mln dollarga pasaygan [8; 23]. 2017–2025-yillar uchun chiziqli trend yiliga 0,13 mln dollar o‘sishni ko‘rsatadi ($R^2 = 0,83$; $p < 0,001$). 1-rasmga ko‘ra, SI ni keng qo‘llaganlar xarajati har yili global o‘rtachadan past, qo‘llamaganlarniki esa yuqori.



1-rasm. SI/avtomatlashtirishni qo‘llash darajasi bo‘yicha bitta buzilish xarajati, 2017–2025-yillar

Manba: IBM/Ponemon hisobotlari [8; 23] ma’lumotlari asosida muallif tomonidan tuzilgan.

Guruhlar farqi 1,55–3,81 mln dollar oralig’ida, o‘rtacha 2,51 mln dollar (2-jadval). Juftlangan t-test farqning tasodifiy emasligini tasdiqladi: $t(7) = 8,08$; $p < 0,001$. Uilkokson mezoni bo‘yicha $p = 0,008$, effekt kattaligi $d_z = 2,86$. O‘rtacha nisbiy samara E = 43,6% (95% ishonch oralig’i 34,3–53,0%). Demak, **H1 tasdiqlandi**.

2-jadval

SI/avtomatlashtirishning buzilish xarajatiga ta’siri, mln AQSh $

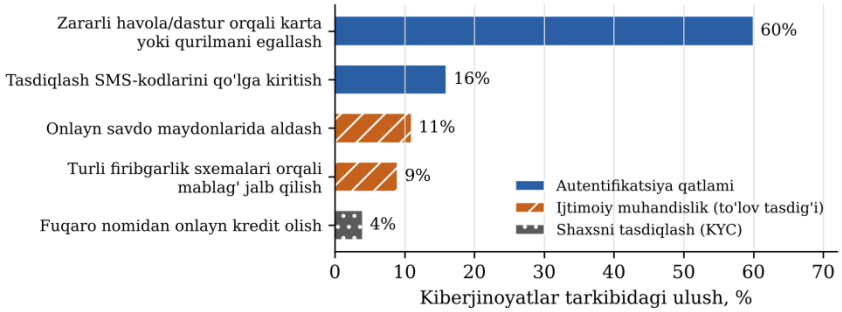
Ko‘rsatkich	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**O‘rtacha**	**2023–25**
C_1 (SI keng)	2,88	2,65	2,45	2,90	3,15	3,60	3,84	3,62	3,14	3,69
C_0 (SI yo‘q)	4,43	5,16	6,03	6,71	6,20	5,36	5,72	5,52	5,64	5,53
$\Delta = C_0 - C_1$	1,55	2,51	3,58	3,81	3,05	1,76	1,88	1,90	2,51	1,85
E, %	**35,0**	**48,6**	**59,4**	**56,8**	**49,2**	**32,8**	**32,9**	**34,4**	**43,6**	**33,4**

Manba: [8; 23] ma’lumotlari asosida muallif hisob-kitoblari; (2) formula.

Nisbiy samara 2020-yilda eng yuqori (59,4%), 2023–2025-yillarda esa 32,8–34,4% oralig’ida. 2018–2022 va 2023–2025-yillar o‘rtachalari (49,8% va 33,4%) o‘rtasidagi farq statistik ahamiyatli (Uelch $t = 3,83$; $p = 0,018$), biroq butun davr bo‘yicha chiziqli pasayish trendi ahamiyatsiz ($p = 0,27$). Shu sababli

H2 qisman tasdiqlandi: pasayish silliq trend ko‘rinishida emas, 2023-yildagi daraja siljishi sifatida yuz bergan.

Kiberjinoyatlar 2019–2024-yillarda 68,1 baravar (CAGR 132,6%) oshgan [1]. Himoya qatlamlari bo‘yicha guruhlash (2-rasm) ko‘rsatdiki, 60% holat zararli havola yoki dastur orqali karta va qurilmani egallash, 16% holat esa tasdiqlash SMS-kodlarini qo‘lga kiritish bilan bog’liq [2]. Ikkala usul ham autentifikatsiya qatlamini chetlab o‘tadi, demak kiberjinoyatlarning 76 foizi bevosita autentifikatsiya zaifligidan foydalanadi. **H3 tasdiqlandi**.



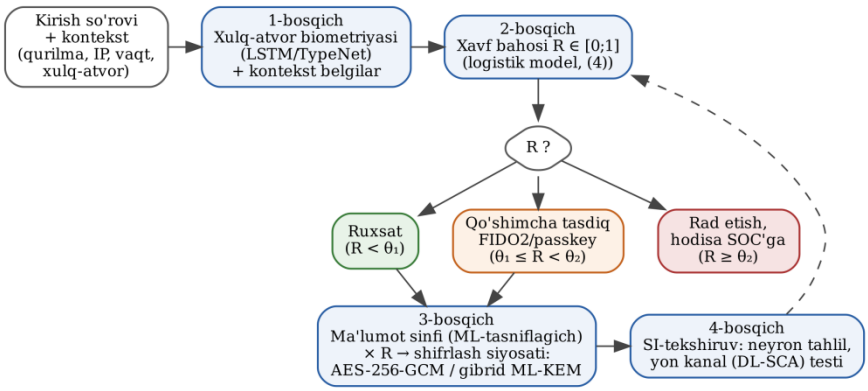
2-rasm. O‘zbekistonda kiberjinoyat usullarining himoya qatlamlari bo‘yicha taqsimoti, 2024-yil

Manba: IIV ma’lumotlari [2] asosida muallif tomonidan tuzilgan; qatlamlarga ajratish — muallifniki.

Natijalar asosida SI asosidagi adaptiv shifrlash va autentifikatsiya modeli (SI-AShAM) taklif etildi (3-rasm). 1-bosqichda xulq-atvor biometriyasi va kontekst belgilari yig’iladi, 2-bosqichda xavf bahosi hisoblanadi:

$$R = 1 / (1 + exp(-(\beta_0 + \Sigma \beta_i x_i))), \quad (4)$$

bu yerda x_i — me’yorlashtirilgan belgilar, β_i — tarixiy kirishlarda o‘qitiladigan vaznlar. $R < \theta_1$ da ruxsat beriladi, $\theta_1 \leq R < \theta_2$ da SMS o‘rniga FIDO2/passkey tasdig’i so‘raladi, $R \geq \theta_2$ da so‘rov rad etilib, hodisa SOC ga uzatiladi. 3-bosqichda ML-tasniflagich ma’lumotning maxfiylik sinfini aniqlaydi va R bilan birgalikda shifrlash siyosatini tanlaydi: odatiy rejimda AES-256-GCM, uzoq muddat saqlanadigan yoki yuqori xavfli seanslarda klassik va ML-KEM [14] kalit almashinuvining gibrid sxemasi qo‘llanadi. 4-bosqichda amalga oshirish chuqur o‘qitishga asoslangan yon kanal testlari [13] bilan tekshirilib, natijalar θ va β ni qayta o‘qitishga qaytariladi.



3-rasm. SI asosidagi adaptiv shifrlash va autentifikatsiya modeli (SI-AShAM)

Manba: muallif ishlanmasi (konseptual model); uzuq chiziq — teskari aloqa: θ va β ni qayta o‘qitish.

Muhokama

43,6% lik o‘rtacha samara IBM ning yillik xulosalariga mos [8; 23], ammo ko‘p yillik qator ikki jihatni ochadi. Birinchidan, samara 2023-yildan keyin taxminan uchdan bir darajasiga tushgan. Ehtimoliy sabablar — guruhlash mezonining o‘zgarishi va SI keng tarqalib, “qo‘llamagan” guruh tarkibining o‘zgarishi. Ikkinchidan, SI qo‘llagan tashkilotlar xarajati ham 2020–2024-yillarda 2,45 dan 3,84 mln dollargacha o‘sgan, ya’ni SI xarajatni faqat nisbiy kamaytiradi — hujumchilar ham SI dan foydalanmoqda [10; 21].

Autentifikatsiya bo‘yicha natija Verizon ma’lumotlariga yo‘nalish jihatidan mos: global miqyosda ham hisob ma’lumotlarini suiiste’mol qilish birinchi kirish vektori [9]. Biroq O‘zbekistonda bu ulush ancha yuqori (76% va 22%). Farq metodlardan kelib chiqadi: Verizon tashkilotlardagi buzilishlarni, IIV esa asosan fuqarolarga qarshi karta firibgarligini qayd etadi. Shunga qaramay, 16% holatda aynan SMS-kodning o‘g’irlanishi Meyer va hammualliflarning SMS ilova-autentifikatorga nisbatan zaifroq degan xulosasini [19] milliy sharoitda tasdiqlaydi va fishingga chidamli autentifikatorlarga o‘tish [20] zarurligini asoslaydi.

Shifrlash bo‘yicha xulosa ehtiyotkorroq: neyron kriptografiya [11] standart algoritmlarga muqobil emas, Gohr [12] va Benadjila [13] natijalari esa SI ning kriptografik qiymati tekshiruv va kriptotahlilda ekanini ko‘rsatadi. Shu bois SI-AShAM da SI algoritm yaratmaydi, balki standart algoritmlar (AES, ML-KEM) orasidan siyosat tanlaydi va amalga oshirishni tekshiradi; bu mahalliy xulosaga [15] ham mos.

Amaliy ahamiyat. Banklarda SMS-tasdiqni xavfga asoslangan tekshiruv va FIDO2 bilan almashtirish kiberjinoyatlarning eng katta qismiga bevosita

ta’sir qiladi; my.gov.uz da SI xizmatlari ulushini oshirish [6] esa biometrik identifikatsiyaga deepfake detektorlarini qo‘shishni talab etadi. O‘zbekistonning ITU GCI 2024 da 89,2 ball bilan T2 guruhiga kiritilishi [24] bunday choralar uchun institutsional asos borligini ko‘rsatadi.

Cheklovlar. IBM ma’lumotlari kuzatuvga asoslangan, shuning uchun natija sabab-oqibatni emas, bog’liqlikni ko‘rsatadi; n = 8, qiymatlar inflyatsiyaga tuzatilmagan; milliy statistika faqat ayrim yillar uchun ochiq. SI-AShAM ning θ va β parametrlari real kirish ma’lumotlarida empirik sinovni talab qiladi — bu kelgusi tadqiqot yo‘nalishi.

XULOSA VA TAKLIFLAR

1. Kriptografiyada SI asosan kriptotahlil va amalga oshirishni tekshirish vositasi, autentifikatsiyada esa bevosita himoya mexanizmi (1-vazifa).

2. SI va avtomatlashtirishni keng qo‘llash 2018–2025-yillarda bitta buzilish xarajatining o‘rtacha 43,6% (2,51 mln dollar) past bo‘lishi bilan bog’liq; 2023–2025-yillarda samara 33–34% darajasida barqarorlashgan (2-vazifa, H1, H2).

3. O‘zbekistondagi kiberjinoyat usullarining 76% i autentifikatsiya qatlamini chetlab o‘tadi, shu bois milliy sharoitda SI investitsiyalarining ustuvor yo‘nalishi autentifikatsiya bo‘lishi lozim (3-vazifa, H3).

4. Bitta xavf bahosi orqali autentifikatsiya qadamini va shifrlash siyosatini birgalikda boshqaradigan to‘rt bosqichli SI-AShAM modeli ishlab chiqildi (4-vazifa).

Takliflar: banklarga — yuqori xavfli operatsiyalarda SMS-kodni RBA va FIDO2/passkey bilan bosqichma-bosqich almashtirish; Raqamli texnologiyalar vazirligiga — masofaviy biometrik identifikatsiyada jonlilik (liveness) va deepfake tekshiruvini majburiy qilish; Kiberxavfsizlik markaziga — davlat axborot tizimlarida ML-KEM asosidagi gibrid shifrlashga o‘tish yo‘l xaritasini tayyorlash va kiberjinoyat statistikasini ochiq yillik qatorlarda e’lon qilish.

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RAQAMLI TEXNOLOGIYALAR ASOSIDA OLIY TA'LIMDA ELEKTRON TA'LIM MUHITINI TAKOMILLASHTIRISH

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Annotatsiya. *Ushbu tezisda zamonaviy oliy ta'lim muassasalarida elektron ta'lim muhitini rivojlantirish va takomillashtirishning dolzarb masalalari yoritilgan. Ta'lim jarayoniga sun'iy intellekt, bulutli texnologiyalar, interaktiv ta'lim platformalari va boshqa raqamli vositalarni joriy etishning pedagogik imkoniyatlari tahlil qilingan. Shuningdek, raqamli texnologiyalarning ta'lim sifatini oshirish, talabalarning mustaqil ta'lim olish ko'nikmalarini rivojlantirish, o'qituvchi va talaba o'rtasidagi kommunikatsiyani takomillashtirish hamda ta'lim resurslaridan samarali foydalanishdagi ahamiyati ko'rib chiqilgan. Elektron ta'lim muhitini samarali tashkil etishga to'sqinlik qiluvchi muammolar va ularni bartaraf etish bo'yicha takliflar ishlab chiqilgan.*

Kalit so'zlar: *elektron ta'lim, raqamli texnologiyalar, oliy ta'lim, elektron ta'lim muhiti, sun'iy intellekt, bulutli texnologiyalar, Moodle, interaktiv platformalar, raqamli kompetensiya, mustaqil ta'lim, ta'lim sifati.*

KIRISH

Bugungi kunda jamiyat hayotining barcha sohalarida raqamli texnologiyalarning keng qo'llanilishi ta'lim tizimining ham mazmuni va tashkil etilishiga sezilarli ta'sir ko'rsatmoqda. Ayniqsa, oliy ta'lim muassasalarida zamonaviy axborot-kommunikatsiya texnologiyalaridan foydalanish, elektron ta'lim resurslarini yaratish va raqamli ta'lim muhitini shakllantirish muhim vazifalardan biriga aylanmoqda.

An'anaviy ta'lim modelida bilimlar asosan auditoriya mashg'ulotlari, darsliklar va o'qituvchining bevosita tushuntirishlari orqali yetkazib beriladi. Biroq zamonaviy mehnat bozori oliy ta'lim bitiruvchilaridan nafaqat nazariy bilimlarni, balki mustaqil fikrlash, axborotni izlash va tahlil qilish, raqamli vositalardan foydalanish hamda muammolarga innovatsion yechim topish ko'nikmalarini ham talab qilmoqda. Shu nuqtayi nazardan, elektron ta'lim

muhiti ta’lim jarayonini zamonaviy talablar asosida tashkil etishning muhim vositasi hisoblanadi.

Elektron ta’lim muhiti — bu o‘quv materiallarini yaratish, saqlash, uzatish, o‘zlashtirish, nazorat qilish va ta’lim ishtirokchilari o‘rtasida o‘zaro aloqani tashkil etishga xizmat qiluvchi raqamli vositalar, platformalar hamda pedagogik texnologiyalar majmuasidir. Bunday muhit talabalarga o‘quv materiallaridan istalgan joyda va qulay vaqtda foydalanish, o‘z bilimlarini mustaqil rivojlantirish va o‘qituvchilar bilan muntazam muloqot qilish imkoniyatini yaratadi.

Shu sababli oliy ta’lim muassasalarida elektron ta’lim muhitini takomillashtirish nafaqat texnologik yangilanish, balki ta’lim sifatini oshirishga qaratilgan muhim pedagogik jarayon sifatida qaralishi lozim.

Elektron ta’lim muhitining samaradorligi unda qo‘llaniladigan raqamli texnologiyalar va ularning o‘quv jarayoniga qanchalik to‘g‘ri integratsiya qilinishiga bog‘liq. Hozirgi vaqtda sun’iy intellekt, bulutli hisoblash texnologiyalari va interaktiv ta’lim platformalari oliy ta’limni raqamlashtirishning muhim yo‘nalishlari hisoblanadi.

Sun’iy intellekt texnologiyalaridan foydalanish. Sun’iy intellekt elektron ta’lim muhitida individual ta’lim yondashuvini shakllantirish uchun keng imkoniyatlar yaratadi. Sun’iy intellektga asoslangan tizimlar talabalarning bilim darajasi, topshiriqlarni bajarish natijalari va o‘zlashtirish tezligini tahlil qilib, ularga mos o‘quv materiallari va tavsiyalarni taqdim etishi mumkin.

Masalan, adaptiv ta’lim tizimlari talabaning muayyan mavzuni o‘zlashtirish darajasiga qarab topshiriqlar murakkabligini o‘zgartiradi. Agar talaba mavzuni yaxshi o‘zlashtirgan bo‘lsa, unga murakkabroq topshiriqlar taklif qilinadi. Aksincha, mavzuni tushunishda qiyinchilik yuzaga kelsa, qo‘shimcha mashqlar va tushuntirishlar taqdim etiladi.

Bundan tashqari, sun’iy intellektga asoslangan virtual yordamchilar murakkab mavzularni tushuntirish, test savollarini shakllantirish, o‘quv materiallarini tahlil qilish va mustaqil ta’limni tashkil etishda yordam berishi mumkin. Bu esa talabalarning individual ehtiyojlarini hisobga olish va o‘qituvchining ayrim takroriy vazifalarini avtomatlashtirish imkonini beradi.

Shu bilan birga, sun’iy intellekt vositalaridan foydalanishda taqdim etilgan ma’lumotlarning ishonchliligini tekshirish, akademik halollikka rioya qilish va shaxsiy ma’lumotlarni himoya qilish muhimdir. Sun’iy intellekt o‘qituvchining o‘rnini to‘liq egallovchi vosita emas, balki pedagogik faoliyatni qo‘llab-quvvatlovchi texnologiya sifatida qo‘llanilishi kerak.

Bulutli texnologiyalarning imkoniyatlari. Bulutli texnologiyalar o‘quv materiallarini internet orqali saqlash, qayta ishlash va ulardan turli qurilmalar yordamida foydalanish imkoniyatini yaratadi. Google Drive, Microsoft OneDrive va Microsoft Teams kabi xizmatlar o‘qituvchi hamda talabalarning hujjatlar almashishi, jamoaviy loyihalar ustida ishlashi va o‘quv materiallaridan masofadan foydalanishiga yordam beradi.

Bulutli texnologiyalarning asosiy afzalliklaridan biri ta’lim resurslarining markazlashtirilgan holda saqlanishidir. Natijada o‘quv materiallarini yangilash, ulardan foydalanish va boshqa foydalanuvchilar bilan almashish jarayoni soddalashadi. Talabalar esa o‘quv materiallarini faqat auditoriyada emas, balki uyda yoki boshqa qulay joyda ham o‘rganish imkoniyatiga ega bo‘ladilar.

Bundan tashqari, elektron hujjatlar va raqamli o‘quv materiallaridan foydalanish qog‘oz sarfini kamaytirishga, ayrim tashkiliy jarayonlarni soddalashtirishga va vaqtni tejashga xizmat qiladi. Bu jihatlar ta’lim muassasalarida resurslardan oqilona foydalanish va barqaror rivojlanish tamoyillarini qo‘llab-quvvatlaydi.

Interaktiv ta’lim platformalarining pedagogik ahamiyati. Moodle, Canvas, Google Classroom va HEMIS kabi platformalar elektron ta’lim muhitining muhim tarkibiy qismlaridir. Ular o‘quv materiallarini joylashtirish, topshiriqlar berish, elektron testlar tashkil etish, baholash va talabalar faoliyatini monitoring qilish imkoniyatlarini taqdim etadi.

Interaktiv platformalarning muhim xususiyati talabalarni o‘quv jarayonining faol ishtirokchisiga aylantirishidir. Onlayn muhokamalar, virtual laboratoriyalar, elektron testlar va guruhli loyihalar orqali talabalar o‘z bilimlarini mustahkamlash, mustaqil fikrlash va amaliy muammolarni hal qilish ko‘nikmalarini rivojlantiradilar.

Shuningdek, platformalardagi statistik ma’lumotlar o‘qituvchiga talabalarning faolligi, topshiriqlarni bajarish holati va o‘zlashtirish natijalarini kuzatish imkonini beradi. Ushbu ma’lumotlar asosida o‘quv jarayoniga o‘z vaqtida tegishli o‘zgartirishlar kiritish mumkin.

Elektron ta’lim muhitining ta’lim sifati va pedagogik kommunikatsiyaga ta’siri.

Elektron ta’lim muhitini takomillashtirishning muhim natijalaridan biri o‘qituvchi va talaba o‘rtasidagi pedagogik kommunikatsiyaning yangi shakllarini rivojlantirishdir. An’anaviy ta’limda muloqot asosan auditoriyada amalga oshirilsa, elektron ta’lim sharoitida elektron pochta, videokonferensiya, onlayn forumlar va ta’lim platformalari orqali ham tashkil etiladi.

Bunday imkoniyatlar pedagogik muloqotni vaqt va makon jihatidan moslashuvchan qiladi. Masalan, talaba darsdan tashqari vaqtda ham o‘qituvchiga savol yuborishi, topshiriq bo‘yicha izoh olishi yoki muhokamalarda qatnashishi mumkin.

Elektron kommunikatsiyada sinxron va asinxron muloqot shakllaridan foydalanish alohida ahamiyatga ega. Sinxron muloqot Zoom va Microsoft Teams kabi vositalar orqali real vaqt rejimida amalga oshiriladi. Asinxron muloqot esa Moodle forumlari, elektron pochta va yozma xabarlar orqali turli vaqtlarda fikr almashish imkonini beradi.

Mazkur yondashuvlar talabalarning mustaqil ta’lim olish, o‘z fikrini yozma ravishda ifodalash va o‘quv jarayonini rejalashtirish ko‘nikmalarini rivojlantiradi. O‘qituvchi esa talabalarning topshiriqlariga muntazam izoh berish orqali ularning xatolarini aniqlash va bilimlarini takomillashtirishga yordam beradi.

Cavalcanti va hamkorlari tomonidan 2021-yilda o‘tkazilgan tizimli adabiyotlar sharhida onlayn ta’lim muhitida avtomatik qayta aloqa berish masalasi o‘rganilgan. Tadqiqotda tahlil qilingan ishlarning 65,07 foizida avtomatik qayta aloqa o‘quv faoliyati natijalarini yaxshilagani qayd etilgan [1]. Bu esa elektron ta’lim muhitida o‘z vaqtida va mazmunli fikr-mulohaza berishning ahamiyatini ko‘rsatadi.

Biroq elektron kommunikatsiya ayrim muammolarni ham yuzaga keltiradi. Jumladan, internet sifati va texnik vositalarning yetishmasligi, raqamli savodxonlik darajasidagi farqlar, bevosita muloqotning cheklanishi hamda axborot oqimining ortishi ta’lim jarayoni samaradorligiga salbiy ta’sir ko‘rsatishi mumkin. Shu sababli elektron ta’limda raqamli vositalardan foydalanish bilan bir qatorda, pedagogik muloqot madaniyatini rivojlantirish ham muhimdir.

Elektron ta’lim muhitini takomillashtirishning asosiy yo‘nalishlari.

Oliy ta’lim muassasalarida elektron ta’lim muhitini samarali tashkil etish uchun texnologik imkoniyatlar va pedagogik yondashuvlarni o‘zaro uyg‘unlashtirish zarur. Buning uchun quyidagi yo‘nalishlarga e’tibor qaratish maqsadga muvofiq:

- **Yagona raqamli ta’lim platformalarini rivojlantirish:** O‘quv materiallari, topshiriqlar, baholash natijalari va talabalar faoliyatiga oid ma’lumotlarni yagona elektron tizimda jamlash ta’lim jarayonini boshqarishni osonlashtiradi.
- **Sun’iy intellekt texnologiyalarini joriy etish:** Talabalarning bilim darajasini tahlil qilish, individual o‘quv tavsiyalarini ishlab chiqish va avtomatik

qayta aloqa mexanizmlaridan foydalanish ta’lim jarayonini individuallashtirishga yordam beradi.

- **O‘qituvchilarning raqamli kompetensiyalarini oshirish:** Pedagoglar zamonaviy ta’lim platformalari, raqamli resurslar va sun’iy intellekt vositalaridan samarali foydalanish bo‘yicha muntazam malaka oshirib borishlari kerak.
- **Interaktiv o‘quv resurslarini ko‘paytirish:** Video darslar, virtual laboratoriyalar, simulyatsiyalar, elektron darsliklar va interaktiv testlardan foydalanish ta’lim mazmunining tushunarliligi va ko‘rgazmaliligini oshiradi.
- **Raqamli tenglikni ta’minlash:** Barcha talabalar uchun internet, kompyuter va boshqa zarur texnik vositalardan foydalanish imkoniyatlarini kengaytirish elektron ta’limning ommabopligini oshiradi.
- **Axborot xavfsizligini mustahkamlash:** Elektron platformalarda saqlanadigan shaxsiy va akademik ma’lumotlarni himoya qilish, foydalanuvchilarning maxfiyligini ta’minlash va xavfsizlik qoidalariga rioya etish zarur.
- **Ta’lim samaradorligini muntazam baholash:** Elektron ta’lim muhitining natijadorligini talabalar bilimlari, mustaqil ishlash ko‘nikmalari, topshiriqlar sifati va pedagogik qayta aloqa asosida tahlil qilish lozim.

Ushbu yo‘nalishlarni izchil amalga oshirish orqali oliy ta’lim muassasalarida nafaqat zamonaviy texnologiyalarga asoslangan, balki talabalarning individual ehtiyojlarini hisobga oladigan samarali elektron ta’lim muhitini shakllantirish mumkin.

XULOSA

Xulosa qilib aytganda, raqamli texnologiyalar asosida elektron ta’lim muhitini takomillashtirish zamonaviy oliy ta’lim tizimining muhim rivojlanish yo‘nalishlaridan biridir. Sun’iy intellekt, bulutli texnologiyalar va interaktiv ta’lim platformalari o‘quv jarayonini individuallashtirish, ta’lim resurslaridan foydalanish imkoniyatlarini kengaytirish, talabalarning mustaqil ta’lim olish ko‘nikmalarini rivojlantirish hamda o‘qituvchi va talaba o‘rtasidagi kommunikatsiyani yaxshilashga xizmat qiladi.

Shu bilan birga, elektron ta’lim muhitining samaradorligi faqat zamonaviy texnologiyalarning mavjudligi bilan belgilanmaydi. Uning natijadorligi texnologiyalarning pedagogik maqsadlarga muvofiq qo‘llanilishi, o‘qituvchilarning raqamli kompetensiyasi, talabalarning faol ishtiroki va ta’lim resurslarining sifatiga ham bog‘liq.

Elektron ta’limni rivojlantirish jarayonida raqamli tenglik, axborot xavfsizligi, akademik halollik va insoniy muloqotni saqlash masalalariga ham alohida e’tibor qaratish zarur. Bundan tashqari, elektron o‘quv resurslaridan foydalanish qog‘oz sarfini kamaytirish, vaqtni tejash va ta’lim jarayonidagi ayrim resurslardan oqilona foydalanishga imkon yaratadi.

Demak, oliy ta’lim muassasalarida elektron ta’lim muhitini izchil takomillashtirish orqali ta’lim sifatini oshirish, raqobatbardosh mutaxassislarni tayyorlash va raqamli jamiyat talablariga mos keladigan zamonaviy ta’lim tizimini shakllantirish mumkin.

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РОЛЬ НАСТАВНИЧЕСТВА В ФОРМИРОВАНИИ НАВЫКОВ ЦИФРОВОЙ САМОРЕГУЛЯЦИИ МОЛОДОГО ПЕДАГОГА В УСЛОВИЯХ НЕПРЕРЫВНОЙ ЦИФРОВОЙ ОБРАЗОВАТЕЛЬНОЙ СРЕДЫ

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Аннотация. *В статье рассматриваются вопросы управления вниманием, отбора информационных потоков и регулирования когнитивной нагрузки молодых педагогов, работающих в условиях непрерывной цифровой образовательной среды. Освещаются информационная перегрузка, фрагментация внимания и факторы, влияющие на эффективность профессиональной деятельности, возникающие в процессе использования цифровых технологий. Обосновано педагогическое значение наставничества в развитии навыков цифровой саморегуляции молодых педагогов.*

Ключевые слова: *цифровое образование, молодой педагог, наставничество, саморегуляция, когнитивная нагрузка, внимание, цифровая компетентность, информационная перегрузка.*

Abstract. *The article examines issues related to attention management, information flow selection, and cognitive load regulation among young teachers working in a continuous digital educational environment. It discusses information overload, attention fragmentation, and the factors affecting professional performance that arise from the use of digital technologies. The pedagogical significance of mentoring in developing young teachers' digital self-regulation skills is substantiated.*

Keywords: *digital education, young teacher, mentoring, self-regulation, cognitive load, attention, digital competence, information overload.*

Актуальность темы. В настоящее время цифровизация системы образования вносит существенные изменения в содержание и организацию педагогической деятельности. Широкое использование электронных образовательных платформ, средств виртуального общения, цифровых

ресурсов и технологий искусственного интеллекта требует от педагога не только высокого уровня профессиональных знаний и методического мастерства, но и способности эффективно управлять информационными потоками. Особенно молодые педагоги, только начинающие профессиональную деятельность, одновременно вынуждены выполнять множество задач: готовиться к занятиям, работать с электронными платформами, организовывать цифровое взаимодействие с обучающимися и коллегами, вести электронную документацию. В таких условиях избыточный объём информации, частое переключение между задачами и постоянное онлайн-общение могут приводить к рассеиванию внимания и увеличению когнитивной нагрузки. Согласно теории когнитивной нагрузки, рабочая память человека обладает ограниченными возможностями, поэтому одновременная обработка чрезмерного объёма информации может снижать эффективность усвоения новых знаний и выполнения сложных задач. В связи с этим в цифровой образовательной среде важно развивать у педагога не только технологическую грамотность, но и способность управлять собственным вниманием, временем и интеллектуальными ресурсами.

Цель исследования: теоретически обосновать педагогические возможности наставничества в управлении вниманием и оптимизации когнитивной нагрузки молодого педагога в условиях непрерывной цифровой образовательной среды, а также разработать рекомендации, направленные на развитие навыков цифровой саморегуляции.

Материалы и методы исследования. Теоретико-методологическую основу исследования составили научные положения теории когнитивной нагрузки, концепции саморегуляции, цифровой педагогики и профессионального мастерства. Для раскрытия темы использованы методы анализа научной литературы, сравнительного анализа, обобщения, системного подхода и теоретического моделирования.

Результаты и обсуждение. Результаты теоретического анализа профессиональной деятельности молодого педагога в цифровой образовательной среде показывают, что цифровые технологии, с одной стороны, расширяют педагогические возможности, а с другой — повышают требования к обработке информации и управлению временем. При этом проблема заключается не в самом наличии технологий, а в недостаточной сформированности навыков их целенаправленного и рационального использования.

Развитие цифровой саморегуляции молодого педагога должно охватывать следующие взаимосвязанные направления Управление вниманием. Планирование педагогических задач с учётом их приоритетности, ограничение отвлекающих уведомлений и избыточных цифровых воздействий во время занятий, концентрация внимания на одной задаче в течение определённого промежутка времени.

Отбор информационных потоков. Выбор информации, непосредственно относящейся к образовательному процессу, использование надёжных источников и сокращение времени, затрачиваемого на обработку ненужных сведений.

Регулирование когнитивной нагрузки. Разделение сложных задач на небольшие этапы, целесообразное использование цифровых инструментов и обеспечение баланса между умственной деятельностью и отдыхом.

Рефлексивная самооценка. Анализ результатов повседневной педагогической деятельности, оценка затрат времени и внимания, совершенствование последующего рабочего плана на основе выявленных недостатков.

В данном процессе задача наставника не должна ограничиваться предоставлением молодому педагогу готовых указаний. Его основная функция должна заключаться в формировании навыков самостоятельного принятия решений, выбора цифровых ресурсов, планирования профессиональной деятельности и оценки собственных возможностей.

В настоящее время целесообразно вывести наставническую деятельность за рамки традиционного обмена опытом и преобразовать её в системное сотрудничество, ориентированное на развитие цифровой саморегуляции. Важное место в этом процессе занимают регулярные консультации между наставником и молодым педагогом, совместное планирование занятий, обсуждение результатов использования цифровых инструментов и организация профессиональной рефлексии.

На этой основе можно использовать следующую концептуальную последовательность цифровой саморегуляции: диагностика → целевое планирование → управление вниманием → регулирование когнитивной нагрузки → рефлексия → профессиональное совершенствование.

В рамках данного подхода наставник на каждом этапе выполняет направляющую и консультативную функции, а молодой педагог постепенно переходит к самостоятельному контролю и совершенствованию своей профессиональной деятельности. Систематизация традиции наставничества предполагает анализ цифровой

профессиональной деятельности молодого педагога, обучение выбору информационных источников, помощь в планировании рабочего времени, оценку целесообразности использования цифровых инструментов и проведение регулярных рефлексивных бесед.

ЗАКЛЮЧЕНИЕ

В условиях непрерывной цифровой образовательной среды профессиональная эффективность молодого педагога определяется не только уровнем владения цифровыми технологиями, но и способностью целенаправленно их использовать, управлять вниманием и рационально распределять когнитивные ресурсы.

Наставничество является важным педагогическим ресурсом в формировании навыков цифровой саморегуляции. Системная организация данного процесса может способствовать развитию у молодого педагога способности к самостоятельной работе, снижению информационной перегрузки и поддержке его профессиональной адаптации.

В связи с этим целесообразно включить в программы профессиональной подготовки и адаптации педагогов специальные занятия, посвящённые цифровой саморегуляции, контролю внимания, оценке когнитивной нагрузки и рефлексивной деятельности.

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3-SECTION

ВЛИЯНИЕ ХАРАКТЕРА ВСКАРМЛИВАНИЯ НА ФОРМИРОВАНИЕ СТОМАТОЛОГИЧЕСКОГО СТАТУСА У ДЕТЕЙ РАННЕГО ВОЗРАСТА

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Аннотация. *Цель работы — проанализировать современную литературу по выбранному аспекту влияния раннего питания на стоматологическое здоровье ребёнка. Представлен критический синтез клинических и биологических механизмов, рассмотрены возможные смешивающие факторы, ограничения наблюдательных исследований и профилактические подходы. Показано, что характер вскармливания следует оценивать вместе с пищевыми привычками, возрастом, гигиеной и индивидуальными условиями развития. Практическая значимость состоит в формировании осторожных, ориентированных на риск рекомендаций для детского стоматолога.*

Ключевые слова: *искусственное вскармливание; дети раннего возраста; стоматологический статус; профилактика; детская стоматология.*

Abstract. *This narrative review critically examines associations between early feeding modalities and child oral health. Clinical mechanisms, confounding factors, methodological limitations and prevention strategies are discussed. Feeding type should be interpreted alongside dietary behaviour, age, oral hygiene and individual developmental conditions. The review supports risk-based counselling rather than deterministic claims.*

Keywords: *infant formula; early childhood; oral health; prevention; pediatric dentistry.*

ВВЕДЕНИЕ

Актуальность темы обусловлена высокой распространённостью ранних стоматологических нарушений и необходимостью выявления факторов, поддающихся профилактической коррекции. В научной литературе рассматриваются ассоциации раннего питания с кариесом,

формированием окклюзии и составом оральной микробиоты. Вместе с тем эти исходы имеют многофакторную природу, а различия между грудным и искусственным вскармливанием могут быть связаны с поведением семьи, возрастом ребёнка и сопутствующими обстоятельствами. Поэтому научная оценка должна разграничивать установленные ассоциации, вероятные механизмы и пока не доказанные причинные отношения.

Цель и материалы обзора

Цель: влияние характера вскармливания на формирование стоматологического статуса у детей раннего возраста.

Работа представляет собой аналитический обзор опубликованных научных материалов. Для тематического синтеза использованы доступные полнотекстовые рекомендации профессиональных ассоциаций, систематические обзоры, метаанализы и исследования, индексируемые в PubMed. Приоритет отдавался работам, содержащим клинические исходы, описания механизмов и ограничения доказательности. Формальный систематический поиск с независимым скринингом, протоколом PRISMA и метаанализом не выполнялся; количественные результаты первичных исследований не пересчитывались. Изложенные выводы носят обзорный характер.

Понятие стоматологического статуса и его возрастная динамика

Стоматологический статус ребёнка раннего возраста включает состояние твёрдых тканей прорезавшихся зубов, гигиенические показатели, особенности слизистой оболочки, функции орофациального комплекса и признаки формирующейся окклюзии. Его нельзя сводить исключительно к наличию кариозных полостей. В первые три года жизни происходят прорезывание временных зубов, изменение пищевого поведения и становление самостоятельных гигиенических навыков, поэтому однократная оценка не отражает траекторию развития.

При интерпретации результатов необходимо разделять возраст ребёнка, число прорезавшихся зубов и длительность их пребывания в полости рта. Например, отсутствие кариеса у младенца с двумя недавно прорезавшимися резцами не сопоставимо с отсутствием кариеса у трёхлетнего ребёнка с полным временным зубным рядом. Рекомендуется использовать стандартизированную регистрацию кариозных поражений и учитывать ранние некариозные изменения.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она

стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

Тип питания и сопутствующие поведенческие факторы

Искусственное вскармливание представляет собой неоднородную категорию. Различаются исключительно искусственное, смешанное вскармливание, кормление сцеженным грудным молоком из бутылочки и использование смеси после введения прикорма. Эти сценарии различаются по составу пищи, способу её поступления в рот и частоте контакта с зубами. Смешение таких групп может исказить оценку ассоциаций.

Клинически значимыми модификаторами выступают ночные кормления после прорезывания зубов, подслащивание напитков, использование бутылочки для успокоения, продолжительность кормления и качество домашней гигиены. Социально-экономические условия, доступность стоматологической помощи, особенности семейного питания и использование фторидной пасты могут объяснять часть наблюдаемых различий.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

Биологические и функциональные механизмы

Материнское молоко и адаптированные смеси отличаются по составу биологически активных веществ; одновременно непосредственное сосание груди и кормление из соски создают разные двигательные задачи для языка, губ и нижней челюсти. Однако эти механизмы не позволяют автоматически заключить, что у конкретного ребёнка искусственное питание вызовет патологию.

Для оценки потенциальных механизмов следует отдельно исследовать минерализацию и экспозицию зубов к ферментируемым

углеводам, созревание микробного сообщества и орофациальную функцию. Совместный анализ даёт более реалистичную картину, чем поиск единственного «вредного» компонента смеси.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

Подходы к клиническому наблюдению

На профилактическом приёме целесообразно собирать подробный пищевой анамнез: возраст перехода на смесь, режим ночных кормлений, напитки в бутылочке, сроки введения прикорма и использования чашки. Далее оцениваются налёт, очаги деминерализации, зубная формула, состояние слизистой и функциональные привычки.

Повторные осмотры позволяют выявлять изменения раньше появления кавитации. Риск-ориентированная профилактика должна быть направлена на реальные модифицируемые факторы, а не на стигматизацию семей, которые по медицинским или личным причинам используют искусственное вскармливание.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

Методологические ограничения литературы

Большинство исследований раннего питания имеет наблюдательный дизайн. Ретроспективное сообщение родителей о продолжительности вскармливания подвержено ошибкам памяти; дети с разными медицинскими и социальными обстоятельствами могут изначально

различаться. Поэтому некорректно приписывать обнаруженные различия исключительно виду молока.

Перспективным решением являются проспективные когорты с дневниками питания, повторными стоматологическими осмотрами, учётом гигиены и статистической коррекцией смешивающих факторов. При сравнении групп желательно заранее определить основные исходы и временные точки измерения.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

ОБСУЖДЕНИЕ

Сопоставление данных показывает, что раннее питание может быть связано со стоматологическими исходами посредством пищевых, микробиологических и функциональных путей. При этом связь не является универсальной и неизбежной. Наиболее устойчивую практическую ценность имеют рекомендации по контролю частоты употребления сахаров, гигиене прорезавшихся зубов, раннему стоматологическому наблюдению и выявлению длительных орофациальных привычек. Данные метаанализов следует интерпретировать с учётом качества первичных исследований и статистической неоднородности [1–3, 6–8].

Ограничение настоящей статьи состоит в описательном характере синтеза: без воспроизводимой поисковой стратегии нельзя утверждать, что включены абсолютно все публикации. Отсутствие собственных клинических данных исключает выводы о распространённости стоматологических заболеваний в конкретном регионе. Для последующей оригинальной работы требуется предварительный расчёт выборки, этическое одобрение, стандартизированные клинические критерии и план контроля смешивающих факторов.

ЗАКЛЮЧЕНИЕ

Характер вскармливания необходимо рассматривать в контексте многофакторного формирования стоматологического статуса. Практические решения должны опираться на индивидуальный риск и

доступные доказательства, не подменяя статистическую ассоциацию утверждением о прямой причинности. Перспективным направлением остаются длительные проспективные исследования с повторными стоматологическими и функциональными измерениями.

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ОЦЕНКА ИММУНОЛОГИЧЕСКИХ ОСОБЕННОСТЕЙ ОПУХОЛИ В ДИАГНОСТИКЕ САРКОМ МЯГКИХ ТКАНЕЙ

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Аннотация. *В статье рассматривается значение оценки иммунологических особенностей опухолевой ткани в диагностике сарком мягких тканей. Особое внимание уделяется характеристике опухолевого микроокружения, иммунным клеткам, экспрессии иммунологических маркеров и их диагностической значимости. Анализируются возможности иммуногистохимических методов исследования для уточнения морфологического диагноза, дифференциальной диагностики и определения биологических особенностей опухоли. Подчёркивается, что комплексная оценка иммунологических характеристик может способствовать повышению точности диагностики и совершенствованию индивидуализированного подхода к ведению пациентов с саркомами мягких тканей.*

Ключевые слова*: саркомы мягких тканей, опухолевое микроокружение, иммунология, иммуногистохимия, иммунные маркеры, CD8, CD4, CD68, PD-L1, диагностика.*

Abstract*. The article discusses the importance of assessing immunological characteristics of tumor tissue in the diagnosis of soft tissue sarcomas. Particular attention is paid to the tumor microenvironment, immune cell populations, expression of immunological markers, and their diagnostic significance. The potential of immunohistochemical methods in morphological verification, differential diagnosis, and characterization of tumor biological properties is considered. The comprehensive assessment of immunological features may contribute to improving diagnostic accuracy and supporting individualized management of patients with soft tissue sarcomas.*

Keywords: *soft tissue sarcomas, tumor microenvironment, immunology, immunohistochemistry, immune markers, CD8, CD4, CD68, PD-L1, diagnosis.*

ВВЕДЕНИЕ

Саркомы мягких тканей представляют собой гетерогенную группу злокачественных новообразований мезенхимального происхождения, отличающихся разнообразием морфологических, генетических и клинических характеристик. Несмотря на относительно низкую частоту встречаемости, данные опухоли характеризуются сложностью диагностики и значительными различиями в биологическом поведении.

В современной онкологии всё большее внимание уделяется изучению взаимодействия опухолевых клеток с окружающей их иммунной системой. Опухолевое микроокружение включает иммунные клетки, фибробласты, эндотелиальные клетки, внеклеточный матрикс и различные биологически активные молекулы. Их взаимодействие может влиять на рост опухоли, инвазию, метастазирование и ответ на противоопухолевое лечение.

Особую актуальность приобретает исследование иммунологических характеристик сарком мягких тканей, поскольку выраженность иммунной инфильтрации и особенности экспрессии отдельных маркеров могут отражать биологические свойства опухолевого процесса.

Цель исследования — изучить значение иммунологических особенностей опухолевой ткани в диагностике сарком мягких тканей, определить роль иммуногистохимических маркеров и оценить перспективы их применения в комплексной диагностике заболевания.

ОСНОВНАЯ ЧАСТЬ

1. Иммунологические особенности опухолевого микроокружения

Опухолевое микроокружение является важным компонентом развития и прогрессирования сарком мягких тканей. Оно формируется под влиянием опухолевых клеток и включает различные популяции иммунных клеток, участвующих в регуляции противоопухолевого иммунного ответа. Среди основных компонентов опухолевого микроокружения выделяют Т-лимфоциты, макрофаги, дендритные клетки, естественные киллеры (NK-клетки) и регуляторные Т-лимфоциты. Цитотоксические Т-лимфоциты способны распознавать и уничтожать опухолевые клетки. Однако при развитии злокачественного процесса могут формироваться механизмы иммунного подавления, ограничивающие эффективность противоопухолевого ответа.

Макрофаги опухолевого микроокружения также имеют важное значение. Их функциональные особенности могут быть связаны как с противоопухолевой активностью, так и с поддержанием роста опухоли, ангиогенеза и инвазивных процессов. Таким образом, оценка клеточного

состава опухолевого микроокружения позволяет получить дополнительную информацию о взаимодействии опухоли и иммунной системы.

2. Основные иммуногистохимические маркеры в диагностике сарком

Иммуногистохимическое исследование является важным дополнительным методом морфологической диагностики сарком мягких тканей. Оно позволяет выявлять специфические белковые структуры в опухолевых клетках и окружающих тканях.

К наиболее значимым иммунологическим маркерам относятся:

- CD3 — маркер Т-лимфоцитов, используемый для оценки общей Т-клеточной инфильтрации.

- CD4 — маркер преимущественно Т-хелперных клеток, участвующих в регуляции иммунного ответа.

- CD8 — маркер цитотоксических Т-лимфоцитов, имеющих значение в противоопухолевой защите.

- CD68 — маркер, применяемый для выявления макрофагов в опухолевом микроокружении.

- CD163 — маркер, используемый для характеристики отдельных популяций опухоль-ассоциированных макрофагов.

- PD-L1 — иммунорегуляторный белок, экспрессия которого может быть связана с механизмами уклонения опухоли от иммунного ответа.

Следует отметить, что перечисленные маркеры не являются универсальными диагностическими критериями для всех разновидностей сарком. Их интерпретация должна осуществляться с учётом гистологического типа опухоли, морфологической картины и результатов других исследований.

3. Роль иммунологических показателей в дифференциальной диагностике

Дифференциальная диагностика сарком мягких тканей представляет собой сложную задачу, поскольку некоторые опухоли имеют сходные морфологические признаки.

В подобных случаях иммуногистохимическое исследование позволяет уточнить направление дифференцировки опухолевых клеток и исключить ряд других новообразований. При этом необходимо различать два направления иммуногистохимической оценки: Первое направление связано с выявлением маркеров, характеризующих происхождение и морфологический тип опухоли. Например, при отдельных вариантах сарком применяются маркеры мышечной, сосудистой, нервной и

эпителиальной дифференцировки. Второе направление заключается в изучении иммунного микроокружения, включая количество и распределение лимфоцитов, макрофагов и экспрессию иммунорегуляторных белков.

Комплексное использование этих подходов позволяет расширить диагностические возможности морфологического исследования и получить более полную характеристику опухолевого процесса.

4. Прогностическое значение иммунологических особенностей опухоли

Изучение иммунологических характеристик опухолевого микроокружения имеет перспективное значение для определения прогноза при саркомах мягких тканей.

В частности, исследуется взаимосвязь между плотностью инфильтрации CD8-положительными лимфоцитами, количеством опухоль-ассоциированных макрофагов и клиническим течением заболевания.

Наличие выраженной цитотоксической Т-клеточной инфильтрации в отдельных гистологических подтипах может быть связано с более активным противоопухолевым иммунным ответом. В то же время преобладание иммунносупрессивных клеточных популяций способно создавать условия для прогрессирования опухоли. Экспрессия PD-L1 также представляет научный интерес в связи с механизмами иммунного уклонения опухолевых клеток. Однако её прогностическое и предиктивное значение при саркомах зависит от гистологического подтипа и других биологических характеристик заболевания. Важно подчеркнуть, что иммунологические показатели пока не могут рассматриваться как самостоятельная основа для постановки диагноза или определения прогноза. Они должны интерпретироваться совместно с клиническими, морфологическими и молекулярно-генетическими данными.

ЗАКЛЮЧЕНИЕ

Оценка иммунологических особенностей опухоли является перспективным направлением современной онкологии и имеет существенное значение для расширения диагностических возможностей при саркомах мягких тканей.

Изучение опухолевого микроокружения, количественного и качественного состава иммунных клеток, а также экспрессии иммунологических маркеров позволяет получить дополнительную информацию о биологических свойствах опухоли.

Иммуногистохимические методы исследования способствуют уточнению морфологического диагноза, проведению дифференциальной диагностики и изучению механизмов взаимодействия опухолевых клеток с иммунной системой.

Перспективным направлением дальнейших исследований является комплексная оценка маркеров CD3, CD4, CD8, CD68, CD163 и PD-L1 с учётом морфологического подтипа саркомы. Полученные данные могут способствовать совершенствованию диагностических алгоритмов и развитию персонализированных подходов к лечению пациентов.

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ИСКУССТВЕННОЕ ВСКАРМЛИВАНИЕ И РАННИЙ ДЕТСКИЙ КАРИЕС: РОЛЬ ПИЩЕВОГО ПОВЕДЕНИЯ И ГИГИЕНЫ

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Аннотация. *Цель работы — проанализировать современную литературу по выбранному аспекту влияния раннего питания на стоматологическое здоровье ребёнка. Представлен критический синтез клинических и биологических механизмов, рассмотрены возможные смешивающие факторы, ограничения наблюдательных исследований и профилактические подходы. Показано, что характер вскармливания следует оценивать вместе с пищевыми привычками, возрастом, гигиеной и индивидуальными условиями развития. Практическая значимость состоит в формировании осторожных, ориентированных на риск рекомендаций для детского стоматолога.*

Ключевые слова: *искусственное вскармливание; дети раннего возраста; стоматологический статус; профилактика; детская стоматология.*

Abstract. *This narrative review critically examines associations between early feeding modalities and child oral health. Clinical mechanisms, confounding factors, methodological limitations and prevention strategies are discussed. Feeding type should be interpreted alongside dietary behaviour, age, oral hygiene and individual developmental conditions. The review supports risk-based counselling rather than deterministic claims.*

Keywords: *infant formula; early childhood; oral health; prevention; pediatric dentistry.*

ВВЕДЕНИЕ

Актуальность темы обусловлена высокой распространённостью ранних стоматологических нарушений и необходимостью выявления факторов, поддающихся профилактической коррекции. В научной литературе рассматриваются ассоциации раннего питания с кариесом,

формированием окклюзии и составом оральной микробиоты. Вместе с тем эти исходы имеют многофакторную природу, а различия между грудным и искусственным вскармливанием могут быть связаны с поведением семьи, возрастом ребёнка и сопутствующими обстоятельствами. Поэтому научная оценка должна разграничивать установленные ассоциации, вероятные механизмы и пока не доказанные причинные отношения.

Цель и материалы обзора

Цель: искусственное вскармливание и ранний детский кариес: роль пищевого поведения и гигиены.

Работа представляет собой аналитический обзор опубликованных научных материалов. Для тематического синтеза использованы доступные полнотекстовые рекомендации профессиональных ассоциаций, систематические обзоры, метаанализы и исследования, индексируемые в PubMed. Приоритет отдавался работам, содержащим клинические исходы, описания механизмов и ограничения доказательности. Формальный систематический поиск с независимым скринингом, протоколом PRISMA и метаанализом не выполнялся; количественные результаты первичных исследований не пересчитывались. Изложенные выводы носят обзорный характер.

Современное понимание раннего детского кариеса

Ранний детский кариес представляет собой многофакторное заболевание, возникающее при повторяющемся нарушении равновесия между деминерализацией и реминерализацией зубных тканей. Для развития поражений важны зубной биоплёнке доступные углеводы, кислотопродуцирующие микроорганизмы, частота экспозиций и защитные факторы слюны. Тип вскармливания является только одним из элементов этой системы.

Особенно важно различать кариесогенность самого рациона и особенности поведения. Частое питьё сладких жидкостей из бутылочки, длительное удерживание соски во рту и засыпание с бутылочкой после появления зубов формируют условия для повторных кислотных атак. Наличие адаптированной смеси в анамнезе само по себе не является диагностическим критерием высокого риска.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в

возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

Ночные кормления и длительность контакта с зубами

Во время сна уменьшаются слюноотделение и механическое самоочищение полости рта. При многократном поступлении ферментируемых углеводов это может способствовать длительному снижению pH зубного налёта. Наиболее убедительные профилактические рекомендации касаются отказа от сладких напитков в бутылочке и ограничения привычки засыпать с ней.

Необходимо избегать упрощённого вывода, будто каждое ночное кормление одинаково опасно. Возраст ребёнка, медицинские показания к питанию, наличие прорезавшихся зубов, состав жидкости и последующая гигиена изменяют величину риска. Индивидуальные рекомендации следует согласовывать с педиатром, особенно в младенческом возрасте.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

Роль сахаров, прикорма и фторидов

После введения прикорма источники свободных сахаров расширяются: соки, подслащённые каши, печенье и частые перекусы способны вносить больший вклад в кариесогенную нагрузку, чем исходный выбор способа вскармливания. Оценка рациона должна учитывать не только граммы сахара, но и число эпизодов его потребления.

Регулярная чистка зубов фторидсодержащей пастой с момента прорезывания первого зуба является важным защитным фактором. Для детей младше трёх лет применяется минимальное количество пасты размером с рисовое зерно, при непосредственном контроле взрослых; конкретную концентрацию фторида определяют согласно местным рекомендациям и оценке риска.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

Практическая стратификация риска

Врач может выделить низкий, умеренный и высокий риск с учётом активных белых пятен, видимого налёта, частоты сладких перекусов, ночного использования бутылочки, семейного кариес-опыта и регулярности профилактических осмотров. Сама отметка «искусственное вскармливание» без поведенческого контекста недостаточна.

При высоком риске обсуждают профессиональные фторидные вмешательства, более частые контрольные осмотры и конкретные изменения режима питания. Эффективная коммуникация должна давать семье достижимые шаги: убрать сок из бутылочки, чистить зубы дважды в день, вводить чашку и избегать постоянного потягивания сладких напитков.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

Проблемы доказательности

В публикациях нередко объединяют кормление смесью, сцеженным молоком и подслащёнными напитками под общим термином bottle feeding. Это создаёт риск ошибочного переноса результатов на все смеси. Другой источник неоднородности — разные диагностические пороги кариеса: учёт только полостей или включение ранней деминерализации.

Для более достоверных выводов необходимы исследования с подробной классификацией напитков, регистрацией режима кормлений,

гигиены и социального контекста. До получения таких данных наиболее обоснован подход, ориентированный на снижение частоты сахарных экспозиций и поддержание фторидной профилактики.

Клиническая интерпретация. При оценке данного аспекта необходимо учитывать последовательность событий: когда возникла экспозиция, как долго она сохранялась и предшествовала ли она стоматологическому исходу. Перекрёстные исследования часто не позволяют установить эту последовательность. Кроме того, различия в возрасте и уровне профилактической помощи способны создавать видимость самостоятельного эффекта способа кормления. Следовательно, интерпретация должна опираться на совокупность факторов и степень достоверности источников.

ОБСУЖДЕНИЕ

Сопоставление данных показывает, что раннее питание может быть связано со стоматологическими исходами посредством пищевых, микробиологических и функциональных путей. При этом связь не является универсальной и неизбежной. Наиболее устойчивую практическую ценность имеют рекомендации по контролю частоты употребления сахаров, гигиене прорезавшихся зубов, раннему стоматологическому наблюдению и выявлению длительных орофациальных привычек. Данные метаанализов следует интерпретировать с учётом качества первичных исследований и статистической неоднородности [1–3, 6–8].

Ограничение настоящей статьи состоит в описательном характере синтеза: без воспроизводимой поисковой стратегии нельзя утверждать, что включены абсолютно все публикации. Отсутствие собственных клинических данных исключает выводы о распространённости стоматологических заболеваний в конкретном регионе. Для последующей оригинальной работы требуется предварительный расчёт выборки, этическое одобрение, стандартизированные клинические критерии и план контроля смешивающих факторов.

ЗАКЛЮЧЕНИЕ

Характер вскармливания необходимо рассматривать в контексте многофакторного формирования стоматологического статуса. Практические решения должны опираться на индивидуальный риск и доступные доказательства, не подменяя статистическую ассоциацию утверждением о прямой причинности. Перспективным направлением остаются длительные проспективные исследования с повторными стоматологическими и функциональными измерениями.

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СОВЕРШЕНСТВОВАНИЕ ДИФФЕРЕНЦИАЛЬНОЙ ДИАГНОСТИКИ ДОБРОКАЧЕСТВЕННЫХ ОПУХОЛЕЙ И ОПУХОЛЕПОДОБНЫХ ЗАБОЛЕВАНИЙ КОСТЕЙ КОНЕЧНОСТЕЙ

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Аннотация. *В статье рассматриваются современные подходы к дифференциальной диагностике доброкачественных опухолей и опухолеподобных заболеваний костей верхних и нижних конечностей. Анализируются клинические, рентгенологические, компьютерно-томографические, магнитно-резонансные и морфологические методы исследования. Особое внимание уделяется выявлению диагностических признаков, позволяющих отличать доброкачественные костные образования от злокачественных процессов и неопухолевых поражений. Обсуждаются возможности комплексного обследования для повышения точности диагностики и выбора оптимальной лечебной тактики.*

Ключевые слова: *доброкачественные опухоли костей, опухолеподобные заболевания, кости конечностей, дифференциальная диагностика, рентгенография, КТ, МРТ, биопсия.*

Abstract. *The article examines modern approaches to the differential diagnosis of benign bone tumors and tumor-like lesions of the upper and lower extremities. Clinical, radiographic, computed tomography, magnetic resonance imaging, and histopathological methods are discussed. Particular attention is paid to diagnostic features that help distinguish benign bone lesions from malignant and non-neoplastic conditions. The importance of comprehensive assessment for improving diagnostic accuracy and selecting appropriate treatment strategies is emphasized.*

Keywords*: benign bone tumors, tumor-like lesions, extremity bones, differential diagnosis, radiography, CT, MRI, biopsy.*

ВВЕДЕНИЕ

Доброкачественные опухоли костей и опухолеподобные заболевания скелета представляют собой важную проблему современной

травматологии, ортопедии и онкологии. Они могут выявляться у пациентов различного возраста, однако многие из них диагностируются преимущественно в детском, подростковом и молодом возрасте.

К наиболее распространённым доброкачественным костным образованиям относятся остеохондрома, энхондрома, остеоид-остеома, хондробластома, фиброзная дисплазия и некоторые другие патологические процессы. К опухолеподобным поражениям относятся простая и аневризмальная костные кисты, фиброзный дефект кортикального слоя и отдельные неопухолевые изменения костной ткани.

Основная диагностическая сложность заключается в том, что некоторые доброкачественные образования могут иметь клинические и рентгенологические признаки, сходные со злокачественными опухолями. Ошибочная интерпретация результатов обследования может привести к необоснованному хирургическому вмешательству либо к задержке необходимого лечения.

Цель исследования — изучить современные методы дифференциальной диагностики доброкачественных опухолей и опухолеподобных заболеваний костей конечностей, а также определить значение комплексного клинико-инструментального обследования.

МАТЕРИАЛЫ И МЕТОДЫ

В основу статьи положен анализ современной научной литературы и клинических рекомендаций по диагностике первичных опухолей костей. Рассмотрены данные о клинических проявлениях доброкачественных костных образований, особенностях рентгенологической картины, возможностях компьютерной и магнитно-резонансной томографии, а также роли морфологической верификации.

Основное внимание уделено сравнительной оценке диагностических признаков доброкачественных опухолей, опухолеподобных процессов и образований с подозрением на злокачественный характер.

РЕЗУЛЬТАТЫ И ОБСУЖДЕНИЕ

1. Основные виды доброкачественных опухолей и опухолеподобных заболеваний костей

Доброкачественные опухоли костей отличаются по происхождению, морфологическому строению, локализации и характеру роста.

Остеохондрома является одной из наиболее распространённых доброкачественных костных опухолей. Обычно она располагается в метафизарной области длинных трубчатых костей и характеризуется наличием костного выступа, связанного с кортикальным и

костномозговым слоями основной кости. Энхондрома представляет собой доброкачественную хрящевую опухоль, которая часто локализуется в костях кистей и стоп, а также в длинных трубчатых костях. При рентгенографии может определяться внутрикостный очаг с характерными участками хрящевой минерализации. Остеоид-остеома чаще встречается у молодых пациентов. Для неё характерна небольшая зона патологического образования — нидус, окружённая выраженной реактивной костной тканью. Типичным клиническим проявлением является боль, нередко усиливающаяся в ночное время и уменьшающаяся после приёма нестероидных противовоспалительных препаратов. К опухолеподобным заболеваниям относятся простая костная киста, аневризмальная костная киста и фиброзная дисплазия. Несмотря на отсутствие типичного злокачественного опухолевого роста, данные процессы могут приводить к истончению костной ткани, деформации и патологическим переломам.

2. Роль лучевых методов исследования

Первым этапом инструментальной диагностики при подозрении на первичную опухоль кости обычно является рентгенография в двух проекциях. Она позволяет определить локализацию образования, его размеры, структуру, состояние кортикального слоя и характер периостальной реакции.

При оценке рентгенограмм особое значение имеют следующие признаки:

- чёткость и характер границ патологического очага;
- ширина переходной зоны между поражённой и здоровой костью;
- наличие склеротического ободка;
- состояние кортикального слоя;
- наличие периостальной реакции;
- признаки разрушения костной ткани.

Чёткие границы, узкая переходная зона и склеротический ободок чаще характерны для медленно растущих доброкачественных процессов. Напротив, нечёткие границы, широкая переходная зона, разрушение кортикального слоя и агрессивная периостальная реакция требуют исключения злокачественного образования.

Компьютерная томография (КТ) особенно информативна при оценке костной структуры, выявлении кальцификации, кортикальных изменений и небольших очагов, например нидуса при остеоид-остеоме.

Магнитно-резонансная томография (МРТ) позволяет оценить распространённость процесса, состояние костного мозга, мягкотканный

компонент и отношение образования к сосудисто-нервным структурам. При подозрении на агрессивную опухоль МРТ имеет важное значение для определения местного распространения и планирования дальнейшего обследования .

3. Дифференциальная диагностика доброкачественных и злокачественных поражений

Дифференциальная диагностика должна учитывать возраст пациента, локализацию образования, характер боли, динамику роста и результаты инструментальных исследований.

При остеохондроме необходимо исключать другие экзофитные костные образования, включая отдельные формы злокачественных хрящевых опухолей. При энхондроме важным диагностическим вопросом является её отличие от атипичной хрящевой опухоли. Для этого оцениваются наличие боли, эндостальная эрозия, истончение или разрушение кортикального слоя, а также мягкотканный компонент.

Остеоид-остеому необходимо дифференцировать с остеобластомой и воспалительными поражениями кости. В таких случаях КТ помогает выявить характерный нидус и уточнить структуру патологического очага.

Простая и аневризмальная костные кисты могут иметь сходные клинические проявления с другими литическими поражениями. При МРТ аневризмальная костная киста нередко характеризуется наличием уровней жидкости, однако данный признак сам по себе не является достаточным для окончательного заключения.

К опухолеподобным изменениям также относятся очаги фиброзной дисплазии, костные инфаркты, субхондральные кисты и некоторые воспалительные поражения. Их необходимо учитывать при интерпретации изображений, чтобы избежать гипердиагностики опухолевого процесса [2, 3].

4. Значение морфологической верификации и комплексного подхода

В случаях, когда клинические и лучевые данные не позволяют достоверно определить характер образования, может потребоваться биопсия с последующим гистологическим исследованием. При этом биопсия должна планироваться после выполнения необходимой визуализации и консультации профильного онкоортопеда. Неправильно выбранный доступ для биопсии способен осложнить последующее хирургическое лечение. Современный диагностический подход предполагает взаимодействие онколога, травматолога-ортопеда, рентгенолога и патоморфолога. Сопоставление клинических проявлений,

рентгенологических характеристик и морфологических данных позволяет повысить точность диагностики и снизить риск диагностических ошибок. Согласно рекомендациям Американской коллегии радиологии, рентгенография является основным начальным методом исследования при подозрении на первичную опухоль кости. При неопределённых или агрессивных изменениях дальнейшее обследование обычно включает МРТ и/или КТ .

ЗАКЛЮЧЕНИЕ

Дифференциальная диагностика доброкачественных опухолей и опухолеподобных заболеваний костей конечностей требует комплексной оценки клинических, лучевых и морфологических данных. Рентгенография остаётся основным методом первичной диагностики, тогда как КТ и МРТ позволяют уточнить структуру образования, определить распространённость патологического процесса и выявить признаки возможной агрессивности. В сложных диагностических случаях важную роль играет морфологическая верификация. Совершенствование диагностического алгоритма, основанного на последовательном применении современных методов визуализации и междисциплинарном взаимодействии специалистов, способствует повышению точности диагностики, предупреждению необоснованных вмешательств и своевременному выявлению злокачественных процессов.

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Annotatsiya: *Uşbu maqolada boğdorçilikda Azalea indica nomi bilan maşhur bölgan, botanik jihatdan Rhododendron simsii Planç. va uning duragaylariga mansub manzarali ösimlikning botanik-biologik xususiyatlari adabiyotlar asosida tahlil qilingan. Ösimlikning sistematik örni (Ericaceae oilasi, Rhododendron avlodi), kelib çiqişi va tarqalişi yoritilgan. Poya, barg, gul va ildiz tizimining morfologik tuzilişi, ösiş va gullaş davrlarining öziga xos jihatlari, gul kurtaklarining şakllanişida yoruğlik va haroratning roli körib çiqilgan.*

Kalit sözlar: *Azalea indica, Rhododendron simsii, Ericaceae, morfologiya, biologik xususiyatlar, ekologik talablar, manzarali ösimlik.*

Аннотация: *В статье на основе анализа литературы рассматриваются ботанико-биологические особенности декоративного растения, известного в садоводстве как Azalea indica и относящегося ботанически к Rhododendron simsii Planç. и его гибридам. Освещены систематическое положение (семейство Ericaceae, род Rhododendron), происхождение и распространение. Рассмотрены морфологическое строение побега, листа, цветка и корневой системы, особенности роста и цветения, роль света и температуры в закладке цветковых почек.*

Ключевые слова: *Azalea indica, Rhododendron simsii, Ericaceae, морфология, биологические особенности, экологические требования, декоративное растение.*

Abstract: *The article analyses, on the basis of the literature, the botanical and biological çaracteristics of the ornamental plant known in horticulture as Azalea indica, whiç botanically belongs to Rhododendron simsii Planç. and its hybrids. Its taxonomic position (family Ericaceae, genus Rhododendron), origin and distribution are described. The morphological structure of the şoot, leaf, flower and root system, features of growth and flowering, and the roles of light and temperature in flower bud formation are considered.*

Keywords: *Azalea indica, Rhododendron simsii, Ericaceae, morphology, biological çaracteristics, ecological requirements, ornamental plant.*

Bugunki kunda tabiatda ösimliklarga bölgan munosabat biroz bölsada sezilarli darajada yomonlaşgan. Noyob ösimliklarning yöqolib borişiga ham antropogen ta'sirlar sabab bölmoqda, bir qança tarixiy ösimliklar yöq bölib ketmoqda. Şaharni kökalamzorlaştirişda manzarali gullardan foydalaniş, mahalliy tarzda xona guli sifatida sovuqqa çidamli gulli ösimlikni topiş va östiriş oson emas. Köplab noyob ösimliklar orasiga azaliya gulini ham kiritişimiz mumkin. *Azalea indica* deb ataladigan ösimlikning qabul qilingan botanik nomi *Rhododendron simsii* Planç. Bölib, bu tur nomi 1853-yilda "Flore des Serres" jurnalida e'lon qilingan va qabul qilingan nom hisoblanadi. *Azalea indica* var. *simsii* va *Azalea simsii* kabi nomlar uning sinonimlari qatoriga kiradi.[8]

"Indica" nomi tarixiy xatoga borib taqaladi: tur 1812-yilda J.Sims tomonidan Xitoy turi sifatida tasvirlangan, lekin xato ravişda yapon keç gullovçi (Satsuki) guruhiga tegişli Azalea indica nomi bilan atalgan. "Hind azaliyalari"deb ataladigan navlarning asosiy qismi aynan R.simsii dan kelib çiqqan, ularni Belgiya va Gollandiya östiruvçilari qişda xona dekorasi uçun ommaviy yetiştiradi. Turning özbekça nomi: simsii epiteti jurnalning birinçi muharriri Jon Simsning nomini abadiylaştiradi.[9]

Sistematik örni: *Ericales* tartibi, *Ericaceae* oilasi, *Rhododendron* avlodi.

Ösimlikni kelib çiqiş tarixi. Tabiiy areali janubiy Xitoydan Hindistongaça, Nansey orollaridan Tayvangaça çözilgan. Tur qarağay örmonlari, örmon çekkalari va oçiq toğ butazorlarida, dengiz sathidan 500-2700 m balandlikda ösadi. Yevropaga taxminan 1793-yilda keltirilgan[3-4].

Morfologik tavsifi. Böyi manbalarda turliça: Xitoy florasida 2 (5 gaça)m, boşqa ma'lumotlarda 0,6-2m. Xona guli sifatida tanlab olingan navlari ança past: 45-60 sm. Poyasining tuzilişi jihatidan quyidagiça: şoxlari köp va ingiçka, ziğir qönğir yassi tuklar bilan qoplangan.Tabiiy şaroitda Yoşi ötgan sari yöğonlaşadi va havo ildizlari hosil qilişi mumkin. Barg tuzilişi. Ikki xil bargli: bahorgi burglar tökiladi, yozgilari doimiy saqlanadi. Barg plastinkasi tuxumsimon yoki çözinçoq, 1,5-5 * 0,5-3sm. Barglar guldagi bilan bir xil uçki kurtakdan çiqadi, doimiy yaşil va çarmsimon. Gulining tuzilişi. Töpgulda 2-3 (6 tagaça) gul bor. Toj oq rangdan töq qizilgaça, voronkasimon, 25-60mm, yuqori bölaklarida töq doğlar bor; çangçilar 8-10 ta. Mevasi tuxumsimon kösakça (10mm gaça), ziç

[8] Planchon J.É. *Rhododendron simsii*. Flore des Serres et des Jardins de l'Europe. 1853, vol. 9, p. 78.

[9] Trees and Shrubs Online. *Rhododendron simsii* Planch. International Dendrology Society.

tukli, kosaça qoladi, pişganda oçilib, mayda uruğlarni soçadi. [10] Gulni köpaytirişda uruğidan amalga oşiriş qiyin va köp vaqt oladi, şuning uçun qalamçalaribilan köpaytiriş samarali.

Biologik xususiyatlari. Tabiiy şaroitda aprel-mayda gullaydi, iyun-avgustda meva beradi. Uzun kun vegetativ novdalarning hosil bölişiga qulay, köpçilik navlarda gul kurtaklari qisqa kunda yaxşi şakllanadi. Gullaş uçun kurtaklar 4-6 hafta davomida taxminan 2-10°C sovuqqa uçraşi kerak, gibberellin kislotasi (GA3) bu sovitişni qisman almaştira oladi. Zamonaviy işda ham kurtaklarning tinimini buziş uçun 7°C va qoronğilikda sovitiş qöllaniladi. Ösiş uçun optimal harorat 12-25°C, yuqori haroratda yangi novdalar sekin ösib, yarim tinim holatiga ötadi. Xona şaroitida 13-16°C tavsiya etiladi. Ba'zi gulli ösimliklardan farqli ravişda *Azalea indica* guli sovuq şaroitda ösişni ma'qul köradi[4-5].

Xulosa qilib aytadigan bölsak, sovuq muhitda östiriş uçun taklif etiladigan uşbu manzarali gulni berilgan ma'lumotlariga e'tibor berib köpaytiriş ma'qul. Bundan taşqari uni laboratoriya şaroitida köpaytirib, ex situ usul uçun uni tuproqqa ötkazişni sinab köriş mumkin. Gulni töğri va tez ösişi uçun östirilayotgan muhitini töğri tanlay oliş kerak. Maqola uçun tanlab olingan *azalea indicia* gulida kelajakda manzarali xona guli sifatida östiriş körsatkiçini oşiriş uçun qulay ozuqa muhitlarida tajriba sifatida östirib köriladi va amaliyotga tatbiq etiladi.

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ПРИМЕНЕНИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА И ИННОВАЦИОННЫХ ТЕХНОЛОГИЙ В ДИАГНОСТИКЕ МЕЛАНОМЫ И МЕЛАНОЦИТАРНЫХ НОВООБРАЗОВАНИЙ КОЖИ

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Аннотация. *В статье рассматриваются современные возможности применения искусственного интеллекта и инновационных диагностических технологий для выявления меланомы и меланоцитарных новообразований кожи. Особое внимание уделяется использованию методов машинного и глубокого обучения при анализе дерматоскопических изображений, цифровой дерматоскопии, систем автоматизированной оценки кожных образований и конфокальной микроскопии. Рассматриваются преимущества цифровых технологий, их потенциальная роль в повышении точности ранней диагностики, а также существующие ограничения, связанные с качеством изображений, репрезентативностью обучающих выборок и необходимостью клинической верификации результатов. Подчёркивается, что искусственный интеллект должен применяться как вспомогательный инструмент в работе врача-онколога и дерматолога, а окончательное заключение должно основываться на комплексном клиническом и морфологическом исследовании.*

Ключевые слова*: меланома, меланоцитарные новообразования, искусственный интеллект, машинное обучение, глубокое обучение, дерматоскопия, цифровая диагностика, раннее выявление, онкология.*

Abstract*. The article examines current opportunities for applying artificial intelligence and innovative diagnostic technologies in the detection of melanoma and melanocytic skin lesions. Particular attention is paid to machine learning and deep learning methods used for dermoscopic image analysis, digital dermoscopy, automated skin lesion assessment, and reflectance confocal microscopy. The advantages of digital technologies, their potential contribution to early diagnosis, and existing limitations related to image quality, training dataset representativeness, and the need for clinical validation are discussed.*

Artificial intelligence is considered a supportive tool for oncologists and dermatologists, while the final diagnosis should be based on comprehensive clinical and histopathological assessment.

Keywords: *melanoma, melanocytic lesions, artificial intelligence, machine learning, deep learning, dermoscopy, digital diagnostics, early detection, oncology.*

ВВЕДЕНИЕ

Меланома кожи является одной из наиболее агрессивных злокачественных опухолей, развивающихся из меланоцитов. Несмотря на сравнительно меньшую распространённость по сравнению с некоторыми другими новообразованиями кожи, меланома характеризуется высоким потенциалом метастазирования и может приводить к неблагоприятным исходам при позднем выявлении. В связи с этим ранняя диагностика заболевания имеет важное значение для повышения эффективности лечения и улучшения прогноза пациентов. Диагностика меланомы представляет определённые трудности, поскольку клинические проявления заболевания могут быть сходны с доброкачественными меланоцитарными невусами и другими пигментными образованиями кожи. Важную роль в диагностическом процессе играют клинический осмотр, дерматоскопия и гистологическое исследование подозрительных образований. Целью настоящей статьи является анализ современных возможностей применения искусственного интеллекта и инновационных технологий в диагностике меланомы и меланоцитарных новообразований кожи.

ОСНОВНАЯ ЧАСТЬ

1. Современные подходы к диагностике меланомы

Первичная диагностика меланомы основывается на сборе анамнеза, оценке факторов риска и визуальном исследовании кожных покровов. При клиническом осмотре особое внимание уделяется изменению размера, формы, окраски и структуры пигментного образования.

Одним из широко применяемых подходов является правило ABCDE, включающее оценку асимметрии (Asymmetry), неровности границ (Border), неоднородности окраски (Color), диаметра (Diameter) и динамики изменений (Evolution). Данный алгоритм помогает выявлять подозрительные образования, однако не может самостоятельно обеспечить окончательную диагностику. Дерматоскопия позволяет изучать структуры кожи, которые невозможно полноценно оценить при обычном визуальном осмотре. Метод повышает диагностические возможности врача за счёт

выявления специфических пигментных и сосудистых признаков. Согласно современным европейским рекомендациям, дерматоскопическое исследование имеет важное значение при оценке подозрительных кожных образований, однако при подозрении на меланому диагноз должен быть подтверждён гистологическим исследованием .

2. Искусственный интеллект в диагностике меланоцитарных новообразований

Искусственный интеллект представляет собой совокупность компьютерных методов, позволяющих анализировать информацию, выявлять закономерности и формировать прогнозы на основе обучающих данных.

В диагностике меланомы наиболее активно применяются следующие направления:

- Машинное обучение (Machine Learning) — методы, позволяющие компьютерной системе выявлять закономерности в характеристиках кожных образований.

- Глубокое обучение (Deep Learning) — направление машинного обучения, основанное на многослойных нейронных сетях.

- Свёрточные нейронные сети (CNN) — алгоритмы, широко используемые для анализа медицинских изображений и распознавания визуальных признаков.

- Компьютерное зрение (Computer Vision) — технологии автоматического распознавания и классификации объектов на изображениях.

При анализе дерматоскопических изображений алгоритмы могут оценивать симметрию образования, характер пигментной сети, распределение цветов, наличие неоднородных структур и другие визуальные особенности. В результате обработки изображения система может определить вероятность принадлежности образования к определённой диагностической категории. Полученные данные могут использоваться врачом как дополнительная информация при выборе дальнейшей диагностической тактики.

3. Возможности цифровой дерматоскопии и инновационных технологий.

Цифровая дерматоскопия позволяет сохранять изображения кожных образований, проводить их последовательное сравнение и отслеживать изменения во времени. Данный подход особенно важен для пациентов с множественными невусами и повышенным риском развития меланомы. К

инновационным технологиям, применяемым или изучаемым в диагностике меланоцитарных новообразований, относятся:

1. Цифровая дерматоскопия. Обеспечивает получение и хранение изображений с возможностью последующего сравнения.

2. Автоматизированный анализ изображений. Позволяет выявлять подозрительные признаки с помощью алгоритмов искусственного интеллекта.

3. Конфокальная лазерная сканирующая микроскопия. Даёт возможность получать изображения структур кожи на клеточном уровне без хирургического вмешательства.

4. Фотографирование всей поверхности кожи. Помогает документировать множественные образования и выявлять новые или изменившиеся элементы.

5. Интегрированные цифровые системы. Объединяют клиническую информацию, дерматоскопические изображения и результаты наблюдения.

Использование последовательной цифровой дерматоскопии и фотографирования всей поверхности кожи может способствовать раннему выявлению изменений у пациентов из групп повышенного риска [1].

ЗАКЛЮЧЕНИЕ

Применение искусственного интеллекта и инновационных технологий является перспективным направлением развития современной онкологической диагностики. Алгоритмы машинного и глубокого обучения способны анализировать дерматоскопические изображения, выявлять подозрительные признаки и предоставлять врачу дополнительную диагностическую информацию. Цифровая дерматоскопия, последовательное фотографирование кожных образований и конфокальная микроскопия расширяют возможности раннего выявления меланомы и динамического наблюдения за пациентами. Вместе с тем искусственный интеллект следует рассматривать исключительно как вспомогательный инструмент. Окончательное диагностическое заключение должно формироваться специалистом с учётом клинических данных и результатов морфологического исследования. Дальнейшее развитие данного направления требует проведения клинических исследований, совершенствования алгоритмов и оценки их эффективности в реальных условиях медицинской практики.

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DAUN SINDROMI: GENETIK ETIOLOGIYA, HUJAYRAVIY-MOLEKULYAR MEXANIZMLAR, KLINIK XUSUSIYATLAR VA TIBBIY KUZATUV — NARRATIV SHARH

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Annotatsiya: *Daun sindromi (DS) — 21-xromosoma genetik materialining ortiqcha nusxasi bilan bog‘liq xromosomaviy holat bo‘lib, klinik ko‘rinishi shaxslar o‘rtasida sezilarli farqlanadi. Maqolada sindromning sitogenetik shakllari, nondisjunktsiya va mozaiklikning hujayraviy asoslari, gen dozasi ortishining molekulyar oqibatlari, ko‘p tizimli klinik xususiyatlari, prenatal va postnatal tashxis hamda uzoq muddatli tibbiy kuzatuv yoritiladi. Narrativ sharh PubMed/MEDLINE, PubMed Central, nashriyot sahifalari va tegishli professional tashkilotlarning klinik tavsiyalari asosida tayyorlandi. Tahlil natijalari trisomiya 21 fenotipi genetik va biologik omillarning o‘zaro ta’siri bilan shakllanishini, uning og‘irligini faqat tashqi belgilar yoki qondagi mozaik hujayralar ulushi orqali ishonchli bashorat qilib bo‘lmasligini ko‘rsatadi.*

Kalit so‘zlar: *Daun sindromi, trisomiya 21, nondisjunktsiya, translokatsiya, mozaiklik, gen dozasi, prenatal skrining, kariotiplash.*

Abstract. *Down syndrome (DS) is a chromosomal condition caused by additional genetic material from chromosome 21, with substantial variability in its clinical presentation. This narrative review summarizes the major cytogenetic forms, cellular mechanisms of nondisjunction and mosaicism, molecular consequences of increased gene dosage, multisystem clinical features, prenatal and postnatal diagnosis, and long-term health supervision. The review draws on literature identified through PubMed/MEDLINE and PubMed Central, publisher websites, and clinical guidance from relevant professional organizations. The evidence indicates that the trisomy 21 phenotype results from interacting genetic and biological factors and cannot be reliably predicted from physical features or the proportion of mosaic cells in peripheral blood alone.*

Keywords: *Down syndrome, trisomy 21, nondisjunction, translocation, mosaicism, gene dosage, prenatal screening, karyotyping.*

KIRISH

Daun sindromi (trisomiya 21) insonda uchraydigan eng ko‘p ma’lum xromosomaviy holatlardan biri bo‘lib, 21-xromosomaga tegishli genetik materialning ortiqcha bo‘lishi bilan bog‘liq. Odatdagi somatik hujayralarda 46 ta xromosoma mavjud; trisomiya 21 ning klassik shaklida esa 21-xromosomaning uchta nusxasi aniqlanadi. Translokatsion shaklda ortiqcha 21-xromosoma materiali boshqa xromosomaga birikkan bo‘lishi, mozaik shaklda esa organizmda xromosoma tarkibi turlicha bo‘lgan hujayra liniyalari mavjud bo‘lishi mumkin [1–3,14,15].

Daun sindromi yuqumli kasallik emas va ota-onaning kundalik xatti-harakati yoki tarbiya usuli natijasida kelib chiqmaydi. Ko‘pchilik holatlarda sabab jinsiy hujayralar hosil bo‘lishi yoki embrionning dastlabki rivojlanishidagi xromosomalar taqsimlanish xatosidir [2,14,15]. Sindromning klinik ko‘rinishi bir xil emas: ayrim shaxslarda tug‘ma yurak nuqsonlari yoki boshqa tibbiy muammolar kuzatilsa, boshqalarda bunday asoratlar bo‘lmasligi mumkin. Shu sababli tashxis, prognoz va kuzatuv individual yondashuvni talab qiladi [1].

Maqolaning maqsadi — Daun sindromining sitogenetik va molekulyar asoslari, fenotipik o‘zgaruvchanligi, prenatal va postnatal diagnostikasi hamda yoshga mos tibbiy kuzatuv tamoyillarini zamonaviy ilmiy adabiyotlar va klinik tavsiyalar asosida tanqidiy umumlashtirish.

ASOSIY QISM

Maqola narrativ adabiyotlar sharhi dizaynida tayyorlandi. Adabiyotlarni maqsadli aniqlash uchun PubMed/MEDLINE va PubMed Central bazalari, maqolalarning nashriyot sahifalari hamda AAP, SMFM, ACOG, CDC, NICHD va AHRQ kabi professional va davlat tashkilotlarining rasmiy resurslari ko‘rib chiqildi. Qidiruvda “Down syndrome”, “trisomy 21”, “nondisjunction”, “translocation”, “mosaicism”, “gene dosage”, “prenatal cell-free DNA” va “health supervision” kalit iboralari alohida hamda kombinatsiyada qo‘llanildi. Asosiy e’tibor 2015–2026-yillarda chop etilgan klinik tavsiyalar, ilmiy sharhlar va original tadqiqotlarga qaratildi; sitogenetik tasnif va asosiy mexanizmlarni yorituvchi fundamental manbalar ham qamrab olindi.

Manbalarni tanlashda ularning maqola maqsadiga bevosita aloqadorligi, nashr manbasining ilmiy ishonchliligi, metodologik turi va bibliografik ma’lumotlarining tekshirilishi hisobga olindi. Klinik qo‘llanmalar tibbiy kuzatuv va prenatal skrining tavsiyalarini, sistematik sharhlar dalillarning umumiy holatini, original tadqiqotlar esa muayyan biologik mexanizm yoki klinik natijalarni yoritish uchun tanlandi. Muallifi, nashr manbasi yoki bibliografik

rekvizitlari aniqlanmagan ikkilamchi internet materiallari ilmiy dalil sifatida ishlatilmadi. Qidiruv 2026-yil 11-noyabr holatiga ko‘ra yakunlandi.

Tahlilga Daun sindromining sitogenetik shakllari, nondisjunktsiya va mozaiklik, gen dozasi va neyro-rivojlanish mexanizmlari, klinik hamroh holatlar, prenatal skrining, postnatal tasdiqlash hamda bolalar va kattalardagi tibbiy kuzatuvga oid manbalar kiritildi. Turli populyatsiyalarda olingan tarqalish ko‘rsatkichlari yosh, diagnostika mezonlari, tanlangan to‘qima va kuzatuv muddatiga qarab farqlanishi mumkinligi sababli ular yagona universal ko‘rsatkich sifatida talqin qilinmadi.

Manbalar narrativ-sifat tahlili asosida tematik yo‘nalishlar bo‘yicha sintez qilindi: (1) sitogenetik etiologiya; (2) hujayraviy va molekulyar mexanizmlar; (3) klinik fenotip va hamroh holatlar; (4) prenatal va postnatal diagnostika; (5) uzoq muddatli tibbiy kuzatuv. Dalillar manba dizayni va qo‘llanish doirasiga qarab talqin qilindi; klinik qo‘llanma, sistematik sharh, narrativ sharh va alohida original tadqiqotlar dalil kuchi jihatidan tenglashtirilmadi.

Ushbu maqola sistematik sharh yoki meta-tahlil emas. Qidiruv to‘liq sistematik protokol asosida o‘tkazilmagan; barcha bazalar bo‘yicha qidiruv natijalari soni, takroriy yozuvlar va saralash bosqichlari oldindan belgilangan oqim diagrammasi shaklida qayd etilmagan. Manbalarni tanlash va sintezlash bir mualliflik narrativ tahliliga asoslangan. Shu sababli maqola mavjud adabiyotlarning to‘liq qamrovini da’vo qilmaydi va yangi klinik yoki eksperimental natijalarni taqdim etmaydi. Ushbu cheklovlar xulosalarni talqin qilishda inobatga olinishi lozim.

Tahlilga kiritilgan asosiy dalil manbalari:

1. **Manba**	2. **Manba turi**	3. **Maqoladagi vazifasi**	4. **Talqin cheklovi**
5. Bull va boshq., 2022 [1]	6. AAP klinik hisoboti	7. Bolalar va o‘smirlardagi skrining, klinik kuzatuv va asoratlar	8. Pediatrik populyatsiyaga yo‘naltirilgan
9. Antonarakis va boshq., 2020 [8]	10. Keng qamrovli ilmiy sharh	11. Genetika, fenotip, tashxis va boshqaruvning umumiy modeli	12. Narrativ/primer sharh; yangi kohort emas

13. Papavassiliou va boshq., 2015 [6]	14. Sitogenetik sharh	15. Mozaikl ikning klinik va xromosomaviy xususiyatlari	16. Nashr sanasi eskiroq; asosiy tushunchalar uchun ishlatilgan
17. Abukhaled va boshq., 2024 [4]	18. Ochiq ilmiy sharh	19. Genetik mexanizmlar va kognitiv xususiyatlar	20. Mexanizmlarning ayrimlari hali tadqiqot bosqichida
21. Rink va boshq., 2025 [5]	22. SMFM klinik tavsiyasi	23. cfDNA skriningining o‘rni va cheklovlari	24. Prenatal skriningga oid; diagnostik test emas
25. Schworer va boshq., 2024 [12]	26. Uzunlamasiga kohort tadqiqoti	27. Amiloid/tau biomarkerlari va simptomatik bosqichga o‘tish	28. Kohort natijalarini barcha shaxslarga individual prognoz sifatida qo‘llab bo‘lmaydi
29. Abdi va boshq., 2026 [10]	30. AHRQ sistematik sharhi	31. Katta yoshdagi shaxslarda hamroh holatlar va tibbiy yordam dalillari	32. Kattalar populyatsiyasi; dalillar ayrim savollarda cheklangan

Eng ko‘p uchraydigan shakl — erkin trisomiya 21. Bunda hujayralarda 21-xromosomaning uchta alohida nusxasi mavjud bo‘ladi. Ushbu holat, odatda, meyoz vaqtida gomologik xromosomalar yoki singil xromatidlarning to‘g‘ri ajralmasligi — nondisjunktsiya natijasida yuzaga keladi. Natijada 21-xromosomaning ortiqcha nusxasini olgan tuxum hujayra yoki spermatozoid urug‘lanishda ishtirok etadi va zigotada trisomiya 21 shakllanadi [1–3].

Nondisjunktsiya ko‘pincha tasodifiy xromosomal taqsimlanish xatosidir. Onaning yoshi ortishi bilan trisomiya 21 ehtimoli ko‘payadi, biroq sindrom faqat katta yoshdagi onalarning farzandlarida uchramaydi. Har qanday reproduktiv yoshdagi oilada bunday holat yuz berishi mumkin [1,2].

Translokatsion shaklda 21-xromosomaning qo‘shimcha genetik materiali boshqa xromosomaga, ko‘pincha akrosentrik xromosomaga birikadi. Ayrim hollarda bu o‘zgarish de novo tarzda yuzaga keladi; boshqa hollarda ota yoki onada klinik belgisiz muvozanatli translokatsiya tashuvchiligi bilan bog‘liq bo‘lishi mumkin. Shu sababli translokatsion shakl aniqlanganda ota-onalarning kariotipini tekshirish va klinik genetik maslahat berish keyingi homiladorliklar uchun takrorlanish xavfini baholashda muhimdir [1,3].

Mozaik shaklda bir individ organizmida kamida ikki xil xromosoma tarkibiga ega hujayra liniyalari mavjud bo‘ladi: ayrim hujayralarda 46 ta, boshqalarida esa 47 ta xromosoma va qo‘shimcha 21-xromosoma aniqlanadi. Bu holat urug‘lanishdan keyingi mitotik bo‘linishdagi xato yoki dastlab trisomik bo‘lgan embrion hujayralarining ayrimlarida ortiqcha xromosomaning yo‘qolishi bilan bog‘liq bo‘lishi mumkin [2,3].

Mozaiklikda klinik belgilar yengilroq bo‘lishi mumkin, ammo bu qat’iy qoida emas. Qonda aniqlangan trisomik hujayralar ulushi boshqa to‘qimalardagi ulushni to‘liq aks ettirmasligi mumkin. Shu bois fenotip og‘irligini faqat qondagi mozaik hujayralar foiziga qarab oldindan aniq belgilash mumkin emas [3,6].

AAP klinik hisobotida Daun sindromi fenotipining taxminan 96 foizi erkin trisomiya, 3–4 foizi translokatsiya, 1–2 foizi mozaiklik bilan bog‘liqligi keltiriladi [1]. Boshqa manbalarda ulushlar biroz farq qilishi mumkin; bu farqlar tasniflash, tanlangan populyatsiya va laborator diagnostika usullariga bog‘liq. Shu sababli foizlar taxminiy diapazon sifatida talqin qilinishi lozim.

21-xromosoma ko‘plab genlarni o‘z ichiga oladi. Uning qo‘shimcha nusxasi hujayrada ayrim genlarning dozasi ortishiga va gen ekspressiyasi muvozanatining o‘zgarishiga olib kelishi mumkin. Bu holat oqsil miqdori, hujayra ichidagi signal yo‘llari va rivojlanish jarayonlariga ta’sir ko‘rsatadi. Biroq barcha genlar bir xil darajada yoki aynan uch baravar ekspressiyalanadi, degan xulosa noto‘g‘ri: ta’sir genning xususiyati, to‘qima turi, rivojlanish bosqichi va kompensator boshqaruv mexanizmlariga bog‘liq [4,8,13].

Trisomiya 21 ning biologik oqibatlari faqat qo‘shimcha xromosomadagi genlar bilan cheklanmaydi. Gen dozasi o‘zgarishi boshqa xromosomalardagi genlar ekspressiyasiga, epigenetik boshqaruvga, hujayralararo signal uzatishga va to‘qimalar rivojlanishiga bilvosita ta’sir qilishi mumkin. Natijada turli organ tizimlaridagi belgilar bir-biridan farq qiluvchi, ammo o‘zaro bog‘langan molekulyar va hujayraviy jarayonlar orqali shakllanadi [4,8,13].

Asab tizimi rivojlanishidagi o‘zgarishlar neyronlar shakllanishi, sinaptik aloqalar, qo‘zg‘atuvchi va tormozlovchi signallar muvozanati hamda neyron tarmoqlarining yetilishi bilan bog‘liq bo‘lishi mumkin. Abukhaled va

hammualliflar neyronlarning morfologik xususiyatlari va tormozlovchi signallarning kuchayishi kabi mexanizmlarni kognitiv xususiyatlarni tushuntiruvchi ehtimoliy yo‘llar sifatida muhokama qilgan [4]. Biroq bu mexanizmlarning har bir shaxsdagi klinik fenotipga sababiy hissasi to‘liq aniqlanmagan; shu bois ularni qat’iy individual prognoz vositasi sifatida talqin qilish mumkin emas.

Daun sindromining molekulyar asosini bitta gen yoki yagona biokimyoviy yo‘l bilan izohlab bo‘lmaydi. Mavjud dalillar gen dozasi, genlararo o‘zaro ta’sir, epigenetik boshqaruv va rivojlanish jarayonlarining birgalikdagi rolini ko‘rsatadi [4,8,13].

Qo‘shimcha xromosomaning ta’sirini “genning uch nusxasi — oqsilning uch baravar miqdori” tarzida soddalashtirish ilmiy jihatdan to‘g‘ri emas. Ayrim genlar ekspressiyasi ortishi mumkin, biroq natija gen, to‘qima va rivojlanish bosqichiga qarab farqlanadi. Xing va hammualliflar qo‘shimcha xromosomaning gen dozasi bilan bevosita bog‘liq va dozaga bilvosita yoki mustaqil bog‘liq ta’sirlarini ajratib o‘rganish zarurligini ko‘rsatgan [13].

Daun sindromining klinik fenotipi o‘zgaruvchan. Mushak gipotoniyasi, yuz-jag‘ va qo‘l-oyoq tuzilishining ayrim o‘ziga xos xususiyatlari, o‘sish hamda rivojlanish sur’atining farqlanishi kuzatilishi mumkin. Nutq, o‘rganish, xotira va kundalik faoliyat ko‘nikmalari har bir shaxsda turlicha rivojlanadi. Fenotipik belgilar klinik shubha uyg‘otadi, ammo tashxis xromosoma tahlili bilan tasdiqlanishi lozim [1,8].

AAPning bolalar va o‘smirlar bo‘yicha klinik hisobotida tug‘ma yurak nuqsonlari, eshitish va ko‘rish muammolari hamda obstruktiv uyqu apnoesi Daun sindromida muntazam e’tibor talab qiladigan hamroh holatlar sifatida ko‘rsatiladi [1]. Ayrim adabiyotlarda ularning tarqalish darajasi keng diapazonda beriladi; ko‘rsatkichlar tanlangan yosh guruhi, tekshiruv usuli va klinik mezonlarga qarab farqlanadi. Shu sababli ushbu maqolada turli tadqiqotlardan olingan foizlar yagona universal ko‘rsatkich sifatida taqdim etilmaydi. Klinik amaliyotda har bir shaxs uchun yoshga mos skrining va kuzatuv rejasiga rioya qilish muhimdir.

33. **Organ/tizim**	34. **Kuzatilishi mumkin bo‘lgan holatlar**	35. **Kuzatuv yo‘nalishi**
36. Yurak-qon tomir	37. Tug‘ma yurak nuqsonlari, septal nuqsonlar	38. Yangi tug‘ilgan davrda exokardiografiya va kardiolog nazorati

39. Eshitish va LOR	40. Eshitish pasayishi, o‘rta quloq yallig‘lanishi	41. Audiologik tekshiruv va LOR ko‘rigi
42. Ko‘rish	43. Refraksiya nuqsonlari, strabizm	44. Muntazam oftalmologik baholash
45. Endokrin	46. Gipotireoz va qalqonsimon bez disfunksiyasi	47. TSH, zaruratga ko‘ra erkin T4 nazorati
48. Nafas va uyqu	49. Obstruktiv uyqu apnoesi	50. Simptomlarni baholash, ko‘rsatmaga ko‘ra polisomnografiya
51. Ovqat hazm qilish	52. Tug‘ma nuqsonlar, oziqlanish/yutish qiyinchiliklari	53. Klinik belgilar asosida pediatrik baholash
54. Gematologik	55. Vaqtinchalik mielopoez buzilishi, ayrim leykemiyalar xavfi	56. Klinik tavsiyalar asosida qon tahlillari

Jadval klinik kuzatuv yo‘nalishlarini umumlashtiradi; u individual bemor uchun tekshiruv jadvali yoki davolash protokoli o‘rnini bosmaydi. Tekshiruvlarning turi va davriyligi yosh, simptomlar, avvalgi natijalar hamda mahalliy klinik tavsiyalarga muvofiq belgilanadi [1].

Asoratlar har bir shaxsda bir xil uchramaydi. Tug‘ma yurak nuqsoni aniqlanmagan bolada ham eshitish, ko‘rish, qalqonsimon bez yoki uyqu bilan bog‘liq muammolar yuzaga kelishi mumkin. Shu sababli faqat bitta tizimni tekshirish bilan cheklanmasdan, yoshga mos kompleks kuzatuv zarur [1].

Prenatal davrda trisomiya 21 ehtimolini baholash uchun biokimyoviy skrining, ultratovush tekshiruvi va ona qonidagi hujayrasiz DNK (cfDNA) tahlilidan foydalaniladi. cfDNA keng tarqalgan fetal aneuploidiyalar, jumladan trisomiya 21 uchun yuqori aniqlikka ega skrining usulidir. SMFMning 2025-yilgi tavsiyasi cfDNA skriningini barcha homiladorlarga taklif etishni qo‘llab-quvvatlaydi; ACOG ushbu tavsiyani 2026-yil yanvarida ma’qullagan [5,7].

Skrining va diagnostika tushunchalarini farqlash muhim. cfDNA tahlili homila hujayralarini bevosita tekshirmaydi; ona qonidagi, asosan platsentadan kelib chiqadigan hujayrasiz DNK fragmentlarini tahlil qiladi. Shu sababli yuqori xavfli natija tashxisni o‘zi tasdiqlamaydi. Bunday holatda genetik maslahat, batafsil ultratovush baholashi va klinik vaziyat hamda homilador shaxsning xabardor tanloviga muvofiq xorion vorsinlari biopsiyasi yoki amniotsentez kabi

diagnostik tekshiruvlar taklif etiladi [5,7]. cfDNA natijasi platsentar mozaiklik, yo‘qolib ketgan egizak, ona organizmidagi xromosomaviy holatlar va boshqa biologik omillar sababli homila kariotipiga to‘liq mos kelmasligi mumkin. Bundan tashqari, ijobiy bashorat qiymati testning analitik ko‘rsatkichlarigina emas, balki tekshirilayotgan populyatsiyada trisomiya 21 ning oldindan mavjud bo‘lgan ehtimoliga ham bog‘liq. Natijani homiladorlik muddati, ultratovush topilmalari va testning hisobot berish imkoniyati bilan birgalikda talqin qilish lozim [5,7].

Past xavfli cfDNA natijasi barcha xromosomaviy yoki struktur anomaliyalarni istisno qilmaydi. Ultratovush tekshiruvi homila anatomiyasini baholashda mustaqil ahamiyatga ega. Skrining va diagnostik tekshiruvlarni qabul qilish yoki rad etish bo‘yicha qaror xabardor maslahatdan so‘ng homilador shaxs tomonidan qabul qilinadi [5,7].

Tug‘ilgandan keyin klinik belgilar Daun sindromiga shubha uyg‘otishi mumkin, biroq tashxisni xromosoma tahlili bilan tasdiqlash zarur. Kariotiplash xromosomalar soni va tuzilishini ko‘rsatib, erkin trisomiya, translokatsiya va ayrim mozaik shakllarni farqlashga yordam beradi. FISH kabi tezkor usullar qo‘shimcha 21-xromosoma materialini aniqlashda foydali bo‘lishi mumkin, ammo translokatsiya bor-yo‘qligini to‘liq baholash uchun kariotip zarur [1].

Translokatsion shakl aniqlansa, ota-onalarning kariotipini tekshirish masalasi ko‘rib chiqiladi. Bu takrorlanish xavfini baholash va oilaga genetik maslahat berish uchun muhim. Takrorlanish ehtimoli translokatsiya turi, ota-onalardan birining muvozanatli translokatsiya tashuvchisi ekanligi va boshqa individual omillarga bog‘liq; shu sababli barcha oilalar uchun yagona foizni qo‘llash mumkin emas [1,3].

Daun sindromiga sabab bo‘lgan qo‘shimcha xromosoma materialini yo‘qotishga qaratilgan, klinik amaliyotda tasdiqlangan davolash usuli mavjud emas. Tibbiy yordamning maqsadi hamroh holatlarni erta aniqlash va davolash, rivojlanishni qo‘llab-quvvatlash, funksional imkoniyatlarni kengaytirish hamda shaxs va oilaning hayot sifatini yaxshilashdan iborat [1,8].

Yordam rejasi individual ehtiyojga muvofiq tuziladi. Zaruratga qarab pediatr, klinik genetik, kardiolog, endokrinolog, audiolog, oftalmolog, logoped, fizioterapevt, ergoterapevt va boshqa mutaxassislar hamkorlik qiladi. Erta aralashuv, nutq va harakat ko‘nikmalarini rivojlantirish, moslashtirilgan ta’lim hamda oilaga psixologik-ijtimoiy ko‘mak tibbiy yordamning muhim tarkibiy qismlaridir [1].

Tibbiy xodimlar tashxis haqida oilaga hurmatli, xolis va dalillarga asoslangan ma’lumot berishi lozim. Daun sindromi bo‘lgan shaxslarning

ehtiyojlari va rivojlanish imkoniyatlari turlicha; kelajakdagi funksional natijalarni faqat tashxis nomiga asoslanib qat'iy bashorat qilib bo‘lmaydi [1]. Tibbiy kuzatuv bolalik va o‘smirlik davri bilan cheklanmasligi kerak. 21-xromosomada joylashgan amyloid precursor protein (APP) geni qo‘shimcha nusxaga ega bo‘lishi mumkin; APP ekspressiyasining ortishi amiloid-beta metabolizmi va Altsgeymer kasalligi bilan bog‘liq patologik jarayonlarga biologik asos yaratadi. DYRK1A kabi boshqa 21-xromosoma genlari ham neyron faoliyati va tau oqsili bilan bog‘liq yo‘llarga ta'sir ko‘rsatishi mumkin [8,9]. Biroq biomarker yoki patologik o‘zgarish aniqlanishi klinik demensiya tashxisi bilan teng emas: simptomlarning boshlanishi va kechishi individual farqlanadi. Kognitiv yoki funksional pasayish gumon qilinganda avvalgi individual holat bilan taqqoslash, shuningdek eshitish, ko‘rish, uyqu, qalqonsimon bez faoliyati, ruhiy salomatlik va boshqa davolash mumkin bo‘lgan omillarni baholash zarur [11,12].

2026-yilda e'lon qilingan AHRQ sistematik sharhi Daun sindromi bo‘lgan kattalarda bir qator hamroh tibbiy holatlar, jumladan Altsgeymer kasalligi/demensiya, katarakta, diabet, gipotireoz, leykemiya, semizlik va obstruktiv uyqu apnoesi bo‘yicha mavjud dalillarni umumlashtiradi [10]. Sharhning muhim jihati shundaki, ayrim holatlarning ko‘proq uchrashi haqida kuzatuv dalillari mavjud bo‘lsa-da, kattalar uchun ko‘plab skrining yoki davolash aralashuvlarining foyda va zarari bo‘yicha yuqori ishonchli bevosita dalillar yetarli emas. Shu bois klinik tavsiyalarni dalil sifati va individual ehtiyojni hisobga olgan holda qo‘llash zarur [10,11].

Tahlil qilingan manbalar Daun sindromini xromosoma tarkibidagi o‘zgarishdan boshlanadigan, ko‘p darajali biologik oqibatlarga ega holat sifatida tavsiflaydi. Sitogenetik shakl etiologik talqin va genetik maslahat uchun muhim, biroq klinik fenotipni mustaqil ravishda to‘liq bashorat qilmaydi. Mozaiklikda hujayra liniyalari turli to‘qimalarda notekis taqsimlanishi mumkin; shu sababli periferik qondagi trisomik hujayralar ulushi butun organizmdagi holatni to‘liq ifodalamaydi [3,4]. Molekulyar tadqiqotlar gen dozasi va genlararo ta'sirni tushuntiradi, ammo ayrim mexanizmlarning klinik oqibatlarga sababiy hissasi hanuz o‘rganilmoqda [4,8,13].

Klinik boshqaruvda turli turdagi dalillar bir-birini to‘ldiradi, lekin ularning qo‘llanish doirasi bir xil emas. AAP hisoboti bolalar va o‘smirlarda yoshga mos kuzatuvni belgilaydi [1], SMFM/ACOG tavsiyalari esa cfDNA ning prenatal skriningdagi o‘rnini va ijobiy natijadan keyingi diagnostik yo‘lni aniqlashtiradi [5,7]. Kattalar bo‘yicha AHRQ sistematik sharhi hamroh holatlar haqidagi kuzatuv dalillari mavjudligini, biroq ko‘plab skrining va davolash

aralashuvlarining foyda-zarari bo‘yicha bevosita dalillar cheklanganini ko‘rsatadi [10]. Demak, klinik tavsiyalarni yosh guruhi, dalil sifati, simptomlar va individual ehtiyojga moslashtirish zarur.

Ushbu sharhning asosiy cheklovlari narrativ dizayn, qidiruvning to‘liq sistematik protokol bilan o‘tkazilmagani, mustaqil ikki ekspert tomonidan manbalarni saralash va dalil sifatini baholash jarayoni bo‘lmaganidir. Shuningdek, maqolada mahalliy populyatsiyadan olingan yangi klinik ma’lumotlar keltirilmagan; ayrim tavsiyalar pediatrik, boshqalari esa kattalar populyatsiyasiga tegishli. Shu sababli xulosalarni O‘zbekiston sharoitiga tatbiq etishda mahalliy klinik protokollar, resurslar va epidemiologik ma’lumotlar bilan muvofiqlashtirish lozim. Kelgusida mahalliy populyatsiyada sitogenetik shakllar, hamroh holatlar va uzoq muddatli kuzatuv natijalarini standartlashtirilgan dizaynda o‘rganish maqsadga muvofiq.

Ushbu sharhda klinik qo‘llanmalar amaliy kuzatuv bo‘yicha tavsiyalarni belgilashda, sistematik sharhlar dalillarning umumiy ishonchliligini baholashda, original tadqiqotlar esa alohida mexanizmlar yoki natijalarni tushuntirishda qo‘llanildi. Bir turdagi manbadan olingan natija boshqa yosh guruhi yoki sog‘liqni saqlash tizimiga avtomatik ko‘chirilmasligi kerak. Xususan, pediatrik kuzatuv tavsiyalari kattalar uchun dalil sifatida, kuzatuv tadqiqotlaridagi bog‘liqliklar esa sababiy munosabat sifatida talqin qilinmadi.

XULOSA

Daun sindromi 21-xromosoma genetik materialining ortiqcha nusxasi bilan bog‘liq bo‘lib, erkin trisomiya, translokatsiya va mozaiklik shakllarida namoyon bo‘ladi. Gen dozasi va uning hujayraviy boshqaruvga ta’siri ko‘p tizimli fenotip shakllanishida muhim, biroq klinik ko‘rinish shaxslar o‘rtasida sezilarli farqlanadi.

Prenatal cfDNA tahlili trisomiya 21 uchun yuqori aniqlikka ega skrining usuli, ammo yakuniy tashxis emas; yuqori xavfli natija genetik maslahat va diagnostik tekshiruv bilan davom ettirilishi kerak. Postnatal kariotiplash tashxisni tasdiqlash va translokatsion shaklni aniqlashda muhimdir.

Tibbiy yordam erta tashxis, yoshga mos muntazam kuzatuv, hamroh holatlarni o‘z vaqtida aniqlash, rivojlanishni qo‘llab-quvvatlash va ko‘p tarmoqli yondashuvga asoslanishi lozim. Mavjud dalillar ayrim klinik tavsiyalarni qo‘llab-quvvatlasa-da, ayniqsa kattalar uchun ayrim skrining va davolash aralashuvlarining samaradorligi bo‘yicha qo‘shimcha tadqiqotlar zarur.

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ВЛИЯНИЕ ОНКОЛОГИЧЕСКОГО ПРОЦЕССА НА ПОКАЗАТЕЛИ ОВАРИАЛЬНОГО РЕЗЕРВА ПАЦИЕНТОК

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Аннотация. *В статье рассматривается влияние онкологических заболеваний и противоопухолевого лечения на функциональное состояние яичников и показатели овариального резерва пациенток репродуктивного возраста. Особое внимание уделяется биологическим механизмам повреждения фолликулярного аппарата, изменениям уровня антимюллерова гормона, фолликулостимулирующего гормона и количества антральных фолликулов. Анализируются факторы, определяющие риск преждевременного снижения функции яичников, а также современные подходы к сохранению репродуктивного потенциала пациенток до начала противоопухолевой терапии. Подчёркивается необходимость междисциплинарного взаимодействия онкологов и специалистов репродуктивной медицины.*

Ключевые слова: *онкологические заболевания, овариальный резерв, антимюллеров гормон, яичники, химиотерапия, репродуктивная функция, фертильность, онкофертильность.*

Abstract. *The article examines the impact of oncological diseases and anticancer treatment on ovarian function and ovarian reserve in women of reproductive age. Particular attention is paid to the biological mechanisms of follicular damage and changes in anti-Müllerian hormone levels, follicle-stimulating hormone concentrations, and antral follicle counts. Factors associated with premature ovarian insufficiency are discussed, along with modern approaches to fertility preservation before anticancer treatment. The importance of interdisciplinary cooperation between oncologists and reproductive medicine specialists is emphasized.*

Keywords: *cancer, ovarian reserve, anti-Müllerian hormone, ovaries, chemotherapy, reproductive function, fertility, oncofertility.*

ВВЕДЕНИЕ

В последние годы проблема сохранения репродуктивного здоровья пациенток с онкологическими заболеваниями приобретает особую актуальность. Совершенствование методов ранней диагностики и противоопухолевого лечения способствует увеличению продолжительности жизни женщин репродуктивного возраста. Вместе с тем некоторые виды противоопухолевой терапии могут оказывать отрицательное влияние на функциональную активность яичников, приводя к снижению овариального резерва и нарушению репродуктивной функции. Овариальный резерв представляет собой совокупность функционально активных фолликулов яичников, определяющих потенциальные возможности женщины к воспроизводству. Его состояние зависит от возраста, генетических особенностей, гормонального фона, сопутствующих заболеваний и воздействия внешних факторов. Онкологический процесс и применяемые методы лечения могут сопровождаться нарушением гормональной регуляции, повреждением фолликулярного аппарата и ускорением истощения фолликулярного запаса. Особенно значимым фактором является применение цитотоксических препаратов и лучевой терапии, способных оказывать гонадотоксическое действие. В связи с этим оценка овариального резерва до начала противоопухолевого лечения и в процессе последующего наблюдения является важным компонентом комплексного ведения пациенток. Цель исследования — изучить влияние онкологического процесса и противоопухолевой терапии на показатели овариального резерва пациенток репродуктивного возраста, а также определить значение современных методов оценки и сохранения репродуктивной функции.

ОСНОВНАЯ ЧАСТЬ

1. Биологические механизмы изменения овариального резерва при онкологических заболеваниях

Овариальный резерв формируется в результате сложных процессов развития, созревания и естественной атрезии фолликулов. С возрастом количество примордиальных фолликулов постепенно уменьшается, что сопровождается снижением репродуктивного потенциала женщины. При онкологических заболеваниях изменения репродуктивной функции могут быть связаны как с самим опухолевым процессом, так и с применяемыми методами лечения.

Системное воспаление, метаболические нарушения и изменения нейроэндокринной регуляции могут оказывать дополнительное влияние на гормональный баланс. При этом выраженность изменений зависит от

локализации опухоли, стадии заболевания и индивидуальных особенностей организма.

Особенно важным механизмом является повреждение фолликулярного аппарата под воздействием цитотоксических препаратов. Некоторые химиотерапевтические средства способны вызывать повреждение ДНК ооцитов, апоптоз фолликулярных клеток и ускоренное истощение фолликулярного резерва.

2. Основные показатели оценки овариального резерва

Для оценки функционального состояния яичников в современной клинической практике используются лабораторные и инструментальные методы исследования. Одним из наиболее информативных биохимических показателей является антимюллеров гормон (АМГ). Он вырабатывается клетками гранулёзы преантральных и малых антральных фолликулов. Концентрация АМГ отражает особенности фолликулярного резерва и широко применяется при оценке репродуктивного потенциала. Фолликулостимулирующий гормон (ФСГ) также имеет значение в оценке функции яичников. Повышение его концентрации в раннюю фолликулярную фазу менструального цикла может свидетельствовать о снижении овариального резерва. Эстрадиол используется для дополнительной оценки гормональной активности яичников. Его показатели необходимо интерпретировать с учётом дня менструального цикла и концентрации других гормонов. Важным инструментальным методом является ультразвуковое исследование с определением количества антральных фолликулов (AFC). Данный показатель позволяет оценить количество доступных для роста фолликулов и дополнить лабораторные данные. Комплексная оценка АМГ, ФСГ, эстрадиола и количества антральных фолликулов позволяет получить более полное представление о функциональном состоянии яичников.

3. Влияние противоопухолевого лечения на овариальный резерв.

Одним из наиболее значимых факторов снижения овариального резерва у онкологических пациенток является гонадотоксическое воздействие противоопухолевой терапии. Химиотерапевтические препараты, особенно алкилирующие агенты, могут вызывать повреждение ооцитов и клеток фолликулярного аппарата. Степень повреждения зависит от возраста пациентки, дозы препаратов, продолжительности лечения и используемой комбинации лекарственных средств лучевая терапия при облучении области малого таза может приводить к повреждению яичников и снижению их гормональной активности. Риск нарушения функции

зависит от суммарной дозы облучения, возраста и расположения яичников относительно поля облучения. Хирургические вмешательства на органах репродуктивной системы также могут влиять на овариальный резерв. Удаление части ткани яичника, нарушение его кровоснабжения и некоторые радикальные операции способны существенно ограничивать репродуктивные возможности пациенток. Следует отметить, что степень воздействия противоопухолевого лечения индивидуальна. У одних пациенток функция яичников может частично восстановиться после завершения терапии, у других развивается стойкая преждевременная недостаточность яичников.

4. Современные подходы к сохранению репродуктивной функции

Развитие направления онкофертильности позволяет расширить возможности сохранения репродуктивного потенциала женщин с онкологическими заболеваниями. Одним из основных подходов является криоконсервация ооцитов и эмбрионов до начала гонадотоксического лечения. Данные методы позволяют сохранить биологический материал для возможного использования в будущем. Криоконсервация ткани яичника рассматривается как дополнительный метод сохранения фертильности, особенно в ситуациях, когда проведение стимуляции яичников невозможно или недостаточно времени для её выполнения.

Важнейшим условием является проведение консультации специалиста по репродуктивной медицине до начала противоопухолевого лечения. Это позволяет своевременно оценить овариальный резерв, обсудить возможные риски и выбрать индивидуальную стратегию сохранения репродуктивной функции без необоснованной задержки лечения основного заболевания.

ЗАКЛЮЧЕНИЕ

Онкологические заболевания и применяемые методы противоопухолевой терапии могут оказывать существенное влияние на функциональное состояние яичников и показатели овариального резерва женщин репродуктивного возраста. Наиболее значимыми факторами повреждения фолликулярного аппарата являются воздействие цитотоксических препаратов, лучевая терапия области малого таза и отдельные хирургические вмешательства. Комплексная оценка антимюллерова гормона, фолликулостимулирующего гормона и количества антральных фолликулов позволяет получить важную информацию о состоянии овариального резерва до и после проведения противоопухолевого лечения. Своевременное применение методов

сохранения фертильности и междисциплинарное взаимодействие онкологов, гинекологов и репродуктологов имеют важное значение для улучшения качества жизни пациенток и сохранения их репродуктивных возможностей.

Перспективным направлением дальнейших исследований является изучение динамики гормональных показателей овариального резерва в зависимости от возраста пациенток, вида онкологического заболевания и схемы противоопухолевого лечения.

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СОВЕРШЕНСТВОВАНИЕ ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ ДОБРОКАЧЕСТВЕННЫХ ОПУХОЛЕЙ И ОПУХОЛЕПОДОБНЫХ ЗАБОЛЕВАНИЙ КОСТЕЙ КОНЕЧНОСТЕЙ

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Аннотация. *В статье рассматриваются современные подходы к хирургическому лечению доброкачественных опухолей и опухолеподобных заболеваний костей конечностей. Освещаются основные клинико-морфологические характеристики костных новообразований, особенности диагностики и выбора хирургической тактики. Особое внимание уделяется органосохраняющим операциям, применению костной пластики, реконструктивным методам и профилактике послеоперационных осложнений. Анализ современных литературных данных позволяет определить основные направления совершенствования хирургического лечения, направленные на восстановление анатомической целостности кости, сохранение функции конечности и снижение риска рецидивов.*

Ключевые слова: *доброкачественные опухоли костей, опухолеподобные заболевания, кости конечностей, хирургическое лечение, костная пластика, органосохраняющие операции, реконструкция, рецидив.*

Abstract. *The article examines modern approaches to the surgical treatment of benign bone tumors and tumor-like lesions of the extremities. The main clinical and morphological characteristics of bone lesions, diagnostic methods, and surgical treatment strategies are discussed. Particular attention is paid to organ-preserving procedures, bone grafting, reconstructive techniques, and the prevention of postoperative complications. The analysis of current literature highlights the importance of improving surgical techniques to restore bone integrity, preserve limb function, and reduce the risk of recurrence.*

Keywords: *benign bone tumors, tumor-like lesions, extremity bones, surgical treatment, bone grafting, organ-preserving surgery, reconstruction, recurrence.*

ВВЕДЕНИЕ

Доброкачественные опухоли и опухолеподобные заболевания костей конечностей занимают важное место в структуре заболеваний опорно-двигательного аппарата. Несмотря на отсутствие выраженного метастатического потенциала у большинства доброкачественных костных новообразований, отдельные формы характеризуются местно-деструирующим ростом, способностью к рецидивированию и развитием патологических переломов. К наиболее распространённым доброкачественным опухолям костей относятся остеохондрома, энхондрома, остеоид-остеома, гигантоклеточная опухоль кости и некоторые другие морфологические варианты. Среди опухолеподобных заболеваний особое значение имеют фиброзная дисплазия, простая костная киста и аневризмальная костная киста. Выбор хирургической тактики зависит от морфологического типа образования, его локализации, размеров, степени разрушения костной ткани, наличия патологического перелома и функционального состояния конечности. Актуальность данной проблемы обусловлена необходимостью совершенствования хирургических методов, обеспечивающих не только удаление патологического очага, но и максимально полное восстановление структуры и функции поражённой кости. Цель исследования — изучить современные методы хирургического лечения доброкачественных опухолей и опухолеподобных заболеваний костей конечностей, определить возможности совершенствования оперативных вмешательств и повышения их функциональной эффективности.

ОСНОВНАЯ ЧАСТЬ

1. Клинико-морфологические особенности доброкачественных опухолей костей

Доброкачественные опухоли костей характеризуются различными особенностями роста, локализации и морфологического строения. В зависимости от характера поражения они могут быть выявлены случайно при рентгенологическом обследовании либо сопровождаться болевым синдромом, припухлостью и ограничением функции конечности. Остеохондрома является одним из наиболее распространённых доброкачественных костных новообразований. Обычно она располагается в области метафизов длинных трубчатых костей. При значительных

размерах образования возможно сдавление окружающих сосудисто-нервных структур.

Энхондрома представляет собой хрящевое новообразование, чаще локализующееся в костях кисти и длинных трубчатых костях. В некоторых случаях заболевание осложняется патологическим переломом. Гигантоклеточная опухоль кости отличается местно-агрессивным характером роста. Несмотря на традиционное отнесение к промежуточным опухолям с местно-агрессивным поведением, она требует особого подхода к хирургическому лечению из-за риска местного рецидива. К опухолеподобным заболеваниям относятся простые и аневризмальные костные кисты, а также фиброзная дисплазия. Их клиническое значение связано с возможностью истончения кортикального слоя и повышения риска патологических переломов.

2. Современные методы диагностики

Правильный выбор хирургической тактики невозможен без комплексного обследования пациента. Основным методом первичной диагностики является рентгенологическое исследование, позволяющее определить локализацию образования, состояние кортикального слоя, характер костной перестройки и наличие патологического перелома.Компьютерная томография применяется для более детальной оценки костной структуры, размеров очага и степени разрушения кортикального слоя. Магнитно-резонансная томография позволяет исследовать состояние костного мозга, мягкотканного компонента и окружающих анатомических структур. В случаях, когда имеются подозрения на агрессивное течение процесса или злокачественную опухоль, необходимо проведение биопсии с последующим гистологическим исследованием. Морфологическая верификация имеет принципиальное значение для определения объёма оперативного вмешательства.

3. Основные методы хирургического лечения

Хирургическое вмешательство является важным методом лечения ряда доброкачественных опухолей и опухолеподобных заболеваний костей конечностей. При этом объём операции определяется индивидуально. Одним из наиболее распространённых методов является кюретаж — удаление патологической ткани из костной полости с сохранением окружающих здоровых структур. При некоторых типах опухолей после кюретажа применяются дополнительные методы местного контроля, включая механическую обработку стенок полости и

использование адъювантных технологий по соответствующим показаниям. После удаления патологического очага может возникнуть необходимость заполнения костного дефекта. Для этой цели используются:

- Аутокостная пластика.
- Аллокостные трансплантаты.
- Синтетические костнозамещающие материалы.
- Костные цементы на основе полиметилметакрилата.

При крупных образованиях, выраженном разрушении кости и некоторых агрессивных вариантах заболевания может потребоваться резекция поражённого участка с последующей реконструкцией костного дефекта. Основной задачей реконструктивных вмешательств является восстановление механической прочности кости, обеспечение стабильности конечности и сохранение её функциональной активности.

4. Пути совершенствования хирургического лечения

Современное развитие ортопедической онкологии направлено на повышение эффективности органосохраняющих операций и снижение риска послеоперационных осложнений. Одним из перспективных направлений является индивидуальное планирование оперативного вмешательства на основании данных КТ и МРТ. Точное определение границ патологического очага позволяет выбрать оптимальный объём удаления опухоли и минимизировать повреждение здоровых тканей. Важную роль играет совершенствование методов костной пластики и реконструкции. Выбор материала для заполнения дефекта должен учитывать локализацию поражения, размеры костной полости, механическую нагрузку и возраст пациента. Не менее важным направлением является профилактика местных рецидивов. Она включает адекватное удаление патологической ткани, соблюдение хирургической техники, морфологический контроль и динамическое наблюдение после операции.

Послеоперационная реабилитация должна быть направлена на восстановление двигательной активности, укрепление мышечного аппарата и постепенное возвращение пациента к повседневной физической нагрузке. Таким образом, совершенствование хирургического лечения предполагает сочетание современных методов диагностики, индивидуального выбора оперативной тактики, реконструктивных технологий и полноценно реабилитации.

ЗАКЛЮЧЕНИЕ

Доброкачественные опухоли и опухолеподобные заболевания костей конечностей представляют собой разнообразную группу патологических состояний, требующих индивидуального подхода к диагностике и лечению. Современные хирургические методы позволяют в большинстве случаев сохранить поражённую конечность, устранить патологический очаг и восстановить анатомическую целостность кости. Наиболее важными направлениями совершенствования хирургического лечения являются повышение точности предоперационной диагностики, обоснованный выбор объёма оперативного вмешательства, применение современных материалов для костной пластики и реконструкции, а также профилактика местных рецидивов. Комплексный подход с участием ортопедов-онкологов, рентгенологов, морфологов и специалистов по реабилитации способствует улучшению функциональных результатов и качества жизни пациентов.

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YENGIL DARAJADAGI PARODONTITDA INDIVIDUAL QO‘LLAB-QUVVATLOVCHI PARODONTAL TERAPIYA SAMARADORLIGI

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Annotatsiya. *Maqolada yengil darajadagi, ya’ni I bosqich parodontit bilan kasallangan bemorlarda individual qo‘llab-quvvatlovchi parodontal terapiyani tashkil etish va uning samaradorligini baholash masalalari adabiyotlar asosida ko‘rib chiqiladi. Parodontitning bosqich va daraja bo‘yicha tasnifi, xavf omillarini nazorat qilish, professional biofilm nazorati, uy sharoitidagi og‘iz gigiyenasi hamda muntazam qayta ko‘rikning ahamiyati yoritiladi. Klinik samaradorlikni baholash uchun blyashka ko‘rsatkichlari, zondlashda qonash, parodontal cho‘ntak chuqurligi va klinik birikish darajasi kabi mezonlardan foydalanish taklif etiladi. Maqola narrativ adabiyotlar sharhi bo‘lib, unda yangi klinik bemor ma’lumotlari yoki tajriba natijalari keltirilmaydi. Taklif etilgan yondashuvning amaliy samaradorligi prospektiv klinik tadqiqotda tekshirilishi lozim.*

Abstract. *This article reviews the organization and assessment of individualized supportive periodontal therapy in patients with mild, Stage I periodontitis. It discusses periodontitis staging and grading, risk-factor control, professional biofilm management, home oral-hygiene measures, and regular periodontal reassessment. Plaque scores, bleeding on probing, probing pocket depth, and clinical attachment level are proposed as key outcomes for monitoring treatment effectiveness. This paper is a narrative literature review and does not present new patient data or original clinical trial results. The proposed approach should be evaluated in a prospective clinical study.*

Kalit so‘zlar: *I bosqich parodontit, yengil darajadagi parodontit, qo‘llab-quvvatlovchi parodontal terapiya, individual yondashuv, biofilm, og‘iz gigiyenasi, parodontal indekslar.*

Keywords: *Stage I periodontitis, mild periodontitis, supportive periodontal therapy, individualized approach, biofilm, oral hygiene, periodontal indices.*

KIRISH

Parodontit — tishlarni o‘rab turuvchi va tayanch vazifasini bajaruvchi to‘qimalarda yallig‘lanish hamda birikma yo‘qolishi bilan kechadigan, ko‘p omilli surunkali kasallikdir. Kasallikning rivojlanishi va kechishida mikrobli biofilm bilan bir qatorda bemorning immun-yallig‘lanish javobi, chekish, qandli diabet, og‘iz gigiyenasi va boshqa xulq-atvor hamda umumiy salomatlik omillari muhim o‘rin tutadi [1,14,15].

2017-yilda taklif qilingan zamonaviy tasnif parodontitni bosqichlar (I–IV) va darajalar (A–C) bo‘yicha baholashni nazarda tutadi. I bosqich parodontit odatda boshlang‘ich darajadagi klinik birikish yo‘qolishi va alveolyar suyak yo‘qolishi bilan tavsiflanadi; tashxis faqat bitta indeks yoki alomatga asoslanmasdan, klinik va rentgenologik ma’lumotlar majmuasi asosida qo‘yiladi [14].

Noxirurgik parodontal davolashdan keyin erishilgan natijalarni saqlab qolish uchun bemorning individual xavf profiliga mos qo‘llab-quvvatlovchi parodontal terapiya (QPT) zarur. EFP klinik qo‘llanmasida faol davolashdan keyingi parvarish, bemor motivatsiyasi, professional biofilm nazorati va xavf omillarini muntazam boshqarish parodontal salomatlikni uzoq muddat saqlashning muhim tarkibiy qismlari sifatida ko‘rsatilgan [16].

So‘nggi tadqiqotlarda uy sharoitidagi gigiyena vositalari, elektr tish cho‘tkalari, suvli irrigatorlar, raqamli monitoring va bemorga yo‘naltirilgan eslatmalarning parodontal ko‘rsatkichlarga ta’siri o‘rganilmoqda [2,3,9,19]. Shu bilan birga, texnologik vositalar professional davolash va shaxsiy gigiyena ko‘nikmalarining o‘rnini bosa olmaydi; ular individual parvarish dasturini qo‘llab-quvvatlovchi vosita sifatida ko‘rilishi kerak.

TADQIQOT MAQSADI

Yengil darajadagi (I bosqich) parodontit bilan kasallangan bemorlarda individual qo‘llab-quvvatlovchi parodontal terapiyani tashkil etish bo‘yicha ilmiy adabiyotlarni tahlil qilish, terapiya tarkibiy qismlarini asoslash hamda uning samaradorligini baholashda qo‘llanishi mumkin bo‘lgan klinik mezonlarni belgilash.

MATERIALLAR VA USULLAR

Maqola narrativ adabiyotlar sharhi shaklida tayyorlandi. Tahlil uchun foydalanuvchi tomonidan taqdim etilgan 20 ta bibliografik yozuv asos qilib olindi. Ularda parodontitning yallig‘lanish va oksidlovchi stress bilan

bog‘liqligi, bosqichlash va darajalash mezonlari, EFP klinik tavsiyalari, noxirurgik parodontal davolash, professional biofilm nazorati, uy gigiyenasi vositalari, raqamli monitoring va qo‘shimcha davolash usullari yoritilgan [1–20].

Manbalar mavzuga muvofiq quyidagi yo‘nalishlar bo‘yicha mazmunan guruhlandi: (1) parodontit tasnifi va xavf omillari; (2) faol noxirurgik davolashdan keyingi parvarish; (3) professional va uy sharoitidagi biofilm nazorati; (4) individual monitoring va bemor bilan muloqot; (5) qo‘shimcha davolash usullari. Maqolada bemorlar guruhlari, klinik kuzatuv yoki laboratoriya tekshiruvlari bo‘yicha yangi ma’lumotlar mavjud emas. Shuning uchun natijalar adabiyotlar tahlili va mualliflik ishchi modeli sifatida bayon qilinadi.

Eslatma: taqdim etilgan ro‘yxatdagi 12- va 17-manbalar bir xil maqolaning takroriy bibliografik yozuvlari bo‘lgani sababli adabiyotlar ro‘yxatida bitta manba sifatida birlashtirildi. Ayrim yozuvlarda sahifa, maqola raqami yoki bibliografik ma’lumotlar to‘liq berilmagan; yakuniy topshirishdan oldin ularni asl nashr bilan solishtirib tekshirish zarur.

NATIJALAR VA MUHOKAMA

1. I bosqich parodontitni aniqlash va boshlang‘ich baholash. Individual QPT dasturini tuzishdan oldin tashxisning bosqichi va darajasi aniqlashtiriladi. Bunda zondlashda qonash (BOP), parodontal cho‘ntak chuqurligi (PPD), klinik birikish darajasi (CAL), tishlar harakatchanligi, blyashka miqdori va rentgenologik suyak holati qayd etiladi. Bosqichlash kasallikning mavjud og‘irligi va davolash murakkabligini, darajalash esa rivojlanish tezligi hamda xavf omillarini baholashga yordam beradi [14].

2. Qo‘llab-quvvatlovchi terapiyaning asosiy tamoyillari. QPT faol parodontal davolashdan keyingi uzluksiz jarayon bo‘lib, uning maqsadi yallig‘lanish qaytalanishining oldini olish, davolash natijalarini saqlash va kasallik rivojlanish xavfini kamaytirishdan iborat. EFP tavsiyalarida bemorga individual og‘iz gigiyenasi bo‘yicha ko‘rsatma berish, professional mexanik biofilm nazorati, qoldiq cho‘ntaklarni baholash va xavf omillarini nazorat qilishga urg‘u beriladi [16].

3. Individual dastur tarkibi. Dastur bemorning boshlang‘ich parodontal holati, blyashka nazorati, qonash ko‘rsatkichlari, chekish holati, diabet kabi umumiy kasalliklari, gigiyena ko‘nikmalari va davolashga rioya qilish darajasiga qarab shakllantiriladi. Uy sharoitida tishlarni to‘g‘ri texnikada muntazam tozalash, interdental tozalash vositalaridan foydalanish va individual tavsiyalarni bajarish asosiy o‘rinni egallaydi. Elektr tish cho‘tkalari uzoq

muddatli og‘iz salomatligiga ijobiy ta’sir ko‘rsatishi mumkinligi kuzatuv tadqiqotida qayd etilgan [9]. Suvli irrigatorlardan foydalanishning qo‘shimcha ta’siri ham I–II bosqich parodontitli bemorlarda randomizatsiyalangan tadqiqotda o‘rganilgan [19]. Biroq bu vositalarni tanlash bemorning ehtiyoji, qo‘l harakati va ko‘nikmalariga mos bo‘lishi kerak.

4. Professional biofilm nazorati va noxirurgik davolash. Scaling va root planing (SRP) hamda undan keyingi uy gigiyenasi parodontal davolashning muhim qismidir. I–II bosqich parodontitli bemorlarda SRP va uy gigiyenasini birgalikda olib borish natijalari klinik sinovda baholangan [3]. Guided Biofilm Therapy (GBT) va an’anaviy protokolni taqqoslagan tadqiqotlar professional biofilm nazoratining turli yondashuvlarini o‘rganishga imkon beradi [4,11]. Ushbu usullarni tanlash klinik ko‘rsatma, mavjud jihozlar va mutaxassis tayyorgarligiga bog‘liq; GBT barcha bemorlar uchun majburiy yoki yagona usul deb qaralmasligi lozim.

5. Raqamli vositalar va bemor motivatsiyasi. Sun’iy intellektga asoslangan multimodal sezuvchi tish cho‘tkasi va maqsadli mobil xabarlar parodontit nazoratini kuchaytirishga qaratilgan randomizatsiyalangan tadqiqotda baholangan [2]. Bunday yondashuvlar bemorning kundalik gigiyena odatlarini kuzatish, eslatmalar yuborish va davolashga rioya qilishni yaxshilash uchun istiqbolli bo‘lishi mumkin. Shunga qaramay, raqamli monitoring klinik ko‘rik, professional tozalash va shifokor bilan bevosita muloqot o‘rnini bosmaydi.

6. Qo‘shimcha davolash usullarining o‘rni. Ozonlangan gel, trombotsitlarga boy fibrin (PRF) va boshqa qo‘shimcha yondashuvlar bo‘yicha alohida klinik holatlar yoki nazoratli tadqiqotlar chop etilgan [13,18,20]. Biroq bunday ma’lumotlarni I bosqich parodontitli barcha bemorlarga umumlashtirish mumkin emas. Qo‘shimcha usullar standart parodontal davolashning o‘rnini bosmasligi, ularning qo‘llanishi esa dalillar sifati va klinik ko‘rsatmalar asosida hal etilishi kerak.

7. Samaradorlikni baholash mezonlari. Individual QPT natijalarini kuzatishda bir xil metodika bilan takroran o‘lchanadigan ko‘rsatkichlardan foydalanish maqsadga muvofiq. Asosiy mezonlar: zondlashda qonash foizi (BOP), parodontal cho‘ntak chuqurligi (PPD), klinik birikish darajasi (CAL), blyashka indeksi yoki og‘iz gigiyenasi indeksi, shuningdek, tishlar harakatchanligi va bemorning gigiyenaga rioya qilishi. Boshlang‘ich ko‘rsatkichlar keyingi nazorat tashriflaridagi natijalar bilan taqqoslanadi. O‘lchovlarni imkon qadar bir xil kalibrlangan tekshiruvchi bajarishi lozim.

8. Individual qayta chaqirish oralig‘i. QPT tashriflari oralig‘i barcha bemorlar uchun bir xil belgilanmasligi kerak. Interval kasallik tarixi, qoldiq cho‘ntaklar, BOP, blyashka nazorati, chekish, diabet va bemorning o‘z-o‘zini parvarish qilish qobiliyatiga qarab belgilanadi. Xavf yuqori yoki yallig‘lanish nazorati yetarli bo‘lmagan bemorlarda ko‘riklar tez-tez, barqaror holatdagi bemorlarda esa klinik vaziyatga mos ravishda rejalashtiriladi [16]. Aniq intervalni tanlash klinik baholash va amaldagi tavsiyalarga tayanishi kerak.

9. Taklif etilayotgan ishchi algoritm. Birinchi bosqichda bemorning umumiy va stomatologik anamnezi yig‘iladi, chekish, diabet va boshqa xavf omillari qayd etiladi. Ikkinchi bosqichda I bosqich parodontit tashxisi klinik-rentgenologik mezonlar asosida tasdiqlanib, boshlang‘ich indekslar o‘lchanadi. Uchinchi bosqichda bemor bilan birgalikda individual uy gigiyenasi rejasi tuziladi va zarur professional parodontal muolajalar bajariladi. To‘rtinchi bosqichda bemorning gigiyena ko‘nikmalari, motivatsiyasi va davolashga rioya qilishi nazorat qilinadi. Beshinchi bosqichda xavf profiliga mos qayta ko‘rik muddati belgilanadi va BOP, PPD, CAL hamda blyashka ko‘rsatkichlari dinamikada baholanadi.

Mazkur algoritm adabiyotlar tahlili asosida taklif etilgan ishchi model bo‘lib, klinik samaradorligi ushbu maqolada isbotlangan protokol hisoblanmaydi. Uning samaradorligini baholash uchun prospektiv tadqiqotda ishtirokchilarni tanlash mezonlari, kuzatuv muddati, asosiy va ikkilamchi natija ko‘rsatkichlari, nazorat guruhi hamda statistik tahlil rejasi oldindan belgilanib, etik talablar bajarilishi zarur.

XULOSA

Yengil darajadagi (I bosqich) parodontit bilan kasallangan bemorlarda davolash natijalarini uzoq muddat saqlash individual qo‘llab-quvvatlovchi parodontal terapiyani muntazam tashkil etishni talab qiladi. Bunday dastur bemorning xavf profilini baholash, professional biofilm nazorati, uy sharoitidagi individual gigiyena, motivatsion yordam va klinik ko‘rsatkichlarni dinamik kuzatishni birlashtirishi kerak. Samaradorlikni baholashda BOP, PPD, CAL va blyashka ko‘rsatkichlarini boshlang‘ich hamda keyingi tashriflarda standart usulda qayd etish maqsadga muvofiq. Raqamli vositalar va qo‘shimcha gigiyena usullari individual ehtiyojga qarab qo‘llanishi mumkin, biroq ular standart parodontal yordam o‘rnini bosa olmaydi. Taklif etilgan individual algoritmning klinik samaradorligini prospektiv tadqiqotda tekshirish zarur.

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THE ROLE OF THE IMMUNE MICROENVIRONMENT IN THE TREATMENT EFFICACY OF SOFT TISSUE SARCOMAS IN CHILDREN

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Abstract. *Soft tissue sarcomas (STS) represent a heterogeneous group of malignant mesenchymal tumors that occur in children and adolescents. Despite advances in multimodal treatment, including surgery, chemotherapy, and radiotherapy, the management of pediatric soft tissue sarcomas remains a significant clinical challenge. In recent years, increasing attention has been directed toward the role of the tumor immune microenvironment (TIME) in determining tumor progression, therapeutic response, and clinical outcomes.The immune microenvironment consists of various cellular and molecular components, including T lymphocytes, macrophages, natural killer cells, dendritic cells, regulatory T cells, and immune checkpoint molecules. Their interaction with tumor cells may either stimulate antitumor immunity or contribute to immune suppression and tumor progression. This article examines the role of the immune microenvironment in pediatric soft tissue sarcomas, with particular emphasis on rhabdomyosarcoma, the significance of immunological markers, and their potential relationship with treatment effectiveness. Understanding these mechanisms may contribute to the development of individualized therapeutic strategies and improve future treatment approaches.*

Keywords: *pediatric soft tissue sarcoma, tumor immune microenvironment, rhabdomyosarcoma, tumor-associated macrophages, T lymphocytes, PD-L1, immunotherapy, treatment response, prognosis.*

INTRODUCTION

Soft tissue sarcomas are a heterogeneous group of malignant tumors originating from mesenchymal tissues, including skeletal muscle, adipose tissue, connective tissue, blood vessels, and peripheral nerve-associated structures. In children, these tumors represent an important category of solid malignancies and require specialized diagnostic and therapeutic approaches. Rhabdomyosarcoma is one of the most common soft tissue sarcomas in childhood. Other clinically significant histological types include synovial sarcoma, infantile fibrosarcoma,

and undifferentiated soft tissue sarcomas. Their biological behavior, molecular characteristics, and responses to treatment differ considerably. Current treatment approaches generally involve a combination of surgery, chemotherapy, and radiotherapy, depending on tumor histology, localization, disease stage, and individual risk factors. Although these methods have improved survival in many patients, treatment resistance, recurrence, and metastatic progression remain important problems. An emerging area of research is the tumor immune microenvironment, which represents the complex interaction between malignant cells and the surrounding immune and stromal components. These interactions may influence tumor growth, metastatic potential, and sensitivity to anticancer treatment.

MAIN PART

1. Characteristics of the Tumor Immune Microenvironment in Pediatric Soft Tissue Sarcomas

The tumor immune microenvironment is an essential component of cancer biology. It includes immune cells, stromal cells, extracellular matrix components, cytokines, chemokines, and various signaling molecules that interact with malignant cells. The immune microenvironment can exert both antitumor and tumor-promoting effects. Under normal conditions, immune surveillance mechanisms recognize and eliminate abnormal cells. However, malignant tumors may develop mechanisms that suppress immune responses and avoid recognition by the immune system.

The main cellular components of the tumor immune microenvironment include:

- CD8-positive T lymphocytes: responsible for recognizing and destroying tumor cells through cytotoxic mechanisms.
- CD4-positive T lymphocytes: regulate immune responses and support the activation of other immune cells.
- Regulatory T cells (Tregs): suppress excessive immune activation and may contribute to tumor-associated immunosuppression.
- Tumor-associated macrophages (TAMs): participate in inflammatory processes, tissue remodeling, angiogenesis, and tumor progression.
- Natural killer (NK) cells: recognize and eliminate abnormal cells without requiring prior antigen-specific sensitization.
- Dendritic cells: participate in antigen presentation and activation of adaptive immune responses. The balance between these cellular populations may influence the biological behavior of pediatric soft tissue sarcomas and their response to treatment.

2. The Role of Tumor-Associated Macrophages and T Lymphocytes Tumor-associated macrophages are among the most important components of the immune microenvironment in soft tissue sarcomas. Depending on their functional characteristics, macrophages may demonstrate different activation states, traditionally described as M1-like and M2-like phenotypes. M1-like macrophages are generally associated with pro-inflammatory activity and antitumor immune responses. In contrast, M2-like macrophages may promote tissue remodeling, angiogenesis, immunosuppression, and tumor progression. CD68 and CD163 are commonly used immunohistochemical markers for evaluating macrophage populations. CD68 helps identify macrophages, while CD163 is frequently used to characterize M2-like macrophage populations. T lymphocytes also play an important role in regulating antitumor immunity. Increased infiltration of CD8-positive lymphocytes may indicate a more active cellular immune response. However, the presence of lymphocytes alone does not necessarily guarantee effective tumor elimination, since their functional activity may be suppressed by the tumor microenvironment.Recent research on pediatric rhabdomyosarcoma suggests differences in immune cell composition between histological and molecular subtypes. In particular, variations in CD163-positive macrophages and T-cell-associated immune pathways have been reported. These observations indicate that the immune microenvironment should be evaluated in relation to the molecular characteristics of each tumor subtype [1].

3. Immunological Biomarkers and Their Diagnostic Significance Immunohistochemical examination is an important additional method for evaluating the biological characteristics of soft tissue sarcomas.

The assessment of immunological markers provides information about the composition of the tumor microenvironment and the interaction between malignant cells and immune populations.

The most relevant markers include:

CD3: A general marker of T lymphocytes, used to assess the overall T-cell population within tumor tissue.

CD4: Identifies helper T lymphocytes involved in the regulation of immune responses.

CD8: Identifies cytotoxic T lymphocytes that participate directly in antitumor immune activity.

CD68: A macrophage-associated marker used to evaluate macrophage infiltration.

CD163: Frequently used to assess M2-like tumor-associated macrophages. PD-L1: An immune checkpoint protein that can contribute to the

suppression of T-cell activity through interaction with PD-1. The expression of these markers may vary according to tumor histology, molecular subtype, disease stage, and the composition of the tumor microenvironment. It is important to distinguish immunological markers used to characterize immune infiltration from markers used to establish the histological diagnosis of a sarcoma. Therefore, immunohistochemical findings should always be interpreted together with morphological and molecular-genetic results.

4. The Influence of the Immune Microenvironment on Treatment Effectiveness

The effectiveness of anticancer treatment depends not only on the biological characteristics of malignant cells but also on their interaction with the surrounding immune environment. Chemotherapy may influence immune cell populations, cytokine production, and antigen presentation. In some circumstances, treatment-induced tumor cell death may increase the availability of tumor antigens and stimulate immune responses. However, chemotherapy can also cause immunosuppression and reduce the number of circulating immune cells. Radiotherapy may promote local inflammatory responses and alter the composition of the tumor microenvironment. Its effects depend on the radiation dose, treatment schedule, tumor characteristics, and the condition of surrounding tissues. The immune microenvironment may also contribute to resistance mechanisms. An increased presence of immunosuppressive macrophages, regulatory T cells, and other suppressive cell populations may reduce the effectiveness of antitumor immune responses. Pediatric rhabdomyosarcomas are frequently characterized by relatively low immune infiltration and an immunosuppressive microenvironment. Consequently, the clinical effectiveness of immune checkpoint inhibitors in these tumors has generally been limited, and immunotherapy remains an area of active investigation rather than an established standard treatment for all patients [1, 2]. These findings emphasize the importance of studying the relationship between immune cell composition and response to conventional treatment.

CONCLUSION

The immune microenvironment plays an important role in the biological behavior and treatment response of pediatric soft tissue sarcomas. The interaction between malignant cells, immune populations, and stromal components may influence tumor progression, metastatic potential, and sensitivity to anticancer therapy. The evaluation of CD3, CD4, CD8, CD68, CD163, and PD-L1 markers provides valuable information about the immunological characteristics of tumor tissue. In particular, the balance between

cytotoxic T lymphocytes and immunosuppressive macrophage populations may be important for understanding the mechanisms of tumor immune escape. In pediatric rhabdomyosarcoma, differences in immune microenvironment composition between molecular subtypes represent an important direction for further investigation. However, the predictive value of individual immune markers has not yet been fully established. A comprehensive approach combining clinical, morphological, immunohistochemical, and molecular-genetic investigations may contribute to improving diagnostic accuracy and identifying new therapeutic opportunities. Further research should focus on establishing the relationship between tumor immune characteristics and treatment outcomes in children with soft tissue sarcomas. Such investigations may provide a scientific basis for the development of more individualized and effective treatment strategies.

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ИЗУЧЕНИЕ КЛИНИКО-ЭПИДЕМИОЛОГИЧЕСКИХ ОСОБЕННОСТЕЙ САРКОМЫ МЯГКИХ ТКАНЕЙ

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Аннотация. *В статье рассматриваются клинико-эпидемиологические особенности сарком мягких тканей, их распространённость, основные факторы риска, морфологические разновидности и клинические проявления. Особое внимание уделяется диагностическим подходам, включая методы лучевой диагностики, морфологическую и иммуногистохимическую верификацию опухоли. Анализ современных научных данных позволяет подчеркнуть значение ранней диагностики, комплексного обследования и индивидуализированного подхода к выбору лечебной тактики. Изучение клинико-эпидемиологических характеристик заболевания имеет важное значение для совершенствования диагностики и улучшения результатов лечения пациентов.*

Ключевые слова: *саркома мягких тканей, онкология, эпидемиология, клинические особенности, диагностика, морфология, иммуногистохимия, прогноз.*

Abstract*. The article examines the clinical and epidemiological characteristics of soft tissue sarcomas, including their prevalence, risk factors, morphological subtypes, and clinical manifestations. Particular attention is paid to diagnostic approaches, including imaging techniques, histopathological examination, and immunohistochemical verification. The analysis of current scientific literature highlights the importance of early diagnosis, comprehensive assessment, and individualized treatment strategies. The study of clinical and epidemiological characteristics is essential for improving diagnostic approaches and treatment outcomes in patients with soft tissue sarcomas.*

Keywords: *soft tissue sarcoma, oncology, epidemiology, clinical characteristics, diagnosis, morphology, immunohistochemistry, prognosis*.

ВВЕДЕНИЕ

Саркомы мягких тканей представляют собой гетерогенную группу злокачественных новообразований мезенхимального происхождения,

развивающихся из соединительной, жировой, мышечной, сосудистой и других тканей организма. Данные опухоли характеризуются значительным морфологическим разнообразием, различными темпами роста, особенностями метастазирования и неодинаковой чувствительностью к противоопухолевому лечению. Несмотря на относительно небольшую долю в общей структуре онкологической заболеваемости, саркомы мягких тканей представляют серьёзную клиническую проблему. Их диагностика нередко затруднена из-за неспецифичности начальных симптомов, а биологическое поведение зависит от гистологического типа, степени злокачественности, размеров и локализации опухоли. Актуальность изучения данной патологии обусловлена необходимостью совершенствования ранней диагностики, определения прогностических факторов и разработки оптимальных подходов к комплексному лечению. Цель исследования — изучить клинико-эпидемиологические особенности сарком мягких тканей, проанализировать основные факторы, влияющие на клиническое течение заболевания, и определить значение современных диагностических методов.

ОСНОВНАЯ ЧАСТЬ

1. Эпидемиологические особенности сарком мягких тканей

Саркомы мягких тканей относятся к редким злокачественным новообразованиям. Согласно современным эпидемиологическим данным, они составляют около 1% всех злокачественных опухолей у взрослых. Заболевание может встречаться в любом возрасте, однако частота отдельных гистологических вариантов существенно различается в зависимости от возрастной группы. У взрослых пациентов наиболее часто диагностируются липосаркома, лейомиосаркома, недифференцированная плеоморфная саркома и синовиальная саркома. В детском и подростковом возрасте особое значение имеют рабдомиосаркома, синовиальная саркома и некоторые другие морфологические варианты.

Среди наиболее значимых факторов риска выделяют наследственные опухолевые синдромы, предшествующее воздействие ионизирующего излучения, хронические лимфатические нарушения и некоторые профессиональные воздействия. Вместе с тем в большинстве случаев конкретную причину возникновения опухоли установить не удаётся.

2. Клинико-морфологическая характеристика заболевания

Клиническая картина сарком мягких тканей зависит от локализации, размеров опухолевого образования и характера его роста.

Наиболее распространённым начальным проявлением является безболезненное опухолевидное образование, постепенно увеличивающееся в размерах. По мере прогрессирования заболевания могут появляться болевой синдром, ограничение подвижности конечности, нарушение функции поражённого органа и компрессионные симптомы.

В зависимости от анатомической локализации выделяют следующие основные группы:

- Саркомы конечностей.
- Саркомы туловища.
- Забрюшинные саркомы.
- Саркомы области головы и шеи.
- Саркомы внутренних органов и других анатомических областей.

Морфологическая классификация имеет важное значение для определения биологического поведения опухоли. Гистологический вариант, степень злокачественности и молекулярно-генетические особенности позволяют оценить прогноз и определить оптимальную лечебную стратегию.

3. Современные методы диагностики

Диагностика сарком мягких тканей должна проводиться комплексно с участием специалистов мультидисциплинарной команды. Первоначальное обследование включает сбор анамнеза, физикальный осмотр, оценку размеров и локализации опухоли, а также анализ динамики её роста.

Магнитно-резонансная томография является одним из основных методов визуализации опухолей мягких тканей конечностей и туловища. Она позволяет определить границы новообразования, его взаимоотношение с окружающими анатомическими структурами и степень местного распространения.

Компьютерная томография применяется для оценки распространённости процесса, особенно при подозрении на забрюшинную локализацию и отдалённые метастазы. Рентгенологическое исследование органов грудной клетки и КТ грудной клетки имеют значение для выявления метастатического поражения лёгких. Окончательная верификация диагноза осуществляется посредством морфологического исследования биопсийного материала. Иммуногистохимическое исследование помогает уточнить гистогенез опухоли и провести дифференциальную диагностику между различными морфологическими вариантами. В отдельных случаях применяются молекулярно-

генетические методы исследования, позволяющие выявить характерные генетические изменения и специфические перестройки, связанные с определёнными типами сарком.

4. Факторы прогноза и особенности лечения

Прогноз заболевания определяется совокупностью клинических, морфологических и биологических характеристик опухоли.

К основным прогностическим факторам относятся:

- Размер первичной опухоли.
- Анатомическая локализация.
- Гистологический тип.
- Степень злокачественности.
- Глубина расположения опухоли.
- Наличие отдалённых метастазов.
- Радикальность хирургического удаления. Хирургическое лечение является основным методом терапии локализованных сарком мягких тканей при возможности радикального удаления опухоли. Лучевая терапия применяется для снижения риска местного рецидива у соответствующих категорий пациентов. Системная химиотерапия используется по индивидуальным показаниям с учётом гистологического типа, стадии заболевания и общего состояния пациента. В последние годы большое значение приобретает индивидуализация лечебной тактики. Уточнение молекулярно-генетических характеристик опухоли и развитие современных методов морфологической диагностики позволяют более точно определять биологические особенности заболевания. Таким образом, комплексная оценка клинических, эпидемиологических и морфологических параметров является необходимым условием выбора рациональной лечебной стратегии.

ЗАКЛЮЧЕНИЕ

Саркомы мягких тканей представляют собой сложную и неоднородную группу злокачественных новообразований, характеризующихся разнообразием клинических проявлений, морфологических вариантов и биологического поведения. Изучение клинико-эпидемиологических особенностей данной патологии имеет важное значение для совершенствования системы ранней диагностики, определения прогностических факторов и повышения эффективности лечения. Комплексное обследование с использованием современных методов визуализации, морфологической, иммуногистохимической и

молекулярно-генетической диагностики способствует повышению точности постановки диагноза.

Перспективным направлением дальнейших исследований является углублённое изучение взаимосвязи между клиническими характеристиками, морфологическими особенностями и молекулярно-генетическими механизмами развития сарком мягких тканей.

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SEMIZLIK: O‘ZBEKISTONDA TARQALISHI, XAVF OMILLARI VA PROFILAKTIKA

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Annotatsiya: *Semizlik yuqumli bo‘lmagan kasalliklar rivojlanish xavfini oshiruvchi ko‘p omilli surunkali holat bo‘lib, jamoat salomatligining dolzarb muammolaridan biridir. Maqolaning maqsadi O‘zbekistonda ortiqcha vazn va semizlikning tarqalishiga oid milliy ma’lumotlarni umumlashtirish, asosiy xavf omillarini tahlil qilish hamda profilaktikaning ustuvor yo‘nalishlarini belgilashdan iborat. Narrativ sharh doirasida Jahon sog‘liqni saqlash tashkilotining STEPS 2014 va 2019 tadqiqotlari, 2017-yilgi Milliy oziqlanish so‘rovi, 2021–2022-yillardagi MICS natijalari va xalqaro ma’lumotlar manbalari tahlil qilindi. STEPS 2019 natijalariga ko‘ra, 18–69 yoshli aholining 56,4 foizida tana vazni indeksi (TVI) 25 kg/m² va undan yuqori, 23,5 foizida esa 30 kg/m² va undan yuqori bo‘lgan. Natijalar ortiqcha vazn va semizlikning O‘zbekiston aholisi salomatligi uchun muhim muammo ekanini ko‘rsatadi. So‘rovnomalar metodologiyasi va yosh guruhlaridagi tafovutlar natijalarni qiyosiy talqin qilishda hisobga olinishi lozim. Semizlik profilaktikasi sog‘lom ovqatlanish muhitini shakllantirish, jismoniy faollikni oshirish, birlamchi tibbiy yordamda xavf omillarini erta aniqlash va epidemiologik kuzatuvni takomillashtirishni talab qiladi.*

Kalit so‘zlar: *semizlik, ortiqcha vazn, tana vazni indeksi, O‘zbekiston, STEPS, ovqatlanish, jismoniy faollik, profilaktika.*

Abstract: *Obesity is a multifactorial chronic condition that increases the risk of noncommunicable diseases and represents a major public health concern. This article aims to summarize national data on the prevalence of overweight and obesity in Uzbekistan, examine the main associated risk factors, and identify priority areas for prevention. A narrative review was conducted using data from the World Health Organization (WHO) STEPwise approach to NCD risk factor surveillance (STEPS) surveys conducted in 2014 and 2019, the 2017 National Nutrition Survey, the 2021–2022 Multiple Indicator Cluster Survey (MICS), and relevant international sources. According to the 2019 STEPS survey, 56.4% of*

the population aged 18–69 had a body mass index (BMI) of 25 kg/m² or higher, while 23.5% had a BMI of 30 kg/m² or higher. These findings indicate that overweight and obesity constitute significant public health challenges in Uzbekistan. Differences in survey methodologies and age groups should be considered when interpreting and comparing the results. Obesity prevention requires a comprehensive approach involving the promotion of healthy food environments, increased physical activity, early identification of risk factors in primary healthcare, and improved epidemiological surveillance.

Keywords: *obesity, overweight, body mass index, Uzbekistan, STEPS, nutrition, physical activity, prevention.*

KIRISH

Semizlik organizmda yog‘ to‘qimasining ortiqcha to‘planishi bilan tavsiflanadigan, salomatlikka salbiy ta’sir ko‘rsatishi mumkin bo‘lgan surunkali va ko‘p omilli holatdir. U 2-tur qandli diabet, arterial gipertenziya, yurak-qon tomir kasalliklari, tayanch-harakat tizimi muammolari, obstruktiv uyqu apnoesi va ayrim saraton turlari xavfining ortishi bilan bog‘liq [6, 7, 9]. Semizlikning rivojlanishida biologik, xulq-atvor, ijtimoiy-iqtisodiy va muhitga oid omillar o‘zaro ta’sir qiladi; shu sababli uni faqat individual iroda yoki ovqatlanish odatlari bilan izohlash ilmiy jihatdan yetarli emas.

Kattalarda semizlikni baholashda tana vazni indeksi (TVI) keng qo‘llanadi. TVI tana vaznining kilogrammdagi qiymatini bo‘y uzunligining metrda olingan kvadratiga bo‘lish orqali hisoblanadi: TVI = vazn (kg) / bo‘y² (m²). JSST tasnifiga ko‘ra, kattalarda TVI 25,0–29,9 kg/m² ortiqcha vaznni, 30,0 kg/m² va undan yuqori qiymat semizlikni bildiradi [8]. TVI skrining va epidemiologik taqqoslash uchun qulay ko‘rsatkich bo‘lsa-da, tana yog‘ining taqsimlanishini bevosita aks ettirmaydi; klinik baholashda bel aylanasi va metabolik xavf ko‘rsatkichlari ham hisobga olinishi mumkin.

O‘zbekistonda ortiqcha vazn va semizlikni baholash uchun milliy STEPS tadqiqotlari, oziqlanish so‘rovlari va xalqaro kuzatuv ma’lumotlari mavjud. Biroq ularning yosh guruhlari, tanlanma dizayni va antropometrik indikatorlari bir xil emas. Shu bois mavjud natijalarni yagona vaqt qatori sifatida talqin qilishda ehtiyotkorlik zarur.

Maqolaning maqsadi — O‘zbekistonda ortiqcha vazn va semizlikning tarqalishiga oid mavjud milliy ma’lumotlarni umumlashtirish, xavf omillarini dalillar doirasida muhokama qilish hamda aholi va birlamchi tibbiy yordam darajasidagi profilaktika ustuvorliklarini belgilash.

Maqola narrativ sharh shaklida tayyorlandi. Tahlilning asosiy manbalari JSSTning O‘zbekiston bo‘yicha STEPS 2014 va STEPS 2019 hisobotlari,

UNICEF hamda O‘zbekiston Respublikasi Sog‘liqni saqlash vazirligi tomonidan e’lon qilingan 2017-yilgi Milliy oziqlanish so‘rovi hisoboti, 2021–2022-yillardagi MICS natijalari va World Obesity Federation Global Obesity Observatory ma’lumotlaridan iborat bo‘ldi [1–5]. Qo‘shimcha ravishda, semizlikning sog‘liq uchun oqibatlari va profilaktikasiga oid JSSTning rasmiy tavsiyalari hamda mavzuga aloqador ilmiy adabiyotlar ko‘rib chiqildi [8–10].

Manbalar mavzuga muvofiqligi, milliy darajadagi qamrovi, ma’lumotlarning birlamchi yoki rasmiy manbadan olinishi va indikatorlarning aniq ta’riflanganiga ko‘ra tanlandi. Asosiy natijalar tavsifiy-sintetik usulda umumlashtirildi. Ushbu ish sistematik sharh yoki meta-tahlil emas; shu sababli unda PRISMA oqim diagrammasi, to‘liq elektron qidiruv strategiyasi yoki formal dalil sifatini baholash amalga oshirilgani da’vo qilinmaydi.

STEPS 2019 milliy tadqiqoti 18–69 yoshli aholini qamrab olgan; World Obesity Federation ma’lumotlar bazasida ushbu so‘rov uchun tanlanma hajmi 3 686 kishi sifatida ko‘rsatilgan [2, 5]. 2017-yilgi Milliy oziqlanish so‘rovida homilador bo‘lmagan 15–49 yoshli ayollarning antropometrik ko‘rsatkichlari o‘rganilgan [3]. MICS 2021–2022 esa, mazkur maqolada, asosan besh yoshgacha bo‘lgan bolalar oziqlanish holati bo‘yicha alohida kontekst sifatida ishlatildi [4].

JSSTning STEPS 2019 tadqiqotiga ko‘ra, O‘zbekistonda 18–69 yoshli kattalarning 56,4 foizida TVI ≥25 kg/m², 23,5 foizida esa TVI ≥30 kg/m² bo‘lgan [2, 5]. Muhim metodologik izoh: 56,4 foizlik ko‘rsatkich ortiqcha vazn chegarasidan yuqori bo‘lgan barcha shaxslarni, ya’ni semizlik bilan yashayotgan ishtirokchilarni ham o‘z ichiga oladi. Demak, 56,4 foiz va 23,5 foizni o‘zaro qo‘shish mumkin emas; semizlik ko‘rsatkichi birinchi ko‘rsatkich tarkibiga kiradi.

STEPS 2014 tadqiqotida 18–64 yoshli kattalarning 50,1 foizida TVI ≥25 kg/m², 20,2 foizida TVI ≥30 kg/m² qayd etilgan [1]. 2014 va 2019-yil natijalari o‘rtasida ko‘rsatkichlar farqi kuzatiladi, biroq yosh chegaralari, tanlanma xususiyatlari va tadqiqot davri tafovutlari sababli bu farqni bevosita sababiy o‘sish sifatida talqin qilish mumkin emas. Taqqoslash standartlashtirilgan yosh guruhlari va metodologik moslik hisobga olingan holda amalga oshirilishi kerak.

Manba va yil	Yosh guruhi	TVI ≥25 kg/m²	TVI ≥30 kg/m²
STEPS 2014 [1]	18–64 yosh	50,1%	20,2%
STEPS 2019 [2, 5]	18–69 yosh	56,4%	23,5%

STEPS 2019 natijalarida semizlik ayollarda erkaklarga qaraganda ko‘proq qayd etilgan. Jinslar kesimida TVI ≥25 kg/m² erkaklarning 55,6 foizida (95% ishonch oralig‘i: 50,8–60,4), ayollarning 57,3 foizida (95% IO: 53,8–60,8) kuzatilgan. TVI ≥30 kg/m² bo‘yicha bu ko‘rsatkich erkaklarda 21,5 foiz (95% IO: 17,8–25,3), ayollarda 25,5 foizni (95% IO: 22,9–28,2) tashkil etgan [2]. Bu natijalar ayollarda semizlik prevalensiyasi yuqoriroq ekanini ko‘rsatadi; biroq jinslararo farqni talqin qilishda ishonch oraliqlari va tanlanma dizayni ham hisobga olinishi kerak.

2017-yilgi Milliy oziqlanish so‘rovida homilador bo‘lmagan 15–49 yoshli ayollarning 25,2 foizida ortiqcha vazn (TVI 25,0–29,9 kg/m²), 15,5 foizida semizlik (TVI ≥30 kg/m²) aniqlangan [3]. Ushbu natijalar faqat tegishli yoshdagi homilador bo‘lmagan ayollarga taalluqli bo‘lib, ularni mamlakatdagi barcha ayollar yoki umumiy kattalar aholisi ko‘rsatkichi sifatida talqin qilish mumkin emas.

MICS 2021–2022 ma’lumotlariga ko‘ra, besh yoshgacha bo‘lgan bolalarning 5 foizida ortiqcha vazn (o‘rtacha va og‘ir daraja) qayd etilgan [4]. Bolalar va kattalarda antropometrik tasnif mezonlari farq qilgani uchun ushbu ko‘rsatkichlarni bevosita taqqoslash mumkin emas. Bolalarda vazn holati yosh va jinsga mos o‘sish standartlari asosida baholanishi lozim.

2017-yilgi Milliy oziqlanish so‘rovi ayollar va bolalar orasida ortiqcha vazn bilan bir qatorda ayrim oziqlanish yetishmovchiligi ko‘rsatkichlari ham mavjudligini ko‘rsatadi [3]. Bu holat oziqlanishning ikki tomonlama yukini ifodalaydi. Mazkur muammo profilaktika siyosatida faqat energiya iste’molini kamaytirishga emas, balki ratsionning sifati, mikroelementlar bilan ta’minlanganlik va oziq-ovqat xavfsizligiga ham e’tibor qaratishni talab qiladi.

Semizlikning shakllanishi energiya iste’moli va sarfi o‘rtasidagi uzoq muddatli nomutanosiblik bilan bog‘liq bo‘lsa-da, bu jarayon biologik moyillik, oziq-ovqat muhiti, jismoniy faollik imkoniyatlari, uyqu, psixososial sharoit va ijtimoiy-iqtisodiy omillar ta’sirida kechadi [6, 9]. Shu sababli xavf omillarini individual xulq bilan cheklamasdan, aholi yashaydigan muhit va sog‘liqni saqlash tizimi nuqtayi nazaridan ham baholash zarur.

Ovqatlanish bilan bog‘liq omillar orasida energiya zichligi yuqori, erkin shakar va to‘yingan yog‘ miqdori ko‘p mahsulotlarni tez-tez iste’mol qilish, porsiya hajmining kattaligi hamda sabzavot, meva va tolaga boy mahsulotlarning yetarli bo‘lmasligi muhim o‘rin tutadi [6, 9]. O‘zbekiston bo‘yicha milliy so‘rovlar ratsion tarkibiga oid ayrim ma’lumotlarni beradi, biroq

ushbu maqolada muayyan milliy taom yoki oziq-ovqat mahsulotini semizlikning mustaqil sababi sifatida ko‘rsatish uchun yetarli dalil mavjud emas.

Jismoniy faollikning yetarli bo‘lmasligi semizlik va metabolik xavf bilan bog‘liq. STEPS 2019 natijalariga ko‘ra, kattalarning 26,1 foizi JSST tavsiya qilgan jismoniy faollik darajasiga yetmagan [2]. Biroq ushbu ko‘rsatkichni semizlikning bevosita sababi sifatida talqin qilish mumkin emas; u aholi salomatligiga ta’sir qiluvchi xulq-atvor xavf omillaridan biridir.

Shaharlashuv, faol transport imkoniyatlarining cheklanishi, o‘tirib bajariladigan mehnat, sog‘lom oziq-ovqatning narxi va mavjudligi kabi omillar jismoniy faollik hamda ovqatlanish xulqiga ta’sir ko‘rsatishi mumkin. Uyquning yetishmasligi va surunkali stress ham semizlik xavfi bilan bog‘liq bo‘lishi mumkin. Irsiy moyillik va ayrim endokrin kasalliklar individual xavfni o‘zgartiradi, biroq semizlik holatlarining barchasini endokrin kasalliklar bilan izohlash noto‘g‘ri.

Semizlik 2-tur qandli diabet, arterial gipertenziya, dislipidemiya, yurak-qon tomir kasalliklari, ayrim saraton turlari, osteoartrit va obstruktiv uyqu apnoesi xavfining ortishi bilan bog‘liq [6, 7, 9]. Ushbu kasalliklar bilan semizlikning birga uchrashi ko‘p omilli bo‘lib, epidemiologik assotsiatsiya har doim ham bevosita sababiy bog‘liqlikni anglatmaydi. Klinik amaliyotda TVI bilan bir qatorda bel aylanasi, arterial bosim, glyukoza almashinuvi va lipid profili baholanishi maqsadga muvofiq.

Semizlik profilaktikasi individual maslahat, birlamchi tibbiy yordam, ta’lim muassasalari va sog‘lom oziq-ovqat muhitini qamrab olgan ko‘p darajali yondashuvni talab qiladi. JSST tavsiyalariga muvofiq, kattalar haftasiga kamida 150–300 daqiqa o‘rtacha intensivlikdagi yoki 75–150 daqiqa yuqori intensivlikdagi aerob jismoniy faollik bilan shug‘ullanishi, shuningdek, mushaklarni mustahkamlovchi mashqlarni bajarishi tavsiya etiladi [10]. Faollik darajasi individual salomatlik holatiga moslashtirilishi lozim.

Aholi darajasida sog‘lom ovqatlanishni qo‘llab-quvvatlaydigan muhit yaratish, bolalar uchun maktab ovqatlanishi standartlarini takomillashtirish, shakar miqdori yuqori ichimliklar va energiya zichligi yuqori mahsulotlar iste’molini kamaytirishga qaratilgan siyosat choralarini ko‘rib chiqish muhim. Birlamchi tibbiy yordamda vazn, bo‘y, TVI va zarur holatlarda bel aylanasini baholash, xavf omillarini aniqlash hamda stigmalashtirmaydigan, individual ehtiyojga mos maslahat berish lozim.

Milliy epidemiologik kuzatuvni muntazam davom ettirish, so‘rovnomalarda yosh guruhlari, antropometrik o‘lchovlar, indikator ta’riflari va tahlil usullarini imkon qadar standartlashtirish zarur. Bu vaqt bo‘yicha

o‘zgarishlarni ishonchli baholash va profilaktika dasturlari samaradorligini kuzatish imkonini beradi.

Ushbu maqola narrativ sharh bo‘lib, sistematik qidiruv va meta-tahlil metodologiyasiga asoslanmagan. Tahlil qilingan milliy so‘rovnomalar turli yillarda, turli yosh guruhlari va tanlanma dizaynlari asosida o‘tkazilgan. Ayrim manbalarda ortiqcha vazn va semizlik indikatorlarining ta’riflari hamda taqdim etilish shakli farq qiladi. Shu sababli turli so‘rovlar natijalarini to‘g‘ridan-to‘g‘ri taqqoslash va kuzatilgan farqlarni vaqt davomida yuz bergan haqiqiy o‘zgarish sifatida talqin qilish cheklangan. Jins va hududlar kesimidagi ayrim tafsilotlar birlamchi hisobot jadvallari bilan qo‘shimcha tekshiruvni talab qiladi.

XULOSA

O‘zbekiston bo‘yicha mavjud milliy ma’lumotlar ortiqcha vazn va semizlik kattalar salomatligi uchun muhim jamoat salomatligi muammosi ekanini ko‘rsatadi. STEPS 2019 tadqiqotida 18–69 yoshli aholining 56,4 foizida TVI ≥25 kg/m², 23,5 foizida TVI ≥30 kg/m² qayd etilgan. 2017-yilgi Milliy oziqlanish so‘rovi homilador bo‘lmagan 15–49 yoshli ayollarda ham ortiqcha vazn va semizlik sezilarli ulushni tashkil etishini ko‘rsatgan. Biroq turli so‘rovlar natijalarini metodologik farqlarni hisobga olmasdan bevosita taqqoslash mumkin emas.

Semizlik profilaktikasi sog‘lom oziq-ovqat muhitini shakllantirish, muntazam jismoniy faollikni qo‘llab-quvvatlash, birlamchi tibbiy yordamda xavfni erta aniqlash va milliy kuzatuv tizimini takomillashtirishga tayanishi lozim. Profilaktika choralari aholi guruhlarining yoshi, jinsi, ijtimoiy-iqtisodiy sharoiti va individual ehtiyojlarini hisobga olgan holda ishlab chiqilishi kerak.

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СОВЕРШЕНСТВОВАНИЕ КЛИНИЧЕСКОЙ И ДЕРМАТОСКОПИЧЕСКОЙ ДИАГНОСТИКИ МЕЛАНОМЫ И МЕЛАНОЦИТАРНЫХ НОВООБРАЗОВАНИЙ КОЖИ

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Аннотация. *Меланома кожи представляет собой наиболее агрессивное злокачественное новообразование из меланоцитов, а её прогноз в значительной степени зависит от своевременного выявления. Клиническая оценка пигментных образований, дополненная дерматоскопией, позволяет распознавать подозрительные признаки на ранних этапах. В статье рассмотрены клинические критерии оценки меланоцитарных новообразований, основные дерматоскопические структуры, возможности цифровой дерматоскопии и последовательного мониторинга. Особое внимание уделено интеграции клинических данных, дерматоскопической картины и морфологической верификации для повышения точности диагностики и обоснованного выбора дальнейшей тактики.*

Ключевые слова: *меланома кожи, меланоцитарные новообразования, дерматоскопия, цифровая дерматоскопия, ранняя диагностика, ABCDE-критерии, гистологическое исследование.*

Abstract. *Cutaneous melanoma is an aggressive malignancy of melanocytes, and patient outcomes are strongly associated with early detection. Clinical assessment of pigmented lesions combined with dermoscopy helps identify suspicious features at an earlier stage. This article reviews clinical assessment criteria, key dermoscopic structures, digital dermoscopy and sequential monitoring. It emphasizes the integration of clinical findings, dermoscopic patterns and histopathological confirmation to improve diagnostic accuracy and guide appropriate clinical management.*

Keywords: *cutaneous melanoma, melanocytic lesions, dermoscopy, digital dermoscopy, early diagnosis, ABCDE criteria, histopathology.*

ВВЕДЕНИЕ

Меланома кожи — злокачественная опухоль, развивающаяся из меланоцитов и характеризующаяся высоким потенциалом инвазии и метастазирования. Несмотря на то что меланома составляет меньшую долю среди всех злокачественных новообразований кожи, она обусловливает значительную часть смертности, связанной с кожными опухолями. Ключевым фактором прогноза остаётся стадия заболевания на момент установления диагноза, в том числе толщина опухоли по Бреслоу и наличие изъязвления.

Клиническая диагностика пигментных новообразований не всегда проста: ранняя меланома может имитировать доброкачественный невус, а некоторые меланомы не имеют выраженной пигментации. Визуальный осмотр по стандартизированным критериям позволяет выделить подозрительные образования, однако дерматоскопия повышает информативность обследования за счёт оценки структур эпидермиса, дермоэпидермального соединения и поверхностной дермы.

Цель исследования — повысить диагностическую эффективность клинических и цифровых дерматоскопических методов при раннем выявлении меланомы и меланоцитарных новообразований кожи. Работа носит обзорно-аналитический характер и основана на обобщении современных клинических рекомендаций и научных публикаций.

ОСНОВНАЯ ЧАСТЬ

Клиническая оценка меланоцитарных новообразований

Первичный осмотр кожи должен включать сбор анамнеза, оценку индивидуальных факторов риска и осмотр всех кожных покровов. К факторам риска относятся светлый фототип, эпизоды интенсивного ультрафиолетового воздействия и солнечных ожогов, большое количество меланоцитарных невусов, наличие атипичных невусов, семейный или личный анамнез меланомы, а также иммуносупрессия.

Для клинического скрининга широко применяется правило ABCDE: A (Asymmetry) — асимметрия; B (Border) — неровные или нечёткие границы; C (Color) — неоднородность окраски; D (Diameter) — диаметр, часто более 6 мм; E (Evolution) — изменение размера, формы, цвета или других характеристик во времени. Дополнительным ориентиром является признак «гадкого утёнка» — образование, заметно отличающееся от остальных невусов пациента. Ни один из критериев не обладает абсолютной чувствительностью и специфичностью, поэтому отсутствие отдельных признаков не исключает меланому.

Дерматоскопические критерии

Дерматоскопия — неинвазивный метод визуализации пигментированных и непигментированных структур кожи, недоступных обычному осмотру. При исследовании оценивают симметрию и организацию пигментной сети, наличие атипичной пигментной сети, нерегулярных точек и глобул, радиальных лучей, псевдоподий, бесструктурных участков, регрессионных структур, а также сосудистых паттернов. Для меланомы характерно сочетание нескольких асимметрично распределённых структур и цветов.

К значимым дерматоскопическим признакам относятся атипичная пигментная сеть, нерегулярные полосы и точки, периферические радиальные структуры, синевато-белая вуаль, белые рубцеподобные участки, множественные оттенки коричневого, чёрного, серого и синего. Для отдельных вариантов характерны специфические признаки: параллельный гребешковый паттерн при акральной меланоме и атипичные сосудистые структуры при беспигментной или гипомеланотической меланоме. Интерпретация должна проводиться с учётом локализации, возраста пациента и клинической картины.

Морфологическая верификация и диагностический алгоритм

При клиническом и дерматоскопическом подозрении на меланому решающим этапом является морфологическое исследование удалённого образования. По возможности выполняют эксцизионную биопсию с узкими диагностическими отступами, позволяющую оценить всю опухоль и измерить толщину по Бреслоу. В заключении патоморфолога указывают гистологический тип, толщину опухоли, наличие изъязвления, митотическую активность и другие прогностически значимые характеристики. Дальнейшие исследования и лечение определяются стадией заболевания и клиническими рекомендациями.

Рациональный диагностический маршрут включает: сбор анамнеза и оценку факторов риска; полный осмотр кожи; клиническую оценку подозрительного очага по ABCDE и признаку «гадкого утёнка»; дерматоскопию; цифровую фиксацию и динамическое наблюдение только в клинически обоснованных случаях; своевременное иссечение подозрительного образования; гистологическое подтверждение диагноза. При подтверждённой меланоме проводится стадирование и определяется необходимость дополнительных методов обследования.

ЗАКЛЮЧЕНИЕ

Совершенствование диагностики меланомы и меланоцитарных новообразований кожи должно основываться на комплексном подходе. Клинические критерии ABCDE и признак «гадкого утёнка» обеспечивают первичную оценку подозрительных очагов, а дерматоскопия позволяет выявлять дополнительные морфологические структуры и повышает обоснованность диагностического решения. Цифровая дерматоскопия и общая фотография кожных покровов особенно ценны для динамического наблюдения пациентов высокого риска и раннего выявления изменений.

При этом цифровые методы не заменяют биопсию и гистологическое исследование. Подозрительные образования с убедительными признаками меланомы должны быть своевременно направлены на морфологическую верификацию без неоправданной задержки. Интеграция клинических, дерматоскопических и морфологических данных является основой повышения качества ранней диагностики, оптимизации маршрутизации пациентов и улучшения прогноза.

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КЛИНИКО-ДИАГНОСТИЧЕСКИЕ ОСОБЕННОСТИ ЗЛОКАЧЕСТВЕННЫХ ОПУХОЛЕЙ НОСОГЛОТКИ У ДЕТЕЙ И ПОДРОСТКОВ

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Аннотация. *Злокачественные опухоли носоглотки у детей и подростков относятся к редким, но клинически значимым новообразованиям. Наиболее часто в данной возрастной группе выявляется назофарингеальная карцинома, нередко ассоциированная с вирусом Эпштейна—Барр. Особенности анатомического расположения опухоли, неспецифичность ранних симптомов и склонность к регионарному лимфогенному распространению затрудняют своевременную диагностику. В статье рассмотрены основные клинические проявления, методы эндоскопической, лучевой и морфологической диагностики, роль вирусологических маркеров и принципы дифференциальной диагностики. Подчёркнута необходимость междисциплинарного подхода и настороженности при стойкой шейной лимфаденопатии и односторонних оториноларингологических симптомах у подростков.*

Ключевые слова: *носоглотка, назофарингеальная карцинома, дети, подростки, клинические проявления, эндоскопия, магнитно-резонансная томография, вирус Эпштейна—Барр.*

Abstract. *Malignant tumors of the nasopharynx in children and adolescents are rare but clinically important. Nasopharyngeal carcinoma is the predominant malignant epithelial tumor in this age group and is frequently associated with Epstein–Barr virus. The deep anatomical location, nonspecific early symptoms and tendency toward regional lymphatic spread may delay diagnosis. This article reviews the main clinical manifestations and the role of endoscopy, imaging, histopathology and viral biomarkers in diagnostic assessment. Particular attention is paid to differential diagnosis and the importance of a multidisciplinary approach when persistent cervical lymphadenopathy or unilateral otorhinolaryngological symptoms occur in adolescents.*

***Keywords**: nasopharynx, nasopharyngeal carcinoma, children, adolescents, clinical presentation, endoscopy, magnetic resonance imaging, Epstein–Barr virus.*

ВВЕДЕНИЕ

Злокачественные новообразования носоглотки у детей и подростков встречаются значительно реже, чем у взрослых, однако представляют особую диагностическую проблему. Среди эпителиальных злокачественных опухолей данной локализации ведущую роль играет назофарингеальная карцинома (НФК). Заболевание чаще диагностируется во втором десятилетии жизни; у детей младше 10 лет оно наблюдается исключительно редко. В отличие от многих других опухолей головы и шеи, НФК у молодых пациентов преимущественно имеет недифференцированный или неороговевающий гистологический вариант и тесно связана с инфекцией вирусом Эпштейна—Барр (ВЭБ) .

Актуальность проблемы обусловлена скрытым расположением первичного очага за полостью носа, отсутствием специфических симптомов на ранних этапах и возможностью длительного ошибочного трактования жалоб как проявлений хронического ринита, аденоидита или среднего отита. Нередко первым клиническим признаком становится увеличение шейных лимфатических узлов, что отражает выраженный лимфогенный потенциал опухоли. Цель настоящей работы — обобщить клинико-диагностические особенности злокачественных опухолей носоглотки у детей и подростков и определить диагностические признаки, требующие углублённого онкологического обследования.

ОСНОВНАЯ ЧАСТЬ

Клинико-эпидемиологические и морфологические особенности

Носоглоточная карцинома формируется из эпителия слизистой оболочки носоглотки Это связано не только с биологическими особенностями опухоли, но и с анатомией данной области: первичный очаг может длительное время расти без заметных изменений при обычном осмотре ротоглотки.

Согласно классификации ВОЗ, выделяют ороговевающую плоскоклеточную карциному, неороговевающую карциному (дифференцированную и недифференцированную формы), а также редкий базалоидный плоскоклеточный вариант. У детей и подростков чаще встречаются неороговевающие, в том числе недифференцированные, формы .

Клиническая картина

Клинические проявления зависят от размеров первичной опухоли, направления её роста и вовлечения соседних анатомических структур. Наиболее характерными начальными симптомами являются стойкая заложенность носа, чаще односторонняя, слизистые или кровянистые выделения, повторные носовые кровотечения, снижение слуха, шум или боль в ухе. Нарушение вентиляции слуховой трубы может приводить к экссудативному среднему отиту и кондуктивной тугоухости.

Одним из наиболее значимых признаков у детей и подростков является безболезненное увеличение шейных лимфатических узлов, которое может быть первым и иногда единственным заметным проявлением заболевания.

овременные методы диагностики

Первичный диагностический этап включает подробный сбор анамнеза, оценку длительности и динамики симптомов, осмотр полости носа, ротоглотки и шеи, пальпацию регионарных лимфатических узлов, а также исследование функции черепных нервов.

Эндоскопическое исследование носоглотки позволяет непосредственно визуализировать опухолевое образование, определить его локализацию и распространённость, а также выполнить прицельную биопсию. Морфологическое исследование биоптата является обязательным для окончательной верификации диагноза..

Магнитно-резонансная томография (МРТ) носоглотки, основания черепа и шеи является ключевым методом оценки местной распространённости опухоли. Она позволяет выявить инфильтрацию парафарингеального пространства, основания черепа, периневральное распространение и поражение лимфатических узлов. Компьютерная томография (КТ) дополняет обследование при необходимости более детальной оценки костных структур

Лабораторная диагностика включает общий анализ крови, биохимические показатели и, при наличии технической возможности, количественное определение ДНК ВЭБ в плазме. Иммуногистохимические и молекулярно-биологические исследования уточняют морфологический вариант и вирусную ассоциацию опухоли. Окончательная стадия устанавливается по системе TNM с учётом данных клинического осмотра и визуализации.

Дифференциальная диагностика

Дифференциальный диагноз проводится с доброкачественными и злокачественными заболеваниями носоглотки и шеи. Важнейшими состояниями, которые необходимо исключить, являются аденоидная гипертрофия, хронический аденоидит, инфекционный лимфаденит, юношеская ангиофиброма носоглотки, рабдомиосаркома, лимфомы Ходжкина и неходжкинские лимфомы, а также другие опухоли головы и шеи. Окончательное разграничение опухолевых процессов основывается на совокупности эндоскопических, лучевых и морфологических данных .

ЗАКЛЮЧЕНИЕ

Злокачественные опухоли носоглотки у детей и подростков, прежде всего назофарингеальная карцинома, характеризуются редкостью, неспецифичностью ранних проявлений и склонностью к раннему регионарному лимфогенному распространению. Стойкая шейная лимфаденопатия, односторонняя заложенность носа, повторные носовые кровотечения и односторонние нарушения слуха должны рассматриваться как основания для углублённого обследования, особенно при отсутствии эффекта от стандартной терапии.

Оптимальная диагностика основывается на сочетании эндоскопического осмотра с прицельной биопсией, МРТ носоглотки и основания черепа, морфологической верификации и исследования ВЭБ-ассоциированных маркеров. Раннее направление пациента к детскому онкологу и междисциплинарное взаимодействие оториноларинголога, радиолога, патоморфолога и онколога имеют принципиальное значение для своевременного установления диагноза и планирования лечения.

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СИСТЕМНЫЕ ФАКТОРЫ РИСКА ПОРАЖЕНИЯ ТВЁРДЫХ ТКАНЕЙ ЗУБОВ ПРИ ХРОНИЧЕСКОЙ ПАТОЛОГИИ ЖЕЛУДОЧНО-КИШЕЧНОГО ТРАКТА И БИЛИАРНОЙ ДИСФУНКЦИИ

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Аннотация. *Цель исследования – обосновать роль хронических заболеваний желудочно-кишечного тракта (ЖКТ) и билиарной дисфункции как системных факторов риска поражения твёрдых тканей зубов. Проанализированы клинические данные пациентов с хронической патологией ЖКТ и контрольной группы практически здоровых лиц: оценены интенсивность кариеса (индекс КПУ), некариозные поражения, эрозии эмали, гиперестезия и гигиена полости рта. Индекс КПУ составил 25,7 при болезни Крона и 25,1 при язвенном колите против 15,1 в контроле; различий по гигиене не выявлено. Заболевания ЖКТ и билиарная дисфункция являются системными факторами риска независимо от гигиены полости рта.*

Ключевые слова: *заболевания желудочно-кишечного тракта, билиарная дисфункция, твёрдые ткани зубов, кариес, индекс КПУ, системные факторы риска.*

Abstract. *The aim of the study was to substantiate chronic gastrointestinal diseases and biliary dysfunction as systemic risk factors for dental hard tissue damage. Clinical data of patients with chronic gastrointestinal pathology and healthy controls were analyzed: caries intensity (DMFT), non-carious lesions, enamel erosion, hypersensitivity and oral hygiene. DMFT was 25.7 in Crohn's disease and 25.1 in ulcerative colitis versus 15.1 in controls; no hygiene differences were found. Chronic gastrointestinal diseases and biliary dysfunction are systemic risk factors independent of oral hygiene.*

Key Words: *gastrointestinal diseases, biliary dysfunction, dental hard tissues, caries, DMFT index, systemic risk factors.*

ВВЕДЕНИЕ

Заболевания твёрдых тканей зубов остаются одной из наиболее распространённых стоматологических патологий, при этом их развитие традиционно связывают преимущественно с местными факторами —

микробным фактором, характером питания и уровнем гигиены полости рта. Вместе с тем в последние годы накапливается всё больше данных о значимой роли системных, в частности гастроэнтерологических, факторов в патогенезе кариеса и некариозных поражений эмали. Хронические воспалительные заболевания кишечника (болезнь Крона, язвенный колит), а также билиарная дисфункция сопровождаются нарушением всасывания макро- и микроэлементов, изменением минерального обмена, дисбалансом кислотно-щелочного равновесия слюны и хроническим системным воспалением, что потенциально создаёт условия для ускоренной деминерализации эмали независимо от гигиенического статуса пациента.

Особый интерес представляет тот факт, что у пациентов с гастроэнтерологической патологией поражение твёрдых тканей зубов нередко носит более выраженный характер даже при удовлетворительном уровне гигиены полости рта, что заставляет рассматривать заболевания желудочно-кишечного тракта и билиарной системы не как сопутствующий, а как самостоятельный системный фактор риска. Изучение данной взаимосвязи имеет важное практическое значение для формирования междисциплинарного подхода к профилактике и лечению стоматологических заболеваний у гастроэнтерологических больных, а также для своевременного включения врача-стоматолога в комплексное ведение таких пациентов.

Целью настоящего исследования явилось обоснование роли хронических заболеваний желудочно-кишечного тракта и билиарной дисфункции как системных факторов риска поражения твёрдых тканей зубов, независимо от уровня гигиены полости рта.

ОСНОВНАЯ ЧАСТЬ

Исследование проведено на клинической базе в форме анализа данных пациентов с хронической патологией желудочно-кишечного тракта — болезнью Крона, язвенным колитом, а также сопутствующей билиарной дисфункцией. Была сформирована основная группа из пациентов с верифицированным гастроэнтерологическим диагнозом и контрольная группа практически здоровых лиц, сопоставимых по возрасту и полу, без хронической соматической патологии в анамнезе.

Стоматологическое обследование включало сбор анамнеза, визуальный осмотр полости рта, зондирование и определение реакции твёрдых тканей зубов на температурные раздражители. Интенсивность кариозного процесса оценивалась с помощью индекса КПУ (сумма кариозных, пломбированных и удалённых зубов). Дополнительно

фиксировались распространённость некариозных поражений (эрозии, клиновидные дефекты), наличие эрозий эмали и симптомов гиперестезии твёрдых тканей зубов.

Уровень гигиены полости рта в обеих группах оценивался с использованием стандартных гигиенических индексов (упрощённого индекса гигиены полости рта). Полученные количественные данные обрабатывались методами описательной статистики; различия между группами считались статистически значимыми при $p < 0,05$.

Проведённый анализ подтвердил, что у пациентов с хроническими воспалительными заболеваниями кишечника интенсивность поражения твёрдых тканей зубов существенно выше, чем у практически здоровых лиц: индекс КПУ составил 25,7 при болезни Крона и 25,1 при язвенном колите против 15,1 в контрольной группе. При этом статистически значимых различий по уровню гигиены полости рта между группами выявлено не было, что позволяет исключить гигиенический фактор как единственную причину повышенной поражаемости зубов у данной категории пациентов.

ВЫВОДЫ

Таким образом, хронические заболевания желудочно-кишечного тракта и билиарная дисфункция следует рассматривать как самостоятельные системные факторы риска поражения твёрдых тканей зубов, действующие независимо от местных гигиенических факторов. Полученные результаты обосновывают необходимость включения врача-стоматолога в комплексное междисциплинарное ведение пациентов с гастроэнтерологической патологией, а также разработки дифференцированных программ стоматологической профилактики с учётом системных метаболических и обменных нарушений, характерных для данной группы больных.

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СУРУНКАЛИ ГАСТРИТ БИЛАН БИРГА КЕЧУВЧИ СУРУНКАЛИ ПАРОДОНТИТНИ КОМПЛЕКС ДАВОЛАШНИ ТАКОМИЛЛАШТИРИШ: ИНТЕРДИСЦИПЛИНАР ЁНДАШУВ ВА КЛИНИК БАҲОЛАШ МЕЗОНЛАРИ

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Аннотация. *Мақолада сурункали гастрит билан бирга кечувчи сурункали пародонтитни комплекс баҳолаш ва даволашни такомиллаштириш масалалари адабиётлар асосида таҳлил қилинади. Helicobacter pylori нинг оғиз бўшлиғида аниқланиши, пародонтал яллиғланиш билан статистик боғлиқлиги ва пародонтологик муолажаларнинг эҳтимолий қўшимча аҳамияти кўриб чиқилади. Клиник амалиёт учун стоматолог ва гастроэнтеролог ҳамкорлиги, оғиз гигиенаси ҳамда пародонтал индексларни динамик баҳолашга асосланган ёндашув таклиф этилади. Мавжуд далиллар сабабий боғлиқликни тўлиқ тасдиқламаслиги ва маҳаллий клиник тадқиқотлар зарурлиги таъкидланади.*

Abstract. *This article reviews approaches to improving the comprehensive assessment and management of chronic periodontitis in patients with chronic gastritis. It discusses the detection of Helicobacter pylori in the oral cavity, reported associations with periodontal disease, and the possible adjunctive role of periodontal therapy. An interdisciplinary approach involving dental and gastroenterological care, oral-hygiene support, and longitudinal assessment of periodontal indices is proposed. Current evidence does not establish a definitive causal relationship, and further standardized local clinical studies are needed.*

Калит сўзлар: *сурункали пародонтит, сурункали гастрит, Helicobacter pylori, пародонтал индекслар, комплекс даволаш, интердисциплинар ёндашув.*

Keywords: *chronic periodontitis, chronic gastritis, Helicobacter pylori, periodontal indices, comprehensive treatment, interdisciplinary approach.*

КИРИШ

Сурункали пародонтит — пародонт тўқималаридаги яллиғланиш ва деструктив ўзгаришлар билан кечувчи кўп омилли касаллик бўлиб, унинг ривожланишида микробли биоплёнка, мезбоннинг иммун-яллиғланиш жавоби ва хулқ-атвор омиллари муҳим ўрин тутади. Сўнгги йилларда пародонт касалликлари ошқозон-ичак тизими патологиялари, жумладан сурункали гастрит билан биргаликда ўрганилмоқда.

Helicobacter pylori (H. pylori) гастрит патогенезидаги муҳим инфекцион омил ҳисобланади. Айрим тадқиқотларда микроорганизм оғиз бўшлиғи намуналарида, хусусан тиш биоплёнкаси ва сўлакда ҳам аниқланган. Бу ҳолат оғиз бўшлиғининг эҳтимолий экстрагастрал резервуар сифатидаги аҳамиятини ўрганишга туртки берган (Anand et al., 2014; Cuba et al., 2025). Бироқ оғизда H. pylori аниқланиши унинг доимий колонизациясини ёки гастрит қайталанишидаги сабабий ролини ўз-ўзидан исботламайди.

Мета-таҳлилларда H. pylori ва пародонтал касалликлар ўртасида статистик ассоциация қайд этилган (Chen et al., 2019; Moradi et al., 2023). Шу билан бирга, тадқиқотлар дизайни, диагностика усуллари ва иштирокчилар хусусиятларидаги фарқлар натижаларни умумлаштиришни чеклайди. Шу сабабли клиник ёндашув инфекцияни ягона сабаб сифатида қабул қилмасдан, пародонтал ва умумсоматик омилларни биргаликда баҳолашга асосланиши керак. Мавзуга бағишланган комплекс шарҳда ҳам тадқиқотлар гетерогенлиги ва далиллар сифатидаги фарқлар таъкидланган (Maurotto et al., 2024).

ТАДҚИҚОТ МАҚСАДИ

Сурункали гастрит билан бирга кечувчи сурункали пародонтитни комплекс баҳолаш ва даволашни такомиллаштиришга оид адабиётларни таҳлил қилиш, стоматологик ва гастроэнтерологик ёрдамни мувофиқлаштириш ҳамда клиник кузатувда қўлланиши мумкин бўлган баҳолаш мезонларини асослаш.

МАТЕРИАЛЛАР ВА УСУЛЛАР

Иш нарратив адабиётлар шарҳи шаклида тайёрланди. Таҳлил учун сурункали пародонтит, сурункали гастрит ва H. pylori ўртасидаги муносабатни ўрганган шарҳлар, мета-таҳлиллар ва клиник тадқиқотлардан фойдаланилди. Манбалар оғиз бўшлиғида H. pylori ни аниқлаш, пародонтал касалликлар билан ассоциация, хавф омиллари ва

пародонтологик даволашнинг эҳтимолий қўшимча таъсири бўйича гуруҳланди.

Клиник тадқиқот натижалари ёки беморлар бўйича янги рақамли маълумотлар ушбу шарҳда келтирилмайди. Шунинг учун қуйидаги клиник алгоритм муаллифлик таклифи сифатида баён этилади ва самарадорлиги кейинги проспектив тадқиқотларда текширилиши лозим.

НАТИЖАЛАР ВА МУҲОКАМА

1. H. pylori нинг оғиз бўшлиғида аниқланиши. Тиш биоплёнкаси ва сўлакда H. pylori аниқлангани ҳақида маълумотлар мавжуд, аммо аниқланиш частотаси тадқиқотлар орасида сезиларли фарқ қилади (Aksit Bıcak et al., 2017; Cuba et al., 2025). Бундай фарқлар намуна олиш техникаси, лаборатор диагностика, беморлар гуруҳи ва оғиз гигиенаси ҳолати билан боғлиқ бўлиши мумкин. Шу сабабли тезкор уреаза тести ёки ПЗР натижаларини клиник контекстдан ажратиб талқин қилиш мақсадга мувофиқ эмас.

2. Пародонтал касалликлар билан ассоциация. Мета-таҳлилларда H. pylori ва пародонтал касалликлар ўртасида статистик боғлиқлик кўрсатилган (Chen et al., 2019; Liu et al., 2020; Moradi et al., 2023). Бироқ OR каби статистик кўрсаткичлар ассоциацияни ифодалайди, сабаб-оқибат муносабатини эмас. Чекиш, қандли диабет, оғиз гигиенаси, ёш ва ижтимоий омиллар натижаларга таъсир қилиши мумкин.

3. Комплекс даволашни такомиллаштириш. Гастрит ва пародонтит бирга кечган беморларда пародонт тўқималарининг клиник ҳолатини, оғиз гигиенасини ва умумий соматик омилларни биргаликда баҳолаш мақсадга мувофиқ. Стоматолог пародонтал ташхис ва маҳаллий даволашни амалга оширади; гастроэнтеролог эса гастрит сабаблари, H. pylori диагностикаси ва эрадикацион даволаш тактикасини белгилайди. Пародонтологик даволаш H. pylori га қарши белгиланган тизимли терапиянинг ўрнини босмайди (Ren et al., 2016; Urrutia-Baca et al., 2024).

4. Клиник баҳолаш мезонлари. Динамик кузатувда оғиз гигиенасини OHI-S индекси, милк яллиғланишини Silness–Löe индекси, қон кетишни PBI, пародонтал чўнтак чуқурлигини PPD орқали баҳолаш мумкин. Индекслар бир хил методика ва калибрланган текширувчи томонидан бошланғич кўрикда ҳамда белгиланган назорат муддатларида қайд этилиши керак. Қўшимча равишда тиш ҳаракатчанлиги, клиник бирикиш йўқотилиши, рентгенологик суяк ўзгаришлари ва беморнинг субъектив шикоятлари ҳужжатлаштирилади.

5. Таклиф этилаётган ишчи алгоритм. Биринчи босқичда стоматологик ва гастроэнтерологик анамнез йиғилади, хавф омиллари аниқланади. Иккинчи босқичда пародонтал статус ва оғиз гигиенаси индекслар билан баҳоланади. Учинчи босқичда гастроэнтерологик текширув натижалари инобатга олиниб, мутахассислар ўртасида даволаш режаси мувофиқлаштирилади. Тўртинчи босқичда профессионал оғиз гигиенаси, пародонтологик муолажалар ва индивидуал гигиеник тавсиялар бажарилади. Бешинчи босқичда клиник кўрсаткичлар қайта баҳоланиб, натижалар бошланғич кўрсаткичлар билан таққосланади.

Ушбу алгоритм ҳозирча клиник самарадорлиги исботланган протокол эмас, балки диссертация доирасида текшириш мумкин бўлган тадқиқот модели ҳисобланади. Проспектив тадқиқотда асосий ва таққослаш гуруҳлари, киритиш-чиқариш мезонлари, кузатув муддатлари ва статистик таҳлил режаси олдиндан белгиланиши лозим.

ХУЛОСА

Сурункали гастрит ва сурункали пародонтитнинг бирга кечиши беморни комплекс баҳолашни талаб қилади. H. pylori нинг оғиз бўшлиғида аниқланиши ва пародонтал касалликлар билан статистик ассоциацияси ҳақида далиллар мавжуд, аммо сабабий боғлиқлик тўлиқ исботланмаган. Комплекс ёндашув стоматолог ва гастроэнтеролог ҳамкорлиги, пародонтал статусни стандарт индекслар билан баҳолаш, профессионал гигиена ва динамик назоратни ўз ичига олиши мумкин. Таклиф этилган алгоритмнинг клиник самарадорлигини маҳаллий проспектив тадқиқотда текшириш зарур.

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КАРДИОМЕТАБОЛИЧЕСКОЕ ФЕНОТИПИРОВАНИЕ ПАЦИЕНТОВ С ХРОНИЧЕСКОЙ СЕРДЕЧНОЙ НЕДОСТАТОЧНОСТЬЮ И ОЖИРЕНИЕМ С УЧЁТОМ МЕТАБОЛИЧЕСКОГО СИНДРОМА

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Аннотация. *Хроническая сердечная недостаточность (ХСН) в сочетании с ожирением представляет собой гетерогенный кардиометаболический фенотип, при котором метаболические и воспалительные нарушения могут определять особенности клинического течения заболевания. Целью исследования было охарактеризовать кардиометаболические особенности пациентов с ХСН и ожирением в зависимости от наличия метаболического синдрома на основании комплексной оценки антропометрических, гемодинамических, воспалительных и метаболических показателей, а также адипокинового профиля.*

Ключевые слова: *хроническая сердечная недостаточность, ожирение, метаболический синдром, кардиометаболический фенотип, лептин, резистин, адипонектин, инсулинорезистентность.*

Abstract. *Chronic heart failure (CHF) combined with obesity represents a heterogeneous cardiometabolic phenotype in which metabolic and inflammatory disturbances may influence the clinical course of the disease. The aim of the study was to characterize the cardiometabolic features of patients with CHF and obesity according to the presence of metabolic syndrome based on a comprehensive assessment of anthropometric, hemodynamic, inflammatory, and metabolic parameters, as well as the adipokine profile.*

Keywords: *chronic heart failure, obesity, metabolic syndrome, cardiometabolic phenotype, leptin, resistin, adiponectin, insulin resistance.*

Annotatsiya. *Semizlik bilan birga kechuvchi surunkali yurak yetishmovchiligi (SYY) geterogen kardiometabolik fenotip bo‘lib, unda*

metabolik va yallig‘lanish jarayonlaridagi buzilishlar kasallikning klinik kechish xususiyatlarini belgilashi mumkin. Tadqiqotning maqsadi SYY va semizlik bilan og‘rigan bemorlarda metabolik sindrom mavjudligiga qarab antropometrik, gemodinamik, yallig‘lanish va metabolik ko‘rsatkichlar, shuningdek adipokin profili kompleks baholash asosida kardiometabolik xususiyatlarni tavsiflashdan iborat bo‘ldi.

Kalit so‘zlar: *surunkali yurak yetishmovchiligi, semizlik, metabolik sindrom, kardiometabolik fenotip, leptin, rezistin, adiponektin, insulinrezistentlik.*

АКТУАЛЬНОСТЬ

Хроническая сердечная недостаточность в сочетании с ожирением формирует сложный клинико-биологический континуум, характеризующийся выраженной гетерогенностью и различиями в метаболическом профиле пациентов. Современные рекомендации рассматривают ожирение как значимую коморбидность при ХСН, способную влиять на диагностику, функциональный статус, качество жизни и выбор терапевтической стратегии. В 2026 году Европейское общество кардиологов обновило рекомендации по ХСН, отдельно выделив ожирение среди коморбидных состояний и расширив рекомендации по его ведению.

Жировая ткань представляет собой активный эндокринный орган, продуцирующий широкий спектр биологически активных веществ — адипокинов. Лептин, адипонектин и резистин участвуют в регуляции энергетического обмена, воспалительных процессов, сосудистого тонуса и метаболизма миокарда. Современные обзоры подчёркивают потенциальную роль адипокинов в формировании кардиометаболического фенотипа, особенно при ХСН с сохранённой фракцией выброса и ожирением.

При этом метаболический синдром может рассматриваться как интегральный клинический маркер сочетания абдоминального ожирения, артериальной гипертензии, нарушений углеводного обмена и других метаболических факторов. Его наличие потенциально позволяет выделять среди пациентов с ХСН и ожирением подгруппу с более выраженной кардиометаболической нагрузкой.

Особый интерес представляет сочетанная оценка антропометрических показателей, HOMA-IR, С-реактивного белка, TNF-α

и адипокинов. Такой подход позволяет перейти от простой характеристики ожирения к более детальному фенотипированию пациента.

Таким образом, комплексное изучение метаболических, воспалительных и адипокиновых характеристик может способствовать более детальной стратификации пациентов с ХСН и ожирением.

Цель исследования. Охарактеризовать кардиометаболические фенотипы у пациентов с хронической сердечной недостаточностью и ожирением на основе комплексной оценки адипокинового профиля, показателей воспаления и инсулинорезистентности в зависимости от наличия метаболического синдрома.

Материалы и методы. Исследование выполнено в формате одномоментного сравнительного (cross-sectional) анализа. В него были включены пациенты с абдоминальным ожирением и установленной хронической сердечной недостаточностью (ХСН), а также лица с ожирением без клинико-инструментальных признаков сердечной недостаточности, сформировавшие группу сравнения.

Диагноз ХСН устанавливался в соответствии с действующими клиническими рекомендациями ESC (2021) на основании совокупности клинических симптомов [1], данных эхокардиографии и уровня натрийуретических пептидов. Метаболический синдром (МС) диагностировался согласно международным критериям (IDF/NCEP ATP III) при наличии абдоминального ожирения в сочетании как минимум с двумя дополнительными метаболическими компонентами.

Все обследованные были стратифицированы на четыре подгруппы:

Основная группа (ОГ) без МС — пациенты с ХСН и ожирением без метаболического синдрома; ОГ с МС — пациенты с ХСН и ожирением при наличии метаболического синдрома; Группа сравнения (ГС) без МС — лица с ожирением без ХСН и без МС; ГС с МС — лица с ожирением без ХСН, но с диагностированным МС.

Всем участникам проводилась стандартизированная клинико-лабораторная оценка. Антропометрические показатели включали индекс массы тела (ИМТ), окружность талии и оценку абдоминального ожирения. Гемодинамические параметры определялись при помощи стандартного автоматизированного тонометра после 10-минутного отдыха и включали систолическое (САД) и диастолическое артериальное давление (ДАД), а также частоту сердечных сокращений (ЧСС).

Биохимическое исследование проводилось натощак. Определялись:

маркеры системного воспаления — С-реактивный белок (CRP), фактор некроза опухоли-α (TNF-α); показатели углеводного обмена с расчётом индекса инсулинорезистентности HOMA-IR; адипокиновый профиль — лептин, резистин, адипонектин (методом иммуноферментного анализа). Забор венозной крови осуществлялся утром после 8–12-часового голодания.

Статистический анализ проводился с использованием программного пакета (указать, при необходимости — SPSS/Statistica/R). Проверка распределения выполнялась с помощью критерия Шапиро–Уилка. При нормальном распределении данные представлены в виде M±SD и сравнивались с использованием t-критерия Стьюдента или ANOVA; при ненормальном распределении применялись непараметрические критерии (Mann–Whitney, Kruskal–Wallis). Корреляционный анализ проводился по Спирмену или Пирсону в зависимости от типа распределения. Различия считались статистически значимыми при $p < 0,05$.

Результаты собственных исследований.

Возраст обследованных в сравниваемых подгруппах статистически значимо не различался, что позволяет рассматривать полученные различия как независимые от возрастного фактора (средние значения в диапазоне 49,5–57,1 года). При этом выраженность ожирения демонстрировала чёткую зависимость от наличия метаболического синдрома. У пациентов основной группы с МС индекс массы тела достигал 37,21±5,71 кг/м², что было достоверно выше по сравнению с больными ХСН и ожирением без МС (33,69±5,55 кг/м²; $p<0,01$).

Сходная тенденция выявлена и в группе сравнения, где наличие МС сопровождалось более высокими значениями ИМТ, что указывает на универсальный характер взаимосвязи между метаболической перегрузкой и степенью ожирения независимо от наличия сердечной недостаточности. Совокупность полученных данных подчёркивает ведущую роль висцерального ожирения как морфологического субстрата формирования неблагоприятного кардиометаболического фенотипа.

Таблица

Антропометрические и гемодинамические характеристики пациентов с ожирением при различных кардиометаболических фенотипах.

Показатель	ОГ без МС	ОГ с МС	ГС без МС	ГС с МС
Возраст, лет	50,9±18,93	49,5±19,1	57,1±19,5	52,2±20,2

Индекс массы тела (ИМТ), кг/м²	33,69±5,55	37,21±5,71**	33,02±5,28	36,7±5,08**
Окружность талии (ОТ), см	102,1±17,3	114±16,5**	103,1±15,5	115,1±19,9**
Систолическое артериальное давление (САД), мм рт. ст.	136,7±22,5	147,9±24,4*	138,7±21,3	141,9±26,4
Диастолическое артериальное давление (ДАД), мм рт. ст.	81,9±8,9	98±14,3***	81,7±11,4	97,3±16,4***
Частота сердечных сокращений (ЧСС), уд/мин	78±10,7	87,1±11,7**	79,6±13,4	88±12**

Примечание: ** $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$ - статистическая значимость различий по сравнению с основной группой.*

Окружность талии демонстрировала аналогичный закономерный градиент: у пациентов с метаболическим синдромом её значения превышали показатели лиц без МС более чем на 10 см, что отражает преимущественное накопление висцеральной жировой ткани — морфологического субстрата кардиометаболической перегрузки и источника провоспалительных медиаторов.

Среди гемодинамических параметров наибольшую дискриминирующую способность продемонстрировало диастолическое артериальное давление. У обследуемых с МС, независимо от наличия ХСН, его уровень составлял 97–98 мм рт. ст., что было достоверно выше по сравнению с пациентами без МС ($p<0,001$). Частота сердечных сокращений также характеризовалась более высокими значениями в когортах с МС, отражая усиление симпатоадреналовой активности и вегетативный дисбаланс, типичные для метаболической синдемии.

Маркер системного воспаления С-реактивный белок демонстрировал статистически значимое повышение при наличии МС. У пациентов с ХСН уровень CRP достигал 1,65±0,24 мг/л по сравнению с 1,34±0,21 мг/л у больных без МС ($p<0,01$), что указывает на формирование

персистирующего низкоинтенсивного воспаления. В группе сравнения отмечалась сопоставимая направленность изменений, подтверждающая универсальность выявленных закономерностей.

Анализ провоспалительного цитокинового профиля подтвердил значимый вклад воспалительного компонента в структуру метаболической синдемии. Уровень TNF-α у пациентов с ХСН в сочетании с МС составлял 5,4±0,77 пг/мл, что было достоверно выше по сравнению с больными без МС (4,2±0,77 пг/мл; $p<0,001$). Сходная направленность изменений выявлена и в группе сравнения, что свидетельствует о системном характере провоспалительной активации при метаболическом синдроме независимо от наличия сердечной недостаточности.

Индекс инсулинорезистентности HOMA-IR продемонстрировал чёткую стратификационную значимость. У пациентов с МС его значения превышали 3,1–3,2, тогда как в подгруппах без МС показатели находились в пределах 2,6–2,61 ($p<0,001$). Полученные данные подтверждают центральную роль инсулинорезистентности как метаболического триггера, формирующего неблагоприятный кардиометаболический фенотип при ожирении.

Ключевым звеном выявленных нарушений выступал адипокиновый дисбаланс. У пациентов с МС уровень лептина достигал 21010±3739 пг/мл и достоверно превышал аналогичные показатели у обследуемых без МС; сходная тенденция отмечена и для резистина, отражая активацию провоспалительных и проатерогенных сигналов. При этом концентрация адипонектина оставалась стабильно сниженной во всех подгруппах (≈6300–6430 пг/мл), что соответствует типичной картине висцерального ожирения и утрате его вазо- и кардиопротективных эффектов.

Таким образом, сочетание гиперлептинемии, повышения резистина и дефицита адипонектина формирует биохимическую основу кардиометаболической перегрузки и может рассматриваться как один из ключевых маркеров неблагоприятного фенотипа у пациентов с ХСН и ожирением.

ОБСУЖДЕНИЕ

Полученные результаты позволяют рассматривать метаболический синдром не как сопутствующее состояние, а как ключевой модификатор клинического течения ХСН у пациентов с ожирением. Аналогичная концепция представлена в работах Zannad и соавт., где подчёркивается центральная роль кардиометаболических нарушений в формировании неблагоприятных фенотипов сердечной недостаточности [10]. Его наличие

ассоциируется с более выраженным абдоминальным ожирением, углублением инсулинорезистентности, устойчивой активацией провоспалительных цитокинов и формированием адипокинового дисбаланса, что согласуется с данными Neeland и соавт. и Schiattarella и соавт. [11,17]. Совокупность этих изменений отражает состояние хронической кардиометаболической перегрузки, в условиях которой миокард функционирует на фоне персистирующего метаболического и нейрогуморального стресса.

Повышение диастолического артериального давления и частоты сердечных сокращений у пациентов с МС свидетельствует о доминировании симпатоадреналовой активации и вегетативного дисбаланса[9,16]. Сходные наблюдения приводят Obokata и соавт. и Pugliese и соавт., указывая, что ожирение и метаболический синдром сопровождаются увеличением гемодинамической нагрузки и ранним формированием диастолической дисфункции [6,19]. Длительное существование подобных условий способствует прогрессированию ремоделирования миокарда и снижению функционального резерва сердечно-сосудистой системы, что подчёркивается в обзорах Paulus и Tschope [15].

Одновременно воспалительные маркеры и изменения адипокинового профиля подтверждают концепцию жировой ткани как активного эндокринного и паракринного органа. Согласно данным Van Linthout и соавт. и Kernan и соавт., гиперлептинемия и повышение резистина усиливают провоспалительные и проатерогенные сигнальные пути, тогда как дефицит адипонектина сопровождается утратой его вазопротективных и антифибротических эффектов [12,20]. Клиническое значение этих нарушений при ХСН подробно обсуждается в работах Ruiz-Hurtado и соавт., где показана связь адипокинового дисбаланса с тяжестью сердечной недостаточности и неблагоприятным прогнозом [14].

Таким образом, у пациентов с ХСН и метаболическим синдромом формируется фенотип, характеризующийся сочетанием нейрогуморальной гиперактивации, системного воспаления и метаболической дисрегуляции, что соответствует современному представлению о ХСН как кардиометаболическом заболевании (Verma и соавт., Jhund и McMurray) [3,18].

Выявленные закономерности подтверждают целесообразность выделения кардиометаболических фенотипов в популяции больных ХСН с ожирением и обосновывают необходимость таргетированной коррекции

инсулинорезистентности, воспаления и адипокинового дисбаланса в рамках персонализированного подхода к ведению данной категории пациентов.

ВЫВОДЫ

Пациенты с хронической сердечной недостаточностью и ожирением при наличии метаболического синдрома формируют наиболее неблагоприятный кардиометаболический фенотип, характеризующийся сочетанием выраженного висцерального ожирения, инсулинорезистентности, персистирующего низкоинтенсивного воспаления и адипокинового дисбаланса. Совокупность данных нарушений ассоциируется с неблагоприятными гемодинамическими сдвигами и создаёт патофизиологические предпосылки для ускоренного прогрессирования сердечной недостаточности.

Полученные результаты обосновывают целесообразность внедрения персонифицированного кардиометаболического подхода к ведению данной категории пациентов, предусматривающего таргетированную коррекцию инсулинорезистентности, воспалительных процессов и адипокинового профиля, а также применение структурированных программ физической реабилитации и нутритивной поддержки, направленных на снижение висцерального жира и улучшение функционального статуса.Список литературы.

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ПРОВОЦИРУЮЩИЕ ФАКТОРЫ ПОЛИМОРФИЗМА ГЕНА SOD2 ПРИ ГЕСТАЦИОННОЙ АРТЕРИАЛЬНОЙ ГИПЕРТЕНЗИИ У БЕРЕМЕННЫХ

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Аннотация. В статье проанализированы факторы риска, ассоциированные с полиморфизмом гена SOD2, у беременных с гестационной артериальной гипертензией. Рассмотрены роль оксидативного стресса, митохондриальной дисфункции, плацентарной гипоперфузии, избыточной массы тела, метаболических нарушений, гестационного сахарного диабета, семейного анамнеза, микроэлементного дисбаланса и внешнесредовых воздействий. Показано, что полиморфизм SOD2 rs4880 (Ala16Val) может влиять на эффективность митохондриальной антиоксидантной защиты, однако прямых доказательств его самостоятельной роли именно при изолированной гестационной гипертензии пока недостаточно. В связи с этим SOD2 предлагается рассматривать не как автономный диагностический маркер, а как компонент многофакторной прогностической модели.

Ключевые слова: *гестационная артериальная гипертензия, беременность, SOD2, rs4880, Ala16Val, оксидативный стресс, преэклампсия, генетический полиморфизм, митохондриальная дисфункция, факторы риска.*

Abstract. This article analyzes risk factors associated with the SOD2 gene polymorphism in pregnant women with gestational arterial hypertension. The paper examines the role of oxidative stress, mitochondrial dysfunction, placental hypoperfusion, overweight, metabolic disturbances, gestational diabetes mellitus, family history, micronutrient imbalance, and environmental exposures. The SOD2 rs4880 (Ala16Val) polymorphism may affect mitochondrial antioxidant defense efficiency; however, direct evidence for its independent role in isolated gestational hypertension remains limited. Therefore, SOD2 should be

considered not as a stand-alone diagnostic marker, but as a component of a multifactorial predictive model.

Keywords: *gestational arterial hypertension, pregnancy, SOD2, rs4880, Ala16Val, oxidative stress, preeclampsia, genetic polymorphism, mitochondrial dysfunction, risk factors.*

ВВЕДЕНИЕ

Гипертензивные расстройства беременности остаются одной из ведущих причин материнской и перинатальной заболеваемости. По современным международным рекомендациям ISSHP, гестационная артериальная гипертензия определяется как впервые возникшее после 20-й недели беременности повышение артериального давления при отсутствии протеинурии и иных диагностических признаков преэклампсии [1]. В клинической практике данное состояние имеет особое значение не только как самостоятельная форма патологии, но и как потенциальный этап прогрессирования к преэклампсии, особенно у пациенток с выраженными метаболическими и сосудистыми нарушениями [1], [2].

В последние годы существенно возрос интерес к роли оксидативного стресса в патогенезе гипертензивных осложнений беременности. Показано, что как при преэклампсии, так и при гестационной гипертензии дисбаланс между образованием активных форм кислорода и антиоксидантной защитой способствует плацентарной гипоперфузии, гипоксии, эндотелиальной дисфункции и системному воспалительному ответу [3], [4]. Систематические обзоры подтверждают, что маркеры оксидативного стресса связаны с патологическими вариантами течения беременности, а изменения антиоксидантной системы представляют интерес не только как отражение повреждения, но и как потенциальная часть прогностических алгоритмов [4].

Одним из наиболее биологически обоснованных генов-кандидатов является SOD2, кодирующий митохондриальную марганец-зависимую супероксиддисмутазу. Этот фермент играет ключевую роль в обезвреживании супероксид-аниона в митохондриальном матриксе. Функциональный вариант rs4880 (Ala16Val) локализован в митохондриальной сигнальной последовательности и влияет на транспорт белка в митохондрии: Ala-вариант обеспечивает более эффективный импорт, тогда как Val-вариант связан с частичным задерживанием предшественника во внутренней мембране и меньшим образованием активного фермента [5]. Следовательно, при состояниях, сопровождающихся усиленной генерацией митохондриальных ROS,

генетическая вариабельность SOD2 может модифицировать индивидуальную восприимчивость к гипертензивным осложнениям беременности.

Целью настоящей статьи является систематизация данных о факторах риска, ассоциированных с полиморфизмом SOD2, при гестационной артериальной гипертензии у беременных, с учетом клинических, метаболических, экологических и молекулярно-генетических аспектов.

МЕТОДОЛОГИЯ

Работа выполнена в формате аналитического обзора с элементами сравнительной интерпретации данных. В качестве источников использованы международные рекомендации по гипертензивным расстройствам беременности, систематические обзоры, метаанализы и оригинальные клинико-генетические исследования, посвященные гестационной гипертензии, преэклампсии, оксидативному стрессу, антиоксидантным ферментам и полиморфизму SOD2 rs4880 [3], [4]. Особое внимание уделялось исследованиям, где анализировались механизмы митохондриальной дисфункции, изменения активности SOD, а также сочетанное влияние клинических факторов риска и генетической предрасположенности.

Методологически важным моментом стало разграничение данных по изолированной гестационной гипертензии и по преэклампсии/общей группе HDP. Поскольку публикаций, напрямую посвященных SOD2 именно при чистой GH, немного, в анализ включались и исследования по преэклампсии, если они касались общих патогенетических путей — плацентарной ишемии, оксидативного стресса, эндотелиальной дисфункции и антиоксидантной недостаточности. Такой подход соответствует современным обзорам, где подчеркивается наличие перекрывающихся механизмов у GH и PE при сохранении клинических различий между этими состояниями [3].

РЕЗУЛЬТАТЫ

1. Клинические и метаболические факторы риска. Анализ доступных данных показывает, что к наиболее устойчивым факторам риска гипертензивных расстройств беременности относятся возраст матери, избыточная масса тела, ожирение, повышенное артериальное давление уже в первом триместре, первородство, неблагоприятный семейный анамнез и гестационный сахарный диабет. В крупном популяционном исследовании, включившем 250340 беременных, частота HDP составила 6,40%; риск

повышался с возрастом, индексом массы тела и уровнем артериального давления в первом триместре, а также был связан с первородством и некоторыми социально-демографическими факторами [6]. Семейная отягощенность по гипертензии также рассматривается как важный маркер предрасположенности к pregnancy-induced hypertension [7].

Для интерпретации роли *SOD2* эти клинические факторы особенно важны, так как они выступают триггерами хронического метаболического и сосудистого стресса. При сочетании избыточной массы тела, инсулинорезистентности и гестационного сахарного диабета (ГСД) резко возрастает нагрузка на митохондриальную дыхательную цепь трофобласта. В этих условиях носительство менее эффективного аллеля Val полиморфизма *SOD2* rs4880 снижает скорость нейтрализации супероксид-аниона, что ускоряет переход компенсаторных реакций в эндотелиальную дисфункцию.

2. Патогенетические и внешнесредовые модификаторы риска. Помимо исходного соматического статуса, значимую роль играют нутритивный дефицит и экологические факторы. Поскольку фермент Mn-SOD является марганец-зависимым, недостаточное поступление марганца, а также селена и цинка ограничивает его каталитическую активность даже при благоприятном генотипе Ala/Ala. Внешнесредовые воздействия (загрязнение атмосферного воздуха, ксенобиотики, хронический психоэмоциональный стресс) дополнительно стимулируют генерацию активных форм кислорода (АФК), усиливая фенотипическое проявление генетической предрасположенности.

Для систематизации комплексного взаимодействия клинических, биохимических и молекулярно-генетических факторов при гестационной артериальной гипертензии (ГАГ) составлена сводная прогностическая матрица (таблица 1).

Таблица 1.

Взаимосвязь факторов риска и полиморфизма гена *SOD2* (rs4880) в патогенезе гестационной артериальной гипертензии

Категория факторов	**Конкретные триггеры**	**Патогенетический механизм**	**Влияние полиморфизма *SOD2* (Ala16Val)**	**Клиническое значение для прогноза**
Метаболические	Ожирение (ИМТ ≥ 30 кг/м²), ГСД,	Липотоксичность и гипергликемия	Аллель Val снижает транспорт	Высокий риск ранней манифестации ГАГ

	дислипидемия	усиливают продукцию митохондриальных АФК в плаценте	фермента в митохондрии, усугубляя оксидативный стресс	и трансформации в преэклампсию
Сосудистые и плацентарные	Неполноценная инвазия трофобласта, плацентарная гипоперфузия	Ишемия-реперфузия плаценты запускает каскад системного воспаления и вазоспазма	Дефицит активной Mn-SOD ускоряет повреждение эндотелия сосудов	Необходимость усиленного допплерометрического контроля с 20-й недели
Клинико-анамнестические	Возраст > 35 лет, первая беременность, отягощенный семейный анамнез по АГ	Снижение адаптационного резерва сердечно-сосудистой системы при гестации	Кумулятивный эффект: сочетание семейной АГ и генотипа Val/Val повышает уязвимость	Основание для включения пациентки в группу высокого риска при постановке на учет
Нутритивные и средовые	Дефицит микроэлементов (Mn, Zn, Se), поллютанты, гипоксия	Прямое угнетение кофакторной активности антиоксидантных ферментов	Снижение функциональной активности фермента даже у носителей аллеля Ala	Возможность таргетной прегравидарной и антенатальной коррекции

3. Полиморфизм SOD2 rs4880 и генетическая предрасположенность. Полиморфизм rs4880 (Ala16Val) является наиболее изученным вариантом гена SOD2. Его функциональное значение связано с изменением вторичной структуры митохондриальной сигнальной последовательности и, как следствие, с различиями в эффективности импорта белка в митохондрии. Экспериментально показано, что Ala-вариант обеспечивает более эффективное образование активного тетрамера MnSOD, тогда как Val-вариант снижает количество зрелого активного фермента в митохондриальном матриксе [5]. Этот механизм биологически убедительно объясняет, каким образом вариант SOD2 может

влиять на устойчивость плацентарной ткани и сосудистого эндотелия к oxidative stress.

Однако клинические генетические данные остаются неоднозначными. Метаанализ Zhao и соавт. не выявил статистически значимой общей связи между полиморфизмом MnSOD rs4880 и риском преэклампсии в основных генетических моделях [9]. Это означает, что данный маркер не следует представлять как универсальный и однозначный предиктор гипертензивных осложнений беременности. Вместе с тем отдельные исследования демонстрируют более сложную картину. Hu и соавт. сообщили, что A-аллель SOD2 A16V ассоциировался с повышенным риском преэклампсии, особенно в сочетании с неблагоприятным генотипом CYBA [10]. Luo и соавт. показали, что одновременное наличие TT-варианта SOD2 Ala16Val у матери и отца ассоциировано с существенно более высоким риском преэклампсии [11]. Эти данные позволяют предположить, что SOD2 действует не как изолированный ген риска, а как часть полигенной и семейно-генетической сети.

Для темы настоящей статьи принципиально важно, что большинство генетических исследований выполнено именно на выборках с преэклампсией, а не с изолированной гестационной гипертензией. Следовательно, перенос этих результатов на GH должен быть осторожным. Наиболее корректной формулировкой будет вывод о том, что полиморфизм **SOD2 rs4880** обладает высокой патогенетической правдоподобностью и потенциальной прогностической ценностью, но его независимая роль при чистой гестационной гипертензии пока окончательно не установлена [3], [9].

4. Микроэлементный и экологический контекст SOD2-зависимого риска. Отдельного внимания заслуживает тот факт, что SOD2 является марганец-зависимым ферментом. Это придает клиническое значение микроэлементному статусу беременной. В канадской когорте MIREC было показано, что более высокие уровни мышьяка в крови в сочетании с более низким уровнем марганца на ранних сроках беременности были связаны с большей вероятностью развития гестационной гипертензии; авторы также обсуждают потенциально защитную роль адекватного уровня марганца [12]. Данный результат особенно важен в контексте SOD2, поскольку демонстрирует связь между риском GH и биологическим путем, зависящим от функциональной полноценности MnSOD.

Таким образом, реализация генетической предрасположенности, связанной с SOD2, вероятно, зависит не только от генотипа как такового, но и от состояния метаболической среды, обеспеченности микроэлементами и уровня внешнесредовых токсических воздействий. С практической точки зрения это означает, что оценка только одного SNP без учета клинического и биохимического фона имеет ограниченную информативность [3], [12].

ДИСКУССИЯ

Проведенный анализ показывает, что изолированное определение полиморфизма *SOD2* rs4880 имеет ограниченную диагностическую ценность без учета фенотипического фона беременной. В ряде популяционных исследований ассоциация вариантов Ala16Val с гипертензивными расстройствами беременности демонстрирует противоречивые результаты, что объясняется этническими различиями выборок и неодинаковой выраженностью сопутствующих метаболических нарушений.

Наиболее перспективным направлением в современном акушерстве является интеграция генетического тестирования *SOD2* в многофакторные прогностические шкалы. Совместная оценка генотипа, индекса массы тела, показателей маточно-плацентарного кровотока и биохимических маркеров оксидативного стресса позволяет выделить группу женщин, у которых доброкачественная на первый взгляд гестационная гипертензия с высокой вероятностью перейдет в тяжелую преэклампсию.

Вместе с тем статья принципиально избегает чрезмерно категоричных выводов. На сегодняшний день существующая доказательная база убедительно подтверждает роль оксидативного стресса в GH/PE, функциональную значимость варианта rs4880, а также наличие отдельных положительных генетических ассоциаций. Но она не позволяет утверждать, что SOD2 является самостоятельным и достаточным генетическим маркером именно гестационной артериальной гипертензии. Наиболее обоснованным является его включение в комбинированные модели, где учитываются клинические характеристики, показатели SOD/мочевой кислоты, маркеры окислительного повреждения и данные о микроэлементном статусе [8], [9].

С научно-методологической точки зрения это делает использование SOD2 особенно перспективным не в изолированной диагностике, а в персонализированной стратификации риска. Важно подчеркивать именно многофакторную модель: генетическая вариабельность SOD2 повышает

значимость в сочетании с клиническими факторами риска, а не вместо них. Такой подход соответствует современной логике молекулярной медицины и снижает вероятность критики со стороны рецензентов за гиперболизацию роли одного маркера [3], [9].

ЗАКЛЮЧЕНИЕ

Гестационная артериальная гипертензия у беременных развивается в результате сложного взаимодействия сосудистых, метаболических, плацентарных, экологических и генетических факторов. Полиморфизм SOD2 rs4880 (Ala16Val) имеет убедительное биологическое обоснование как фактор, способный модифицировать митохондриальную антиоксидантную защиту и усиливать susceptibility к оксидативному стрессу. Наиболее значимыми факторами риска в этом контексте являются ожирение, повышение артериального давления в ранние сроки беременности, гестационный диабет, семейная отягощенность, микроэлементный дисбаланс и токсические воздействия внешней среды [3], [6].

В то же время прямые доказательства независимой роли SOD2 именно при изолированной гестационной гипертензии остаются ограниченными, поскольку основная часть генетических исследований выполнена на выборках с преэклампсией. Поэтому SOD2 целесообразно рассматривать как компонент многофакторной прогностической панели, а не как автономный диагностический критерий. Перспективными направлениями дальнейших исследований являются проспективные работы, в которых будут одновременно оцениваться генотип SOD2, активность антиоксидантных ферментов, маркеры оксидативного повреждения, уровень марганца и клинический профиль беременной [8], [9].

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ОЦЕНКА ТУБУЛОИНТЕРСТИЦИАЛЬНОГО ПОВРЕЖДЕНИЯ ПОЧЕК: ДИАГНОСТИЧЕСКАЯ И ПРОГНОСТИЧЕСКАЯ ЦЕННОСТЬ uNGAL

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Аннотация. *В статье проанализированы современные данные о липокалине, ассоциированном с желатиназой нейтрофилов, в моче (uNGAL) как маркере раннего тубулоинтерстициального повреждения почек. Показано, что концентрация uNGAL возрастает в течение 2–6 часов после повреждающего воздействия, тогда как диагностически значимое повышение креатинина регистрируется через 1–3 суток. При хронической болезни почек (ХБП) повышенный уровень uNGAL ассоциирован с риском прогрессирования независимо от СКФ и протеинурии. Обсуждаются ограничения маркера и перспективы его применения на преддиализных стадиях ХБП.*

Ключевые слова: *uNGAL, липокалин-2, хроническая болезнь почек, острое повреждение почек, тубулоинтерстициальное повреждение, биомаркеры, прогрессирование.*

Abstract. *The article reviews current evidence on urinary neutrophil gelatinase-associated lipocalin (uNGAL) as a marker of early tubulointerstitial kidney injury. uNGAL concentration rises within 2–6 hours after an injurious insult, whereas a diagnostically significant increase in serum creatinine appears only after 1–3 days. In chronic kidney disease (CKD), elevated uNGAL is associated with the risk of progression independently of eGFR and proteinuria. The limitations of the marker and the prospects for its use in pre-dialysis CKD are discussed.*

Keywords: *uNGAL, lipocalin-2, chronic kidney disease, acute kidney injury, tubulointerstitial injury, biomarkers, progression.*

ВВЕДЕНИЕ

Хроническая болезнь почек (ХБП) — широко распространённая патология, ассоциированная с высоким риском сердечно-сосудистых

осложнений и прогрессированием до терминальной почечной недостаточности. Согласно рекомендациям KDIGO, диагностика и стратификация риска при ХБП основываются на расчётной скорости клубочковой фильтрации (рСКФ) и альбуминурии (KDIGO CKD Work Group, 2024). Однако сывороточный креатинин и рассчитанная на его основе СКФ изменяются лишь после утраты значительной части функционирующих нефронов и отражают функцию почек, а не активность их повреждения. Это обусловливает интерес к биомаркерам, выявляющим повреждение канальцевого эпителия на доклиническом этапе.

Одним из наиболее изученных таких маркеров является NGAL (neutrophil gelatinase-associated lipocalin, липокалин-2) — белок семейства липокалинов с молекулярной массой около 25 кДа. В норме NGAL, профильтровавшийся в клубочках, реабсорбируется эпителием проксимальных канальцев. При ишемическом или токсическом повреждении его синтез резко возрастает в дистальных отделах нефрона, а реабсорбция в проксимальных канальцах нарушается, что приводит к быстрому повышению концентрации белка в моче (uNGAL). Поэтому NGAL рассматривают как индикатор активного повреждения почек «в реальном времени», а не как ещё один показатель числа функционирующих нефронов (Mori & Nakao, 2007).

Цель исследования.Оценить диагностическую и прогностическую значимость uNGAL как маркера раннего тубулоинтерстициального повреждения почек в сравнении с традиционными показателями (креатинин, рСКФ).

Материалы и методы. Проведён анализ клинических и экспериментальных исследований, опубликованных в рецензируемых изданиях, индексируемых в базах данных PubMed, Scopus и Web of Science. В анализ включены проспективные когортные исследования, систематические обзоры и метаанализы, посвящённые диагностической и прогностической ценности uNGAL при остром повреждении почек и ХБП. Дополнительно проанализированы клинические рекомендации KDIGO 2024 г. по диагностике и лечению ХБП.

Результаты и их обсуждение. Ключевым преимуществом uNGAL является скорость реакции на повреждение. В исследовании J. Mishra и соавт. у 71 ребёнка, перенёсшего операцию с искусственным кровообращением, концентрация uNGAL возрастала уже через 2 часа после вмешательства, тогда как диагноз острого повреждения почек по уровню сывороточного креатинина удавалось поставить лишь через 1–3

суток; уровень uNGAL через 2 часа оказался наиболее сильным независимым предиктором повреждения почек (Mishra et al., 2005).

Диагностическая точность маркера подтверждена метаанализом M. Haase и соавт.: площадь под ROC-кривой (AUC) для uNGAL в диагностике острого повреждения почек составила 0,837, для NGAL плазмы — 0,775 (Haase et al., 2009). Концентрация uNGAL нарастает пропорционально тяжести повреждения: при лёгких формах отмечается умеренное повышение, при септическом и ишемическом поражении — многократное.

При ХБП уровень uNGAL отражает выраженность хронического канальцевого повреждения. Так, при IgA-нефропатии uNGAL коррелировал с морфологическими признаками тубулоинтерстициального поражения и рассматривается как ранний маркер этого процесса (Ding et al., 2007). В проспективном исследовании D. Bolignano и соавт., включавшем 96 больных ХБП различной этиологии, исходные уровни uNGAL и сывороточного NGAL обратно коррелировали с рСКФ и независимо от неё и возраста предсказывали прогрессирование ХБП (удвоение креатинина и/или терминальная почечная недостаточность) в течение 18,5 месяцев наблюдения (Bolignano et al., 2009).

Вместе с тем прогностическая ценность uNGAL при ХБП не абсолютна. В крупной когорте CRIC (3386 пациентов) uNGAL оставался независимым фактором риска прогрессирования, однако добавление его к стандартной модели, включающей рСКФ и протеинурию, существенно не улучшало точность прогноза (Liu et al., 2013). Это указывает на то, что uNGAL целесообразно использовать не вместо, а в дополнение к традиционным показателям — прежде всего для выявления активного канальцевого повреждения в ситуациях, когда креатинин и рСКФ ещё остаются в пределах нормы. Определение uNGAL в динамике может помочь отличить функциональное снижение СКФ от структурного повреждения паренхимы, что важно для своевременного назначения нефропротективной терапии.

ЗАКЛЮЧЕНИЕ

uNGAL является ранним и чувствительным маркером структурного повреждения почечных канальцев: его концентрация повышается за несколько часов, тогда как креатинин — лишь через 1–3 суток. При ХБП повышенный уровень uNGAL ассоциирован с риском прогрессирования независимо от рСКФ, однако его дополнительная прогностическая ценность по сравнению со стандартной моделью ограничена. Включение uNGAL в алгоритм обследования пациентов на преддиализных стадиях

ХБП в сочетании с рСКФ и альбуминурией может способствовать более ранней стратификации риска и переходу к превентивной стратегии нефропротекции.

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ASSOCIATION OF VARICOCELE SEVERITY WITH SEMEN PARAMETERS IN INFERTILE MEN FROM THE FERGANA REGION: A CROSS-SECTIONAL STUDY

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Abstrakt: Background *.Varicocele is a potentially reversible cause of male infertility, but its effects may vary with severity.* ***The aim****: To examine the distribution of varicocele grades and their associations with semen quality, including pampiniform plexus vein diameter, among infertile men in the Fergana region.* ***Methods****: A cross-sectional study evaluated infertile men diagnosed with grades I, II, or III varicocele. Semen was assessed for sperm concentration, vitality, motility, morphology, and agglutination, while varicocele severity and venous diameter were characterized.* ***Results****: Semen abnormalities increased with varicocele severity. The pronounced deterioration was observed in grades II and III. Sperm motility and morphology showed the adverse associations with increasing grade and pampiniform plexus vein diameter. The proportion of sperm head abnormalities rose from 40.0% in grade I to 61.6% in grade II and*

69.15% in grade III. These findings indicate impairment of sperm morphofunctional characteristics as varicocele becomes more severe.

***Conclusions**: Among infertile men from the Fergana region, increasing varicocele severity was associated predominantly with reduced sperm motility and abnormal morphology. Grades II and III warrant clinical attention and may require consideration of surgical management, whereas grades 0–I may be managed conservatively. Assessment of varicocele grade and venous diameter may help guide evaluation and treatment decisions.*

***Keywords:** varicocele, semen analysis, ultrasound examination, varicocele's grade.*

INTRODUCTION

Infertility is clinically defined as the inability to achieve a recognized pregnancy after 12 or more months of regular unprotected sexual intercourse . It is estimated to affect approximately 8–12% of couples worldwide, with the male partner identified as the sole or contributing factor in 30–50% of cases. The recognized causes of male infertility encompass a broad etiological spectrum, including idiopathic testicular insufficiency, accessory gland infections, acquired testicular damage, chromosomal abnormalities, obstruction of the vas deferens or ejaculatory duct, immunological factors, and varicocele. This etiological heterogeneity underscores the necessity for a comprehensive and systematic diagnostic evaluation of the infertile male. Varicocele is characterized by the abnormal dilatation and elongation of the pampiniform venous plexus of the spermatic cord, producing the classic "bag of worms" appearance on physical examination. Varicocele is detected in approximately 14–20% of adolescents and adults in the general population, with prevalence estimates of 15–20% among unselected males and 30–40% among men presenting with infertility.

THE AIM

To examine the distribution of varicocele grades and their associations with semen quality, including pampiniform plexus vein diameter, among infertile men in the Fergana region.

Materials and Methods. This prospective cross-sectional study included 96 patients with varicocele who presented to the Uromed ABK Clinic during 2025. Patients sought medical care primarily because of infertility, scrotal pain, and discomfort. The following inclusion and exclusion criteria were applied during patient selection.

Inclusion criteria: male patients aged 18–39 years; Doppler ultrasonography-confirmed grade I, II, or III varicocele; and the presence of infertility and/or impaired spermatogenesis.

Results. A total of 96 patients aged 18–39 years were included in the study, with a mean age of 26.7 years. According to varicocele severity, 28 patients (29.16%) had grade I varicocele, 39 (40.62%) had grade II, and 29 (30.20%) had grade III varicocele. The study findings demonstrated that deterioration in the morphofunctional characteristics of semen was substantially more pronounced in patients with grade II and III varicocele than in those with grade I disease.

In patients with grade I varicocele, the mean sperm concentration was 141 million/mL, ranging from a minimum of 20 million/mL to a maximum of 210 million/mL. The proportion of viable spermatozoa was 84.5%, while non-viable spermatozoa accounted for 15.5%. Regarding motility, 65.5% of spermatozoa were progressively motile, 27.35% showed reduced motility, and 8.15% were immotile. Morphological abnormalities were predominantly observed in the sperm head (40%) and body/midpiece (10.6%); the third morphological category accounted for 20.78%.

In patients with grade II varicocele, the mean sperm concentration was 142.9 million/mL, ranging from a minimum of 20 million/mL to a maximum of 220 million/mL. The proportion of viable spermatozoa was 63.3%, while non-viable spermatozoa accounted for 36.7%. Regarding motility, 45.28% of spermatozoa were progressively motile, 17.87% showed reduced motility, and 36.85% were immotile. Morphological abnormalities were observed in the sperm head in 61.6%, in the midpiece/body in 9.2%, and in the third morphological category in 29.2% of cases, indicating that abnormalities in this category were markedly more frequent than in patients with grade I varicocele.

In patients with grade III varicocele, the mean sperm concentration was 129 million/mL, ranging from a minimum of 2 million/mL to a maximum of 210 million/mL. The proportion of viable spermatozoa was 67.5%, while non-viable spermatozoa accounted for 32.5%, which was broadly comparable with the values observed in grades I and II. Regarding motility, 46.8% of spermatozoa were progressively motile, 17.17% showed reduced motility, and 27.55% were immotile. Morphological abnormalities were observed in the sperm head in 69.15%, in the midpiece/body in 10.66%, and in the third morphological category in 20.2% of cases.

CONCLUSION

Among infertile men in the Fergana region, Grade II varicocele is the most prevalent form (40.62%), followed by Grade III (30.20%) and Grade I (29.16%). Progression of varicocele severity (particularly Grades II and III) is strongly associated with a significant decline in sperm progressive motility (from 65.5% in Grade I to 45–46% in Grades II–III) and viability. Morphological abnormalities, predominantly head defects, substantially increase with higher varicocele grades, reaching 69.15% in Grade III compared to 40% in Grade I. Overall, Grades II and III varicocele profoundly impair semen morphofunctional characteristics, emphasizing the need for early diagnostic evaluation and timely therapeutic interventions in male infertility management.

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4-SECTION

DIGITALIZATION OF BANKING SERVICES AND ITS IMPACT ON SERVICE QUALITY

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Abstract. *Digital channels have become the main way many customers interact with banks, but their effect on service quality is uneven. This article examines how banking digitalization is associated with accessibility, speed, convenience, reliability and customer satisfaction, using a comparative analysis of official statistics and peer-reviewed studies. Digital adoption has grown markedly, and research links e-service quality with satisfaction and loyalty, yet outages, fraud and the digital divide limit these gains. The findings are discussed in light of the Law of the Republic of Uzbekistan "On Payments and Payment Systems" (2019) and EU Regulation 2022/2554 on digital operational resilience (DORA).*

Keywords: *digital banking; service quality; mobile banking; financial inclusion; operational resilience; digital divide.*

Аннотация. *Цифровые каналы стали основным способом взаимодействия многих клиентов с банками, однако их влияние на качество обслуживания неоднородно. На основе сравнительного анализа официальной статистики и рецензируемых исследований в статье рассматривается связь цифровизации банковских услуг с доступностью, скоростью, удобством, надёжностью и удовлетворённостью клиентов. Использование цифровых каналов заметно выросло, а исследования связывают качество электронного обслуживания с удовлетворённостью и лояльностью, однако сбои, мошенничество и цифровое неравенство ограничивают эти преимущества. Результаты рассмотрены с учётом Закона Республики Узбекистан «О платежах и платежных системах» (2019) и Регламента ЕС 2022/2554 о цифровой операционной устойчивости (DORA).*

Ключевые слова: *цифровой банкинг; качество обслуживания; мобильный банкинг; финансовая доступность; операционная устойчивость; цифровое неравенство.*

1. INTRODUCTION

Banking services are moving from branches to internet and mobile channels. In the European Union (EU), 74% of internet users aged 16–74 used online banking in 2025, compared with 56% in 2015 (Eurostat, 2026a). Worldwide, 79% of adults had an account at a bank, a similar financial institution or a mobile money provider in 2024, against 51% in 2011, and mobile technology accounts for much of this growth (Klapper et al., 2025). In Uzbekistan, the value of individuals' transactions through mobile banking applications grew 1.6 times in 2025, reaching UZS 645.6 trillion (Central Bank of the Republic of Uzbekistan [CBU], 2026).[1][2]

Service quality is commonly defined as the customer's evaluation of performance against expectations (Parasuraman et al., 1988); in electronic channels its core dimensions are efficiency, fulfilment, system availability and privacy (Parasuraman et al., 2005). Digital channels may improve some dimensions while creating new points of failure, such as outages, fraud and the exclusion of customers who lack digital skills; this tension is the research problem.

The **objective** is to assess, on the basis of published evidence, how the digitalization of banking services relates to service quality and what limits its benefits. The research questions are: (RQ1) how has the use of digital banking channels changed in the economies examined; (RQ2) which service quality dimensions are linked with digital channels in empirical studies; (RQ3) which risks and limitations reduce the quality gains?

2. METHODS

The study is a qualitative comparative analysis of secondary data and literature; no survey, experiment or bank-level data were collected. Sources comprise official statistics: Eurostat's survey on ICT usage in households and by individuals (EU-27, persons aged 16–74; Eurostat, 2026a, 2026b); the World Bank Global Findex Database 2025, based on nationally representative surveys of about 145,000 adults in 141 economies in 2024 (Klapper et al., 2025); the CBU Annual Report 2025, which contains administrative data for Uzbekistan (CBU, 2026); data on IT failures submitted by nine banks to the UK Parliament Treasury Committee (2025); the IMF (2024) analysis of cyber risk; peer-

reviewed studies of e-banking service quality; and the legal framework, verified in the official databases lex.uz and EUR-Lex.

Sources had to be official or peer-reviewed, define the indicator, coverage and period, and be the latest edition. The statistical period is 2011–2025; all data were checked as of 11 November 2026. Indicators were grouped by quality dimension (accessibility, speed and convenience, reliability, security, inclusiveness). Where relevant, the rate of change was calculated as:

$$\text{Rate of change (\%)} = [(X_t - X_0) / X_0] \times 100, \quad (1)$$

where X_t is the current-period value and X_0 is the base-period value of the same indicator, from the same source and methodology. Formula (1) is used only where the source publishes both values, not where a base value would have to be back-calculated from a rounded growth rate. Data from different sources were not combined, because their populations and definitions differ: Eurostat reports shares of internet users, Global Findex reports survey-based shares of adults aged 15+, and the CBU reports administrative counts. For the same reason, only single-source data with one unit and population are charted (Figure 1); other indicators are kept in Table 1.[3]

3. RESULTS

3.1. Accessibility and adoption (RQ1). Applying formula (1) to the Eurostat data, the share of EU internet users who bank online rose by (74 − 56) / 56 × 100 = 32.1% between 2015 and 2025 (Figure 1a). Adoption is uneven by age: 61% of internet users aged 65–74 banked online in 2025, against 78% of those aged 25–64 (Figure 1b).[4]

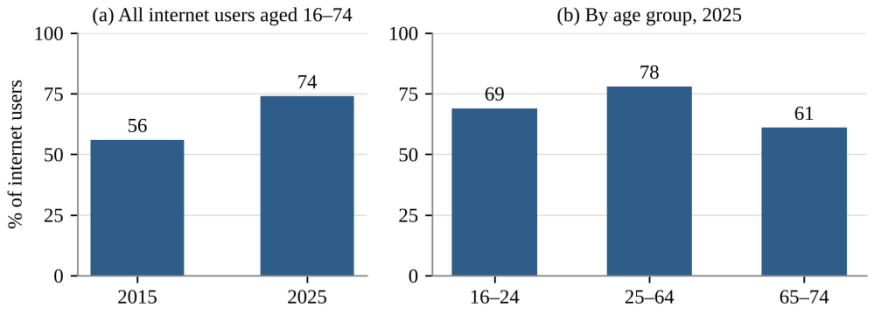

Figure 1. Use of online banking in the EU-27, % of internet users aged 16–74

Source: compiled by the authors from Eurostat (2026a), ICT usage survey; 2015 and 2025 values for panel (a), 2025 values for panel (b).

Figure 1 shows that the share of EU internet users who bank online rose from 56% in 2015 to 74% in 2025 (panel a), and that in 2025 it was lowest among users aged 65–74 (61%) and highest among those aged 25–64 (78%) (panel b).

The main finding is that online banking has become the norm for most EU internet users, but older users still lag behind, which limits the accessibility gains of digitalization.

Table 1 brings together selected indicators of digital banking use from all the sources examined, giving the base and latest values reported by each source.

Table 1. Selected indicators of digital banking use

Indicator	Coverage and unit	Base value (year)	Latest value (year)
Internet users who used online banking	EU-27; % of internet users aged 16–74	56% of internet users (2015)	74% of internet users (2025), up by 18 percentage points
Adults with an account	World; % of adults aged 15+ (survey)	51% of adults (2011)	79% of adults (2024), up by 28 percentage points
Bank cards in circulation	Uzbekistan; million cards	61.7 million in 2024	68 million cards (2025), up by 6.3 million (+10.2%)
Instant payment transactions	Uzbekistan; million transactions	46.9 million transactions (2024)	61 million transactions (2025), up by approx. 14.1 million (+30%)
Card cash-out ratio	Uzbekistan; %	21.8% of card transactions (2024)	18.7% (2025), down by 3.1 percentage points

Source: compiled by the authors from Eurostat (2026a), Klapper et al. (2025) and CBU (2026). Rows differ in population and method and are not directly comparable.

Table 1 shows that all five indicators moved in the same direction between the base and latest years: online banking use and account ownership rose, the number of bank cards and instant payment transactions in Uzbekistan increased, and the card cash-out ratio fell. The main finding is a consistent shift towards digital and cashless channels; however, the rows cannot be compared with one another, because their populations and methods differ.

In Uzbekistan, the card cash-out ratio changed by $(18.7 - 21.8) / 21.8 \times 100 = -14.2\%$ between 2024 and 2025. The value of instant payments grew by 51% to UZS 1,390 trillion in 2025 (CBU, 2026). CBU administrative data show that 82.4% of adults had bank accounts in December 2025, 72% of them active.[5]

3.2. Service quality dimensions (RQ2). Jun and Palacios (2016) identified 17 dimensions of mobile banking service quality, of which convenience, accuracy, application features, ease of use and continuous improvement mattered most for satisfaction. In a survey of 520 internet banking

customers in Malaysia, Amin (2016) found significant relationships between internet banking service quality, e-customer satisfaction and e-loyalty. Using data from 1,028 e-banking users in India, Shankar and Jebarajakirthy (2019) found that reliability and privacy and security enhanced loyalty, mediated by initial trust. A meta-analysis by Kumar et al. (2024) linked satisfaction with mobile banking to quality, technology acceptance and credibility factors.

3.3. Risks and limitations (RQ3). *Reliability.* Nine major UK banks and building societies reported at least 158 IT failure incidents and at least 803 hours of unplanned outages between January 2023 and February 2025; third-party suppliers, system changes and software malfunctions were the most common causes (Treasury Committee, 2025). *Cybersecurity.* The IMF (2024) reports that the number of cyberattacks has almost doubled since before the COVID-19 pandemic and that nearly one-fifth of all incidents affect financial firms. *Fraud and complaints.* The CBU received 5,379 appeals in 2025, mostly on credit, cards and fraud, payments and staff conduct. Appeals about loans formalised through cards in citizens' names and card withdrawals without the owner's knowledge rose 8.6 times year on year (CBU, 2026). *Digital divide.* In 2025, 4% of EU residents aged 16–74 did not use the internet at all during the year (Eurostat, 2026b), and 40% lacked basic or above basic digital skills (Eurostat, 2026a).[6][7]

4. DISCUSSION

This section gives the author's interpretation. The statistics show rising use of digital channels, which plausibly improves accessibility and convenience; but they measure use, not quality, and show an association rather than a causal effect.

The quality dimensions valued in digital channels (efficiency, accuracy, reliability, privacy, security) match the E-S-QUAL model (Parasuraman et al., 2005) and the studies reviewed in Section 3.2. The risks concentrate in the same dimensions: outages undermine system availability, and fraud undermines privacy and trust.

The two jurisdictions address these risks in law. In Uzbekistan, Law No. ZRU-578 "On Payments and Payment Systems" requires payment system operators to ensure information security, cybersecurity and continuity of operation, and payment service contracts must set out protective actions against unauthorised payments (Law No. ZRU-578, 2019, arts. 7, 16). In the EU, Regulation (EU) 2022/2554 (DORA), applicable since 17 January 2025, sets uniform requirements for the security of network and information systems of

financial entities (Regulation (EU) 2022/2554, 2022). The data examined cannot show whether these acts have improved quality.

The age gap in Figure 1b and the share of adults without basic digital skills suggest that a digital-only model may lower quality for some groups. In Uzbekistan, the rise in fraud-related appeals shows that consumer protection must keep pace with adoption. Banks should monitor availability and recovery times as quality indicators, strengthen fraud response and keep assisted channels.

Limitations: the data use different methods, national statistics do not measure satisfaction, comparable Uzbek survey data were unavailable, and UK outage data are self-reported.

5. CONCLUSION

The available evidence shows that the digitalization of banking services is associated with wider access, faster payments and greater convenience, and empirical studies consistently link e-service quality with customer satisfaction and loyalty. These gains are not automatic: outages, cyber risk, fraud and the digital divide can reduce quality.

FOOTNOTES

[1] Internet users are people who used the internet in the three months before the Eurostat survey. The shares are therefore not shares of the total population (Eurostat, 2026a).

[2] UZS is the Uzbek soum, the national currency. Values are nominal, as published.

[3] Global Findex estimates come from nationally representative surveys of individuals and are subject to sampling error, whereas CBU figures are compiled from reports submitted by banks.

[4] The rate of change in this paragraph (32.1%) and the one for Uzbekistan in Section 3.1 (−14.2%) were calculated by the authors with formula (1) from the values in Table 1.

[5] The card cash-out ratio is the share of cash withdrawals in all debit card transactions; the remaining 81.3% of transactions in 2025 were cashless (CBU, 2026).

[6] The Barclays outage of 31 January–2 February 2025 and the incident that affected several banks on 28 February 2025 are not included in these totals (Treasury Committee, 2025).

[7] Eurostat counts a person as having basic digital skills if they carried out at least one activity in each of five competence areas (Eurostat, 2026a).

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SOCIO-ECONOMIC FOUNDATIONS OF AGROTOURISM DEVELOPMENT IN THE REGIONS

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Abstract. *The article examines the socio-economic aspects of developing agritourism in the regions. Its role in diversifying the rural economy, increasing employment, developing tourism infrastructure, and preserving natural and cultural heritage is highlighted. Special attention is paid to the cluster approach to organizing agrotourism activities and applying foreign experience in the conditions of Uzbekistan.*

Keywords: *agrotourism, rural tourism, regional economy, agrotourism cluster, diversification, tourism infrastructure, sustainable development, rural areas.*

INTRODUCTION

In modern conditions, the diversification of the regional economy is becoming one of the most important factors in ensuring the sustainable socio-economic development of rural areas. Traditional agricultural production, despite its strategic importance, does not always ensure a sufficient level of income for the rural population and the effective use of available natural, labor, and material resources. In this regard, the development of agrotourism, which allows for the integration of agricultural production and tourism activities into a unified system for creating additional economic value, is of particular relevance.

Agrotourism is a special direction of tourism activity based on the use of natural, agricultural, historical-cultural, and ethnographic resources of rural areas. Its specificity lies in the fact that tourists not only relax in rural areas but also get acquainted with the traditional lifestyle of the population, agricultural processes, local products, crafts, and national customs. In certain cases, the direct participation of visitors in agricultural activities is provided for.

MAIN BODY

Analysis of scientific approaches shows that agrotourism is comprehensive in nature and can be considered both a direction of the tourism

industry and a tool for diversifying agriculture. Its development contributes to the formation of additional sources of income for farms and dekhkan farms, the more rational use of land and material resources, the expansion of the range of services provided, and the enhancement of the economic stability of agricultural entities.

An important socio-economic result of agrotourism development is the creation of new jobs and the expansion of self-employment opportunities for the rural population. Engaging local residents in providing accommodation, food, transport services, organizing excursions, and selling agricultural products and folk crafts contributes to increasing household incomes. Simultaneously, additional incentives are being formed for the development of small and medium-sized entrepreneurship, the reduction of unemployment, and the reduction of migration outflow from rural areas.

Agrotourism is also of significant importance for the development of related economic sectors. The growth of tourist demand stimulates the improvement of transport, communication, trade, and service infrastructure in rural areas. Furthermore, expanding tourism activities contributes to the development of agricultural processing, the production of eco-friendly products, the promotion of local brands, and the enhancement of the competitiveness of regional goods.

The environmental and cultural components of agrotourism deserve special attention. The rational use of natural resources, the preservation of biodiversity, traditional farming methods, national customs, and historical-cultural heritage create a foundation for the sustainable development of rural areas. Thus, agrotourism performs not only economic but also social, environmental, and cultural-educational functions.

One of the most effective organizational and economic mechanisms for developing agrotourism is the cluster approach. The formation of agroturism clusters involves the association of agricultural producers, farms, tourism organizations, artisans, catering enterprises, transport companies, hotels, educational institutions, and local government bodies. Such a model ensures the coordination of participants' activities, the development of intersectoral cooperation, the dissemination of innovations, and the formation of a comprehensive regional tourism product.

At the same time, the effective functioning of an agroturism cluster depends on the presence of certain resource, organizational, and infrastructural conditions. Resource conditions include natural landscapes, the ecological state of the territory, biological diversity, agricultural potential, and the ethnocultural

characteristics of the population. Organizational conditions include state support, mechanisms for promoting tourism products, information support, personnel training, and entrepreneurship development. Infrastructure conditions provide for transport accessibility, accommodation facilities, public catering, engineering communications, and modern service services.

Improving the state management system is an important factor in the development of agrotourism. International experience demonstrates the expediency of combining state regulation with the active participation of the private sector and regional organizations. In particular, the experience of France, Great Britain, Germany, and Italy demonstrates the effectiveness of specializing rural areas in specific areas of tourism activity: gastronomic, farming, ecological, health-improving, and cultural-educational tourism.

Applying foreign experience in Uzbekistan requires taking into account regional specifics, natural resources, the traditions of the rural population, and the needs of the tourism market. At the same time, the development of regional programs for the development of agrotourism, the formation of specialized associations and unions, the improvement of the regulatory framework, the provision of financial incentives to business entities, and the systematic promotion of tourism products are of particular importance.

CONCLUSION

The conducted analysis allows for the conclusion that agrotourism is a promising tool for diversifying the regional economy and increasing the resilience of rural areas. Its development contributes to strengthening the economic position of farms, creating additional jobs, increasing public income, improving infrastructure, and preserving natural and cultural heritage.

As a priority direction for the development of agrotourism, it is advisable to consider the formation of regional agrotourism clusters, taking into account the specialization of rural areas, their resource potential, and market demand. The comprehensive interaction of agricultural producers, tourism organizations, artisans, service sector enterprises, and local government bodies will increase the efficiency of using available resources and create competitive tourism products.

Consequently, the development of agrotourism should be viewed not only as an expansion of tourism services but also as an important mechanism for the comprehensive socio-economic transformation of rural areas in Uzbekistan.

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FROM INFORMAL EMPLOYMENT TO FINANCIAL INCLUSION: ECONOMIC MECHANISMS FOR FORMALIZING HOUSEHOLD INCOME

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Abstract: *The article analyzes the relationship between informal employment in Uzbekistan and the population's access to financial services, particularly credit. It shows that the segment of the population whose income is not officially documented remains excluded from bank lending because it lacks a stable salary and a credit history. The study draws on official statistics, reports by UNDP and the Central Bank, and a comparative analysis of the experience of India, Kenya, Brazil and Uruguay. As a result, four key economic mechanisms for formalizing income are identified: a simplified tax regime, credit assessment based on the digital payment footprint, open financial data sharing, and incentives for cashless payments. Practical proposals adapted to the conditions of Uzbekistan are developed.*

Keywords: *informal employment, formal employment, financial inclusion, self-employment, credit scoring, alternative data, digital payments, income formalization.*

INTRODUCTION

In recent years, informal employment in Uzbekistan has declined considerably, yet it still accounts for a large share of the labor market. According to the Ministry of Poverty Reduction and Employment, in the first half of 2025, 55 percent of the employed population (8 million people) worked in the formal sector, 33 percent (4.8 million people) in the informal sector, and 12 percent (1.8 million people) worked abroad [1]. According to estimates by the Center for Economic Research and Reforms (CERR), the level of informal employment fell from 60 percent in 2017 to 38 percent in 2024 [1].

The financial dimension of the problem has received little attention. An informal worker's income arrives in cash or as transfers to a personal card (P2P), and there is no document officially confirming it. To a bank, such a client is invisible: there is no salary certificate, no credit history and no collateral. As a

result, a large part of the population ends up dependent on expensive informal borrowing or on support from relatives.

The aim of the study is to determine the impact of informal employment on financial inclusion and to substantiate effective economic mechanisms for income formalization based on international experience. To this end, the following objectives were set:

1. to analyze the state of informal employment and the use of financial services in Uzbekistan;
2. to identify the barriers that prevent informal workers from accessing credit;
3. to conduct a comparative study of best practices in foreign countries;
4. to develop practical proposals for Uzbekistan.

The study employed statistical analysis, comparative analysis and the synthesis of secondary data.

MAIN BODY

1. The Formalization Process in Uzbekistan: Achievements and the Problem of Semi-Formality

The biggest step in formalization was the introduction of self-employed status in 2020. Under Presidential Resolution No. PP-4742, citizens gained the opportunity to register free of charge via a mobile application and to be exempt from personal income tax on annual income of up to 100 million soums [2][3]. As a result, as of 1 July 2025, the number of self-employed people exceeded 5.5 million, compared with around 3.5 million a year earlier [4].

However, registration does not yet mean full access to the financial system. A 2025 study by the Central Bank, CERR and UNDP showed that [2]:

- only 55 percent of the self-employed have a personal bank account, and just 2 percent have a business account;
- 67 percent of them prefer to settle payments in cash;
- 91 percent of informal hired workers receive their wages in cash, and only 49.1 percent have a bank account;
- according to 2022 data, only about 11 percent of registered individuals paid social tax regularly.

At the same time, 37 percent of the self-employed reported that access to finance was their reason for registering, and 77 percent noted a need for concessional loans [2]. This situation can be described as semi-formality: the individual is visible in the state register, but their income still remains invisible to the bank.

2. Key Barriers to Credit Access for Informal Workers

Traditional bank lending assesses a borrower's creditworthiness through three factors: verified income, credit history and collateral. An informal worker usually has none of the three. Based on the analysis, the following barriers were identified:

1. **Lack of income documentation.** Cash and P2P receipts are not recognized by banks as stable income.

2. **Income volatility.** In seasonal, day-labor and casual work, earnings fluctuate sharply from month to month, while standard scoring models are designed for a fixed monthly salary.

3. **Absence of credit history.** A person who has never taken out a formal loan has no record at the credit bureau and becomes a "thin-file" client.

4. **Weak incentives.** The costs of formalization (taxes, reporting) are clear, whereas its benefits (credit, pension) are uncertain and felt only with a delay.

5. **Fear of oversight.** The transfer of P2P payment data to the tax authority since 2023 may push some entrepreneurs back to cash [2].

3. International Experience

International practice shows two distinct approaches to bringing informal workers into the financial system. The first is simplifying legal formalization (Brazil, Uruguay). The second is verifying income not through documents but through the digital transaction footprint (India, Kenya).

• Country	• Mechanism	• Key outcome
• India	• Jan Dhan accounts, UPI payments and Account Aggregator data sharing	• 545.8 million basic accounts opened, 55.7 percent of them held by women [5]; 2.12 billion financial accounts linked to consent-based data sharing [6]
• Kenya	• M-Shwari microloans based on M-Pesa mobile money history	• Credit reached people who previously had no access to loans and did not displace other sources of borrowing [8]
• Brazil	• MEI – a single monthly payment regime for individual microentrepreneurs (2008)	• Formalization is widespread, but credit is expensive and scarce: in 2016 only 8 percent of MEIs had a credit operation, at an interest rate of around 73 percent per year [10]
• Uruguay	• Monotax and Social Monotax, VAT	• Informal employment fell from 43 percent in 2001 to 21.5 percent in 2022 [2][11]

• Country	• Mechanism	• Key outcome
	reduction for card payments	

India's experience demonstrates the most systematic approach. Personal identification, instant payments (UPI) and data sharing (Account Aggregator) have been built as a unified public infrastructure [6][7]. In the Account Aggregator system, the client shares their bank statements, tax and payment data with a lender on the basis of their own consent. This is shifting lending from a collateral-based model to a cash-flow-based model [7]. The daily receipts of a small shopkeeper or taxi driver coming in through UPI now become evidence of their creditworthiness.

Kenya's experience is the first large-scale example of lending based on alternative data. The M-Shwari product, launched in 2012, calculates a credit score from the history of a customer's transactions via M-Pesa [9]. Research has shown that mobile phone usage behavior can predict loan repayment with accuracy close to that of traditional credit bureau models [12]. At the same time, M-Shwari did not significantly increase savings or assets [8], meaning that digital credit does not in itself ensure well-being.

Brazil's experience offers an important lesson: formalization alone does not guarantee access to credit. The MEI regime brought millions of entrepreneurs into the legal sphere, yet most of them continued to borrow in their personal name rather than in the name of the business, and business loans remained expensive and problematic [10]. In this respect, the situation of semi-formality in Uzbekistan is similar to that of Brazil.

Uruguay's experience shows the effectiveness of pursuing formalization together with financial inclusion. The Monotax regime combined taxes and social contributions into a single fixed payment [11]. Under the 2014 Financial Inclusion Law, payment of wages into bank accounts and a VAT reduction for card payments were introduced [2][13].

4. Economic Mechanisms for Formalizing Income in Uzbekistan

Based on an analysis of international experience and local conditions, the following mechanisms are proposed.

The first mechanism is verifying income through the digital footprint. The self-employed person's registration in the tax application and the receipts credited to their bank card should be combined into a single income profile. A consent-based data-sharing system, like India's Account Aggregator, would

allow banks to lend based on actual cash flow without requiring income certificates.

The second mechanism is alternative credit scoring. The Central Bank could encourage credit bureaus to include the payment history of utility bills, mobile phone bills, taxes and social tax. For irregular incomes, scoring models should assess not a monthly salary but average receipts over 6–12 months and their volatility.

The third mechanism is linking formalization to financial benefits. Providing guarantees or interest rate subsidies on small loans to self-employed individuals who have paid social tax regularly would make the benefits of formality clear and immediate. This would also help mitigate the problem of the low share of social tax payers.

The fourth mechanism is a graduated tax ladder. An abrupt jump to the full tax burden after the 100 million soum threshold encourages entrepreneurs to conceal their income. It is advisable to introduce an intermediate low-rate tier between self-employment, micro-entrepreneurship and small business [2].

The fifth mechanism is encouraging cashless payments and strengthening trust. Making QR payments free or low-cost and offering tax incentives for card purchases proved effective in Uruguay [2]. At the same time, it should be clearly announced that ordinary family P2P transfers are not subject to taxation; otherwise, people will return to cash.

CONCLUSION

The analysis led to the following conclusions.

First, Uzbekistan has achieved significant results in reducing informal employment: its share fell from 60 percent in 2017 to 33 percent in 2025, while the number of self-employed exceeded 5.5 million [1][4]. However, this process has been mainly legal in nature, and financial formalization is lagging behind.

Second, most registered individuals still work in cash, do not have a business account and do not pay social tax regularly [2]. Consequently, their income remains invisible to banks and they are unable to access credit.

Third, international experience shows that formalization alone is not sufficient. In Brazil, legal formalization did not guarantee access to credit [10]. In India and Kenya, by contrast, verifying income through the digital payment footprint has opened the way to credit for millions of invisible borrowers [6][8].

Fourth, the most promising direction for Uzbekistan is to combine the state register, tax data, bank transactions and platform earnings into a single consent-

based income profile, complemented by alternative credit scoring, a graduated tax ladder and clear financial incentives for formalization.

If these mechanisms are applied together, formal employment will become not merely a status on paper for citizens, but a real means of access to credit, savings and social protection.

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TURIZMNING REKREATSIYON SALOHIYATIDAN MAQSADLI FOYDALANISHNING XORIJIY MAMLAKATLAR TAJRIBASI

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Annotatsiya. *Ushbu tezisda turizmning rekreatsion salohiyatidan samarali va maqsadli foydalanishning xorijiy mamlakatlar tajribasi o‘rganilgan. Xususan, Shveysariya, Avstriya, Turkiya, Ispaniya va Yaponiya davlatlarida tabiiy, madaniy-tarixiy hamda sog‘lomlashtirish resurslaridan turizm maqsadlarida foydalanish mexanizmlari tahlil qilingan. Shuningdek, rekreatsion turizmni rivojlantirishda infratuzilma, ekologik barqarorlik, davlat tomonidan qo‘llab-quvvatlash, xususiy sektor ishtiroki va innovatsion yondashuvlarning ahamiyati yoritilgan. Xorijiy tajriba asosida O‘zbekistonda mavjud rekreatsion resurslardan samarali foydalanish bo‘yicha taklif va tavsiyalar ishlab chiqilgan.*

Kalit so‘zlar: *turizm, rekreatsion salohiyat, rekreatsion resurslar, barqaror rivojlanish, ekoturizm, turistik infratuzilma, sog‘lomlashtirish turizmi, xorijiy tajriba.*

Аннотация. *В данной тезисной работе изучен зарубежный опыт эффективного и целевого использования рекреационного потенциала туризма. В частности, проанализированы механизмы использования природных, культурно-исторических и оздоровительных ресурсов в Швейцарии, Австрии, Турции, Испании и Японии. Освещена роль инфраструктуры, экологической устойчивости, государственной поддержки, участия частного сектора и инновационных подходов в развитии рекреационного туризма. На основе зарубежного опыта разработаны предложения и рекомендации по эффективному использованию рекреационных ресурсов Узбекистана.*

Ключевые слова: *туризм, рекреационный потенциал, рекреационные ресурсы, устойчивое развитие, экотуризм, туристическая инфраструктура, оздоровительный туризм, зарубежный опыт.*

Abstract. *This thesis examines international experience in the effective and targeted use of tourism's recreational potential. In particular, it analyzes the mechanisms for utilizing natural, cultural, historical, and health-related*

resources in Switzerland, Austria, Türkiye, Spain, and Japan. The study highlights the importance of infrastructure, environmental sustainability, government support, private sector participation, and innovative approaches in the development of recreational tourism. Based on international experience, recommendations are proposed for the effective use of recreational resources in Uzbekistan.

Keywords: *tourism, recreational potential, recreational resources, sustainable development, ecotourism, tourism infrastructure, health tourism, international experience.*

KIRISH

Bugungi globallashuv sharoitida turizm sohasi jahon iqtisodiyotining muhim va istiqbolli tarmoqlaridan biri sifatida rivojlanib bormoqda. Ayniqsa, aholining dam olish, sog‘lomlashtirish, tabiat qo‘ynida hordiq chiqarish hamda yangi madaniyatlar bilan tanishishga bo‘lgan ehtiyojining ortishi rekreatsion turizmning ahamiyatini yanada oshirmoqda. Rekreatsion turizm nafaqat aholining jismoniy va ruhiy salomatligini mustahkamlashga, balki hududlarning iqtisodiy rivojlanishi, yangi ish o‘rinlari yaratilishi va mahalliy infratuzilmaning takomillashishiga ham xizmat qiladi.

Rekreatsion salohiyat deganda muayyan hududning tabiiy-iqlimiy sharoiti, suv resurslari, tog‘ va o‘rmon landshaftlari, mineral buloqlari, madaniy-tarixiy obyektlari hamda boshqa dam olish va sog‘lomlashtirish imkoniyatlari majmui tushuniladi. Ushbu salohiyatdan oqilona foydalanish turizm xizmatlari sifatini oshirish, hududlarning investitsiyaviy jozibadorligini kuchaytirish va iqtisodiy samaradorlikka erishishda muhim omil hisoblanadi.

Xorijiy mamlakatlar tajribasi shuni ko‘rsatadiki, rekreatsion resurslardan maqsadli foydalanish faqat tabiiy obyektlarni turistik faoliyatga jalb qilish bilan cheklanmaydi. Bunda hududning o‘ziga xos xususiyatlarini hisobga olgan holda turistik mahsulot yaratish, ekologik muvozanatni saqlash, zamonaviy infratuzilmani rivojlantirish va mahalliy aholini turizm faoliyatiga keng jalb etish muhim ahamiyat kasb etadi.

ASOSIY QISM

1. Shveysariya va Avstriyada rekreatsion salohiyatdan foydalanish tajribasi

Shveysariya rekreatsion turizmni rivojlantirish bo‘yicha dunyodagi ilg‘or mamlakatlardan biri hisoblanadi. Mamlakatning Alp tog‘lari, muzliklari, ko‘llari va tabiiy landshaftlari turizmni rivojlantirish uchun katta imkoniyat yaratadi. Shveysariyada tog‘-chang‘i turizmi, piyoda sayohat, veloturizm, sog‘lomlashtirish va ekologik turizm keng rivojlangan.

Mamlakat tajribasining muhim jihati shundaki, tabiiy rekreatsion resurslardan foydalanish jarayonida ekologik muvozanatni saqlashga alohida e’tibor qaratiladi. Tog‘li hududlarda zamonaviy transport tizimlari, kanat yo‘llari, mehmonxonalar va sayyohlik markazlari tashkil etilgan. Shu bilan birga, tabiiy muhitga zarar yetkazmaslik maqsadida muhofaza etiladigan hududlarda turistik faoliyat tartibga solinadi.

Avstriyada ham rekreatsion turizm iqtisodiyotning muhim yo‘nalishlaridan biridir. Mamlakatda tog‘-chang‘i kurortlari, termal suv markazlari, ko‘lbo‘yi dam olish maskanlari va sog‘lomlashtirish majmualari faoliyat yuritadi. Avstriyaning Bad Gastein va boshqa termal kurortlari tabiiy davolash omillari bilan turistik xizmatlarni uyg‘unlashtirishning samarali namunasidir.

Avstriya tajribasida turistik hududlarni mavsumiylikdan chiqarish muhim o‘rin tutadi. Masalan, qish mavsumida chang‘i sporti, yozda esa tog‘ sayohatlari, velosport va tabiat qo‘ynida dam olish xizmatlari taklif etiladi. Natijada turistik infratuzilmadan yil davomida foydalanish imkoniyati yaratiladi.

2. Turkiya va Ispaniyada rekreatsion turizmni rivojlantirish

Turkiya rekreatsion turizmni rivojlantirishda tabiiy-geografik imkoniyatlar va zamonaviy turistik infratuzilmani uyg‘unlashtirgan mamlakatlardan biridir. O‘rta yer dengizi va Egey dengizi sohillari, mineral suv manbalari, tarixiy shaharlar va tog‘li hududlar mamlakatning turistik salohiyatini belgilaydi.

Turkiyada dengizbo‘yi rekreatsion turizmi, termal turizm va sog‘lomlashtirish xizmatlari keng rivojlangan. Antalya, Bodrum va Marmaris kabi hududlarda mehmonxonalar, dam olish majmualari, sport inshootlari hamda ko‘ngilochar obyektlar yagona turistik xizmatlar tizimiga birlashtirilgan.

Pamukkale hududidagi tabiiy termal suvlar va travertinlar esa tabiiy rekreatsion resurslardan foydalanishning o‘ziga xos namunasidir. Bu hududda turizmni rivojlantirish bilan bir qatorda tabiiy merosni muhofaza qilishga ham e’tibor qaratiladi.

Ispaniya tajribasi ham alohida ahamiyatga ega. Mamlakatda dengizbo‘yi, tog‘, qishloq, madaniy va ekologik turizm yo‘nalishlari rivojlangan. Kanar va Balear orollari, Kosta-del-Sol sohili hamda Pireney tog‘lari turli rekreatsion ehtiyojlarga mos xizmatlarni taklif etadi.

Ispaniyada turizmni rivojlantirishning muhim jihatlaridan biri hududiy ixtisoslashuv hisoblanadi. Har bir hududning tabiiy va madaniy xususiyatlaridan kelib chiqib, alohida turistik mahsulotlar shakllantiriladi. Shu bilan birga, ayrim mashhur turistik hududlarda tashrif buyuruvchilar oqimini boshqarish, ekologik

yuklamani kamaytirish va mahalliy aholi manfaatlarini hisobga olish masalalariga katta e’tibor berilmoqda.

3. Yaponiyada rekreatsion resurslardan samarali foydalanish

Yaponiya rekreatsion turizmni rivojlantirishda tabiiy resurslar, milliy an’analar va zamonaviy xizmat ko‘rsatish tizimini birlashtirgan davlat sifatida e’tiborga loyiqdir. Mamlakatda tog‘li hududlar, milliy bog‘lar, issiq mineral buloqlar va tarixiy-madaniy obyektlar turizmning muhim resurslari hisoblanadi.

Yaponiyada onsen deb ataluvchi tabiiy issiq mineral suv manbalari asosida sog‘lomlashtirish turizmi rivojlangan. Hakone, Beppu va boshqa kurort hududlari mahalliy hamda xorijiy sayyohlar uchun mashhur dam olish maskanlari hisoblanadi.

Yaponiya tajribasining o‘ziga xos xususiyati rekreatsion turizmni milliy madaniyat va an’analar bilan uyg‘unlashtirishdir. An’anaviy mehmonxonalar, milliy taomlar, tabiat bilan uyg‘un dam olish maskanlari sayyohlarga alohida turistik tajriba taqdim etadi. Bundan tashqari, milliy bog‘lar va ekologik yo‘nalishlar orqali tabiiy resurslardan barqaror foydalanish tamoyillari amaliyotga tatbiq etilgan.

Yaponiyada transport va axborot infratuzilmasining rivojlanganligi ham rekreatsion hududlardan foydalanish samaradorligini oshiradi. Sayyohlar uchun qulay transport aloqalari, elektron axborot tizimlari va yuqori sifatli xizmatlar turistik hududlarning raqobatbardoshligini kuchaytiradi.

4. Xorijiy tajribadan O‘zbekistonda foydalanish imkoniyatlari

O‘zbekiston ham rekreatsion turizmni rivojlantirish uchun katta tabiiy va madaniy salohiyatga ega. Mamlakatimizning tog‘li hududlari, tabiiy ko‘llari, mineral suv manbalari, cho‘l landshaftlari va tarixiy-madaniy obyektlari turizmning turli yo‘nalishlarini rivojlantirish imkonini beradi.

Jumladan, Toshkent viloyatidagi Chimgan, Beldersoy va Chorvoq hududlari tog‘-rekreatsion turizmni rivojlantirish uchun qulay imkoniyatlarga ega. Samarqand, Buxoro va Xorazm hududlarida madaniy-tarixiy turizm bilan rekreatsion xizmatlarni birlashtirish mumkin. Farg‘ona vodiysidagi tabiiy manzaralar, mineral suv manbalari va an’anaviy hunarmandchilik markazlari ham turistik salohiyatni kengaytirishga xizmat qiladi.

Qoraqalpog‘iston Respublikasidagi Orolbo‘yi hududi esa ekologik turizm va ekologik-ma’rifiy sayohatlarni rivojlantirish uchun alohida ahamiyatga ega.

Xorijiy mamlakatlar tajribasini o‘rganish asosida O‘zbekistonda rekreatsion salohiyatdan maqsadli foydalanish bo‘yicha quyidagi yo‘nalishlarni taklif etish mumkin:

1. **Hududiy rekreatsion ixtisoslashuvni shakllantirish.** Har bir hududning tabiiy, iqlimiy va madaniy xususiyatlarini hisobga olib, unga mos turistik mahsulotlarni ishlab chiqish lozim.

2. **Zamonaviy turistik infratuzilmani rivojlantirish.** Rekreatsion hududlarda yo‘llar, transport, mehmonxonalar, dam olish maskanlari, sanitariya obyektlari va axborot markazlarini takomillashtirish zarur.

3. **Ekologik barqarorlikni ta’minlash.** Tabiiy hududlarda sayyohlar oqimini tartibga solish, chiqindilarni boshqarish, suv resurslarini tejash va ekologik monitoring tizimini joriy etish muhimdir.

4. **Sog‘lomlashtirish turizmini kengaytirish.** Mineral suvlar, tabiiy davolash omillari va iqlimiy sharoitlardan foydalanib, zamonaviy sanatoriy-kurort xizmatlarini rivojlantirish maqsadga muvofiq.

5. **Mavsumiylikni kamaytirish.** Rekreatsion hududlarda yozgi va qishki turizm bilan bir qatorda bahorgi va kuzgi sayohat yo‘nalishlarini ham rivojlantirish lozim.

6. **Mahalliy aholi va tadbirkorlik subyektlarini jalb etish.** Oilaviy mehmon uylari, milliy taomlar, hunarmandchilik va mahalliy gidlik xizmatlarini rivojlantirish orqali turizm daromadlarining hududda qolishiga erishish mumkin.

7. **Raqamli texnologiyalarni joriy etish.** Rekreatsion obyektlar to‘g‘risidagi ma’lumotlarni yagona elektron platformalarda joylashtirish, onlayn bronlash va elektron xaritalardan foydalanishni kengaytirish zarur.

Ushbu yo‘nalishlarni amalga oshirishda davlat-xususiy sheriklik mexanizmlaridan foydalanish, investitsiyalarni jalb qilish va hududiy turizm dasturlarini takomillashtirish muhim ahamiyatga ega.

XULOSA

Xorijiy mamlakatlar tajribasini o‘rganish shuni ko‘rsatadiki, turizmning rekreatsion salohiyatidan maqsadli foydalanish hududlarning iqtisodiy va ijtimoiy rivojlanishida muhim omil hisoblanadi. Shveysariya va Avstriya tajribasi tog‘li hududlar hamda sog‘lomlashtirish resurslaridan samarali foydalanish, Turkiya va Ispaniya tajribasi dengizbo‘yi va kompleks turistik infratuzilmani rivojlantirish, Yaponiya tajribasi esa tabiiy resurslarni milliy madaniyat va an’analar bilan uyg‘unlashtirish borasida muhim amaliy ahamiyatga ega.

O‘zbekistonning mavjud tabiiy-geografik va madaniy salohiyatini hisobga olgan holda, ushbu mamlakatlarning ilg‘or tajribalarini milliy sharoitga moslashtirish maqsadga muvofiqdir. Bunda rekreatsion hududlarni kompleks rivojlantirish, ekologik muvozanatni saqlash, zamonaviy infratuzilmani yaratish,

investitsiyalarni jalb etish va xizmatlar sifatini oshirish ustuvor vazifalar bo‘lishi kerak.

Xulosa qilib aytganda, rekreatsion salohiyatdan oqilona va maqsadli foydalanish O‘zbekistonda turizmning raqobatbardoshligini oshirish, yangi ish o‘rinlarini yaratish, hududlar iqtisodiyotini diversifikatsiya qilish hamda aholining dam olish va sog‘lomlashtirish ehtiyojlarini qondirishga xizmat qiladi.

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O‘ZBEKISTON OLIY TA’LIM MUASSASALARIDA STRATEGIK MENEJMENTNING TA’LIM SIFATI VA RAQOBATBARDOSHLIKKA TA’SIRI

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Annotatsiya. *Maqolada O‘zbekiston oliy ta’lim muassasalarida strategik menejment, ta’lim sifati va xalqaro raqobatbardoshlik o‘rtasidagi o‘zaro aloqadorlik ikkilamchi statistik ma’lumotlar asosida tahlil qilinadi. Milliy statistika qo‘mitasining 2021/2022–2025/2026-o‘quv yillariga oid talabalar kontingenti hamda Quacquarelli Symonds (QS) tashkilotining 2025–2027-yillardagi xalqaro reyting natijalari qiyosiy o‘rganildi. Tadqiqotda dinamik qatorlar, o‘sish sur’atlari, reyting pozitsiyalarining o‘zgarishi va indikatorlarga asoslangan konseptual baholash metodlari qo‘llanildi.*

Kalit so‘zlar*: strategik menejment, oliy ta’lim, ta’lim sifati, raqobatbardoshlik, QS reytingi, KPI, sifat kafolati, strategik monitoring, benchmarking.*

Аннотация. *В статье на основе вторичных статистических данных анализируется взаимосвязь между стратегическим менеджментом, качеством образования и международной конкурентоспособностью высших учебных заведений Узбекистана. Проведён сравнительный анализ данных Национального комитета по статистике о контингенте студентов за 2021/2022–2025/2026 учебные годы, а также результатов международных рейтингов организации Quacquarelli Symonds (QS) за 2025–2027 годы. В исследовании применены методы анализа динамических рядов, расчёта темпов роста, оценки изменений позиций в рейтингах и концептуальной оценки на основе системы индикаторов.*

Ключевые слова: *стратегический менеджмент, высшее образование, качество образования, конкурентоспособность, рейтинг QS, ключевые показатели эффективности (KPI), обеспечение качества, стратегический мониторинг, бенчмаркинг.*

Abstract. *This article examines the interrelationship between strategic management, education quality, and international competitiveness in higher education institutions in Uzbekistan based on secondary statistical data. A comparative analysis was conducted using student enrollment data from the National Statistics Committee for the 2021/2022–2025/2026 academic years and international ranking results published by Quacquarelli Symonds (QS) for 2025–2027. The study employs time-series analysis, growth rate calculations, assessments of changes in ranking positions, and indicator-based conceptual evaluation methods.*

Keywords: *strategic management, higher education, education quality, competitiveness, QS rankings, key performance indicators (KPIs), quality assurance, strategic monitoring, benchmarking.*

KIRISH

O‘zbekiston oliy ta’lim tizimidagi tarkibiy o‘zgarishlar ta’limga kirish imkoniyatlarini kengaytirish bilan birga universitetlar boshqaruviga yangi talablar qo‘ymoqda. Milliy statistika qo‘mitasi ma’lumotiga ko‘ra, 2025/2026-o‘quv yili boshida talabalar soni 1 535,0 ming nafarga yetgan; 2021/2022-o‘quv yilida ushbu ko‘rsatkich 808,4 ming nafar bo‘lgan [1]. Bunday kengayish moddiy-texnik baza, professor-o‘qituvchilar salohiyati, akademik natijalar va bitiruvchilar bandligi kabi yo‘nalishlarda muvofiqlashtirilgan boshqaruvni talab etadi. Strategik menejment oliy ta’lim muassasasining uzoq muddatli maqsadlarini belgilash, mavjud resurslarni ustuvor yo‘nalishlarga taqsimlash, ichki hamda tashqi muhitdagi o‘zgarishlarga moslashish va belgilangan natijalarni baholash jarayonlarini qamrab oladi. Universitetning xalqaro reytingdagi o‘rni muhim tashqi indikator bo‘lsa-da, u ta’lim sifatining to‘liq o‘lchovi yoki rahbariyat ishining bevosita reytingi emas. Shu sababli ushbu maqolada kirish imkoniyati, xalqaro ko‘rinuvchanlik, ilmiy faoliyat va boshqaruv mexanizmlari alohida tahlil qilinadi. Tadqiqot maqsadi — O‘zbekiston oliy ta’lim muassasalari misolida strategik boshqaruv natijalarini taqqoslash, uning ta’lim sifati va raqobatbardoshlikka ta’sirini baholash uchun ilmiy-amaliy indikatorlar to‘plamini ishlab chiqish hamda boshqaruvni takomillashtirish yo‘nalishlarini asoslash.

Tadqiqot metodologiyasi. Tadqiqot dizayni: ochiq manbalarga tayangan tavsifiy-qiyosiy tadqiqot. Ma’lumot manbalari: O‘zbekiston Respublikasi Milliy statistika qo‘mitasi, QS rasmiy universitet profillari hamda Oliy ta’lim, fan va innovatsiyalar vazirligining e’lonlari [1–7]. Universitetlar tanlovi maqsadli (purposive sample): turli ixtisoslashuvga ega, QS World University Rankings

2027 da qayd etilgan to‘rtta davlat universiteti qamrab olindi. Bu namuna O‘zbekistondagi barcha universitetlarni ifodalamaydi.

Talabalar sonining o‘sish sur’ati: G = (N_t/N_0 − 1) × 100%. Reyting pozitsiyasidagi o‘zgarish aniq o‘rin mavjud bo‘lganda ΔR = R_old − R_new ko‘rinishida hisoblandi (musbat qiymat — yuqorilash). Reytingdagi intervallar bo‘yicha o‘rin farqi aniq hisoblanmadi: ular faqat yuqori yoki quyi diapazonga o‘tish sifatida tavsiflandi. QS metodologiyasi va oliygohlar tarkibi yillar bo‘yicha o‘zgarishi mumkinligi sababli dinamikani qat’iy sababiy natija sifatida talqin qilish mumkin emas.

ASOSIY QISM VA NATIJALAR.

1. Oliy ta’lim tizimining miqyos jihatidan kengayishi va strategik boshqaruvga talab

• **O‘quv yili**	• **Talabalar soni, ming**	• **Oldingi yilga o‘sish, %**
• 2021/2022	• 808,4	• —
• 2022/2023	• 1 042,1	• 28,9
• 2023/2024	• 1 314,5	• 26,1
• 2024/2025	• 1 432,8	• 9,0
• 2025/2026	• 1 535,0	• 7,1

Manba: Milliy statistika qo‘mitasi [1]; yillik foizlar muallif hisob-kitobi (yaxlitlangan). Jadval ko‘rsatadiki, besh o‘quv yili mobaynida talabalar kontingenti 726,6 ming nafarga yoki taxminan 89,9% ga oshgan. Miqyosning o‘sishi o‘z-o‘zidan ta’lim sifati yaxshilanganini anglatmaydi: talabalar soni, professor-o‘qituvchilar bilan ta’minlanganlik va o‘quv infratuzilmasi o‘rtasidagi muvozanat strategik rejaning mustaqil maqsadi bo‘lishi lozim. 2024/2025-o‘quv yili boshida 222 ta oliy ta’lim tashkiloti faoliyat yuritgani statistik hisobotda qayd etilgan [2].

2. Universitetlarning xalqaro raqobatbardoshligi: QS natijalari asosida qiyoslash

• **Universitet**	• **QS 2025**	• **QS 2026**	• **QS 2027**
• TIQXMMI Milliy tadqiqot universiteti	• =547	• =469	• =458
• O‘zbekiston Milliy universiteti	• 781–790	• 721–730	• 801–850
• Samarqand davlat universiteti	• ma’lumot keltirilmagan	• 1001–1200	• 1001–1200

• Universitet	• QS 2025	• QS 2026	• QS 2027
• Toshkent davlat iqtisodiyot universiteti	• ma’lumot keltirilmagan	• 1001–1200	• 1201–1400

Manba: QS World University Rankings rasmiy universitet sahifalari [3–6]. “Ma’lumot keltirilmagan” degani ayni manbada yil bo‘yicha qat’iy pozitsiya tasdiqlanmaganini bildiradi. TIQXMMI Milliy tadqiqot universiteti 2025-yildagi 547-o‘rindan 2027-yilda 458-o‘ringa ko‘tarilib, ikki reyting nashri oralig‘ida 89 pozitsiyaga yuqorilagan. O‘zbekiston Milliy universitetida 2026-yildagi 721–730 diapazoni 2027-yilda 801–850 diapazoniga o‘zgargan. Samarqand davlat universiteti 1001–1200 oralig‘ini saqlagan, Toshkent davlat iqtisodiyot universiteti esa 1001–1200 dan 1201–1400 oralig‘iga o‘tgan [3–6]. Biroq mazkur farqlarni universitet rahbariyati samaradorligining to‘g‘ridan-to‘g‘ri o‘lchovi sifatida qabul qilish metodologik jihatdan noto‘g‘ri. Reytinglar natijasi akademik obro‘, ish beruvchilar fikri, ilmiy iqtiboslar, xalqaro tarkib va boshqa baholash bloklari bilan bog‘liq. Shu bois reytingdagi yuqori o‘rin boshqaruv resurslari va strategik ustuvorliklarning muayyan natijasi bo‘lishi mumkin, biroq buning uchun boshqaruv amaliyotlari, budjet, ilmiy natijalar va bitiruvchilarning real natijalarini alohida o‘rganish talab etiladi.

3. Ta’lim sifati va strategik boshqaruv natijalarini birgalikda baholash

Rasmiy sohaviy tasnif ham universitetlar o‘rtasidagi ixtisoslashuv farqlarini ko‘rsatadi. Times Higher Education 2026-yilgi fanlar kesimidagi reytingiga ko‘ra, TIQXMMI MTU tabiiy fanlar bo‘yicha 301–400, muhandislik bo‘yicha 401–500; O‘zbekiston Milliy universiteti tabiiy fanlar bo‘yicha 801–1000; Toshkent davlat texnika universiteti tabiiy fanlar bo‘yicha 501–600 va muhandislik bo‘yicha 801–1000; Toshkent axborot texnologiyalari universiteti ta’lim yo‘nalishida 601–800 diapazonlarida qayd etilgan [7]. Fanlar kesimidagi natijalar umumiy reytingdan farqli metodologik obyektni aks ettiradi.

• Baholash bloki	• Indikatorlar	• Taklif etiladigan ma’lumot manbasi
• Ta’lim sifati (30%)	• Akkreditatsiya, dastur natijalari, talabalar qoniqishi	• Ichki sifat bo‘limi, mustaqil so‘rovlar
• Ilmiy salohiyat (25%)	• Indekslanuvchi nashrlar, iqtiboslar, tadqiqot grantlari	• Scopus/WoS, grant reyestrlari
• Mehnat bozori (20%)	• Bitiruvchilar bandligi, ish beruvchi qoniqishi	• Bitiruvchilar monitoringi, ish beruvchi so‘rovlari

• **Baholash bloki**	• **Indikatorlar**	• **Taklif etiladigan ma’lumot manbasi**
• Xalqaro integratsiya (15%)	• Qo‘shma dasturlar, akademik mobilitet, hamkorlik	• Xalqaro aloqalar hisobotlari
• Boshqaruv va moliya (10%)	• KPI ijrosi, budjet shaffofligi, qarorlar bajarilishi	• Yillik hisobot, audit, strategiya monitoringi

Manba: Muallifning konseptual taklifi. Vaznlar normativ hujjat yoki empirik baholash natijasi emas; keyinchalik ekspert so‘rovi va sezgirlik tahlili bilan tekshirilishi zarur. Taklif etilayotgan strategik natijadorlik indeksi: SNI = 0,30Q + 0,25I + 0,20B + 0,15X + 0,10M. Bunda Q — ta’lim sifati, I — ilmiy salohiyat, B — bitiruvchilar mehnat bozoridagi natijalari, X — xalqaro integratsiya va M — boshqaruv-moliya indikatorlarining 0–100 oralig‘ida normallashtirilgan qiymati. Ushbu model hali universitetlar kesimida hisoblanmagan: ochiq ma’lumotlar qamrovi yetarli bo‘lmagani sababli sun’iy indeks ballari keltirilmaydi.

4. Strategik menejmentning ta’sir kanallari va muammolar

Birinchi kanal — resurslarni ustuvorliklarga yo‘naltirish: laboratoriya, raqamli platforma, ilmiy loyiha va pedagogik malakaga xarajatlar natijaga asoslangan reja bilan bog‘lanadi. Ikkinchi kanal — sifat kafolati: ta’lim dasturlarini davriy qayta ko‘rish, mustaqil baholash va talabalar fikrini qarorlarga kiritish yo‘lga qo‘yiladi. Uchinchi kanal — tashqi manfaatdor tomonlar bilan aloqa: ish beruvchilar, ilmiy institutlar hamda xorijiy universitetlar bilan hamkorlik bitiruvchilar tayyorgarligi va ilmiy mahsuldorlikni oshirishga xizmat qiladi. To‘rtinchi kanal — ma’lumotlarga asoslangan boshqaruv: indikatorlar monitoringi kechikayotgan natijalarga tezkor munosabat bildirish imkonini beradi. Amaliy cheklovlar: (a) oliygohlar kesimida bir xil metodda yig‘ilgan moliyaviy va akademik ma’lumotlarning ochiq emasligi; (b) reyting o‘rinlarining universitet hajmi va ixtisoslashuvidan ta’sirlanishi; (c) bitta natijada strategiya, kadrlar, moliya va tashqi muhit omillarini ajratish qiyinligi. Mazkur cheklovlar sababli maqolada regressiya yoki sababiy ta’sir koeffitsienti sun’iy ravishda hisoblanmadi.

5. Amaliy boshqaruv bo‘yicha takliflar

• **Yo‘nalish**	• **Aniq boshqaruv chorasi**	• **Monitoring davri**
• Strategik rejalashtirish	• 3–5 yillik strategiyani yillik KPI	• Har chorak

• **Yo‘nalish**	• **Aniq boshqaruv chorasi**	• **Monitoring davri**
	va mas’ul bo‘linmalarga bog‘lash	
• Akademik sifat	• Kurs natijalari, talabalar tajribasi va akkreditatsiya indikatorlari paneli	• Har semestr
• Ilmiy tadqiqot	• Grantlar, loyiha samarasi va nashr sifati bo‘yicha ko‘rsatkichlar	• Har yarim yillik
• Bitiruvchilar	• Bitiruvdan 6 va 12 oy keyingi bandlikni kuzatish	• Har yili
• Ochiqlik	• Strategik KPI natijalari va tuzatish rejasini e’lon qilish	• Har yili

Manba: Muallif takliflari.

XULOSA

O‘zbekiston oliy ta’limi 2021/2022–2025/2026-o‘quv yillari davomida talabalar soni bo‘yicha deyarli 1,9 baravarga kengaydi. Bunday o‘sish sharoitida strategik menejmentning ustuvor vazifasi qamrovni miqdoriy oshirishni ta’lim sifati, akademik resurslar va bitiruvchilar natijalari bilan muvozanatlashtirishdan iborat. QS 2025–2027 reytinglari universitetlar o‘rtasida turlicha dinamika mavjudligini namoyon etadi: TIQXMMI MTUning barqaror yuqorilashi muvaffaqiyatli xalqaro pozitsiyalanish signali bo‘lsa, boshqa universitetlardagi reyting oralig‘i o‘zgarishlari puxta ichki diagnostika zarurligini ko‘rsatadi. Ammo reytingdagi tafovut boshqaruv amaliyotlarining bevosita sababiy ta’sirini isbotlamaydi.

Amaliy jihatdan universitetlarda sifat, ilm-fan, bandlik, xalqaro faoliyat hamda boshqaruvning integrallashgan indikatorlarini joriy etish; KPIlarni strategik budjetlashtirish bilan bog‘lash; tashqi audit va manfaatdor tomonlar fikriga tayanish; natijalarni ochiq e’lon qilish maqsadga muvofiq. Keyingi ilmiy ishlarda universitetlar kesimida bir xil usul bilan olingan ko‘p yillik panel ma’lumotlari, so‘rovnomalar va farqlar-farqi kabi kvazi-eksperimental yondashuvlar asosida strategik menejmentning aniq ta’sirini tekshirish tavsiya etiladi.

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Eslatma. Statistik va reyting ma’lumotlari 2026-yil 21-oktabr holatiga ko‘ra ochiq manbalardan yig‘ildi. Muallif shaxsiy tadqiqot so‘rovi yoki universitetlarning ichki KPI ma’lumotlari mavjud bo‘lmagani bois, maqola ikkilamchi ma’lumotlar asosidagi empirik-qiyosiy tahlil hisoblanadi.

MULOHAZALAR ALGEBRASINING IQTISODIY MASALALARNI YECHISHGA TATBIQI

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Annotatsiya. *Maqolada mulohazalar algebrasining asosiy tushunchalari va qonunlari bayon etilib, ularning iqtisodiy qarorlar qabul qilish jarayonlarida qo‘llanilishi ko‘rsatilgan. Iqtisodiy vaziyatlarni mantiqiy formulalar orqali modellashtirish metodikasi taklif etilgan va to‘rtta amaliy masala — kredit berish qarori, sabab-oqibat zanjiri asosida xulosa chiqarish, ekspertlar ovoz berishi hamda yetkazib beruvchini tanlash — chinlik jadvallari, ekvivalent almashtirishlar, Karno kartasi va mantiqiy sxemalar yordamida yechilgan. Natijalar mantiqiy yondashuv shartlarni soddalashtirish, qarorlarning ziddiyatsizligini tekshirish va optimal variantni tanlashga imkon berishini ko‘rsatadi.*

Kalit so‘zlar: *mulohazalar algebrasi, mantiqiy funksiya, chinlik jadvali, implikatsiya, Karno kartasi, mantiqiy sxema, iqtisodiy qaror, mantiqiy modellashtirish.*

Abstract. *The article presents the basic concepts and laws of propositional algebra and shows their application to economic decision-making. A methodology for modelling economic situations with logical formulas is proposed, and four applied problems are solved – a credit-granting decision, inference from a cause-and-effect chain, expert voting and supplier selection – by means of truth tables, equivalent transformations, Karnaugh maps and logic circuits. The results show that the logical approach makes it possible to simplify conditions, verify the consistency of decisions and select the optimal option.*

Keywords: *propositional algebra, Boolean function, truth table, implication, Karnaugh map, logic circuit, economic decision, logical modelling.*

KIRISH

Iqtisodiy qarorlar ko‘pincha bir nechta shartga bog‘liq: bank kredit berishda mijozning daromadi, kredit tarixi va garovini tekshiradi, investitsiya komissiyasi loyihani ekspertlar xulosasi asosida tasdiqlaydi. Har bir shart chin yoki yolg‘on qiymat qabul qiluvchi mulohazadir. Mulohazalar algebrasi bunday shartlarni formulalar ko‘rinishida yozish, soddalashtirish va ziddiyatsizligini tekshirish imkonini beradi; u J.Bul tomonidan yaratilib, K.Shennon ishlari tufayli hisoblash texnikasi nazariyasining asosiga aylangan [1, 2] va bugungi kunda skoring tizimlarining mantiqiy negizini tashkil etadi.

Maqolaning maqsadi — mulohazalar algebrasining iqtisodiy masalalarni yechishdagi imkoniyatlarini nazariy asoslash, iqtisodiy vaziyatni mantiqiy modelga aylantirish metodikasini ishlab chiqish va uni to‘rtta amaliy masalada ko‘rsatishdir.

ASOSIY QISM

Tadqiqot metodikasi

Iqtisodiy vaziyatni mantiqiy modelga aylantirish besh bosqichda amalga oshiriladi: (1) masalani tahlil qilib, har bir mustaqil shartni alohida mulohaza sifatida ajratish; (2) mulohazalarni A, B, C, ... harflari bilan belgilash; (3) “va”, “yoki”, “agar ..., u holda ...”, “... emas” bog‘lovchilarini mos ravishda $\wedge$, $\vee$, $\rightarrow$, $\neg$ amallari bilan almashtirib, formula tuzish; (4) chinlik jadvali, ekvivalent almashtirishlar yoki Karno kartasi yordamida tahlil qilish – bunda kommutativlik, distributivlik, yutilish, yopishtirish va de Morgan qonunlaridan foydalaniladi [3, 4, 5, 6]; (5) natijani iqtisodiy tilga qaytarib, qaror qabul qilish.

Natijalar

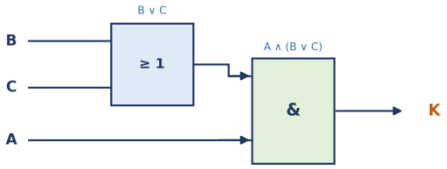
1-misol. Bankda kredit berish qarorini soddalashtirish

Masala sharti. Bank yo‘riqnomasiga ko‘ra kredit uch holatda beriladi: (1) daromad yetarli, kredit tarixi yaxshi va garov bor; (2) daromad yetarli, kredit tarixi yaxshi, garov yo‘q; (3) daromad yetarli, kredit tarixi yomon, garov bor. Qoidani soddalashtiring va mantiqiy sxemasini tuzing.

Mantiqiy model. A – “daromad yetarli”, B – “kredit tarixi yaxshi”, C – “garov mavjud”, K – “kredit beriladi”:

$$K = (A \wedge B \wedge C) \vee (A \wedge B \wedge \neg C) \vee (A \wedge \neg B \wedge C).$$

Yechish. Yopishtirish va distributivlik qonunlari bo‘yicha: (A ∧ B ∧ C) ∨ (A ∧ B ∧ ¬C) ≡ A ∧ B, demak K ≡ (A ∧ B) ∨ (A ∧ ¬B ∧ C) ≡ A ∧ (B ∨ (¬B ∧ C)) ≡ A ∧ (B ∨ C) (1-rasm).



1-rasm. K = A ∧ (B ∨ C) formulasiga mos mantiqiy sxema

Iqtisodiy talqin. Kredit berish uchun daromadning yetarli bo‘lishi majburiy, kredit tarixi yoki garovdan esa kamida bittasi yetarli. Tekshiriladigan shartlar soni 9 tadan 3 taga qisqardi: masalan, A = 1, B = 0, C = 1 bo‘lganda K = 1, A = 0 bo‘lganda esa boshqa shartlardan qat’i nazar K = 0.

2-misol. Sabab-oqibat zanjiri asosida xulosa chiqarish

Masala sharti. Hisobotga ko‘ra: talab o‘ssa, narx oshiriladi; narx oshsa, xaridorlar kamayadi; xaridorlar kamaysa, foyda kamayadi. Foyda kamaymagan. Talab o‘sganmi?

Mantiqiy model. A – “talab o‘sdi”, B – “narx oshirildi”, C – “xaridorlar kamaydi”, D – “foyda kamaydi”:

$$(A \to B),\quad (B \to C),\quad (C \to D),\quad \neg D.$$

Yechish. Modus tollens qoidasini ketma-ket qo‘llaymiz: (C → D) va ¬D dan ¬C, (B → C) va ¬C dan ¬B, (A → B) va ¬B dan ¬A kelib chiqadi, ya’ni xaridorlar soni kamaymagan, narx oshirilmagan va bozor talabi o‘smagan.

Iqtisodiy talqin. Bog‘lanishlar to‘g‘ri va foyda kamaymagan bo‘lsa, talab o‘smagan degan xulosa majburiy kelib chiqadi; bu auditorga hisobot bayonotlarining ziddiyatsizligini tekshirish imkonini beradi.

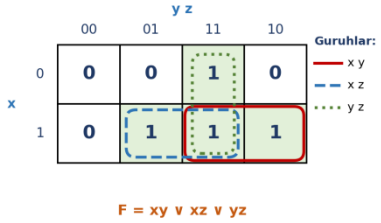
3-misol. Ekspertlar ovoz berishi: loyihani tasdiqlash funksiyasi

Masala sharti. Loyihani uch ekspert – moliyaviy (x), texnik (y) va ekologik (z) – ko‘rib chiqadi; loyiha kamida ikki ekspert ma’qullasa tasdiqlanadi. Tasdiqlash funksiyasini soddalashtiring.

Mantiqiy model. x, y, z – mos ravishda moliyaviy, texnik va ekologik ekspert loyihani ma’qulladi. F = 1 bo‘ladigan to‘rt holat mukammal diz’yunktiv normal formani beradi:

$$F = (x \wedge y \wedge z) \vee (x \wedge y \wedge \neg z) \vee (x \wedge \neg y \wedge z) \vee (\neg x \wedge y \wedge z).$$

Yechish. Yopishtirish qonuni yoki M.Karno usuli [7] bo‘yicha birlar uchta juftlikka birlashadi (2-rasm): F = xy ∨ xz ∨ yz.



2-rasm. F funksiyasining Karno kartasi

Iqtisodiy talqin. Ifoda 4 ta had va 12 ta literaldan 3 ta had va 6 ta literalga qisqardi; masalan, x = 1, y = 0, z = 1 bo‘lganda F = 1, ya’ni loyiha tasdiqlanadi.

4-misol. Yetkazib beruvchilarni tanlash masalasi

Masala sharti. Korxona A, B, C firmalar bilan shartnoma tuzmoqchi: (1) A bilan tuzilsa, B bilan ham tuziladi; (2) B va C bilan birga tuzilmaydi; (3) kamida bitta shartnoma tuziladi; (4) C bilan tuzilsa, A bilan tuzilmaydi. Yillik qiymat: A – 30, B – 25, C – 20 mln so‘m. Eng arzon ruxsat etilgan variantni toping.

Mantiqiy model. A, B, C – “mos firma bilan shartnoma tuziladi” mulohazalari:

$$\Phi = (A \to B) \wedge \neg(B \wedge C) \wedge (A \vee B \vee C) \wedge (C \to \neg A).$$

Yechish. Φ = 1 bo‘ladigan barcha (A, B, C) kombinatsiyalarni chinlik jadvali orqali aniqlaymiz (1-jadval).

1-jadval. 4-misolning chinlik jadvali

A	B	C	A→B	¬(B∧C)	A∨B∨C	C→¬A	Φ	Xarajat, mln
0	0	0	1	1	0	1	0	—
0	0	1	1	1	1	1	1	20
0	1	0	1	1	1	1	1	25
0	1	1	1	0	1	1	0	—
1	0	0	0	1	1	1	0	—
1	0	1	0	1	1	0	0	—
1	1	0	1	1	1	1	1	55
1	1	1	1	0	1	0	0	—

Jadvaldan Φ = 1 bo‘ladigan uchta variant topiladi va ular yopishtirish qonuni bilan soddalashtiriladi:

$$\Phi = (\neg A \wedge \neg B \wedge C) \vee (\neg A \wedge B \wedge \neg C) \vee (A \wedge B \wedge \neg C) = (\neg A \wedge \neg B \wedge C) \vee (B \wedge \neg C),$$

ya’ni “faqat C firma bilan” yoki “B firma bilan (C siz)”.

Iqtisodiy talqin. Ruxsat etilgan variantlar: faqat C (20 mln so‘m), faqat B (25 mln so‘m) hamda A va B (55 mln so‘m). Eng arzon variant – faqat C firma

bilan shartnoma, tejam 35 mln so‘m. Mantiqiy tahlil avval 8 variantdan 5 tasini chiqarib tashlaydi, so‘ng tanlov xarajat mezoni bo‘yicha amalga oshiriladi.

Muhokama

To‘rtta misol mulohazalar algebrasining shartlarni soddalashtirish, xulosa chiqarish, qoidani ixcham ifodalash va ruxsat etilgan yechimlarni aniqlash vazifalarini bajarishini ko‘rsatdi. **Usulning afzalligi** – formallik va tekshiriluvchanlik; cheklovi – faqat “ha/yo‘q” shartlar bilan ishlashi: miqdoriy mezonlar keyingi bosqichda hisobga olinadi, o‘zgaruvchilar soni ortganda esa chinlik jadvali 2^n qatorga o‘sib, kompyuter algoritmlarini talab qiladi.

XULOSA

- Mulohazalar algebrasi iqtisodiy shartlarni formulalar ko‘rinishida yozish, soddalashtirish va ziddiyatsizligini tekshirish uchun qulay apparatdir.
- Taklif etilgan besh bosqichli metodika turli sohadagi iqtisodiy masalalarga qo‘llanishi mumkin.
- Soddalashtirish qaror qoidalarini 2–3 baravar ixchamlashtirdi, mantiqiy cheklovlar va xarajat mezoni birgalikda optimal variantni aniqladi.
- Kelgusida noaniq (fuzzy) mantiqqa asoslangan modellar va ularni skoring tizimlariga joriy etish istiqbolli yo‘nalishdir.

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IQTISODIYOT VA BOSHQARUV TIZIMLARI

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Annotatsiya: *Ushbu maqolada iqtisodiyot va boshqaruv tizimlarining o‘zaro uzviy bog‘liqligi, ularning mamlakat iqtisodiy taraqqiyotini ta’minlashdagi o‘rni va ahamiyati ilmiy-nazariy jihatdan yoritilgan. Shuningdek, iqtisodiy jarayonlarni samarali boshqarish, mavjud resurslardan oqilona foydalanish, boshqaruv qarorlarining sifatini oshirish hamda zamonaviy boshqaruv mexanizmlarini joriy etish masalalari tahlil qilingan. Boshqaruv tizimlarini takomillashtirish orqali iqtisodiy samaradorlikni oshirish, raqobatbardoshlikni mustahkamlash va barqaror iqtisodiy o‘sishga erishishning ustuvor yo‘nalishlari asoslangan*

Abstract: *This article examines the interrelationship between economic systems and management systems from a scientific and theoretical perspective, highlighting their role and significance in ensuring a country's economic development. It analyzes key issues related to the effective management of economic processes, the rational allocation and utilization of available resources, improving the quality of managerial decision-making, and introducing modern management mechanisms. Particular attention is paid to the importance of strategic planning, innovative approaches, digital technologies, and institutional reforms in promoting sustainable economic development. Furthermore, the article substantiates the priority areas for improving economic efficiency, strengthening competitiveness, and achieving sustainable economic growth through the modernization of management systems. Based on the research findings, scientific and practical recommendations are developed to enhance the effectiveness of economic and management systems.*

Kalit so‘zlar: *iqtisodiyot, boshqaruv tizimi, iqtisodiy rivojlanish, samaradorlik, strategik boshqaruv, raqamli iqtisodiyot, innovatsiya, iqtisodiy barqarorlik, resurslardan samarali foydalanish, raqobatbardoshlik.*

Keywords: *economy, management system, economic development, efficiency, strategic management, digital economy, innovation, economic sustainability, efficient resource utilization, competitiveness.*

KIRISH

Bugungi globallashuv va jahon iqtisodiyotida kechayotgan jadal o‘zgarishlar sharoitida iqtisodiy tizimlarning barqaror faoliyat yuritishi,

boshqaruv mexanizmlarining samaradorligini oshirish hamda mavjud iqtisodiy resurslardan oqilona foydalanish masalalari alohida dolzarb ahamiyat kasb etmoqda. Jahon xo‘jaligida kuzatilayotgan raqobatning kuchayishi, raqamli texnologiyalarning keng joriy etilishi, innovatsion jarayonlarning jadallashuvi va xalqaro iqtisodiy munosabatlarning rivojlanishi iqtisodiyot hamda boshqaruv tizimlariga nisbatan yangicha yondashuvlarni shakllantirishni taqozo etmoqda. Bunday sharoitda iqtisodiy rivojlanishni faqat moliyaviy yoki ishlab chiqarish ko‘rsatkichlari bilan baholash yetarli bo‘lmay, iqtisodiy jarayonlarni muvofiqlashtirish, strategik maqsadlarni belgilash, boshqaruv qarorlarini asoslash va ularning natijadorligini baholash ham muhim omillardan biri hisoblanadi.

Iqtisodiyot va boshqaruv tizimlari jamiyat taraqqiyotining o‘zaro chambarchas bog‘liq bo‘lgan muhim tarkibiy qismlaridir. Iqtisodiyot moddiy va nomoddiy ne’matlarni ishlab chiqarish, taqsimlash, ayirboshlash hamda iste’mol qilish jarayonlarini qamrab olsa, boshqaruv tizimi ushbu jarayonlarni maqsadga muvofiq tashkil etish, tartibga solish, muvofiqlashtirish va nazorat qilish mexanizmlarini o‘z ichiga oladi. Shu nuqtayi nazardan, boshqaruv tizimining qay darajada samarali tashkil etilgani iqtisodiy faoliyat natijalariga, resurslardan foydalanish darajasiga, mehnat unumdorligiga hamda iqtisodiy subyektlarning raqobatbardoshligiga bevosita ta’sir ko‘rsatadi. Samarali boshqaruv iqtisodiy imkoniyatlarni to‘g‘ri aniqlash, mavjud muammolarni o‘z vaqtida bartaraf etish va uzoq muddatli rivojlanish strategiyalarini ishlab chiqish imkonini beradi.

Hozirgi davrda iqtisodiy boshqaruv tizimlarini takomillashtirishda zamonaviy boshqaruv konsepsiyalari, strategik rejalashtirish, tizimli tahlil, iqtisodiy prognozlash va raqamli boshqaruv texnologiyalarining ahamiyati tobora ortib bormoqda. Xususan, axborot-kommunikatsiya texnologiyalari, sun’iy intellekt, katta ma’lumotlar tahlili va avtomatlashtirilgan boshqaruv tizimlaridan foydalanish iqtisodiy jarayonlar to‘g‘risida tezkor va aniq ma’lumot olish, boshqaruv qarorlarini ilmiy asoslash hamda boshqaruv faoliyatining shaffofligini ta’minlashga xizmat qilmoqda. Shu bilan birga, raqamli transformatsiya sharoitida boshqaruv tizimlari oldida ma’lumotlar xavfsizligi, texnologik moslashuvchanlik, inson kapitalini rivojlantirish va institutsional samaradorlikni ta’minlash kabi yangi vazifalar ham yuzaga kelmoqda.

O‘zbekiston iqtisodiyotida amalga oshirilayotgan keng ko‘lamli iqtisodiy islohotlar ham iqtisodiyot va boshqaruv tizimlarini takomillashtirish masalasining dolzarbligini yanada oshirmoqda. Mamlakatda bozor mexanizmlarini rivojlantirish, tadbirkorlik faoliyatini qo‘llab-quvvatlash, investitsiyaviy muhitni yaxshilash, davlat boshqaruvini modernizatsiya qilish,

davlat xizmatlarini raqamlashtirish va iqtisodiyot tarmoqlarining raqobatbardoshligini kuchaytirishga qaratilgan chora-tadbirlar izchil amalga oshirilmoqda. Mazkur jarayonlarda boshqaruv tizimlarining iqtisodiy islohotlar bilan uyg‘unligini ta’minlash, davlat va xususiy sektor o‘rtasidagi samarali hamkorlikni rivojlantirish, boshqaruvda hisobdorlik va shaffoflik tamoyillarini mustahkamlash muhim ahamiyatga ega.

Shuningdek, zamonaviy iqtisodiy munosabatlar sharoitida boshqaruv tizimlarining samaradorligi nafaqat alohida korxona yoki tashkilot faoliyati, balki butun mamlakat iqtisodiyotining barqaror rivojlanishiga ham ta’sir ko‘rsatadi. Korxona va tashkilotlarda boshqaruvning ilmiy asoslangan usullaridan foydalanish ishlab chiqarish xarajatlarini optimallashtirish, mehnat unumdorligini oshirish, mahsulot va xizmatlar sifatini yaxshilash hamda bozor talablariga tezkor moslashish imkonini beradi. Makroiqtisodiy darajada esa samarali boshqaruv iqtisodiy barqarorlikni mustahkamlash, investitsiya faolligini rag‘batlantirish, bandlikni oshirish va hududlar o‘rtasidagi iqtisodiy tafovutlarni kamaytirishda muhim omil bo‘lib xizmat qiladi. Biroq iqtisodiyot va boshqaruv tizimlari faoliyatida ayrim muammolar ham mavjud. Jumladan, boshqaruv qarorlarini qabul qilishda axborotlarning yetarli darajada tahlil qilinmasligi, iqtisodiy resurslardan foydalanish samaradorligining pastligi, strategik rejalashtirish mexanizmlarining takomillashmaganligi, innovatsion boshqaruv usullarining ayrim sohalarda sust joriy etilishi va malakali boshqaruv kadrlariga bo‘lgan ehtiyoj shular jumlasidandir. Ushbu muammolarni bartaraf etish uchun iqtisodiy jarayonlarni tizimli tahlil qilish, zamonaviy boshqaruv vositalaridan foydalanish, inson kapitaliga investitsiyalarni kengaytirish va boshqaruv faoliyatini natijadorlik mezonlari asosida tashkil etish zarur.

Mazkur mavzuning ilmiy ahamiyati shundaki, iqtisodiyot va boshqaruv tizimlarini yagona, o‘zaro ta’sirlashuvchi mexanizm sifatida o‘rganish iqtisodiy rivojlanish omillarini chuqur anglash, boshqaruv faoliyatining natijalarini baholash hamda mavjud imkoniyatlardan samarali foydalanish yo‘llarini aniqlash imkonini beradi. Ayniqsa, iqtisodiy jarayonlarning murakkablashuvi sharoitida boshqaruv tizimlarini takomillashtirishning nazariy va amaliy jihatlarini tadqiq etish, ularning iqtisodiy samaradorlikka ta’sirini aniqlash hamda zamonaviy rivojlanish talablariga mos takliflar ishlab chiqish muhim ilmiy vazifa hisoblanadi.

ASOSIY QISM

1. Iqtisodiyot va boshqaruv tizimlarining nazariy asoslari hamda o‘zaro bog‘liqligi

Iqtisodiyot va boshqaruv tizimlari jamiyatning ijtimoiy-iqtisodiy taraqqiyotini ta’minlovchi, bir-biri bilan uzviy bog‘liq bo‘lgan murakkab tizimlar hisoblanadi. Iqtisodiyot jamiyatda mavjud bo‘lgan cheklangan resurslardan foydalanish orqali insonlarning ehtiyojlarini qondirish, moddiy va nomoddiy ne’matlarni ishlab chiqarish, taqsimlash, ayirboshlash hamda iste’mol qilish jarayonlarini o‘z ichiga oladi. Boshqaruv esa mazkur jarayonlarni belgilangan maqsadlar asosida tashkil etish, tartibga solish, muvofiqlashtirish va nazorat qilishga yo‘naltirilgan faoliyatdir. Iqtisodiy tizimning samarali faoliyat yuritishi ko‘p jihatdan boshqaruv mexanizmlarining to‘g‘ri shakllantirilganligiga bog‘liq. Chunki iqtisodiy resurslar, jumladan, moliyaviy mablag‘lar, mehnat resurslari, ishlab chiqarish vositalari, tabiiy boyliklar va axborot imkoniyatlaridan samarali foydalanish uchun puxta o‘ylangan boshqaruv qarorlari talab etiladi. Boshqaruv tizimi iqtisodiy subyektlarning faoliyatini yagona maqsad sari yo‘naltiradi, mavjud imkoniyatlarni aniqlaydi va ulardan foydalanishning maqbul yo‘llarini belgilaydi. Iqtisodiyot va boshqaruv o‘rtasidagi munosabatlarni ikki tomonlama jarayon sifatida baholash mumkin. Bir tomondan, iqtisodiy sharoitlar va resurslar boshqaruv qarorlarining mazmuni hamda yo‘nalishini belgilaydi. Ikkinchi tomondan, boshqaruvning sifati va samaradorligi iqtisodiy faoliyat natijalariga bevosita ta’sir ko‘rsatadi. Masalan, korxonada ishlab chiqarish jarayonlarini samarali rejalashtirish, xarajatlarni nazorat qilish va mehnat resurslarini to‘g‘ri taqsimlash mahsulot tannarxining pasayishiga hamda foyda miqdorining oshishiga xizmat qiladi.

Iqtisodiyot va boshqaruv tizimlarining o‘zaro bog‘liqligi quyidagi asosiy yo‘nalishlarda namoyon bo‘ladi:

Resurslarni boshqarish. Mavjud moddiy, moliyaviy, mehnat va axborot resurslarini oqilona taqsimlash orqali iqtisodiy samaradorlikka erishish.

Strategik rejalashtirish. Iqtisodiy rivojlanishning uzoq muddatli maqsadlarini belgilash va ularga erishish mexanizmlarini ishlab chiqish.

Iqtisodiy muvofiqlashtirish. Turli iqtisodiy subyektlar faoliyatini o‘zaro uyg‘unlashtirish va iqtisodiy manfaatlar muvozanatini ta’minlash.

Nazorat va baholash. Iqtisodiy faoliyat natijalarini belgilangan ko‘rsatkichlar asosida tahlil qilish va mavjud kamchiliklarni aniqlash.

Innovatsion rivojlanish. Yangi texnologiyalar, boshqaruv usullari va innovatsion yechimlarni iqtisodiy faoliyatga tatbiq etish.

Demak, iqtisodiyot va boshqaruv tizimlari alohida-alohida faoliyat yurituvchi mexanizmlar emas, balki umumiy iqtisodiy natijaga erishishga

xizmat qiluvchi o‘zaro ta’sirlashuvchi tizimlardir. Ularning uyg‘un faoliyati iqtisodiy barqarorlik, raqobatbardoshlik va uzoq muddatli taraqqiyotning muhim omili hisoblanadi.

2. Zamonaviy iqtisodiy sharoitda boshqaruv tizimlarining asosiy funksiyalari

Bozor iqtisodiyoti sharoitida boshqaruv tizimlari iqtisodiy jarayonlarni samarali tashkil etish va rivojlantirishda muhim vazifalarni bajaradi. Zamonaviy boshqaruv faqat rahbarlik qilish yoki nazorat o‘rnatish bilan cheklanmaydi. U strategik maqsadlarni belgilash, iqtisodiy imkoniyatlarni baholash, xodimlar faoliyatini muvofiqlashtirish, moliyaviy barqarorlikni ta’minlash va innovatsion rivojlanishni rag‘batlantirish kabi keng qamrovli jarayonlarni o‘z ichiga oladi. Boshqaruv tizimining asosiy funksiyalaridan biri rejalashtirish hisoblanadi. Rejalashtirish orqali iqtisodiy subyektlarning kelgusidagi faoliyat yo‘nalishlari belgilanadi, zarur resurslar aniqlanadi va kutilayotgan natijalarga erishish choralari ishlab chiqiladi. To‘g‘ri tashkil etilgan rejalashtirish iqtisodiy xavflarni kamaytirish, mavjud imkoniyatlardan samarali foydalanish va faoliyatning uzluksizligini ta’minlashga yordam beradi.Tashkil etish funksiyasi belgilangan maqsadlarni amalga oshirish uchun zarur tashkiliy tuzilma, vakolatlar va mas’uliyat doirasini shakllantirishni nazarda tutadi. Bunda har bir xodimning vazifasi aniq belgilanadi, boshqaruv bo‘g‘inlari o‘rtasida vakolatlar taqsimlanadi va ish jarayonlarining o‘zaro muvofiqligi ta’minlanadi.

Muvofiqlashtirish funksiyasi esa iqtisodiy faoliyatning turli yo‘nalishlari o‘rtasidagi hamkorlikni kuchaytirishga xizmat qiladi. Korxona yoki tashkilotning ishlab chiqarish, moliya, marketing, kadrlar va ta’minot bo‘limlari o‘zaro uyg‘un faoliyat yuritgan taqdirdagina umumiy natijadorlikka erishish mumkin.

Nazorat funksiyasi boshqaruv jarayonida belgilangan rejalar va amaldagi natijalar o‘rtasidagi farqlarni aniqlashga qaratilgan. Nazorat orqali moliyaviy intizom, mehnat unumdorligi, ishlab chiqarish samaradorligi va xarajatlar darajasi baholanadi. Aniqlangan kamchiliklar asosida tegishli tuzatish choralari ishlab chiqiladi. Motivatsiya funksiyasi xodimlarning mehnat faoliyatiga bo‘lgan qiziqishini oshirish, ularning kasbiy salohiyatini rivojlantirish va tashkilot maqsadlariga erishishdagi ishtirokini kuchaytirishga xizmat qiladi. Moddiy rag‘batlantirish bilan bir qatorda, kasbiy o‘sish imkoniyatlari, ijtimoiy himoya, qulay mehnat muhiti va xodimlarning tashabbuslarini qo‘llab-quvvatlash ham muhim ahamiyatga ega.

3. Raqamli iqtisodiyot sharoitida boshqaruv tizimlarining transformatsiyasi

XXI asrda raqamli texnologiyalarning jadal rivojlanishi iqtisodiy faoliyatning mazmuni va boshqaruv usullarini tubdan o‘zgartirmoqda. Raqamli iqtisodiyot sharoitida axborot asosiy iqtisodiy resurslardan biriga aylanib, ma’lumotlarni yig‘ish, qayta ishlash, saqlash va tahlil qilish boshqaruv qarorlarining sifatini belgilovchi muhim omil sifatida namoyon bo‘lmoqda. An’anaviy boshqaruv tizimlarida ko‘plab qarorlar rahbarlarning tajribasi, mavjud hisobotlar va cheklangan axborotlar asosida qabul qilingan bo‘lsa, zamonaviy raqamli boshqaruv tizimlarida katta hajmdagi ma’lumotlarni tahlil qilish imkoniyati mavjud. Bu esa iqtisodiy jarayonlarni chuqurroq o‘rganish, kelgusidagi o‘zgarishlarni prognozlash va yuzaga kelishi mumkin bo‘lgan xavflarni oldindan aniqlash imkonini beradi.

XULOSA

Ilmiy-nazariy tahlillar shuni ko‘rsatadiki, iqtisodiyot va boshqaruv tizimlari mamlakatning ijtimoiy-iqtisodiy rivojlanishini ta’minlovchi, o‘zaro uzviy bog‘liq va bir-birini to‘ldiruvchi muhim mexanizmlar hisoblanadi. Iqtisodiy taraqqiyotning barqarorligi, mavjud resurslardan samarali foydalanish, ishlab chiqarish salohiyatini oshirish hamda iqtisodiy subyektlarning raqobatbardoshligini mustahkamlash ko‘p jihatdan boshqaruv tizimining qay darajada samarali tashkil etilganiga bog‘liq. Shu sababli iqtisodiy jarayonlarni zamonaviy boshqaruv tamoyillari asosida tashkil etish bugungi kunning muhim ilmiy-amaliy vazifalaridan biri hisoblanadi. Iqtisodiyot va boshqaruv tizimlarining nazariy asoslari, ularning o‘zaro bog‘liqligi, boshqaruvning asosiy funksiyalari hamda zamonaviy iqtisodiy sharoitda boshqaruv mexanizmlarini takomillashtirish yo‘nalishlari o‘rganildi. Tahlillar natijasida samarali boshqaruv iqtisodiy resurslarni oqilona taqsimlash, iqtisodiy jarayonlarni muvofiqlashtirish, xarajatlarni optimallashtirish va belgilangan strategik maqsadlarga erishishda muhim ahamiyat kasb etishi aniqlandi. Shuningdek, raqamli iqtisodiyotning rivojlanishi boshqaruv tizimlari oldiga yangi talablarni qo‘ymoqda. Axborot-kommunikatsiya texnologiyalari, sun’iy intellekt, katta ma’lumotlar tahlili va avtomatlashtirilgan boshqaruv mexanizmlaridan foydalanish iqtisodiy faoliyatning tezkorligi, aniqligi va shaffofligini oshirish imkonini bermoqda. Biroq ushbu texnologiyalarni samarali joriy etish uchun zamonaviy infratuzilmani rivojlantirish, axborot xavfsizligini ta’minlash va malakali boshqaruv kadrlarini tayyorlash zarur.

O‘zbekiston sharoitida iqtisodiyot va boshqaruv tizimlarini takomillashtirish mamlakatda amalga oshirilayotgan iqtisodiy islohotlarning

natijadorligini oshirish, xususiy sektorni rivojlantirish, investitsiyaviy muhitni yaxshilash va hududlarning iqtisodiy salohiyatidan samarali foydalanishda muhim omil hisoblanadi. Shu jihatdan davlat boshqaruvida shaffoflik va hisobdorlikni kuchaytirish, zamonaviy menejment usullarini keng joriy etish hamda iqtisodiy qarorlarni ilmiy tahlil va aniq ma’lumotlarga asoslangan holda qabul qilish alohida ahamiyatga ega.

Iqtisodiyot va boshqaruv tizimlari samaradorligini oshirish bo‘yicha quyidagi ilmiy-amaliy takliflar ishlab chiqildi:

1. **Strategik boshqaruvni takomillashtirish.** Iqtisodiy subyektlar faoliyatida uzoq muddatli rivojlanish strategiyalarini ishlab chiqish, aniq maqsadli ko‘rsatkichlarni belgilash va ularning bajarilishini muntazam monitoring qilish tizimini rivojlantirish lozim.

2. **Raqamli boshqaruv mexanizmlarini kengaytirish.** Iqtisodiy faoliyatda zamonaviy axborot texnologiyalari, avtomatlashtirilgan boshqaruv tizimlari va ma’lumotlar tahlilidan foydalanishni kengaytirish orqali boshqaruv qarorlarining tezkorligi va sifatini oshirish zarur.

3. **Iqtisodiy resurslardan foydalanish samaradorligini oshirish.** Moliyaviy, moddiy, mehnat va axborot resurslarini maqsadli taqsimlash, ortiqcha xarajatlarni kamaytirish hamda mavjud imkoniyatlardan oqilona foydalanish mexanizmlarini takomillashtirish maqsadga muvofiq.

4. **Inson kapitalini rivojlantirish.** Boshqaruv sohasida faoliyat yurituvchi mutaxassislarning kasbiy bilim va ko‘nikmalarini muntazam oshirish, ularni zamonaviy iqtisodiy va raqamli boshqaruv usullariga o‘rgatish zarur.

5. **Innovatsion boshqaruv usullarini joriy etish.** Korxona va tashkilotlarda innovatsion yondashuvlarni qo‘llab-quvvatlash, yangi texnologiyalarni ishlab chiqarish va xizmat ko‘rsatish jarayonlariga tatbiq etish orqali iqtisodiy samaradorlikni oshirish lozim.

6. **Boshqaruvda shaffoflik va hisobdorlikni kuchaytirish.** Boshqaruv qarorlarining natijalarini baholash, faoliyat samaradorligi bo‘yicha aniq mezonlarni belgilash va ochiq axborot almashinuvini rivojlantirish muhimdir.

7. **Hududiy iqtisodiy boshqaruvni takomillashtirish.** Har bir hududning tabiiy, mehnat va ishlab chiqarish salohiyatini hisobga olgan holda individual rivojlanish dasturlarini ishlab chiqish va amalga oshirish maqsadga muvofiq.

Iqtisodiyot va boshqaruv tizimlarini takomillashtirish bir martalik jarayon emas, balki doimiy ravishda yangilanib borishni talab qiladigan strategik yo‘nalishdir. Zamonaviy iqtisodiy sharoitda boshqaruvning samarali tashkil etilishi iqtisodiy o‘sish sur’atlarini jadallashtirish, raqobatbardoshlikni

mustahkamlash, investitsiyaviy faollikni oshirish va ijtimoiy-iqtisodiy barqarorlikni ta’minlashga xizmat qiladi.

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THE ROLE OF INDUSTRIAL PRODUCT DIVERSIFICATION IN PROMOTING THE SUSTAINABLE DEVELOPMENT OF RURAL DISTRICTS

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Abstract: *The sustainable development of rural districts is one of the key priorities of regional economic policy in many developing countries. Industrial product diversification plays a crucial role in enhancing economic resilience, increasing competitiveness, creating employment opportunities, and improving the living standards of rural populations. This study examines the impact of industrial product diversification on the sustainable development of rural districts and evaluates its contribution to economic growth, structural transformation, and regional stability. The research analyzes the relationship between diversification processes and socio-economic development indicators, including production efficiency, income generation, investment attractiveness, and employment growth. The findings indicate that diversification of industrial products contributes significantly to reducing dependence on a limited number of economic activities, strengthening local production capacities, and ensuring long-term sustainable development. The study highlights the importance of implementing effective diversification strategies and supportive regional policies to promote balanced economic development in rural districts.*

Key words: *industrial product diversification, sustainable development, economic growth, industrial development, employment generation, regional policy*

Sustainable development of rural districts has become an important objective of economic policy worldwide. Strengthening rural industries is essential for creating employment, increasing income, and reducing regional disparities. In this context, industrial product diversification has emerged as a key strategy for improving the competitiveness and resilience of rural economies. By expanding the range of products, industries can better respond to changing market demand, reduce production risks, and create greater value from local resources. Therefore, industrial product diversification contributes not only to economic growth but also to the long-term sustainable development of rural

districts. This study examines the role of industrial product diversification in promoting sustainable rural development and highlights its economic significance at both the global and local levels.

Industrial diversification is widely recognized as a crucial driver of sustainable economic growth and export expansion in developing and transition economies. For Uzbekistan, who's industrial and export structures have long been characterized by a significant reliance on raw materials and low value-added products, diversification of the industrial sector has become a strategic priority.[1]

Hypothesis (H1): *The structural transition from primary agrarian activities to a diversified industrial framework in rural districts of Uzbekistan significantly enhances regional economic resilience and reduces vulnerability to sector-specific market and climate shocks.*

The industrial diversification in rural areas is a strategic process that transforms traditional agrarian economies into resilient multi-sectoral economic systems by introducing manufacturing and processing industries into rural regions which systematically reduces their vulnerability to climate shocks and agricultural market fluctuations while accelerating growth in several key sectors and simultaneously delivering profound economic benefits at both regional and national levels. [2]

The primary beneficiary of rural industrialization is the agro-processing sector because instead of selling raw agricultural goods at low margins rural areas begin to wash sort process package and brand local produce which significantly increases its market value and triggers a chain reaction across other sectors such as light industry where small and medium enterprises emerge to produce textiles garments footwear and household consumer goods alongside the construction and construction materials sector where the demand for local infrastructure leads to the growth of brickworks cement mixing plants and woodwork shops while the logistics and supply chain sector expands due to the need to transport manufactured goods driving rapid investments in warehousing cold storage facilities and local transportation fleets which is supported by the renewable energy sector expanding small-scale solar wind and biomass installations to power new rural workshops and ultimately benefits the services and retail sector by creating a secondary boom in technical repair shops machinery maintenance commercial banking and retail trade. [3]

At the local and regional level industrial diversification fundamentally alters the social fabric because its most immediate benefit is non-farm job creation which provides stable year-round employment to rural populations

reducing their dependence on seasonal agricultural labor and consequently multiplying household incomes to lift landless peasants and low-income families out of poverty while this industrial development forces a rapid upgrade of local infrastructure bringing better roads reliable electricity clean water and digital connectivity to remote villages and most importantly mitigates rural-to-urban migration by offering modern career opportunities and decent wages locally allowing rural communities to retain their youth and skilled workforce. [4]

Hypothesis (H2): *Industrial diversification in rural districts directly catalyzes socio-economic upgrades by generating stable non-farm employment, rising household incomes, and mitigating outward rural-to-urban migration.*

On a macro-level diversifying rural industries is essential for achieving balanced regional development because it prevents economic over-concentration in large metropolitan areas and bridges the wealth gap between urban centers and rural provinces while strengthening the country's macroeconomic resilience by ensuring that a single crop failure or drought does not paralyze the national economy as local manufacturing acts as a robust mechanism for import substitution reducing the country's reliance on foreign consumer goods and conserving foreign exchange reserves until high-quality processed foods and light industrial products move into global markets driving export expansion and broadening the national fiscal base to substantially increase tax revenues for the state budget making rural industrial diversification not just an agricultural support tool but a vital engine for nationwide economic modernization social stability and sustainable long-term development.[5]

Industrial product diversification in rural areas of Bukhara Region, Uzbekistan (such as Olot, Gijduvon, Jondor, and Karakul districts) is progressing at a slow pace due to several region-specific systemic obstacles. Firstly, continuous disruptions in electricity and gas supply, combined with poor road infrastructure connecting remote desert districts like Olot and Karakul, prevent modern manufacturing enterprises from operating sustainably. Secondly, due to the low market value and liquidity of rural real estate in Bukhara's countryside, banks consider it risky to grant large, long-term credits to local entrepreneurs for major industrial projects. Thirdly, there is a clear shortage of qualified specialists, such as textile engineers, food technologists, and managers capable of working with automated lines, as skilled labor mostly prefers to migrate to Bukhara city or abroad. Fourthly, modern cold storage warehouses and developed logistics chains necessary for processing Bukhara's rich agricultural raw materials (like fruits and vegetables in Vobkent and Jondor) at an industrial level remain highly insufficient. Lastly, despite the high potential for textile and agro-processing,

most products manufactured in Bukhara's rural settings do not comply with international quality standards (like ISO or Global GAP), which severely restricts their access to large retail chains and foreign export markets.

While structural imbalances exist, several rural districts in the Bukhara Region have achieved significant breakthroughs in diversifying their industrial bases, moving away from raw cotton cultivation toward high-value manufacturing. Gijduvon District (Textiles and Special Economic Zones): Gijduvon stands as the absolute leader in rural diversification, generating over 1 trillion UZS annually in industrial output. Driven by the Gijduvon Free Economic Zone (FEZ) and advanced cotton-textile clusters, the district has completely transformed its economy. Instead of exporting raw cotton, local enterprises now manufacture international-grade yarn, finished apparel, and branded traditional rugs for global markets. Romitan District (High-Value Textile Clusters): Romitan has successfully pivoted from pure agriculture to specialized manufacturing, now commanding roughly 16% to 18% of the entire province's textile and apparel production. The establishment of multi-million-dollar modern spinning and weaving factories (such as Wrose Romitex) has successfully decentralized heavy manufacturing away from Bukhara city and brought high-tech industrial jobs to rural workers.Vobkent District (Agro-Processing and Consumer Goods): Vobkent has mastered the diversification of the food and consumer goods sectors, accounting for over 6.9% of the region’s total consumer products. Local enterprises successfully add value to fresh agricultural yields through fruit and vegetable drying, juice manufacturing, canning, and advanced vacuum packaging, bypassing the limitations of seasonal raw crop sales. Jondor District (Small Industrial Zones and Building Materials): Jondor has integrated its agricultural strength (accounting for 6.8% of regional consumer goods) with a robust construction and light manufacturing ecosystem. By utilizing empty state-owned buildings to create Small Industrial Zones (SIZ), Jondor has attracted private investment into furniture assembly, plastics manufacturing, and brick-and-lime production, creating a well-rounded rural economy.

Measuring industrial product diversification is essential for assessing economic resilience and structural transformation within a region. [6] Government statistical agencies and economists primarily evaluate the variety and distribution of industrial output using five distinct methodological approaches. [7] Sectoral Share Analysis: This method calculates the structural percentage (%) contribution of each individual industry to the total regional output. A region is considered to have low diversification if a single dominant

sector, such as oil extraction or raw cotton processing, commands more than 50% of the total industrial volume. Conversely, balanced percentages across textiles, food processing, chemicals, and electronics indicate high diversification. The Herfindahl-Hirschman Index (HHI): This mathematical index measures sector concentration by summing the squares of the market shares of all industries operating in the region. An HHI score below 1,000 indicates a highly diversified and competitive industrial base. A score exceeding 2,500 signals that the regional economy is highly concentrated and critically vulnerable to market shocks in one or two specific resource sectors. Gini and Ogive Coefficients: These statistical tools measure the structural inequality and geographic distribution of economic activity. They evaluate how evenly or unevenly industrial manufacturing is spread across different districts and sub-sectors within the province. Coefficients closer to 0 represent perfectly balanced, widespread development, while scores approaching 1 indicate that industry is dangerously centralized in a single metropolitan or resource-rich zone. Export Commodity Variety (HS Codes): This metric tracks diversification by counting the number of unique Harmonized System (HS) product codes exported by the region. A transition from exporting a few bulk raw commodities to shipping hundreds of distinct, complex, and differentiated manufactured goods serves as a direct, empirical indicator of successful structural diversification. The Value-Added Ratio: This approach assesses industrial maturity by comparing the production volume of primary raw materials against high-tech, fully processed final consumer goods. A rising share of sophisticated, end-user commodities within the total industrial mix proves that the region is successfully capturing higher margins along the global supply chain rather than relying on basic resource extraction.

Industry Classification in Rural Districts of Bukhara Region

The classification of industrial branches and manufactured goods in the rural districts of the Bukhara region is primarily based on the National Classification of Economic Activities (IFUT / OKVED) and the Territorial-Resource Factor (geographic location and local raw materials).

Climate affects this classification only indirectly by determining what agricultural raw materials can be grown in specific areas.

Classification by Economic Activities (Official IFUT/OKVED Standards)

The State Committee of Statistics officially divides the industrial sectors of rural districts into 4 major groups:

Manufacturing (Processing) Industry: The largest sector, accounting for 90-95% of the total industrial output in rural districts. It includes textiles, food processing, chemicals, and building materials.

Mining and Quarrying: Extraction of natural resources such as natural gas, oil, gypsum, sand, and gravel.

Electricity, Gas, Steam, and Air Conditioning Supply.

Water Supply, Sewerage, Waste Management, and Remediation Activities.

Classification by Territorial-Resource Factors

Hypothesis (H3): *The level of industrial product diversification in rural districts is positively moderated by geographic positioning and localized natural resource endowments, enhancing regional competitive advantages.*

Hydrocarbon and Chemical Resources: Districts like Qorovulbozor (oil refining) and Romitan (due to the Gazli gas field and chemical potential).

Agro-Industrial Specialization: Districts with high irrigation and agricultural yields, such as G'ijduvon, Shofirkon, Jondor, Vobkent, Olot, and Qorako'l. Their industry focuses on processing cotton and silk into yarn, textiles, ready-made garments, and vegetable oils.

Construction Material Resources: Districts like Kogon and surrounding rural zones, specializing in limestone, gypsum, and cement production due to rich mineral deposits.

The diversification of industrial products in rural areas is closely linked to economic, demographic, and infrastructural factors. [8] The key factors determining the success of this process are the following:

Availability of the raw material base: Sufficient production of local agricultural products and natural resources required for further industrial processing.

Infrastructure supply: Access to uninterrupted electricity, natural gas, clean water, and proper industrial waste disposal systems.

Logistics and transport networks: Quality roads and transit systems to deliver finished products to urban and external markets quickly and cost-effectively.

Skilled labor force: Availability of rural human resources with the necessary knowledge and technical skills to operate modern machinery and technologies.

Financial resources and credit facilities: Access to low-interest, long-term loans, credits, and subsidies for small and medium-sized enterprises (SMEs).

Technology and innovation: Implementation of modern equipment and innovative solutions that reduce production costs and enhance product quality.

Market demand and marketing: Stable purchasing power and continuous demand for the newly introduced industrial products in both domestic and foreign markets.

Government policy and incentives: Tax exemptions, subsidies, and favorable regulatory frameworks designed to promote industrial growth in rural regions.

Climate affects this classification only indirectly by determining what agricultural raw materials can be grown in specific areas.

Rural District (Bukhara Region)	Major Types of Manufactured Products
G'ijduvon	Cotton yarn, finished textiles, garments, hosiery, traditional ceramics, flour, and bakery products.
Qorovulbozor	Motor gasoline, diesel fuel, fuel oil (mazut), liquefied petroleum gas (LPG), and petroleum asphalt.
Romitan	Natural gas extraction, chemical reagents, cotton fiber, woven fabrics, and plastic goods.
Kogon	Cement, gypsum board, lime, dry building mixes, concrete blocks, and brick products.
Shofirkon	Raw cotton processing, vegetable oil, animal feed (mixed fodder), knitted apparel, and dried fruits.
Jondor	Cotton lint, processed milk and dairy products, meat products, canned food, and construction bricks.
Vobkent	Silk yarn, silk fabrics, cotton threads, hosiery products, and confectionery.
Qorako'l	Astrakhan fur/pelts, processed wool, textiles, animal feed, and purified drinking water.
Olot	Cotton fiber, flour, edible oil, consumer food products, and local construction sand/gravel.
Bukhara District *(Rural outskirts)*	Greenhouse equipment, processed vegetables, soft drinks, furniture, and concrete structures.
Peshku	Cotton processing, agricultural tool assembly, livestock feed, and bakery goods.

Industrial product diversification improves the efficiency of regional industrial location by promoting the optimal use of available natural resources, infrastructure, and labor potential. Industrial location influences product diversification. [9]

Hypothesis (H4): *Favorable regional industrial location factors directly accelerate product diversification, which in turn drives the formation of industrial clusters and enhances overall regional competitiveness.*

A region's geographical location, raw material base, transport infrastructure, labor resources, and proximity to markets determine the types of products that can be manufactured. Regions with favorable industrial locations can diversify their product range more easily. Product diversification contributes to the development of industrial location. The production of new types of goods within a region leads to the establishment of new enterprises, the formation of industrial clusters, and the expansion of the region's industrial specialization. Regional competitiveness increases. Industrial diversification reduces dependence on a single product or sector, lowers economic risks, and enhances the investment attractiveness of the region. Efficient use of resources is ensured. The effective utilization of available raw materials, energy, and labor resources for the production of a wider range of products improves overall industrial efficiency. Regional economic development accelerates. Industrial diversification creates new employment opportunities and helps reduce dependence on seasonal jobs, enabling the local population to secure stable and sustainable sources of income, increases value added, strengthens export potential, and helps reduce economic disparities among regions. [10] Industrial product diversification and regional industrial location are interrelated processes. While a favorable industrial location promotes diversification, diversification, in turn, enhances the industrial potential, competitiveness, and sustainable economic development of a region. Therefore, these two factors should be considered together when developing regional industrial policy.

RECOMMENDATIONS

To promote sustainable development in rural districts through industrial product diversification, policymakers should prioritize the strategic transition from primary processing to high-value-added manufacturing, such as advanced textiles and eco-friendly materials. This structural shift must be supported by the establishment of localized industrial clusters and "smart specialization" zones that integrate supply chains and lower logistical costs. Furthermore, governments should introduce green credit lines and subsidies to encourage the adoption of clean, zero-waste technologies within rural enterprises. Crucially, successful diversification requires fostering human capital by setting up regional vocational centers for digital upskilling and automation, alongside leveraging public-private partnerships to upgrade essential rural infrastructure like energy and digital networks.

CONCLUSION

In conclusion, industrial product diversification serves as a critical driver for the structural transformation and long-term sustainability of rural economies.

Moving away from highly vulnerable mono-industrial or primary commodity dependencies directly stabilizes regional household incomes, generates non-farm employment, and effectively mitigates rural-urban migration. Economically and environmentally, broadening the industrial matrix allows for the integration of circular economy principles, maximizing resource efficiency while reducing the local ecological footprint. Ultimately, achieving comprehensive rural revitalization depends on shifting from spontaneous, low-tech production toward a well-governed, knowledge-driven, and diversified regional industrial policy.

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SUSTAINABLE AGRICULTURE AND ECONOMIC RESILIENCE THROUGH THE HELIX MODELS

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Abstract: *Uzbekistan is a double-landlocked country with an economy heavily reliant on agriculture, arguably one factor impeding the country’s development. One possible remedy to the agricultural transformation is the Helix Innovation Ecosystem. This research investigates how the pillars of the helix- academia, industry, government, civil society, and environmentalists- can be the catalysts that arise from the groans of collaboration while strategizing theories such as international relations and political case studies.*

Keywords: *Academia, Civil society, Government, Strategy, Tangible and intangible.*

INTRODUCTION

The region's economic growth is progressively bound to its innovation power, postulating a transformation towards a knowledge economic system endorsed by a robust science, technology, and innovation (STI) structure (Xu & Zhang, 2024). The evolution of an innovative economy in Asia-Pacific countries requires revolutionary transformations facilitated by active state participation, including establishing national innovation strategies and formulating supportive legislative and institutional infrastructures (Konyukhov et al., 2019). For example, strategies such as China’s “New Quality Productive Forces (2023)” (Li et al., 2024), South Korea’s “Digital Strategy of Korea (2023)” (Ministry of Science and ICT, 2023), and Uzbekistan’s “Development Strategy of New Uzbekistan 2022-2026 (2022) ” (Eurasia Center, 2022), enable the various approaches taken by each country to decode their specific challenges and highlight their strengths for sustainable growth by fostering innovation, improving digital capabilities, and upgrading comprehensive development strategies especially in agriculture. Landlocked developing countries (LLDCs), such as Uzbekistan and some other emerging countries, lack territorial access to the sea, are remote and isolated from world markets, and have high transit costs, which impose severe constraints on overall socio-economic development. [1] Uzbekistan in 2022, with 25% of GDP and about 26% of the labor force covered

by agriculture (USA International Trade Administration, 2023), has a population of over 36 million (World Population Review, 2024), with refined copper, petroleum gases, polymers of ethylene, motor cars, wheat, and mineral or chemical fertilizers as its top export and import products in 2021 (Trend Economy, 2023). Innovation in the agricultural sector is essential for economic growth, technological advancement, and societal development (Dub et al., 2023). This article discusses Uzbekistan's challenges and efforts to fight for economic, social, and environmental improvements to promote qualitative development and innovation-driven growth through sustainable agriculture.

MAIN BODIES

Helix Innovation Ecosystem for Uzbekistan: In Uzbekistan, the agricultural sector sustains the economy and social welfare by offering innovation opportunities fostered through the Helix Innovation Ecosystem application. It explains how this multi-dimensional system involving academia, industry, government, civil society and media, and environmentalists can transform Uzbekistan's agricultural practices. The Helix model seeks to establish a sustainable, resilient, and highly productive agricultural sector by promoting extensive collaborations among these stakeholders.

Civil Society (The Public): A sustainable development philosophy, state-of-the-art technologies, and effective operations would promote farmers, consumers, and ecology by creating more substantial and more profitable agriculture systems (Pretty et al., 2011). In the above-substantiated scenarios, delay, information fragmentation, fraud, and counterfeit products circulating through the network often significantly affect the supply chain (Kshetri, 2017). For instance, agricultural producers may not be able to obtain their payment after transporting goods in return for delivery; buyers may lack funds to afford transactions with farmers, while consumers may not fully trust the products they purchase and would overwhelmingly need supporting verifiable information regarding the goods' conditions and quality. By building upon the integration of data, trade, and finance flows, it would optimize the supply chain in which all the actors in the agricultural supply chain, such as farmers, buyers, storage, and consumers, will be participating in one database with a specific interface to exchange information and develop a more innovative and secure supply of goods and services.

The Industry of Agriculture: ESG Investing The application of the Helix Innovation Ecosystem will revitalize the agricultural industry in Uzbekistan. Integrating Environmental, Social, and Governance (ESG) principles in agricultural practices can help Uzbekistan deal with the factors affecting the

country and change its image in international markets as a landlocked, low emission economy center with strong supply chains of enhanced added value. In agriculture, natural resources management in Uzbekistan might not be peaceful partially because of human wildlife conflicts or dam conflicts between Uzbekistan and its neighbor nation, Kyrgyzstan, due to the historical context.[1] Even though Uzbekistan has made significant advancements in its climate change adaptation planning process to strengthen climate-sensitive sectors further and improve existing mechanisms to maintain sustainability,[2] Uzbek's agricultural sector has been dominated by the production of cotton and wheat, two highly regulated sub-sectors whose productivity and production levels remain low, with limited diversification after numerous farm and sector restructuring processes.[3] Agricultural development in Uzbekistan is intertwined with multiple facets of environmental, social, and governance (ESG) investing. For instance, industrial agriculture can impact the country's environment, posing risks of deforestation and pesticide use (de Souza et al., 2024). Additionally, centralized power and control by unelected technocrats and private global institutions can negatively influence monetary policy, capital, and credit distribution (Pistor, 2019). Landlocked developing countries (LLDCs) like Uzbekistan face challenges, such as delays at borders, productivity constraints, and structural weaknesses, reducing their development by approximately 20% compared to countries with sea access (ESCAP, 2024). Incorporating ESG principles into investment strategies can transform LLDCs into land-linked, low-carbon nations with resilient and value-added supply chains (Kronenberg et al., 2020). Enhanced investments in clean water and sanitation services can lead to faster and more sustainable progress, facilitating the transition to a green economy in landlocked nations (Gurung, 2016). ESG Country Ratings can complement traditional financial ratings by analyzing countries' sustainability performance and risks, benefiting developed and emerging markets (Ng et al., 2020). Emerging-market (EM) countries, accounting for over 60% of global carbon emissions, face significant climate change impacts that could push millions into poverty by 2030 (Garzón-Jiménez & Zorio-Grima, 2021). The United Nations' sustainability goals urge EM countries, including Uzbekistan, to make considerable progress in addressing ESG and economic challenges by 2030.[4].

Uzbekistan is particularly vulnerable to climate change since it is already the site of the world’s worst human catastrophe: the drying up of the Aral Sea. Things will worsen in the coming decades as temperatures rise considerably more than the global average.[5] Threats from water shortages, soil salinity, and

erosion are severe, affecting 20 percent of the population through water salinization.[6] Climate warming has reduced snow cover and increased evaporation. An increase in the frequency and intensity of droughts may lead to instability in agricultural production and threaten the country's food security.[7]

Sustainable Agricultural Innovation in the Helix Ecosystem: Tangible factors provide the measurable and concrete infrastructure that forms the backbone of the ecosystem (Neto et al., 2024). This includes digital infrastructure like high-speed internet and mobile networks, essential for seamless communication and collaboration among stakeholders, and physical infrastructure, such as transportation networks and specialized facilities, which support the efficient movement of resources and interaction among various entities in the agricultural sector. Financial resources, including funding availability and public-private investments, are vital for enabling startups and research projects for sustainable agriculture, ensuring that innovative ideas can be transformed into marketable products.

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SANOAT KORXONALARINI YASHIL IQTISODIYOT TAMOYILLARI ASOSIDA IQTISODIY RIVOJLANTIRISHNING NAZARIY ASOSLARI

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Annotatsiya. *Maqolada sanoat korxonalarini yashil iqtisodiyot tamoyillari asosida rivojlantirishning nazariy asoslari tahlil qilingan. "Yashil iqtisodiyot" konsepsiyasining neoklassik, institutsional va evolyutsion nazariyalardan kelib chiquvchi evolyutsiyasi hamda uning UNEP, Jahon banki, UNIDO, Porter va Van der Linde kabi olimlar konsepsiyalariga asoslangan nazariy poydevori yoritilgan. Sanoat korxonalarini yashillashtirishning beshta asosiy tamoyili — resurs-energiya samaradorligi va decoupling, aylanma iqtisodiyot, texnologik modernizatsiya, yashil moliyalashtirish hamda institutsional shaffoflik — ochib berilgan. Xulosa qilinganki, bu tamoyillar o'zaro bog'liq yaxlit tizimni tashkil etib, sanoat korxonalarini yashil iqtisodiyotga o'tkazish mexanizmini ishlab chiqish uchun metodologik asos bo'lib xizmat qiladi.*

Kalit so'zlar: *yashil iqtisodiyot, sanoat korxonalari, decoupling, aylanma iqtisodiyot, nazariy asoslar.*

Abstract. *The paper analyzes the theoretical foundations for developing industrial enterprises based on green economy principles. It examines the evolution of the "green economy" concept from neoclassical, institutional and evolutionary theories, and its theoretical basis drawing on UNEP, the World Bank, UNIDO, Porter and van der Linde. Five core principles of greening industrial enterprises — resource-energy efficiency and decoupling, the circular economy, technological modernization, green financing, and institutional transparency — are elaborated. The study concludes that these principles form an interconnected system serving as a methodological foundation for designing a green transition mechanism for industrial enterprises.*

Keywords: *green economy, industrial enterprises, decoupling, circular economy, theoretical foundations.*

KIRISH

Hozirgi davrda sanoat korxonalari iqtisodiy o‘sishini ekologik yuklamadan ajratish, ya’ni decouplingni amalga oshirish zamonaviy iqtisodiy sharoitda ustuvor yo‘nalishlardan biri hisoblanadi. Iqtisodiyotni yashillashtirishda ham bu yo‘nalish muhim o‘rin egallaydi. “Yashil” iqtisodiyot davlatlar siyosatiga kirib borgan bo‘lsa-da, tarmoqlar orasida, ayniqsa sanoat tarmoqlarida, hali aniq amaliy mexanizmlarga ega emas. Ushbu maqola sanoat korxonalarining “yashil” iqtisodiyotga o‘tish salohiyatining nazariy asoslarini o‘rganishga bag‘ishlangan.

ASOSIY QISM

“Yashil” iqtisodiyot evolyutsiyasiga qaraydigan bo‘lsak, eng birinchi bosqich neoklassik maktab nazariyasidan boshlanadi. Bu bosqichda tabiatga zarar faqatgina nisbiy narxlarda ko‘rsatilgan va resurslarni to‘g‘ri taqsimlash orqali foydani oshirishga e’tibor qaratilgan. Ikkinchi bosqich — institutsional maktab davriga kelib esa, narxlashning o‘zi yetarli emasligi, tabiiy resurslarni va tabiatga yetkazilgan zararni faqat narx mexanizmi emas, balki me’yoriy-huquqiy hujjatlar bilan ham nazorat qilish kerakligi borasida xulosalar paydo bo‘ldi. Uchinchi, evolyutsion nazariyada esa vaqt omilining muhimligi, kapital zaxiralarining bosqichma-bosqich eskirishi hamda yangi resurs-tejamkor texnologiyalarni o‘rnatishda investitsiyalar o‘rni muhimligi o‘rganiladi. Bu uchchala nazariya bir-birini inkor etmaydi, aksincha, bir-birini to‘ldiradi. Biroq ushbu nazariyalar tabiat resurslarini cheksiz va tuganmas deb hisoblash g‘oyasi ostida rivojlanadi. Shu sababli ham tabiatga yetkazilayotgan zararni kamaytirish va ekologik holatni yaxshilash maqsadida fanga “yashil” iqtisodiyot konsepsiyasi kirib keldi — atama ilk bor Pearce va Markandya (1989) tomonidan ilmiy muomalaga kiritilgan. Konsepsiyaga ta’rif beradigan bo‘lsak, “yashil iqtisodiyot” — past uglerodli, tabiiy resurslarni tejovchi, ijtimoiy jihatdan adolatli va qazilma yoqilg‘iga qaramligini kamaytiruvchi iqtisodiyotdir (UNEP, 2011). Uning sanoat tarmog‘i korxonalarini iqtisodiy rivojlantirish bilan bog‘liqligining nazariy poydevorini BMT Atrof-muhit dasturi (UNEP, 2011) va Jahon banki (2012) tomonidan ishlab chiqilgan “inklyuziv yashil o‘sish” konsepsiyalari, shuningdek Porter va Van der Linde (1995)ning ekologik tartibga solish va raqobatbardoshlik o‘rtasidagi bog‘liqlik nazariyasi tashkil etadi. Ularning tahlili shuni ko‘rsatadiki, korxonalarda tabiatga yetkazilayotgan zararning va loyiha xarajatlarining yuqoriligi ko‘pincha loyihaning to‘g‘ri shakllanmaganidan kelib chiqadi; loyiha xarajatlarini kamaytirish bilan bir qatorda tabiatga zararni ham kamaytirishga energiya-tejamkor texnologiyalar va to‘g‘ri shakllantirilgan loyiha orqali erishish mumkin.

Sanoat korxonalari darajasida yashillashtirishda 5 ta asosiy yashil tamoyilni ajratib ko‘rsatish mumkin. Birinchi tamoyil — resurs-energiya samaradorligi va yuqorida so‘z yuritilgan decoupling hisoblanadi. Bu tamoyilning asosiy nazariy mohiyati sanoat korxonalarini iqtisodiy rivojlantirishda resurs samaradorligiga erishish va iqtisodiy o‘sishni energiya intensivligidan ajratishdan iborat. Bu, sanoat korxonalarining ham iqtisodiy jihatdan foydaga chiqishini, ham ekologik jihatdan tabiatga yetkazilayotgan zararni kamaytirishni nazarda tutadi. Ikkinchi tamoyil — aylanma iqtisodiyot va ikkilamchi resurslar bo‘lib, bunda chiqindini qayta ishlash va resurslardan oqilona foydalanish ko‘zda tutiladi. Uchinchi tamoyil korxonalarning texnologik modernizatsiyasini o‘z ichiga olib, energiya-tejamkor texnologiyalar o‘rnatishga rag‘batlantiradi. To‘rtinchi tamoyil aynan ushbu texnologiyalarni o‘rnatish uchun investitsiyalar jalb qilish va moliyalashtirish imkoniyatlarini o‘z ichiga oladi. So‘nggi, beshinchi tamoyil esa sanoat korxonalarida ma’lumotlarning shaffofligi va ochiqligi hisoblanadi.

Birinchi tamoyilni chuqurroq ko‘rib chiqadigan bo‘lsak, “uzilish” (decoupling) nazariyasi ikki holatga bo‘linadi: nisbiy va mutlaq uzilish. Nisbiy uzilishda yalpi ichki mahsulot o‘sish sur’ati energiya iste’moli o‘sish sur’atidan yuqori bo‘ladi, mutlaq uzilishda esa energiya sarfi mutlaq ko‘rsatkichda kamaysa-da iqtisodiy o‘sish davom etadi. UNIDO (2011)ning “yashil sanoat” (Green Industry) konsepsiyasiga ko‘ra, sanoat tarmoqlarining ustuvor vazifasi aynan mutlaq uzilishga erishish, ya’ni iqtisodiy o‘sishni saqlagan holda resurs sarfi va ifloslanishni real ravishda qisqartirishdir — bu, ishlab chiqarish hajmini kamaytirmasdan, bir birlik mahsulotga to‘g‘ri keladigan resurs-energiya sarfini pasaytirish orqali amalga oshiriladi.

Ikkinchi tamoyilning nazariy mazmuni aylanma iqtisodiyot tushunchasiga borib taqaladi. Loiseau va boshqalar (2016)ning yondashuviga ko‘ra, aylanma iqtisodiyot — material va energiya oqimlarini sekinlashtirish, yopish hamda toraytirish orqali resurs kirimini, chiqindini va energiya yo‘qotilishini minimallashtiruvchi tiklanuvchi (regenerativ) tizimdir. An’anaviy korxonalar “xomashyo — mahsulot — chiqindi” ko‘rinishidagi chiziqli modelda faoliyat yuritadi, bunda chiqindi hajmi ishlab chiqarish bilan birga oshib boradi va tabiatga yetkaziladigan zarar ham ko‘payadi. Aylanma iqtisodiyot esa, aksincha, chiqarilgan chiqindini qayta ishlab, ikkilamchi resurs sifatida ishlab chiqarish jarayoniga qaytarishni, ya’ni yopiq sikl (closed-loop) modelini nazarda tutadi. Bunday o‘tish birlamchi resurslarni tejash bilan bir qatorda, chiqindilardan oqilona foydalanish va tabiatga yetkaziladigan zararni kamaytirishga ham xizmat qiladi.

Uchinchi tamoyil Porter va Van der Linde (1995)ning gipotezasiga tayanadi, unga ko‘ra ekologik talablarning kuchayishi korxonalar uchun qo‘shimcha iqtisodiy yuk emas, balki texnologik yangilanishga undovchi turtki vazifasini bajaradi. Mualliflarning fikricha, loyihalarda xarajatlarning oshib ketishi yoki tabiatga yetkazilayotgan zararning yuqoriligi ko‘pincha loyihaning o‘zi noto‘g‘ri shakllantirilganidan kelib chiqadi — to‘g‘ri loyihalashtirilgan, energiya-tejamkor texnologiyalarga asoslangan modernizatsiya esa nafaqat ekologik, balki iqtisodiy samaradorlikni ham bir vaqtda oshirishi mumkin.

To‘rtinchi tamoyil sanoat korxonalarining yashil transformatsiyasini moliyaviy jihatdan ta’minlashga qaratilgan bo‘lib, so‘nggi yillarda jahon moliya bozorida keng tarqalgan yashil kreditlar, yashil obligatsiyalar va subsidiyalar kabi vositalardan foydalanishni nazarda tutadi. Bu tamoyil ayniqsa o‘rta va kichik korxonalar uchun muhim ahamiyatga ega, chunki ular yirik korxonalardan farqli o‘laroq yashil transformatsiyani mustaqil moliyalashtirish uchun cheklangan salohiyatga ega bo‘lib, tashqi qo‘llab-quvvatlashga ko‘proq muhtoj bo‘ladi.

Beshinchi tamoyil sanoat korxonalarini nazorat qilish bilan bir qatorda ularni qo‘llab-quvvatlashda ham muhim o‘rin tutadi. Korxona ma’lumotlarining ochiqligi va shaffofligi energiya-resurs sarfi, asosiy vositalar eskirishi va ichki moliyaviy resurslar holati haqidagi ma’lumotlarni raqamlashtirilgan tartibda yig‘ish va nazorat qilishga yordam beradi. Taxmin qilish mumkinki, bunday ochiqlik tashqi audit va xalqaro reytinglar orqali korxonaga nisbatan ishonchni oshirishi, shu bilan birga tashqi investitsiyalarni jalb qilishni osonlashtirishi mumkin — biroq bu bog‘liqlik hozircha I bob doirasida alohida statistik tasdiqlanmagan bo‘lib, kelgusi tadqiqot yo‘nalishlaridan biri bo‘lib qolmoqda.

XULOSA

Xulosa qilib aytganda, sanoat korxonalarini yashil iqtisodiyot tamoyillari asosida rivojlantirish yagona nazariyaga emas, balki neoklassik, institutsional va evolyutsion maktablarni birlashtiruvchi kompleks nazariy negizga tayanadi. Ushbu negiz asosida aniqlangan beshta tamoyil — resurs-energiya samaradorligi va decoupling, aylanma iqtisodiyot, texnologik modernizatsiya, yashil moliyalashtirish hamda institutsional shaffoflik — alohida-alohida emas, balki o‘zaro bog‘liq yaxlit tizim sifatida namoyon bo‘ladi: birinchi ikki tamoyil korxonalarning ekologik-texnologik yo‘nalishini belgilasa, keyingi ikkitasi bu yo‘nalishni amalga oshirishning vositasi vazifasini bajaradi, beshinchisi esa butun jarayonning nazorat qilinishi va natijalarning baholanishini ta’minlaydi. Ushbu nazariy asos sanoat korxonalarini yashil iqtisodiyotga o‘tkazishning

amaliy mexanizmini ishlab chiqish uchun metodologik poydevor bo‘lib xizmat qiladi va muallifning keyingi tadqiqotlarida statistik tahlil bilan boyitiladi.

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RAQAMLI TEXNOLOGIYALAR ASOSIDA TURIZM SOHASINING IQTISODIY SAMARADORLIGINI OSHIRISH: O‘ZBEKISTON TAJRIBASI

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Annotatsiya. *Maqolada turizm va iqtisodiyot kesishmasidagi dolzarb masala – turizm sohasini raqamlashtirishning iqtisodiy samaradorlikka ta’siri o‘rganilgan. Qiyosiy tahlil va tizimli yondashuv asosida onlayn bron qilish, elektron viza, mobil ilovalar, raqamli marketing va katta ma’lumotlar tahlili vositalarining tarmoq daromadlari hamda xarajatlariga ta’siri baholangan. O‘zbekistonda raqamli turizm rivojlanishidagi asosiy muammolar aniqlanib, tarmoqning iqtisodiy samaradorligini oshirishga qaratilgan takliflar ishlab chiqilgan.*

Kalit so‘zlar: *turizm iqtisodiyoti, raqamli transformatsiya, iqtisodiy samaradorlik, smart turizm, turistik xizmatlar eksporti, O‘zbekiston.*

Abstract. *The article examines the impact of digital transformation on the economic efficiency of the tourism sector, a topic at the intersection of tourism and economics. Using comparative analysis and a systems approach, it assesses how online booking, e-visa services, mobile applications, digital marketing and big data analytics affect industry revenues and costs. The main obstacles to digital tourism development in Uzbekistan are identified, and proposals for improving the sector’s economic efficiency are put forward.*

Keywords: *tourism economics, digital transformation, economic efficiency, smart tourism, tourism service exports, Uzbekistan.*

KIRISH

Turizm jahon iqtisodiyotining eng tez rivojlanayotgan va ko‘p tarmoqlarni o‘zaro bog‘laydigan sohalaridan biridir. Jahon sayohat va turizm kengashi (WTTC) ma’lumotlariga ko‘ra, tarmoqning jahon yalpi ichki mahsulotidagi ulushi taxminan 10 foizni tashkil etadi (WTTC, 2024). Shu bilan birga turizm transport, savdo, qurilish, oziq-ovqat sanoati va hunarmandchilik kabi sohalarda multiplikativ ta’sir ko‘rsatib, aholi bandligi va valyuta tushumini oshiradi.

COVID-19 pandemiyasi turizm tarmog‘ining tashqi shoklarga nihoyatda sezgirligini ko‘rsatdi (Gössling et al., 2021). Shu bilan birga, u raqamli texnologiyalarning rolini keskin kuchaytirdi. Jumladan, masofaviy bron qilish, kontaktsiz to‘lovlar va onlayn axborot xizmatlari turistik xizmat ko‘rsatishning asosiy shakliga aylandi. Bugungi kunda raqamli transformatsiya va sun’iy intellekt turizm korxonalarining raqobatbardoshligini belgilovchi omillardan biri hisoblanadi (Buhalis & Law, 2008; Gretzel et al., 2015).

O‘zbekistonda turizm strategik ahamiyatga ega tarmoq sifatida e’tirof etilgan. 2018-yilda turizm sohasini jadal rivojlantirish chora-tadbirlari to‘g‘risidagi Prezident Farmoni qabul qilindi (PF-5326), 2019-yilda esa yangi tahrirdagi “Turizm to‘g‘risida”gi Qonun kuchga kirdi. Elektron viza tizimining joriy etilishi va ko‘plab davlat fuqarolari uchun vizasiz rejimning o‘rnatilishi turistlar oqimini oshirishda muhim omil bo‘ldi. Biroq tarmoqning iqtisodiy samaradorligi nafaqat tashrif buyuruvchilar soni, balki ularning o‘rtacha sarf-xarajati, turar joydagi kunlar soni va xizmatlar sifati bilan ham o‘lchanadi. Shu nuqtai nazardan raqamli vositalar va hozirda insonlarning jonsiz yordamchisiga aylangan sun’iy intellektning iqtisodiyotga ta’sirini o‘rganish dolzarb ilmiy-amaliy vazifa hisoblanadi.

Tadqiqotning maqsadi – turizm sohasini raqamlashtirishning iqtisodiy samaradorlikka ta’sirini aniqlash va O‘zbekiston sharoitida uni oshirish yo‘llarini asoslash hisoblanadi. Maqsadga erishish uchun quyidagi vazifalar belgilandi: raqamli turizmning nazariy asoslarini tahlil qilish; asosiy raqamli vositalarning iqtisodiy samarasini tizimlashtirish; mavjud muammolarni aniqlash va takliflar ishlab chiqish.

ASOSIY QISM

1. Nazariy asoslar va tadqiqot metodologiyasi

Global rivojlanish sharoitida axborot-kommunikatsiya texnologiyalari turizm sohasida taqsimot kanallarini tubdan o‘zgartirib, turistlar va xizmat ko‘rsatuvchilar o‘rtasidagi bevosita aloqani kuchaytirdi hamda vositachilik xarajatlarini kamaytirdi (Buhalis & Law, 2008). So‘nggi yillarda “smart turizm” tushunchasi shakllandi: u turistik makonda ma’lumotlarni yig‘ish, tahlil qilish va ularni xizmatlar sifatini yaxshilash hamda yangi qo‘shilgan qiymat yaratish uchun ishlatishni nazarda tutadi (Gretzel et al., 2015).

Tadqiqot jarayonida qiyosiy tahlil, tizimli yondashuv, kontent-tahlil va ilmiy sintez usullaridan foydalanildi. Axborot bazasini xalqaro tashkilotlar (UN Tourism, WTTC) hisobotlari, O‘zbekiston Respublikasining normativ-huquqiy hujjatlari va xorijiy ilmiy nashrlar tashkil etdi.

2. Raqamli vositalarning iqtisodiy samaradorlikka ta’siri

Tadqiqot jarayonida olib borilgan tahlil raqamli texnologiyalarning turizm iqtisodiyotiga ta’siri bir necha yo‘nalishda namoyon bo‘lishini ko‘rsatdi: xarajatlarning kamayishi, daromadlarning oshishi, bozor qamrovining kengayishi va boshqaruv qarorlari sifatining yaxshilanishi. Asosiy vositalar va ularning iqtisodiy samarasi 1-jadvalda umumlashtirilgan.

1-jadval. Raqamli vositalarning turizmdagi iqtisodiy ta’siri

Raqamli vosita	**Asosiy funksiyasi**	**Iqtisodiy samarasi**
Onlayn bron qilish va to‘lov platformalari	Mehmonxona, transport va ekskursiyalarni masofadan band qilish	Vositachilik xarajatlari kamayadi, bandlik darajasi va daromad oshadi
Elektron viza va raqamli chegara xizmatlari	Kirish rasmiyatchiliklarini soddalashtirish	Tashrif buyuruvchilar oqimi ortadi, tranzaksiya xarajatlari kamayadi
Mobil ilovalar va virtual gidlar	Ko‘p tilli axborot va navigatsiya xizmati	Turistning o‘rtacha sarf-xarajati va turar joydagi kunlar soni ortadi
Ijtimoiy tarmoqlar va raqamli marketing	Yo‘nalishlarni targ‘ib qilish, brend shakllantirish	Marketing xarajatlari kamayadi, yangi bozorlarga chiqish osonlashadi
Katta ma’lumotlar (Big Data) tahlili	Talabni prognozlash, narxni dinamik belgilash	Resurslardan samarali foydalanish, mavsumiylik ta’siri kamayadi

Manba: muallif tomonidan tizimlashtirilgan.

Jadvaldan ko‘rinib turibdiki, raqamli vositalarning ta’siri turlicha: ayrimlari (onlayn bron qilish, elektron viza) tranzaksiya xarajatlarini kamaytirsa, boshqalari (katta ma’lumotlar tahlili, dinamik narxlash) resurslardan foydalanish samaradorligini oshiradi. Ayniqsa, turistik xizmatlar eksporti nuqtai nazaridan elektron viza va xalqaro to‘lov tizimlarining integratsiyasi muhim ahamiyatga ega, chunki xorijiy turistlarning sarflari mamlakat uchun eksport tushumi hisoblanadi. Eksportni tushumining oshishi esa iqtisodiyotga sezilarli darajada ijobiy ta’sirini namoyon etadi.

3. O‘zbekistonda raqamli turizm rivojlanishidagi ayrim muammolar

Mamlakatda raqamli turizm sohasida muayyan yutuqlarga erishilgan bo‘lsa-da, tahlil quyidagi muammolarni aniqlash imkonini berdi. Birinchidan, kichik mehmonxonalar, mehmon uylari va oilaviy biznes subyektlarining katta qismi xalqaro bron qilish platformalaridan to‘liq foydalana olmaydi yoki ularga

yuqori komissiya to‘laydi. Ikkinchidan, mintaqalarda internet tezligi va raqamli infratuzilma markaziy shaharlarga nisbatan sustroq rivojlangan. Uchinchidan, turizm statistikasi va turistlar xulq-atvori to‘g‘risidagi ma’lumotlar yagona raqamli platformada yetarlicha integratsiyalashmagan, bu esa talabni prognozlashni qiyinlashtiradi. To‘rtinchidan, sohada raqamli ko‘nikmalarga ega malakali kadrlar yetishmaydi. Beshinchidan, mavsumiylik tufayli tarmoq daromadlari yil davomida notekis taqsimlanadi.

4. Iqtisodiy samaradorlikni oshirish bo‘yicha takliflar

Tadqiqot natijalari asosida quyidagi takliflar ishlab chiqildi.

1) Milliy turizm ekotizimini shakllantirish: yo‘nalishlar, xizmat ko‘rsatuvchilar, transport va to‘lov xizmatlarini birlashtiruvchi ko‘p tilli yagona raqamli platforma yaratish.

2) Kichik turistik biznes uchun raqamli savodxonlik dasturlari va imtiyozli kreditlar orqali ularni onlayn platformalarga jalb etish.

3) Turizm ma’lumotlarini yig‘ish va tahlil qilish tizimini rivojlantirib, talabni prognozlash va dinamik narxlashni joriy etish.

4) Mintaqalarda raqamli infratuzilmani kengaytirish orqali turizm oqimini bir tekis taqsimlash.

5) Oliy ta’lim muassasalarida turizm va raqamli texnologiyalar kesishmasidagi kadrlar tayyorlash dasturlarini kengaytirish.

6) Mavsumiylikni kamaytirish maqsadida gastronomik, madaniy va tibbiy turizm kabi yil davomida talab qilinadigan mahsulotlarni raqamli kanallar orqali targ‘ib qilish.

Ushbu takliflar amalga oshirilganda turistlarning o‘rtacha sarf-xarajati va turar joydagi kunlar sonining ortishi, kichik biznes daromadlarining o‘sishi hamda turizm xizmatlari eksporti hajmining kengayishi kutiladi. Shu bilan birga, raqamlashtirish jarayonida atrof-muhit va madaniy meros muhofazasi tamoyillariga rioya qilish barqaror turizm konsepsiyasining ajralmas sharti hisoblanadi (UNEP & UNWTO, 2005).

XULOSA

Xulosa tariqasida shuni aytishimiz mumkin, raqamli texnologiyalar turizm sohasining iqtisodiy samaradorligini oshirishning muhim omili hisoblanadi. Ular tranzaksiya va marketing xarajatlarini kamaytirish, xorijiy bozorlarga chiqishni osonlashtirish, daromadlarni oshirish hamda boshqaruv qarorlari sifatini yaxshilash imkonini beradi. O‘zbekiston sharoitida bu jarayonning samaradorligi kichik biznesning raqamli imkoniyatlardan foydalanishi, mintaqaviy infratuzilmaning rivojlanishi, ma’lumotlar tahlili

tizimining takomillashuvi va malakali kadrlar tayyorlanishiga bog‘liq. Taklif etilgan chora-tadbirlar tarmoqning raqobatbardoshligini oshirib, turizmni mamlakat iqtisodiyotining barqaror o‘sish drayveriga aylantirishga xizmat qiladi.

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STATISTIK TADQIQOTLARDA TANLANMA KUZATISHNING QO‘LLANILISHI

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Annotatsiya. *Ushbu tezisda statistik tadqiqotlarda tanlanma kuzatishning mohiyati, afzalliklari va qo‘llanish sohalari tahlil qilingan. Tanlanma kuzatish umumiy to‘plamni to‘liq o‘rganish imkoni bo‘lmagan hollarda tejamkor va ishonchli natija beruvchi samarali usul sifatida qaraladi. Ishda tanlanmaning asosiy turlari (tasodifiy, qatlamli, sistematik) va ulardan foydalanishning afzalliklari yoritilgan. Shuningdek, tanlanma hajmi, xatolik va natijalarning ishonchliligi masalalari ko‘rib chiqilgan. Olingan xulosalar iqtisodiy va ijtimoiy tadqiqotlarda, jumladan O‘zbekiston statistika amaliyotida qo‘llanishi mumkin.*

Аннотация: *В данной тезисной работе проанализированы сущность, преимущества и сферы применения выборочного наблюдения в статистических исследованиях. Выборочное наблюдение рассматривается как эффективный метод, обеспечивающий экономичные и достоверные результаты в случаях, когда невозможно полностью изучить генеральную совокупность. В работе освещены основные виды выборки (случайная, стратифицированная, систематическая) и преимущества их использования. Также рассмотрены вопросы объёма выборки, ошибок и надёжности полученных результатов. Сделанные выводы могут быть применены в экономических и социальных исследованиях, в том числе в статистической практике Узбекистана.*

Annotation: *This thesis analyzes the essence, advantages, and areas of application of sample observation in statistical research. Sample observation is considered an effective method that provides economical and reliable results in cases where it is impossible to study the entire population. The main types of sampling (random, stratified, systematic) and their advantages are highlighted. Issues of sample size, errors, and reliability of results are also examined. The conclusions drawn can be applied in economic and social research, including the statistical practice of Uzbekistan.*

Kalit so‘zlar: *tanlanma kuzatish, statistika, tanlanma xatosi, reprezentativlik.*

Ключевые слова: *выборочное наблюдение, статистика, ошибка выборки, репрезентативность.*

Keywords: *sample representativeness. observation, statistics, sampling error,*

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Statistika — ijtimoiy, iqtisodiy va boshqa sohalardagi hodisalar va jarayonlarni miqdoriy jihatdan o‘rganish va tahlil qilish fanidir. To‘plangan ma’lumotlar asosida qarorlar qabul qilish, siyosatlarni rejalashtirish va resurslarni samarali taqsimlash statistikaning amaliy ahamiyatini oshiradi. Biroq, ayrim hollarda tadqiqot ob’ektining barcha birligini o‘rganish — vaqt jihatdan, moliyaviy jihatdan yoki texnik jihatdan imkonsiz bo‘lishi mumkin. Shunday vaziyatlarda tanlanma kuzatish usuli keng qo‘llaniladi. Bu usulda butun to‘plamdan ma’lum mezonlar asosida tanlab olingan birliklar tahlil qilinadi va ularning xususiyatlari orqali bosh to‘plam haqida xulosa chiqariladi. Masalan, O‘zbekiston statistikasida uy xo‘jaliklari daromadi yoki iste’mol narxlari bo‘yicha tadqiqotlarda butun aholini tekshirib bo‘lmaydi, shuning uchun tanlanmalar olinadi va ulardan umumlashtiriladi.

Ushbu tezisning maqsadi — tanlanma kuzatish usulini keng tahlil qilish, uning turlari va xatolari bilan tanishish, shuningdek O‘zbekistonda greydagi statistik tadqiqotlarda amalda qo‘llanilishi bo‘yicha misollar keltirishdir. Tezisdagi natijalar tanlanma metodlarini yaxshilash va statistika amaliyotida xatolarni kamaytirish bo‘yicha tavsiyalar berishga xizmat qiladi. Asosiy qism 1. Tanlanma kuzatish tushunchasi va zaruriyati Statistik tadqiqotlarda ko‘pincha barcha birliklarni — ya’ni butun to‘plamni — o‘rganish vaqt, kuch va mablag‘ jihatdan qiyin bo‘ladi. Shuning uchun butun to‘plamdan ma’lum mezonlar asosida tanlab olingan birliklar ustida ishlash — tanlanma kuzatish — usuli qo‘llaniladi. Tanlanma kuzatish yordamida ma’lumot to‘plash tezlashadi, resurslardan samaraliroq foydalaniladi va aniqlik ma’lum chegaralar ichida ta’minlanadi.

[1] 2. Tanlanma turlari va tanlash usullari Tanlanma kuzatishda turli usullar qo‘llaniladi. Quyida eng ko‘p ishlatiladigan turlari va ularning xususiyatlari bayon etiladi:

2.1 Tasodifiy tanlash Bu usulda har bir birlik tanlanma tarkibiga kirish ehtimoli teng bo‘ladi. Misol tariqasida:

- Oddiy tasodifiy tanlash – barcha birliklar soni N bo‘lsa, n birlik tasodifiy ravishda tanlanadi.
- Sistematik tanlash – birliklar tartiblanib, ma’lum oraliq (k) bo‘yicha bir birlik tanlab olinadi (masalan 10-ta birlik ichidan har 5-inchi tanlanadi).

Tasodifiy tanlash usullari samarali bo‘lishi uchun to‘plam ichidagi birliklar o‘xshash bo‘lishi lozim. [2]

2.2 Qatlamli (stratified) tanlash Agar to‘plam ichida ma’lum guruhlar (qatlamlar) mavjud bo‘lsa — masalan, hududlar, yosh guruhlari yoki ijtimoiy qatlamlar — tanlanma har qatlam ichidan proporsional ravishda olinadi. Bu usul tanlanmaning reprezentativligini oshiradi va xatoliklarni kamaytiradi. [3]

2.3 Guruh (klaster) tanlash Bosh to‘plam guruh yoki klasterlarga bo‘lingan bo‘lsa, klasterlardan ba’zilari tanlanadi, so‘ngra tanlangan klaster ichidagi birliklar tekshiriladi. Bu usul katta hududli tadqiqotlarda, masalan mahalliy statistik kuzatuvlarda qo‘llanadi.

[3] 2.4 Tasodifiy bo‘lmagan tanlash Ba’zan tasodifiy tanlash usullari qo‘llash mumkin bo‘lmaydi (resurslar, ma’lumot cheklanganligi). Shunday hollarda:

- Kvota usuli — ma’lum guruhlar uchun oldindan kvota belgilanadi va har guruhdan to‘ldiriladi.
- Quyidagi tanlash (convenience sampling) — eng oson topiladigan birliklardan foydalaniladi. Bu usullar oson, ammo natijada representativlik va xatolik bo‘yicha ehtiyot bo‘lish lozim. [4]

3. Tanlanma xatolari va ishonchlilik Tanlanma natijalari butun to‘plam haqidagi haqiqat bilan to‘la mos kelmasligi mumkin — buning sabablaridan biri tanlanma xatolari. [5]

3.1 Tasodifiy xato Bu xato tasodifiylikdan kelib chiqadi va tanlanmaning hajmi kattalashgani sayin kamayadi. Misol uchun, tanlanma hajmi nnn oshsa, o‘rtacha xato kamayadi. [5]

3.2 Sistematik (muntazam) xato Bu turdagi xato tanlanma tanlashda yoki ma’lumot yig‘ishda sistematik noto‘g‘ri usullar qo‘llanganda yuzaga keladi. Misol: ma’lumot yig‘uvchilar bilib turib noto‘g‘ri javoblar kiritishi. [5]

3.3 Ishonch oralig‘i va ishonch koeffitsienti Tanlanma orqali olinadigan baholarni umumiy to‘plam uchun oraliq bilan ifodalashadi. Masalan, biz deymiz: “bosh to‘plam o‘rtacha qiymati bu oraliqda 95 % ehtimol bilan joylashadi.” Bunday ifoda ishonch oralig‘i deb ataladi.

Kelajakda statistik tadqiqotlarda quyidagilar amalga oshirilishi kutiladi:

- Raqamli ma’lumotlar (big data) bilan integratsiyalashgan tanlanma metodlari rivojlanadi.
- Onlayn va telefon-panel kuzatuvlar keng qo‘llaniladi, bu esa tanlanma olish jarayonini tezlashtiradi.

• Tanlanma xatolarini minimallashtirish uchun kompozit usullar, ya’ni bir nechta tanlash usullarini kombinatsiyalash usullari kengayadi.

• Sun’iy intellekt va stoxastik modellar tanlanma dizaynini optimallashtirishda foydalidir. Bu takliflar tanlanma kuzatish samaradorligini oshirish va statistika natijalarini yanada ishonchli qilishga xizmat qiladi.

XULOSA

O‘tkazilgan tahlillar shuni ko‘rsatadiki, statistik tadqiqotlarda tanlanma kuzatish eng muhim usullardan biri hisoblanadi. Chunki umumiy to‘plamni to‘liq o‘rganish ko‘p hollarda vaqt va mablag‘ jihatidan qiyin, hatto imkonsiz bo‘lib qoladi. Tanlanma usuli esa qisqa muddatda, kam resurs sarflab, bosh to‘plam haqida yetarlicha ishonchli xulosalar chiqarishga yordam beradi. Amaliyot shuni ko‘rsatmoqdaki, tasodifiy, qatlamli va sistematik tanlanmalar yordamida yig‘ilgan ma’lumotlar yuqori darajada reprezentativ bo‘ladi va ular asosida umumiy to‘plamning parametrlarini ishonchli baholash mumkin. Xususan, O‘zbekiston statistika tizimida uy xo‘jaliklari byudjeti, iste’mol narxlari indeksi va mehnat bozorini o‘rganishda tanlanma kuzatish samarali qo‘llanmoqda.

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YASHIL IQTISODIYOTNI RIVOJLANTIRISHNING XORIJIY MAMLAKATLAR TAJRIBASI VA TA'LIMNI MODERNIZATSIYA QILISHDA UNING MEHNAT BOZORI BILAN UYG'UNLIGI

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Annotatsiya. *Mazkur maqolada yashil iqtisodiyot tushunchasi, uning global rivojlanish tendensiyalari hamda ilg'or xorijiy mamlakatlar tajribasi tahlil qilinadi. Shuningdek, yashil iqtisodiyot sharoitida ta'lim tizimini modernizatsiya qilish va uni mehnat bozori ehtiyojlariga moslashtirish masalalari o'rganiladi. Maqolada ta'lim va iqtisodiyot integratsiyasining ahamiyati asoslab beriladi.*

Kalit so'zlar: *yashil iqtisodiyot, mehnat bozori, ta'lim tizimini modernizatsiya qilish, inson kapitali, qayta tiklanuvchi energiya, dual ta'lim tizimi, yashil ish o'rinlari.*

Abstract. *This article examines the concept of the green economy, analyzes its global development trends, and explores the advanced experiences of foreign countries. It also studies the issues of modernizing the education system in the context of the green economy and aligning it with labor market requirements. The article substantiates the importance of integrating education and the economy.*

Keywords: *green economy, labor market, modernization of the education system, human capital, renewable energy, dual education system, innovative development, economic integration, green jobs.*

KIRISH

XXI asr boshlaridan boshlab global miqyosda ekologik muammolar - iqlim o'zgarishi, biologik xilma-xillikning kamayishi, suv va energiya resurslarining tanqisligi - insoniyat oldida jiddiy tahdid sifatida namoyon

bo‘lmoqda. [11] Ushbu muammolar nafaqat atrof-muhitga, balki iqtisodiy rivojlanish sur’atlariga ham salbiy ta’sir ko‘rsatmoqda. Shu sababli, an’anaviy iqtisodiy modeldan barqaror rivojlanishga asoslangan yangi yondashuv - yashil iqtisodiyotga o‘tish zarurati yuzaga keldi. [12] Yashil iqtisodiyot konsepsiyasi iqtisodiy o‘sishni ekologik barqarorlik bilan uyg‘unlashtirishni nazarda tutadi. Bu model tabiiy resurslardan oqilona foydalanish, chiqindilarni kamaytirish, qayta tiklanuvchi energiya manbalaridan keng foydalanish hamda “yashil ish o‘rinlari”ni yaratishni o‘z ichiga oladi. Natijada, iqtisodiyotning barcha tarmoqlarida yangi texnologiyalar, innovatsiyalar va malakali kadrlar talab etiladi.

Bugungi kunda rivojlangan va rivojlanayotgan davlatlar yashil iqtisodiyotga o‘tish jarayonini jadallashtirmoqda. Ushbu jarayonda inson kapitali hal qiluvchi omil sifatida namoyon bo‘lmoqda. Aynan shuning uchun ta’lim tizimini modernizatsiya qilish, uni zamonaviy talablar asosida qayta shakllantirish dolzarb vazifaga aylanmoqda.[13] Zamonaviy ta’lim nafaqat nazariy bilim berishi, balki amaliy ko‘nikmalarni rivojlantirishi, shuningdek, ekologik tafakkur va mas’uliyatni shakllantirishi zarur. Shu bilan birga, mehnat bozori ham jadal o‘zgarib bormoqda. Yashil iqtisodiyot sharoitida yangi kasblar paydo bo‘lmoqda, mavjud kasblar esa yangicha kompetensiyalarni talab qilmoqda.[14] Bu esa ta’lim tizimi va mehnat bozori o‘rtasida uzviy aloqani ta’minlashni taqozo etadi. Agar ta’lim tizimi mehnat bozori ehtiyojlaridan ortda qolsa, kadrlar tayyorlash sifati pasayadi va iqtisodiy rivojlanish sekinlashadi.

Mazkur maqolada yashil iqtisodiyotni rivojlantirishning xorijiy tajribasi tahlil qilinib, ta’lim tizimini modernizatsiya qilishda uning mehnat bozori bilan uyg‘unligini ta’minlash masalalari ilmiy jihatdan yoritiladi. Shuningdek, ushbu yo‘nalishda mavjud muammolar va ularning yechimlari bo‘yicha takliflar ishlab chiqiladi.

Yashil iqtisodiyotning mazmuni va ahamiyati

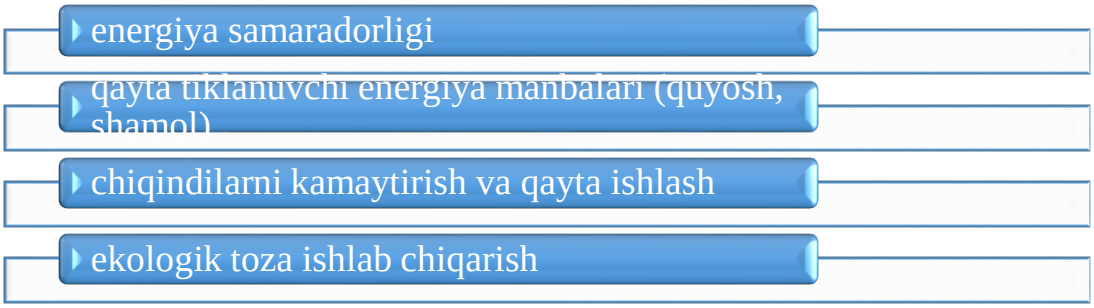
Yashil iqtisodiyot zamonaviy iqtisodiy nazariyada barqaror rivojlanish konsepsiyasining mantiqiy davomiy shakli sifatida talqin etilib, iqtisodiy o‘sish, ekologik barqarorlik va ijtimoiy farovonlik o‘rtasidagi o‘zaro uyg‘unlikni ta’minlashga qaratilgan tizimli yondashuvni ifodalaydi. Ushbu tushuncha iqtisodiy faoliyat natijasida yuzaga keladigan ekologik salbiy tashqi ta’sirlarni minimallashtirish, tabiiy resurslardan oqilona foydalanish hamda kelajak

[11] UNDP. *Human Development Report 2020: The Next Frontier*. – New York, 2020.
[12] European Commission. *The European Green Deal*. – Brussels, 2019.
[13] International Labour Organization. *Skills for a Greener Future: A Global View*. – Geneva, 2019.
[14] World Economic Forum. *The Future of Jobs Report 2023*. – Geneva, 2023.

avlodlar manfaatlarini hisobga olgan holda rivojlanishni ta’minlash zaruratidan kelib chiqadi.

Nazariy jihatdan yashil iqtisodiyot past uglerodli rivojlanish, resurslardan samarali foydalanish va ijtimoiy inklyuzivlik tamoyillariga asoslanadi. Past uglerodli rivojlanish ishlab chiqarish va iste’mol jarayonlarida issiqxona gazlari emissiyasini kamaytirishni nazarda tutsa, resurs samaradorligi tabiiy boyliklardan maksimal iqtisodiy samaradorlik bilan foydalanishni anglatadi.[15]

Yashil iqtisodiyot - bu ekologik xavfsizlikni ta’minlagan holda iqtisodiy rivojlanishga erishishga qaratilgan modeldir. U quyidagi asosiy yo‘nalishlarni o‘z ichiga oladi:



1-rasm. Yashil iqtisodiyotning asosiy yo’nalishlari[16]

Mazkur yo‘nalishlar yangi kasblar va kompetensiyalarni talab qiladi, bu esa ta’lim tizimini yangilash zaruratini yuzaga keltiradi. Bundan tashqari mazkur iqtisodiy modelning ahamiyati, avvalo, ekologik muammolarni yumshatish orqali iqtisodiy tizimning uzoq muddatli barqarorligini ta’minlash bilan izohlanadi.

Yashil iqtisodiyotning yana bir muhim jihati - mehnat bozori transformatsiyasiga ta’siridir. Ushbu model doirasida yangi turdagi kasblar, xususan, qayta tiklanuvchi energiya muhandislari, ekolog-menejerlar, chiqindilarni qayta ishlash texnologlari kabi mutaxassisliklarga bo‘lgan talab ortadi.[17] Bu esa o‘z navbatida inson kapitaliga qo‘yiladigan talablarning sifat jihatidan o‘zgarishiga olib keladi. Natijada, ta’lim tizimi oldida yangi kompetensiyalarni shakllantirish, ya’ni “yashil ko‘nikmalar”ni rivojlantirish vazifasi yuzaga keladi.

Umuman olganda, yashil iqtisodiyot nafaqat ekologik muammolarni hal etishga qaratilgan model, balki iqtisodiy va ijtimoiy rivojlanishning kompleks strategiyasi sifatida namoyon bo‘ladi. Uning samarali amalga oshirilishi esa

[15] International Energy Agency. *World Energy Outlook 2022*. – Paris, 2022.
[16] 1-rasm muallif tomonidan tayyorlandi
[17] International Renewable Energy Agency. *Renewable Energy and Jobs: Annual Review 2023*. – Abu Dhabi, 2023.

davlat siyosati, institutsional islohotlar, xususiy sektor faolligi hamda, eng muhimi, zamonaviy va moslashuvchan ta’lim tizimi bilan bevosita bog‘liqdir.

Xorijiy mamlakatlar tajribasi

Jahon amaliyotida yashil iqtisodiyotga o‘tish jarayonlari turli mamlakatlarda o‘ziga xos institutsional, iqtisodiy va ijtimoiy mexanizmlar orqali amalga oshirilmoqda. Ushbu tajribalar shuni ko‘rsatadiki, yashil transformatsiyaning muvaffaqiyati davlat siyosatining izchilligi, innovatsion rivojlanish darajasi hamda inson kapitalining sifatiga bevosita bog‘liqdir.

Rivojlangan davlatlar tajribasida yashil iqtisodiyotga o‘tish kompleks strategiyalar asosida olib borilmoqda. Xususan, Germaniyada “Energiewende” (energetik transformatsiya) siyosati doirasida qayta tiklanuvchi energiya manbalariga o‘tish, energiya samaradorligini oshirish va uglerod chiqindilarini kamaytirish bo‘yicha keng ko‘lamli chora-tadbirlar amalga oshirilmoqda. Mazkur jarayonda davlat tomonidan normativ-huquqiy bazaning takomillashtirilishi, moliyaviy rag‘batlantirish mexanizmlarining joriy etilishi hamda ilmiy-tadqiqot faoliyatining qo‘llab-quvvatlanishi muhim rol o‘ynamoqda.[18]

Osiyo mintaqasida Janubiy Koreya va Xitoyning tajribasi alohida e’tiborga loyiqdir. Janubiy Koreyada “yashil o‘sish” strategiyasi doirasida innovatsion texnologiyalarni rivojlantirish, yashil infratuzilmani kengaytirish hamda ta’lim tizimini ushbu jarayonga moslashtirish bo‘yicha tizimli islohotlar amalga oshirilgan. Xitoyda esa davlat tomonidan yirik investitsiya loyihalari orqali qayta tiklanuvchi energiya, elektromobillar ishlab chiqarish va chiqindilarni qayta ishlash sohalari jadal rivojlantirilmoqda.[19] Natijada ushbu yo‘nalishlarda yangi ish o‘rinlari yaratilishi va iqtisodiyotning tarkibiy diversifikatsiyasi ta’minlanmoqda.

Xorijiy tajribaning muhim jihatlaridan biri shundaki, yashil iqtisodiyotga o‘tish jarayonida ta’lim tizimi alohida strategik yo‘nalish sifatida qaraladi. Rivojlangan mamlakatlarda “yashil kompetensiyalar”ni shakllantirishga qaratilgan maxsus o‘quv dasturlari ishlab chiqilgan bo‘lib,[20] ular mehnat bozori ehtiyojlariga moslashtirilgan. Xususan, dual ta’lim tizimi, kasbiy ta’limning amaliy yo‘naltirilganligi va uzluksiz ta’lim konsepsiyasi orqali kadrlar tayyorlash samaradorligi oshirilmoqda. Ushbu tajribalarni chuqur o‘rganish va milliy sharoitlarga moslashtirish rivojlanayotgan davlatlar, jumladan O‘zbekiston uchun muhim ilmiy-amaliy ahamiyat kasb etadi.

[18] European Commission. *The European Green Deal*. – Brussels, 2019.
[19] World Economic Forum. *The Future of Jobs Report 2023*. – Geneva, 2023.
[20] Asian Development Bank. *Green Jobs and Skills Development in Asia*. – Manila, 2021.

Yashil iqtisodiyotga o‘tishda har bir mamlakatda malakali kadrlar yetishmasligi, ta’lim va ishlab chiqarish o‘rtasidagi uzilish hamda zamonaviy o‘quv dasturlarining yetarli emasligi kabi muammolar kuzatiladi. Ularni hal etish uchun xalqaro tajribani joriy etish, davlat va xususiy sektor hamkorligini kuchaytirish hamda innovatsion ta’lim texnologiyalarini qo‘llash zarur.

XULOSA

Mazkur tadqiqot natijalari shuni ko‘rsatadiki, yashil iqtisodiyot zamonaviy global rivojlanishning ustuvor yo‘nalishlaridan biri sifatida iqtisodiy o‘sish, ekologik barqarorlik va ijtimoiy farovonlik o‘rtasidagi muvozanatni ta’minlashga xizmat qiladi. Xorijiy mamlakatlar tajribasi tahlili asosida aniqlanishicha, yashil iqtisodiyotga muvaffaqiyatli o‘tish davlat siyosatining izchil amalga oshirilishi, innovatsion texnologiyalarni joriy etish hamda yuqori malakali inson kapitalini shakllantirish bilan chambarchas bog‘liqdir. Shuningdek, tadqiqot davomida ta’lim tizimini modernizatsiya qilish yashil iqtisodiyot talablariga moslashishda hal qiluvchi omil ekanligi asoslab berildi. Mehnat bozorida yuz berayotgan tarkibiy o‘zgarishlar yangi bilim va ko‘nikmalarni, xususan, “yashil kompetensiyalar”ni talab etmoqda. Shu nuqtai nazardan, ta’lim tizimi va mehnat bozori o‘rtasidagi uzviy integratsiyani ta’minlash iqtisodiy rivojlanishning muhim sharti hisoblanadi.

Takliflar

1. Ta’lim dasturlarini yangilash yani oliy va kasbiy ta’lim muassasalarida yashil iqtisodiyotga oid fanlar va modullarni joriy etish, o‘quv dasturlarini zamonaviy talablar asosida qayta ko‘rib chiqish zarur.

2. Dual ta’lim tizimini kengaytirish yani ta’lim muassasalari va ishlab chiqarish korxonalari o‘rtasida hamkorlikni kuchaytirish orqali talabalarni amaliy ko‘nikmalar bilan ta’minlash lozim.

3. Ta’lim jarayonida raqamli texnologiyalar va zamonaviy pedagogik yondashuvlardan foydalanish orqali kadrlar tayyorlash sifatini oshirish maqsadga muvofiq.

4. Yashil iqtisodiyot sohasida investitsiyalarni jalb qilish va yangi ish o‘rinlarini yaratish uchun davlat-xususiy sheriklik mexanizmlarini kengaytirish zarur.

5. Germaniya, Janubiy Koreya va boshqa ilg‘or mamlakatlar tajribasini milliy sharoitga mos holda joriy etish lozim.

6. Mehnat bozori talablariga tez moslashish uchun qayta tayyorlash va malaka oshirish tizimini takomillashtirish muhim ahamiyatga ega.

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MAKTAB RAHBARLARINING BOSHQARUV KOMPETENTLIGINI GENDER YONDASHUV ASOSIDA RIVOJLANTIRISH TIZIMI

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Annotatsiya. *Maqolada umumiy o‘rta ta’lim maktablari rahbarlarining boshqaruv kompetentligini gender yondashuv asosida rivojlantirish masalasi tahlil qilingan. O‘zbekistonda 2030-yilgacha gender tenglikka erishish strategiyasi va maktab direktorlarini menejerlik sertifikati asosida tanlash tizimi amalda. Biroq bu ikki yo‘nalish hozircha bir-biriga bog‘lanmagan. Tadqiqotda me’yoriy-huquqiy hujjatlar, xalqaro statistik ma’lumotlar va ilmiy adabiyotlar qiyosiy tahlil qilingan.*

Kalit so‘zlar: *maktab rahbari, boshqaruv kompetentligi, gender yondashuv, gender kompetentlik, menejerlik sertifikati, malaka oshirish, liderlik.*

Аннотация. *В статье анализируется проблема развития управленческой компетентности руководителей общеобразовательных школ на основе гендерного подхода. В Узбекистане реализуются Стратегия достижения гендерного равенства до 2030 года и система отбора директоров школ на основе менеджерской сертификации. Однако на сегодняшний день эти два направления недостаточно интегрированы между собой. В исследовании проведён сравнительный анализ нормативно-правовых документов, международных статистических данных и научной литературы.*

Ключевые слова: *руководитель школы, управленческая компетентность, гендерный подход, гендерная компетентность, менеджерский сертификат, повышение квалификации, лидерство.*

Abstract. *The article examines the development of school leaders’ managerial competence through a gender-based approach in general secondary education. In Uzbekistan, the Strategy for Achieving Gender Equality by 2030 and the system of selecting school principals based on managerial certification are being implemented. However, these two areas have not yet been sufficiently*

integrated. The study provides a comparative analysis of regulatory and legal documents, international statistical data, and academic literature.

Keywords: *school leader, managerial competence, gender-based approach, gender competence, managerial certification, professional development, leadership.*

INTRODUCTION

The quality of education largely depends on the managerial capacity of school leaders. Drawing on international research, K. Leithwood, A. Harris and D. Hopkins concluded that "school leadership is second only to classroom instruction among school-related factors influencing student learning" [Leithwood, Harris, Hopkins, 2008: 28–42]. Therefore, the selection and preparation of educational leaders have become central priorities of education policy in many countries.

Uzbekistan has also undertaken systematic reforms in this area. In particular, pursuant to Resolution No. 681 of the Cabinet of Ministers of the Republic of Uzbekistan, dated 25 December 2023, candidates for school principal positions have been required, since 2024, to complete a 144-hour managerial training course. Upon completion, they receive a managerial certificate, and school principals are appointed exclusively from among candidates included in the reserve pool of certified applicants.

According to official statistics, women account for 71.1% of those employed in the education sector. However, publicly available statistical data do not indicate to what extent this proportion is reflected in the composition of school leadership. Furthermore, gender-related issues have not been incorporated as a separate module into the curricula of managerial training courses. Consequently, the system for preparing educational leaders and the national gender equality policy are developing in parallel, without an adequately established institutional link between them.

LITERATURE REVIEW

The competency-based approach is reflected in the works of R. Boyatzis, who defines competence as "an underlying characteristic of an individual that is causally related to effective or superior performance" [Boyatzis, 1982: 228]. L. Spencer and S. Spencer further developed this concept by identifying motives, personal traits, self-concept, knowledge and skills as the principal components of competence.

In the field of educational management, the meta-analysis conducted by V. Robinson, C. Lloyd and K. Rowe, based on 27 research studies, provides significant findings. Their results indicate that instructional leadership, which

directly focuses on teaching practices and teachers' professional development, has a considerably stronger impact on student learning outcomes than transformational leadership [Robinson, Lloyd and Rowe, 2008: 652]. In 2020, Leithwood and colleagues revisited their earlier findings and reaffirmed that successful school leadership relies on four core practices: setting strategic directions, developing people, redesigning the organisation and managing the instructional programme.

This issue has also received some attention in the scholarly research of Uzbek academics. In particular, U.S. Azizov has investigated mechanisms for developing the innovative managerial competence of school leaders [U. Azizov, 2025: 58]. Nevertheless, existing national studies have not sufficiently examined the influence of gender factors on the development of school leaders' managerial competence, gender-responsive management skills, or the provision of equal opportunities as distinct research areas.

Studies examining gender issues in educational management have demonstrated that women's participation in leadership is closely associated not only with individual professional competencies but also with the institutional environment, social stereotypes and organisational relationships. In particular, C. Shakeshaft critically examined the predominance of male experiences in the development of educational administration and leadership theories, drawing attention to the insufficient representation of women's professional experiences and leadership practices in academic discourse [Shakeshaft, 1989: 123–124]. This perspective highlights the need to reconsider educational management theories from a gender perspective and to examine leadership not exclusively through traditional management models but also by taking into account the experiences of different social groups.

J. Blackmore's research provides a critical analysis of women's leadership in the context of educational reforms, organisational changes and management policies. These perspectives demonstrate that promoting gender equality in leadership extends beyond increasing women's representation in managerial positions. It also requires the establishment of equal conditions in organisational decision-making, the distribution of authority and access to professional development opportunities.

The concept of tokenism, introduced by R. Kanter, helps explain the organisational position of representatives of social groups who constitute a numerical minority [Kanter, 1977: 123]. According to this concept, when members of a particular group constitute a minority within an organisation, they tend to become subject to greater scrutiny and evaluation. Rather than being

assessed on the basis of their individual professional characteristics, they may be perceived through stereotypes associated with the social group to which they belong. From the perspective of educational management, this phenomenon may reinforce the influence of gender stereotypes in the evaluation of female school leaders' professional performance and contribute to differential attitudes towards their managerial decisions and professional capabilities.

The findings of P. Moorosi's research on the career trajectories of female school principals in South Africa demonstrate that gender-related barriers emerge at different stages of professional development [Moorosi, 2010: 549]. The author examines these barriers across three stages: preparation for leadership positions, entry into leadership positions and the exercise of leadership responsibilities. This classification makes it possible to analyse the factors affecting women's participation in educational management not merely in terms of appointment to leadership positions, but as a complex set of challenges arising throughout their professional development, career advancement and subsequent leadership practice.

The review of the literature leads to two major conclusions. First, managerial competence encompasses not only knowledge and skills but also value orientations and self-awareness. Second, gender factors influence both the career trajectories and management styles of educational leaders. However, in the context of Uzbekistan, research integrating these two dimensions remains scarce.

Due to the lack of publicly available gender-disaggregated statistics on the composition of school principals, national indicators were assessed using aggregated data for the education sector. The effectiveness of the proposed model requires further validation through empirical experimental research at the subsequent stage. The design of this model is also presented in the Discussion section.

RESULTS AND DISCUSSION

The findings of the analysis indicate that relevant regulatory and legal documents governing the preparation of educational leaders and the promotion of gender equality are in place. However, these two areas are not sufficiently interconnected.

Regulatory and legal document	Preparation and professional developme	Coverage of gender equality issues	Interconnection between the two areas

	nt of school leaders		
Law "On Education"	Article 25 stipulates the obligation to ensure the continuous professional development of school leaders, while Article 27 establishes the requirements for holding leadership positions.	General principles of equality and non-discrimination.	No direct interconnection.
Law "On Guarantees of Equal Rights and Opportunities for Women and Men"	No specific mechanisms for the professional training of school leaders are established.	Guarantees equal rights and opportunities for women and men in employment and management.	Indirect interconnection.
Strategy for Achieving Gender Equality by 2030	Outlines measures for organising training courses on gender-related issues for school leaders.	Establishes objectives for ensuring equal opportunities in education and increasing the representation of women in the	Partially integrated.

		management system.	
Resolution No. 681 of the Cabinet of Ministers	Provides for 144-hour managerial training courses, certification, and mechanisms for establishing a reserve pool of leadership personnel.	No specific requirements related to gender equality are established.	No direct integration.

The Gender Equality Strategy envisages the training of school leaders; however, the main mechanism that is mandatory for school principals — the managerial certification programme — does not incorporate gender-related content.

International statistical data indicate that gender disparities in the education system persist as a long-term trend. In particular, although women constitute a substantial proportion of teaching staff, their representation in leadership positions remains relatively low. According to an analysis of data from 40 countries presented in a UNESCO report, the proportion of female school principals is, on average, at least 20 percentage points lower than the proportion of female teachers.

In Uzbekistan, women account for 35% of those occupying managerial positions across all sectors of the economy. Given the high proportion of women engaged in teaching within the education system, it may be assumed that a certain gender disparity also exists at the level of school leadership. However, in order to substantiate this assumption scientifically, official statistical data on the gender composition of general secondary school principals and deputy principals need to be collected and published.

From this perspective, the availability and systematic organisation of statistical data on the gender composition of school leadership are also of particular importance. Identifying gender disparities, analysing their underlying causes, and developing appropriate management measures require, first and foremost, reliable statistical information. Therefore, the lack of sufficient data is

not merely a problem related to statistical monitoring; it also represents a significant methodological limitation in developing evidence-based policies aimed at ensuring gender equality in educational management.

The findings reveal several important aspects. First, it is incorrect to interpret the gender-based approach solely as a matter concerning women. The meta-analysis conducted by Eagly and Johnson demonstrated that differences between the leadership styles of women and men are relatively small [Eagly, Johnson, 1990: 242]. Therefore, the proposed model encompasses both female and male school leaders. Its purpose is not to reinforce a particular leadership style as being inherently "feminine", but rather to develop every leader's capacity to create an environment that ensures equal opportunities.

Second, managerial certification is a mandatory requirement for school principals in Uzbekistan and is linked to a 50% salary supplement. This indicates that an institutional mechanism suitable for implementing the proposed model is already in place. Integrating a gender-related module directly into the existing managerial training course, rather than developing it as a separate programme, would be more efficient in terms of both cost and coverage.

CONCLUSION

Uzbekistan has introduced a new system for selecting and training school leaders, alongside a strategy for achieving gender equality. However, there is no institutional link between these two areas. International data indicate a persistent gap of at least 20 percentage points between the proportion of female teachers and the proportion of female school leaders in the education sector. In Uzbekistan, however, the statistical data required to measure this disparity are not yet publicly available.

Managerial competence is not limited to knowledge and skills. Its value-based and self-awareness dimensions are also susceptible to the influence of gender stereotypes. For this reason, the gender-based approach should be developed as an integral component of managerial competence.

Based on the research findings, the following recommendations are proposed:

1. Introduce a "Gender-Responsive School Management" module into the managerial training course and link its completion to the certification examination.

2. Publish annual gender-disaggregated statistics on school principals, deputy principals, and the reserve pool of candidates, and incorporate these indicators into the target measures of the Gender Equality Strategy.

3. Introduce mentoring programmes in the formation of the reserve pool of candidates, including pairing experienced school leaders with female teachers holding deputy leadership positions.

4. Take indicators of an equal-opportunity environment within schools into account when assessing the effectiveness of school leaders' performance.

Further research should focus on conducting a large-scale survey among school leaders and monitoring the impact of the proposed model over an extended period.

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METAPHOR AND NEOLOGISM IN ONLINE TRADE LANGUAGE

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Annotation: *This article examines the role of metaphor and neologism in the language of online trade, focusing on their linguistic, semantic, and communicative functions. The rapid development of e-commerce has introduced new vocabulary and figurative expressions that influence how businesses communicate with customers. Metaphors are frequently used to make commercial messages more attractive, persuasive, and understandable, while neologisms reflect technological innovations and changing consumer practices. The study explores common examples of metaphorical expressions and newly formed words in online shopping platforms, digital marketing, and electronic business communication. It also analyses their contribution to vocabulary development, advertising strategies, and modern English language usage.*

Keywords: *Metaphor, neologism, online trade, e-commerce, digital communication, internet language, lexical innovation, figurative language, online shopping, digital marketing, commercial discourse, word formation, semantic change, advertising language, English vocabulary.*

INTRODUCTION

The development of information technology and the expansion of the internet have significantly transformed modern communication, particularly in the field of international trade. Online trade has become an essential part of the global economy, allowing businesses and consumers to communicate, exchange information, and conduct commercial activities through digital platforms. Alongside these changes, the English language used in online commercial communication has developed new linguistic features, including metaphors and neologisms. These phenomena play an important role in shaping the vocabulary, meaning, and communicative strategies of digital commerce. Metaphor is traditionally understood as a linguistic and cognitive phenomenon in which one concept is understood through another. According to Lakoff and Johnson (1980), metaphor is not merely a stylistic device but also a fundamental mechanism of

human thought. In online trade, metaphorical expressions are widely used to describe commercial processes, attract customers, and simplify complex technological concepts. Expressions such as shopping cart, digital marketplace, price war, and cash flow demonstrate how familiar concepts are transferred into commercial and technological contexts. Such expressions make online communication more accessible and memorable. Another important linguistic phenomenon in online trade is neologism. Neologisms are newly created words or expressions that emerge as a result of technological, economic, and social developments. The growth of e-commerce has introduced numerous new terms, including fintech, click-and-collect, shoppertainment, recommerce and m-commerce. These lexical innovations reflect new business models, consumer behaviours, and digital services. As Crystal (2006) explains, internet communication creates new linguistic opportunities and influences the development of contemporary language. The purpose of this article is to analyse the use of metaphor and neologism in online trade language, identify their major types, and examine their semantic and communicative functions. Special attention is given to their role in digital advertising, online shopping platforms, and commercial interaction.

Metaphor is one of the most important expressive devices in commercial communication. It allows speakers and writers to explain unfamiliar or abstract concepts through familiar experiences. In online trade, metaphors are especially significant because digital technologies often involve processes that are difficult for ordinary users to understand. Therefore, businesses use metaphorical expressions to make their services more familiar and accessible. Lakoff and Johnson (1980) argue that metaphor structures the way people understand and experience the world. This idea can be applied to online commercial communication, where everyday words acquire specialized meanings.

Several common examples can be identified:

Metaphorical expression	Literal meaning	Meaning in online trade
Shopping cart	A cart used for carrying goods	A digital space for selected products
Digital marketplace	A physical place for buying and selling	An online platform for commercial activities

Shopping journey	A journey from one place to another	The process of searching for and purchasing products
Price war	A military conflict	Competition between businesses through prices
Cash flow	Movement of water or liquid	Movement of money within a business
Market growth	Physical development	Expansion of commercial activity

The expression shopping cart is particularly interesting because it transfers the concept of a physical shopping cart into the digital environment. Customers can add, remove, and organize products in a virtual space before completing their purchases.

Similarly, the expression shopping journey presents online shopping as a journey. Consumers move through different stages, beginning with product discovery and ending with payment and delivery. This metaphor makes the purchasing process easier to conceptualize. Another example is price war. The word war belongs to the semantic field of conflict, but in business communication it describes intense competition between companies. Such expressions make commercial language more vivid and persuasive.

Neologisms are newly created words or expressions, as well as new meanings assigned to existing words. They emerge when society develops new technologies, products, services, and communication practices. According to Crystal (2006), internet communication encourages linguistic creativity and contributes to the development of new language varieties. Online trade is a particularly productive area for neologism formation because digital commerce continuously introduces new concepts and business models.

Compounding is one of the most common processes. It involves combining two or more existing words to create a new lexical unit. For example, shoppertainment combines shopping and entertainment to describe a commercial activity in which customers purchase products while enjoying entertaining content. Blending occurs when parts of two words are combined to create a new expression. The word fintech, formed from financial and technology, is an example of this process. Clipping and abbreviation are also common in digital commerce. The terms e-commerce and m-commerce demonstrate how longer

expressions are shortened for convenience and efficiency. Affixation involves adding prefixes or suffixes to existing words. The term recommerce uses the prefix re- to indicate the resale or reuse of previously owned products. These processes demonstrate that online trade is not only changing economic activities but also contributing to the continuous expansion of English vocabulary. Metaphors and neologisms are closely connected in online trade language. Both contribute to the development of new meanings and help businesses communicate effectively with customers.

CONCLUSION

Metaphor and neologism play an important role in the development of modern online trade language. They reflect the close relationship between linguistic innovation, technological progress, and economic development. Metaphors help explain unfamiliar digital concepts through familiar experiences, while neologisms provide new vocabulary for emerging commercial activities, technologies, and consumer practices. The analysis demonstrates that expressions such as shopping cart, shopping journey, and price war illustrate the metaphorical nature of online commercial communication. At the same time, terms such as fintech, m-commerce, shoppertainment, and recommerce demonstrate the productivity of English word-formation processes. Furthermore, these linguistic phenomena contribute to effective advertising, customer engagement, brand identity, and international communication. They make commercial messages more understandable and attractive while reflecting changes in modern consumer behaviour. Therefore, metaphor and neologism should be considered significant linguistic resources in contemporary English. Their study provides valuable insights into lexical innovation, semantic development, and the transformation of language in the digital economy.

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THE IMPACT OF MARKET INFRASTRUCTURE ON THE ECONOMIC DEVELOPMENT OF KARAKALPAKSTAN: AN ECONOMETRIC ANALYSIS

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Abstract. *This article examines the relationship between specific elements of market infrastructure and the economic development of the Republic of Karakalpakstan. Based on statistical data from 2010–2024, it analyzes the dynamics of the gross regional product and key indicators related to trade, financial, and service sector activities. To quantify these interrelationships, a structural equation model (SEM) is employed, incorporating indicators for industrial production, credit and investment activity, retail trade, employment, and market services. It is found that retail trade exhibits the strongest positive statistical correlation with the gross regional product (GRP). The study's findings help identify areas for improving the region's market infrastructure, taking into account the economic significance of its individual components.*

Keywords: market infrastructure, regional economy, Karakalpakstan, gross regional product, econometric modeling, retail trade, investments, market services.

Аннотация. *В статье исследуется взаимосвязь отдельных элементов рыночной инфраструктуры с экономическим развитием Республики Каракалпакстан. На основе статистических данных за 2010–2024 годы рассматривается динамика валового регионального продукта и основных показателей торговой, финансовой и сервисной деятельности. Для количественной оценки взаимосвязей используется модель структурных уравнений (SEM), включающая показатели промышленного производства, кредитно-инвестиционной активности, розничной торговли, занятости и рыночных услуг. Установлено, что наиболее выраженная положительная статистическая связь с ВРП наблюдается по показателю розничной торговли. Результаты исследования позволяют определить направления совершенствования рыночной инфраструктуры*

региона с учётом экономической значимости её отдельных составляющих.

Ключевые слова: *рыночная инфраструктура, региональная экономика, Каракалпакстан, валовой региональный продукт, эконометрическое моделирование, розничная торговля, инвестиции, рыночные услуги.*

ВВЕДЕНИЕ

Развитие региональной экономики во многом зависит от состояния рыночной инфраструктуры, обеспечивающей взаимодействие производителей, потребителей, финансовых организаций и других участников хозяйственной деятельности. Торговые предприятия, банковские учреждения, посреднические организации и сфера рыночных услуг формируют условия для движения товаров, денежных средств и информации, способствуя расширению экономической активности.

Для Республики Каракалпакстан развитие рыночной инфраструктуры имеет особое значение в связи с территориальными особенностями региона, размещением производительных сил и необходимостью повышения доступности финансовых, торговых и сервисных услуг. Вместе с тем увеличение количества инфраструктурных объектов не всегда сопровождается соответствующим повышением эффективности региональной экономики. Поэтому возникает необходимость количественной оценки взаимосвязи отдельных инфраструктурных факторов с экономическими результатами.

Теоретической основой исследования являются положения институциональной экономики, в частности работы Д. Норта, Р. Коуза и О. Уильямсона [1–3]. Их исследования позволяют рассматривать рыночную инфраструктуру не только как совокупность обслуживающих организаций, но и как систему, способствующую снижению трансакционных издержек и повышению эффективности экономического взаимодействия.

Цель исследования заключается в эконометрической оценке взаимосвязи основных элементов рыночной инфраструктуры с динамикой валового регионального продукта Республики Каракалпакстан и

определении на этой основе приоритетных направлений инфраструктурного развития.

Информационную основу исследования составили статистические данные Республики Каракалпакстан за 2010–2024 годы, представленные в материалах Национального комитета Республики Узбекистан по статистике и других официальных источниках [4, 5].

В исследовании применены методы динамического анализа, сравнения статистических показателей и эконометрического моделирования. Для количественной оценки взаимосвязи инфраструктурных факторов с экономическим результатом использована модель структурных уравнений (SEM).

В качестве результативной переменной принят натуральный логарифм валового регионального продукта (lnВРП). Объясняющими переменными выступают пять показателей: X_2 — объём промышленного производства; X_4 — доля банковских кредитов и других заёмных средств в инвестициях в основной капитал; X_6 — доля розничной торговли; X_7 — уровень занятости; X_8 — объём предоставленных рыночных услуг.

Общий вид модели представлен следующим уравнением:

$$\ln(ВРП) = \beta_0 + \beta_2 X_2 + \beta_4 X_4 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon,$$

где, β_0 — свободный член; β_2, β_4, β_6, β_7, β_8 — коэффициенты при объясняющих переменных; ε — случайная ошибка.

Использование данной модели позволяет оценить направление и статистическую значимость взаимосвязей между рассматриваемыми факторами и ВРП при одновременном включении переменных в уравнение.

Анализ статистических данных свидетельствует о существенном увеличении масштабов экономической деятельности Республики Каракалпакстан в 2010–2024 годах. Согласно исходным материалам исследования, номинальный объём ВРП увеличился с 2,6042 трлн сумов в 2010 году до 45,6585 трлн сумов в 2024 году. За тот же период объём рыночных услуг вырос с 0,6711 до 28,5383 трлн сумов.

Указанные изменения отражают расширение экономической деятельности и сферы обслуживания регионального рынка. Однако поскольку стоимостные показатели представлены в текущих ценах, их

динамика характеризует номинальное изменение объёмов, а не соответствующий реальный экономический рост.

Изменения наблюдались и в финансовой инфраструктуре. Доля банковских кредитов и других заёмных средств в инвестициях в основной капитал, согласно материалам исследования, составляла 57,3% в 2010 году и 64,3% в 2024 году. Обеспеченность банковскими филиалами увеличилась с 1,1 до 3,7 филиала на 100 тыс. человек.

Для определения характера взаимосвязи рассматриваемых показателей с региональным продуктом были использованы результаты эконометрического моделирования, представленные в таблице 1.

Таблица 1.

Результаты эконометрической оценки взаимосвязи факторов рыночной инфраструктуры с ВРП Республики Каракалпакстан

Фактор	Коэффициент	p-value
X_2 — промышленное производство	−0,016	0,014
X_4 — доля кредитов и заёмных средств в инвестициях	0,191	0,078
X_6 — доля розничной торговли	14,692	<0,001
X_7 — уровень занятости	−0,004	0,978
X_8 — объём рыночных услуг	0,021	0,086

Источник: составлено автором на основе результатов эконометрического моделирования, на основе статистических данных **https://siat.stat.uz/data/1210/**

Полученные результаты свидетельствуют о неодинаковом характере взаимосвязи отдельных факторов с валовым региональным продуктом. Наиболее выраженная положительная и статистически значимая связь выявлена для показателя X_6, характеризующего долю розничной торговли. Коэффициент составляет 14,692 при p-value менее 0,001. Это позволяет рассматривать торговую составляющую как один из важных элементов региональной рыночной системы.

Экономическое значение данного результата заключается в том, что торговля обеспечивает взаимодействие производителей и потребителей, расширяет возможности реализации продукции и способствует развитию сопутствующих услуг. Вместе с тем величину коэффициента нельзя

непосредственно сравнивать с коэффициентами других переменных без учёта их единиц измерения и масштаба.

Положительное значение получено также для кредитно-инвестиционного фактора X_4. Его коэффициент составляет 0,191 при p-value 0,078. Следовательно, на традиционном 5%-ном уровне статистической значимости соответствующая связь не подтверждается, хотя направление коэффициента согласуется с предположением о положительной роли финансового обеспечения.

Данный результат показывает необходимость учитывать не только объём привлекаемых кредитных ресурсов, но и эффективность их использования. Для развития региональной экономики особое значение имеют доступность долгосрочного финансирования, качество инвестиционных проектов и способность созданных объектов обеспечивать устойчивую хозяйственную деятельность.

Коэффициент при показателе рыночных услуг X_8 также положителен и составляет 0,021 при p-value 0,086. Несмотря на отсутствие статистической значимости на 5%-ном уровне, направление полученной связи соответствует экономическому предположению о роли сферы услуг в обеспечении функционирования регионального рынка.

Особого внимания заслуживает отрицательный коэффициент при промышленном производстве X_2, равный −0,016 при p-value 0,014. Этот результат не следует рассматривать как доказательство отрицательного воздействия промышленности на региональную экономику. В многомерной модели коэффициент характеризует условную статистическую связь при фиксированных значениях других включённых переменных.

Отрицательный знак может быть связан с особенностями спецификации, масштабом показателей, их взаимной зависимостью и динамикой исходных данных. Для определения причин такого результата необходимы дополнительные проверки модели, включая анализ мультиколлинеарности и устойчивости коэффициентов.

Показатель занятости X_7 характеризуется коэффициентом −0,004 при p-value 0,978. Это означает, что в рассматриваемой спецификации статистически значимая связь данного показателя с логарифмом ВРП не установлена. Вместе с тем такой результат не исключает экономического

значения занятости, поскольку количественный показатель не отражает различия в производительности труда и качестве трудовых ресурсов.

Необходимо учитывать и ограничения проведённого анализа. Исследование основано на 15 годовых наблюдениях, что при включении пяти объясняющих переменных ограничивает возможности получения устойчивых статистических оценок. Кроме того, использование временных рядов требует проверки возможных трендовых зависимостей и других предпосылок модели. Поэтому полученные коэффициенты следует интерпретировать прежде всего как оценки статистических взаимосвязей, а не как доказательство причинного воздействия факторов.

В целом результаты исследования показывают необходимость комплексного развития рыночной инфраструктуры Каракалпакстана. Особое внимание целесообразно уделять модернизации торговой инфраструктуры, расширению доступности финансовых услуг, развитию логистических и цифровых сервисов, а также повышению эффективности взаимодействия производственных предприятий с региональным рынком.

ЗАКЛЮЧЕНИЕ

Проведённое исследование позволило оценить характер взаимосвязи отдельных элементов рыночной инфраструктуры с экономическим развитием Республики Каракалпакстан. Результаты эконометрического моделирования показали, что наиболее выраженная положительная статистическая связь с ВРП наблюдается по показателю розничной торговли. Кредитно-инвестиционный фактор и объём рыночных услуг характеризуются положительными коэффициентами, однако их статистическая значимость на 5%-ном уровне не подтверждена.

На наш взгляд, совершенствование рыночной инфраструктуры Каракалпакстана должно предусматривать не только расширение количества инфраструктурных объектов, но и повышение качества предоставляемых услуг, доступности финансовых ресурсов и эффективности взаимодействия участников рынка.

Практическое значение исследования заключается в возможности использования полученных результатов при определении приоритетов региональной инфраструктурной политики. При этом для более обоснованных выводов необходимы дальнейшее расширение статистической базы и проверка устойчивости эконометрической модели.

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ЭКОНОМИЧЕСКАЯ ОЦЕНКА РИСКОВ ВНЕДРЕНИЯ ИНФОРМАЦИОННЫХ СИСТЕМ В ДЕЯТЕЛЬНОСТИ ПРЕДПРИЯТИЯ

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Аннотация. *В статье предлагается риск-ориентированный подход к экономической оценке внедрения информационных систем. Подход объединяет расчёт эффекта автоматизации бизнес-процессов, ожидаемого ущерба от потенциальных IT-рисков и затрат на мероприятия по их снижению. Методика включает анализ процессов, классификацию и приоритизацию рисков, оценку ожидаемых потерь и определение риск-скорректированного результата. Практическая иллюстрация выполнена на материалах пилотного прототипа GET Order. Выделены доступные расчётные показатели и данные, необходимые для дальнейшей денежной оценки.*

Ключевые слова: *информационная система, цифровизация, экономическая эффективность, IT-риски, управление рисками, ожидаемый ущерб, автоматизация.*

Abstract. *The article proposes a risk-oriented approach to the economic assessment of information systems implementation. It combines the estimation of business process automation benefits, expected losses from potential IT risks, and the costs of mitigation measures. The methodology includes process analysis, risk classification and prioritization, expected-loss estimation, and calculation of a risk-adjusted project result. The practical illustration is based on the GET Order pilot prototype. Available preliminary indicators and data required for further monetary assessment are identified.*

Keywords: *information system, digitalization, economic efficiency, IT risks, risk management, expected loss, automation.*

1. ВВЕДЕНИЕ

Внедрение информационных систем позволяет ускорить обработку информации, повысить прозрачность операций и улучшить взаимодействие с клиентами и контрагентами. Однако наличие технологического решения само по себе не гарантирует экономического

результата. Он зависит от качества данных, готовности персонала, устойчивости инфраструктуры, полноты автоматизации и способности предприятия управлять рисками.

Для малых и средних предприятий проблема особенно значима из-за ограниченности финансовых и кадровых ресурсов. Систематический обзор Sagala и Őri (2024) подчёркивает важность учёта исходного уровня цифровой зрелости и поэтапного развития цифровых возможностей. Pfister и Lehmann (2023) отмечают необходимость оценивать конкретную отдачу от цифровых решений. Исаев и соавторы (2021) рассматривают оценку информационных систем с учётом рисков, способных уменьшить ожидаемые экономические выгоды.

Цель статьи — предложить методический подход к экономической оценке рисков внедрения информационных систем и показать его применение на примере пилотного прототипа GET Order, предназначенного для поддержки обработки клиентских обращений и сопровождения заказов.

2. МАТЕРИАЛЫ И МЕТОДЫ

Исследование основано на анализе бизнес-процессов предприятия, функциональных возможностей GET Order и расчётных показателей трудоёмкости операций до и после предполагаемой автоматизации. Методическая основа включает процессный анализ, классификацию рисков, качественную оценку вероятности и последствий, а также метод ожидаемых потерь. Последовательность управления рисками соотносится с ISO 31000:2018 (идентификация, анализ, оценивание, обработка и мониторинг) и риск-ориентированными положениями NIST Cybersecurity Framework 2.0 (International Organization for Standardization, 2018; Pascoe et al., 2024).

Предлагаемый подход включает пять этапов: определение границ процесса и информационных активов; выявление технологических, информационных, организационных и экономических рисков; качественную приоритизацию; денежную оценку ожидаемого ущерба и затрат на снижение рисков; расчёт итогового риск-скорректированного результата.

Для качественной приоритизации используются пятибалльные шкалы вероятности P_i и тяжести последствий I_i. Интегральный балл определяется как:

$$\mathbf{S_i = P_i \times I_i,}$$

где значения P_i и I_i находятся в диапазоне от 1 до 5. Показатель S_i применяется для ранжирования и не является денежной оценкой.

Ожидаемый ущерб от риска за выбранный период рассчитывается по формуле:

$$\mathbf{EL_i = p_i \times L_i,}$$

где p_i — вероятность события в долях единицы, L_i — денежная оценка потерь при его наступлении. После реализации мероприятия остаточный ожидаемый ущерб равен $EL_i^* = p_i^* \times L_i^*$. Снижение ожидаемого ущерба: $\Delta EL_i = EL_i - EL_i^*$. Чистый эффект мероприятия: $NE_i = \Delta EL_i - C_i$, где C_i — затраты на мероприятие. Все показатели должны относиться к одному временному горизонту; для многолетних проектов учитывается дисконтирование.

Риск-скорректированный результат проекта предлагается рассчитывать так:

$$\mathbf{E_RA = B - C_I - C_O - EL_res,}$$

где B — денежная оценка выгод автоматизации; C_I — инвестиционные затраты; C_O — эксплуатационные расходы; EL_res — ожидаемый ущерб от остаточных рисков. При расчёте необходимо исключить двойной учёт одних и тех же потерь.

3. РЕЗУЛЬТАТЫ И ОБСУЖДЕНИЕ

Практическая иллюстрация выполнена на материалах проекта автоматизации обработки обращений и сопровождения заказов в ООО «GLOBAL EQUIPMENT AND TECHNOLOGY». Пилотный прототип GET Order предназначен для ведения сведений о клиентах, поставщиках, товарах, сотрудниках, заявках, коммерческих предложениях, заказах и документах. Он не рассматривается как завершённая промышленная система.

Расчётное сопоставление семи операций AS-IS и TO-BE показывает сокращение трудоёмкости со 111 до 43,08 часа в месяц. Расчётная экономия составляет 67,92 часа в месяц, или около 815 часов в год; сокращение трудоёмкости — 61,19%. Это сценарная оценка резерва времени, а не измеренный после внедрения результат. Высвобождение времени не тождественно сокращению фонда оплаты труда: денежный эффект зависит от фактического использования высвободившегося ресурса.

Для перевода временного эффекта в денежную оценку требуется определить стоимость рабочего часа C_h: $B = 815 \times C_h$ за год. Стоимость часа и затраты на разработку и эксплуатацию пока не определены, поэтому

итоговый чистый экономический результат численно не рассчитывается. Такой способ представления позволяет не подменять отсутствующие данные произвольными значениями.

Анализ функций прототипа позволил сформировать предварительный перечень потенциальных рисков. Использование локального хранения данных ограничивает централизованное управление и совместный доступ; недостаточная реализация разграничения прав может создать угрозу конфиденциальности; неполная автоматизация расчёта себестоимости повышает вероятность ошибок; отсутствие автоматического контроля оплаты может привести к запуску закупки до подтверждения поступления средств. Эти факторы рассматриваются как источники потенциальных рисков, а не как зарегистрированные инциденты.

Код	Потенциальный риск	Возможное последствие	Мера управления
R1	Потеря данных	Повторный ввод, задержки заказов	Резервное копирование, серверное хранение
R2	Несанкционированный доступ	Раскрытие коммерческих сведений	Авторизация, разграничение прав
R3	Сбой или недоступность	Простой сотрудников	Тестирование, мониторинг, восстановление
R4	Ошибки ввода и расчётов	Некорректные КП и заказы	Валидация, проверка формул
R5	Нет контроля оплаты	Преждевременная закупка	Проверка оплаты до размещения заказа

Поскольку документированных IT-инцидентов нет, значения вероятности p_i и потерь L_i не присваиваются без дополнительного обследования. Для их определения необходимы экспертный опрос сотрудников, анализ регламентов и сбор сведений о простоях, восстановлении данных, стоимости ошибок и последствиях задержек заказов. В итоговом реестре следует отдельно обозначать фактические, экспертные и сценарные значения, указывая источник и степень достоверности.

Практическое применение методики предполагает сопоставление трёх компонентов: выгод от изменения процессов, ожидаемых потерь от

рисков и стоимости мероприятий по управлению ими. Это позволяет оценивать развитие информационной системы не только по ожидаемому сокращению трудоёмкости, но и по затратам на обеспечение устойчивости, сохранности и достоверности данных.

4. ЗАКЛЮЧЕНИЕ

Предложен предварительный риск-ориентированный подход к экономической оценке внедрения информационных систем, объединяющий анализ бизнес-процессов, качественную приоритизацию рисков, расчёт ожидаемого ущерба до и после мероприятий и определение риск-скорректированного результата.

На материалах GET Order расчётная экономия трудоёмкости по семи операциям составляет 67,92 часа в месяц, или около 815 часов в год. Денежная оценка эффекта пока невозможна из-за отсутствия подтверждённой стоимости рабочего часа и затрат на разработку и эксплуатацию. Документированные инциденты отсутствуют, поэтому количественная оценка рисков требует экспертных и фактических данных.

Дальнейшая работа предусматривает экспертную оценку рисков, уточнение стоимости рабочего времени и совокупной стоимости владения системой, сценарное моделирование ущерба и проверку чувствительности результатов. Методика может применяться при обосновании поэтапного развития информационных систем на предприятиях с ограниченными ресурсами.

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5-SECTION

NEW PEDAGOGICAL TECHNOLOGIES IN THE FORMATION AND DEVELOPMENT OF WRITING SKILLS IN ENGLISH

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Annotation: *This article examines new pedagogical technologies used to form and develop English writing skills in foreign-language education. Using an analytical literature review, it compares five groups of approaches: process-oriented writing, collaborative and online writing, automated writing evaluation, writing tools, and formative assessment with peer feedback. The article concludes with a blended model that integrates these technologies in the English classroom.*

Keywords: *writing skills, pedagogical technologies, process approach, collaborative writing, automated writing evaluation, artificial intelligence, formative assessment, feedback, English language teaching.*

INGLIZ TILIDA YOZISH KO‘NIKMASINI SHAKLLANTIRISHDA VA RIVOJLANTIRISHDA YANGI PEDAGOGIK TEXNOLOGIYALAR

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Annotatsiya: *Maqolada xorijiy til ta‘limida ingliz tilidagi yozma ko‘nikmalarni shakllantirish va rivojlantirishda qo‘llaniladigan yangi pedagogik texnologiyalar tahlil qilinadi. Analitik adabiyotlar sharhi asosida besh guruh yondashuv qiyoslanadi: jarayonga yoo‘naltirilgan yozuv, hamkorlikda va onlayn yozuv, avtomatlashtirilgan yozuv baholash tizimlari, yozuv vositalari hamda formativ baholash va tengdoshlar fikr-mulohazasi. Maqola oxirida mazkur texnologiyalarni uyg‘unlashtiruvchi aralash (blended) model taklif etiladi.*

Kalit so‘zlar: *yozma ko‘nikmalar, pedagogik texnologiyalar, jarayon yondashuvi, hamkorlikda yozuv, avtomatlashtirilgan baholash, sun‘iy intellekt, formativ baholash, fikr-mulohaza, ingliz tili o‘qitish.*

Introduction: Writing is widely regarded as the most demanding productive skill in a foreign language, because it requires control of content,

organization, vocabulary, grammar, and audience awareness at the same time (Hyland, 2019). Traditional instruction often focused on the finished text (the "product") and on teacher-corrected errors. Learners received feedback late and rarely revised their work. Research on writing instruction shows that explicit strategy teaching, regular revision, and feedback produce larger gains than product-only instruction (Graham & Perin, 2007). Digital technologies, online platforms, and recently generative artificial intelligence have expanded the means of teaching writing. They also raise new questions about quality, academic integrity, and learner autonomy (Barrot, 2023; Kasneci et al., 2023). In Uzbekistan, the growing demand for English proficiency in higher education and international communication makes it relevant to identify which technologies actually support writing development.

Methods: The study uses a qualitative, analytical literature review. The sources were theoretical works on writing and second language (L2) writing, meta-analyses of writing instruction, and empirical and review articles on feedback, collaborative writing, automated writing evaluation. The sources were grouped into five categories, and each was analyzed by three criteria: (a) its theoretical basis, (b) its reported effect on writing development, and (c) its limitations. The theoretical frameworks used were the cognitive model of writing processes (Hayes & Flower, 1980), sociocultural theory (Vygotsky, 1978), and the theory of formative assessment (Black & Wiliam, 1998). The study is not an experiment and reports no original learner data, so its conclusions should be tested in classroom research.

Results: The process approach treats writing as a recursive cycle of planning, drafting, revising, and editing (Hayes & Flower, 1980). In practice it uses brainstorming, mind maps, outlining, multiple drafts, and writing portfolios. Evidence indicates that teaching planning and revision strategies and setting product goals are among the most effective ways to improve writing quality (Graham & Perin, 2007). Digital tools such as shared documents with version history make drafts visible, so teachers can assess development as well as the final text. From a sociocultural perspective, knowledge develops through interaction within the zone of proximal development (Vygotsky, 1978). Collaborative writing on shared platforms (for example, Google Docs or wikis) pushes learners to negotiate content, form, and wording. Studies of L2 pair and group writing report that collaboration promotes reflection on language and often yields more accurate texts, although the quality of interaction depends on how pairs are formed and on the task (Storch, 2013).

Table 1. Summary of technologies analyzed

Technology	Main strength	Main limitation
Process approach and portfolios	Develops planning and revision strategies	Time-consuming for large classes
Collaborative online writing	Interaction, shared knowledge	Unequal participation
AWE systems	Immediate feedback, multiple drafts	Weak on content and argument
Generative AI tools	Personalization, idea support	Over-reliance, accuracy, integrity
Formative assessment and peer review	Learner autonomy, criteria awareness	Needs training and rubrics

Discussion: The review shows that no single tool is sufficient. The technologies are complementary and align with different stages of the writing process. Based on this synthesis, a four-stage blended model is proposed:

1. **Pre-writing:** brainstorming, mind maps, and teacher-guided discussion of genre and audience.
2. **Drafting:** individual or collaborative drafting in shared documents, with model texts analyzed for structure and language.
3. **Revision:** AWE for surface-level errors, followed by peer review with checklists, then teacher feedback on content, organization, and argument.
4. **Reflection and assessment:** portfolio compilation, self-assessment against rubrics, and a short written reflection on what was changed and why.

Conclusion. New pedagogical technologies can significantly improve the formation and development of English writing skills when they are embedded in a process-oriented, feedback-rich, and teacher-guided approach. Combining process writing, collaboration, automated and AI-supported feedback, and formative assessment offers a practical path for English teaching in higher education.

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DEVELOPING READING COMPREHENSION SKILLS IN STUDENTS BASED ON INTERNET DISCOURSE TEXTS

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Annotation: *Internet discourse, which includes social media posts, comment threads, blogs, forum discussions, news portal articles and multimodal texts, has become the main reading environment for many students. Its features (hybrid oral-written style, hyperlinks, non-linear structure, informal vocabulary, irony and mixed credibility) place demands on readers that traditional classroom texts do not. This study investigates whether systematic work with internet discourse texts develops students' reading comprehension skills.*

Key words: *reading comprehension; internet discourse; digital literacy; new literacies; reading strategies; critical reading; source evaluation; foreign language teaching*

Annotatsiya: *Ijtimoiy tarmoq postlari, izohlar, bloglar, forum munozaralari, yangiliklar portallaridagi maqolalar va multimodal matnlarni o'z ichiga olgan internet diskursi ko'plab talabalar uchun asosiy o'qish muhitiga aylandi. Uning xususiyatlari (og'zaki va yozma uslubning aralashuvi, giperhavolalar, nochiziqli tuzilma, norasmiy leksika, kinoya va manbalar ishonchliligining turlichaligi) o'quvchidan an'anaviy darslik matnlari talab qilmaydigan ko'nikmalarni talab etadi.*

Kalit so'zlar: *o'qib tushunish; internet diskursi; raqamli savodxonlik; yangi savodxonliklar; o'qish strategiyalari; tanqidiy o'qish; manbani baholash; xorijiy tilni o'qitish*

Introduction: Reading comprehension is generally described as the construction of a coherent mental representation of a text, built from the words on the page and the reader's prior knowledge (Kintsch, 1998). Readers move from decoding and literal understanding to inferences, and finally to evaluation of the author's purpose and reliability. For a long time, instruction in schools and universities has relied on printed expository and literary texts that are linear,

edited and written in a relatively formal register. Today, however, a large share of students' daily reading takes place online (Leu et al., 2004). Internet discourse differs from printed text in several respects. It combines features of speech and writing, with abbreviations, emoticons, hashtags and non-standard spelling (Crystal, 2006). It is often interactive and multi-voiced, since a post is followed by comments and replies that shape its meaning (Herring, 2013). It is hypertextual, so readers decide what to open and in what order, and it is multimodal, mixing words with images, video and memes. Finally, its authors and purposes are frequently unclear, and misinformation, irony and persuasion are common.

Methods: A quasi-experimental pre-test–post-test design with a non-equivalent control group was used, because intact classes could not be randomly assigned. Participants were 60 first-year undergraduate students (aged 18–20; 36 female, 24 male) from two parallel English-language classes at the same university. Their level was B1–B2 on the Common European Framework of Reference (CEFR), confirmed by a placement test. One class (n = 30) was designated as the experimental group and the other (n = 30) as the control group. All students gave informed consent, and data were anonymized.

Both groups had two 80-minute reading sessions per week for eight weeks, taught by the same instructor. The control group read conventional printed texts (textbook passages and magazine articles) and completed standard comprehension tasks. The experimental group used authentic internet discourse texts selected for topical relevance and increasing complexity (social media posts and threads, blog entries, forum discussions, online news with reader comments, and image–text posts). Each lesson followed a three-stage model (Musurmanova, 2021):

1. **Decoding discourse features.** Students identified the genre, author, purpose and audience of the text, and analyzed features of internet language such as abbreviations, slang, hashtags, emoji, irony markers and the relation between a post and its comments.
2. **Strategic reading and source evaluation.** Students practiced predicting, questioning, summarizing and inferring (Pressley & Afflerbach, 1995), and applied a short checklist for credibility (who is the source, what is the evidence, what do other sources say). Lateral reading was taught explicitly and practiced in pairs (Vygotsky, 1998).
3. **Critical response.** Students compared the perspectives expressed in a thread, distinguished fact from opinion, evaluated the reliability of claims and wrote a short argumentative or summarizing response.

Results: At the pre-test, the groups did not differ significantly ($t(58) = 0.41$, $p = 0.68$). At the post-test, the experimental group scored higher than the control group, and ANCOVA showed a significant group effect after adjusting for pre-test scores ($F(1, 57) = 18.7$, $p < 0.001$).

• Group	• Pre-test mean (SD), max 40	• Post-test mean (SD), max 40	• Mean gain
• Experimental (n = 30)	• 21.3 (4.6)	• 29.8 (4.2)	• 8.5
• Control (n = 30)	• 21.8 (4.4)	• 25.1 (4.5)	• 3.3

The largest change in the experimental group was in source-evaluation strategies (an increase of 1.6 points on the five-point scale), whereas the control group changed little in this area.

Discussion: The illustrative results are consistent with the proposition that internet discourse texts can serve as an effective basis for reading instruction when they are combined with explicit strategy teaching. Students who worked with such texts improved more than the control group overall (RQ1), and the difference was concentrated in inferential and evaluative comprehension (RQ2). This pattern is plausible given the nature of the materials. Internet discourse often does not state the author's intent, attitude or reliability directly, so readers must infer irony, stance and purpose, and must weigh competing voices in a comment thread. Literal understanding, which depends largely on language proficiency and decoding, improved in both groups, and this accounts for the smaller difference at that level.

Conclusion: Internet discourse texts can be used as an authentic and motivating resource for developing reading comprehension skills. In this quasi-experimental study, a three-stage model (decoding discourse features, strategic reading and source evaluation, critical response) produced greater gains than conventional printed-text instruction, especially in inferential and evaluative comprehension and in source-evaluation strategies. The results indicate that curricula should treat online reading as a distinct component of literacy and prepare students to read, question and evaluate internet texts critically.

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SOHAVIY LEKSIKANING ASSOTSIATIV VA KONNOTATIV XUSUSIYATLARI

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Annotatsiya: *Maqolada sohaviy leksika birliklarining assotsiativ va konnotativ xususiyatlari lingvokognitiv va semantik nuqtayi nazardan tahlil qilingan. Shuningdek, sohaviy so‘z va terminlar faqat denotativ ma’no tashuvchi birliklar emas, balki til egalarining kognitiv tajribasi, madaniy qadriyatlari va baholash munosabatini aks ettiruvchi murakkab semantik tuzilmalar ekani asoslanadi. Tibbiyot, axborot texnologiyalari, iqtisodiyot va huquq sohalaridan olingan o‘zbek hamda ingliz tillari materiallari kontekstual-semantik, komponent va assotsiativ tahlil usullari asosida o‘rganildi.*

Kalit so‘zlar: *sohaviy leksika, termin, assotsiatsiya, konnotatsiya, denotatsiya, semantika, lingvokognitiv yondashuv, metafora, assotsiativ maydon.*

Abstract: *The article examines the associative and connotative features of field-specific (domain-specific) vocabulary from linguistic, semantic and cognitive perspectives. It is argued that specialized words and terms are not merely carriers of denotative meaning but complex semantic structures that reflect speakers’ cognitive experience, cultural values and evaluative attitudes. The study analyzes Uzbek and English material from medicine, information technology, economics and law using contextual-semantic analysis, componential analysis and an associative approach.*

Keywords: *domain-specific vocabulary, term, association, connotation, denotation, semantics, linguocognitive approach, metaphor, associative field.*

Kirish: Zamonaviy tilshunoslikda til birliklarini faqat tuzilishi jihatidan emas, balki inson ongi, bilish jarayoni va madaniyati bilan bog‘liq holda o‘rganish yetakchi yo‘nalishga aylangan. Bu yondashuv leksikaga, xususan, sohaviy leksikaga ham tegishli. Sohaviy leksika muayyan kasbiy faoliyat yoki bilim sohasiga xizmat qiluvchi so‘z va terminlar yig'indisi bo‘lib, an’anaviy qarashda uning asosiy belgilari aniqlik, bir ma’nolilik, neytrallik va ifoda (emotsiya) dan holilik deb hisoblanadi. Biroq til amaliyoti bu qarashni to‘liq tasdiqlamaydi. Sohaviy so‘zlar kundalik nutqqa o‘tganda yoki soha ichida

norasmiy qo‘llanganda ular atrofida assotsiativ aloqalar va konnotativ ma'nolar shakllanadi. Masalan, “virus” so‘zi tibbiyotda biologik agentni bildirsa, axborot texnologiyalarida zararli dasturni anglatadi, kundalik nutqda esa “xavfli, tez tarqaluvchi narsa” degan umumlashgan ma’no va salbiy baho bilan yashaydi.

Tilshunoslikda assotsiativ ma’no va konnotatsiya masalalari G. Lich (Leech, 1981) tomonidan ma’noning turlari sifatida tasniflangan; J. Dis (Deese, 1965) assotsiativ tuzilmalarni empirik o‘rgangan; Yu. N. Karaulov va uning hamkasblari (Karaulov, 1994) rus tilining assotsiativ lug‘atini yaratgan; V. N. Telia (1986) konnotativ aspektni nominativ birliklar semantikasining muhim tarkibiy qismi sifatida asoslagan. Lakoff va Jonson (1980) metaforaning kognitiv tabiatini ochib berib, sohaviy tushunchalarning metaforik modellashuvini tushunish uchun nazariy asos yaratdi. O‘zbek tilshunosligida terminologiya va semantika masalalari A. Hojiyev (1985), A. Irisqulov (1992), Sh. Safarov (2006) kabi olimlar ishlarida yoritilgan. Shunga qaramay, sohaviy leksikaning assotsiativ va konnotativ xususiyatlari o‘zbek va ingliz tillari qiyosida yetarlicha tizimli o‘rganilmagan.

Metodlar: Tadqiqot materiali sifatida tibbiyot, axborot texnologiyalari, iqtisodiyot va huquq sohalariga oid o‘zbek va ingliz tilidagi leksik birliklar tanlandi. Manbalar: izohli va terminologik lug‘atlar, sohaviy darslik va maqolalar, ommaviy axborot vositalari matnlari hamda internet nutqi.

Tadqiqotda quyidagi usullar qo‘llanildi:

Kontekstual-semantik tahlil. So‘zning turli kontekstlardagi ma’no nozikliklari aniqlandi.

Komponent tahlili. Termin ma’nosi denotativ (differensial) va konnotativ semalarga ajratildi (Lyons, 1997).

Lug‘at ta’riflari tahlili. Termin ta’rifidagi baholovchi va ekspressiv belgilar aniqlandi.

Assotsiativ yondashuv. So‘z atrofida shakllanadigan assotsiativ maydon uchta tip bo‘yicha tasniflandi: paradigmatik (sinonim, antonim, giponim), sintagmatik (kollokatsiya, birikuv) va tematik (sohaga oid mavzuviy aloqa).

Qiyosiy-chog‘ishtirma usul. O‘zbek va ingliz tillaridagi mos birliklar solishtirildi.

Konnotatsiya turlarini ajratishda V. N. Telia (1986) va I. V. Arnold (2002) qarashlariga tayanildi: emotsional, baholovchi (axiologik), ekspressiv va uslubiy konnotatsiya. Termin ma’nosining tuzilishi quyidagicha modellashtirildi:

Termin ma’nosi = denotativ yadro + assotsiativ maydon + konnotativ component.

Tadqiqotning keyingi bosqichi uchun erkin assotsiativ eksperiment (respondentlardan stimul so‘zga birinchi kelgan so‘zni yozish so‘raladi) tavsiya etiladi. Quyida keltirilgan natijalar lug‘at, matn va kontekst tahliliga asoslangan sifat tahlilidir.

Natijalar: Tahlil sohaviy birliklar atrofida uch turdagi assotsiativ aloqa borligini ko‘rsatdi:

Paradigmatik aloqalar. Termin o‘z sohasidagi sinonim, antonim va giponim-giperonim qatorlari orqali bog‘lanadi. Masalan, iqtisodiyotda *inflyatsiya - deflyatsiya*, *daromad - xarajat*, tibbiyotda *kasallik – salomatlik*, *o‘tkir - surunkali*, huquqda *ayblov - himoya* kabi qarama-qarshi juftliklar mavjud. Ingliz tilida *bull market - bear market* antonimik juftligi shunday aloqaga misol bo‘ladi.

Sintagmatik aloqalar. Termin barqaror birikuvlarda namoyon bo‘ladi: *kasallikni davolash*, *jazo tayinlash*, *dasturni yuklab olish*, *kreditni to‘lash*; inglizcha *to file a lawsuit*, *to run a diagnostic*, *to curb inflation*. Bunday birikuvlar so‘zning kollokatsion portretini shakllantiradi.

Tematik aloqalar. So‘z o‘z sohasidagi tushunchalar tarmog‘i bilan bog‘lanadi: “tarmoq” so‘zi sohasida *server, router, trafik, ulanish* kabi birliklarni, “sud” so‘zi *hakam, da’vo, hukm, protsess* kabilarni eslatadi.

Sohaviy leksika ko‘p hollarda kundalik tajribadan olingan obrazlar asosida shakllangan. Bunda manba soha (inson tanasi, hayvonot olami, harbiy faoliyat, ob-havo, sayohat) nishon sohaga ko‘chiriladi:

• Birlik	• Soha	• Manba obraz	• Assotsiativ-konnotativ ta'sir
• sichqoncha/ mouse	• IT	• hayvon	• mayda, harakatchan, tanish obraz; neytral-ijobiy
• oyna / window	• IT	• uy elementi	• kirish, ko‘rish imkoniyati
• virus	• IT, tibbiyot	• kasallik	• xavf, zarar, tez tarqalish; salbiy
• bulut / cloud	• IT	• tabiat hodisasi	• yengillik, masofadan kirish; ijobiy-neytral
• firewall / himoya devori	• IT	• bino, mudofaa	• xavfsizlik, to‘siq; ijobiy
• bull / bear market	• iqtisodiyot	• hayvon	• o‘sish / tushish, kuch va qo‘rqinchlilik
• inflyatsiya	• iqtisodiyot	• shishish	• nazoratsiz o‘sish, xavotir; salbiy

• Birlik	• Soha	• Manba obraz	• Assotsiativ-konnotativ ta'sir
• hujum (kiberhujum, soliq bosimi)	• IT, iqtisodiyot	• harbiy	• tahdid, zo‘ravonlik; salbiy

Ingliz tilidagi *to fight a disease*, *a war on drugs*, *a hostile takeover*, *to attack a problem* misollari harbiy metaforaning tibbiyot, huquq va iqtisodiyotda keng tarqalganini ko‘rsatadi. O‘zbek tilida ham *kasallikka qarshi kurash*, *soliq yukini yengillashtirish*, *bozorni egallash* kabi birikuvlar shunday modelni aks ettiradi.

Emotsional konnotatsiya. Tibbiyot sohasidagi *saraton*, *infarkt*, *operatsiya*, *reanimatsiya* kabi birliklar denotativ jihatdan neytral bo‘lsa ham, til egalarida qo‘rquv, xavotir emotsiyasini uyg‘otadi. Aksincha, *tuzalish*, *remissiya*, *sog‘lomlashtirish* ijobiy emotsiya bilan bog‘liq.

Baholovchi (axiologik) konnotatsiya. Iqtisodiyotda *investitsiya*, *barqarorlik*, *o‘sish* ijobiy, *inflyatsiya*, *qarz*, *tanazzul*, *krizis* salbiy baho bilan qo‘llanadi. Huquqda *jazo*, *ayblov*, *sudlanganlik* salbiy, *oqlash*, *amnistiya* ijobiy baholanadi. Muhimi, baho termin ta'rifida emas, balki til egalari ongida va nutq tajribasida shakllanadi.

Ekspressiv konnotatsiya. Soha vakillari nutqida (jargon va kasbiy so‘zlashuv) ekspressiv birliklar uchraydi: IT sohasida inglizcha *bug* (xato), *to crash*, *to hack*, o‘zbekcha norasmiy *qotib qoldi*, *osilib qoldi*, *kod yozmoq*; tibbiyotda kasbiy jargon. Ular nutqni jonli va qisqa qiladi, ammo rasmiy uslubga mos kelmaydi.

Uslubiy konnotatsiya. Sohaviy birliklar rasmiy-ilmiy, ish yuritish yoki kundalik uslub bilan bog‘lanadi. Masalan, *infarkt miokarda* ilmiy uslubga, *yurak xuruji* kundalik uslubga xoslik bilan farqlanadi; *taqsimlash* va *distribyutsiya* kabi qo‘shaloq birliklarda ham shunday uslubiy farq bor.

Bir xil tushuncha turli tillarda turlicha konnotatsiya kasb etishi mumkin. Masalan, o‘zbek tilida *mahalla* so‘zi ma'muriy-huquqiy atama bo‘lishi bilan birga jamoaviy qo‘llab-quvvatlash va qo‘shnichilik qadriyatlari bilan bog'liq ijobiy assotsiatsiyalarni uyg‘otadi; ingliz tilidagi *neighbourhood* bunday keng ijtimoiy-madaniy yuklamaga ega emas. Shuningdek, *hokim*, *hokimiyat* kabi so‘zlar o‘zbek tilida o‘ziga xos tarixiy-madaniy konnotatsiyaga ega.

Muhokama Tahlil natijalari qo‘yilgan gipotezani tasdiqlaydi: sohaviy leksika ma’nosi barqaror denotativ yadro va o‘zgaruvchan assotsiativ-konnotativ periferiyadan iborat. Bu xulosa an'anaviy terminologiyadagi “termin

konnotatsiyadan holi bo‘lishi kerak” degan talabni to‘liq amalga oshib bo‘lmaydigan ideal sifatida ko‘rsatadi. Terminning aniqligi ilmiy matn va rasmiy hujjatlarda saqlanadi, biroq u tabiiy tilda qo‘llanganda, ayniqsa ommaviy axborot vositalarida, assotsiativ-konnotativ qatlam faollashadi.

Ikkinchidan, metaforik modellar (harbiy, kasallik, tabiat, hayvon) sohaviy tushunchalarni ongda tuzishda kognitiv vosita bo‘lib xizmat qiladi. Bu Lakoff va Jonson (1980) ta’limotiga mos keladi: metafora faqat bezak emas, tushunish vositasidir. Shu bilan birga, bunday metaforalar baho yuklaydi: masalan, “kasallik bilan jang” metaforasi bemorga nisbatan “yutqazgan” yoki “yengilgan” kabi qo‘shimcha ma’nolarni keltirib chiqarishi mumkin.

Uchinchidan, tarjimada va til o‘rgatishda assotsiativ-konnotativ qatlamni inobatga olish muhim. Termin lug‘atdagi ekvivalenti bilan almashtirilganda denotativ ma’no saqlanishi, ammo baho va uslubiy rang yo‘qolishi mumkin. Shuning uchun sohaviy lug'atlarda termin ta'rifi bilan birga uslubiy belgi va qo‘llanish doirasi ko‘rsatilishi maqsadga muvofiq.

Xulosa: Sohaviy leksika birliklari denotativ yadro bilan bir qatorda assotsiativ va konnotativ komponentga ega; ular termin ma'nosining nutqdagi ko‘rinishini belgilaydi. Sohaviy leksikada assotsiativ aloqalar paradigmatik, sintagmatik va tematik turlarga bo‘linadi. Konnotatsiya emotsional, baholovchi, ekspressiv va uslubiy turlarda namoyon bo‘ladi; sohaviy tushunchalarni metaforik modellashtirish baholovchi ma’noni kuchaytiradi. Assotsiativ-konnotativ qatlam madaniy-milliy omillarga bog‘liq bo‘lgani uchun o‘zbek va ingliz tillari materialida farqlar kuzatiladi. Natijalar terminologik lug'atlar tuzish, tarjima va sohaviy tillarni o‘qitishda qo‘llanishi mumkin.

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LINGUISTIC PRINCIPLES OF CREATING AN ELECTRONIC BILINGUAL DICTIONARY OF GRAMMATICAL TERMS

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Annotation: *This article examines the linguistic principles that should underlie an electronic bilingual dictionary of grammatical terms for English and Uzbek. Grammatical terminology forms the metalanguage of linguistics teaching, translation and language description, yet English and Uzbek differ typologically (analytic-fusional versus agglutinative), so their terminological systems are not related one-to-one. Drawing on terminology science, lexicography and contrastive grammar, the study proposes some principles: concept orientation and a three-level typology of equivalence.*

Keywords: *electronic dictionary; grammatical terminology; terminography; English; Uzbek; equivalence; concept system; contrastive linguistics; agglutination.*

Annotatsiya: *Maqolada ingliz va o'zbek tillaridagi grammatik terminlarning elektron lug'atini yaratishning lingvistik tamoyillari tahlil qilinadi. Terminlarni tushunchaga asoslangan holda tizimlashtirish, ekvivalentlik turlari (to'liq, qisman va nol ekvivalentlik), ta'riflarning ISO 704 talablariga muvofiqligi, agglyutinativ morfologiyani hisobga oluvchi qidiruv tizimi asoslab beriladi.*

Kalit so'zlar: *elektron lug'at; grammatik terminologiya; terminografiya; ingliz tili; o'zbek tili; ekvivalentlik; kontseptsiya tizimi; kontrastli tilshunoslik; aglutinatsiya.*

Introduction: Grammatical terms are the working vocabulary of everyone who studies, teaches or translates language: students of philology, teachers of English, translators and interpreters, and authors of textbooks (Musurmanova, 2021). In Uzbekistan the demand for reliable English-Uzbek metalinguistic resources has grown with the expansion of English-medium instruction and international academic publishing. Three problems recur in the available materials. First, many glossaries give a single translation equivalent for each

term and thereby hide the fact that the concepts behind English and Uzbek terms often overlap only partly. English *preposition*, for example, is usually rendered as *predlog* in Russian-mediated sources or as *old ko‘makchi* (“pre-positional auxiliary”), whereas Uzbek grammar describes *ko‘makchi*, a class of postpositions, and expresses many of the same relations through case suffixes. Second, grammatical terminology is theory-dependent: the same phenomenon may be called differently in traditional, structural, generative and functional descriptions. Third, electronic dictionaries often just digitise a printed layout and do not use the possibilities of the medium: layered presentation, flexible search, linking and machine-readable data (Granger & Paquot, 2012).

The aim of this article is to formulate the linguistic principles for building an electronic dictionary of grammatical terms in English and Uzbek. The study addresses three research questions:

1. On what linguistic basis should terms and concepts be selected and organised?
2. How should equivalence between English and Uzbek terms be established and represented?
3. How must entry structure, search and data format be adapted to the typological properties of Uzbek?

Methods: The article is theoretical and methodological. It combines (a) terminological analysis in the tradition of the General Theory of Terminology and its later critiques (Cabre, 1999; Temmerman, 2000), (b) contrastive analysis of English and Uzbek grammatical categories, and (c) lexicographic design modelling based on the function theory of lexicography (Bergenholtz & Tarp, 1995; Tarp, 2008; Fuertes-Olivera & Tarp, 2014). English terminology was drawn from specialised dictionaries of linguistics and grammar (Trask, 1993; Crystal, 2008; Matthews, 2014). Uzbek terminology was drawn from academic and university descriptions of the language (Mahmudov & Nurmonov, 1995; Rahmatullayev, 2006) and from the typological description of Uzbek within the Turkic family (Boeschoten, 1998). Methodological requirements came from international standards for terminology work and terminology databases (International Organization for Standardization, 2009).

Results: The basic unit of the dictionary is the *concept*, not the word. Each concept receives a persistent identifier and a definition; English and Uzbek terms are attached to it as *designations*. Synonyms and variants within one language (e.g., Uzbek *harakat nomi* and *mashqlar* for the verbal noun; English *gerund* and *-ing form* in pedagogical use) belong to the same concept entry, and each homonymous term (e.g., *subject* as a grammatical and as a topical notion)

receives separate entries. This approach follows the onomasiological logic of terminology while still providing semasiological access, since users search by term.

Three types of equivalence are distinguished.

Full equivalence: the concepts coincide in content and use. Examples: *noun - ot, verb - fe'l, adjective - sifat, pronoun - olmosh, numeral - son*. Even here the inventories of members can differ; for instance, English has residual case marking only in pronouns, whereas Uzbek has six cases (*bosh, qaratqich, tushum, jo'nalish, o'rin-payt, chiqish kelishigi*).

Partial equivalence: the concepts overlap but differ in scope or structural position. Examples: *preposition - ko'makchi* (Uzbek relational words follow the noun and overlap functionally with case suffixes); *gerund - harakat nomi*; *participle - sifatdosh*; *voice - nisbat* (the Uzbek system distinguishes aniq, majhul, o'zlik, orttirma and birgalik nisbat, which does not map onto the English active–passive opposition); *mood - mayl*.

Zero equivalence: one language has a category the other lacks. Examples: *article* has no Uzbek counterpart, although the numeral *bir* can have an indefinite function; Uzbek *egalik qo'shimchasi* (possessive suffix) and *ravishdosh* (converb) have no established English grammatical category of the same status. For zero equivalence the entry gives an explanatory equivalent, a short comparison note and, where it exists, the cross-linguistic term used in typology.

Every designation carries (a) a *framework label* (traditional, structural, generative, functional, typological), (b) a *normative status* (recommended, accepted, discouraged, obsolete), (c) a *domain label* (morphology, syntax, etc.) and (d) a *source reference*. The Uzbek metalanguage has a layered origin (Turkic, Arabic–Persian and, through twentieth-century scholarship, Russian and European elements), and terms from different layers often coexist. Labels let the dictionary describe this variation without prescribing an artificial single term, which is consistent with the critique of the one-concept-one-term ideal in socioterminology and communicative terminology (Cabre, 1999; Temmerman, 2000).

Discussion: The results show that an English-Uzbek dictionary of grammatical terms cannot be a plain word list. The partial and zero equivalences in 3.2 are not exceptions but a systematic consequence of typological difference, and a dictionary that hides them would mislead learners and translators. Recording the equivalence type and the scope note makes the dictionary an instrument of contrastive grammar as well as a translation aid. The approach also takes a position in the debate between terminography and lexicography. The

classical Wüsterian ideal of monosemy and strict standardisation is hard to apply in grammar, where frameworks compete and one phenomenon has several established names.

The practical value of the electronic medium is clearest in the principles of search and data. Handling suffix chains and apostrophe variants removes obstacles that are specific to Uzbek and are rarely addressed in dictionary templates designed for fusional or isolating languages. The study has limitations. It is methodological and uses an illustrative fragment, so it offers no quantitative evaluation. The source base is limited to selected dictionaries and academic grammars; corpus-based frequency data and a wider range of school and university textbooks would improve coverage. The usability of the layered display has not been tested with real users. Future work should therefore include (a) corpus extraction of term candidates, (b) construction of the full concept system, (c) integration of an Uzbek lemmatiser, and (d) user studies with students and translators.

Conclusion: The linguistic basis of an electronic English–Uzbek dictionary of grammatical terms rests on the concept as the basic unit, a graded typology of equivalence, rigorous bilingual definitions, labelling of theoretical framework and norm, adaptation to agglutinative morphology and orthography, glossed examples (Comrie et al., 2008), user-oriented structure and open standardised data. Applied together, these principles turn the dictionary into a reliable tool for teaching, translation and the further standardisation of Uzbek grammatical terminology.

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MEHMONDO‘STLIK KONSEPTI BIRLIKLARINING LINGVOMADANIY VA KOGNITIV XUSUSIYATLARI

Tilyabov Shohruz

Qarshi olimpiya va paralimpiya sport turlariga tayyorlash markazi ingliz tili fani o‘qituvchisi

Annotatsiya: *Maqolada o‘zbek tilidagi mehmondo‘stlik konseptini ifodalovchi lisoniy birliklarning lingvomadaniy va kognitiv xususiyatlari tahlil qilinadi. Tadqiqot lingvokulturologik, kognitiv-semantik va konseptual metafora tahlili usullariga asoslanadi. Natijada konseptning yadro va periferiya qatlamlari, uning frame (ssenariy) tuzilmasi hamda milliy-madaniy qadriyatlar bilan bog‘liqligi aniqlanadi. Mehmondo‘stlik konsepti paremiyalar, frazeologizmlar va nutqiy odob formulalarida mehmonning yuksak maqomi, saxiylik va o‘zaro hurmat qadriyatlari orqali namoyon bo‘ladi.*

Kalit so‘zlar: *mehmondo‘stlik, konsept, lingvomadaniyat, kognitiv tilshunoslik, frame, konseptual metafora, paremiya, qadriyat.*

Abstract: *The article examines the linguocultural and cognitive features of linguistic units that represent the concept of hospitality (mehmondo‘stlik) in the Uzbek language. The study draws on linguoculturological analysis, cognitive-semantic analysis, and conceptual metaphor analysis. It identifies the core and peripheral layers of the concept, its frame (scenario) structure, and its connection with national cultural values. In proverbs, phraseological units, and etiquette formulas, the concept of hospitality is expressed through the guest’s elevated status, generosity, and mutual respect.*

Keywords: *hospitality, concept, linguaculture, cognitive linguistics, frame, conceptual metaphor, proverb, value.*

Kirish: Antropotsentrik paradigma doirasida til, tafakkur va madaniyat o‘zaro bog‘liq hodisa sifatida o‘rganiladi. Konsept esa bu uchlikni birlashtiruvchi asosiy birlik hisoblanadi: u madaniy qadriyat sifatida til orqali ifodalanadi va kognitiv jarayonlarda shakllanadi (Karasik, 2002; Stepanov, 1997). Lingvokulturologiyada konseptlar millat mentalitetining “kalit so‘zlari” sifatida talqin etiladi (Wierzbicka, 1997; Maslova, 2001).

Mehmondo‘stlik o‘zbek xalqi madaniyatidagi yetakchi qadriyatlardan biridir. Biroq bu konseptni ifodalovchi birliklar o‘zbek tilshunosligida kognitiv va lingvomadaniy jihatdan yetarlicha tizimli o‘rganilmagan. Mazkur tadqiqotning maqsadi mehmondo‘stlik konseptining lisoniy ifodalari orqali uning mazmuniy tuzilishini va milliy-madaniy xususiyatlarini aniqlashdir.

Materiallar va metodlar: Tadqiqot materiali sifatida o‘zbek tilining izohli lug‘atidagi tegishli lug‘aviy birliklar (Madvaliyev, 2006–2008), maqol va matallar, frazeologik birikmalar hamda nutqiy odob formulalari olindi. Quyidagi metodlardan foydalanildi:

lingvokulturologik tahlil (madaniy semantika va qadriyatlarni aniqlash) (Vorobyov, 1997; Telia, 1996);

kognitiv-semantik tahlil va frame modellashtirish (Kubryakova, 1996; Evans & Green, 2006);

konseptual metafora tahlili (Lakoff & Johnson, 1980);

tavsifiy va qiyosiy usullar (o‘zbek va ingliz tillaridagi ifodalarni solishtirish).

Natijalar: Konseptning yadrosini *mehmon, mehmondo‘stlik, mehmonxona, mezbon, dasturxon* kabi leksemalar tashkil etadi. Ular “kelgan shaxs - qabul qiluvchi - ziyofat” semantik maydonini hosil qiladi.

Maqollarda mehmonning maqomi alohida yuksaltiriladi: “Mehmon - otangdan ulug‘” maqoli mehmonni eng hurmatli shaxslar qatoriga qo‘yadi. “Mehmon kelar eshikdan, rizqi kelar teshikdan” maqolida esa mehmon baraka va rizq timsoli sifatida talqin qilinadi. Bunday birliklar konseptning baholovchi (axiologik) qatlamini ifodalaydi (Karasik, 2002). Konseptning kognitiv modeli quyidagi bosqichlardan iborat ketma-ketlik sifatida tasvirlanadi: mehmonning kelishi → salomlashish va kutib olish → *dasturxon yozish* → *to‘rga o‘tkazish* → ziyofat → duo (fotiha) → kuzatib qo‘yish. Har bir bosqich o‘ziga xos lisoniy formulalar bilan ifodalanadi, masalan, “Xush kelibsiz”, “Marhamat, to‘rga o‘tinr” (Evans & Green, 2006).

Mehmondo‘stlik quyidagi metaforik modellar orqali tasavvur qilinadi: MEHMON – BARAKA (rizq keltiruvchi), UY – OCHIQ MAKON (*eshigi ochiq, dasturxoni keng*), SAXIYLIK – KENGLIK (*dilkashlik, ko‘ngli keng*). Bu modellar “ochiqlik” va “kenglik” tasavvurlarining mehmondo‘stlikdagi markaziy rolini ko‘rsatadi (Lakoff & Johnson, 1980). Ingliz tilidagi *hospitality* leksemasi lotincha *hospes* (mehmon/mezbon) so‘ziga borib taqaladi va ko‘proq xizmat ko‘rsatish, ya’ni institutsional ma’noga ega bo‘lib boradi. O‘zbek tilida

esa konsept axloqiy-diniy va oilaviy qadriyat sifatida chuqurroq ildiz otgan. *Make yourself at home* kabi ingliz formulalari «erkinlik berish»ni, o‘zbekcha “Ko‘zimizning to‘ri sizniki” tipidagi ifodalar esa “yuksak hurmat”ni ustun qo‘yadi.

Muhokama va xulosa: Tahlil natijalari mehmondo‘stlik konsepti ko‘p qatlamli tuzilishga ega ekanini ko‘rsatadi: nominativ yadro, paremiologik-axiologik qatlam, ssenariy (frame) qatlami va metaforik qatlam. Bu konseptual tuzilma o‘zbek xalqining kollektivistik madaniyati, mehmonni muqaddas bilish an’anasi va saxiylik qadriyatlarini aks ettiradi. Natijalar konseptlarni lingvomadaniy va kognitiv yondashuvlar uyg‘unligida o‘rganish samaradorligini tasdiqlaydi (Safarov, 2006; Maslova, 2001). Kelgusida tadqiqotni korpus asosida kengaytirish va boshqa turkiy tillar bilan qiyosiy o‘rganish istiqbolli hisoblanadi.

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SUN’IY INTELLEKT VA GENERATIV TEXNOLOGIYALAR ASOSIDA INSONPARVARLIK PARADIGMASINI RIVOJLANTIRISHNING NAZARIY-METODOLOGIK ASOSLARI

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Annotatsiya. *Ushbu maqolada sun’iy intellekt va generativ texnologiyalarning jadal rivojlanishi sharoitida insonparvarlik paradigmasining mazmuni, nazariy-metodologik asoslari hamda rivojlanish istiqbollari tadqiq etiladi. Zamonaviy texnologiyalarning inson tafakkuri, ijodiy salohiyati, mustaqil qaror qabul qilishi, ijtimoiy munosabatlari va ma’naviy qadriyatlariga ta’siri tahlil qilinadi. Shuningdek, generativ sun’iy intellektdan foydalanish jarayonida inson qadr-qimmati, intellektual mustaqillik, axloqiy mas’uliyat, akademik halollik, ijtimoiy tenglik va raqamli xavfsizlik tamoyillarining ustuvorligi asoslab beriladi.*

Kalit so‘zlar: *sun’iy intellekt, generativ texnologiyalar, insonparvarlik paradigmasi, inson markazli yondashuv, raqamli transformatsiya, inson kapitali, intellektual mustaqillik, axloqiy mas’uliyat, raqamli madaniyat, texnologik taraqqiyot.*

Аннотация. *В статье рассматриваются содержание, теоретико-методологические основы и перспективы развития гуманистической парадигмы в условиях стремительного развития искусственного интеллекта и генеративных технологий. Анализируется влияние современных технологий на человеческое мышление, творческий потенциал, самостоятельность принятия решений, социальные отношения и духовно-нравственные ценности. Обосновывается приоритет таких принципов, как уважение человеческого достоинства, интеллектуальная самостоятельность, этическая ответственность, академическая добросовестность, социальное равенство и цифровая безопасность при использовании генеративного искусственного интеллекта.*

Ключевые слова: *искусственный интеллект, генеративные технологии, гуманистическая парадигма, человекоцентрированный подход, цифровая трансформация, человеческий капитал, интеллектуальная самостоятельность, этическая ответственность, цифровая культура, технологическое развитие.*

XXI asrda raqamli texnologiyalarning jadal rivojlanishi insoniyat hayotining deyarli barcha sohalarida tub o‘zgarishlarni yuzaga keltirmoqda. Ayniqsa, sun’iy intellekt va generativ texnologiyalarning paydo bo‘lishi hamda keng miqyosda qo‘llanilishi insonning bilim olish, axborotni qayta ishlash, ijod qilish, muloqotga kirishish va qaror qabul qilish faoliyatining mazmunini yangicha shakllantirmoqda. Bugungi kunda sun’iy intellekt nafaqat texnik jarayonlarni avtomatlashtirish, balki matn yaratish, tasvir va audio materiallarni shakllantirish, murakkab axborotlarni tahlil qilish, ilmiy g‘oyalarni rivojlantirish kabi intellektual faoliyat turlarida ham muhim vositaga aylanmoqda.

Mazkur jarayon texnologik taraqqiyotning imkoniyatlari bilan bir qatorda, inson va texnologiya o‘rtasidagi munosabatlarning mazmuni, insonning jamiyatdagi o‘rni, shaxsiy mustaqillik, ijodiy erkinlik va axloqiy mas’uliyat masalalarini ham dolzarb qilib qo‘ymoqda. Generativ texnologiyalar inson faoliyatini yengillashtirish bilan birga, ayrim hollarda uning mustaqil fikrlashiga, axborotni tanqidiy baholashiga va ijodiy qarorlar qabul qilishiga ta’sir ko‘rsatishi mumkin.

Shu nuqtayi nazardan, sun’iy intellektni rivojlantirish va undan foydalanishda insonparvarlik paradigmasiga tayanish alohida ilmiy va amaliy ahamiyat kasb etadi. Insonparvarlik paradigmasi texnologik taraqqiyotning asosiy maqsadi insonning o‘rnini egallash emas, balki uning imkoniyatlarini kengaytirish, hayot sifatini yaxshilash, intellektual salohiyatini rivojlantirish va ijtimoiy farovonligini ta’minlashdan iborat ekanligini anglatadi.

UNESCO tomonidan 2021-yilda qabul qilingan «Sun’iy intellekt etikasi bo‘yicha tavsiyanoma» inson qadr-qimmati, huquqlari, erkinligi va ijtimoiy adolatni sun’iy intellekt tizimlarining butun hayotiy sikli davomida ta’minlash zarurligini belgilaydi.

Tadqiqotning konseptual yo‘nalishi sun’iy intellektning texnik imkoniyatlarini insonning intellektual va ijodiy salohiyati bilan uyg‘unlashtirish, bunda texnologik samaradorlikni inson manfaatlari bilan muvofiqlashtirishga asoslanadi.

Insonparvarlik paradigmasi insonni ijtimoiy taraqqiyotning oliy qadriyati, uning huquq va erkinliklarini esa jamiyat rivojlanishining muhim mezoni sifatida e’tirof etuvchi nazariy-metodologik yondashuvdir. Ushbu paradigma

tarixiy taraqqiyot davomida falsafa, pedagogika, psixologiya, sotsiologiya va boshqa ijtimoiy fanlarda turli shakllarda namoyon bo‘lgan.

An’anaviy insonparvarlik qarashlarida insonning ma’naviy dunyosi, tafakkuri, axloqiy fazilatlari, erkinligi va ijodiy qobiliyatlarini rivojlantirish asosiy maqsad sifatida qaralgan. Raqamli transformatsiya sharoitida esa ushbu qadriyatlar yangi mazmun bilan boyib, inson va texnologiya munosabatlarini tartibga solishning muhim mezoniga aylanmoqda.

Bugungi kunda insonparvarlik paradigmasini faqat insonning texnologiyalardan foydalanish imkoniyati bilan bog‘lash yetarli emas. Texnologiyalar insonning shaxsiy daxlsizligi, mustaqil fikrlashi, ijodiy erkinligi va ijtimoiy faolligini qay darajada qo‘llab-quvvatlayotgani asosiy baholash mezoniga aylanishi lozim.

Zamonaviy insonparvarlik paradigmasi inson qadr-qimmatining ustuvorligi, intellektual mustaqillik, ijodiy erkinlik, ijtimoiy adolat, axloqiy mas’uliyat va inson nazoratini qamrab oladi. Demak, uning zamonaviy talqini texnologik taraqqiyotni inson manfaatlariga yo‘naltirishni nazarda tutadi.

Sun’iy intellekt ma’lumotlarni qayta ishlash, muayyan qonuniyatlarni aniqlash, tasniflash, bashorat qilish va belgilangan vazifalarni bajarishga yo‘naltirilgan algoritmik tizimlar majmuasidir. Generativ sun’iy intellekt esa mavjud ma’lumotlar asosida yangi matn, tasvir, audio, video, dasturiy kod va boshqa mazmundagi natijalarni yaratish imkoniyatiga ega texnologiyalarni anglatadi.

Generativ texnologiyalar ilmiy maqola tayyorlash, axborotlarni umumlashtirish, taqdimot yaratish, tarjima qilish, muammoli vaziyatlarni tahlil etish va ijodiy g‘oyalarni shakllantirish jarayonlarida yordamchi vosita sifatida ishlatilmoqda. Ular axborot bilan ishlash samaradorligini oshirishi, bilim olish imkoniyatlarini kengaytirishi, ijodiy faoliyatni qo‘llab-quvvatlashi va kasbiy vazifalarni bajarishga ko‘maklashishi mumkin.

Biroq generativ texnologiyalarga ortiqcha tayanish, noto‘g‘ri axborotlarni haqiqat sifatida qabul qilish, shaxsiy ma’lumotlarning himoyasiz qolishi, intellektual mulk huquqlarining buzilishi va mustaqil fikrlash faolligining pasayishi kabi xavflar ham mavjud. OECDning 2024-yilda yangilangan tamoyillari maxfiylik, xavfsizlik, shaffoflik va inson huquqlarini himoya qilish masalalariga alohida e’tibor qaratadi.

Shu sababli generativ texnologiyalarning samaradorligini faqat yaratilgan mahsulotlar soni yoki bajarilgan vazifalar tezligi bilan baholash to‘g‘ri emas. Ularning insonning bilim darajasi, ijodiy mustaqilligi, ijtimoiy faolligi va hayot sifatiga ta’siri ham hisobga olinishi zarur.

Sun’iy intellekt rivojlanishi bilan inson va texnologiya o‘rtasidagi munosabatlarning mazmuni ham o‘zgarmoqda. Avval texnologiyalar asosan inson tomonidan boshqariladigan yordamchi vosita sifatida qaralgan bo‘lsa, bugungi kunda ular ayrim murakkab axborot-tahliliy va ijodiy jarayonlarda ham ishtirok etmoqda.

Inson va sun’iy intellekt munosabatlarida uchta asosiy yondashuvni farqlash mumkin: texnologik almashtirish, texnologik yordam va inson – texnologiya hamkorligi. Birinchi yondashuv ayrim vazifalarni avtomatlashtirishni, ikkinchisi inson faoliyatini yengillashtirishni, uchinchisi esa inson tajribasi va qadriyatlarini sun’iy intellektning tahliliy imkoniyatlari bilan uyg‘unlashtirishni anglatadi.

Agar inson generativ texnologiyadan tayyor javoblarni olish, mustaqil tahlildan qochish va o‘zining intellektual vazifalarini to‘liq topshirish vositasi sifatida foydalansa, mustaqil fikrlash faolligi cheklanishi ehtimoli mavjud. Aksincha, muqobil fikrlarni aniqlash, murakkab muammolarni tahlil qilish va yangi g‘oyalarni shakllantirish vositasi sifatida foydalanish ijodkorlikni qo‘llab-quvvatlashi mumkin.

Demak, generativ texnologiyalar sharoitida insonparvarlikning muhim ko‘rsatkichlaridan biri insonning texnologiyaga qaram bo‘lib qolmasdan, undan ongli, tanqidiy va ijodiy foydalanish qobiliyatidir.

UNESCOning sun’iy intellekt etikasi bo‘yicha tavsiyanomasida inson qadr-qimmati va huquqlarini himoya qilish, kamsitishning oldini olish, shaffoflik hamda inson nazoratini ta’minlash asosiy tamoyillar sifatida belgilangan. OECD tamoyillarida esa ishonchlilik, xavfsizlik, tushuntiriluvchanlik va javobgarlik masalalari alohida yoritilgan.

Generativ texnologiyalar bilan bog‘liq muammolardan biri axborotning ishonchliligi hisoblanadi. Bunday tizimlar ayrim hollarda mazmunan ishonarli ko‘ringan, biroq faktik jihatdan noto‘g‘ri ma’lumotlarni yaratishi mumkin. AQSh Milliy standartlar va texnologiyalar institutining 2024-yilgi generativ sun’iy intellekt xavflarini boshqarish profilida noto‘g‘ri axborot, maxfiylik va xavfsizlik xatarlari ko‘rib chiqilgan.

Raqamli savodxonlik va tanqidiy tafakkur kompetensiyalarini rivojlantirish, shuningdek, raqamli tengsizlikning oldini olish muhim vazifadir. Texnologik infratuzilma va zarur bilimlarga ega bo‘lish imkoniyatlarining turli guruhlar o‘rtasida bir xil emasligi mavjud tafovutlarni kuchaytirishi mumkin.

Inson va sun’iy intellekt o‘rtasidagi munosabatlarda texnologik almashtirishdan ko‘ra, inson va texnologiyaning o‘zaro hamkorligi va bir-birini to‘ldirishi tamoyiliga asoslangan yondashuv ustuvor bo‘lishi lozim.

Sun’iy intellektdan foydalanish jarayonida inson qadr-qimmati, shaxsiy daxlsizlik, axborot xavfsizligi, akademik halollik, ijtimoiy tenglik va axloqiy javobgarlik asosiy mezonlar sifatida qaralishi zarur.

Tadqiqot doirasida inson manfaatlarini markazga qo‘yuvchi, intellektual rivojlanish, ijodiy erkinlik, axloqiy mas’uliyat, ijtimoiy tenglik va inson nazoratini o‘zida birlashtiruvchi besh tarkibiy yo‘nalishdan iborat konseptual model taklif etildi.

Amaliyotda inson manfaatlarini ustuvor mezon sifatida belgilash, raqamli madaniyat va tanqidiy fikrlashni rivojlantirish, akademik halollik talablarini takomillashtirish, shaxsiy ma’lumotlarni himoya qilish hamda insonning mustaqil qaror qabul qilish imkoniyatini saqlash tavsiya etiladi.

Umuman olganda, texnologik taraqqiyotning asosiy tamoyili insonni texnologiyaga moslashtirish emas, balki texnologiyalarni inson ehtiyojlari va manfaatlariga muvofiq rivojlantirishdan iborat bo‘lishi kerak.

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FEATURES OF TRANSLATING TRANSPORT TERMS IN UZBEK AND ENGLISH

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Annotation: *This article examines the features of translating transport terminology between Uzbek and English. Using descriptive, comparative, and translation-oriented analysis, it classifies transport terms by structure (simple, derived, compound, and multi-word terms), by origin (native, borrowed, and calqued units), and by translation method (equivalence, borrowing, calque, descriptive translation, and transliteration). The article concludes with practical recommendations for translators and terminologists.*

Keywords: *transport terminology, translation, equivalence, borrowing, calque, descriptive translation, term formation, Uzbek, English.*

O‘ZBEK VA INGLIZ TILLARIDA TRANSPORT TERMINLARINI TARJIMA QILISHNING XUSUSIYATLARI

Imomaliyeva Fotima Ravshanbek qizi

Annotatsiya: *Maqolada transport terminlarini o‘zbek va ingliz tillari o‘rtasida tarjima qilish xususiyatlari tahlil qilinadi. Tavsifiy, qiyosiy va tarjimaga yo‘naltirilgan tahlil asosida transport terminlari tuzilishiga ko‘ra (sodda, yasama, qo‘shma va ko‘p komponentli), kelib chiqishiga ko‘ra (o‘zlashma va kalka birliklar) hamda tarjima usuliga ko‘ra (ekvivalent, o‘zlashtirish, kalkalash, tavsifiy tarjima va transliteratsiya) tasniflanadi. Maqola oxirida tarjimonlar va terminologlar uchun amaliy tavsiyalar beriladi.*

Kalit so‘zlar: *transport terminologiyasi, tarjima, ekvivalentlik, o‘zlashma, kalka, tavsifiy tarjima, termin yasalishi, o‘zbek tili, ingliz tili.*

Introduction: Transport is one of the fastest-developing sectors of the global economy, and its terminology grows continuously through technological innovation, international standards, and cross-border trade. Uzbekistan's position as a transit country, together with the expansion of rail, road, and air links and the development of logistics, increases the need for accurate translation

of transport texts such as contracts, regulations, manuals, and technical documentation.Terms are language units that name concepts within a specialized field and ideally are monosemous, precise, and stylistically neutral (Sager, 1990; Cabré, 1999). In translation, however, the transfer of terms is complicated by differences in how languages divide conceptual systems and form terms (Newmark, 1988; Baker, 2018). Uzbek terminology has been shaped by Turkic roots, Arabic and Persian layers, a substantial Russian and international layer from the Soviet period, and, more recently, direct English borrowings (Nurmonov & Mahmudov, 2010; Yo'ldoshev, 2014).

Methods: The study uses a qualitative, descriptive-comparative design. Illustrative material consists of transport terms from the fields of road, rail, air, maritime, and logistics terminology, drawn from terminological dictionaries, standards, and professional texts. The examples are illustrative, not a statistically representative corpus. The findings should therefore be confirmed on a larger parallel corpus.

Results: English transport terms are frequently formed by compounding and noun-string phrases, in which a head noun is modified by preceding nouns: *freight forwarding, cargo handling, air traffic control, high-speed rail*. Uzbek, as an agglutinative language, expresses the same relations through genitive and possessive suffixes or through postposed constructions: *yuk tashish* (freight transportation), *havo harakatini boshqarish* (air traffic control), *tezyurar poyezd* (high-speed train). As a result, an English binomial often becomes a longer, explanatory phrase in Uzbek, which the translator must keep clear and terminologically consistent (Baker, 2018).

Translation methods. The analysis identifies the following main methods:

Method	**English term**	**Uzbek translation**	**Comment**
Equivalence	*passenger*	*yo'lovchi*	Established one-to-one correspondence
Borrowing	*terminal*	*terminal*	International term, adapted phonetically
Calque	*high-speed train*	*tezyurar poyezd*	Component-by-component transfer
Descriptive translation	*freight forwarder*	*yuklarni jo'natish va yetkazishni tashkil etuvchi shaxs*	Used when no concise equivalent exists
Transliteration	*check-in*	*chek-in / ro'yxatdan o'tish*	Choice depends on register and audience

Discussion: The results confirm that translating transport terms is not a matter of word substitution but of selecting a strategy suited to the term's type, the text's purpose, and the audience. Established terms with accepted equivalents should be translated by equivalence, while internationalisms such as *terminal* and *konteyner* are best retained as borrowings. For new concepts, calquing is preferable if the resulting Uzbek form is transparent and consistent with Uzbek word-formation; otherwise, a borrowing with a short explanation at first mention, or descriptive translation, is advisable (Newmark, 1988; Vinay & Darbelnet, 1995).

The study's limitations are the small illustrative sample and the lack of corpus data. Future research should build a bilingual transport-term corpus, assess the frequency of variants, and contribute to the standardization of Uzbek equivalents.

Conclusion. Uzbek and English transport terms differ in structure, origin, and degree of standardization, and their translation requires a combination of methods. Applying a systematic, context-sensitive strategy and relying on standardized terminological resources improves the accuracy, consistency, and naturalness of translated transport texts.

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THEORETICAL FOUNDATIONS OF TERMS IN THE FIELD OF MEDICINE IN ENGLISH AND UZBEK

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Annotation: *This article examines the theoretical foundations of medical terminology in English and Uzbek. Medical terms are analysed as units of a specialised system that links a concept, its definition and a linguistic designation, and the study considers how the main theories of terminology (the General Theory of Terminology, the communicative, sociocognitive and frame-based approaches) apply to the medical domain. Using descriptive, componential and contrastive methods, the article identifies the defining characteristics of medical terms, their conceptual structure, the main word-formation models in both languages and the strategies of establishing equivalence.*

Key words: *medical terminology; term theory; concept; designation; word formation; eponym; borrowing; equivalence; English; Uzbek*

Annotatsiya: *Maqolada tibbiyot sohasidagi ingliz va o'zbek tillari terminlarining nazariy asoslari tahlil qilinadi. Tibbiy termin tushuncha, ta'rif va til belgisining birligi sifatida ko'rib chiqiladi hamda terminshunoslikning asosiy nazariyalari tibbiyot sohasiga nisbatan qo'llanadi. Ingliz tilida tibbiy terminlar asosan yunon-lotin elementlari, eponimlar va qisqartmalar hisobiga shakllansa, o'zbek tilida ular turkiy, arab-fors, rus tili orqali kirgan baynalmilal va ingliz tilidan o'zlashgan qatlamlardan iborat ekani, so'z birikmasi shaklidagi terminlar unumli ekani ko'rsatiladi.*

Kalit so'zlar: *tibbiy terminologiya; termin nazariyasi; tushuncha; belgi; so'z yasalishi; eponim; qarz olish; ekvivalentlik; ingliz tili; o'zbek tili*

Introduction: Medicine is one of the oldest and most terminologically dense fields of human knowledge. Medical terminology is used by clinicians, researchers, pharmacists, translators and educators (Musurmanova, 2021), and increasingly by patients and by information systems such as electronic health records. Accurate and consistent terms are a matter not only of linguistic correctness but also of patient safety, because an ambiguous or incorrectly

translated term can lead to a misunderstanding in diagnosis, prescription or consent.

The aim of the article is to determine the theoretical foundations of medical terms in English and Uzbek. The research questions are:

1. What features define a medical term as a unit of a specialised system, and how do the main terminological theories explain them?
2. What conceptual structure and word-formation models characterise medical terminology in English and in Uzbek?
3. What strategies are used to establish equivalence between English and Uzbek medical terms, and what problems do they raise?

Methods: The study is theoretical and descriptive-comparative. It does not claim statistical representativeness; the language material serves to illustrate and test the theoretical generalisations. English illustrative terms were selected from general medical dictionaries (*Dorland's Illustrated Medical Dictionary*, 2011; *Stedman's Medical Dictionary*, 2006) and from the structure of ICD-11 (World Health Organization, 2019) and *Terminologia Anatomica* (Federative Committee on Anatomical Terminology, 1998). Uzbek terms were selected from the explanatory dictionary of the Uzbek language (*O'zbek tilining izohli lug'ati*, 2006–2008) and from the medical vocabulary used in Uzbek educational and professional texts. The selection covered five conceptual categories: body structures, diseases and disorders, signs and symptoms, procedures, and substances (including drugs). The examples need verification by medical specialists before they are used as standardised recommendations.

Results: A medical term is a unit that designates a concept of the medical domain, has a fixed place in the conceptual system of the field and is defined within it (Sager, 1990). The analysis identified the following characteristics, which are recognised by several theories though weighted differently:

Conceptual basis and definition. The concept of *myocardial infarction* is defined by its cause and its result, and its designation is secondary to that definition.

Systemicity. A term belongs to a system: *hepatitis*, *nephritis* and *gastritis* share the suffix *-itis* (inflammation) and form a paradigm; Uzbek *gepatit*, *nefrit* and *gastrit* retain this paradigm.

Motivation (transparency). Many terms reveal their meaning from their parts, e.g., *tachy-* + *cardia* ("fast heart"), or Uzbek *qon bosimi* ("blood pressure").

Tendency towards monosemy within a subfield, while polysemy and synonymy remain normal in practice, as the communicative and sociocognitive theories emphasise (Cabré, 1999; Temmerman, 2000).

Internationality. Greco-Latin elements make a large part of medical terminology recognisable across languages, which supports communication and translation.

Stylistic neutrality and precision, with a tendency towards brevity, which explains the frequent use of abbreviations.

Medical terminology is not homogeneous. Three kinds of units can be distinguished: *terms proper* (e.g., *inflammation*), *nomenclature* (systematic names such as anatomical names and international nonproprietary names of drugs) and *classification codes*. They differ in the degree of normative control: nomenclature and classifications are strictly standardised, while terms for symptoms and clinical findings show more variation.

The medical domain is structured by hierarchical and associative relations. Large reference terminologies such as SNOMED CT and the UMLS Metathesaurus represent medicine as a network of concepts with generic–specific and other relations (Bodenreider, 2004; Donnelly, 2006). This is consistent with the concept-oriented view of terminology, in which the concept is the starting point. For example, the concept *inflammation of the liver* is a specific concept of *disease of the digestive system* and has related concepts such as *virus*, *jaundice* and *liver function test*. Uzbek and English terms for it (*gepatit*, *hepatitis*) are attached to the same concept, while the lay Uzbek expression *sariq kasalligi* (“yellow disease”) refers to the symptom of jaundice and only popularly to hepatitis, which shows that equivalence must be examined at the level of concepts and not of words.

The contrastive analysis revealed four main asymmetries. First, the English stylistic opposition between Anglo-Saxon and Greco-Latin layers does not have an exact counterpart in Uzbek, where the opposition is between native/assimilated and international units (*yurak* – *kardial*). Second, English relational adjectives often correspond to Uzbek noun modifiers. Third, the same Uzbek concept can have a professional and a lay designation (*gepatit* - *sariq kasalligi*), and they are not always equivalent in scope. Fourth, in Uzbek several parallel designations (a Russian-mediated one, an English-derived one and a native one) can co-exist during standardisation.

Discussion: The analysis shows that the classical requirement of one concept - one term is a useful ideal for nomenclature and classification, but it describes the medical vocabulary only partly. In clinical and educational practice, synonymy,

polysemy and register variation occur systematically, which supports the communicative and sociocognitive views. A hybrid position is therefore the most productive one: the concept-oriented, normative approach is applied where safety and international interoperability are priorities (anatomical nomenclature, classifications, drug names), and the descriptive approach is applied to variation in the discourse of clinicians and patients.

For Uzbek, the results indicate that terminological development is driven by three forces: the heritage of the classical Arabic-Persian medical tradition, the Russian-mediated international layer inherited from the twentieth century, and current contact with English. The language-policy framework, including the Law on the State Language, supports the development of Uzbek terminology, but a practical solution requires agreement between linguists and medical experts, who must decide when to adopt an international form, when to create a native equivalent and when to prefer a descriptive rendering. The analytic noun-phrase model seems especially promising for creating transparent native terms, because it is productive, easy to understand and compatible with the Uzbek morphology (Boeschoten, 1998).

Conclusion: Medical terms in English and Uzbek can be described as units of a conceptual system in which the concept, definition and designation are linked, but their actual functioning is shaped by communicative situations, registers and language contact. English medical terminology is characterised by Greco-Latin word formation, eponyms, acronyms, metaphor and stylistic doublets. Uzbek medical terminology is characterised by a layered composition and a productive analytic phrase model. Equivalence between the two systems is established by full equivalents, loans, calques and descriptive renderings, and the choice among them should depend on the concept, the register and the degree of standardisation. A combined normative and descriptive approach provides a sound theoretical basis for further standardisation, lexicography and teaching of medical terminology.

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INKLYUZIV SINFDA BOSHLANG‘ICH TA’LIM JARAYONINI TASHKIL ETISHNING PEDAGOGIK SHARTLARI

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Annotatsiya. *Ushbu maqolada inklyuziv sinf sharoitida boshlang‘ich ta’lim jarayonini samarali tashkil etishning pedagogik shartlari, mazmuni va asosiy tamoyillari yoritilgan. Inklyuziv ta’limning mohiyati, barcha o‘quvchilarning ta’lim olish imkoniyatlarini ta’minlash, individual ehtiyojlarni hisobga olish, differensial yondashuv, qulay ta’lim muhiti yaratish hamda pedagog, ota-ona va mutaxassislar hamkorligining ahamiyati tahlil qilingan. Shuningdek, boshlang‘ich sinf darslarida qo‘llash mumkin bo‘lgan amaliy metodlar, topshiriqlarni moslashtirish yo‘llari, baholash mezonlari va pedagogik model taklif etilgan. Maqolada inklyuziv ta’limni tashkil etishda o‘qituvchining kasbiy tayyorgarligi, pedagogik mahorati va insonparvarlik pozitsiyasi muhim omil sifatida asoslangan.*

Kalit so‘zlar: *inklyuziv ta’lim, boshlang‘ich ta’lim, pedagogik shartlar, individual yondashuv, differensial ta’lim, ta’lim muhiti, hamkorlik, maxsus ta’lim ehtiyojlari, pedagogik qo‘llab-quvvatlash.*

Аннотация. *В статье рассматриваются педагогические условия эффективной организации начального образования в инклюзивном классе, его содержание и основные принципы. Анализируются сущность инклюзивного образования, обеспечение равных возможностей для всех учащихся, учет индивидуальных потребностей, дифференцированный подход, создание благоприятной образовательной среды, а также взаимодействие педагогов, родителей и специалистов. Предлагаются практические методы, способы адаптации учебных заданий, критерии оценивания и педагогическая модель организации инклюзивного обучения в*

начальной школе. Особое внимание уделяется профессиональной подготовке учителя, его педагогическому мастерству и гуманистической позиции.

Ключевые слова: *инклюзивное образование, начальное образование, педагогические условия, индивидуальный подход, дифференцированное обучение, образовательная среда, сотрудничество, особые образовательные потребности, педагогическая поддержка.*

Abstract*. This article examines the pedagogical conditions for effectively organizing primary education in inclusive classrooms, including its content and key principles. It analyzes the essence of inclusive education, equal learning opportunities for all pupils, consideration of individual needs, differentiated instruction, the creation of an accessible learning environment, and cooperation among teachers, parents, and specialists. The article also proposes practical teaching methods, ways of adapting learning tasks, assessment criteria, and a pedagogical model for inclusive primary education. Particular attention is paid to teachers' professional readiness, pedagogical competence, and humanistic approach.*

Keywords: *inclusive education, primary education, pedagogical conditions, individual approach, differentiated instruction, learning environment, cooperation, special educational needs, pedagogical support.*

KIRISH

Bugungi kunda ta'lim tizimining oldida turgan muhim vazifalardan biri har bir bolaning sifatli ta'lim olishi uchun teng imkoniyatlar yaratishdan iborat. Jamiyatda har bir insonning qobiliyati, qiziqishi, o'zlashtirish sur'ati va individual ehtiyojlari turlicha bo'lishi tabiiy holatdir. Shu sababli zamonaviy ta'lim jarayoni barcha o'quvchilarni bir xil talab va usullar asosida o'qitish bilangina cheklanmasdan, ularning o'ziga xos xususiyatlarini hisobga olgan holda tashkil etilishi zarur.

Inklyuziv ta'lim ana shu ehtiyojdan kelib chiqadigan, ta'limda tenglik, insonparvarlik va ijtimoiy adolat tamoyillariga asoslangan yondashuvdir. Uning asosiy maqsadi alohida ta'lim ehtiyojlari bo'lgan bolalarni umumiy ta'lim jarayoniga jalb etish, ularning tengdoshlari bilan birgalikda bilim olishi, muloqot qilishi va ijtimoiy hayotda faol ishtirok etishi uchun sharoit yaratishdan iborat.

UNESCO tomonidan ishlab chiqilgan ta'limda inklyuziya va tenglik bo'yicha qo'llanmada inklyuziya ta'lim olish, unda ishtirok etish va natijalarga erishishga to'sqinlik qiladigan omillarni bartaraf etish jarayoni sifatida talqin

etiladi. Bu yondashuvda o‘quvchining individual farqlari muammo sifatida emas, balki ta’lim jarayonini boyituvchi tabiiy xususiyat sifatida qaraladi.

Boshlang‘ich ta’lim bosqichi bolaning shaxsiyati, dunyoqarashi, muloqot madaniyati, mustaqil fikrlashi va o‘quv faoliyatiga munosabati shakllanadigan muhim davr hisoblanadi. Aynan shu bosqichda bolada o‘ziga ishonch, tengdoshlarini hurmat qilish, jamoada ishlash va o‘z imkoniyatlarini namoyon etish ko‘nikmalari rivojlanadi. Shuning uchun inklyuziv ta’limni boshlang‘ich sinflarda to‘g‘ri tashkil etish alohida pedagogik ahamiyatga ega.

Inklyuziv sinfda o‘qituvchi faqat bilim beruvchi emas, balki har bir o‘quvchining ta’limiy ehtiyojlarini aniqlovchi, qo‘llab-quvvatlovchi, rag‘batlantiruvchi va rivojlanishiga sharoit yaratuvchi tashkilotchi sifatida namoyon bo‘ladi. Bunda ta’lim mazmuni, metodlari, vositalari, baholash usullari va sinf muhiti o‘quvchilarning imkoniyatlariga mos ravishda tashkil etilishi lozim.

Mavzuning dolzarbligi shundaki, inklyuziv ta’limni amaliyotga tatbiq etish faqat alohida ehtiyojli bolani umumiy sinfga qabul qilish bilan yakunlanmaydi. Buning uchun o‘quvchining darsdagi ishtiroki, bilimlarni o‘zlashtirishi, tengdoshlari bilan munosabatlari va shaxsiy rivojlanishini qo‘llab-quvvatlaydigan yaxlit pedagogik tizim zarur.

Tadqiqotning maqsadi — inklyuziv sinfda boshlang‘ich ta’lim jarayonini samarali tashkil etishning pedagogik shartlarini nazariy jihatdan tahlil qilish hamda amaliy tavsiyalar ishlab chiqish.

Tadqiqotning vazifalari:

• inklyuziv ta’limning pedagogik mohiyati va asosiy tamoyillarini yoritish;

• boshlang‘ich sinf o‘quvchilarining individual ta’limiy ehtiyojlarini hisobga olish yo‘llarini aniqlash;

• inklyuziv ta’lim uchun zarur pedagogik shartlarni tizimlashtirish;

• dars jarayonida qo‘llanadigan moslashtirilgan metod va vositalarni tavsiflash;

• o‘qituvchi, ota-ona va mutaxassislar hamkorligining ahamiyatini asoslash.

Tadqiqot obyekti — inklyuziv sinfda boshlang‘ich ta’lim jarayoni.

Tadqiqot predmeti — inklyuziv sinfda ta’lim jarayonini samarali tashkil etishga xizmat qiluvchi pedagogik shartlar, metodlar va vositalar.

Tadqiqot metodlari: ilmiy-pedagogik adabiyotlarni tahlil qilish, taqqoslash, umumlashtirish, pedagogik kuzatish, tizimlashtirish va modellashtirish.

1. INKLYUZIV TA’LIMNING NAZARIY-PEDAGOGIK ASOSLARI

Inklyuziv ta’lim — barcha bolalarning individual xususiyatlari va ta’limiy ehtiyojlarini hisobga olgan holda, ularning umumiy ta’lim muhitida sifatli bilim olishi va faol ishtirok etishini ta’minlashga qaratilgan pedagogik jarayondir.

Inklyuziv ta’limning mazmunini faqat jismoniy yoki rivojlanishida muayyan xususiyatlari bo‘lgan bolalarni umumiy sinfga joylashtirish bilan chegaralash to‘g‘ri emas. Chunki har qanday sinfda o‘quvchilarning bilim darajasi, o‘rganish tezligi, qiziqishi, muloqot qilish usuli va yordamga bo‘lgan ehtiyoji bir-biridan farq qiladi. Demak, inklyuziv yondashuv barcha o‘quvchilar uchun ta’lim olish imkoniyatlarini kengaytirishga xizmat qiladi.

Inklyuziv ta’lim quyidagi asosiy tamoyillarga tayanadi:

1. Teng imkoniyatlar tamoyili. Har bir bola o‘zining individual xususiyatlaridan qat’i nazar, ta’lim olish va sinf hayotida ishtirok etish imkoniyatiga ega bo‘lishi kerak.

2. Shaxsga yo‘naltirilganlik tamoyili. Ta’lim jarayonida bolaning qiziqishi, ehtiyoji, qobiliyati va o‘zlashtirish sur’ati hisobga olinadi.

3. Kamsitmaslik tamoyili. O‘quvchilar o‘rtasida jismoniy, aqliy, ijtimoiy yoki boshqa xususiyatlar asosida salbiy munosabat va ajratish holatlariga yo‘l qo‘yilmaydi.

4. Faol ishtirok tamoyili. Har bir o‘quvchiga dars, guruhli mashg‘ulotlar, ijodiy topshiriqlar va sinfdan tashqari faoliyatda ishtirok etish imkoniyati yaratiladi.

5. Hamkorlik tamoyili. O‘qituvchi, ota-ona, maktab rahbariyati va zarur hollarda tegishli mutaxassislar o‘zaro hamkorlikda faoliyat olib boradi.

6. Moslashuvchanlik tamoyili. Dars mazmuni, topshiriqlar, o‘qitish vositalari va baholash usullari o‘quvchilarning ehtiyojlariga qarab moslashtiriladi.

Inklyuziv ta’limda bolaning imkoniyatlariga emas, balki ta’lim muhitidagi to‘siqlarni kamaytirishga e’tibor qaratish muhimdir. Masalan, o‘quvchi topshiriqni yozma shaklda bajarishda qiynalsa, unga javobni og‘zaki bayon qilish yoki rasm orqali ifodalash imkoniyati berilishi mumkin. Bunda ta’lim maqsadi saqlanadi, ammo unga erishish yo‘li moslashtiriladi.

Florian va Black-Hawkins tomonidan ishlab chiqilgan inklyuziv pedagogika yondashuvida o‘quvchilar o‘rtasidagi farqlarni tabiiy holat sifatida qabul qilish va barcha bolalar uchun mavjud ta’lim imkoniyatlarini kengaytirish muhimligi ta’kidlanadi. Bu yondashuv o‘quvchilarni qat’iy guruhlarga ajratishdan ko‘ra, umumiy dars jarayonini turli ehtiyojlarga moslashtirishga yo‘naltiradi.

Shunday qilib, inklyuziv ta’limning nazariy asosi har bir bolaning qadr-qimmatini tan olish, uning ta’lim jarayonidagi ishtirokini ta’minlash va rivojlanishi uchun zarur sharoit yaratishga asoslanadi.

2. BOSHLANG‘ICH SINFDA INKLYUZIV TA’LIMNI TASHKIL ETISHNING PEDAGOGIK SHARTLARI

Inklyuziv ta’lim samaradorligi bir nechta o‘zaro bog‘liq pedagogik shartlarning bajarilishiga bog‘liq. Bu shartlar alohida-alohida emas, balki yaxlit tizim sifatida amalga oshirilishi kerak.

2.1. O‘qituvchining kasbiy va metodik tayyorgarligi

Inklyuziv ta’limni tashkil etishda o‘qituvchining kasbiy tayyorgarligi yetakchi o‘rin tutadi. O‘qituvchi inklyuziv pedagogikaning mazmuni, individual yondashuv, differensial ta’lim, moslashtirilgan topshiriqlar va ijobiy muloqot usullarini bilishi lozim.

O‘qituvchidan quyidagi kompetensiyalar talab etiladi:

- o‘quvchilarning individual ta’limiy ehtiyojlarini kuzatish va aniqlash;
- dars maqsadiga mos turli darajadagi topshiriqlarni ishlab chiqish;
- ko‘rgazmali va amaliy vositalardan foydalanish;
- o‘quvchilarning imkoniyatlariga mos baholash usullarini tanlash;
- sinfda ijobiy psixologik muhit yaratish;
- ota-onalar va mutaxassislar bilan hamkorlik qilish.

O‘qituvchi har bir o‘quvchini boshqa bolalar bilan taqqoslamasligi, uning shaxsiy rivojlanish dinamikasiga e’tibor qaratishi kerak. Masalan, bir o‘quvchi matnni mustaqil o‘qib tushunsa, boshqa o‘quvchiga matnni qismlarga ajratish, rasmlar bilan tushuntirish yoki qo‘shimcha vaqt berish talab qilinishi mumkin. Bunday yondashuv o‘quvchining o‘ziga bo‘lgan ishonchini mustahkamlaydi va ta’lim jarayonida faol ishtirok etishiga yordam beradi.

2.2. Qulay va xavfsiz ta’lim muhitini yaratish

Inklyuziv sinf muhiti barcha o‘quvchilar uchun jismoniy, psixologik va ijtimoiy jihatdan qulay bo‘lishi kerak.

Jismoniy muhitni tashkil etishda sinf xonasining yoritilishi, partalarning joylashuvi, harakatlanish uchun yetarli joy, ko‘rgazmali materiallarning tushunarli joylashtirilishi kabi omillar hisobga olinadi. Zarur hollarda bolaning individual ehtiyojiga mos maxsus vositalar va texnik imkoniyatlardan foydalaniladi.

Psixologik muhit esa o‘zaro hurmat, do‘stona munosabat, o‘z fikrini erkin bildirish va xatodan qo‘rqmaslik tamoyillariga asoslanadi. O‘qituvchi sinfda quyidagi qoidalarni shakllantirishi mumkin:

1. Har bir o‘quvchining fikrini hurmat qilamiz.

2. Bir-birimizni tinglaymiz.
3. Hech kimni masxara qilmaymiz.
4. Qiyinchilikka duch kelgan sinfdoshimizga yordam beramiz.
5. Har bir bolaning muvaffaqiyatini qadrlaymiz.

Mazkur qoidalar muntazam ravishda eslatib borilsa, sinfda o‘zaro ishonch va hamkorlik muhiti rivojlanadi.

2.3. Individual va differensial yondashuvni qo‘llash

Inklyuziv sinfda barcha o‘quvchilarga bir xil topshiriqni bir xil usulda bajarishni talab qilish har doim ham samarali bo‘lavermaydi. Shu sababli o‘qituvchi ta’lim mazmuni va topshiriqlarni o‘quvchilarning tayyorgarligi hamda ehtiyojlariga moslashtirishi lozim.

Differensial yondashuvda bir xil mavzu turli murakkablikdagi topshiriqlar orqali o‘rgatilishi mumkin. Masalan, matematika fanida “Ikki xonali sonlarni qo‘shish” mavzusini o‘rganishda:

• birinchi topshiriq: sonlarni ko‘rgazmali predmetlar yordamida qo‘shish;
• ikkinchi topshiriq: tayyor namuna asosida misollarni bajarish;
• uchinchi topshiriq: mustaqil ravishda misollarni yechish;
• to‘rtinchi topshiriq: kundalik hayotga oid masalani tuzish va yechish.

Bu topshiriqlar bir xil mavzuga xizmat qiladi, ammo bajarish shakli va murakkabligi bilan farqlanadi. Individual yondashuvda bolaning ehtiyojiga qarab qo‘shimcha vaqt, qisqa ko‘rsatma, takroriy tushuntirish, vizual yordam yoki topshiriqni bosqichlarga ajratish kabi usullar qo‘llanadi.

2.4. Ta’lim mazmuni va metodlarini moslashtirish

Inklyuziv sinfda o‘qitish metodlari imkon qadar ko‘p sezgi organlari orqali idrok etishni qo‘llab-quvvatlashi kerak. Bunda ko‘rish, eshitish, harakat va amaliy faoliyatni uyg‘unlashtirish foydali hisoblanadi.

Masalan, ona tili darsida yangi so‘zlarni o‘rganishda rasm, predmet, so‘z kartochkasi va og‘zaki izohdan birgalikda foydalanish mumkin. Matematika darsida esa sonlar, geometrik shakllar va hisoblash vositalari orqali mavzuni amaliy tushuntirish mumkin.

Ta’lim mazmunini moslashtirish quyidagilarni nazarda tutadi:

• murakkab topshiriqlarni kichik bosqichlarga ajratish;
• ko‘rsatmalarni sodda va tushunarli ifodalash;
• matnni rasm va belgilar bilan boyitish;
• topshiriqni bajarish uchun qo‘shimcha vaqt berish;
• zarur hollarda javob berishning muqobil shakllarini taklif qilish;
• o‘quvchining mustaqil faoliyatini bosqichma-bosqich rivojlantirish.

Bu jarayonda ta’lim maqsadini imkon qadar saqlab qolish, faqat unga erishish yo‘llarini o‘quvchining ehtiyojiga moslashtirish muhimdir.

2.5. O‘qituvchi, ota-ona va mutaxassislar hamkorligi

Inklyuziv ta’lim samaradorligi faqat sinf o‘qituvchisining faoliyatiga bog‘liq emas. Oila, maktab jamoasi va zarur hollarda tegishli mutaxassislarning hamkorligi ham muhim ahamiyatga ega.

Ota-onalar bolaning qiziqishi, kundalik hayoti, muloqot xususiyatlari va uy sharoitida qanday yordamga ehtiyoj sezishi haqida muhim ma’lumotlarga ega. O‘qituvchi esa bolaning darsdagi ishtiroki va o‘quv faoliyati haqida ota-onaga muntazam ma’lumot berishi mumkin.

Hamkorlik quyidagi shakllarda amalga oshiriladi:

- ota-onalar bilan individual suhbatlar;
- muntazam maslahatlashuvlar;
- bolaning rivojlanish dinamikasini birgalikda kuzatish;
- zarur hollarda tegishli mutaxassislar tavsiyalarini inobatga olish;
- uy va maktabdagi qo‘llab-quvvatlash usullarini muvofiqlashtirish.

Bunda bolaning shaxsiy ma’lumotlari va qadr-qimmatini hurmat qilish, ota-onaga nisbatan ayblovchi munosabatda bo‘lmaslik muhimdir.

2.6. Moslashuvchan baholash tizimini yo‘lga qo‘yish

Inklyuziv sinfda baholash faqat yakuniy natijani aniqlash vositasi emas, balki o‘quvchining rivojlanishini qo‘llab-quvvatlash mexanizmi sifatida qaralishi lozim.

O‘quvchining natijasini baholashda uning individual rivojlanish dinamikasi, topshiriqni bajarishdagi mustaqilligi, faolligi va erishgan kichik yutuqlari hisobga olinishi mumkin. Baholashda quyidagi usullardan foydalanish maqsadga muvofiq:

- og‘zaki rag‘batlantirish;
- kuzatish varaqalari;
- amaliy topshiriqlar;
- portfolio;
- o‘z-o‘zini baholash;
- juftlikda bajarilgan ishlarni tahlil qilish;
- individual rivojlanish xaritasi.

Masalan, o‘quvchi avval topshiriqni o‘qituvchi ko‘magida bajargan bo‘lsa, keyingi safar mustaqil bajarishi uning rivojlanishidagi ijobiy o‘zgarish hisoblanadi. Bunday yutuq e’tirof etilishi kerak.

3. INKLYUZIV SINFDA QO‘LLANILADIGAN SAMARALI PEDAGOGIK METODLAR

Inklyuziv ta’lim jarayonida metod tanlashda o‘quvchilarning faol ishtiroki, o‘zaro muloqoti va bilimlarni turli yo‘llar orqali o‘zlashtirish imkoniyati hisobga olinadi.

3.1. “Kichik qadamlar” metodi

Ushbu metod murakkab topshiriqlarni kichik va tushunarli bosqichlarga ajratish orqali bajarishga asoslanadi. Masalan, matn bilan ishlashda:

1. Matn sarlavhasini o‘qish.
2. Rasmlarni kuzatish.
3. Matnni kichik qismlarga ajratib o‘qish.
4. Har bir qism mazmunini tushuntirish.
5. Matn yuzasidan savollarga javob berish.

Bu usul o‘quvchining vazifani tushunishini osonlashtiradi va topshiriqni bajarish jarayonida bosqichma-bosqich mustaqillikka erishishiga ko‘maklashadi.

3.2. “Rangli kartochkalar” metodi

Darsda rangli kartochkalardan foydalanish o‘quvchilarning topshiriqlarni ko‘rgazmali ravishda farqlashiga yordam beradi. Masalan, yashil kartochkada sodda, sariq kartochkada o‘rtacha, ko‘k kartochkada murakkab topshiriq berilishi mumkin.

Bu usulda ranglar o‘quvchining qobiliyatiga baho berish uchun emas, balki topshiriq turini ajratish uchun xizmat qiladi. O‘quvchi o‘ziga mos topshiriqni tanlashi yoki o‘qituvchi tavsiyasi asosida bajarishi mumkin.

3.3. “Birgalikda bajaramiz” metodi

Mazkur metod juftlik yoki kichik guruhda ishlashga asoslanadi. O‘quvchilar umumiy topshiriqni birgalikda bajarib, o‘zaro yordam ko‘rsatadilar.

Masalan, tabiatshunoslik darsida “O‘simlikning tuzilishi” mavzusi o‘rganilganda guruh a’zolari rasmni kuzatish, qismlarini nomlash, kartochkalarni joylashtirish va xulosa chiqarish vazifalarini o‘zaro taqsimlaydilar. Bunda har bir o‘quvchi o‘z imkoniyatiga mos vazifani bajaradi va umumiy natijaga hissa qo‘shadi.

3.4. “Rasm orqali fikr bildir” metodi

Ushbu metod og‘zaki yoki yozma javob berishda qiynaladigan o‘quvchilar uchun muqobil ifoda imkoniyatini yaratadi. O‘quvchiga mavzuga oid rasmlar, belgilar yoki predmetlar taqdim etiladi. U o‘z fikrini mos rasmni tanlash, joylashtirish yoki izohlash orqali ifodalaydi.

Masalan, “Yil fasllari” mavzusida o‘quvchi tegishli rasmlarni fasllarga mos ravishda guruhlaydi va imkoniyatiga qarab ularni izohlaydi.

3.5. Didaktik o‘yinlardan foydalanish

Didaktik o‘yinlar boshlang‘ich sinf o‘quvchilarining qiziqishini oshirish, bilimlarni mustahkamlash va ijtimoiy ko‘nikmalarini rivojlantirishga xizmat qiladi.

“Kim tez topadi?”, “Mosini birlashtir”, “Davomini ayt”, “Sirli quti”, “Rasmli savollar” kabi o‘yinlarni turli darajadagi topshiriqlar bilan tashkil etish mumkin. O‘yin jarayonida g‘olibni aniqlashdan ko‘ra, barcha o‘quvchilarning ishtiroki, hamkorligi va kichik yutuqlarini rag‘batlantirish muhimdir.

4. BOSHLANG‘ICH SINF FANLARIDA INKLYUZIV YONDASHUVNING AMALIY NAMUNALARI

Inklyuziv ta’lim tamoyillarini amaliyotga tatbiq etish uchun har bir fan mazmuniga mos metod va vositalardan foydalanish talab etiladi.

4.1. Ona tili va o‘qish savodxonligi darslarida

Ona tili darslarida o‘quvchilarning o‘qish, yozish, tinglash va fikr bildirish ko‘nikmalarini rivojlantirish asosiy vazifalardan hisoblanadi. “Bahor keldi” mavzusini o‘rganish misolida quyidagi topshiriqlarni tashkil etish mumkin:

- birinchi topshiriq: bahor fasliga oid rasmlarni tanlash;
- ikkinchi topshiriq: rasmlarga mos so‘zlarni birlashtirish;
- uchinchi topshiriq: berilgan so‘zlardan gap tuzish;
- to‘rtinchi topshiriq: bahor haqida kichik matn tuzish.

Bunda o‘quvchilar bir mavzu doirasida o‘z imkoniyatlariga mos faoliyatni bajaradilar. O‘qituvchi har bir bolaning ishtirokini rag‘batlantiradi.

4.2. Matematika darslarida

Matematika fanida ko‘rgazmali vositalar, sonli kartochkalar, geometrik shakllar va predmetlardan foydalanish samarali hisoblanadi. “10 ichida qo‘shish va ayirish” mavzusida quyidagi topshiriqlar berilishi mumkin:

- predmetlarni sanash;
- son va rasmni moslashtirish;
- sonli kartochkalar yordamida misol tuzish;
- tayyor namunaga qarab misol yechish;
- mustaqil misol va sodda masala bajarish.

Masalan, o‘quvchiga 3 ta olma rasmi va yana 2 ta olma rasmi ko‘rsatiladi. U rasmlarni sanash orqali jami sonni aniqlaydi. Boshqa o‘quvchi esa shu amalni sonli ifoda yordamida bajaradi. Shunday qilib, bir xil matematik tushuncha turli vositalar orqali o‘zlashtiriladi.

4.3. Tabiiy fanlar darslarida

Tabiiy fanlarni o‘qitishda kuzatish, tajriba, rasm va real predmetlardan foydalanish imkoniyati katta. “Hayvonlar va ularning yashash muhiti” mavzusida o‘quvchilar hayvonlar rasmlarini yashash joylariga qarab

guruhlashlari, mos kartochkalarni birlashtirishlari yoki qisqa ma’lumot berishlari mumkin. Bunday topshiriqlar o‘quvchilarning kuzatuvchanligi, mantiqiy fikrlashi va guruhda ishlash ko‘nikmalarini rivojlantiradi.

5. INKLYUZIV TA’LIMNI TASHKIL ETISHNING MUALLIFLIK PEDAGOGIK MODELI

Yuqoridagi nazariy va amaliy tahlillarga asoslanib, inklyuziv sinfda boshlang‘ich ta’lim jarayonini tashkil etish uchun besh tarkibiy qismdan iborat mualliflik pedagogik modelini taklif etish mumkin:

Birinchi tarkibiy qism — diagnostik-kuzatuv komponenti. Ushbu bosqichda o‘quvchining qiziqishi, bilim darajasi, ta’limiy ehtiyoji, muloqot xususiyatlari va topshiriqlarni bajarish jarayoni kuzatiladi. Kuzatish natijalari o‘quvchini cheklash yoki unga yorliq qo‘yish uchun emas, balki ta’limni moslashtirish uchun xizmat qiladi.

Ikkinchi tarkibiy qism — maqsadli-rejalashtirish komponenti. O‘qituvchi dars maqsadini belgilaydi, o‘quvchilarning ehtiyojlarini hisobga oladi va turli topshiriqlarni rejalashtiradi. Bunda umumiy ta’lim maqsadi saqlangan holda, unga erishish yo‘llari moslashtiriladi.

Uchinchi tarkibiy qism — tashkiliy-metodik komponent. Dars jarayonida differensial topshiriqlar, didaktik o‘yinlar, ko‘rgazmali materiallar, juftlik va guruhli ishlar hamda zarur texnik vositalardan foydalaniladi.

To‘rtinchi tarkibiy qism — ijtimoiy-psixologik qo‘llab-quvvatlash komponenti. Sinfda o‘zaro hurmat, hamkorlik, do‘stona munosabat va psixologik xavfsizlik muhiti yaratiladi. O‘quvchilarning o‘zaro yordam ko‘rsatishi rag‘batlantiriladi.

Beshinchi tarkibiy qism — tahliliy-baholash komponenti. O‘quvchining individual rivojlanishi, darsdagi ishtiroki, topshiriqlarni bajarishdagi mustaqilligi va erishgan natijalari kuzatib boriladi. Olingan ma’lumotlar keyingi darslarni rejalashtirishda foydalaniladi.

Ushbu modelning samaradorligi uning barcha tarkibiy qismlari o‘zaro uyg‘unlikda amalga oshirilishiga bog‘liq. Masalan, o‘quvchining ehtiyoji aniqlanib, lekin dars topshiriqlari moslashtirilmasa, diagnostik faoliyat kutilgan natijani bermaydi. Xuddi shuningdek, moslashtirilgan topshiriqlar berilib, o‘quvchining psixologik holati va sinfdagi munosabatlar e’tibordan chetda qolsa, uning faol ishtiroki cheklanishi mumkin. Shu sababli mazkur model inklyuziv ta’limni alohida metodlar yig‘indisi emas, balki o‘zaro bog‘langan pedagogik jarayon sifatida tashkil etishni nazarda tutadi.

6. INKLYUZIV TA’LIM SAMARADORLIGINI BAHOLASH MEZONLARI

Inklyuziv sinfdagi ta’lim samaradorligini baholashda faqat o‘quvchining fan bo‘yicha olgan bahosiga tayanish yetarli emas. Chunki inklyuziv ta’limning maqsadi bilim berish bilan birga o‘quvchining darsdagi ishtiroki, mustaqilligi, muloqoti va ijtimoiy moslashuvini ham qo‘llab-quvvatlashdan iborat.

Shu asosda quyidagi mezonlardan foydalanish mumkin:

1. Ta’limiy mezon:
- o‘quv materialini tushunish;
- topshiriqlarni bajarish;
- bilimlarni amaliy vaziyatlarda qo‘llash;
- individual rivojlanish dinamikasi.

2. Faollik mezoni:
- dars jarayonida ishtirok etish;
- savollarga javob berishga intilish;
- mustaqil faoliyat ko‘rsatish;
- topshiriqni yakunlashga harakat qilish.

3. Ijtimoiy mezon:
- tengdoshlari bilan muloqot qilish;
- guruhli ishlarda qatnashish;
- o‘zaro yordam ko‘rsatish;
- sinf qoidalariga rioya qilish.

4. Mustaqillik mezoni:
- topshiriqni ko‘rsatma asosida bajarish;
- kerakli vositalardan foydalanish;
- yordam so‘rash va undan foydalanish;
- faoliyatni bosqichma-bosqich mustaqil bajarish.

5. Psixologik qulaylik mezoni:
- darsda o‘zini erkin his etish;
- fikrini bildirishga intilish;
- o‘z imkoniyatlariga ishonch;
- sinfdoshlar bilan ijobiy munosabat.

Baholash jarayonida o‘quvchilarni bir-biri bilan taqqoslashdan saqlanish lozim. Har bir bolaning avvalgi natijasi bilan keyingi natijasi o‘rtasidagi ijobiy o‘zgarishlar e’tiborga olinishi maqsadga muvofiq.

7. INKLYUZIV TA’LIMNI AMALIYOTGA JORIY ETISHDAGI MUAMMOLAR VA ULARNING YECHIMLARI

Inklyuziv ta’limni samarali tashkil etish jarayonida bir qator tashkiliy, metodik va psixologik muammolar uchrashi mumkin.

Birinchi muammo — o‘qituvchilarning inklyuziv ta’lim bo‘yicha metodik tayyorgarligi yetarli bo‘lmasligi. Ayrim pedagoglar individual yondashuv, moslashtirilgan topshiriqlar va muqobil baholash usullaridan foydalanishda qiyinchilikka duch kelishi mumkin. *Yechim sifatida* o‘qituvchilar uchun amaliy seminarlar, malaka oshirish mashg‘ulotlari, tajriba almashish uchrashuvlari va metodik tavsiyalarni tashkil etish lozim.

Ikkinchi muammo — ta’lim resurslarining yetishmasligi. Ko‘rgazmali vositalar, moslashtirilgan o‘quv materiallari va zarur texnik imkoniyatlar yetarli bo‘lmasligi ta’lim jarayoniga ta’sir ko‘rsatishi mumkin. *Buning uchun* mavjud resurslardan samarali foydalanish, oddiy va arzon ko‘rgazmali materiallar tayyorlash, elektron ta’lim vositalarini imkoniyatga qarab qo‘llash maqsadga muvofiq.

Uchinchi muammo — ayrim o‘quvchilar yoki ota-onalarda inklyuziv ta’limga nisbatan noto‘g‘ri tasavvurlar mavjudligi. Bunday holatlarda tushuntirish ishlari, tarbiyaviy suhbatlar va hamkorlik tadbirlarini tashkil etish zarur.

To‘rtinchi muammo — katta sinflarda har bir o‘quvchiga yetarli individual e’tibor ajratish murakkabligidir. Bunday vaziyatda darsni puxta rejalashtirish, kichik guruhlarda ishlash, o‘zaro yordam usullaridan foydalanish va topshiriqlarni oldindan tayyorlash foydali bo‘ladi.

Beshinchi muammo — o‘quvchining individual ehtiyojlarini noto‘g‘ri talqin qilish xavfi. O‘qituvchi bolaning imkoniyatlari haqida shoshilinch xulosa chiqarmasligi, kuzatish natijalariga va tegishli mutaxassislar tavsiyalariga tayanishi kerak.

Demak, inklyuziv ta’limdagi muammolarni bartaraf etish uchun o‘qituvchining kasbiy rivojlanishi, maktabdagi hamkorlik muhiti, metodik ta’minot va ota-onalar bilan muloqot tizimli yo‘lga qo‘yilishi zarur.

MUHOKAMA

O‘rganilgan ilmiy manbalar va pedagogik yondashuvlar inklyuziv ta’limning samaradorligi birgina omilga emas, balki o‘zaro bog‘liq shartlar majmuasiga bog‘liqligini ko‘rsatadi.

UNESCOning inklyuziya va ta’limdagi tenglik bo‘yicha qo‘llanmasida ta’limdagi to‘siqlar faqat o‘quvchining individual xususiyatlari bilan emas, balki ta’lim tizimining tashkil etilishi, o‘qitish shakllari, ta’lim muhiti va baholash usullari bilan ham bog‘liq bo‘lishi mumkinligi ta’kidlanadi. Bu fikr inklyuziv pedagogikada muammoni faqat boladan izlamasdan, ta’lim sharoitlarini ham tahlil qilish zarurligini anglatadi.

Brennan, King va Travers tomonidan olib borilgan tadqiqotda boshlang‘ich maktabda inklyuziv pedagogikani rivojlantirish uchun o‘qituvchilarning hamkorligi, kasbiy muloqoti va muntazam tajriba almashishi muhimligi qayd etilgan. Bu holat inklyuziv ta’limni samarali tashkil etishda maktab jamoasining hamkorlikdagi faoliyati zarurligini tasdiqlaydi.

Losberg va Zwozdiak-Myers tadqiqotida boshlang‘ich sinf o‘qituvchilari faoliyatida umumiy sinf yondashuvlari, moslashuvchanlik, o‘quvchilarning imkoniyatlariga e’tibor qaratish va kasbiy rivojlanish muhim yo‘nalishlar sifatida ko‘rsatilgan.

Shuningdek, 2026-yilda chop etilgan tizimli sharhda differensial ta’lim, bosqichma-bosqich qo‘llab-quvvatlash, hamkorlikdagi o‘qitish va texnologiyalardan foydalanish inklyuziv sinflarda ta’limiy imkoniyatlarni kengaytiruvchi amaliyotlar sifatida tahlil qilingan.

Mazkur ilmiy qarashlarni umumlashtirish asosida quyidagi xulosaga kelish mumkin: inklyuziv ta’limda asosiy e’tibor o‘quvchini mavjud ta’lim tizimiga moslashtirishga emas, balki ta’lim jarayonini o‘quvchilarning xilma-xil ehtiyojlariga mos ravishda tashkil etishga qaratilishi lozim.

Taklif etilgan besh tarkibiy qismli pedagogik model ushbu yondashuvni amaliy faoliyatga tatbiq etish uchun tizimli asos bo‘lib xizmat qilishi mumkin. Biroq modelning samaradorligini aniq baholash uchun uni muayyan ta’lim muassasasida amaliy sinovdan o‘tkazish, kuzatuv natijalarini qayd etish va olingan ma’lumotlarni tahlil qilish talab etiladi.

XULOSA VA TAVSIYALAR

Inklyuziv sinfda boshlang‘ich ta’lim jarayonini tashkil etish murakkab, ko‘p qirrali va uzluksiz pedagogik jarayon hisoblanadi. Uning asosiy mazmuni har bir bolaning ta’lim olish huquqini hurmat qilish, individual ehtiyojlarini hisobga olish va umumiy ta’lim muhitida faol ishtirok etishi uchun zarur sharoit yaratishdan iborat.

Maqolada olib borilgan nazariy tahlil asosida quyidagi xulosalarga kelindi:

1. Inklyuziv ta’lim barcha o‘quvchilarning individual xususiyatlarini hisobga olgan holda sifatli ta’lim olish imkoniyatlarini kengaytirishga xizmat qiladi.

2. Boshlang‘ich ta’lim bosqichida inklyuziv yondashuvni joriy etish bolaning bilim olishi bilan birga muloqot, hamkorlik, o‘ziga ishonch va ijtimoiy faollik ko‘nikmalarini rivojlantirishga yordam beradi.

3. O‘qituvchining kasbiy tayyorgarligi, individual va differensial yondashuv, qulay ta’lim muhiti, moslashtirilgan metodlar, hamkorlik va

moslashuvchan baholash inklyuziv ta’limning muhim pedagogik shartlari hisoblanadi.

4. Didaktik o‘yinlar, ko‘rgazmali vositalar, kichik guruhlarda ishlash, bosqichma-bosqich topshiriqlar va muqobil javob shakllaridan foydalanish o‘quvchilarning darsdagi ishtirokini kengaytirishi mumkin.

5. Ota-onalar, o‘qituvchilar va tegishli mutaxassislar hamkorligi bolaning ta’limiy ehtiyojlarini yaxshiroq tushunish va qo‘llab-quvvatlash imkonini beradi.

6. O‘quvchilarni bir-biri bilan taqqoslash o‘rniga ularning individual rivojlanish dinamikasini baholash inklyuziv ta’lim tamoyillariga mos keladi.

Tadqiqot natijalaridan kelib chiqib, boshlang‘ich sinf o‘qituvchilari uchun quyidagi tavsiyalar ishlab chiqildi:

- har bir o‘quvchining ta’limiy ehtiyojlarini muntazam kuzatib borish;
- dars rejasida turli darajadagi topshiriqlarni nazarda tutish;
- ko‘rgazmali, amaliy va interfaol metodlardan foydalanish;
- sinfda o‘zaro hurmat va hamkorlik muhitini shakllantirish;
- o‘quvchilarga topshiriqni bajarishning muqobil shakllarini taklif etish;
- ota-onalar bilan muntazam va ijobiy muloqot olib borish;
- zarur hollarda tegishli mutaxassislar tavsiyalariga tayanish;
- o‘quvchilarning kichik yutuqlarini ham e’tirof etish;
- o‘z kasbiy bilim va ko‘nikmalarini muntazam rivojlantirib borish.

Xulosa qilib aytganda, inklyuziv ta’limning muvaffaqiyati har bir bolaning imkoniyatlarini ko‘ra bilish, uni qo‘llab-quvvatlash va ta’lim jarayonida munosib o‘rin egallashi uchun sharoit yaratish bilan belgilanadi. Boshlang‘ich sinf o‘qituvchisi esa ushbu jarayonning eng muhim tashkilotchilaridan biridir. Har bir bola o‘z imkoniyatiga ko‘ra rivojlanishi, o‘zini jamoaning teng huquqli a’zosi sifatida his qilishi va ta’limda muvaffaqiyatga erishishi uchun inklyuziv pedagogik yondashuv izchil amalga oshirilishi zarur.

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THE FEATURES OF ENGLISH TERMINOLOGY OF BANKING IN THE DEVELOPMENT OF THE LANGUAGE SYSTEM

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Annotation: *This article investigates the features of English banking terminology as a subsystem of the English lexicon and shows how its development reflects wider changes in the language system. Banking terms are analysed at the etymological, word-formation, semantic, syntactic and pragmatic levels. The study uses etymological, word-formation, semantic and contextual analysis of illustrative terms taken from specialised dictionaries and regulatory and professional texts. The results show that the core of the terminology is a stratified layer of borrowings (Italian, French, Latin and Scandinavian) that has been extended by native compounding and derivation, conversion, metaphorisation, blending and abbreviation. Multiword terms, especially phrases with of and noun-noun compounds, are the dominant structural type.*

Keywords: *banking terminology; English lexicon; term formation; borrowing; metaphor; abbreviation; multiword terms; fintech; language system; English for Specific Purposes*

Annotatsiya: *Maqolada ingliz tilidagi bank terminologiyasining xususiyatlari til tizimi rivojlanishi kontekstida o'rganiladi. Bank terminlari etimologik, so'z yasalishi, semantik, sintaktik va pragmatik darajalarda tahlil qilinadi. Terminologiyaning asosini italyan, fransuz, lotin va skandinav tillaridan o'zlashgan qatlam tashkil etishi, uni so'z qo'shish, affiksatsiya, konversiya, metaforalashtirish, blending va qisqartma usullari boyitishi, shuningdek, raqamli texnologiyalar va moliyaviy tartibga solish yangi terminlarning (fintech, neobank, open banking, bail-in) paydo bo'lishiga turtki bo'lishi ko'rsatiladi.*

Kalit so'zlar: *bank terminologiyasi; ingliz leksikasi; atamalarni shakllantirish; qarz olish; metafora; qisqartma; ko'p so'zli atamalar; fintech; til tizimi; Muayyan maqsadlar uchun ingliz tili*

Introduction: Banking is one of the oldest professional fields in which English terms are produced and used on an international scale. Banking terminology serves clients, bankers, regulators, lawyers, analysts and the media, and it is also important for teachers and translators of Business English (Musurmanova, 2021; Nelson, 2006). Its development is closely connected with the history of trade and finance, but it also reflects processes in the language system itself: borrowing, productive word-formation, semantic shift, grammaticalised patterns of compounding and the growth of abbreviation (Bauer, 1983; Lipka, 2002; Mattiello, 2013). The aim of the article is to describe the features of English banking terminology and to show how they reflect the development of the English language system. The tasks are: (1) to identify the historical layers of banking terms; (2) to describe the main word-formation and semantic mechanisms; (3) to describe structural and pragmatic features, including variation; and (4) to determine the main tendencies of current development.

Methods: The study is qualitative and descriptive. The illustrative material was selected from a specialised dictionary of finance and banking (Law & Smullen, 2008), from the regulatory framework of Basel III (Basel Committee on Banking Supervision, 2011), from the etymological information of the *Oxford English Dictionary* (n.d.) and from professional and educational texts on retail and corporate banking. The selection is illustrative and not statistically representative, and no frequency claims are made.

Results: The etymological analysis shows that banking terminology has a stratified structure, and each layer corresponds to a stage of the economic and linguistic history of English. The periodisation below is approximate and is based on dictionary information. The pattern with *of* shows the influence of the French and Latin models of formation of legal and commercial terms, whereas the noun-noun compound shows the native Germanic tendency towards premodification. Terms of three and more components (*net interest margin*, *anti-money laundering compliance*) are typical of regulatory discourse and are characterised by compression of meaning.

British and American English differ in a number of banking terms: *cheque - check*, *current account - checking account*, *sort code – routing number*, *building society - savings and loan association*, *cashpoint - ATM*. In addition, there is a stylistic differentiation between professional terms (*amortisation*, *collateral*), customer-oriented terms (*monthly payment*, *security*) and marketing vocabulary (*cashback*, *free banking*). Standardisation is supported by

international regulatory and technical bodies, but terms of new technologies, such as *neobank* or *stablecoin*, still vary in form and definition.

Discussion: The results show that banking terminology is not a separate vocabulary but a subsystem integrated in the general English language system. All its mechanisms of formation (compounding, affixation, conversion, blending, metaphor, abbreviation) are productive in general English as well, which supports the view that terms and general words follow the same patterns of lexical development, as emphasised by descriptive and sociocognitive approaches (Temmerman, 2000; Kageura, 2002). The difference lies in the degree of conventionalisation and in the dependence on a definition within a conceptual system.

Two directions of influence can be seen. First, the language system shapes banking terminology: the preference for compounding and for noun phrases follows the structure of English, and the abundance of Romance elements reflects its historical contacts. Second, banking terminology affects the language system (McCloskey, 1985; Skorczynska & Deignan, 2006): terms and metaphors enter general usage (*to bank on someone*, *to bail out*, *toxic*, *credit* in the sense of recognition, *to invest* in a figurative sense), and the media popularise professional abbreviations. This two-way movement confirms the openness of the lexical subsystem to its social environment.

The current development is characterised by two drivers. Digital technology generates blends and compounds with *e-*, *online*, *mobile* and *digital* and new concepts such as *open banking* and *cryptocurrency* (Arner et al., 2016; Nakamoto, 2008). The regulatory response to the global financial crisis produced terms of prudential supervision and crisis management (*bail-in*, *stress test*, *systemically important institution*) that are now international. Because many of these terms appear first in English, English functions as a source language for other languages and creates a need for equivalence strategies in translation and terminology work.

Conclusion: English banking terminology has a stratified historical structure, a high productivity of compounding, affixation, conversion, blending and abbreviation, a strong role of metaphor and terminologisation, a predominance of multiword terms and a regular variation between British and American usage. Its development shows the main tendencies of the English language system: openness to borrowing, economy of expression, productivity of established models and interaction between specialised and general vocabulary. The current stage is shaped by digitalisation and by international regulation. The description

can be used as a basis for further corpus research, teaching and lexicographic practice.

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LINGUOCULTURAL FEATURES OF LEXICAL UNITS RELATED TO THE CONCEPT OF HOSPITALITY

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Annotation: *This article examines the linguocultural features of lexical units that express the concept of hospitality in Uzbek and English. Using linguoculturological, semantic, etymological, and comparative methods, it analyzes the core vocabulary of the concept, its paremiological and phraseological expressions, and the culture-specific meanings these units carry. The article also identifies culturally marked lexemes that have no direct equivalents and discusses implications for translation and intercultural communication.*

Keywords: *hospitality, lexical units, linguoculture, concept, cultural semantics, paremiology, phraseology, non-equivalent lexis, Uzbek, English.*

Annotatsiya: *Maqolada ingliz va o'zbek tillaridagi grammatik terminlarning elektron lug'atini yaratishning lingvistik tamoyillari tahlil qilinadi. Terminlarni tushunchaga asoslangan holda tizimlashtirish, ekvivalentlik turlari (to'liq, qisman va nol ekvivalentlik), ta'riflarning ISO 704 talablariga muvofiqligi, agglyutinativ morfologiyani hisobga oluvchi qidiruv tizimi asoslab beriladi.*

Kalit so'zlar: *elektron lug'at; grammatik terminologiya; terminografiya; ingliz tili; o'zbek tili; ekvivalentlik; kontseptsiya tizimi; kontrastli tilshunoslik; aglutinatsiya.*

Introduction: Language stores a community's cultural experience, and vocabulary is its most sensitive layer. Linguoculturology studies how cultural values, norms, and images are fixed in linguistic units (Maslova, 2001; Telia, 1996). Words that name central social values act as cultural "key words" which reveal how a community understands the world (Wierzbicka, 1997). Hospitality is one such value: it regulates relations between hosts and guests, and every culture encodes it differently. For Uzbek culture, hospitality is traditionally described as a defining trait of national character, closely tied to the family, the neighborhood community (*mahalla*), and religious ethics. English-speaking cultures also value hospitality, but the word has developed in a different

direction, with a strong service-industry meaning. Despite the topic's importance, comparative research on the linguocultural features of hospitality vocabulary in the two languages remains limited.

Methods: The study is qualitative and descriptive-comparative. The material consists of lexical units, proverbs, set phrases, and etiquette formulas related to hospitality, selected from explanatory and etymological dictionaries and from folklore and literary sources of both languages.

Results: The core of the concept in Uzbek includes *mehmon* (guest), *mezbon* (host), *mehmondo'stlik* (hospitality), *mehmonxona* (guest room/hotel), *dasturxon* (tablecloth, spread meal), and *ziyofat* (feast). Many of these units are of Persian origin (*mehmon*, *mezbon*, *dasturxon*), which reflects the long cultural contact within Central Asia. The word *mehmondo'stlik* itself is a compound of *mehmon* and *do'st* (friend) with the suffix *-lik*, which presents hospitality as a form of friendship toward the guest. In English, the core includes *guest*, *host*, *hospitality*, *welcome*, *hospitable*, and *entertain*. The lexemes *guest*, *host*, and *hospitality* are historically connected with Latin *hospes* ("host" or "guest") and with the Proto-Indo-European root associated with "stranger" and "guest" (Skeat, 1993), which suggests an ancient link between the stranger and the right to be received.

Table 1. Summary of linguocultural differences

Feature	**Uzbek**	**English**
Value base	Moral, religious, family	Social courtesy, service
Guest status	Elevated, near-sacred	Equal, with respect for privacy
Key culture-specific units	*dasturxon, to'r, fotiha, non*	Few; *hospitality industry* as institutional term
Politeness orientation	Deference, honor	Non-imposition, informality
Proverbial theme	Blessing, obligation	Comfort, limits on stay

Discussion: The results show that hospitality vocabulary is a layer in which universal and culture-specific elements interact. The universal element is the guest-host relation, visible in the shared Indo-European and Persian etymological ties between "guest," "host," and "stranger." The culture-specific elements are the values, rituals, and spatial images attached to the concept. In

Uzbek, the lexicon reflects a collectivist culture in which the guest is a bearer of blessing and the host's honor depends on generosity (Hofstede, 2001; Maslova, 2001). In English, the lexicon shows a shift toward individual autonomy and a commercial extension of the concept.

For translation and intercultural communication, these findings mean that non-equivalent units (*dasturxon, to'r, fotiha*) need explanation or contextual adaptation, and that formulas should be rendered with attention to pragmatic function rather than literal form. For instance, *Ko'zimizning to'ri sizniki* should be translated as an expression of warm honor, not as a literal statement. In teaching, such vocabulary can serve as material for developing intercultural competence.

The limitations of the study are its small illustrative sample and the reliance on dictionary and folklore sources without corpus or survey data. Future research may use corpus and word-association experiments to measure the salience of the concept's components and extend the comparison to other Turkic and European languages.

Conclusion. Lexical units related to hospitality reflect different cultural models in Uzbek and English. Uzbek units encode ritual, honor, and blessing, while English units emphasize courtesy, autonomy, and service. A linguocultural approach helps to explain these differences and to improve translation and cross-cultural communication.

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MAKTABGACHA YOSHDAGI BOLALARDA GIGIYENIK KO‘NIKMALARNI SHAKLLANTIRISHDA INTERFAOL METODLARDAN FOYDALANISH: “TOZA SAYOHAT” MODELI

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Annotatsiya. *Maqolada maktabgacha yoshdagi bolalarda gigiyenik ko‘nikmalarni shakllantirishda interfaol metodlardan foydalanishning pedagogik imkoniyatlari yoritilgan. Olti “bekat”dan iborat “Toza sayohat” modeli taklif etilgan: qo‘l yuvish, tish tozalash, shaxsiy tozalik, ovqatlanish odobi, yo‘tal odobi va toza muhit. Modelda kichik tajriba, qo‘g‘irchoq teatri, rolli o‘yin, harakatli qo‘shiq va doira suhbati uyg‘unlashtirilgan. Maqolada mashg‘ulot tuzilishi, metodlar tavsifi va baholash mezonlari keltirilgan.*

Abstract. *The article describes the pedagogical potential of interactive methods in developing hygiene skills in preschool children. A “Clean Journey” model of six “stations” is proposed: handwashing, tooth brushing, personal cleanliness, table manners, cough etiquette and a clean environment. The model combines mini-experiments, puppet theatre, role play, action songs and circle talk. The paper presents the lesson structure, a description of the methods and assessment criteria.*

Kalit so‘zlar: *gigiyenik ko‘nikmalar, maktabgacha ta’lim, interfaol metodlar, qo‘l yuvish, “Toza sayohat” modeli.*

Keywords: *hygiene skills, preschool education, interactive methods, handwashing, “Clean Journey” model.*

KIRISH

Gigiyenik ko‘nikmalar bolaning sog‘lig‘i, o‘zini qulay his qilishi va tengdoshlari orasida ijtimoiy moslashuvining poydevoridir. Bog‘cha — bolalar yaqin muloqotda bo‘ladigan, o‘yinchoq, idish-tovoq va qo‘llar orqali infeksiyalar tez tarqaladigan muhit. Shu bois bolaga toza bo‘lishni erta yoshdan odat qilib shakllantirish nafaqat tarbiyaviy, balki sog‘liqni saqlash vazifasi hamdir. Aiello va hamkorlari (2008) olib borgan meta-tahlil jamoat sharoitida

qo‘l gigiyenasi yuqumli kasalliklar xavfini kamaytirishini ko‘rsatgan. Freeman va hamkasblari (2014) esa qo‘l yuvish odatlari va uning sog‘liqqa ta’sirini dunyo bo‘yicha tizimli o‘rganib, bu amaliyotning ahamiyatini tasdiqlagan. Bowen va hamkorlari (2007) maktab sharoitida qo‘l yuvishni targ‘ib qiluvchi dasturlar samarali bo‘lishi mumkinligini ko‘rsatgan.

Biroq amaliyotda muammo saqlanib qolmoqda: “Qo‘lingni yuv!” degan buyruq bolada qisqa muddatli bo‘ysunishni keltirib chiqaradi, ichki ehtiyojni emas. Bola uchun mikroblar ko‘rinmaydi, shuning uchun gigiyenaning foydasi unga mavhum bo‘lib tuyuladi. Maktabgacha yoshdagi bola esa faqat ko‘rgan, ushlagan va o‘zi sinab ko‘rgan narsasini chuqur o‘zlashtiradi. Aynan shuning uchun gigiyenani o‘rgatishda bolani passiv tinglovchi emas, faol ishtirokchi qiladigan interfaol metodlar alohida ahamiyat kasb etadi. “Ilk qadam” davlat o‘quv dasturi (2018) ham sog‘lom turmush tarzi va o‘z-o‘ziga xizmat ko‘rsatish ko‘nikmalarini shakllantirishni maktabgacha ta’limning muhim yo‘nalishi sifatida belgilaydi.

Tadqiqotning maqsadi — maktabgacha yoshdagi bolalarda gigiyenik ko‘nikmalarni interfaol metodlar yordamida shakllantirishning “Toza sayohat” modelini ishlab chiqishdir. Vazifalar: interfaol ta’limning nazariy asoslarini aniqlash; modelning tarkibiy qismlari va mashg‘ulot tuzilishini belgilash; interfaol metodlarning tavsifini berish; natijalarni baholash mezonlarini taklif etish.

ASOSIY QISM

Tadqiqotda pedagogik va tibbiy adabiyotlarni tahlil qilish, qiyosiy-tavsifiy usul va pedagogik modellashtirish usullaridan foydalanildi. Nazariy asos sifatida bir necha yondashuv tanlandi. J. Dyuining (1938) “tajriba orqali o‘rganish” g‘oyasiga ko‘ra, bola bilimni o‘zi bajargan faoliyat orqali egallaydi. A. Banduraning (1977) ijtimoiy o‘rganish nazariyasi bolalar kattalar va tengdoshlarni kuzatib, ularga taqlid qilish orqali odat shakllantirishini ko‘rsatadi. L. S. Vigotskiy (1978) bolaning yaqin rivojlanish zonasida kattalar yordamida o‘rganishini asoslagan, Vud, Bruner va Ross (1976) esa bu yordamni “iskala” (scaffolding) deb atab, uni bola mustaqillashgani sari kamaytirib borish lozimligini ta’kidlagan.

Shu qarashlarga tayangan holda metodika oltita tamoyilni o‘z ichiga oldi: (1) ko‘rinmasni ko‘rinadigan qilish; (2) bola o‘z qo‘li bilan bajarishi; (3) qo‘rqitish o‘rniga qiziqtirish; (4) kundalik takrorlanuvchi ritual; (5) tarbiyachi va oilaning shaxsiy namunasi; (6) yordamni bosqichma-bosqich kamaytirish.

Modelning g‘oyasi — bolalar “Toza sayyora”ga sayohatga chiqadi. Sayohat davomida ular olti bekatdan o‘tadi, har bir bekatda esa sayohat

yo‘lboshchisi — sovun ko‘pigidan yaralgan kichik do‘st Ko‘pikjon yangi sirni o‘rgatadi. Mikroblar haqida gap ketganda “yovuz dushman” obrazi yaratilmaydi, ular “ko‘rinmas mitti mehmonlar” deb ataladi: bola qo‘rqmasligi, balki qiziqishi muhim. Bekatlar ro‘yxati 1-jadvalda berilgan.

Birinchi bekat — “Qo‘l ustalari”. “Yaltiroq qo‘llar” tajribasida bolalar qo‘liga ozgina yaltiroq (blyoska) surtiladi — bu “mitti mehmonlar”. Bolalar bir-birining qo‘lini silkitib, yaltiroq qanday o‘tishini ko‘radi: ular hamma joyda, hatto do‘stining yuzida paydo bo‘ladi. Keyin bola qo‘lini avval faqat suvda yuvadi — yaltiroq qoladi, so‘ng sovun bilan yuvadi — yaltiroq ketadi. Bola gigiyenaning foydasini o‘z ko‘zi bilan ko‘radi. Qo‘l yuvish bosqichlari “Ko‘pik raqsi” harakatli qo‘shig‘i bilan mustahkamlanadi: qo‘shiq taxminan 20 soniya davom etadi, bu qo‘lni yetarli muddat yuvish uchun tavsiya etiladigan vaqtga mos keladi.

Ikkinchi bekat — “Tabassum qo‘riqchilari”. Tish tozalash mavzusi qo‘g‘irchoq teatri orqali beriladi: “Tishlar yig‘ini” sahnasida Karies Qurt shirinlikni yaxshi ko‘rib, tishlarning uyiga kirmoqchi bo‘ladi, bolalar esa tish cho‘tkasi va pastadan “qo‘riqchi” yasab, tishlarni himoya qiladi. Katta tish modeli va cho‘tkada har bir bola tish tozalash harakatlarini sinab ko‘radi, 2 daqiqalik qum soati esa vaqtni ko‘rsatadi. Agar bog‘chada tish yuvish imkoniyati bo‘lmasa, mashq modelda bajariladi va uyda ota-onalar bilan davom ettiriladi.

Uchinchi bekat — “Ko‘zgu sehri”. Bolalar katta ko‘zgu oldida “Men tayyorman” tekshiruvini o‘tkazadi: yuzim toza, sochim tartibli, tirnoqlarim qisqa, kiyimim ozoda. Juftlikda bolalar bir-birining “tayyorligini” tekshiradi, “Go‘zallik ustaxonasi” rolli o‘yinida esa sochni tarash, yuzni yuvish va kiyimni to‘g‘rilashni mashq qiladi. Bu o‘z tashqi ko‘rinishiga e’tiborni, o‘ziga ishonchni va o‘z-o‘ziga xizmat ko‘nikmasini shakllantiradi.

To‘rtinchi bekat — “Dasturxon sarguzashti”. “Kafe” rolli o‘yinida bolalar mehmon, ofitsiant va oshpaz rollarini bajaradi. Mehmon dasturxonga o‘tirishdan oldin qo‘lini yuvishi, salfetkadan foydalanishi, og‘zini yopib chaynashi kerak. Navbatchi bola mehmonlarning qo‘li tozaligini tekshiradi va “oltin qoshiq” nishonini beradi. Bu ovqatlanish odobini majburiyat emas, o‘yin qoidasiga aylantiradi.

Beshinchi bekat — “Tirsak qalqoni”. Aksirish va yo‘tal odobi “qahramon qalqoni” o‘yini orqali o‘rgatiladi: bola yo‘talayotganda tirsagini “qalqon” qilib ko‘tarishi kerak. Tajriba ko‘rgazmali: bola stol ustidagi mayda qog‘oz bo‘lakchalariga pufladi — ular uzoqqa sochiladi, tirsak oldiga tutilganda esa joyida qoladi. Shu tariqa bola yo‘talning ham ko‘rinmas “mehmonlar”ni uzoqqa tarqatishini tushunadi.

Oltinchi bekat — “Toza dunyo”. “O‘yinchoqlar hammomi” o‘yinida bolalar o‘yinchoqlarni iliq suv va sovunda “cho‘mdiradi”, quritadi va javonga tartib bilan joylashtiradi. Shu bilan birga chiqindilarni saralash mashqi o‘tkaziladi: qog‘oz, plastik va oziq-ovqat qoldig‘i alohida qutiga solinadi. Bola o‘zi yashayotgan muhit tozaligi ham uning o‘z mas’uliyatiga kirishini his qiladi.

Har bir mashg‘ulot 20–25 daqiqa davom etadi va to‘rt qismdan iborat: “Sayohat chiptasi” (4 daqiqa) — Ko‘pikjon bilan qisqa ertak va muammo qo‘yilishi; “Tajriba yoki o‘yin” (12 daqiqa) — bekat bo‘yicha asosiy faoliyat; “Fikr doirasi” (4 daqiqa) — bolalar nima ko‘rganini va nima his qilganini aytadi; “Toza yo‘l jadvali” (3 daqiqa) — bola bajargan harakatini yulduzcha bilan belgilaydi. Har bir bekat ikki hafta davomida haftasiga ikki-uch marta takrorlanadi. Eng muhimi, mashg‘ulotdan olingan ko‘nikma kun davomida — ovqatdan oldin, sayrdan keyin, uyquga tayyorlanishda — doimiy mustahkamlanadi.

Natijalar va muhokama

Ishlab chiqilgan “Toza sayohat” modelining tarkibi 1-jadvalda umumlashtirilgan.

1-jadval. “Toza sayohat” modelining bekatlari

№	Bekat	Asosiy faoliyat	Shakllanadigan ko‘nikma
1	Qo‘l ustalari	“Yaltiroq qo‘llar” tajribasi	Qo‘lni sovun bilan to‘g‘ri yuvish
2	Tabassum qo‘riqchilari	Qo‘g‘irchoq teatri, qum soati	Tishni 2 daqiqa tozalash
3	Ko‘zgu sehri	“Men tayyorman” tekshiruvi	Yuz, soch, tirnoq, kiyim tozaligi
4	Dasturxon sarguzashti	Rolli o‘yin “Kafe”	Ovqatlanish odobi va tozaligi
5	Tirsak qalqoni	Qog‘oz bo‘lakchalari tajribasi	Yo‘talganda va aksirganda himoyalanish
6	Toza dunyo	“O‘yinchoqlar hammomi”	Atrof-muhit va buyumlar tozaligini saqlash

Jadvaldan ko‘rinib turibdiki, har bir bekat bitta aniq ko‘nikmaga yo‘naltirilgan va bola uchun qiziqarli faoliyat shaklida beriladi. Modelda ishlatilgan interfaol metodlarning mohiyati 2-jadvalda keltirilgan.

2-jadval. Modelda qo‘llaniladigan interfaol metodlar

Interfaol metod	Qanday o‘tkaziladi	Nimani rivojlantiradi
Kichik tajriba	Bola “mikrob”ni yaltiroq, qalampir yoki qog‘oz bo‘lakchalari orqali ko‘radi	Sabab va oqibatni anglash
Qo‘g‘irchoq teatri	Qahramonlar muammoli vaziyatga tushadi, bolalar yechim topadi	Hamdardlik, nutq
Rolli o‘yin	Bola tarbiyachi, shifokor, mehmon rolini bajaradi	Mas’uliyat, hamkorlik
Harakatli qo‘shiq	Qo‘l yuvish va tish tozalash bosqichlari qo‘shiq bilan takrorlanadi	Ketma-ketlikni eslab qolish
Fikr doirasi	Bolalar doirada o‘tirib his-tuyg‘u va xulosalarini aytadi	Mulohaza, fikr bildirish

Interfaol metodlarning an’anaviy “tushuntirish va talab qilish” usulidan afzalligi shundaki, bola qoidani eshitibgina qolmay, uning sababini o‘zi kashf etadi. “Yaltiroq qo‘llar” yoki “Tirsak qalqoni” kabi tajribalar mavhum tushunchani ko‘rinadigan natijaga aylantiradi, qo‘g‘irchoq teatri va rolli o‘yin esa bolaga xulq-atvorni xavfsiz sharoitda sinab ko‘rish imkonini beradi. Harakatli qo‘shiqlar esa ketma-ket bosqichlarni (masalan, qo‘l yuvishning har bir harakatini) eslab qolishni osonlashtiradi.

Natijalarni baholash uchun uch darajali mezonlar taklif etildi (3-jadval). Baholash tarbiyachining kuzatuv varaqasi, bola bilan qisqa suhbat va “Toza yo‘l jadvali” yozuvlari asosida amalga oshiriladi. Maktabgacha yoshda bolani boshqalar bilan taqqoslash emas, uning o‘z oldingi natijasiga nisbatan o‘sishini ko‘rish muhimroqdir.

3-jadval. Gigiyenik ko‘nikmalarni baholash mezonlari

Ko‘rsatkich	Boshlang‘ich	O‘rta	Yuqori
Qo‘l yuvish	Faqat suv bilan chayadi	Sovun ishlatadi, qadamlarni tushirib qoldiradi	Barcha qadamlarni mustaqil bajaradi
Tish tozalash	Eslatma bilan bajaradi	Yordam bilan to‘g‘ri bajaradi	Mustaqil va to‘liq bajaradi
Shaxsiy tozalik	Kattalar kuzatadi	Ko‘zgu bilan o‘zini tekshiradi	Do‘stiga ham eslatadi
Yo‘tal odobi	Qo‘li bilan yopadi	Tirsakka yo‘taladi	Salfetkadan ham foydalanadi

Modelning samarali bo‘lishi uchun bir necha pedagogik shartga rioya qilish zarur. Birinchidan, bolani kasallik va “iflos bola” obrazi bilan qo‘rqitish yoki uyaltirish mumkin emas: bunday yondashuv vaqtincha natija berib, bolada

tashvish va ichki qarshilik uyg‘otadi. Ikkinchidan, tarbiyachining o‘zi namuna bo‘lishi lozim, chunki bolalar kattalarning aytganidan ko‘ra qilganini ko‘proq takrorlaydi (Bandura, 1977). Uchinchidan, individual xususiyatlar hisobga olinadi: ba’zi bolalar suv, sovun hidi yoki tish pastasi ta’mini yoqtirmasligi mumkin, bunda majburlash emas, muqobil variant tanlanadi. To‘rtinchidan, xavfsizlik ta’minlanadi: yaltiroq va sovun faqat tarbiyachi nazoratida, bolaning allergiyasi hisobga olingan holda ishlatiladi, mayda detallar bolalar og‘ziga tushmasligi kerak.

Oila bilan hamkorlik modelning ajralmas qismidir. “Toza yo‘l jadvali”ning nusxasi uyga beriladi, ota-onalar bola bilan birgalikda tish tozalash, ovqatdan oldin qo‘l yuvish va uyquga tayyorlanish ritualini davom ettiradi. Bog‘chada olingan ko‘nikma uyda ham takrorlansa, u barqaror odatga aylanadi. Ota-onalar uchun qisqa uchrashuv yoki xabar shaklidagi “bir daqiqalik maslahat” ham ularning bolalar bilan to‘g‘ri muloqot qilishiga yordam beradi.

Ushbu ishning cheklovi shundaki, taklif etilgan model hozircha nazariy-metodik ishlanma sifatida ishlab chiqilgan. Uning samaradorligini tajriba va nazorat guruhlarida o‘tkaziladigan pedagogik eksperiment orqali sinab ko‘rish keyingi tadqiqotlarning vazifasidir.

XULOSA

Tahlillar shuni ko‘rsatadiki, maktabgacha yoshdagi bolalarda gigiyenik ko‘nikmalarni shakllantirish faqat qoidalarni takrorlash emas, balki bolaning o‘zi tajriba qilishi, kuzatishi va o‘ynashi orqali ichki ehtiyojni uyg‘otish jarayonidir. “Toza sayohat” modeli olti bekat orqali asosiy gigiyenik ko‘nikmalarni izchil tizimga soladi, ertak qahramoni Ko‘pikjon bilan bolaning qiziqishini saqlab turadi va oilani jarayonga jalb etadi. Kichik tajriba, qo‘g‘irchoq teatri, rolli o‘yin, harakatli qo‘shiq va doira suhbati kabi metodlar ko‘rinmas xavfni ko‘rinadigan qiladi va qo‘rqitmasdan o‘rgatish imkonini beradi. Taklif etilgan baholash mezonlari tarbiyachiga bola rivojini kuzatishda yordam beradi. Kelgusida modelni turli bog‘chalarda sinovdan o‘tkazish va uning uzoq muddatli ta’sirini o‘rganish maqsadga muvofiq.

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THE IMPORTANCE OF ADAPTIVE MANAGEMENT MECHANISMS IN MANAGING HIGHER EDUCATION PERSONNEL

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Abstract: *Higher education institutions operate in an environment characterized by rapid technological change, demographic shifts, global competition, funding volatility, and rising expectations from students, employers, and society. Traditional, hierarchical and rule-based approaches to personnel management are increasingly unable to respond to these pressures. The study argues that adaptive mechanisms such as flexible workforce planning, competency-based and continuous professional development, participatory decision-making, data-informed feedback systems, and differentiated incentive structures enable universities to respond to change without sacrificing academic values.*

Keywords: *adaptive management, higher education, human resource management, academic staff, organizational resilience, faculty development, adaptive leadership, university governance*

INTRODUCTION

Personnel are the central resource of any university. Unlike manufacturing or service organizations, a university's core outputs, which are knowledge creation, teaching, and the formation of human capital, are produced directly by the intellectual labor of its staff. The quality, motivation, and adaptability of academic and administrative personnel therefore largely determine institutional quality, competitiveness, and social contribution. At the same time, the context of higher education has changed profoundly. Mass access to higher education, internationalization, digital transformation, the spread of online and hybrid learning, outcome-based accreditation, the growth of artificial intelligence tools, and shifting labor-market demands all require universities to continuously redesign programs, teaching methods, research agendas, and administrative processes. These changes in turn require personnel who can learn quickly, collaborate across boundaries, and work in unfamiliar roles. Conventional

personnel management in many universities remains based on fixed job descriptions, standardized workloads, seniority-based promotion, and periodic formal evaluation. Such mechanisms provide stability and legal certainty, but they often fail to provide the flexibility needed in a turbulent environment. Adaptive management offers an alternative paradigm. It treats the organization as a learning system, emphasizes continuous monitoring and revision of decisions, and involves staff actively in the process of change.

The purpose of this article is to substantiate the importance of adaptive management mechanisms in managing higher education personnel. The study pursues the following objectives to clarify the concept of adaptive management in the context of university human resource management to identify the key mechanisms through which adaptive management operates to analyze the benefits and risks of these mechanisms; and to propose a framework for their implementation. The notion of adaptive management originated in ecological and natural resource management, where decision-makers face uncertainty and incomplete knowledge.

Adaptive personnel management in higher education rests on the following principles:

- **Environmental sensing:** systematic monitoring of external trends (labor markets, technologies, regulations) and internal indicators (workload, satisfaction, turnover, competence profiles).
- **Flexibility with stability:** a stable core of values and rules combined with adjustable practices.
- **Participation:** involvement of staff in diagnosing problems and designing solutions.
- **Continuous learning:** professional development embedded in daily work, not limited to occasional training.
- **Evidence-based iteration:** decisions treated as hypotheses to be tested, evaluated, and improved.
- **Differentiation:** recognition that staff groups and individuals have different needs, capacities, and career paths.

The following mechanisms operationalize these principles. Adaptive workforce planning**.** Instead of static staffing tables, universities use scenario-based planning, rolling forecasts of competence needs, and flexible staffing models (for example, combining permanent staff, fixed-term specialists, visiting professors, and practitioners). Planning cycles are short enough to be revised as enrollment, funding, or program portfolios change. Competency-based role design. Job profiles are defined through competencies rather than only through

formal duties. Competency frameworks for teaching, research, digital skills, leadership, and ethics allow staff to move between tasks, form project teams, and take on emerging roles such as learning designers or research data managers. Continuous and personalized professional development. Individual development plans, peer mentoring, communities of practice, micro-credentials, teaching-innovation labs, and international exchange programs enable staff to update competencies in line with institutional needs and personal aspirations. Development is linked to real changes in curricula and processes so that learning is applied. Formative, feedback-rich performance management. Annual appraisals are complemented by regular developmental conversations, multi-source feedback (students, peers, supervisors), and the use of data dashboards. The emphasis shifts from control to improvement. Evaluation criteria are periodically reviewed to ensure that they reflect current strategic priorities and discipline-specific norms. Adaptive mechanisms enable universities to detect changes earlier and respond with appropriate personnel decisions. When competency needs are monitored continuously and development resources are flexibly allocated, institutions can introduce new programs, teaching modes, or research areas without prolonged delays. This responsiveness is a source of competitive advantage in an increasingly international higher education market. Continuous professional development and formative evaluation improve pedagogical competence, research capacity, and service quality. Staff who receive timely feedback and support are better able to adopt innovative methods, such as active learning, blended learning, and interdisciplinary research. At the administrative level, adaptive processes improve student services, grant management, and quality assurance. Higher education systems undergoing large-scale reform, such as the expansion of university autonomy, introduction of credit systems, new accreditation standards, and internationalization strategies, place significant demands on personnel. In Uzbekistan, for example, the national concept for developing the higher education system to 2030 sets goals for improving quality, expanding access, increasing institutional autonomy, and integrating with international academic standards. Achieving such goals depends on the capacity of universities to retrain staff, attract qualified specialists, and redesign management practices. Adaptive mechanisms provide a way to translate national policy objectives into institution-level personnel practice while allowing local variation and learning. This cycle reflects Lewin's classic idea of change as an iterative process of unfreezing, moving, and refreezing, but it is expected to be continuous rather than episodic, consistent with the premise of adaptive management. Supporting conditions

include committed top leadership, development of middle-level managers as change agents, a transparent communication strategy, adequate financial and digital infrastructure, and a culture of psychological safety in which experimentation and learning from mistakes are accepted.

CONCLUSION

The complexity and pace of change confronting higher education make adaptive management mechanisms a necessity rather than an option in managing university personnel. By combining flexibility with stability, participation with direction, and accountability with development, adaptive mechanisms enhance institutional responsiveness, strengthen the quality of teaching and research, improve staff motivation and retention, and support successful implementation of reforms. At the same time, their success depends on careful design, ethical use of data, adequate resources, and leadership capable of managing uncertainty and fostering trust. Future research should test the proposed framework empirically, examine how cultural and regulatory contexts shape adaptive practices, and explore the role of emerging technologies, including artificial intelligence, in supporting personnel decisions without undermining academic values. Universities that institutionalize adaptive personnel management will be better prepared not only to survive disruptions but also to use them as opportunities for renewal.

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MAKTABGACHA YOSHDAGI BOLALARDA MOLIYAVIY SAVODXONLIKNING BOSHLANG‘ICH ELEMENTLARINI SHAKLLANTIRISH METODIKASI: “MOLIYAVIY GUL” MODELI

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Annotatsiya. *Maqolada maktabgacha yoshdagi (4–6 yosh) bolalarda moliyaviy savodxonlikning boshlang‘ich elementlarini shakllantirishning “Moliyaviy gul” metodikasi asoslab berilgan. Metodika besh “barg” — istak va ehtiyoj, mehnat va qiymat, jamg‘arish, tanlov va almashinuv, ulashish — orqali o‘yin, ertak va hayotiy vaziyatlarni uyg‘unlashtiradi. Maqolada pedagogik asoslar, mashg‘ulot tuzilishi, o‘yin namunalari va natijalarni baholash mezonlari keltirilgan. Tavsiyalar maktabgacha ta’lim tashkilotlari va oilalar uchun mo‘ljallangan.*

Abstract. *The article substantiates the “Financial Flower” methodology for developing the initial elements of financial literacy in preschool children aged 4–6. The model combines play, storytelling and real-life situations through five “petals”: needs and wants, work and value, saving, choice and exchange, and sharing. The paper presents the pedagogical foundations, lesson structure, game examples and assessment criteria intended for kindergartens and families.*

Kalit so‘zlar: *moliyaviy savodxonlik, maktabgacha ta’lim, o‘yin metodikasi, jamg‘arish, “Moliyaviy gul” modeli.*

Keywords: *financial literacy, preschool education, play-based method, saving, “Financial Flower” model.*

KIRISH

Bugungi bola pul bilan hayotining dastlabki yillaridayoq tanishadi: u do‘kon peshtaxtasi oldida ota-onasining kartani terminalga tutishini, telefon orqali to‘lov amalga oshirilishini, “qimmat” va “arzon” so‘zlarini kundalik suhbatlarda eshitadi. Biroq pul bolaning ko‘z o‘ngida ko‘pincha “sehrli

vosita”ga aylanadi: karta tutilsa — o‘yinchoq paydo bo‘ladi, mehnat va qiymat o‘rtasidagi bog‘liqlik esa ko‘rinmay qoladi. Shu sababli moliyaviy savodxonlik poydevorini maktab yoshigacha, tafakkur va odatlar shakllanayotgan davrda qo‘yish dolzarb pedagogik vazifaga aylanmoqda.

Xorijiy tadqiqotlar bu qarashni qo‘llab-quvvatlaydi. Berti va Bombi (1988) bolalarning iqtisodiy tushunchalari bosqichma-bosqich rivojlanishini ko‘rsatgan, Mischel va hamkasblari (1972) esa kutish va o‘zini tutib turish ko‘nikmasi erta yoshdayoq shakllanishini tajribada o‘rgangan. Sherraden va hamkorlari (2011) maktab asosidagi moliyaviy ta’lim va jamg‘arma dasturida qatnashish bolalarning moliyaviy bilimi va qobiliyatiga ijobiy ta’sir qilishi mumkinligini qayd etgan. Lusardi va Mitchell (2014) moliyaviy savodxonlikning pastligi keyinchalik qabul qilinadigan qarorlar sifatiga ta’sir qilishini asoslab bergan. OECD/INFE (2015) tomonidan bolalar va o‘smirlar uchun ishlab chiqilgan asosiy kompetensiyalar doirasi ham pul, qadriyat va jamg‘arish tushunchalarini erta yoshdan boshlab shakllantirish zarurligiga urg‘u beradi.

O‘zbekistonda maktabgacha ta’limning “Ilk qadam” davlat o‘quv dasturi (2018) bolaning ijtimoiy-hissiy rivojlanishi, mehnat va atrof-muhit bilan tanishuvi yo‘nalishlarini belgilaydi. Shu bilan birga, moliyaviy tushunchalarni shakllantirish bo‘yicha alohida, amaliy va o‘yinga asoslangan metodik ishlanmalarga ehtiyoj saqlanib qolmoqda.

Tadqiqotning maqsadi — 4–6 yoshli bolalarda moliyaviy savodxonlikning boshlang‘ich elementlarini shakllantirishga qaratilgan, o‘yin va ertakka asoslangan “Moliyaviy gul” metodikasini ishlab chiqishdir. Maqsadga erishish uchun quyidagi vazifalar belgilandi: metodikaning nazariy asoslarini aniqlash; uning tarkibiy qismlari va mashg‘ulot shaklini belgilash; natijalarni baholash mezonlarini taklif etish.

ASOSIY QISM

Tadqiqotda pedagogik va psixologik adabiyotlarni tahlil qilish, qiyosiy-tavsifiy usul va pedagogik modellashtirish usullaridan foydalanildi. Nazariy asos sifatida J. Piajening aqliy rivojlanish bosqichlari, L. S. Vigotskiyning yaqin rivojlanish zonasi g‘oyasi va M. Montessorining “amaliy hayot” mashg‘ulotlari tamoyili tanlandi. Piajega ko‘ra, maktabgacha yoshdagi bola dunyoni ko‘rish, ushlash va tasavvur qilish orqali anglaydi (Piaget, 1952); shuning uchun “foiz” yoki “inflyatsiya” kabi mavhum tushunchalar emas, balki “bu narsa nima uchun kerak?” va “uni qanday qo‘lga kiritdik?” kabi savollar markazga qo‘yiladi. Vigotskiy (1978) fikricha, yangi bilim kattalar yoki tengdoshlar bilan hamkorlikdagi faoliyatda eng samarali o‘zlashtiriladi. Montessori (1967) esa

bola uchun real hayotiy harakatlar — saralash, sanash, almashish — eng kuchli o‘rganish vositasi ekanini ta’kidlagan.

Ushbu qarashlar asosida metodika beshta tamoyilga tayandi: (1) o‘yin orqali o‘rganish; (2) avval qadriyat, keyin raqam; (3) konkret ashyo va ramziy vositalardan foydalanish; (4) takrorlanuvchi kichik odatlarni shakllantirish; (5) oila bilan hamkorlik.

Modelning markazida bolaning shaxsiy “Mening orzuyim” obrazi turadi, uning atrofida esa besh barg joylashadi. Bolalarga mavzu ertak orqali taqdim etiladi: kichik oltin tanga — Tangacha o‘z yo‘lida har bir bargda yangi do‘st topadi va u bilan yangi sir o‘rganadi. Qahramon mavjudligi bola uchun mavhum g‘oyani jonli, eslab qolish oson obrazga aylantiradi.

Birinchi bargda bolalar istak va ehtiyojni farqlashni o‘rganadi. “Sehrli sumka” o‘yinida bolalar sumkadan non, issiq qalpoq, dori, yangi mashina, shirinlik rasmlarini navbat bilan olib, ularni ikki savatga ajratadi: “juda kerak” va “juda xohlayman”. Tarbiyachi hukm chiqarmaydi, balki “Agar bu bo‘lmasa nima bo‘ladi?” degan savol beradi. Maqsad — istaklarni yomonlash emas, ularni ehtiyojdan farqlashni o‘rgatish.

Ikkinchi barg mehnat va qiymat tushunchasiga bag‘ishlangan. “Ustalar ko‘chasi” rolli o‘yinida bolalar novvoy, haydovchi, shifokor, quruvchi rolini o‘ynaydi. Har bir “usta” mehnat qiladi va buning evaziga shartli tanga oladi. Muhim qoida: oilaviy majburiyatlar (xonani yig‘ishtirish, o‘yinchoqlarni joyiga qo‘yish) uchun pul to‘lanmaydi, chunki bu mehnatni faqat pulga bog‘lab qo‘yadi. Pul faqat o‘yindagi kasbiy mehnat bilan bog‘lanadi.

Uchinchi barg jamg‘arish ko‘nikmasini shakllantiradi. Bola o‘z orzusini — masalan, qo‘g‘irchoq uyi yoki guruh uchun kitob javonini — chizadi va rasmni shaffof idishga yopishtiradi. Har kuni yaxshi ish uchun idishga bitta tugma tashlanadi. Idish to‘lgach, orzu amalga oshadi. Dastlab kutish muddati 3–5 kun, keyin 1–2 haftagacha uzaytiriladi. Bu Mischel va hamkasblari (1972) tomonidan o‘rganilgan kutish ko‘nikmasini kundalik hayotga olib kiradi.

To‘rtinchi barg tanlov va almashinuv haqida. “Kichik bozor” o‘yinida har bir bolaga besh tanga beriladi, peshtaxtada esa narxlari turlicha mahsulotlar turadi. Bola hammasini sotib ola olmasligini ko‘radi va tanlaydi. Shu tariqa u tanlash har doim biror narsadan voz kechishni anglatishini, ya’ni iqtisodiyotning asosiy g‘oyasini o‘zi sezadi. Sotuvchi va xaridor rollari navbatma-navbat almashtiriladi.

Beshinchi barg ulashishga o‘rgatadi. O‘yin yakunida bolalar tangalarining bir qismini “yaxshilik qutisi”ga soladi. Yig‘ilgan mablag‘ni qanday sarflash guruh bilan birga hal qilinadi: gul ko‘chati, qushlarga don yoki yangi kitob. Bola

pul faqat o‘zi uchun emas, boshqalarga yordam berish vositasi ham ekanini ko‘radi.

Har bir mashg‘ulot 25 daqiqa davom etadi va to‘rt qismdan iborat: “Ertak ochilishi” (5 daqiqa) — Tangacha bilan yangi sarguzasht; “O‘yin” (12 daqiqa) — barg bo‘yicha asosiy faoliyat; “Fikr doirasi” (5 daqiqa) — bolalar doirada o‘tirib nima qilganini va nimani his qilganini aytadi; “Uy sarguzashti” (3 daqiqa) — oilaga beriladigan qisqa topshiriq. Mashg‘ulotlar haftasiga ikki marta, har bir barg uchun ikki hafta davomida o‘tkaziladi.

Mashg‘ulot Tangachaning bozorga borishi haqidagi ertak bilan boshlanadi: “Tangacha beshta tanga topdi, lekin bozorda olma ham, bulka ham, gul ham bor. Hammasini ola olmaydi, nima qilsin?” Shundan so‘ng bolalar peshtaxtalar atrofida joylashadi, tarbiyachi esa mahsulotlarga 1, 2 va 3 tanga narxini qo‘yadi. Har bir bola o‘z tanlovini qiladi va sotuvchiga tanga beradi. “Fikr doirasi” bosqichida tarbiyachi bolalarga “Nima uchun aynan shuni tanlading?”, “Boshqasini ham olishni xohlarding, shundaymi?”, “Keyingi safar nima qilasan?” kabi savollar beradi. Bunday savollar bolaning tanlovini baholamaydi, balki uni fikrlashga undaydi va ongli qaror qabul qilish odatini shakllantiradi.

Bolalar yoshiga qarab topshiriqlar murakkablashtiriladi. To‘rt yoshli bolalar uchun o‘yin ikki mahsulot va bitta tanlov bilan cheklanadi, besh yoshlilar uchun narxlar va tangalar soni oshiriladi, olti yoshlilar esa sodda sanash va “kimda ko‘proq?” kabi taqqoslash mashqlarini bajaradi. Bu maktabga tayyorgarlikda matematik tasavvurlarni ham mustahkamlaydi, chunki sanash, taqqoslash va tartiblash ko‘nikmalari real vaziyatda mashq qilinadi.

Natijalar va muhokama

Tadqiqot natijasida ishlab chiqilgan modelning tarkibiy qismlari va ularning o‘zaro bog‘liqligi 1-jadvalda umumlashtirildi.

1-jadval. “Moliyaviy gul” modelining tarkibi

№	Barg	Asosiy o‘yin	Shakllanadigan element
1	Istak va ehtiyoj	“Sehrli sumka”	Kerakli narsa va xohlangan narsani farqlash
2	Mehnat va qiymat	“Ustalar ko‘chasi”	Pul mehnat evaziga kelishini anglash
3	Jamg‘arish	“Orzu idishi”	Kutish, maqsad qo‘yish, sabr
4	Tanlov va almashinuv	“Kichik bozor”	Tanlash, voz kechishni anglash

№	Barg	Asosiy o‘yin	Shakllanadigan element
5	Ulashish	“Mehr ulushi”	Boshqalarga g‘amxo‘rlik, saxovat

Jadvaldan ko‘rinib turibdiki, har bir barg bitta aniq moliyaviy elementni shakllantiradi va bolaga tanish o‘yin shaklida beriladi. Bu bolaning ortiqcha zo‘riqishisiz bilimni his-tuyg‘u bilan bog‘lab o‘zlashtirishini ta’minlaydi.

Natijalarni baholash uchun uch darajali mezonlar taklif etildi (2-jadval). Baholash testlar orqali emas, balki tarbiyachining kuzatuv varaqasi, bola bilan qisqa suhbat va bola ishlaridan tuzilgan portfolio asosida amalga oshiriladi. Maktabgacha yoshda “to‘g‘ri yoki noto‘g‘ri javob” emas, bolaning fikrlash jarayoni muhimroq hisoblanadi.

2-jadval. Baholash mezonlari

Ko‘rsatkich	Boshlang‘ich	O‘rta	Yuqori
Istak va ehtiyoj	Faqat tarbiyachi yordamida ajratadi	Misollar bilan mustaqil ajratadi	Sababini tushuntiradi
Mehnat va qiymat	Pulni “sehrli” deb biladi	Kasb va mukofotni bog‘laydi	Misol keltiradi
Kutish va jamg‘arish	Darhol olishni talab qiladi	2–3 kun kutadi	Maqsad uchun 1–2 hafta kutadi
Tanlov va ulashish	Tanlashda qiynaladi	Tanlaydi, voz kechadi	Ulashishni o‘zi taklif qiladi

Metodikaning samarali bo‘lishi uchun bir necha pedagogik shartga rioya qilish lozim. Birinchidan, pul hech qachon mukofot yoki jazo vositasiga aylantirilmaydi. Ikkinchidan, bolalar o‘rtasida oilaviy daromad farqini ko‘rsatmaslik uchun haqiqiy pul emas, ramziy tanga va tugmalardan foydalaniladi. Uchinchidan, tarbiyachi tayyor javob bermaydi, balki ochiq savollar orqali bolani mustaqil xulosaga olib boradi. To‘rtinchidan, “karta sehr emas” degan alohida suhbat o‘tkaziladi: bolaga karta ortida ota-onaning mehnati turishi tushuntiriladi. Bu raqamli to‘lovlar davrida ayniqsa muhim.

Oila bilan hamkorlik metodikaning ajralmas qismi hisoblanadi. “Uy sarguzashti” topshiriqlari orqali ota-onalar bola bilan birga do‘konga borib, ikki mahsulot orasidan tanlash, haftalik “oilaviy savdo kuni” o‘tkazish yoki uy idishida jamg‘arish kabi sodda mashqlarni bajaradi. Shunda bolada maktabgacha muassasada shakllangan g‘oyalar uyda ham mustahkamlanadi, ota-onalar esa pul haqida bolalar bilan ochiq va xotirjam gaplashishni o‘rganadi.

Ushbu ishning cheklovi shundaki, taklif etilgan metodika hozircha nazariy-metodik model sifatida ishlab chiqilgan. Uning samaradorligini tajriba va nazorat guruhlari asosida o‘tkaziladigan pedagogik eksperiment orqali sinab ko‘rish keyingi tadqiqotlarning vazifasidir.

XULOSA

Tahlillar shuni ko‘rsatadiki, maktabgacha yoshdagi bolalarda moliyaviy savodxonlikni shakllantirish murakkab iqtisodiy atamalarni o‘rgatish emas, balki istak va ehtiyojni farqlash, mehnat qadrini his qilish, kutish, tanlash va ulashish kabi dastlabki ko‘nikmalarni o‘yin orqali rivojlantirishdir. “Moliyaviy gul” modeli bu ko‘nikmalarni besh barg orqali izchil tizimga soladi, ertak qahramoni orqali bolaning qiziqishini saqlab turadi va oilani jarayonga jalb etadi. Taklif etilgan baholash mezonlari tarbiyachiga bola rivojini kuzatishda amaliy yordam beradi. Kelgusida metodikani turli hududlardagi bog‘chalarda sinovdan o‘tkazish va uning uzoq muddatli ta’sirini o‘rganish maqsadga muvofiq.

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MATEMATIKA TA’LIMIDA IJODIY VA TANQIDIY FIKRLASH TALQINLARI: QIYOSIY TAHLIL VA O‘ZARO BOG‘LIQLIK

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Annotatsiya: *Tezisda ijodiy va tanqidiy fikrlashga oid xorijiy va mahalliy ilmiy talqinlar qiyoslanib, ularning o‘zaro bog‘liqligi ochib berildi. Talqinlar tushunchaning asosi, tayanch faoliyat, e’tibor qaratilgan tomon va ikki tushunchaning munosabati mezonlari bo‘yicha tahlil qilinib, umumiy va farqli jihatlari aniqlandi. Ikki fikrlash turi o‘quv faoliyatining har bir bosqichida bir-birini to‘ldirishini ifodalovchi model va boshlang‘ich sinf matematika darslari uchun amaliy takliflar berildi.*

Kalit so‘zlar: *ijodiy fikrlash, tanqidiy fikrlash, divergent fikrlash, reflektiv fikrlash, dalillash, o‘zaro to‘ldiruvchanlik, matematika ta’limi, boshlang‘ich sinf.*

Abstract: *The thesis compares foreign and local interpretations of creative and critical thinking and reveals their relationship. The interpretations were analysed by four criteria: the basis of the concept, the core activity, the emphasized aspect and the relationship between the two concepts. A model showing how the two types of thinking complement each other at every stage of learning and practical recommendations for primary mathematics lessons are proposed.*

Keywords: *creative thinking, critical thinking, divergent thinking, reflective thinking, justification, complementarity, mathematics education, primary school.*

KIRISH

Zamonaviy ta’limda matematika fanining vazifasi faqat to‘g‘ri hisoblash ko‘nikmasini shakllantirish bilan chegaralanmaydi. PISA-2022 konsepsiyasida matematik savodxonlik vaziyatni matematik shaklga keltirish, mos usulni qo‘llash va natijani shu vaziyat nuqtayi nazaridan baholash qobiliyati sifatida talqin qilinadi [1]. Bunda o‘quvchi yechim yo‘llarini izlaydi va topganini asoslaydi, ya’ni ijodiy va tanqidiy fikrlashdan birga foydalanadi.

Bu tushunchalar turli ilmiy maktablarda shakllangani sababli ularning talqini ham turlicha. Ye. Ye. Ivunina birgina tanqidiy fikrlash tushunchasiga nisbatan bir necha yondashuv mavjudligini ko‘rsatadi [2]. O‘qituvchi uchun esa bu tushunchalarning darsda o‘quvchi bajaradigan aniq faoliyatda ifodalanishi muhim. Shu bois tadqiqotning ilmiy muammosi ijodiy va tanqidiy fikrlashga berilgan xorijiy va mahalliy talqinlarni matematika darsidagi o‘quvchi faoliyati bilan bog‘lashdan iborat.

Tadqiqotdan ko‘zlangan maqsad xorijiy va mahalliy talqinlarni muayyan mezonlar asosida solishtirib, ikki fikrlash turining matematika darsida bir-birini to‘ldiradigan jihatlarini nazariy jihatdan ochib berishdir. Buning uchun solishtirish mezonlarini aniqlash, qarashlarning umumiy va o‘ziga xos jihatlarini ajratish, ikki fikrlash turining munosabatini model shaklida ifodalash va amaliy takliflar ishlab chiqish vazifalari qo‘yildi. Tadqiqotda mazmuniy va qiyosiy tahlil, tizimlashtirish va modellashtirish usullaridan foydalanildi.

ASOSIY QISM

Ijodiy fikrlashni ilmiy o‘rganishda burilish yasagan J. P. Guilford uni bitta muammo bo‘yicha turli yo‘nalishlarda g‘oya ishlab chiqish, ya’ni divergent fikrlash bilan bog‘lagan [3]. E. P. Torrance esa ijodkorlikni ravonlik, moslashuvchanlik va o‘ziga xoslik orqali o‘lchashni taklif etgan [4]. Demak, klassik talqinlarda ijodkorlik dastlab topilgan g‘oyalarning soni va sifati orqali tavsiflangan. D. B. Bogoyavlenskaya bu qarashni to‘ldirib, ijodkorlik muammoni mustaqil ko‘ra olish va topshiriq talab qilganidan ortiq izlanishda namoyon bo‘lishini ko‘rsatadi [5]. Matematika darsi uchun o‘quvchining izlanish yo‘li u topgan javoblar sonidan kam ahamiyatli emas.

Tanqidiy fikrlash talqinlarida ham umumiy ta’rifdan aniq ko‘nikmalar tizimiga qarab borish kuzatiladi. R. H. Ennis uni nimaga ishonish va qanday yo‘l tutishni hal etuvchi oqilona fikrlash deb izohlagan [6]. P. A. Facione rahbarligidagi ekspertlar esa uni talqin, tahlil, baholash, xulosa chiqarish, tushuntirish va o‘zini o‘zi nazorat qilish ko‘nikmalariga ajratgan [7]. Ko‘rinib turibdiki, xorijiy klassik talqinlarda ikki tushuncha alohida-alohida ishlab chiqilgan.

Mahalliy tadqiqotchilar bu tushunchalarga ko‘proq ta’lim jarayoni nuqtayi nazaridan yondashadi. Z. R. Matyokubova ijodiy fikrlashda mantiq bilan tasavvurning uyg‘unligini ta’kidlaydi [8], F. M. Qosimov va M. M. Qosimova esa matematikadan ijodiy o‘quv topshiriqlarining metodik xususiyatlarini ochib bergan [9]. M. B. Akabirova tanqidiy fikrlashni tahlil, baholash, mustaqil xulosa chiqarish va o‘zini o‘zi boshqarishni o‘z ichiga olgan refleksiv jarayon sifatida

tavsiflaydi [10]. N. R. Xo‘jamqulova va X. F. Eshkuvvatova ikki fikrlash turini birgalikda ko‘rib, zamonaviy ta’lim metodlari bilan bog‘laydi [11].

Talqinlarni solishtirish uchun to‘rt mezon belgilandi. Birinchisi tushunchaning asosi, ya’ni fikrlash qobiliyat, jarayon yoki ko‘nikmalar majmui sifatida ko‘rilishi. Ikkinchisi talqinda asosiy o‘rin tutgan tayanch faoliyat. Uchinchisi muallif natijaga yoki jarayonga ko‘proq e’tibor qaratgani. To‘rtinchisi esa ikki fikrlash turining o‘zaro munosabati. Qiyosiy natijalari va ularning matematika darsidagi ifodasi 1-jadvalda keltirildi.

1-jadval

Ijodiy va tanqidiy fikrlashga oid xorijiy va mahalliy talqinlarning qiyosi

Qiyoslash mezoni	Xorijiy talqinlar	Mahalliy talqinlar	Matematika darsidagi ifodasi
Tushunchaning asosi	Ijodkorlik qobiliyat va jarayon sifatida, tanqidiy fikrlash ko‘nikmalar majmui sifatida	Ikkalasi ham shaxsning fikrlash jarayoni sifatida	Fikrlash o‘quvchi faoliyatida kuzatiladi
Tayanch faoliyat	G‘oya ishlab chiqish; asoslash va baholash	Yangi yechim topish; mustaqil xulosa chiqarish	Yechim taklif qilish va uni asoslash
E’tibor qaratilgan tomon	Natijaning o‘lchanishi (ko‘rsatkichlar, ko‘nikmalar)	Jarayon va pedagogik shart-sharoitlar	Javob bilan birga yechim yo‘li baholanadi
Ikki tushunchaning munosabati	Klassik talqinlarda alohida ta’riflanadi	Ayrim ishlarda birgalikda ko‘riladi	Bitta masala doirasida birgalikda namoyon bo‘ladi

Qiyoslash ikki muhim xulosaga olib keldi. Ikki guruh mualliflari ham ijodiy fikrlashni yangi yechimga, tanqidiy fikrlashni esa xulosani asoslashga bog‘laydi. Farq esa e’tibor qaratilgan tomonda: xorijiy talqinlar tushunchaning tarkibi va o‘lchanishini, mahalliy tadqiqotlar esa fikrlash jarayoni va pedagogik shart-sharoitlarni chuqur ishlab chiqqan. Birinchisi darsda nimani kuzatishni, ikkinchisi uni rivojlantirish sharoitlarini ko‘rsatgani uchun ular bir-birini to‘ldiradi.

Ye. Ye. Ivuninaning tanqidiy fikrlash mulohazani tartibga soladi, ijodiy fikrlash esa unga yangi mazmun qo‘shadi degan fikri [2] hamda K. H. Lee va hammualliflarning kuzatuvlari [12] asosida ijodiy va tanqidiy fikrlashning o‘zaro to‘ldiruvchanlik modeli ishlab chiqildi (2-jadval).

2-jadval

Ijodiy va tanqidiy fikrlashning o‘zaro to‘ldiruvchanlik modeli

O‘quv faoliyati bosqichi	Ijodiy fikrlash hissasi	Tanqidiy fikrlash hissasi	O‘quvchi natijasi
Masalani tushunish	Vaziyatni chizma yoki jadvalda boshqacha ifodalash	Ma’lumot va taxminni ajratish	Masala sharti aniq tasavvur qilinadi
Yechim izlash	Bir nechta yo‘l yoki variant taklif qilish	Har bir variantning shartga mosligini tekshirish	Yaroqli variantlar to‘plami
Tanlov qilish	Variantlarni birlashtirish yoki o‘zgartirish	Tanlov mezonini aytish va dalillash	Asoslangan qaror
Yechimni takomillashtirish	Yangi holatga mos variant ishlab chiqish	Xatoni topish, xulosani qayta ko‘rish	Mukammalroq yechim

Modelda ikki fikrlash turi har bir bosqichda birga ishlaydi, lekin turli vazifani bajaradi. Modelni darsda qo‘llashda to‘rt jihatga e’tibor qaratish lozim: o‘quvchining yangi variantga kelish yo‘li [12], hayotiy shart o‘zgarganda qarorining o‘zgarishi [13], bir nechta maqbul javob orasida tanlovni asoslashi [9] hamda mustaqil tekshiruvni o‘qituvchi yordamidagi tuzatishdan farqlash. Buning uchun o‘qituvchi har bir bosqichda ikki xil savol beradi: «Yana qanday yo‘l bilan yechish mumkin?» va «Nega aynan shu yo‘lni tanlading?». Shunda o‘quvchi yechimini asoslashga, asoslash jarayonida esa yangi variant izlashga o‘rganadi.

Talqinlarni qiyoslash boshlang‘ich sinfda ijodkorlikni faqat javoblar soni bilan baholash yetarli emasligini ko‘rsatdi: 3–4-sinf o‘quvchisi uchun bitta masalani ikki usulda yechib, farqini tushuntira olish muhimroq. Shu bois bu yosh uchun D. B. Bogoyavlenskaya va Z. R. Matyokubovaning jarayonli yondashuvi maqbulroq. Tanqidiy fikrlashda esa P. A. Facione ajratgan keng ko‘nikmalar to‘plamining negizini, ya’ni R. H. Ennis ta’kidlagan asoslash va tekshirishni birinchi o‘ringa qo‘yish maqsadga muvofiq.

XULOSA VA TAKLIFLAR

O‘tkazilgan qiyosiy tahlil ijodiy va tanqidiy fikrlash bir-biriga zid emasligini, balki matematika darsida birgalikda ishtirok etib, bir-birini to‘ldirishini ko‘rsatdi. Ijodiy fikrlash yechimlar doirasini kengaytiradi, tanqidiy fikrlash esa ularni shart va mezon asosida saralaydi.

Tezisning ilmiy yangiligi ijodiy va tanqidiy fikrlashga oid xorijiy va mahalliy talqinlarni to‘rt mezon asosida qiyoslab tizimlashtirish va ikki fikrlash

turining o‘quv faoliyatidagi hissasini ko‘rsatuvchi o‘zaro to‘ldiruvchanlik modelini taklif etishdan iborat.

Tahlil natijalaridan kelib chiqib, darslarda bir nechta asosli yechimga ega masalalardan muntazam foydalanish, masala yechilgach qo‘shimcha shart kiritib, yechimni qayta ko‘rishga undash tavsiya etiladi. Baholashda variantlar soni bilan birga ularning asoslanganligi hisobga olinishi, o‘qituvchi yordamidan keyingi tuzatish esa mustaqil tuzatishdan farqlab qayd etilishi lozim. Metodik qo‘llanmalarga yechim yo‘lini tushuntirishni talab qiluvchi topshiriqlarni kiritish ham maqsadga muvofiq. Bu takliflar o‘quvchining yechim izlash va uni asoslash ko‘nikmalarini uyg‘un rivojlantirishga xizmat qiladi.

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THEORETICAL FOUNDATIONS OF DEVELOPING KEY COMPETENCES THROUGH EXTRACURRICULAR ACTIVITIES: A COMPARATIVE PEDAGOGICAL ANALYSIS

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Abstract. *The article examines the theoretical foundations of developing pupils' key competences through extracurricular activities on the basis of a comparative pedagogical analysis of the experience of eight countries. It substantiates the need to move from interpreting extracurricular activity as a set of educational events to interpreting it as a managed pedagogical system that produces learning outcomes. As a result, a typology of centralised, autonomous, normative and emerging models of strategic management was developed, five systemic contradictions in national practice were identified, and the general pedagogical regularities and principles of the process were theoretically generalised.*

Keywords: *theory of pedagogy, key competences, extracurricular activities, pedagogical strategy, pedagogical regularity, pedagogical principle, comparative pedagogical analysis, contradiction.*

INTRODUCTION

In contemporary education, learning outcomes are determined not by the amount of knowledge a pupil possesses but by the ability to apply it in unfamiliar situations, that is, by key competences. Although international documents do not treat extracurricular activity as a separate subject, the goals they set make it indispensable. The OECD Learning Compass 2030 places student agency at its centre [1], while the Recommendation of the Council of the European Union defines entrepreneurial, citizenship, personal and social competences in the context of lifelong learning [2].

In Uzbekistan, the state educational standards define six key competences and stipulate that the curriculum is implemented not only through lessons but also through extracurricular activities [3], while the Concept for the development

of the public education system until 2030 sets the task of renewing the content of education [4]. However, according to the results of the Programme for International Student Assessment (PISA) 2022, the performance of Uzbek pupils was below the international average, with particular difficulties recorded in tasks requiring the application of knowledge in unfamiliar situations [5].

From the standpoint of the theory of pedagogy, the roots of the problem are historical: extracurricular activity has traditionally been regarded as part of upbringing work and has not been approached as a process that yields learning outcomes. The competence-based paradigm, in contrast, requires that this activity be reinterpreted as a pedagogical system with clearly defined aims, content, means and outcomes.

The aim of the study is to identify, on the basis of a comparative pedagogical analysis of foreign and national experience, the theoretical foundations, general regularities and principles of developing key competences through extracurricular activities.

MAIN PART

Methods

The study employed theoretical analysis, historical-pedagogical and comparative pedagogical analysis, content analysis of normative documents, theoretical generalisation and typological classification. The experience of eight countries was compared along two dimensions: first, the formal status of extracurricular activity, the way its outcomes are expressed, its link with lessons and the assessment system; second, strategic management, namely the level at which the strategy is set, the managing actor, methodological support and monitoring.

Results

In the United States, despite the absence of an official national curriculum, extracurricular activity is highly widespread: 42 per cent of school-age children take part in sports and 28 per cent in clubs, whereas the participation of children from low-income families is lower across all types of activity [6]. Strategic management here is exercised at the level of the institution.

In Finland, since 2016 seven transversal competences have been developed through all subjects, and phenomenon-based modules blur the boundary between lessons and extracurricular activity [7]. In Singapore, the 21st Century Competencies framework is systematically implemented through co-curricular activities as well, and the strategy is developed at the state level [8]. In Japan, club and group activities are a traditional part of the formal education

system, and the overarching goal of education is defined as the “zest for living” [9].

In the United Kingdom, the Education Policy Institute has confirmed the association of extracurricular activity with academic outcomes and socio-emotional skills, while showing that children from socio-economically disadvantaged families are considerably less involved in it [10, pp. 4–12]. L. E. Suter attributes cross-country differences in the effect of out-of-school time to the organisational quality of the activity [11].

In the Russian Federation, extracurricular activity is a mandatory part of the basic educational programme. The methodological constructor of D. V. Grigoryev and P. V. Stepanov distinguishes three levels of outcomes: acquisition of social knowledge, formation of a value-based attitude to social reality, and gaining experience of independent social action [12, pp. 7–34]. Kazakhstan, for its part, began its reform with criteria-based assessment [13].

In national practice, the forms of extracurricular activity do not differ significantly from those found abroad. The difference lies elsewhere: activity plans specify the name, date and person responsible for each event, but the expected outcome is not formulated in terms of competences, and reporting is based on the number of events held. National dissertation studies likewise focus on developing a single quality, such as social competence [14, pp. 12–24] or creative ability [15, pp. 11–23], and do not cover key competences as an integral whole.

On the basis of the comparison, a typology of models of strategic management was developed according to two criteria: the level at which the strategy is set and the managing actor (Table 1).

Table 1

Typology of models of strategic management of extracurricular activity

Model	Representative countries	Main feature	Relevance for national practice
Centralised	Singapore, Japan	The strategy is developed at the state level and delivered to schools in ready-made form	The outcome-monitoring system can be adopted; features restricting freedom of choice are not accepted
Autonomous	Finland, United States	The strategy is formed at the level of the school or the teacher	The principle of freedom of choice is adopted; full autonomy is premature at the current stage

Model	Representative countries	Main feature	Relevance for national practice
Normative	Russian Federation, Kazakhstan	The strategy is made mandatory through the state standard; methodological support is centralised	The centralised structure of methodological support best suits national conditions
Emerging	Uzbekistan	The normative requirement is adopted, but the implementation mechanism has not been developed	The current state of national practice; selective borrowing from other models remains possible

Discussion

The comparative analysis made it possible to identify five systemic contradictions in national practice. The first lies between society's need for a competent individual and the formal, event-oriented organisation of extracurricular activity: in normative documents the goal is formulated in the language of competences, whereas reporting remains in the language of events. The second lies between the high pedagogical potential of extracurricular activities and the lack of a mechanism for their strategic management. The third lies between adolescents' need for freedom of choice and the non-variable nature of programmes; the fourth, between the requirement of outcome orientation and the absence of diagnostic tools; and the fifth, between the need to develop competences and the absence of unified methodological support.

These contradictions are sequentially linked: since outcomes are not formulated in terms of competences, strategic management has no reference point; without a reference point, methodological support is not developed; and without such support, neither variability nor the assessment of individual outcomes becomes possible. Hence, the solution must be systemic. Three ideas from foreign experience can be adapted to national conditions: expressing outcomes in terms of the six key competences, dividing them into three levels, and extending activity beyond the school through cooperation with the mahalla (local community) and families.

Theoretical generalisation of the systems analysed makes it possible to identify the following general pedagogical regularities of the process. First, a key competence is the product not of a single activity but of an integral learning environment uniting lessons and extracurricular activity. Second, competence manifests itself in unfamiliar situations and in independent action in a real social

environment [12, pp. 7–34]. Third, the effect of extracurricular activity depends not on its form but on voluntariness and intrinsic motivation [16], as well as on peer relatedness and a sense of school belonging [17]. These regularities give rise to the principles of voluntariness and freedom of choice, expression of outcomes in terms of competences, integrity of the learning environment, and openness to the social environment.

CONCLUSION

The comparative pedagogical analysis has shown that the main factor determining the effectiveness of extracurricular activities is not their organisational form but their management on the basis of a pedagogical strategy. For the theory of pedagogy, this means interpreting extracurricular activity not as a set of upbringing events but as a managed pedagogical system that yields learning outcomes. According to the typology developed, national practice belongs to the emerging model, which represents not a shortcoming but a stage of development. At this stage, the effective solution is not to copy one of the existing models but to combine their strengths: centralised methodological support from the normative model, freedom of choice from the autonomous model, and the outcome-monitoring system from the centralised model.

The identified regularities and principles form the theoretical basis of a pedagogical strategy grounded in the integration of competence-based, activity-based, learner-centred and systemic approaches. The next task of the study is to develop a pedagogical strategy that ensures the systematic development of key competences of 5th–6th grade pupils through extracurricular activities, together with its structural-functional model and diagnostic tools.

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MAKTABGACHA YOSHDAGI BOLALARDA TANQIDIY FIKRLASHNI RIVOJLANTIRISHGA YO‘NALTIRILGAN PEDAGOGIK TEXNOLOGIYALAR

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Annotatsiya. *Maqolada maktabgacha yoshdagi (4–6 yosh) bolalarda tanqidiy fikrlashni shakllantirishga xizmat qiluvchi pedagogik texnologiyalar tahlil qilinadi. Muallif sokratik muloqot, bolalar uchun falsafa, “Fikrlash qalpoqchalari”, muammoli vaziyat va loyihaviy ta’lim texnologiyalarini uyg‘unlashtirib, “Hayrat – Savol – Taxmin – Sinov – Mulohaza” besh bosqichli “Kichik tadqiqotchi” metodik modelini taklif etadi. Maqola tarbiyachilar va metodistlar uchun mo‘ljallangan.*

Abstract. *The article analyses pedagogical technologies aimed at developing critical thinking in preschool children aged 4–6. The author combines Socratic dialogue, philosophy for children, the “Thinking Hats” technique, problem situations and project-based learning into a five-stage “Little Researcher” model: Wonder – Question – Hypothesis – Test – Reflection. The paper is intended for preschool teachers and methodologists.*

Kalit so‘zlar: *tanqidiy fikrlash, maktabgacha ta’lim, pedagogik texnologiya, sokratik suhbat, bolalar uchun falsafa, savol berish.*

Keywords: *critical thinking, preschool education, pedagogical technology, Socratic dialogue, philosophy for children, questioning.*

KIRISH

XXI asr bolasi oldingi avlodlar tasavvur ham qilmagan hajmdagi axborot oqimida ulg‘aymoqda. Uning uchun asosiy ko‘nikma hamma narsani yodlash emas, balki eshitgan va ko‘rganini saralash, asoslash hamda o‘z fikrini dalil bilan bildirishdir. Aynan shu qobiliyat tanqidiy fikrlash deb ataladi. Facione (1990) uni talqin, tahlil, baholash va xulosa chiqarishni o‘z ichiga olgan maqsadli va o‘z-o‘zini tartibga soluvchi mulohaza jarayoni sifatida ta’riflaydi.

Ko‘pchilik tanqidiy fikrlashni faqat maktab yoki universitet yoshiga xos deb hisoblaydi. Biroq tadqiqotlar buning aksini ko‘rsatadi: Gopnik va

hamkorlari kichik bolalarni “beshikdagi olimlar”ga o‘xshatadi, chunki ular ham kuzatadi, taxmin qiladi va xulosa chiqaradi (Gopnik et al., 1999). Bolaning tinimsiz “nega?” degan savollari tanqidiy fikrlashning ilk urug‘idir. Muammo shundaki, bu urug‘ ko‘pincha tayyor javob beruvchi va faqat “to‘g‘ri” javobni kutuvchi pedagogik muhitda so‘nib qoladi.

Maqolaning maqsadi maktabgacha yoshdagi bolalarda tanqidiy fikrlashni rivojlantirishga yo‘naltirilgan pedagogik texnologiyalarni tizimlashtirish va ularni amaliyotga joriy etishning metodik modelini taklif qilishdir. Buning uchun quyidagi vazifalar belgilandi: mavzuga oid nazariy yondashuvlarni tahlil qilish; eng samarali texnologiyalarni aniqlash; ularni yagona tizimga birlashtiruvchi model ishlab chiqish.

ASOSIY QISM

Tadqiqot tahliliy-sintetik xarakterga ega bo‘lib, Piaget, Vygotsky, Dewey, Lipman, De Bono va Reggio Emilia yondashuvi doirasidagi ilmiy manbalarni qiyosiy tahlil qilish, umumlashtirish va modellashtirish usullariga asoslandi. Tanlangan texnologiyalar ikki mezon bo‘yicha saralandi: bola yoshiga mosligi va fikrni ochiq ifodalash imkonini berishi.

Nazariy jihatdan Piaget (1952) bolaning bilimni tayyor holda qabul qilmasdan, uni faol qurishini ta’kidlagan. Vygotsky (1978) esa bu jarayonda ijtimoiy muloqot va “yaqin rivojlanish zonasi”ning ahamiyatini ko‘rsatib berdi: bola bugun kattalar yordamida bajargan fikrlash amalini ertaga mustaqil bajaradi. Dewey (1933) reflektiv fikrlashni shubha va qiziqishdan tug‘iladigan jarayon deb bildi. Mercer (2000) “izlanuvchan suhbat” tushunchasini ilgari surib, bolalar bir-birining gapini asoslar bilan to‘ldirgan va savol bergan suhbat fikrlash sifatini oshirishini isbotladi. Bu qarashlarning umumiy xulosasi shuki, tanqidiy fikrlash o‘rgatilmaydi, u to‘g‘ri tashkil etilgan muloqot va faoliyat orqali “o‘stiriladi”.

Tahlil natijasida maktabgacha yoshdagi bolalar uchun oltita texnologiya eng mos deb topildi. Birinchisi sokratik suhbat va “Savol bog‘i” texnologiyasi bo‘lib, unda tarbiyachi javob berishdan ko‘ra savol “ekadi”: “Nima uchun shunday deb o‘ylaysan?”, “Buni qanday bilding?”, “Agar aksincha bo‘lsa nima bo‘ladi?”. Eng muhim shartlardan biri javob uchun kutish vaqtidir: bola o‘ylashga ulgurishi uchun bir necha soniya sukut saqlash kerak. Guruh xonasida “Savol bog‘i” burchagi tashkil etilib, bolalarning savollari rasm shaklida daraxtga “osib qo‘yiladi” va haftaning oxirida birgalikda muhokama qilinadi.

Ikkinchisi bolalar uchun falsafa: Lipman (2003) taklif etgan yondashuvda tarbiyachi hikoya o‘qiydi, bolalar doira bo‘lib o‘tirib, o‘zlari savol tuzadi va tanlangan savolni muhokama qiladi. Masalan, “Quyon yolg‘on gapirsa, har doim

yomonmi?” degan savol bolani ikkiyoqlama fikrlashga, istisnolarni ko‘rishga o‘rgatadi. Fisher (2013) ta’kidlaganidek, bunday suhbatlarda “to‘g‘ri javob” emas, “yaxshi asoslangan javob” qadrlanadi.

Uchinchisi “Fikrlash qalpoqchalari” bo‘lib, bunda De Bono (1985) texnikasi maktabgacha yoshga moslashtirilib, to‘rt rangga qisqartirildi: sariq qalpoqcha (nimasi yaxshi?), qora qalpoqcha (qanday xavf bor?), yashil qalpoqcha (yangi g‘oya qanday?), qizil qalpoqcha (qanday his qilyapsan?). Bola qalpoqchani kiyib, shu rolga mos fikr bildiradi. Bu uni bitta muammoga turli tomondan qarashga o‘rgatadi va fikrni shaxsiy hujumdan ajratadi.

To‘rtinchisi “Ertak hakamlari” sud o‘yini: ertak qahramoni “sud”ga tortiladi: Bo‘ri haqiqatan aybdormi? Bolalar prokuror, himoyachi, guvoh va hakam rollarini o‘ynab, dalil keltiradi va qaror chiqaradi. Bu texnologiya manbani baholash, dalilni fikrdan ajratish va qarama-qarshi tomonni tinglash ko‘nikmalarini o‘yin orqali shakllantiradi.

Beshinchisi taxmin va tajriba loyihalari: “Qaysi narsa suvda cho‘kadi?” kabi oddiy tajribalarda bola avval taxmin qiladi, so‘ng sinab ko‘radi va natijani taxmin bilan solishtiradi. Taxmin noto‘g‘ri chiqqanda xato “yo‘qotish” emas, yangi bilim manbai sifatida qabul qilinadi. Reggio Emilia tajribasida bunday loyihalar bolaning “yuz tili”dan biri sifatida qaraladi (Edwards et al., 2012).

Oltinchisi “Nima noto‘g‘ri?” mashqlari bo‘lib, qishda yozgi kiyimda turgan bola yoki dumi oldida turgan mushuk tasvirlangan hazilomuz rasmlar bolaning mantiqiy nomuvofiqlikni topishini, buni so‘z bilan isbotlashini talab qiladi. Mashq kulgi bilan o‘tgani uchun bola xato qilishdan qo‘rqmaydi.

Yuqoridagi texnologiyalarni alohida-alohida emas, yagona tizimda qo‘llash samaraliroq. Shu maqsadda besh bosqichli model taklif etiladi. Birinchi bosqich Hayrat: tarbiyachi kutilmagan narsa, sirli quti yoki ziddiyatli rasm orqali qiziqish uyg‘otadi. Ikkinchi bosqich Savol: bolalar o‘z savollarini bildiradi, tarbiyachi ularni “Savol bog‘i”ga jamlaydi. Uchinchi bosqich Taxmin: har bir bola “Menimcha, chunki…” qolipi bilan o‘z taxminini asoslaydi. To‘rtinchi bosqich Sinov: taxmin tajriba, kuzatuv yoki ertak sudi orqali tekshiriladi. Beshinchi bosqich Mulohaza: “Dastlab nima deb o‘ylagan edik? Endi nima o‘ylaymiz? Nima uchun fikrimiz o‘zgardi?” degan savollar bilan natija tahlil qilinadi. Modelning mohiyati shundaki, bola fikrni nafaqat bildiradi, balki uni tekshiradi va kerak bo‘lsa, o‘zgartiradi, ya’ni tanqidiy fikrlashning yadrosi shakllanadi.

Model tatbiq etilganda bolalar nutqida “chunki”, “agar”, “balki” kabi asoslovchi va shartli bog‘lovchilar ko‘payishi, savol berish faolligi ortishi, bolaning boshqa fikrni eshitib, o‘z fikrini o‘zgartira olishi kutiladi. Bu

koʻrsatkichlarni test emas, balki kuzatuv varaqasi, bolaning savollari yozib borilgan portfolio va suhbat yozuvlari orqali baholash maqsadga muvofiq. Muhim ogohlantirishlar ham bor. Birinchidan, topshiriq bola yoshiga mos, qisqa va oʻyin shaklida boʻlishi lozim. Ikkinchidan, oʻzbek tarbiyaviy madaniyatida kattalarga hurmat asosiy qadriyat ekanini hisobga olib, tanqidiy fikrlashni "qarshi chiqish" sifatida emas, "hurmat bilan savol berish va asoslash" sifatida tushuntirish kerak. Uchinchidan, oila ishtirokisiz natija barqaror boʻlmaydi: ota-onalarga uyda "Nima uchun?" savoliga tayyor javob oʻrniga "Sen qanday oʻylaysan?" deb qayta savol berish tavsiya etiladi.

Modelning muvaffaqiyati koʻp jihatdan tarbiyachining pozitsiyasiga bogʻliq. U "hamma narsani biluvchi" emas, "birga izlovchi" boʻlishi, bolaning notoʻgʻri javobini ham jiddiy qabul qilib, "Qiziq fikr, qanday qilib shu xulosaga keldingiz?" deb qiziqishi lozim. Bunday munosabat bolada oʻz fikriga ishonch va boshqalarni tinglash madaniyatini birga shakllantiradi.

XULOSA

Tahlil shuni koʻrsatdiki, maktabgacha yoshdagi bolalarda tanqidiy fikrlashni rivojlantirish uchun murakkab vositalar emas, oʻylangan savol, muloqot uchun xavfsiz muhit va oʻyin shaklidagi faoliyat zarur. Sokratik suhbat, bolalar uchun falsafa, "Fikrlash qalpoqchalari", "Ertak hakamlari", tajriba loyihalari va "Nima notoʻgʻri?" mashqlari bu jarayonning samarali vositalaridir. Taklif etilgan "Kichik tadqiqotchi" modeli ularni yagona mantiqiy ketma-ketlikda uygʻunlashtirib, bolani axborotning passiv iste'molchisidan fikrning faol muallifiga aylantiradi. Kelgusida modelning samaradorligini eksperimental guruhlarda sinab koʻrish va uning mezonlarini aniqlashtirish dolzarb vazifa boʻlib qoladi.

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SOCIO-PSYCHOLOGICAL FEATURES OF THE ADAPTATION OF PRIMARY SCHOOL STUDENTS IN INCLUSIVE EDUCATION

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Annotation: *This paper analyzes the socio-psychological features of the adaptation of primary school students in inclusive education, describes the factors that support or hinder their adjustment to the school environment, and substantiates directions of psychological work aimed at creating an accepting and supportive inclusive classroom.*

Keywords: *adaptation, inclusive education, primary school students, socio-psychological features, peer relationships, teacher support.*

Entering school is one of the most significant transitions in a child's life. In primary school age, a child must adapt to a new social role, new requirements, a system of evaluation and a new circle of peers. In inclusive education, where children with different educational needs and developmental characteristics study together, this process becomes more complex and, at the same time, richer in developmental opportunities. For this reason, the question of what socio-psychological conditions determine successful adaptation of primary school students in an inclusive setting remains important for educational and developmental psychology.

In this context, adaptation can be understood as a process and result of the child's active adjustment to the demands of the school environment, which includes academic, emotional and social components. Successful adaptation is expressed in a positive attitude toward school, the ability to follow rules, productive learning activity, a sense of belonging to the class and satisfactory relationships with peers and the teacher. Disadaptation, in contrast, may appear as anxiety, school avoidance, social isolation, conflict behavior or a decrease in learning motivation. In inclusive classes these indicators depend not only on the child's individual characteristics but also on the way the environment is organized.

The principle of inclusion, formulated in international documents, proceeds from the right of every child to study together with peers in an ordinary school that is able to meet diverse needs [1]. From the cultural-historical point

of view, development takes place in joint activity and communication, and the social environment is the source of higher psychological functions [2]. The ecological approach considers the classroom as part of a system of interacting contexts, including the family, school and wider society [3]. A review of research on the social dimension of inclusion shows that friendships, acceptance by peers and the child's own sense of belonging are central indicators of successful inclusion [4].

The following socio-psychological features of adaptation in inclusive education can be distinguished:

1) acceptance by the peer group: the position of the child in the class, the presence of friends and the attitude of classmates significantly influence emotional well-being; children with special educational needs are more often at risk of rejection or isolation, so this indicator requires special attention [4];

2) quality of the teacher–student relationship: warm, predictable and supportive relationships with the teacher in the early school years are associated with better school adjustment, while conflict and distance increase the risk of difficulties [5];

3) satisfaction of basic psychological needs: according to self-determination theory, an environment that supports autonomy, competence and relatedness promotes motivation and well-being, which is especially important for children who experience difficulties in learning [6];

4) the child's self-esteem and learning motivation: experiences of success, adapted tasks and fair evaluation strengthen confidence, whereas repeated failure and comparison with others may lead to anxiety and avoidance of school tasks;

5) family support and cooperation between school and parents: the consistency of requirements and the emotional support of the family facilitate the child's adjustment, and joint work of teachers, parents and the psychologist increases its effectiveness [3].

Accordingly, successful adaptation is supported by a friendly classroom atmosphere, clear rules, individualized and adapted tasks, cooperative forms of learning and timely emotional support. Adaptation difficulties are more likely to arise when the child is placed in an inclusive class without sufficient support, when teachers are not prepared to work with diverse needs, and when the attitude of peers is indifferent or negative. A review of research suggests that the results of inclusion depend not on the fact of joint placement alone but on the quality of support provided [7].

An important practical direction is the development of social and emotional skills in the educational process. A meta-analysis of school-based

universal programs showed that systematic work on self-awareness, self-regulation, empathy and relationship skills improves students' social and emotional competence, attitudes and behavior, as well as academic performance [8].

From the psychological point of view, supporting adaptation in an inclusive classroom includes psychological diagnostics at the beginning of schooling, training teachers in inclusive pedagogy and supportive communication, group activities that develop cooperation and tolerance among students, individual and group work of the school psychologist, and consultations with parents. At the empirical stage of the study, adaptation can be examined with the help of school adaptation questionnaires, sociometry, and methods for assessing anxiety and school motivation, followed by a comparison of children studying in inclusive and ordinary classes.

In conclusion, the adaptation of primary school students in inclusive education is closely connected with socio-psychological conditions, namely acceptance by peers, the quality of relationships with the teacher, the satisfaction of basic psychological needs and family support. Purposeful improvement of these conditions creates a basis for the successful adjustment, emotional well-being and development of every child in the inclusive school.

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UMUMLASHTIRUVCHI DARSLAR BO'YICHA MAXALLIY VA XORIJIY OLIMLARNING ILMIY YONDASHUVLAR HAQIDA

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Anatatsiya. *Maskur maqolada zamonaviy ta'lim tizimida o'quv jarayonining samaradorliginin oshirishda muhim o'rin tutuvchi umumlashtiruvchi darslarning nazariy va amaliy asoslari tadqiq etilgan.*

Tadqiqot doirasida maxalliy va xorijiy pedagogika fanining yetakchi nomoyondalari tomonidan ilgari surilgan ilmiy yondoshuvlar didaktik tamoyillar hamda umumlashtiruvchi darslarni tashkil etish shakillari qiyosiy tahlil qilingan.Shuningdek o'quvchilarda tizimli fikrlash,taxliliy ko'nikmalarni shakllantirishda ummumlashtiruvchi darslarning o'rnini ochib berilib ularni takomillashtirish bo'yicha ilmiy-metodik tavsiyalar ishlab chiqilgan.

Kalt so'zi: *Ummumlashtiruvchi darslar, tizimli yondashuvlar ,didaktiv tamoillar ko'gnitiv rivojlanish, mahaliy va xorijiy pedagokika integrativ ta'lim, refjeksiv faoliyati.*

Abstract: *This article examines the theoretical and practical foundations of summarizing lessons, which play an important role in increasing the effeciency of the educational process in the modern education system.*

Within the framework of the research, scientific approaches, didactic principles, and organizational froms of summarizing lessons put forward by leading representatives of local and foreign pedagogy were comparatively analyzed. Also, the role of summarizing lessons in developing students systematic tinking and analytical skills is revealed, and scientific-methodological recommendations for improving them are developed.

Keywords: *Summarizing lessons, systematic approaches, didactic principles, congnitive development, integrative education of local and foreign pedagogy, reflexive activity.*

KIRISH

Boshlangich sinf yoshidagi yaniy(7-11yosh) insonda tizimli ta'lim konikmalari va mantiqiy fikirlash poydevori qoyiladigan eng mas'ulyatli o'quvchi uchun davr hisoblanadi .Bu davrda o'quvchining savodxonligi

,arifmetik amallarni bajarish,alifbodagi hariflarni tanish,o'zi mustaqil fikrlay olib mazaykalarni yiga olish shu bilan birgalikda atrif- olam haqidagi dastlabkitushunchalari shakillangan bo'ladi.Biroq, kichik yoshdagi bolalarda diqqatning beqarorligi sababli ixtiyorsiz xotiraning ustunligi hamda moslashuvjarayondagi qiyinchiliklar sababli bilimidagi bo'shliqlar o'quvchida yuzaga keladi.Boshlangich sinfda yo'l qo'yilgan kichik bir bo'shliq ham keyingi yuori sinflarda o'zlashtirishning keskin tushib ketishiga olib kelish mumkun.Shu sababli,boshlangich sinflarda olib boriladigan dars jarayonini ko'piroq ko'rgazmali qurollar bilan o'tilsa dars mazmunli va samarali bo'ladi Kichik maktab yoshidagi o'quvchilar bilimidagi bo'shliq –bu o'quv materialini yetarlicha anglab yetmaslik,poydevor tushunchalarni (masalan,qo'shish-ayirish amallarini alifbe kitobidan hariflarni bo'ginlab o'qishi yozuvdan imlo qoidalarni)to'liq o'zlashtirolmagandan yuzaga keladigan uzulishdir.Uzviy ta'lim jarayonini takomillashtirish, o'quvchilarning olgan bilimlarini tizimlashtirish va ularni amalyotda qo'llay olish ko'nikmalarini rivojlantirish zamonaviy pedagogikaning eng dolzarb vazifalaridan biridir. Fanlararo aloqadorlik kuchayib boryotgan bugungi kunda o'quv maeriallarini mantiqiy yaxlitlikda idrok etish muhim ahamiyat kasb etadi. Bu jarayonda umumlashtiruvchi darslar (sitemalashtiruvchi va takrorlashtiruvchi darslar) maxsus didaktik birlik sifatida o'quvchining kognitiv faoliyatini boshqarishda markaziy o'rin tutadi.

Maqolaning maqsadi-mahalliy va xorijiy olimlarning umumlashtiruvchi darslarni tashkil etish va o'tkazish bo'yicha ilmiy yondashuvlarinio'rganish,ularning umumiy va farqiy jihatlarini aniqlash hamda ta'lim amaliyotiga tatbiq etish mexanizmlarini yoritishdir

Mahalliy olimlarning ilmiy yondashuvlari va didaktik qarashlari.

O'zbekiston pedagogika fanida dars turlari, xususan,umumlashtiruvchi va takrorlovchi darslarni nazariy jihatdan asoslashga katta e'tibor qarqtilgan. Milliy olimlarimiz o'zlarining ilmiy ishlarida darsning bu turini o'quvchilarning dunyo qarashini shakillantiruvchi bilimlarini umumiy tizimga soluvchi vosita sifatida ommaga talqin etishi mumkin .Maxalliy yondashuvlarning asosiy xususiyatlari quydagilardan iborat bo'ladi.O'tilgan mavzular malum bir mantiqiy ketma ketlikda ,xususiy xulosalardan kelib chiqib umumiy qonuniyatlarga o'tish tamoyili asosida jamlash mumkin. Umumlashtiruvchi darslar jarayonida o'quvchilarning milliy qadriyatlari va zamonaviy ilm-fan yutuqlarini birdek idrok etishini taminlash milliy tarbiya va taffakurni uyg'unlikni bildiradi. O'quvchilarning passiv tinglovchidan faol tadqiqotchiga aylanishini taminlovchi

mustaqil ishlar, muommali vaziyatlar va amaliy topshiriqlarni qo'llash bu faoliyat Faoliyatli yondashuvni bildiradi.

Maxalliy metodistlar umumlashtiruvchi darslarni birma-bir yoki bosqichma- bosqich olingan nazariy bilimlarni eska tushirish,ularni asoslash, qiyoslash va tasniflash umumlashgan xulosalar chiqarish hamda amaliyotda qo'llash orqali olib borish mumkun.

Maxalliy olimlarning ilmiy yondoshuvlari O'zbekistonlik olimlar va metadistlar (masalan Ochilov. M Asilbekova.U Tolipov.O'.Azizxo'jayeva va boshqa olimlar tomonidan dars turlari xususan umumlashtiruvchi va takrorlash darslarni tashkil etish metodikasi chuqur organilgan. Maxalliy pedagogik maktabda umumlashtiruvchi darslarga quydagicha yondashiladi. O'zbek olimlari dars jarayonida olgan bilimlarning tarqoq holda qolmqsligini, balki yaxlit ilmiy dunyo qarash sifatida shakillantirishni birinchi o'ringa qo'yadilar. Umumlashtiruvchi darslarda o'quvchining passiv tinglovchidan faol tadqiqotchiga aylanishi, bilimni tayyor holda emas, balki mustaqil ravishda sintez qilish ko'nikmasini rivojlantirish muhim deb topiladi.O'quvchi mustaqil ravishda ko'piroq o'z ustida ishlasa nutqi ravon bo'ladi anglash qobilyati tezlashadi. Muammoli ta'lim elementlari maktablarda o'tilayotgan umumlashtiruvchi darslarda o'quvchilar olgan muommali vaziyatlar qo'yish orqali ularning ijodiy tanqid fikrlashini rag'batlantirish tavsiya etadi

Olim Mamarajab Ochilov o'z ilmiy ishlarda umumlashtiruvchi darslarning tizimli va texnologik yondoshuvlar asosida tashkil etilishga urg'u berib, ularni bilimlarni yaxlit tizimga solishning asosi deb baholaydi

U.Asilbekova ta'lim metodlari va interfaol usullarni qo'llashi orqali o'quvchilarning mustaqil fikrlash va tahlil qilish qobilyatlarini rivojlantirishga alohida etibor qaratiladi.Bu ikki yondashuv umumlashtiruvchi darslarni shunchaki xotirani tekshirish emas,balki bilimni amaliyotda qo'llash va tizimlashtirish jarayoniga aylantirish mumkinligini takidlab o'tadi.

Xorijiy olimlarning ilmiy yondoshuvlar innovatsiyon modellari haqida fikrlar.xorijiy pedagogika fanida (AQSH,Yevopa va Osiyo mamlakatlari tajribasi)umumlashtiruvchi darslar va darsni yakunlash bosqichlari ko'piroq "Kognitiv sintez'' hamda" Refleksiv o'qitish" "Speral ta'lim nazariyalar asosida o'rganiladi".

Speral ta'lim nazariyasi (ingilizcha speral Curriculum)-taniqli amerikalik psixolog va pedagog Jerom Bruner tomonidan 1960-yilda taklif etilgan ta'lim va o'qitish metadologiyasidir .Bu nazariyaning asosiy g'oyasi shundan iboratki,o'quvchilarga murakkab mavzular va tushunchalarni bir martada to'liq

o’rgatib tugatish o’rniga o’tilayotgan darslarni tobora chuqurlashtirib boruvchi shakilda o’rgatib borish kerakligin takidlaydi.

Speral ta’lim nazariyasining asosiy tomoyillari quydagilardan iborat .Biror fan yoki mavzu o’quvchining yoshi va bilim darajasidan kelib chiqqan holda bir necha bor qayta ko’rilib chiqiladi. Har safar mavzu oldingiga qaraganda kengiroq va chuqurroq darajada tushuntiradi.Murakkablikning ortib borishi. O’quvchilarni o’qitish jarayonida doimo soddadan murakkabga, umumiyda xususiyga qarab harakat qiladi

Benjamin Bloom taksonomiysi G’arb olim darslarini umumlashtirishda Bloom taksonomiyasining yuqori bosqichlari sintez tahliga va baholashga alohida urg’u beradilar. Bu davlat olimlarning umumlashtiruvchi darslar shunchaki malumotni takrorlash emas, balki o’quvchining olgan bilimini tanqidiy baholay olish va yang’i g’oyalar yarata olish darajasigacha ko’tarishdir. Zamonaviy xorijiy texnologiya (AQSH va Yevropa ta’lim tizimida umumlashtiruvchi darslar ko’pincha “Aksil-sinf” (Flipped Classroom) modeli asosida tashkil etilib auditoriya vaqti to’liq munozara loyixa ishlari (Project-based learning) va bilimini sintez qilishga yo’naltiriladi.

Aksil –sinf modelining tuzilish nazariyasi .Bu teskari sinf modeli bo’lib an’anaviy jarayonini o’zgartirib o’quvchilarga nazariy materialni uyda mustaqil o’rganish sinfda esa amaliy topshiriqlar, loyihalar va muhokamalar bajarish imkonini beruvchi zamonaviy pedagogik yondashuvlardan biridir.

Ta’lim tizimida keng qo’llanilib quyidagi bosqichlar asosida tashkil etiladi. Uy sharoitida nazariy marteriallarni o’rganish mumkin. O’quvchilar darsdan oldin o’qituvchi tayyorlagan video maruzalar raqamli taqdimotlar, audio materiallar yoki maxsus elektron matnlar bilan o’z suratida tanishib chiqadilar shu tariqa egallagan bilimlarini mustahkamlaydi.

Bruner nazariyasiga ko’ra o’quv materiallariyuqori bosqichlarda yanada kengiroq va murrakabiroq shakilda qayta ko’rilib chiqilishi zarur Xorijiy davlatlarda umumlashtiruvchi darslar aynan hu “speral” bo’ylab avval o’zlashtirigan tushunchalarni yangi bosqichda sintez qilishga qaratilgan bo’ladi.

XULOSA :

Olib borilgan tahlilar shuni ko’rsatadiki,maxalliy va xorijiy olimlarning ilmiy yondoshuvlari bir-birini inkor etmaydi, aksincha bir-birini boyitadi .Maxalliy pedagogikaning tizimlilik va fundamental ilimga asoslanganligi xorijiy ta’limning amaliy yo’naltirilganligi, tanqidiy fikirlash kreativlik elementlar bilan uygunlashganda yuqori natijaga erishish mumkin Shu fikrlardan kelib chiqqan holda umumlashtiruvchi darslarni tashkil etishda quydagi amaliy tavsiyalar beriladi;

1.Umumlashtiruvchi darslarda faqatgina faktik malumotlarni takrorlash bilan cheklanmaydi, o'quvchilarda interdisiplinar(fanlararo)bog'liqlikni shakillantiruvchi topshiriqlardan foydalanish

2.Dars jarayoniga raqamli texnologiyalar va interaktiv sintez vositalarini (Mind Map Infografika, Klaster generatorlari) keng jalb etish

3. O'quvchilarning mustaqil fikrlashi va o'zlashtirgan bilimlarini refleksiya qilishlari uchun qulay sharoit yaratish.

Mahalliy olimlarning yondashuvlari fikricha Ozbekstonli tadqiqotchilar umumlashtiruvchi darslarni tashkil etishda fanlar aro bog'likni taminlassh va kompetensiyaviy yondoshuvni tadqiq etissh muhimligini takidlab o'tadilar.

Xorijiy olimlarning ilmiy qarashlari esa ko'proq kongnitiv psixologiya tanqidiy fikrlash muommoli ta'lim hamda raqamli texnologiyalar integratsiyasiga tayanadi. Xorijiy tajribada umumlashtiruvchi darslar o'quvchilarning egallagan bilimlarini turli hayotiy vaziyatlarda qo'llay olish (transfer) qobiliyatini baholovchi va rivojlantiruvchi mexanizm sifatida qoraladi.

Umumiy xulosa o'rnida takidlash joizki:

Mahalliy va xorijiy yondashuvlarni o'zaro integratsiya qilish umumlashtiruvchi darslarning metodik ta'minotini boyitadi hamda ularning samaradorligini keskin oshiradi.

Zamonaviy ta'lim talablaridad kelib chiqqan holda, umumlashtiruvchi darslarni loyihalashda o'quvchilarning individual xususiyatlari, zamonaviy axboroot kommunikatsiyasi texnologiyalari va kichik guruhlarda ishlash shakillari keng qo'llash maqsadga muvofiqdir.

Ushbu yondoshuvlarning uyg'unligi o'quvchilarda nafaqat chuqur akademik bilimlarni, balkki XXI asr ko'nikmalari hisoblangan taxlil qilish, sintez qilish va ijodiy yondashuv qobiliyatlarini muvaffaqiyatli rivojlantirish imkonini beradi.

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THE PRIORITY OF USING DIGITAL TECHNOLOGIES IN EDUCATION

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Annotation. *The article provides statistics on the necessity and advantages of using digital technologies in the educational process, as well as the use of distance learning. It thoroughly highlights the need to utilize digital technologies and implement next-generation distance learning systems, as well as the fact that learning*

Key words: *digital technologies, digital learning education system, the Internet, distance learning, remote platforms, mobile devices.*

The modernization of the education system in Uzbekistan involves its structural restructuring and the modification and renewal of educational programs, taking into account modern achievements in education, science, technology, economics, and culture at the global level. The widespread adoption of advanced technologies in education, the integration of continuous education with science and production, the introduction of a differentiated approach to education in accordance with the abilities and capabilities of students, as well as the creation of advanced pedagogical technologies, modern educational and methodological complexes, and the didactic support of the educational process, serve as the basis for improving educational processes with digital technologies.

As is known, comprehensive measures are being implemented in our country for the active development of the digital economy and the widespread introduction of modern information, communication, and digital technologies in all sectors and spheres, primarily in public administration, education, healthcare, and agriculture. Particular attention is paid to the implementation of more than 220 priority projects aimed at improving the e-government system, further developing the local market for software products and information technologies, creating IT parks in all regions of the republic, and providing the sector with qualified personnel.

In addition, the comprehensive program "Digital Uzbekistan" is being implemented, which provides for the launch of a geoportal integrated with more than 40 information systems, the creation of an information system for managing public transport and communal infrastructure, the digitalization of the social sphere, and the subsequent implementation of this experience in other regions.

The implementation of such priority tasks will allow digital education to eliminate distance and various types of barriers and problems related to the economy. The digital economy is viewed as a system for implementing economic, social, and cultural relations based on the use of digital technologies. Sometimes it is also expressed by the terms internet economy, new economy or web economy.

American programmer Nicolas Negroponte was a pioneer in introducing the term "digital economy" into practice. Currently, this term is used by politicians, economists, journalists, entrepreneurs, and representatives of almost all fields worldwide. In 2016, the World Bank published its first report on the state of the global digital economy ("Digital Dividends"). This means that the digital economy is not viewed as a separate type of activity, but rather as business, entrepreneurship, industrial facilities, and services. The term "digital" is considered as a process aimed at the active use of information technologies in all these areas. While in a conventional economy, material objects are considered the primary resource, in a digital economy, this is information that is processed and transmitted. After their analysis, a solution for proper management will be developed.

Accordingly, it should be noted that the term "digital economy" is being used in our national legislation for the first time. However, global trends show that all developed countries have already begun forming it.

It is well known that the education system is currently developing extensively based on digital technologies. In particular, digital technologies are becoming increasingly important for the serious analysis and pedagogical substantiation of many proposals in the information space. It is also important to note that in recent years, no research has been conducted based on any state project or survey regarding the problems of "digitalization" of education and its impact on its formation. We can also see the significance of the influence of the Internet environment on the minds of young people in educational processes, lectures in modern mass media, pedagogical public discussions, and the research of master's students and researchers.

It should be noted that previously we were limited to the introduction of digital technologies in all spheres, that is, in industry, economy, banking and other areas. Today, taking into account the rapid development of the digital economy, deputy heads of all sectors responsible for digital development are being included in the staff. Activation in the field of digitalization is being carried out in all business structures. Today, digital technologies are "aggressive" in all areas, especially where economic benefits are found, and are

supported at all levels. The dynamics of processes occurring in the economy require an active position of the educational community in analyzing and developing proposals for the development of higher education in the digital transformation of the economy.

It substantiates the importance of paying special attention to the need to carry out a series of works for the effective application of digital technologies in education while maintaining the quality of teaching. To achieve this, it is necessary to improve the country's Internet infrastructure, improve the quality of services provided by mobile operators, and most importantly, create conditions and opportunities for the population, especially students, to master the latest achievements of modern information and communication technologies.

It is necessary to further expand the use of digital technologies in the effective organization of educational processes and develop information resources, teaching aids, and distance learning technologies, to submit proposals to authorized bodies for amendments to regulatory legal acts governing the activities of higher educational institutions by involving creative students in university digitalization projects, to create centers including structures equipped with high-performance digital devices, classrooms, laboratories, media studios, etc., and to apply the experience gained in all higher educational institutions of Uzbekistan.

Furthermore, ensuring the close integration of modern information and communication technologies and educational technologies, creating additional conditions for the continuous development of the professional skills of teaching staff in this regard, using interactive presentation systems, organizing and conducting courses to improve teacher qualifications on topics such as developing interactive and multimedia presentations for lectures and seminars connected to the Internet, and implementing the distance learning process at any time using real-time interactive presentation systems, video conferencing systems, virtual halls, and electronic resources are considered the most important priority tasks of today. It is important to pay attention to the use of cloud technologies, virtual reality, and augmented reality in educational processes, as well as the use of 3D printers in the development of didactic materials and experimental designs, the application of digital didactics and digital educational models, and the development of scientific websites for teachers and students to discuss projects, theses, scientific research, etc. These approaches allow students to obtain knowledge at the level of today's requirements without reducing the quality of education using digital technologies.

Additionally, creating opportunities for the beneficial use of modern technologies to improve and develop the quality of education, and if today's children use tablets purposefully, they will enter the learning process with great interest. This is equivalent to combining play with classical education. As a result, the learning process will improve, and the effectiveness of academic performance, education levels, and the training of high-quality personnel will increase.

Because today's classrooms are very different from those of a decade ago, and classrooms are equipped with computers, iPads, tablets, smart boards, and other types of educational technologies. As in other parts of the world, the seven-screen generation of the digital generation—televisions, computers, tablets, tablets, fablets, smartphones, and smartwatches—has arrived in Uzbekistan. As a result of such a dense digital environment and constant interaction with it, the thinking and information processing processes of today's students are fundamentally different from previous thinking and information processes. Given that the main task of our country's higher education institutions is to train highly qualified specialists with high skills and a modern worldview who will serve the development of the Motherland and the well-being of the people, it is necessary to establish and organize online distance learning for students in the current conditions. This requires the development of distance learning platforms using digital technologies, direct online communication between professors, teachers, and students, thereby involving students in independent learning. As higher education institutions accredited their online curricula and flexible learning opportunities entered the field, the focus and perspectives on distance learning changed rapidly. This is because learning new skills or subject-specific materials through the distance learning system is gaining particular importance as it is carried out faster, easier, and cheaper.

In modern conditions, new technologies of the digital economy are making a significant contribution to the further development of distance learning. In particular, virtual and augmented reality technologies, as well as visually oriented distance learning technologies, serve students to obtain high-quality knowledge in accordance with today's requirements. This is because the distance learning system allows for broader involvement of students in their interest in the lesson through the use of virtual and augmented reality, as well as visually oriented digital technologies. It is no exaggeration to say that in the context of the pandemic, the field of distance learning has become more popular than ever. In particular, all educational institutions worldwide use distance learning platforms to effectively organize the educational process. Remote work

is also being established at enterprises and organizations. It was found that when students or employees have the opportunity to receive distance learning, they spend 60% less time studying materials than in the traditional educational system. The fact that the level of interest in classes among students studying on distance learning platforms has increased and is considered 60% more effective than in a regular classroom environment is showing its results.

It is known that over the past 15 years, the emergence of the latest generations of mobile devices in our lives, the rapid monitoring of events and phenomena occurring in the world through the Internet, as well as the rapid reception, storage, and transmission of all types of materials (video, audio, text, 3D, 5D, 7D graphics), has led to the emergence of digital technologies. This allows for the replacement of daily traditional teaching methods, as audiences are changing rapidly, and the use of simple tablets, complex programs, and digital equipment instead of paper and notebooks by abandoning old methods and introducing new teaching methods based on digital technologies. For example, in the USA, two-thirds of students use mobile devices to access remote platforms. 99% of students using mobile devices for online learning needs noted that mobile applications of distance learning have improved their educational level.

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BO‘LAJAK BOSHLANG‘ICH SINF O‘QITUVCHILARINI LISONIY TAHLILGA O‘RGATISHDA TOPSHIRIQLAR TIZIMIDAN FOYDALANISH

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Annotatsiya. *Maqolada bo‘lajak boshlang‘ich sinf o‘qituvchilarini lisoniy tahlilga o‘rgatishda qo‘llanadigan besh bosqichli topshiriqlar tizimi asoslanadi. Tizim tanishtiruvchi-reproduktiv, tahliliy-mashq, xatoni topish va tuzatish, metodik-loyihalash hamda refleksiv bosqichlardan iborat bo‘lib, talaba faoliyatini tahlilni bajarishdan uni o‘quvchiga o‘rgatishga qarab izchil murakkablashtiradi. Topshiriqlar amaldagi 3–4-sinf “Ona tili” darsliklari mashqlari asosida tuzilgan va fonetik, morfemik, morfologik, leksik hamda sintaktik tahlilni qamrab oladi. Maqolada tizim pedagogik mazmun bilimi haqidagi tadqiqotlar bilan qiyoslanadi, uning cheklovlari va keyingi tajriba-sinov vazifalari belgilanadi.*

Kalit so‘zlar: *lisoniy tahlil, topshiriqlar tizimi, bo‘lajak boshlang‘ich sinf o‘qituvchisi, ona tili o‘qitish metodikasi, metodik tayyorgarlik, pedagogik mazmun bilimi, xatolar tahlili.*

Abstract. *The article substantiates a five-stage system of tasks for teaching linguistic analysis to future primary school teachers. The system comprises introductory-reproductive, analytical practice, error detection and correction, methodological design, and reflective stages, gradually shifting student teachers’ activity from performing analysis to teaching it to pupils. The tasks are based on exercises from current Grade 3–4 Uzbek “Mother Tongue” textbooks and cover phonetic, morphemic, morphological, lexical and syntactic analysis. The system is discussed in the light of research on pedagogical content knowledge, and its limitations and directions for future experimental testing are outlined.*

Keywords: *linguistic analysis, task system, pre-service primary teachers, mother tongue teaching methodology, methodological preparedness, pedagogical content knowledge, error analysis.*

KIRISH

Boshlang‘ich ta’limda ona tili o‘qitishning bosh maqsadi o‘quvchida tildan ongli va to‘g‘ri foydalanish ko‘nikmasini shakllantirishdir. Bu maqsadga erishishda tovush, so‘z, so‘z tarkibi, so‘z turkumlari va gap ustida olib boriladigan lisoniy tahlil alohida o‘rin tutadi: o‘quvchi tahlil jarayonida til birliklarini kuzatadi, qiyoslaydi, umumlashtiradi va shu orqali savodxonlik hamda nutq madaniyati asoslarini egallaydi. Biroq tahlil o‘quvchi uchun mazmunli faoliyatga aylanishi, avvalo, o‘qituvchining uni qanday tashkil eta olishiga bog‘liq. Shu bois oliy ta’limda bo‘lajak boshlang‘ich sinf o‘qituvchisini lisoniy tahlilni bajarishgagina emas, balki uni o‘quvchiga o‘rgatishga ham tayyorlash dolzarb vazifa bo‘lib turibdi.

Mahalliy tadqiqotlarda boshlang‘ich sinfda lingvistik kompetensiyani shakllantirishga oid nazariy yondashuvlar bilan maktab amaliyoti o‘rtasida uzilish borligi, buning sabablaridan biri o‘qituvchilarning zamonaviy til ta’limi metodikasi bo‘yicha yetarli tayyorlanmagani ekani qayd etilgan (Saliieva, 2025). Ona tili ta’limida o‘quv topshiriqlaridan, ayniqsa ularning mazmunidan foydalanishdagi kamchiliklar ham alohida ta’kidlanadi (Hazratqulova, 2025). Talabaning tahlilni o‘rgatishga metodik tayyorgarligi esa kamroq tadqiq etilgan: amaliy mashg‘ulotlarda topshiriqlar ko‘pincha tahlilni namuna asosida takrorlash bilan cheklanadi, o‘quvchi xatosini tashxislash, dars uchun topshiriq tuzish va o‘z faoliyatini baholash kabi kasbiy harakatlar esa tizimli shakllantirilmaydi. Mazkur maqolaning maqsadi bo‘lajak boshlang‘ich sinf o‘qituvchilarini lisoniy tahlilga o‘rgatishda bosqichma-bosqich murakkablashib boruvchi topshiriqlar tizimini asoslash va uni amaliy mashg‘ulotlarda qo‘llash yo‘llarini ko‘rsatishdir.

ASOSIY QISM

Tadqiqotda ona tili o‘qitish metodikasiga oid ilmiy-metodik adabiyotlarni qiyosiy tahlil qilish, oliy ta’lim muassasasidagi amaliy mashg‘ulotlarni kuzatish hamda topshiriqlar tizimini modellashtirish usullaridan foydalanildi. Taklif etilayotgan tizim bo‘lajak o‘qituvchining lisoniy tahlilni o‘rgatishga oid kasbiy harakatlarini izchil shakllantirishga yo‘naltirilgan bo‘lib, uning samaradorligi keyingi bosqichda pedagogik tajriba-sinov orqali tekshiriladi.

Topshiriqlar tizimi talaba faoliyati tahlilni bajarishdan uni o‘rgatishga qarab bosqichma-bosqich murakkablashib borishi tamoyiliga asoslandi. Tanishtiruvchi-reproduktiv bosqichda talaba tahlil tartibini namuna asosida o‘zlashtiradi, tahliliy-mashq bosqichida uni mustaqil bajaradi. Xatoni topish va tuzatish bosqichida u o‘quvchi ishidagi tahlil xatolarini aniqlab, ularning sababini izohlaydi. Metodik-loyihalash bosqichida talaba boshlang‘ich sinf darsi

uchun tahlil topshirig‘ini o‘zi tuzadi, refleksiv bosqichda esa o‘z faoliyatini baholab, qaysi harakatlarda qiynalganini anglaydi. Har bir bosqich fonetik, leksik, morfemik, morfologik va sintaktik tahlil materialida amalga oshirilgani uchun tizim lisoniy tahlilning barcha turini qamrab oladi.

Topshiriqlar tizimi amaldagi boshlang‘ich sinf “Ona tili” darsliklarining mashqlari asosida tuzildi (Toirova, 2023; Baynazarova, 2023; Baynazarova & Toirova, 2023). Bu talabani bo‘lajak kasbiy faoliyatida bevosita foydalanadigan o‘quv materiali bilan ishlashga o‘rgatadi. Tanishtiruvchi-reproduktiv bosqichda talaba 3-sinf darsligidagi 35-mashqda berilgan fonetik tahlil tartibini o‘zlashtiradi: so‘zdagi tovush va harflar, unli va undosh tovushlar, jarangli va jarangsiz undoshlar hamda bo‘g‘inlar izchil aniqlanadi. Talaba avval bu tartibni bitta so‘zda bajarib ko‘rsatadi, so‘ngra she’rdan ajratilgan boshqa so‘zlarga ko‘chiradi. Tahliliy-mashq bosqichida namunaga tayanish kamayadi: 4-sinf darsligidagi 108-mashqda “tuzildi” fe’li jadvalda tahlil qilib ko‘rsatilgan, talaba esa “nomlandi” va “o‘rnatadi” fe’llarini bo‘lishli yoki bo‘lishsizligi, zamoni, shaxs-soni va yasovchi qo‘shimchasi bo‘yicha mustaqil tahlil qiladi. Xatoni topish va tuzatish bosqichida 111-mashqdagi “-gan qo‘shimchasi qaysi javobda to‘g‘ri qo‘shilgan?” degan savol asos qilib olinadi. Talaba “egkan”, “chiqgan”, “tikgan” shakllaridagi xatoni topish bilan cheklanmay, o‘quvchi nega shunday yozishi mumkinligini izohlaydi: o‘quvchi qo‘shimchani so‘zning oxirgi tovushiga moslashtirmay, mexanik ravishda qo‘shgan. So‘ngra u darslikdagi “-k, -q bilan tugagan fe’lga o‘tgan zamon qo‘shimchasi qo‘shilganda -kan, -qan tarzida yoziladi” qoidasiga tayanib, tuzatish topshirig‘ini tuzadi.

Metodik-loyihalash bosqichida talaba darslik mashqini dars jarayoniga moslashtiradi. Masalan, 102-mashqda o‘quvchidan tinish belgilari qo‘yilmagan matnda har bir gapning chegarasini belgilash va o‘qishda uni ohang yordamida ajratish talab etiladi. Talaba bu mashqdan oldin bajariladigan yordamchi topshiriq tuzadi: o‘quvchi avval matnni ovoz chiqarib o‘qib, ohang pasaygan joylarni belgilaydi, so‘ngra har bir bo‘lakda kim yoki nima haqida gap ketayotganini aniqlab, gap chegarasini topadi. Talaba topshiriqlar ketma-ketligini va har birining maqsadini asoslab beradi, shu tariqa uning lisoniy bilimi metodik qarorga aylanadi. Refleksiv bosqichda talaba 23-mashq (sifatlarning ma’nodoshini topish) yuzasidan bergan tushuntirishini baholaydi va “O‘quvchi ‘katta – ulkan’ namunasiga qarab qaysi juftlikda adashishi mumkin?”, “Tushuntirishimda qaysi o‘rin noaniq qoldi?” kabi savollarga yozma javob beradi. Shunday qilib, talaba faoliyati darslikdagi namunaga tayanishdan darslik mashqini o‘zi qayta loyihalashgacha bosqichma-bosqich rivojlanib boradi.

Taklif etilayotgan tizimning asosiy g‘oyasi, ya’ni lisoniy tahlilni bajarish bilan uni o‘rgatish bir xil ko‘nikma emasligi, xalqaro tadqiqotlarda ham o‘z tasdig‘ini topgan. L. Shulman o‘qituvchi bilimi tarkibida fan mazmunini bilishdan tashqari, shu mazmunni o‘quvchiga tushunarli shaklga keltirish bilimini alohida ajratib, uni pedagogik mazmun bilimi deb atagan (Shulman, 1986). D. Myhill va hammualliflari esa yozma nutqni o‘qitishda o‘qituvchining grammatik bilimidan ko‘ra uni o‘rgatishga oid pedagogik bilimi hal qiluvchi ahamiyatga ega ekanini aniqlagan (Myhill et al., 2013). Indoneziyada boshlang‘ich ta’lim yo‘nalishi talabalari ustida o‘tkazilgan tadqiqotda ham talabalar mavzu mazmuni va o‘qitish strategiyalarini yaxshi egallagan bo‘lsa-da, o‘quvchi xatosining sababini tahlil qilishda qiynalgani aniqlangan (Sholihah, 2026). Bu xulosalar taklif etilayotgan tizimdagi xatoni topish va tuzatish hamda metodik-loyihalash bosqichlarining zarurligini asoslaydi, chunki aynan shu bosqichlarda talabaning lisoniy bilimi o‘quvchi xatosini tashxislash va topshiriq tuzish kabi pedagogik harakatlarga aylanadi.

Shu bilan birga, tizimning ayrim cheklovlari ham bor. Topshiriqlar 3–4-sinf darsliklarining ayrim mavzulari bilan cheklangan, shu bois tizimni 1–2-sinf materiali asosida ham kengaytirish lozim. Bundan tashqari, tizim hozircha nazariy jihatdan asoslangan bo‘lib, uning talabalarning metodik tayyorgarligiga ta’siri pedagogik tajriba-sinov orqali tekshirilishi kerak. Bu cheklovlar tadqiqotning keyingi bosqichidagi vazifalarni belgilaydi.

XULOSA

O‘tkazilgan tahlil bo‘lajak boshlang‘ich sinf o‘qituvchisini lisoniy tahlilga o‘rgatishda topshiriqlarni alohida-alohida emas, balki talaba faoliyatining murakkablashib borishiga mos tizim sifatida tashkil etish zarurligini ko‘rsatdi. Taklif etilgan besh bosqichli tizim talabani tahlilni namuna asosida bajarishdan o‘quvchi xatosini tashxislash, darslik mashqini qayta loyihalash va o‘z faoliyatini baholashgacha olib boradi. Topshiriqlarning amaldagi 3–4-sinf “Ona tili” darsliklari mashqlariga tayanishi ularni fonetik, morfemik, morfologik, leksik va sintaktik tahlil mazmuni bilan bog‘laydi hamda talabani bo‘lajak kasbiy faoliyatiga yaqinlashtiradi.

Tizimni oliy ta’lim muassasalarida “Ona tili o‘qitish metodikasi” fanining amaliy mashg‘ulotlarida qo‘llash tavsiya etiladi. Tadqiqotning keyingi bosqichida tizimning samaradorligi pedagogik tajriba-sinov orqali tekshiriladi va u 1–2-sinf materiali asosida kengaytiriladi.

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ПЛАНИРОВАНИЕ ТРЕНИРОВОЧНОГО ПРОЦЕССА НА ЭТАПАХ МНОГОЛЕТНЕЙ ПОДГОТОВКИ БАДМИНТОНИСТОВ

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Аннотация. *Работа обобщает описания этапов многолетней подготовки бадминтониста, принятые в научно-методической литературе, и требования к планированию тренировочного процесса на каждом из них. Рассмотрены задачи начальной подготовки, начальной специализации, углублённого совершенствования и сохранения спортивного мастерства. Возрастные рамки этапов у разных авторов не совпадают, поэтому основанием для перехода к новым тренировочным задачам служит подготовленность игрока, а возраст даёт приблизительный ориентир. Разобраны четыре уровня планирования, от отдельного занятия до многолетнего цикла, и обстоятельства, которые требуют правки плана: динамика результатов, состояние здоровья, календарь соревнований, условия занятий.*

Ключевые слова*: бадминтон, спортивная подготовка, этапы подготовки, возрастные особенности, тренировочная нагрузка, планирование.*

Abstract. *The paper brings together descriptions of long-term badminton training stages as they appear in sports science and coaching literature, along with the planning requirements that apply at each stage. It reviews the objectives of initial training, initial specialization, advanced development, and the maintenance of sporting proficiency. The age limits set for these stages vary from one author to another, so readiness is taken as the ground for moving an athlete on to new training tasks, with age giving an approximate guide. Four levels of*

planning are examined, from the single session to the multi-year cycle, together with the circumstances that call for a plan to be revised: shifts in results, in health, in the competition calendar, and in training conditions.

Keywords: *badminton, sports training, training stages, age-related characteristics, training load, planning.*

Abstract. *The paper reviews how sports science and coaching literature describes the stages of long-term badminton training, together with the planning requirements of each stage. It covers the objectives of initial training, initial specialization, advanced development, and the maintenance of sporting proficiency. Because the age limits given for these stages differ between authors, readiness is taken as the ground for moving an athlete on to new tasks, with age serving as an approximate guide. Four levels of planning are examined, from the single session to the multi-year cycle, along with the circumstances that call for a plan to be revised.*

Keywords: *badminton, sports training, training stages, age-related characteristics, training load, planning.*

ВВЕДЕНИЕ

Подготовка бадминтониста растянута на годы, и её содержание меняется вместе с игроком: сначала преобладают разнообразные двигательные задачи, затем работа сужается до игровых действий и соревновательных нагрузок. Вопрос для тренера в том, когда делать каждый такой шаг. Ориентиром здесь служит подготовленность и состояние конкретного игрока, тогда как календарный возраст группы задаёт лишь приблизительные рамки. Описания этапов в методической литературе при этом расходятся: одни авторы привязывают их к школьным возрастным группам, другие к продолжительности занятий и уровню мастерства. Отсюда потребность сопоставить эти описания и свести требования к планированию в одну последовательность.

Распределение упражнений и нагрузки по этапам сказывается на результате всей многолетней подготовки. Ранняя узкая специализация, резкий рост нагрузки, свёрнутая общая физическая работа: каждое из этих решений осложняет освоение техники и тактики на следующем этапе, когда исправлять его уже дорого. Тренеру приходится соизмерять содержание занятий с тем, к чему игрок готов сейчас, а опорой для такого решения служит ясное представление об этапе подготовки и его задачах.

Цель работы — обобщить описания этапов многолетней подготовки в бадминтоне и требования к планированию тренировочного процесса.

Отсюда три задачи: охарактеризовать содержание основных этапов спортивной подготовки; показать, как по мере роста мастерства меняется соотношение общей и специальной подготовки и величина нагрузки; выделить факторы, которые тренер учитывает при планировании занятий с юными и взрослыми спортсменами.

Работа представляет собой теоретический обзор. Применён анализ и сопоставление научно-методических публикаций об этапах подготовки и планировании тренировок. Собственных измерений и экспериментальной проверки работа не содержит: её выводы передают положения рассмотренных источников и нуждаются в проверке на практическом материале.

ОСНОВНАЯ ЧАСТЬ

Рыбаков и Штильман (2010) выделяют четыре этапа многолетней подготовки (с. 45–47): начальную спортивную подготовку, начальную специализацию, углублённое совершенствование и сохранение спортивного мастерства. Возрастные рамки у этих этапов условны. Переход определяется готовностью спортсмена и условиями занятий, а все приведённые ниже возрастные интервалы служат ориентиром.

Основу занятий на начальном этапе составляет общая физическая подготовка (Портных, 2011, с. 41–42; Андриевская, 2010, с. 127–128). Ребёнок осваивает разные двигательные действия и со временем сам обнаруживает склонность к определённым видам активности. Роль тренера здесь наблюдательная: он отслеживает развитие ребёнка и не подменяет обучение ранним отбором или повторением узкого набора приёмов.

Дальше работа приобретает выраженную специализацию. Жбанков (2011) отводит этому этапу около двух-трёх лет, оговаривая, что срок меняется в зависимости от условий подготовки (с. 77–78). Доля специальных упражнений растёт, но общая физическая работа не сворачивается: она удерживает разностороннее развитие и готовит основу для игровых действий. В первые годы основная часть занятий приходится на обучение и подготовительный период, а соревновательную практику вводят, сообразуясь с возрастом и готовностью игрока (Андриевская, 2010, с. 127–128).

На этапе углублённого совершенствования вперёд выходит специальная подготовка: физическая, техническая, тактическая, волевая (Рыбаков и Штильман, 2010, с. 45–47; Жбанков, 2011, с. 77–78). Нагрузки становятся целенаправленнее, соревнований больше. Их объём и

интенсивность наращивают без рывков, чередуя напряжённую работу с восстановлением. Возрастной диапазон этапа в цитируемых работах задан широко: примерно от 17–20 до 35–40 лет.

При сохранении спортивного мастерства акцент переходит на работоспособность и специальные качества. Тренер следит за тем, как спортсмен переносит нагрузку, и по результатам наблюдений меняет упражнения, объём работы, структуру тренировочного цикла. Замедление прогресса возникает по двум несхожим причинам: из-за естественного изменения адаптационных возможностей организма либо потому, что методика перестала отвечать текущему состоянию игрока. Различение этих причин меняет решение тренера, поскольку вторая причина поправима средствами планирования.

Таблица 1

Содержание этапов многолетней подготовки бадминтонистов и методические акценты

Этап	Основное содержание	Методический акцент
Начальная спортивная подготовка	Разностороннее физическое развитие, знакомство с разнообразными двигательными упражнениями	Не форсировать узкую специализацию; соотносить нагрузку с возрастом и возможностями ребёнка
Начальная специализация	Постепенное освоение бадминтона при сохранении значительной доли общей подготовки	Развивать двигательный опыт и базовые навыки; наращивать специальную работу малыми шагами
Углублённое совершенствование	Более целенаправленная физическая, техническая, тактическая и волевая подготовка; расширение соревновательной практики	Согласовывать объём и интенсивность нагрузки с задачами этапа и состоянием спортсмена
Сохранение спортивного мастерства	Поддержание работоспособности и специальных качеств, дальнейшее совершенствование технико-тактического мастерства	Корректировать план по состоянию здоровья, возрасту, результатам и жизненным условиям

Направленность занятий меняется в такой последовательности: 1) разностороннее физическое развитие; 2) освоение бадминтона при сохранении значительной доли общей подготовки; 3) углублённая

специальная подготовка; 4) поддержание и дальнейшее совершенствование мастерства.

Соотношение общей и специальной подготовки меняется вместе с задачами этапа и готовностью игрока. Графики такой динамики в цитируемых работах приведены без описания методики расчёта, поэтому числовых значений из них настоящий обзор не использует.

Принципы планирования

План связывает отдельное занятие с недельным, месячным, годовым и многолетним циклами. Уровней планирования четыре: многолетний план, годовой, план мезоцикла и микроцикла, план отдельной тренировки.

При составлении плана учитывают возраст и квалификацию игрока, его возможности и состояние здоровья, условия занятий, оснащение зала, календарь соревнований. Для группы определяют общую структуру работы, а упражнения и нагрузку подбирают под каждого спортсмена.

Повод пересмотреть план дают изменения в результатах, в состоянии здоровья или в жизненных обстоятельствах спортсмена (Щукин, 2009, с. 120–121; Погадаев, 2008). В работе с детьми нагрузку поднимают малыми шагами: сложная техническая задача требует, чтобы необходимые двигательные качества были развиты заранее.

Погадаев (2008) делит школьный возраст на младший (6–10/11 лет), средний (11/12–14/15 лет) и подростковый (15/16–17/18 лет). Эта разбивка задаёт общую канву занятий для группы, внутри которой тренер опирается на оценку развития каждого ребёнка.

ВЫВОДЫ

1. Многолетняя подготовка бадминтониста складывается из четырёх этапов, от разностороннего физического развития до сохранения мастерства. По содержанию задач рассмотренные авторы согласуются, по возрастным рамкам расходятся.

2. Основанием для перехода к новым тренировочным задачам служат подготовленность, индивидуальные особенности и состояние здоровья игрока; возрастные интервалы из литературы дают приблизительную привязку.

3. Специальная направленность занятий растёт вместе с мастерством, тогда как общая физическая подготовка сохраняется на всех этапах и меняет только свою долю в общем объёме работы.

4. Планирование соединяет разные временные уровни и остаётся открытым для правки: содержание и нагрузку пересматривают по динамике результатов, состоянию здоровья, календарю соревнований.

5. Перенос этих положений в практику требует отдельной проверки на материале конкретных групп бадминтонистов.

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ДИЗАЙН-МЫШЛЕНИЕ КАК ИННОВАЦИОННЫЙ ПЕДАГОГИЧЕСКИЙ ИНСТРУМЕНТ В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ ПЕДАГОГА ДОШКОЛЬНОЙ ОБРАЗОВАТЕЛЬНОЙ ОРГАНИЗАЦИИ

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Аннотация. *В статье исследуются теоретические и практические возможности применения дизайн-мышления в работе воспитателей дошкольных учреждений. Подчеркивается, что этот инновационный педагогический инструмент, основанный на глубоком понимании детей, наблюдении, четком формулировании проблем, генерации идей, создании прототипов и их тестировании, особенно эффективен для диагностики и решения проблем агрессивного поведения у детей 4–6 лет. Актуальность работы обусловлена стремлением создать благоприятную психологическую атмосферу, способствовать развитию эмоционального интеллекта и коммуникативных навыков у дошкольников.*

Ключевые слова: *дизайн-мышление, дошкольное образование, воспитатель, агрессия, решение проблем, эмпатия, эмоциональный интеллект, конфликт, саморегуляция, сотрудничество, педагогическая инновация.*

Abstract. *The article explores the theoretical and practical potential of applying design thinking in the work of preschool educators. It is emphasized that this innovative pedagogical tool, based on a deep empathetic understanding of children, observation, clear problem definition, idea generation, prototyping, and testing, is particularly effective for diagnosing and addressing aggressive behavior in children aged 4–6. The relevance of the study stems from the effort to create a favorable psychological atmosphere and to foster the development of emotional intelligence and communication skills in preschoolers.*

Keywords: *design thinking, preschool education, educator, aggression, problem-solving, empathy, emotional intelligence, conflict, self-regulation, cooperation, pedagogical innovation.*

Annotatsya. *Maqolada maktabgaça ta‘lim taşkilotlari tarbiyaçilarining kasbiy faoliyatida dizayn-fikrlaşni qōllaşning nazariy va amaliy imkoniyatlari tadqiq etiladi. Bolalarni çuqur tuşunish (empatiya), kuzatiş, muammoni aniq şakllantiriş, ḡoyalarni generatsiya qiliş, prototiplar yaratiş va ularni sinovdan ōtkazişga asoslangan uşbu innovatsion pedagogik instrument 4–6yoşli bolalardagi agressiv xulq-atvor muammolarini taşxişleş va hal etişda ayniqsa samarali ekanligi ta‘kidlanadi. Tadqiqotning dolzarbligi maktabgaça yoşdagi bolalarda qulay psixologik muhit yaratiş, emotsional intellekt va muloqot kōnikmalarini rivojlantirişga bōlgan ehtiyoj bilan izohlanadi.*

Kalit sōzlar: *dizayn-fikrlaş, maktabgaça ta‘lim, tarbiyaçi, agressiya, muammolarni hal qiliş, empatiya, emotsional intellekt, nizo, ōz-ōzini başqariş, hamkorlik, pedagogik innovatsiya.*

ВВЕДЕНИЕ

Современные стандарты дошкольного образования возлагают на педагогов ответственность не только за проведение образовательных занятий, но и за компетентное выявление, глубокий анализ и результативное разрешение педагогических вызовов. Одной из насущных задач в работе с детьми дошкольного возраста (4–6 лет) является купирование агрессивных проявлений, выражающихся в конфликтных ситуациях, физической агрессии, вербальных столкновениях и затруднениях в социальном взаимодействии со сверстниками. Дизайн-мышление представляет собой перспективный инструмент, позволяющий педагогам эмпатический исследовать детские проблемы, разрабатывать оригинальные решения и верифицировать их в условиях образовательного процесса. В контексте масштабной модернизации дошкольного образования в Республике Узбекистан, регламентированной Указом Президента № УП-19 от 5 февраля 2026 года [1], внедрение данного подхода приобретает первостепенное значение.

Методы исследования: устранение трудностей с агрессивным поведением детей 4–6 лет через дизайн-мышление.

Этап эмпатии (понимание ребёнка и его потребностей).

На этом этапе воспитатель наблюдает за поведением детей в разных ситуациях: в процессе свободной игры, занятий, прогулок и совместной деятельности. Главная задача состоит в выявлении глубинных причин агрессивного поведения, эмоциональных состояний и потребностей

каждого ребёнка. Например, если ребёнок толкает сверстника, стремясь завладеть игрушкой, воспитателю следует установить причину произошедшего: желание получить игрушку, недостаток коммуникативных навыков, эмоциональное напряжение или неспособность дождаться своей очереди [6]. Для этого используются педагогическое наблюдение, индивидуальные беседы, анализ игровых ситуаций и сотрудничество с родителями.

Этап определения проблемы.

После анализа ситуации воспитатель определяет конкретную проблему, требующую решения. Например: «Дети дошкольной группы испытывают затруднения при совместном использовании игрушек и не всегда способны выражать свои желания словами, в результате чего возникают конфликты и агрессивные действия».

На данном этапе необходимо выявить основные факторы, провоцирующие возникновение конфликтов:

- недостаточный уровень развития коммуникативных навыков;
- сложности в распознавании и выражении эмоций;
- стремление добиться желаемого без учёта интересов окружающих;
- отсутствие достаточного опыта совместной деятельности;
- эмоциональное напряжение и затруднения в саморегуляции [5, 6].

При необходимости воспитатель вносит изменения в предложенные методы. Важно не допускать публичного осуждения ребёнка или его сравнения с другими детьми. При устойчивом проявлении агрессивного поведения необходимо обеспечить индивидуальное педагогическое сопровождение, а также взаимодействие с родителями и профильными специалистами.

Анализ проблемы

Рассмотрение агрессивного поведения детей 4–6 лет показывает, что его возникновение может быть обусловлено особенностями эмоционального и социального становления дошкольников. В этот период дети активно осваивают взаимодействие со сверстниками, учатся выражать свои желания, защищать собственные интересы и соблюдать правила совместной деятельности. Вместе с тем недостаточный уровень развития навыков саморегуляции и общения способен становиться причиной конфликтных ситуаций. В таких случаях одни лишь традиционные замечания и запреты не всегда позволяют устранить

источник проблемы [4, 6]. Поэтому воспитателю важно учитывать эмоциональное состояние ребёнка, изучать обстоятельства конфликта и формировать у детей альтернативные модели поведения.

Результаты исследования и практические рекомендации

На основании проведённого теоретического анализа и созданной методической разработки определены ключевые направления использования дизайн-мышления в работе воспитателей дошкольных образовательных организаций.

Первым результатом стала разработка подхода «От конфликта к сотрудничеству», опирающейся на пять этапов дизайн-мышления [6].

1. Выявление проблемы: Наблюдение за поведением детей и установление причин возникновения конфликтов.

2. Понимание эмоций: Формирование у детей навыков распознавания и выражения собственных эмоциональных состояний.

3. Поиск решений: Совместное обсуждение вариантов договориться, поделиться и оказать друг другу помощь.

4. Практическая деятельность: Применение игровых упражнений, творческих заданий и коллективных проектов.

5. Оценка изменений: Наблюдение за поведением детей и корректировка педагогических методов.

Вторым результатом стало создание комплекса педагогических инструментов («Уголок эмоций», «Мирный круг», «Дерево добрых поступков», «Коробка решений», «Строим вместе»).

Третьим результатом является определение направлений развития эмоционального интеллекта дошкольников через систему упражнений (Таблица 1).

Таблица 1.

Комплекс игровых упражнений для развития эмоционального интеллекта

Название упражнения	Педагогическая цель
«Назови своё настроение»	Распознавание эмоций
«Вдохни и успокойся»	Развитие саморегуляции
«Что чувствует мой друг?»	Формирование эмпатии

Название упражнения	Педагогическая цель
«Найди другое решение»	Развитие навыков решения конфликтов
«Скажи добрые слова»	Развитие культуры общения

Четвёртым результатом является определение ключевых профессиональных компетенций воспитателя (аналитических, коммуникативных, проектировочных, творческих, рефлексивных), формируемых при использовании дизайн-мышления [4, 5].

Пятым результатом является определение критериев оценки эффективности предложенной методики (Таблица 2).

Таблица 2.

Ожидаемые изменения в поведении детей

Направление	Ожидаемый педагогический результат
Эмоциональная грамотность	Дети лучше распознают и называют свои чувства
Общение	Чаще используют словесные способы выражения недовольства
Сотрудничество	Активнее участвуют в совместных играх
Саморегуляция	Осваивают способы успокоения и контроля импульсивных реакций
Эмпатия	Проявляют внимание к чувствам сверстников
Разрешение конфликтов	Чаще используют мирные способы решения проблем

ВЫВОДЫ

Проведённое теоретическое исследование позволяет заключить, что дизайн-мышление представляет собой перспективный инструмент выявления и решения педагогических проблем в сфере дошкольного образования [3, 4, 6]. Его использование содействует выявлению воспитателем причин агрессивного поведения детей, учёту их возрастных и индивидуальных особенностей, а также разработке результативных способов организации образовательного процесса.

Внедрение дизайн-мышления в систему подготовки и повышения квалификации педагогических кадров Республики Узбекистан в

соответствии с целями Указа Президента № УП-19 от 5 февраля 2026 года [1] и обновлёнными стандартами Государственной программы «Илк қадам» (3-е издание) [2] содействует развитию у будущих воспитателей аналитических, творческих, коммуникативных и проектировочных компетенций, что обеспечивает повышение качества дошкольного образования и формирование безопасной и инклюзивной образовательной среды.

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ПСИХОЛОГИЧЕСКАЯ БЕЗОПАСНОСТЬ ПОДРОСТКОВ В ЦИФРОВОЙ ОБРАЗОВАТЕЛЬНОЙ СРЕДЕ: ЭМПИРИЧЕСКИЙ АНАЛИЗ И РЕСУРСНЫЕ ПРОФИЛИ

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Аннотация: *В статье представлены результаты эмпирического исследования психологической безопасности подростков в цифровой образовательной среде. В исследовании приняли участие 222 учащихся 7–9 классов в возрасте 13–15 лет из пяти образовательных учреждений Ташкентской области. Рассмотрены распределение уровней психологической безопасности, различия по полу и классу, а также типологические профили подростков. Показано, что у 30,2 % участников выявлен низкий уровень психологической безопасности, у 39,2 % — средний, у 30,6 % — высокий. Выделены дефицитарный, смешанный и ресурсный профили; психологическая безопасность последовательно повышается от дефицитарного к ресурсному типу.*

Ключевые слова: *подростки, психологическая безопасность, цифровая образовательная среда, ресурсный профиль, эмпирическое исследование.*

Abstract: *This article presents the results of an empirical study of adolescents' psychological safety in the digital educational environment. The study involved 222 students in grades 7–9, aged 13–15, from five educational institutions in the Tashkent region. The distribution of psychological safety levels, differences by gender and grade, and typological profiles of adolescents were examined. The findings showed that 30.2% of the participants had a low level of psychological safety, 39.2% had a moderate level, and 30.6% had a high level. Three profiles were identified: deficit, mixed, and resource-oriented. Psychological safety increased progressively from the deficit profile to the resource-oriented profile.*

Keywords: *adolescents, psychological safety, digital educational environment, resource-oriented profile, empirical study.*

Annotatsiya: *Maqolada o'smirlarning raqamli ta'lim muhitidagi psixologik xavfsizligini o'rganishga qaratilgan empirik tadqiqot natijalari*

keltirilgan. Tadqiqotda Toshkent viloyatidagi beshta ta’lim muassasasining 13–15 yoshdagi, 7–9-sinflarda tahsil oluvchi 222 nafar o‘quvchisi ishtirok etdi. Psixologik xavfsizlik darajalarining taqsimlanishi, jins va sinf bo‘yicha farqlar, shuningdek, o‘smirlarning tipologik profillari o‘rganildi. Natijalar ishtirokchilarning 30,2 foizida psixologik xavfsizlik darajasi past, 39,2 foizida o‘rta va 30,6 foizida yuqori ekanligini ko‘rsatdi. Defitsit, aralash va resursli profillar aniqlandi. Psixologik xavfsizlik darajasi defitsit profildan resursli profilga tomon izchil oshib borishi aniqlandi.

Kalit so‘zlar: *o‘smirlar, psixologik xavfsizlik, raqamli ta’lim muhiti, resursli profil, empirik tadqiqot.*

I. ВВЕДЕНИЕ

Цифровые образовательные инструменты стали регулярной частью учебного процесса: школьники используют электронные журналы, образовательные платформы, онлайн-задания и мессенджеры [5]. Поэтому важной задачей становится изучение того, насколько подростки субъективно ощущают защищённость во взаимодействии со сверстниками и педагогами в условиях цифровизации образования [2].

II. ОБЗОР ЛИТЕРРАТУРЫ

Теоретической основой операционализации психологической безопасности выступает подход И. А. Баевой, в рамках которого безопасность образовательной среды рассматривается через субъективное переживание защищённости участников образовательного процесса и характер взаимодействия в образовательной организации [1].

III. МЕТОДОЛОГИЯ ИССЛЕДОВАНИЯ И ЭМИИЕСКИЙ АНАЛИЗ

Эмпирическое исследование проводилось на базе общеобразовательных учреждений Ташкентской области, в которых учебный процесс сопровождается использованием электронных журналов, онлайн-заданий, образовательных платформ и цифровых средств коммуникации. Критериями отбора баз выступали: системное применение информационно-коммуникационных технологий в учебном процессе; наличие элементов дистанционного и гибридного обучения; постоянная включённость учащихся в цифровую образовательную среду.

Таблица 1

Распределение выборки по базам исследования, классам и полу

(N = 222)

База (код)	7 класс	8 класс	9 класс	Юноши	Девушки	Всего	%
База 1	17	17	16	23	27	50	22,5
База 2	9	16	9	15	19	34	15,3
База 3	19	17	12	24	24	48	21,6
База 4	15	22	16	26	27	53	23,9
База 5	13	13	11	21	16	37	16,7
Всего	73	85	64	109	113	222	100,0

Примечание. Коды баз соответствуют кодировке первичного массива данных; наименования и номера образовательных учреждений указываются при окончательном оформлении работы.

Выборка сбалансирована по полу (юноши — 109 чел., 49,1 %; девушки — 113 чел., 50,9 %) и охватывает три параллели: 7 класс — 73 чел. (32,9 %), 8 класс — 85 чел. (38,3 %), 9 класс — 64 чел. (28,8 %). Наполняемость всех подгрупп «параллель × пол» составляет от 30 до 44 человек, что достаточно для корректного применения параметрических критериев сравнения.

Психологическая безопасность образовательной среды оценивалась по методике И. А. Баевой [1]. В настоящем исследовании использовалась шкала защищённости от психологического насилия во взаимодействии (18 пунктов, пятибалльная шкала), которая наиболее прямо операционализирует ключевое для исследования понятие — субъективное переживание защищённости в отношениях со сверстниками и педагогами. Использование одной шкалы вместо суммарного показателя методики продиктовано содержанием гипотезы и обеспечивает однородность измеряемого конструкта. Состав шкал, теоретические диапазоны баллов и правило разделения на уровни представлены в таблице 2.

Таблица 2

Состав шкал, диапазоны баллов и границы уровней выраженности

Переменная и методика	Число пунктов	Шкала пункта	Теорет. диапазон	Границы уровней (M ± 0,5σ)
Психологическая безопасность (методика И. А. Баевой, шкала защищённости от психологического насилия)	18	1–5	18–90	низкий < 52,9; средний 52,9–66,7; высокий > 66,7

Разделение на три уровня выраженности выполнялось по правилу M ± 0,5σ, вычисленному на данной выборке: значения ниже M − 0,5σ относились к низкому уровню, значения в интервале M ± 0,5σ — к среднему, выше M + 0,5σ — к высокому. Данное правило применялось единообразно ко всем шкалам, было зафиксировано до содержательного анализа и обеспечивает полную воспроизводимость приведённых ниже распределений. Первичные данные были переведены в электронный табличный формат, проверены на полноту и логическую согласованность и подвергнуты единому кодированию. Обработка выполнялась в статистическом пакете SPSS Statistics с дополнительной независимой проверкой всех расчётов средствами языка Python, то обеспечило контроль вычислительных ошибок.

IV. РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЯ

Распределение подростков по уровням выраженности изучаемых показателей, полученное по правилу M ± 0,5σ, представлено в таблице 3.

Таблица 3

Распределение уровней изучаемых показателей
(N = 222; абс. / %)

Показатель	Низкий	%	Средний	%	Высокий	%
Психологическая безопасность	67	30,2	87	39,2	68	30,6

Психологическая безопасность в исследованной выборке выражена неоднородно: у 39,2 % подростков она находится на среднем уровне, при этом группы с низким (30,2 %) и высоким (30,6 %) уровнями практически равны по численности. Почти каждый третий подросток воспринимает цифровую образовательную среду как недостаточно защищённую, что свидетельствует о наличии устойчивой группы психологического риска. Перед анализом связей проверялось, различаются ли изучаемые показатели по полу, классу и базе исследования. Результаты приведены в таблице 4.

Таблица 4

Сравнение показателей по полу, параллели и базе исследования

M (σ); в скобках после значения критерия — уровень значимости p

Показатель	Юноши (n = 109)	Девушки (n = 113)	t (p)	Класс F(2; 219) (p)	База F(4; 217) (p)
Психологическая безопасность	60,44 (14,13)	59,21 (13,43)	0,66 (0,508)	2,56 (0,080)	0,55 (0,697)

Различий между базами исследования не обнаружено, что позволяет анализировать выборку как единую совокупность.

Таблица 5

Средние значения показателей в подгруппах «параллель × пол»

M (σ)

Класс	Пол	n	ПБ
7 класс	юноши	34	55,53 (13,02)
	девушки	39	58,10 (15,29)
8 класс	юноши	41	61,39 (15,19)
	девушки	44	60,32 (13,47)
9 класс	юноши	34	64,21 (12,77)
	девушки	30	59,03 (10,82)

Примечание. ПБ — психологическая безопасность; КП — когнитивная переоценка; ЭП — эмоциональное подавление; КК — конструктивный копинг; СИ — социальная идентичность.

Приведённые данные показывают, что возрастная тенденция к повышению психологической безопасности выражена преимущественно у юношей (от 55,53 в 7 классе до 64,21 в 9 классе), тогда как у девушек показатель остаётся практически неизменным (58,10 — 60,32 — 59,03).

Показатель	Тип 1 — дефицитарный (n = 80)	Тип 2 — смешанный (n = 64)	Тип 3 — ресурсный (n = 78)	F(2; 219)

Содержательная характеристика выделенных типов такова: тип 1 — дефицитарный (80 чел., 36,0 %); тип 2 — смешанный (64 чел., 28,8 %); тип 3 — ресурсный (78 чел., 35,1 %)

Средние значения психологической безопасности последовательно возрастают от первого типа к третьему: 50,71 — 60,48 — 68,60 балла ($F(2; 219) = 47,64$; $p < 0,001$; $\eta^2 = 0,303$). Апостериорные сравнения по критерию Тьюки подтверждают значимость всех трёх попарных различий: тип 1 против типа 2 (разность 9,77 балла; $p < 0,001$; $d = 0,87$), тип 1 против типа 3 (17,89 балла; $p < 0,001$; $d = 1,53$), тип 2 против типа 3 (8,12 балла; $p < 0,001$; $d = 0,69$). Распределение уровней психологической безопасности внутри типов представлено в таблице 23.

Таблица 6

Распределение уровней психологической безопасности в типологических группах

абс. (в скобках — % по строке)

Типологический профиль	Низкая ПБ	Средняя ПБ	Высокая ПБ	Всего
Тип 1 — дефицитарный	46 (57,5)	26 (32,5)	8 (10,0)	80 (100)
Тип 2 — смешанный	14 (21,9)	28 (43,8)	22 (34,4)	64 (100)
Тип 3 — ресурсный	7 (9,0)	33 (42,3)	38 (48,7)	78 (100)
Всего	67	87	68	222

$\chi^2(4) = 54{,}06$; $p < 0{,}001$; V Крамера = 0,349.

Полученное распределение подтверждает внешнюю валидность типологического решения: в дефицитарном типе более половины подростков (57,5 %) имеют низкий уровень психологической безопасности и лишь каждый десятый — высокий, тогда как в ресурсном типе соотношение обратное (48,7 % против 9,0 %). Величина связи (V = 0,349) превышает все ранее полученные коэффициенты сопряжённости для отдельных показателей, что свидетельствует о большей прогностической силе целостного профиля по сравнению с каждым ресурсом в отдельности. Состав типологических групп не различается по полу ($\chi^2(2) = 0{,}18$; $p = 0{,}915$) и по параллели обучения ($\chi^2(4) = 3{,}59$; $p = 0{,}464$).

V. ВЫВОДЫ

Следовательно, выделенные профили отражают собственно психологические, а не социально-демографические различия. Практическая ценность полученных результатов существенно возрастает, если совокупность измеренных ресурсов позволяет заранее выделять подростков, входящих в группу риска.

VI. СПИСОК ЛИТЕРАТУРЫ

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TEACHER COMPETENCIES IN THE AGE OF GENERATIVE AI: LESSONS FROM INTERNATIONAL RESEARCH FOR UZBEKISTAN'S UNIVERSITIES

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Аннотация. *В статье обобщены результаты международных систематических обзоров и документов ЮНЕСКО об использовании генеративного искусственного интеллекта (ГИИ) в педагогическом образовании. Показаны возможности (подготовка материалов, проектирование учебных программ, обратная связь), риски (недостоверность, смещения, академическая нечестность, ослабление критического мышления, защита данных) и условия внедрения (политика вуза, ИИ-грамотность, пересмотр оценивания). Эмпирическая база остаётся краткосрочной и географически неравномерной. Предложены направления для педагогических вузов Узбекистана.*

Abstract. *This article reviews international systematic reviews and UNESCO frameworks on generative artificial intelligence (GenAI) in teacher education. It identifies opportunities (resource generation, curriculum design, feedback), risks (inaccurate output, bias, academic integrity, weaker critical thinking, data privacy) and conditions for adoption (institutional policy, AI literacy, assessment redesign). The evidence base is short-term and geographically uneven. Implications for pedagogical universities in Uzbekistan are proposed.*

Ключевые слова: *генеративный искусственный интеллект, педагогическое образование, ИИ-грамотность, инновации в образовании, академическая честность.*

Keywords: *generative artificial intelligence, teacher education, AI literacy, educational innovation, academic integrity.*

ВВЕДЕНИЕ

Генеративный искусственный интеллект (ГИИ) — системы, создающие текст, изображения и код по запросу пользователя, — быстро вошёл в практику обучения, и подготовка педагогов к работе с ним стала ключевой темой инноваций в образовании. ЮНЕСКО подчёркивает, что

педагогическое осмысление и регулирование ГИИ отстают от скорости его распространения, и предлагает человекоцентричный подход к его применению (Miao & Holmes, 2023). В 2024 г. организация описала рамку ИИ-компетентности учителя из пяти аспектов: человекоцентричное мышление, этика ИИ, основы и применение ИИ, педагогика ИИ и ИИ для профессионального развития (Miao & Cukurova, 2024).

Языковые модели открывают возможности персонализации обучения, но создают риски избыточной зависимости от ответов модели, смещений в данных и нарушений академической честности (Kasneci et al., 2023). Для Узбекистана тема значима в контексте Концепции развития системы народного образования до 2030 г., предусматривающей внедрение информационно-коммуникационных технологий и укрепление подготовки педагогов (Президент Республики Узбекистан, 2019).

Международные обзоры редко соотносят выводы с условиями педагогических вузов Центральной Азии. **Цель** статьи — обобщить результаты современных исследований и нормативных рамок по использованию ГИИ в педагогическом образовании и сформулировать условия его ответственного внедрения. Вопросы исследования: 1. Какие возможности ГИИ для подготовки педагогов выделяют исследования? 2. Какие риски отмечаются? 3. Какие условия внедрения предлагаются?

ОСНОВНАЯ ЧАСТЬ

Методы

Выполнен целевой аналитический обзор литературы. Поиск проводился в октябре–ноябре 2026 г. по открытым страницам издательских платформ и сайту ЮНЕСКО по запросам «generative AI», «teacher education», «AI competency». Критерии включения: публикации 2023–2026 гг.; рецензируемые обзоры или рамочные документы международной организации; тема — ГИИ в высшем и педагогическом образовании; доступность полного текста с DOI.

Вошли семь источников: четыре систематических обзора (Amofa et al., 2025; Kildė, 2024; Ogunleye et al., 2024; Yuan et al., 2026), одно аналитическое обозрение (Kasneci et al., 2023) и два документа ЮНЕСКО (Miao & Cukurova, 2024; Miao & Holmes, 2023).

РЕЗУЛЬТАТЫ

Возможности (ВИ1). В обзоре 35 статей (Scopus, Web of Science, 2021–2025) Yuan и соавт. (2026) выделили четыре области применения ГИИ в подготовке учителей: генерацию учебных материалов, проектирование учебных программ, совместное обучение студента и ИИ,

изучение восприятия участников. Обзор 355 статей (Ogunleye et al., 2024) фиксирует персонализацию, своевременную обратную связь и поддержку письма. По обзору 140 статей (Amofa et al., 2025), связь использования ГИИ с успеваемостью положительна, но не детерминирована: она зависит от конструкции задания и особенностей обучающихся.

Риски (ВИ2). Ogunleye и соавт. (2024) называют недостоверные ответы модели («галлюцинации»), смещения, плагиат, ограничение критического мышления и конфиденциальность данных. Доказательная база ограничена: преобладают краткосрочные качественные дизайны, мало лонгитюдных данных; в обзоре Yuan и соавт. (2026) нет работ из Африки и Латинской Америки, а обзор Kildė (2024) охватил лишь 12 эмпирических работ.

Условия внедрения (ВИ3). Amofa и соавт. (2025) призывают к институциональным политикам, обучению ИИ-грамотности и пересмотру оценивания. ЮНЕСКО предлагает человекоцентричный подход (Miao & Holmes, 2023) и пять аспектов компетентности учителя (Miao & Cukurova, 2024).

ОБСУЖДЕНИЕ

Это близко к оценке Kasneci и соавт. (2023): польза ГИИ зависит от компетентности педагога и проектирования заданий. Педагогическому вузу Узбекистана важнее не закупать сервисы, а развивать компетенции по рамке ЮНЕСКО (Miao & Cukurova, 2024). Из этого следуют три вывода. Во-первых, ввести в программы подготовки педагогов модуль «ИИ-грамотность учителя». Во-вторых, принять вузовскую политику допустимого использования ГИИ с обязательной ссылкой на его применение. В-третьих, пересмотреть формы контроля: больше устных защит, проектных заданий и портфолио.

Ограничения. Обзор целевой, а не полной систематической процедуры; семь англоязычных источников могли не включить региональные и русскоязычные работы. Рекомендации не проверялись эмпирически.

ЗАКЛЮЧЕНИЕ

Генеративный ИИ расширяет возможности подготовки педагогов, но несёт риски для достоверности знаний, академической честности и критического мышления. Ответственное внедрение требует обучения ИИ-грамотности, институциональной политики и пересмотра оценивания. Перспективы — лонгитюдные эксперименты в узбекских педагогических вузах.

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НЕПРЕРЫВНОЕ ПРОФЕССИОНАЛЬНОЕ РАЗВИТИЕ ПРЕПОДАВАТЕЛЯ: ОТ СТАЖЁРА К МАСТЕРУ

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Аннотация. *Рассматриваются этапы профессионального становления преподавателя высшей школы, от адаптации к педагогической деятельности до осознанного владения методическим инструментарием и наставничества. Особое внимание уделяется профессиональной рефлексии, работе с обратной связью, роли кафедральной среды и связи повышения квалификации с изменениями в учебной практике. Обосновывается необходимость оценивать профессиональный рост не количеством пройденных курсов, а качеством решений, принимаемых преподавателем в реальных образовательных ситуациях.*

Ключевые слова: *профессиональное развитие, преподаватель высшей школы, педагогическое мастерство, наставничество, рефлексия, методическая компетентность, повышение квалификации.*

Вопрос о профессиональном развитии преподавателя нередко сводится к периодичности курсов повышения квалификации, наличию сертификатов и участию в методических мероприятиях. Между тем преподавательская работа меняется не в момент получения очередного удостоверения, а тогда, когда новые знания начинают влиять на содержание занятий, способы взаимодействия со студентами и оценку результатов обучения. Именно поэтому непрерывное профессиональное развитие следует рассматривать не как набор отдельных мероприятий, а как длительный процесс, в котором опыт, обучение и критическое осмысление собственной практики постоянно взаимодействуют.

Особенно заметна потребность в таком подходе в высшей школе. Преподавателю приходится одновременно решать несколько задач: обеспечивать освоение дисциплины, учитывать неоднородный уровень подготовки студентов, вести научную работу, обновлять учебные материалы и осваивать цифровые средства обучения. При этом даже глубокое знание предмета само по себе не гарантирует успешного

преподавания. Необходимо уметь объяснить сложный материал, подобрать адекватные задания, увидеть причины затруднений и изменить ход занятия, если первоначальный план не срабатывает.

Профессиональный путь от стажёра к мастеру удобно описывать как последовательное расширение самостоятельности и ответственности преподавателя. Однако речь не идёт о жёсткой лестнице, на которой каждый следующий уровень автоматически достигается после определённого числа лет работы. Опыт может накапливаться без существенного изменения педагогических подходов. И наоборот, молодой преподаватель при наличии наставника, развитой рефлексии и возможности экспериментировать способен сравнительно быстро освоить сложные профессиональные действия. Поэтому основным критерием продвижения становится качество педагогического решения, а не только стаж.

На начальном этапе преподаватель-стажёр сталкивается с необходимостью соединить теоретические представления о профессии с повседневной организацией учебного процесса. Ему нужно научиться распределять время занятия, формулировать достижимые результаты, выстраивать последовательность заданий, поддерживать рабочую атмосферу в аудитории. Наиболее сложными часто оказываются ситуации, которые нельзя полностью предусмотреть в конспекте: отсутствие реакции на вопрос, существенные различия в темпе работы студентов, неожиданная ошибка в объяснении или необходимость изменить задание по ходу занятия.

В этот период особенно важна помощь опытного коллеги. Наставничество эффективно тогда, когда оно не ограничивается проверкой документации и посещением открытого занятия. Совместное обсуждение конкретных педагогических эпизодов позволяет начинающему преподавателю понять, почему один способ объяснения оказался удачным, а другой не дал результата. Полезна и обратная связь после занятия: не общая оценка «хорошо» или «слабо», а разговор о том, какие действия преподавателя помогли студентам, где возникли затруднения и что следует изменить в следующий раз.

По мере приобретения опыта наступает этап профессиональной самостоятельности. Преподаватель уже не просто воспроизводит предложенную методику, а выбирает её с учётом целей дисциплины и состава группы. Например, при изучении теоретического материала он может заменить длительное объяснение анализом небольшого текста или

проблемной ситуации, если это позволяет лучше выявить понимание ключевых понятий. Важным признаком роста становится способность аргументировать такой выбор и соотнести его с результатами обучения.

На данном этапе существенно меняется отношение к оцениванию. Если начинающий преподаватель нередко воспринимает контроль прежде всего как проверку усвоенного материала, то более опытный педагог использует результаты заданий для корректировки обучения. Ошибки студентов становятся источником информации: они показывают, какие понятия требуют дополнительного объяснения, какие задания были сформулированы недостаточно ясно и какие умения ещё не сформированы. Так оценивание постепенно приобретает диагностическую функцию.

В исследованиях Л. Шульмана подчёркивается особая роль педагогического знания содержания предмета: преподавателю необходимо не только владеть научной областью, но и понимать, как представить её материал обучающимся [1]. Для высшей школы это положение принципиально. Научная точность и доступность объяснения не противоречат друг другу. Напротив, умение подобрать убедительный пример, сопоставить несколько трактовок и предупредить типичное неверное понимание свидетельствует о зрелости предметно-методической компетентности.

Следующий этап связан с формированием индивидуального педагогического стиля. Преподаватель начинает видеть учебную дисциплину не как совокупность тем, которые необходимо последовательно изложить, а как систему знаний и действий, которыми должен овладеть студент. В соответствии с этим пересматриваются структура курса, характер самостоятельной работы и способы организации обсуждений. При этом индивидуальный стиль нельзя отождествлять с неизменным набором любимых приёмов: его зрелость проявляется именно в способности гибко выбирать методы.

Профессиональная рефлексия выступает механизмом, который связывает опыт с дальнейшим развитием. Д. Шён показал значение осмысления действий как в процессе профессиональной работы, так и после её завершения [2]. В педагогической практике это означает умение заметить изменение ситуации непосредственно на занятии, принять решение и затем вернуться к нему в ходе анализа. Например, преподаватель может увидеть, что обсуждение не развивается из-за

слишком общего вопроса, конкретизировать его и после занятия оценить, почему первоначальная формулировка оказалась неудачной.

Для развития рефлексии полезны простые, но регулярные действия: краткая запись после сложного занятия, обсуждение учебных случаев на заседании кафедры, анализ анонимных ответов студентов, сопоставление результатов разных учебных групп. Важно, чтобы такая работа не превращалась в формальный отчёт. Её смысл состоит в постановке конкретного вопроса к собственной практике и поиске обоснованного ответа. Даже небольшое изменение задания, проверенное на нескольких занятиях, может дать больше профессиональной пользы, чем поверхностное знакомство с множеством новых технологий.

Особое место в профессиональном становлении занимает научно-исследовательская деятельность. Для преподавателя высшей школы она важна не только как самостоятельное направление работы, но и как источник обновления содержания образования. Участие в исследованиях позволяет вводить студентов в современную научную дискуссию, показывать неоднозначность интерпретаций и формировать культуру доказательного рассуждения. Вместе с тем публикационная активность сама по себе не служит прямым показателем качества преподавания. Существенно то, как исследовательский опыт преобразуется в содержание курса и способы организации учебной работы.

Переход к уровню педагогического мастерства заметен в ситуациях, когда преподаватель способен работать не только со стандартными, но и с нестандартными образовательными задачами. Он умеет распознавать причины затруднений, изменять педагогическую стратегию без потери учебной цели, поддерживать самостоятельность студентов и создавать условия для содержательной дискуссии. Подобное мастерство включает не только методическую технику, но и профессиональную этику: уважение к обучающимся, справедливость оценивания, готовность признавать собственные ошибки.

В модели приобретения профессионального опыта Х. Дрейфуса и С. Дрейфуса движение от новичка к эксперту связано с изменением характера принятия решений: от опоры на отдельные правила к более целостному восприятию ситуации [3]. В педагогике эта идея помогает объяснить, почему опытный преподаватель иногда быстро замечает проблему, которую начинающий специалист ещё не умеет распознать. Однако профессиональная интуиция не должна подменять анализ. Мастерство

предполагает способность не только принять удачное решение, но и объяснить его коллегам, особенно в работе с молодыми преподавателями.

Именно на этом уровне наставничество приобретает новое содержание. Преподаватель-мастер передаёт не готовые сценарии занятий, а способы педагогического мышления: как определить главную трудность темы, как выбрать форму обратной связи, как оценить эффективность учебного задания. Такой обмен опытом требует доверительной кафедральной среды. Если обсуждение занятий воспринимается как поиск недостатков, преподаватели стремятся демонстрировать только успешные практики. Если же анализ строится как совместное профессиональное исследование, появляется возможность открыто говорить о затруднениях и искать решения.

В последние годы заметно расширились возможности профессионального обучения: онлайн-курсы, открытые лекции, цифровые библиотеки, международные семинары, стажировки и академическая мобильность позволяют преподавателю знакомиться с различными образовательными подходами. Вместе с тем доступность ресурсов ставит вопрос об их осмысленном отборе. Преподавателю необходима не максимальная интенсивность участия во всех доступных программах, а индивидуальная траектория, связанная с реальными профессиональными задачами. Такая траектория может включать развитие методики оценивания, совершенствование академического письма, работу с цифровыми ресурсами или обновление содержания конкретной дисциплины.

Особую актуальность приобрела цифровая компетентность. Электронные платформы, автоматизированные средства обратной связи и инструменты искусственного интеллекта могут облегчать подготовку материалов и расширять возможности индивидуализации обучения. Однако сама по себе цифровизация не делает занятие более результативным. Преподавателю необходимо понимать, какую учебную задачу решает инструмент, как проверить достоверность полученной информации и каким образом сохранить самостоятельность мышления студента. Поэтому освоение технологий должно сопровождаться методической и этической оценкой их использования.

Для образовательных организаций Республики Узбекистан вопросы непрерывного профессионального развития особенно значимы в условиях обновления образовательных программ, усиления требований к качеству подготовки специалистов и расширения международного академического

сотрудничества. При этом результативность институциональных мер зависит от их связи с повседневной работой кафедр. Курсы повышения квалификации, стажировки и методические семинары должны завершаться не только отчётом об участии, но и обсуждением возможных изменений в учебных программах, заданиях и подходах к оцениванию.

Представляется целесообразным выстраивать профессиональное развитие преподавателей на основе трёх взаимосвязанных процедур. Первая — выявление конкретных затруднений через самоанализ, наблюдение занятий и обратную связь студентов. Вторая — выбор формы профессионального обучения, непосредственно отвечающей выявленной потребности. Третья — проверка того, какие изменения произошли в учебной практике и как они повлияли на работу обучающихся. Такая логика позволяет избежать разрыва между повышением квалификации и реальными результатами преподавания.

Исследователи профессионального развития педагогов отмечают, что устойчивые изменения практики связаны с содержательной направленностью обучения, активным участием преподавателей, сотрудничеством и продолжительной поддержкой [4]. Поэтому разовое мероприятие редко способно заменить системную работу. Необходимы время для апробации новых подходов, возможность обсуждать промежуточные результаты и право корректировать первоначальное решение. В этом смысле профессиональное развитие является одновременно личной ответственностью преподавателя и задачей образовательной организации.

Таким образом, движение от стажёра к мастеру представляет собой не накопление формальных квалификационных признаков, а изменение характера профессиональной деятельности. Сначала преподаватель учится уверенно организовывать занятие, затем осознанно выбирать методы и анализировать результаты, далее — проектировать собственные образовательные решения и делиться обоснованным опытом с коллегами. При этом достижение мастерства не означает завершения обучения: новые поколения студентов, научные открытия и изменения образовательной среды постоянно ставят перед педагогом новые вопросы.

Главный вывод заключается в том, что непрерывное профессиональное развитие становится результативным лишь тогда, когда приобретённые знания проходят проверку практикой и становятся предметом профессионального обсуждения. Подлинное мастерство преподавателя проявляется не в безошибочности, а в способности замечать

проблемы, учиться на собственном опыте, принимать ответственные решения и помогать профессиональному росту других. Именно такая позиция обеспечивает преемственность педагогических традиций и одновременно создаёт условия для обновления высшего образования.

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PEDAGOGICAL FOUNDATIONS OF PREPARING FUTURE TRANSLATORS FOR CRITICAL WORK WITH MACHINE TRANSLATION RESULTS

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Abstract. *The article analyzes the pedagogical foundations of preparing future translators for the critical evaluation and post-editing of texts created by machine translation systems and artificial intelligence tools. It examines the components of post-editing activities, principles of training organization, and quality assessment criteria. A theoretical four-stage training scheme is proposed, combining diagnostics, analysis, correction, and reflection. It is emphasized that digital tools should be used as an auxiliary resource, and the professional responsibility for the accuracy and appropriateness of the translation remains with the individual.*

Keywords: *machine translation, post-editing, artificial intelligence, translator training, translation competence, translation quality.*

Аннотация: *В данном тезисе анализируются педагогические основы подготовки будущих переводчиков к критической оценке и постредактированию текстов, созданных системами машинного перевода и инструментами искусственного интеллекта. Рассматриваются компоненты постредакционной деятельности, принципы организации обучения и критерии оценки качества. Предложена теоретическая четырехэтапная схема обучения, сочетающая в себе диагностику, анализ, коррекцию и рефлексию. Подчеркивается, что цифровые инструменты должны использоваться в качестве вспомогательного ресурса, а профессиональная ответственность за точность и уместность перевода остается за лицом.*

Ключевые слова: *машинный перевод, постредактирование, искусственный интеллект, обучение переводчиков, переводческая компетенция, качество перевода.*

Modern changes in the field of translation are linked to the rapid progress of information technologies, neurointerfaces, and generative AI. Automated tools for translation and language analysis are already part of a specialist's work – this affects the translator's work process, as well as the conditions for training

personnel. While the traditional training system was primarily focused on developing linguistic knowledge and independent translation skills, today the ability of a future specialist to competently interact with intelligent systems, evaluate their capabilities, and identify the limitations of the results obtained is gaining particular relevance [1].

However, the presence of technology does not yet indicate the professionalism of the translator. A machine-generated text may be syntactically correct, but it may contain errors in meaning, lack of coherence of thought, or ignore the specifics of the communication context. Such situations determine the need to develop in students the ability to critically evaluate work using digital tools – that is, to perceive a variant from the system not as a final truth, but only as an object of analysis [2].

Pedagogically, this issue is closely linked to the formation of a student's professional autonomy. Professional autonomy is the ability of a future translator to independently process the information received; compare various solutions for text translation; make a reasonable choice in favor of one or another option; and be responsible for the result of their work. Such independence means not the lack of application of modern means, but the ability to apply them for their intended purpose.

It is worth highlighting the formation of critical thinking - the ability to compare the incoming message with the output from the machine translation system. In teaching, it is necessary to organize situations where the student not only perceives the result of MP text processing but also evaluates the meaning of the information they receive, finds inaccuracies in meaning transmission, controls the use of terms, and selects the necessary linguistic forms. This form of teaching organization allows for the formation of a translational position [3].

One of the promising directions for improving the training of future translators is the inclusion of comparative-analytical tasks in the educational process. For example, students can be asked to compare an independently completed translation with a version created by an artificial intelligence system, identify the advantages and disadvantages of each solution, and provide arguments for choosing the final version. Another productive vector is the study of ambiguous linguistic units, during which students evaluate the correct interpretation of the phrase's meaning depending on the situation.

Work with text containing specialized vocabulary, clichés, and culturological elements of the language is also of pedagogical significance. Here, it is important for the student to take into account not so much the semantic-syntactic adequacy of the translation of words as such, as the concept, the

communicative-pragmatic orientation of the author of the source text, the stylistic-genre belonging of the text and the addressee of the message. Applying IS allows for an increase in the number of options for choosing synonyms, but the student must evaluate the correspondence [4].

One of the most important conditions for the successful implementation of this training is the transformation of the teacher's position. The teacher is the bearer of knowledge about the language, but the role of an organizer of students' mental work becomes even more important for them. The teacher's task is to organize learning situations to encourage students to independently choose a solution to the problem; discuss alternative solutions when translating the text; and justify conclusions based on translation results. The development of academic integrity, information protection, and the rational application of information technologies are of particular importance.

Based on the results of the analyzed positions, we define the following interconnected aspects of the pedagogical process: - developing competencies for assessing machine translation quality; - developing the ability to independently choose a translation strategy; - developing the ability to control linguistic and terminological correctness; - developing self-control skills in decision-making; - fostering a culture of responsible use of IT technologies. Their inclusion in the content of vocational education provides grounds to speak of human interaction with AI as one of the components of a translator's current competence [5].

Consequently, the use of AI in teaching translation is not an increase in the number of digital tools used, but a change in the methodology for building the educational process. The goal is to create a competent specialist with the ability to combine technical culture and independent expert opinion. The leading role of the individual in conducting analysis, interpretation, and rendering translation judgments is the key to the successful training of specialist translators in the context of digitalization of education.

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6-SECTION

USE OF INNOVATIVE TECHNOLOGIES WHEN STUDYING THE SUBJECT ENGINEERING GRAPHICS

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Abstract. *This article is devoted to the creative approach of students in the educational process using innovative technology for the development of spatial mental thinking when studying the subject of engineering graphics.*

Keywords. *Engineering and computer graphics, geometric elements, plane projection method, metric and positional problems, spatial representation, thinking skills, definition, properties, algorithms, theorems, technological processes, technological developments, high graphic culture, drawing equipment, drawing qualities, in practical activities.*

Аннотация. *Ушбу мақола талабаларни мухандислик графикаси фанини ўқитиш жараёнида инновацион технологиялардан фойдаланиб, ижодий ёндошиш орқали фазовий ҳаёлий фикрлашни ривожлантиришга қаратилган.*

Калитли сўзлар. *Мухандислик ва компьютер графика, геометрик элементлар, текисликларга проекциялаш усули, метрик ва позицион масалалар, фазовий тасаввур қилиш, фикрлаш қобилиятлари, таърифлар, хоссалар, алгоритмлар, теоремалар, технологик жараёнлар, техника тараққиёти,юқори график маданияти, чизма қуроллари, чизма сифати, амалий фаолиятда.*

Мухандислик графика фанларида фазовий ҳаёлий фикрлаш талабаларнинг ижодий мустақиллигини тўла амалга оширади. Унда талабалар ўқитувчининг берган вазифасини бажариш билан бир қаторда вазифага оид ўзлари мустақил машқлар ечишга ҳаракат қиладилар, изланишни амалга оширадилар ҳамда натижага эришадилар. Шу тариқа ижод услубини қўллаш орқали талабалар фаолияти иштирокчиларнинг илмий-услубий фаолиятига яқинлашади.

Ўқитувчи фақат талабаларнинг илмий изланишларига умумий раҳбарлик қилади, вазифалар эса уларнинг мустақил ўқув-билиш ҳатти-ҳаракатларининг тўла даврийлигини кўзда тутади, натижада тахлилга

ахборотлар йиғилади ёки ечилишига оид ўқув муаммоси қўйилади ва ечимлар текширилиб, янги билимлар жорий қилинади.

Мухандислик графика фанида ижодий услубда ўрганилаётган курснинг ташкил қилган мавзуларини ўқитиш жараёнида фойдаланиш тавсия этилади. Бу эса мавзуга оид бошқа барча маълумотларнинг тобора онгли ўзлаштиришга олиб келиши лозим. Шунингдек, бундай методда машғулот ўтказиш учун ўқитувчи танлаган бўлим ёки мавзу талабаларнинг идрок қилишларига ва фазовий тасаввурларини ривожлантиришга қулай бўлишини назарда тутиши лозим бўлади.

Талабаларнинг ижодий ишлари шакли жиҳатдан турличадир. Улар маъруза матнини тайёрлаш ва семинарга тайёргарлик кўриш, у ёки бу масаланинг назарий холатини ўрганиш, кўргазмали қуроллар, дидактик материаллар тайёрлаш, берилган билимлар юзасидан фазовий тасаввурга эга бўлишлари ва бошқалардир. Қисман ижодий метод мураккаб муаммони бўлакларга ажратиб, унинг қулай масалаларини бочқичма-босқич аниқлаб олишда қўлланади ва унда ҳал қилинган хар бир босқич масаланинг кейинги босқичини ечишга асос бўлиб хизмат қилади. Бунда талабалар ўқув муаммосининг қўйилишида, гепотизани тахмин қилиш ва исботлашда фаол қатнашадилар.

Чизма геометрия ва мухандислик графика фанларидан талабаларнинг ижодий ёндашишида маъруза матнлари, адабиётлар, таълимий тестлар, дидактик материаллар, кўргазмали қуроллар, шарқона меъморий элементлардан фойдаланиш, ахборот технологияларда ташқи инновацион технологиялардан ҳам фойдаланиш мумкин.

Инновацион сўзи “янгилик киритиш” маъносини англатади. Технология деганда, одатда ашёларни қайта ишлаш усуллари ва ишлаб чиқариш жараёни ҳамда уларнинг илмий тавсифлари, шунингдек, ўқитиш жараёнининг мажмуаси тушунилади.

“Қомусий луғатда” шунга яқин изоҳ берилади, лекин у бир мунча кенгроқ ёритилган: “Фан сифатида технологиянинг вазифаси хар томонлама самарали ва тежамли ишлаб чиқариш жараёнларини аниқлаш ва амалиётда ундан фойдаланиш мақсадида физика, кимё, механика ва бошқа аниқ фанлар қонуниятларига асосланади”. Умуман технология грекча сўз бўлиб, “технис” -санъат, маҳорат, “логос”-таълимот деган маъноларни билдиради.

Демак, инновацион технология деганда дарс бериш жараёнида янгилик киритиб, ўқитувчи талабаларнинг билимларини ва амалий малакаларини қай тарзда ошириш мумкинлигини, ҳамда уларнинг

ўзлаштиришини аниқлашни ва фазовий тасаввур қилиш, фазовий фикр юритиш қобилиятларини ривожлантириш, янги услубларни ишлаб чиқишни тушуниш мумкин. Қуйида чизма геометрия ва мухандислик графикаси фанларидан талабаларнинг ижодий ёндошишга ва фазовий тасаввурларини ривожлантиришга ундовчи методлар келтирилган:

- Вертушка – “Чархпалак”;
- Мен ЖИФ (жамоада ижодий фаолият) ташкилотчиси;
- ББББ (билмайман, биламан, билиб олдим);
- Интерфаол методлар: “Фикрий ҳужум”, “Ялпи фикрий ҳужум”, “Фикрлашнинг шиддатли ҳужуми”, “6х6х6х”;
- “Ақлий ҳужум” методи;
- “Кластер” методи;
- Тажриба воситасида ўқитиш шакли;
- Расмларни тўғри жойлаштириш методи;
- Видео топишмоқ методи;
- “Заковатли зукко” методи;
- “Қарама-қарши муносабат” методи;
- “Инсерт стратегияси”
- “Ролли ҳамда ишбоп ўйинлар;”
- Адолат ўлкасига саёҳат.

Машғулотларда ижодий суҳбатни қўллаш мақсадга мувофиқ топилади. Талаба бундай суҳбат жараёнида ўзида аввалдан мавжуд бўлган фазовий тасаввурларини, билимларни, ижодий фаолияти тажрибасига асосланган ҳолда ўқитувчи раҳбарлигида муаммони излайди ва мустақил равишда унинг ечимини топади. Талабалар ўз ташаббуслари билан саволларга жавоб берадилар ёки ўз чиқишларида турли мулоҳазаларни билдирадилар, муаммонинг ечилишидаги ўз таклифларини илгари сурадилар, фазовий тасаввур қилиш билан фазовий фикрлаш ўртасидаги турли – туман алоқаларни қайд қиладилар, бахслашадилар, бошқаларнинг фикрига танқидий муносабат билдирадилар. Бу жараёнда ўқитувчининг талабаларга ёрдам бериш даражаси, уларнинг машғулотларга тайёргарлик кўриш даражасига боғлиқ бўлади.

Ҳулосада шуни қайд қилиш мумкинки, юқорида келтирилган методларни нафақат мухандислик графикаси мавзуларига мос татбиқ қилиш ва бошқа аниқ фанлар мавзуларига қўллаган ҳолда таълим сифатини оширган ҳолда инновацион компьютер технологиялардан фойдаланиш мақсадга мувофиқ бўлади.

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ENGINEERING GRAPHICS – THE FOUNDATION FOR TRAINING TECHNICAL SPECIALISTS

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Abstract. *This article examines the subject of "Engineering Graphics" as a foundational element in the training of technical specialists. It encompasses descriptive geometry, standards for the preparation of technical drawings (GOST), and computer-aided design (CAD) systems. These components enable engineers and students to master geometric modeling and the interpretation of technical documentation. The curriculum for "Engineering Graphics" should be standardized across all engineering disciplines, as the rules and techniques for creating technical drawings remain consistent regardless of a student's specific field of study.*

Keywords. *Engineering graphics, design documentation, descriptive geometry, technical drawing, graphic training of students, methods of descriptive geometry, technical drawings.*

Аннотация: *В статье рассматривается предмет «Инженерная графика, как основа подготовки технических специалистов .Она объединяет начертательную геометрию, правила оформления чертежей (ГОСТ) и компьютерное моделирование (САПР, CAD-системы). Они помогают инженерам и студентам освоить геометрическое моделирование и чтение технической документации. Содержание курса «инженерная графика» должно быть единым для всех инженерных специальностей, ибо правила и технология выполнения чертежей не зависят от направления подготовки выпускника.*

Ключевые слова: *Инженерная графика, конструкторские документации, начертательная геометрия, техническое черчение, графическая подготовка студентов, методы начертательной геометрии, технические чертежи.*

Инженерная графика — это общеинженерная дисциплина, изучающая методы проецирования и создания конструкторской документации. Она объединяет начертательную геометрию, правила оформления чертежей (ГОСТ) и компьютерное моделирование (САПР, CAD-системы). . Они помогают инженерам и студентам освоить геометрическое моделирование и чтение технической документации.

Термин «инженерная графика» появился в середине семидесятых годов прошлого века и относился к дисциплине, объединяющей курсы «начертательная геометрия» и «техническое черчение». В последнее время его почему-то упорно связывают с техническим черчением. Логичнее, и более правильно, было бы все графические курсы (начертательную геометрию, техническое черчение и компьютерную графику) во избежание недоразумений, возникающих постоянно, отнести к «инженерной графике».

Инженерная графика относится к дисциплинам базового цикла, что и определяет цели и задачи перед ней стоящие. По окончанию «курса инженерная графика» обучающийся должен владеть базовыми методами обработки графической информации при работе с документами на «твердом носителе» (бумаге) и электронном их представлении. Он должен уметь правильно выбрать количество изображений различных объектов, и порядок их расположения на поле чертежа.

Иметь навык грамотно выполнять необходимые разрезы и сечения, наносить размеры и необходимые надписи. Знать условности и упрощения, допускаемые на чертежах. Уметь выполнять рабочие чертежи и чертежи общего вида реальных объектов с использованием средств вычислительной техники. Не следует думать, что на этом и заканчивается обучение инженерного работника умению чертить.

Один из наиболее авторитетных специалистов в области инженерной графики В.С.Левицкий в предисловии к своему учебнику написал «…умению чертить инженер продолжает учиться всю свою жизнь». И с этим нельзя не согласиться. Освоение профессиональных дисциплин неразрывно связано с изучением правил и условностей выполнения чертежей различных изделий. Последнее связано со спецификой технологии изготовления тех или иных технических объектов.

Примером могут служить чертежи железобетонных и деревянных конструкций в строительстве, чертежи магнитопроводов и жгутов в электротехнической промышленности, чертежи армированных и литых изделий в машиностроении. К таким чертежам можно отнести ремонтные

и монтажные чертежи, чертежи упаковок, технологические чертежи и схемы, обеспечивающие производственный процесс. Особенности выполнения таких специальных чертежей являются прерогативой специализированных профессиональных курсов.

Существующий подход к специализации, которая почему-то отождествляется с профессионализацией, совсем не способствует повышению качества специалиста. Не следует забывать и того, что … первые два курса обучения затрачиваются преимущественно на компенсацию дефицита знаний, представлений и навыков работы вчерашних школьников… Со всех сторон, нас упорно убеждают, не смотря ни на что (точнее не обращая ни на что внимания), что «… применение новых подходов и инновационных технологий …» является панацеей от всех бед, связанных с подготовкой специалиста, в том числе и по курсу инженерной графики.

Свою лепту в сложившуюся ситуацию вносят и разработчики образовательных программ, сочиняя уникальные синтетические курсы, например такие, как «начертательная геометрия, инженерная и компьютерная графика», или «начертательная геометрия и инженерная графика». Существуют и другие не менее экзотические варианты.

На качество графической подготовки студентов оказывает свое влияние и интернет. К сожалению, далеко не положительное. Бесконтрольное размещение в глобальной паутине различных сведений, вкупе со святой верой в то, что все написанное является истиной, зачастую приводит к тупиковым ситуациям. Число же неверных чертежей, которые студенты копируют из сети, зашкаливает за все разумные пределы.

Содержание курса «инженерная графика» должно быть единым для всех инженерных специальностей, ибо правила и технология выполнения чертежей не зависят от направления подготовки выпускника. Нет, и не может быть, отдельной инженерной графики для электрика, строителя, геолога и т.д. Направления подготовки можно перечислять до бесконечности. Методы начертательной геометрии и правила построения чертежей едины для всех. Как обязательны для всех требования ЕСКД при выполнении технических чертежей.

В разделе «область применения» ГОСТ 2.305-2018 и другие стандарты ЕСКД четко определяют что, «… стандарт устанавливает правила изображения предметов (изделий, сооружений и их составных элементов) на чертежах (электронных моделях) всех отраслей промышленности и строительства».

При существующей на сегодняшний день ситуации никакими дополнительными курсами нельзя добиться повышения качества графической подготовки. Во-первых, требования, предъявляемые образовательными стандартами к студенту, базируются на том, что он имеет определённую геометрическую и графическую подготовку, полученную в школе. Так ли это? В подавляющем числе случаев геометрические представления студента первого курса близки к нулю, а в отдельных случаях попадают и в отрицательную область.

Черчение в школах практически не преподаётся. У студента нет навыков работы с чертежными инструментами. А задачи инженерной графики требуют хорошо развитого логического мышления. В-третьих, «оптимизация» в университетах привела к тому, что в курсах инженерной графики студент и преподаватель встречаются раз в недели. Согласно кривой забывания Эббингауза, даже у «хороших» студентов, за это время, в памяти остается менее 20% информации, полученной на предыдущем занятии.

Логически напрашивается вывод о том, что для «подтягивания» студента до требуемого уровня в первом семестре необходим модуль, позволяющего скорректировать недоработки средней школы. Также необходимо изменение объёма контактного времени, за счёт увеличения числа часов в разделах «начертательная геометрия» и «техническое черчение». При условии проведения занятий на каждой неделе у студентов будет сохраняться более 30% полученных знаний, а при возможности повторении материала до 60%.

Введение же курсов по специальным чертежам, без изменения ситуации в первых семестрах ни к чему положительному не приведёт, что и подтверждается практикой. Традиционно, чертежи считают «языком техники». Вместе с тем это ещё и плоские эквиваленты (модели) пространственных объектов. Учась читать и выполнять чертежи, студент одновременно учится и процессу моделирования технических систем. По определению Р. Шенона «… моделирование систем – это искусство и наука». Это ни в коем случае нельзя забывать.

Если при изучении «инженерной графики» научную часть, в какой-то мере, ещё можно формализовать, то часть, относящуюся к искусству нет. Здесь необходим непосредственный контакт между учителем и студентом, требуется время (иногда значительное) для передачи профессионального опыта.

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TO ENERGY DEFICIENCY DURING UNCONVENTIONAL ENERGY SOURCES SYSTEM CREATE NECESSITY AND FROM HIM REASONABLE USE CONDITIONS

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Abstract. *This article focuses on information on the large-scale practical tasks in the field of energy, the effectiveness of using alternative energy, and the use of renewable resources, which are becoming the priority tasks of state policy today.*

Key words: *Alternative energy , heat electricity stations , ecological environment, traditional energy.*

Experts-scientists are seriously worried about the increasing environmental problems on earth during the next forty years. The main reason for this is the excessive use of energy for the purposes of economic development. The environment is suffering serious damage due to the harmful gases emitted from power and thermal plants using organic types of fuel, and from the increasing number of internal combustion engines. After all, the processes of temperature rise are related to gas emissions from thermal power plants that use organic types of fuel into the atmosphere. At this point, it is necessary to pay attention to another evidence. In the next forty years, more fossil fuels were extracted than in the entire history of mankind. Today, the amount of natural fuel used worldwide is 12 billion tons of oil equivalent (tne)1 per year. Every year, due to production and use, the reserves of natural resources such as oil, natural gas, coal, and uranium are rapidly decreasing, causing serious concern to humanity.

It is known that the consequences of environmental disasters have a negative impact on the lifestyle of millions of people living in the Aral Sea basin. The tragedy of the island intensified the continentality of the climate, as a result of which the summer days became more dry, and the cold winter days, on the contrary, became longer. The number of days when the summer temperature exceeds 40 degrees on the island has increased.

According to experts' predictions, the air temperature in the region may increase by 1.5-3 degrees by 2035-2050. The same to the day Come , Island of the sea dry the rest 5.0 million hectares in part on the field new " Orolkum " desert appear was _ From time to time with this on the ground storms rising , millions tons salt , dust and sand hundreds in kilometers to regions arrived is going

Economical development acceleration , development and to the environment harm does not bring democratic process to be for the world ecological clean and cheap energy to the source need _ This to the problem entrepreneurship with approaching technologies _ by changing and local initiatives supporting solution reach to the goal according to

Abundant , cheap , ecological clean and strong energy from the source use present the world in front standing the most important from problems one _ State , small business and private entrepreneurs and non-state non-profit organizations , environmental clean energy in the field traditional to research relying on oil wealth to spend decrease whole to the world benefit brings _

This the problem solution to do enter - country energy safety strengthens the air pollution reduces and climate to change against stands _ In this field conducted events effect itself manage there is has been in places democratic of culture strengthening and democratic society to build such as strategic purposes own on the contrary finds _

Well , naturally fuel reserves the world scale year after year intense respectively decreased going one at the time what to do need and how the way catch necessary ? To this question scientists and specialists « re recoverable energy from sources fruitful use time already " Enough ," the answer are giving of the world developed in countries this from the source fruitful is used . For example , Germany , England and another series countries this observation can _ Again recoverable energy sources centralized energy from supply away those who live (fields , steppes, shepherds , seasonal working expedition , energy delivered to give difficult has been village and neighborhoods and etc.) for very hand will come From this except this _ source in cities , that is population of tight in addresses hydrocarbon resources in savings , the country energy safety in providing big important have _

Market conditions again recoverable energy from sources wide to use forced which three main reasons have :

The first is national energy safety including oil , gas , coal _ such as useful of fossils decreased to go because of again recoverable energy sources country inside energy source is , above get up of fuels consumption reduces _

The second is the climate change due to come output possible was danger _ Again recoverable energy source energy the need to satisfy help to give with one at , to the atmosphere greenhouse gases release shortens . Scientists the press from the data It is known that it is a greenhouse gases that is , carbonate anhydride (SO2) gas and methane of the earth lower atmosphere layer is increasing more and more . Greenhouse of gases in the atmosphere quantity increased to go Earth in the sphere of temperature to rise take will come From the above come out , scientists of temperature rise unexpected negative consequences reason to be possible , that's it with together with this problems solve in order to belongs to measures to see need they emphasize .

The third is the market conditions to him forced doer again one reason some alternative energy of sources cost last ten year during decreased is going Alternative energy sources expenses decreased to go his work release of technology becoming perfect going with explain can _ This is the field development with expenses more decreased goes _

new of the century second ten in the year ecological pure energy technologies our homes , businesses and vehicles _ energy supply is changing . The future ten , twenty in annuals even more fundamentally changes to be because it is possible ecological pure from energy use pace and the world market is accelerating .

this regard again recoverable energy big of the market from spreading again one is a target . In short , evidence and prove enough and they are energy in " green " color , high level reliable . Ecological clean energy system probability different , that's it with together , new technologies from him wide use enable is creating . Including cellulose _ ethanol ; hydrogen fuel elements ; of atomic energy upcoming generation , photoelectric the sun battery and almost coal waste which does not emit stations the world countries economy more ecological clean alternative energy source supply again is directing .

Again recoverable energy sources from devices to use initially one until weighty Although the funds are spent , they economic in terms of himself justifies _ Traditional fuel with working energy because of into the air coming out sulfur , nitrogen , carbon oxides long to the distance spreads . From this except , they the rain waters with added acid _ compounds becomes and rain in the composition to the ground fall on plants , soil negative effect shows . In the environment such of acids increase as a result , heavy metals to foods and in the end that's it products through a person to the organism effect shows . In this one harm second one the damage itself with together take will come

Ecological clean has been again recoverable energy sources to the environment loss does not deliver . Saying it should be sources usually enough big has been population addresses and big industry enterprises full provide opportunity have not _ They are edge village , neighborhood , small constructions energy with provides . In our country again recoverable ecological clean energy sources apply big to the prospect have and ecological , socio-economic is also effective .

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ABC–XYZ CLASSIFICATION OF SPARE-PART DEMAND OF CITY BUSES WITH A DISPERSION CHECK

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Abstract. *The paper classifies spare parts consumed by two city bus fleets in Karshi (32 Golden Dragon and 19 CRRC buses, 4,720 part issues) by their share of issues (ABC) and by the variability of monthly demand (XYZ). About 80% of issues fall on 24 of 127 Golden Dragon items and 13 of 38 CRRC items. Under the usual coefficient-of-variation limits almost all items fall into class Z, since small monthly counts exceed them even under purely random demand. A dispersion index is proposed to separate random from bunched demand and to choose a supply policy for each group.*

Annotatsiya. *Maqolada Qarshi shahridagi ikki avtobus parkida (32 ta Golden Dragon va 19 ta CRRC, 4720 ta ehtiyot qism berilishi) sarflangan ehtiyot qismlar berilishlar ulushi (ABC) va oylik talab o‘zgaruvchanligi (XYZ) bo‘yicha tasniflangan. Berilishlarning 80 % ga yaqini Golden Dragon uchun 127 nomdan 24 tasiga, CRRC uchun 38 nomdan 13 tasiga to‘g‘ri keladi. Variatsiya koeffitsiyentining odatiy chegaralarida deyarli barcha nomlar Z sinfiga tushadi, chunki oylik soni kichik bo‘lganda bu chegarani tasodifiy talab ham oshib ketadi. Shu sababli tasodifiy va to‘planib keladigan talabni ajratish hamda har bir guruh uchun ta’minot usulini tanlash maqsadida dispersiya indeksi taklif etilgan.*

Keywords: *city bus, spare parts, ABC analysis, XYZ analysis, demand variability, dispersion index, inventory policy.*

Kalit so‘zlar: *shahar avtobusi, ehtiyot qismlar, ABC tahlili, XYZ tahlili, talab o‘zgaruvchanligi, dispersiya indeksi, zaxira siyosati.*

INTRODUCTION

Spare parts are one of the largest operating costs of a bus company, and their shortage directly stops buses: a bus waiting for a part cannot be released to the line. At the same time, keeping every part in stock ties up working capital, which is limited for operators working under gross-cost contracts. Inventory management therefore starts with dividing the assortment into groups that deserve different attention [1, 2].

The most common tool is the combined ABC–XYZ analysis. ABC ranks items by their share in total consumption according to the Pareto principle, while XYZ groups them by the coefficient of variation of demand, usually with limits of 0.1–0.25 for X, up to 0.5–0.6 for Y and above that for Z [3, 4]. For spare parts this approach has a known weakness: demand is intermittent, many months have zero or one issue, and the coefficient of variation then reflects mainly the small size of the counts rather than the predictability of demand [5, 6, 8]. The aim of this study is to apply ABC–XYZ analysis to the repair records of two city bus fleets, to show where the standard XYZ limits fail and to propose a simple correction based on the dispersion index.

MAIN PART

Data and method

The data are part-issue lines of repair cards of one operator in Karshi, transcribed into a database. The Golden Dragon fleet (32 buses) was observed from November 2021 to June 2025 (44 months, 3,777 issues of 127 items), and the CRRC TEG6890NG fleet (19 buses) from September 2024 to July 2026 (23 months, 943 issues of 38 items). Issues made during scheduled maintenance and during unscheduled repairs were both included, and for every item the share of unscheduled issues was recorded. Each issue line was counted as one demand event, since units differ between items.

Items were ranked by the number of events; classes A, B and C were assigned at cumulative shares of 80% and 95%. For each item the monthly counts $x_1, \ldots, x_n$ gave the mean m, the coefficient of variation $CV = s/m$ and the dispersion index

$$D = s^2 / m, \qquad (1)$$

where s is the standard deviation of monthly counts. If issues occur independently at a constant rate, the counts follow the Poisson law, $D \approx 1$ and the expected coefficient of variation is

$$CV_0 = 1 / \sqrt{m}. \quad (2)$$

Equation (2) shows the weakness of fixed limits: an item issued on average once a month has $CV_0 = 1$ even when its demand is perfectly random and stationary, so it falls into class Z regardless of how well it can be planned. Over-dispersion was tested with the statistic $(n - 1)\cdot D$, which follows the χ^2 distribution with $n - 1$ degrees of freedom under the Poisson hypothesis [7].

Results

The ABC curves of both fleets are shown in Fig. 1. For Golden Dragon 24 items (18.9% of the assortment) account for 79.9% of all issues, a classic Pareto pattern. For CRRC the curve is flatter: 13 items (34.2%) give 79.6% of issues, because the younger fleet has a narrower assortment of failing parts. Class C contains 71 and 17 items respectively, which together account for only about 5–6% of issues.

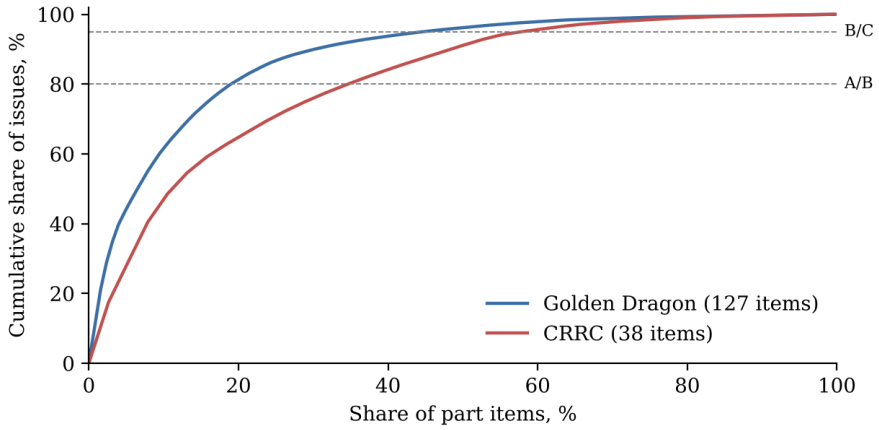

Fig. 1. ABC curves of spare-part issues for the two fleets

The standard XYZ limits gave a striking result: no item of either fleet reached class X, and 116 of 127 Golden Dragon items and 32 of 38 CRRC items were classed as Z. The median CV rose from about 1.1 in class A to 2.2 and 1.9 in class B and 4.6 and 3.2 in class C, i.e. it was determined largely by the volume of demand. Table 1 lists the most frequently issued items of each fleet.

Table 1. Most frequently issued items of class A (m – mean monthly issues)

Item	Issues	m	CV	D	Unsched., %
Golden Dragon					
Engine oil (change)	402	9.1	0.52	2.6	0
Oil filter	397	9.0	0.51	2.4	0
Spring leaf	292	6.6	0.86	5.0	100
Grease (TO-1)	224	5.1	1.71	15.2	0
Clutch release bearing	120	2.7	0.74	1.5	100
Clutch disc	114	2.6	0.76	1.6	100
CRRC					
Brake pads (disc brake)	165	7.2	0.62	2.9	100
Oil filter	109	4.7	0.90	4.1	0
Engine oil (change)	108	4.7	0.90	4.0	0
Spring leaf	76	3.3	0.91	2.9	100
Spring bushing	57	2.5	0.87	2.0	100

The dispersion index gives a more informative picture. In class A, 22 of 24 Golden Dragon items and 12 of 13 CRRC items are over-dispersed ($p < 0.05$), i.e. their demand comes in bunches. Two different mechanisms are visible. For items issued during maintenance – grease, transmission oil, engine oil top-up – the index is very high (up to 14–15), because the work is carried out in campaigns for several buses at once; such demand is not random but is created by the maintenance plan. For items issued during unscheduled repairs – spring leaves, clutch parts, brake pads – the index is moderate (1.5–5.0); bunching here reflects the seasonality and the common operating conditions of buses on the same routes. Only a few items, for example batteries and gas filters of Golden Dragon ($D \approx 1.0$), behave as purely random Poisson demand. In class C most items (61 of 71 and 14 of 17) show no over-dispersion: they are rare, random and cannot be forecast from history.

Brake pads lead the CRRC list with 17.5% of all issues, while for Golden Dragon, which has drum brakes, linings are only in 24th place. Spring leaves and clutch parts are in class A in both fleets, so they deserve priority regardless of the bus make.

Supply policy by group

On this basis four groups are proposed instead of the formal nine-cell matrix. (1) Class A items issued during maintenance (oils, filters, grease, spark plugs): their demand is set by the maintenance plan, so they should be ordered according to the planned number of services for the next month rather than from

past averages. (2) Class A items issued during repairs with moderate over-dispersion (spring leaves, clutch kits, brake pads): a permanent stock is required, and it should be raised before the seasonal peak, because bunched failures exhaust a stock calculated for random demand. (3) Items with $D \approx 1$ regardless of class: demand is random and stationary, and standard reorder-point rules apply. (4) Class C items without over-dispersion: rare and unpredictable, they should not be stocked but supplied under agreements with dealers on guaranteed delivery times.

The study has limitations: issue lines rather than quantities or costs were used, the monthly step hides weekly bunching, and the Golden Dragon and CRRC observation periods do not coincide.

CONCLUSION

ABC analysis of 4,720 part issues of two city bus fleets confirmed a strong concentration of demand: about 80% of issues fall on 19% of items for the older Golden Dragon fleet and on 34% for the younger CRRC fleet. The standard XYZ limits are unsuitable for spare parts with small monthly counts, since they place almost all items in class Z. Comparing the observed variability with the Poisson value by the dispersion index separates demand created by the maintenance plan, bunched failure-driven demand and purely random demand, and allows a supply policy to be chosen for each group. The approach requires only repair-card data and can be applied by any bus operator.

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INNOVATSION QURILISH MATERIALLARI UCHUN RESURS NORMALARINI SHAKLLANTIRISHNING ZAMONAVIY YONDASHUVLARI

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Annotatsiya. *Tezisda innovatsion qurilish materiallari uchun resurs normalarini shakllantirishning metodik asoslari ko‘rib chiqiladi. Texnologik xarita, xronometraj, materiallar balansi va mavjud normalar bilan taqqoslash usullarini birga qo‘llash taklif etiladi. Natija sifatida resurs normasini ishlab chiqishning bosqichli sxemasi taqdim etiladi. Tadqiqot nazariy-metodik xarakterga ega; amaliy sinov natijalari keltirilmaydi.*

Kalit so‘zlar: *innovatsion material, resurs normasi, smeta-normativ baza, xronometraj, texnologik xarita, BIM.*

Abstract. *This paper discusses a methodological approach to developing resource consumption norms for innovative construction materials. The approach combines process mapping, time studies, material balance and comparison with existing norms. A step-by-step procedure for documenting and checking labour, machinery and material consumption is proposed. The findings are methodological rather than results of field experiments.*

Keywords: *innovative construction materials, resource norms, cost estimation, time study, process mapping, BIM.*

KIRISh (INTRODUCTION)

Qurilishda energiya tejamkor izolyatsiya tizimlari, kompozit mahsulotlar va tayyor konstruktiv elementlardan foydalanish kengaymoqda. Ularning o‘rnatish tartibi, brigada tarkibi, mexanizatsiya darajasi va material yo‘qotishlari an’anaviy ishlardan farq qilishi mumkin. Shu sababli eski smeta normasini yangi materialga bevosita qo‘llash xarajatlarni ortiqcha yoki kam baholashga olib kelishi ehtimoli mavjud.

Resurs normasi ish hajmi birligiga zarur mehnat, mashina-mexanizm va material miqdorini bildiradi; resurs narxi esa alohida belgilanadi. Qurilish axborotini tasniflash va BIM ma’lumotlarini boshqarishga oid xalqaro standartlar raqamli ma’lumotlarni tizimlashtirishga yordam beradi, ammo

muayyan materialning tayyor sarf normasini bermaydi (International Organization for Standardization [ISO], 2015, 2018).

Tadqiqot maqsadi — innovatsion qurilish materiallari uchun resurs normalarini asoslashning sodda, tekshiriladigan bosqichli yondashuvini taklif etish.

Mavjud resurs normasini yangi texnologiyaga moslashtirishda uning nomi yoki tashqi o‘xshashligi yetarli mezon emas. Masalan, zavodda tayyorlangan panelni montaj qilish bilan qatlamma-qatlam bajariladigan qoplama ishlarining operatsiyalari farq qiladi. Shuning uchun yangi norma ishlab chiqishdan oldin ish tarkibi va bajarilish sharoiti hujjatlashtirilishi kerak.

TADQIQOT METODOLOGIYASI (METHODS)

Tadqiqotda texnologik jarayonlarni tahlil qilish, taqqoslash va hisoblash usullaridan foydalanildi. Avvalo normativlash obyekti va o‘lchov birligi (masalan, 100 m² qoplama) belgilanadi. Keyin materialning texnik xususiyatlari, ish sharoiti, brigada tarkibi va mexanizmlar qayd etilib, texnologik xarita tuziladi.

Mehnat sarfi operatsiyalar bo‘yicha xronometraj yordamida ishchi-soatda, mashina sarfi mashina-soatda, material sarfi esa kirim-chiqim va asoslangan texnologik yo‘qotishlar orqali aniqlanishi taklif etiladi. Umumiy birlik norma N = R / Q ifodasi bilan hisoblanadi. Bu yerda R — muayyan resursning jami sarfi, Q — sifat nazoratidan o‘tgan ish hajmi. Har bir resurs guruhi uchun R ning o‘lchov birligi alohida belgilanadi.

Birlik mehnat sarfi $N_m = \Sigma(t_i \times b_i) / Q$ ifoda orqali hisoblanadi. Bu yerda t_i — operatsiya davomiyligi (soat), b_i — unda qatnashgan ishchilar soni, Q — sifat nazoratidan o‘tgan ish hajmi. Mashina sarfi uchun mashina-soatlar yig‘indisi Q ga bo‘linadi. Material sarfida esa foydali miqdor bilan asoslangan texnologik yo‘qotishlar birgalikda hisobga olinadi. Ushbu formulalar tasdiqlangan norma emas, hisoblash tartibini ifodalaydi.

Olingan ko‘rsatkichlar o‘xshash ishlar normalari bilan solishtiriladi. Farqlarni baholashda faqat material nomi emas, balki ish operatsiyalari, uskuna va sifat talablari hisobga olinadi. Ushbu tezisda birlamchi qurilish maydoni kuzatuvlari o‘tkazilmagan.

Kuzatuv natijalari qaydnomada ish sanasi, brigada tarkibi, texnika turi, ob-havo va ish sharoiti bilan birga saqlanadi. Bir martalik kuzatuvdan umumiy norma chiqarish tavsiya etilmaydi. Bir necha obyekt bo‘yicha qayta o‘lchash va farqlar sababini tahlil qilish natijani ishonchliroq qiladi.

NATIJALAR (RESULTS)

Tahlil asosida resurs normasini shakllantirishning quyidagi metodik ketma-ketligi taklif etildi: (1) ish turi va o‘lchov birligini belgilash; (2) texnologik xarita tuzish; (3) mehnat, mashina va material sarfini qayd etish; (4) birlik sarflarni hisoblash; (5) mavjud normalar bilan taqqoslash; (6) mutaxassis tekshiruvi; (7) normani elektron katalogga kiritish va keyinchalik yangilash.

Bu ketma-ketlikda har bir norma uchun ish nomi, o‘lchov birligi, qo‘llanish sharoiti, resurslar tarkibi, hisob manbasi va tahrir sanasini ko‘rsatadigan qisqa “norma pasporti”ni yuritish taklif etiladi. Mazkur natija tayyor tasdiqlangan normativ emas, balki uni ishlab chiqishni tartibga soluvchi metodik modeldir.

Taklif etilgan norma pasporti quyidagi asosiy ma’lumotlarni birlashtiradi: ish kodi va nomi, o‘lchov birligi, qo‘llanish chegarasi, texnologik operatsiyalar, mehnat va mashina sarfi, materiallar miqdori, kuzatuv manbasi hamda yangilanish sanasi. Bunday pasport smeta tuzuvchi va ekspert uchun hisobning qanday asosda bajarilganini tekshirish imkonini beradi.

Resurs miqdori bilan narxni alohida yuritish muhimdir. Material bahosi o‘zgarganda smeta qiymati yangilanadi, biroq texnologiya o‘zgarmagan bo‘lsa, birlik resurs sarfi avtomatik ravishda o‘zgarmaydi. Bu yondashuv smeta-normativ bazaning izchilligini saqlashga yordam beradi.

MUHOKAMA (DISCUSSION)

Taklif etilgan yondashuvning afzalligi — innovatsion material sarfini faqat ishlab chiqaruvchi katalogi yoki eski analog norma asosida belgilamaslikdir. Masalan, yangi tizim montaj vaqtini qisqartirishi, biroq maxsus mahkamlagıch yoki uskuna talab qilishi mumkin. Shuning uchun resurs guruhlarini alohida tekshirish zarur.

BIM modelidan olingan ish hajmlari resurs katalogi bilan bog‘lanishi mumkin; bu miqdorlar izchilligini yaxshilaydi (Eastman et al., 2018). Biroq BIM texnologik yo‘qotish va mehnat sarfini o‘z-o‘zidan aniqlamaydi. Modelni amaliyotga joriy etishdan oldin turli obyektlarda xronometraj va materiallar balansi orqali sinov o‘tkazish, shuningdek milliy normativ hujjatlarga muvofiqligini tekshirish talab etiladi.

Metodikaning cheklanishi shundaki, u hozircha nazariy va uslubiy taklifdir. Uning samaradorligini baholash uchun turli innovatsion materiallar bilan bajarilgan ishlarni amalda kuzatish, material kirim-chiqimini solishtirish va taklif etilgan birlik sarflarni ekspert bahosidan o‘tkazish talab qilinadi. Shu

sababli maqolada tajriba natijalari yoki tasdiqlangan yangi normativ qiymatlar da’vo qilinmaydi.

XULOSA

Innovatsion qurilish materiallari uchun resurs normalarini shakllantirishda texnologik xarita, xronometraj, materiallar balansi va taqqoslash usullarini birgalikda qo‘llash maqsadga muvofiq. Taklif etilgan yetti bosqichli sxema resurs sarfini asoslash va elektron normativ bazaga kiritishni tizimlashtirishga yordam beriši mumkin. Uni amalda tasdiqlash uchun qoshimcha kuzatuv va ekspert tekshiruvi zarur.

FOYDALANILGAN ADABIYOTLAR (APA 7)

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SHAHAR AVTOBUS YO‘NALISHLARIDA YO‘LOVCHI TALABINING KUNLIK NOTEKISLIGI VA UNDAN PROFILAKTIK TA’MIRNI REJALASHTIRISHDA FOYDALANISH

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Annotatsiya. Maqolada Qarshi shahridagi ikki avtobus yo‘nalishida 2026-yil may–iyul oylarida har bir avtobus bo‘yicha qayd etilgan kunlik yo‘lovchilar soni tahlil qilingan. Ish kunlari talabi bir xil ekani, shanba kuni talab ish kunining 0,85, yakshanba kuni 0,57, bayram kunlari 0,55 qismini tashkil etishi aniqlandi. Yakshanba va bayram kunlarida rejadagi grafiklar soni talabdan ancha ortiq bo‘lib, bir avtobusga to‘g‘ri keladigan yo‘lovchilar 24–33 % kamayadi. Shu kunlarda bo‘shaydigan avtobuslardan texnik xizmat va rejali ta’mir uchun foydalanish tavsiya etilgan.

Abstract. The paper analyses daily passenger counts recorded for every bus on two routes in Karshi in May–July 2026. Demand was the same on all weekdays, while on Saturdays it was 0.85, on Sundays 0.57 and on public holidays 0.55 of the weekday level. On Sundays and holidays the planned number of schedules clearly exceeds demand, and the number of passengers per bus falls by 24–33%. It is recommended to use the buses released on these days for maintenance and planned repairs.

Kalit so‘zlar: *shahar avtobusi, yo‘lovchi talabi, hafta kunlari bo‘yicha notekislik, bayram kunlari, qatnov rejasi, texnik xizmat ko‘rsatish.*

Keywords: *city bus, passenger demand, day-of-week variation, public holidays, service plan, maintenance scheduling.*

KIRISH

Yo‘lovchi talabi kun, hafta va yil davomida notekis taqsimlanadi, shu sababli shahar yo‘nalishlari uchun ish kunlari, shanba va yakshanba kunlariga alohida qatnov rejalari tuziladi [1, 2, 10]. O‘zbekistonda 2023-yildan joriy etilgan brutto-shartnomalarda tashuvchiga reja bo‘yicha bajarilgan masofa uchun haq to‘lanadi [3, 4], shuning uchun har bir grafik buyurtmachi uchun xarajat, tashuvchi uchun esa haydovchi va avtobus vaqtini band qiladigan majburiyatdir. Rejadagi grafiklar soni talabga mos kelmasa, avtobuslar yo kam yuklanib ishlaydi, yo to‘lib ketadi.

Shu bilan birga avtotransport korxonasi texnik xizmat ko‘rsatish (TXK) va rejali ta’mirni ham avtobus liniyadan bo‘shaydigan vaqtga moslashtirishi kerak [5, 6]. Har bir avtobus bo‘yicha kunlik yo‘lovchilar sonining qayd etilishi talab notekisligini katta hajmdagi ma’lumot asosida baholash imkonini beradi [7, 8]. Ushbu ishning maqsadi – kunlik ma’lumotlar asosida hafta kunlari va bayramlar bo‘yicha talab notekisligini aniqlash, uni qatnov rejasi bilan solishtirish va avtobuslarning liniyadan bo‘shaydigan vaqtini profilaktik ta’mirni rejalashtirishda qanday ishlatish mumkinligini ko‘rsatish.

ASOSIY QISM

Ma’lumotlar va usul

Tadqiqot uchun Qarshi shahrining bir tashuvchi xizmat ko‘rsatadigan 8- va 9-yo‘nalishlari tanlandi. Ikkala yo‘nalishda bir xil CRRC TEG6890NG avtobuslari ishlaydi, reja bo‘yicha ish kunlari 8 ta, shanba kuni 7 ta, yakshanba kuni 6 ta grafik ko‘zda tutilgan. 2026-yil 1-maydan 31-iyulgacha (92 kun) har bir avtobusning kunlik yo‘lovchilar soni yig‘ildi; jami 1399 ta avtobus-kun bo‘yicha qiymat mavjud. Kunlar to‘rt turga ajratildi: ish kunlari, shanba, yakshanba va bayram kunlari. Davr ichida 9-may (Xotira va qadrlash kuni) hamda Qurbon hayiti munosabati bilan e’lon qilingan 27–31-may dam olish kunlari bayram sifatida olindi.

Har bir kun turi uchun talab indeksi yo‘nalish bo‘yicha kunlik yo‘lovchilar yig‘indisining ish kunlaridagi o‘rtacha qiymatga nisbati sifatida hisoblandi:

$$I_{\text{k}} = \bar{Q}_{\text{k}} / \bar{Q}_{\text{ish}}, \qquad (1)$$

bu yerda $\bar{Q}_{\text{k}}$ – k turdagi kunlarda yo‘nalishning o‘rtacha kunlik yo‘lovchilari soni. Xuddi shunday, reja indeksi k turdagi kunning rejadagi grafiklar sonini ish kunidagi 8 ta grafikka bo‘lish orqali topildi. Ish kunlari ichidagi farqlar Kruskal–Uollis mezoni bilan tekshirildi [9]. Bayram kunlaridagi talab o‘sha hafta kunining oddiy kunlaridagi o‘rtacha qiymat bilan solishtirildi.

Natijalar

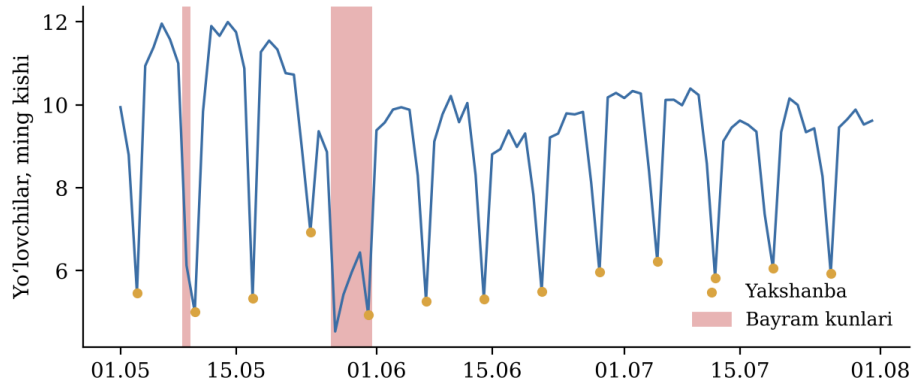
Dushanbadan jumagacha bo‘lgan kunlar orasida yo‘lovchilar soni bo‘yicha statistik farq aniqlanmadi (8-yo‘nalishda p = 0,64, 9-yo‘nalishda p = 0,58). Demak, barcha ish kunlari uchun yagona reja qo‘llash asosli. Dam olish kunlari va bayramlarda esa manzara keskin o‘zgaradi (1-jadval).

1-jadval. Kun turlari bo‘yicha yo‘lovchi talabi va qatnov rejasi (ikki yo‘nalish bo‘yicha)

Kun turi	**Kunlar soni**	**Talab indeksi**	**Rejadagi grafiklar**	**Reja indeksi**	**Bir avtobusga yo‘lovchi**
Ish kunlari	63	1,00	8	1,00	625
Shanba	11	0,85	7	0,88	596
Yakshanba	12	0,57	6	0,75	475
Bayram kunlari	6	0,55	7,3	0,92	421

Shanba kuni talab 15 % kamayadi, reja esa 12,5 % qisqaradi, ya’ni reja talabga deyarli mos keladi va bir avtobusga to‘g‘ri keladigan yo‘lovchilar soni ish kunidagidan atigi 5 % kam. Yakshanba kuni talab 43 % kamaysa ham, grafiklar faqat 25 % qisqaradi, natijada avtobus yuklanishi 24 % pasayadi. Bayram kunlarida nomuvofiqlik yanada katta: talab yakshanba darajasiga tushadi, reja esa ish kuni rejasiga yaqin qoladi, bir avtobusga yo‘lovchilar soni 33 % kam bo‘ladi.

Kunlik dinamika (1-rasm) bu farqlarning tasodifiy emasligini ko‘rsatadi: har bir yakshanba haftalik minimumni beradi, Qurbon hayiti kunlari esa butun davrdagi eng past qiymatlarga to‘g‘ri keladi. Hafta o‘rtasiga to‘g‘ri kelgan 27–29-may kunlarida yo‘lovchilar oddiy chorshanba–juma kunlaridagidan 40–58 % kam bo‘ldi.



1-rasm. Ikki yo‘nalish bo‘yicha kunlik yo‘lovchilar soni, 2026-yil may–iyul

Bayram kunlarida 9-yo‘nalish texnik sabablarga ko‘ra 7–8 ta o‘rniga 6 ta avtobus bilan ishladi. Shunga qaramay, 9-yo‘nalish yo‘lovchilarining 8-yo‘nalish yo‘lovchilariga nisbati bu kunlarda 0,83–0,91 ni tashkil etdi, oddiy kunlarda esa 0,81 ± 0,13 edi. Kun ta’sirini hisobga olgan regressiyada yo‘nalishdagi yo‘lovchilar sonining liniyadagi avtobuslar soniga elastikligi 0,26 ga teng bo‘lib, statistik ahamiyatga ega emas (p = 0,49). Boshqacha aytganda, talab past bo‘lgan kunlarda bitta-ikkita avtobusning yetishmasligi yo‘lovchilar yo‘qotilishiga sezilarli ta’sir qilmagan: qolgan avtobuslar bo‘sh sig‘imi hisobiga yo‘lovchilarni tashib ulgurgan.

Profilaktik ta’mirni rejalashtirish uchun xulosalar

Yakshanba va bayram kunlarida liniyaga chiqmaydigan avtobuslar soni ko‘payadi. 9 ta avtobusli yo‘nalishda haftasiga 10 avtobus-kun (ish kunlari 5, shanba 2, yakshanba 3), 10 ta avtobusli yo‘nalishda esa 17 avtobus-kun bo‘sh qoladi va ularning yarmiga yaqini dam olish kunlariga to‘g‘ri keladi. Shuning uchun ko‘p vaqt talab qiladigan TXK-2, mavsumiy xizmat va rejali agregat almashtirish ishlarini shanba kechqurundan dushanba ertalabgacha bo‘lgan oraliqqa, shuningdek bayram kunlariga rejalashtirish maqsadga muvofiq. Bu ish kunlaridagi zaxirani nosozliklar uchun saqlab qolish imkonini beradi.

Ikkinchi xulosa qatnov rejasiga tegishli. Bayram kunlari uchun alohida reja ko‘zda tutilmagani sababli, hafta o‘rtasiga to‘g‘ri kelgan bayramlarda ish kuni rejasi amal qiladi. Talab yakshanba darajasida ekanini hisobga olsak, bayram kunlarida yakshanba rejasini qo‘llash har bir yo‘nalishda kuniga ikki grafikni bo‘shatadi va bu avtobuslarni ham ta’mirga yo‘naltirish mumkin. Brutto-shartnoma sharoitida rejaning qisqarishi tashuvchi daromadini ham kamaytiradi, shuning uchun bunday qaror buyurtmachi va tashuvchi o‘rtasida kelishilgan holda qabul qilinishi kerak.

Tadqiqotning cheklovlari ham bor: kuzatuv yoz oylarini qamraydi, bayram kunlari soni oz, tahlil faqat ikki yo‘nalishda o‘tkazilgan.

XULOSA

Qarshi shahridagi ikki yo‘nalishda har bir avtobus bo‘yicha qayd etilgan kunlik yo‘lovchilar soni ish kunlari talabi bir xil ekanini, shanba kuni 0,85, yakshanba kuni 0,57, bayram kunlari 0,55 ga kamayishini ko‘rsatdi. Shanba rejasi talabga mos, yakshanba va bayram kunlarida esa reja talabdan oshib ketadi va avtobus yuklanishi 24–33 % pasayadi. Talab past kunlarda bitta-ikkita avtobus yetishmasligi yo‘lovchilar sonini sezilarli kamaytirmagan. Natijalar ko‘p vaqt talab qiladigan profilaktik ishlarni dam olish va bayram kunlariga rejalashtirish, bayram kunlari uchun esa yakshanba rejasini qo‘llash masalasini buyurtmachi bilan ko‘rib chiqish uchun asos bo‘ladi.

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ПОВТОРНОЕ ИСПОЛЬЗОВАНИЕ СТОЧНЫХ ВОД В ОРОШЕНИИ В УСЛОВИЯХ КАРАКАЛПАКСТАНА: КРИТЕРИИ ПРИГОДНОСТИ И РАСЧЁТ СМЕШИВАНИЯ

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Аннотация. *В статье рассматриваются условия безопасного повторного использования очищенных сточных вод для орошения в Каракалпакстане, где дефицит воды сочетается с засолением земель. Систематизированы критерии пригодности воды по минерализации и санитарным показателям, предложена схема расчёта смешивания очищенных стоков с речной водой и промывного требования. На условном примере показано, что смешивание в соотношении 1:3 снижает минерализацию поливной воды с 2,4 до 1,3 дСм/м, а промывное требование для хлопчатника, пшеницы и риса составляет 3,5; 4,5 и 9,5 % соответственно. Методика применима при планировании водопользования.*

Ключевые слова: *сточные воды, орошение, минерализация, смешивание воды, промывное требование, Каракалпакстан.*

Annotatsiya. *Maqolada Qoraqalpog‘istonda suv tanqisligi va yerlarning sho‘rlanishi sharoitida tozalangan oqava suvlarni sug‘orishda xavfsiz qayta ishlatish shartlari ko‘rib chiqilgan. Suvning minerallashuvi va sanitariya ko‘rsatkichlari bo‘yicha yaroqlilik mezonlari tizimlashtirilgan, tozalangan oqava suvni daryo suvi bilan aralashtirish va yuvish talabini hisoblash sxemasi taklif etilgan. Shartli misolda 1:3 nisbatda aralashtirish sug‘orish suvining minerallashuvini 2,4 dan 1,3 dS/m gacha kamaytirishi, g‘o‘za, bug‘doy va sholi uchun yuvish talabi esa mos ravishda 3,5; 4,5 va 9,5 % ni tashkil etishi ko‘rsatilgan. Usul suvdan foydalanishni rejalashtirishda qo‘llanilishi mumkin.*

Kalit so‘zlar: *oqava suvlar, sug‘orish, minerallashuv, suvni aralashtirish, yuvish talabi, Qoraqalpog‘iston.*

Abstract. *The article examines conditions for the safe reuse of treated wastewater in irrigation in Karakalpakstan, where water scarcity is combined with soil salinization. Water suitability criteria based on salinity and sanitary*

indicators are systematized, and a scheme for calculating the blending of treated effluent with river water and the leaching requirement is proposed. A conditional example shows that blending at a 1:3 ratio reduces irrigation water salinity from 2.4 to 1.3 dS/m, while the leaching requirement for cotton, wheat and rice is 3.5, 4.5 and 9.5%, respectively. The approach can be used in water use planning.

Keywords: *wastewater, irrigation, salinity, water blending, leaching requirement, Karakalpakstan.*

ВВЕДЕНИЕ

Каракалпакстан расположен в низовьях Амударьи, где ограниченность водных ресурсов сочетается с засолением почв и высокой минерализацией оросительной воды. В таких условиях очищенные сточные воды рассматриваются как дополнительный источник, объём которого мало зависит от водности года. Вместе с тем их использование связано с тремя группами рисков: солевым, санитарно-эпидемиологическим и агрохимическим (Qadir et al., 2010; Hanjra et al., 2012).

Цель работы — систематизировать критерии пригодности очищенных сточных вод для орошения и показать на условном примере расчёт смешивания с речной водой и промывного требования.

ОСНОВНАЯ ЧАСТЬ

Материалы и методы

Использованы анализ международных руководств и научных публикаций по повторному использованию воды (Pescod, 1992; WHO, 2006; Jiménez & Asano, 2008), классификация воды по минерализации (Ayers & Westcot, 1985) и два расчёта. Минерализация смеси: $C = (C_1V_1 + C_2V_2) / (V_1 + V_2)$, где C_1, C_2 — минерализация компонентов (дСм/м), V_1, V_2 — их объёмы. Промывное требование: $LR = ECw / (5ECe - ECw)$, где ECw — электропроводность поливной воды, ECe — пороговая электропроводность почвенной вытяжки для культуры. Исходные значения условны и служат для демонстрации метода; в практике подставляются данные лабораторных анализов конкретного источника.

Результаты и обсуждение

Критерии пригодности воды сведены в таблице.

Таблица. Критерии пригодности очищенных сточных вод для орошения

Показатель	Ориентир (источник)

Минерализация (ECw)	<0,7 дСм/м — без ограничений; 0,7–3,0 — слабые и умеренные ограничения;> 3,0 — сильные (Ayers & Westcot, 1985)
Яйца гельминтов	не более 1 яйца в литре при неограниченном использовании (WHO, 2006)
Кишечные бактерии	по действующим национальным санитарным нормативам с учётом культуры и способа полива
Способ полива	капельное и подпочвенное орошение снижают контакт воды с урожаем и персоналом

Примем минерализацию очищенных стоков 2,4 дСм/м, речной воды — 0,9 дСм/м. При соотношении объёмов 1:3 получаем $C = (2{,}4 + 3 \cdot 0{,}9) / 4 \approx 1{,}3$ дСм/м, при соотношении 1:1 — $C = 1{,}65$ дСм/м. Оба значения находятся в диапазоне слабых и умеренных ограничений, тогда как чистые стоки (2,4 дСм/м) близки к его верхней границе.

Для смеси с ECw = 1,3 дСм/м промывное требование при пороговых значениях ECe 7,7 (хлопчатник), 6,0 (пшеница) и 3,0 дСм/м (рис) равно $1{,}3 / (5 \cdot 7{,}7 - 1{,}3) \approx 0{,}035$; $1{,}3 / (5 \cdot 6{,}0 - 1{,}3) \approx 0{,}045$ и $1{,}3 / (5 \cdot 3{,}0 - 1{,}3) \approx 0{,}095$, то есть 3,5; 4,5 и 9,5 %. Следовательно, чем выше солеустойчивость культуры, тем меньше воды требуется сверх нормы на вынос солей, и использование смеси наиболее оправданно под хлопчатник и пшеницу.

Для региона принципиально, что промывка возможна лишь при наличии дренажа и допустимой глубины грунтовых вод. Поэтому решение об использовании стоков следует принимать одновременно с оценкой дренированности участка. Санитарный барьер обеспечивается очисткой, выбором культур и способом полива: капельное орошение уменьшает контакт воды с урожаем.

ЗАКЛЮЧЕНИЕ

1. Пригодность очищенных сточных вод для орошения определяется минерализацией, санитарными показателями и способом полива. 2. Смешивание с речной водой в соотношении 1:3 в рассмотренном примере снижает минерализацию с 2,4 до 1,3 дСм/м. 3. Промывное требование зависит от солеустойчивости культуры и в примере составляет 3,5–9,5 %. 4. Метод пригоден для предварительного планирования, а практическое применение требует лабораторных данных и оценки дренированности участка.

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STOCHASTIC CAPACITY PLANNING OF SCHOOL BUS TRIPS UNDER UNCERTAIN DEMAND: A MONTE CARLO ANALYSIS

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Abstract. *Fleet size for school buses is usually based on stated willingness to ride, yet actual use is lower and varies daily. A Monte Carlo model combines the sampling uncertainty of a survey readiness coefficient ($\alpha = 0.711$, 2633 respondents), an unknown realisation factor γ and binomial daily variation. For 219 car-delivered students and 50-seat buses, three trips are reliable (overflow below 5%) only if $\gamma \leq 0.89$; at $\gamma = 1$ the overflow probability is 77%. Measuring γ in a pilot is the planning priority.*

Keywords: *school bus, demand uncertainty, trip planning, Monte Carlo, readiness coefficient, reliability*

INTRODUCTION

The number of trips and buses in a school transport service is usually derived from the number of students expected to ride. This number is uncertain in three ways. First, it is obtained from a survey of intentions, and sampling error is present. Second, stated intentions tend to exceed actual use once a service starts, a well-known gap in stated-preference studies (Train, 2009). Third, ridership varies from day to day. Routing research typically treats the demand at each stop as known or, at best, introduces random demand in a general vehicle-routing setting (Bertsimas, 1992; Gendreau et al., 1996), while reviews of school bus routing point to uncertain demand as an open direction (Park & Kim, 2010; Ellegood et al., 2020).

This paper answers a practical planning question: given a measured readiness coefficient, how reliable is a plan with K trips, and how does the answer change if actual use is lower than stated? The contribution is a compact

probabilistic model and a decision table that shows the minimum number of trips for a required reliability.

METHODS

Data. The inputs are taken from a study in Karshi, Uzbekistan. A survey of 1478 students and 1155 parents gave the shares of positive answers 65.8% and 76.4%, and the readiness coefficient $\alpha = 0.711$ (mean of the two shares); its standard error, calculated from the two sampling errors of 1.23 and 1.25 percentage points, is 0.0088. For School No. 31, N = 219 students were brought to school by car in the morning peak; the buses have S = 50 seats.

Model. Let γ be the realisation factor, i.e. the ratio of actual to stated use, so that the probability that a student rides on a given day is $p = \gamma\alpha$. The readiness is uncertain, $\alpha \sim \text{Normal}(0.711, 0.0088^2)$, and for a given p the number of riders is binomial. The probability P that K trips are not enough is

$$P(K,\gamma) = \int \Pr[\text{Bin}(N,\gamma a) > K \cdot S]\varphi(a)\,da \qquad (1)$$

where P is the probability of overflow, a is the readiness and φ is its normal density of α. The integral was evaluated numerically on a grid of 401 points over ± 4 standard errors. The minimum number of trips for a reliability level q is $K(q, \gamma) = \min\{K : P(K, \gamma) \le 1 - q\}$. For each K, the fuel saving was calculated with the fuel-balance relations of the Karshi study (108 cars, mean car distance 7.01 km, norms 10 and 30 l/100 km, loaded and empty bus distances 12.02 and 11.46 km).

Results and discussion

Table 1 gives the results for γ from 1.0 to 0.6. At $\gamma = 1$, i.e. if all stated intentions are realised, the expected number of riders is 156 and three trips (150 seats) overflow with probability 77%, so four trips are needed. Four trips (200 seats) are never exceeded in any scenario considered, because the largest plausible demand (about 170 students) is well below 200. The decision between three and four trips changes at $\gamma \approx 0.89$: for $\gamma \ge 0.89$ the 95% reliability criterion requires four trips, below it three trips are sufficient.

Table 1. Reliability of trip plans and minimum number of trips (N = 219, S = 50)

γ	p	Riders	P (K=3)	P (K=4)	K (95%)	K (99%)	ΔF at K(95%), l
1.0	0.711	156	77.4%	0.0%	4	4	25.7
0.9	0.640	140	7.7%	0.0%	4	4	20.3
0.8	0.569	125	0.0%	0.0%	3	3	21.9

γ	p	Riders	P (K=3)	P (K=4)	K (95%)	K (99%)	ΔF at K(95%), l
0.7	0.498	109	0.0%	0.0%	3	3	16.5
0.6	0.427	93	0.0%	0.0%	3	3	11.2

Calculated by the authors; P includes the sampling uncertainty of α and binomial daily variation.

Fig. 1 shows the overflow probability as a function of γ for two, three and four trips. The curves are steep: the overflow probability of three trips falls from 77% at γ = 1 to 8% at γ = 0.9 and to zero at γ = 0.8 and below. The width of the transition is determined mostly by the sampling uncertainty of α and by the binomial variation, both of which are small (about ±0.9 percentage points and ±7 riders) compared with the uncertainty of γ itself, which can easily be 10–30%. Thus the survey precision is not the limiting factor in planning; the unknown realisation factor is.

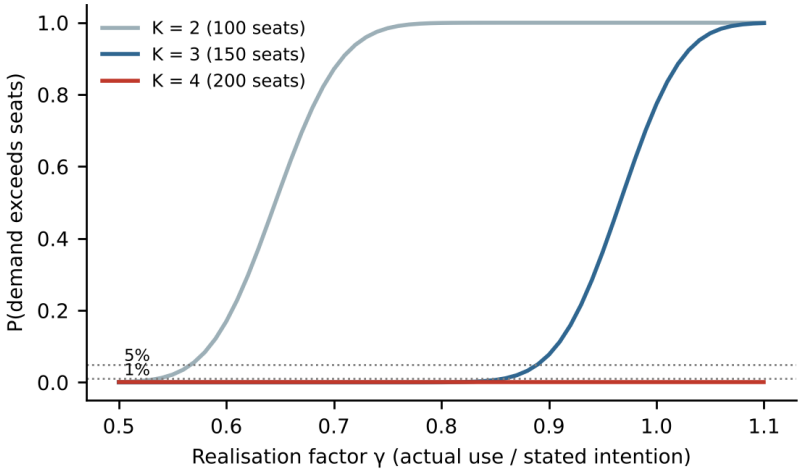

Fig. 1. Probability that demand exceeds the seats of K trips as a function of the realisation factor γ

The fuel saving is not monotonic in γ because the number of trips changes in steps: at γ = 0.9 (four trips) it is 20.3 l per peak, while at γ = 0.8 (three trips) it is 21.9 l. A conservative plan therefore costs fuel and bus capacity when actual use turns out to be lower, which is the price of reliability. The model assumes a single school, independent students, one morning peak and a common probability of riding p; correlated decisions (siblings, neighbours) would widen the distribution and make the thresholds less sharp. The results are a calculation based on measured inputs and an assumed range of γ, not an observation of actual ridership.

CONCLUSION

A Monte Carlo analysis of trip planning for a school with 219 car-delivered students shows that the choice between three and four 50-seat trips depends on the realisation factor γ (threshold ≈ 0.89), not on the survey sampling error. If γ = 1, three trips overflow in 77% of days; four trips are reliable in all cases considered. A pilot period should measure γ before the fleet is fixed, and the decision table can be reapplied with the measured value. Further work should include correlated decisions and several schools.

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LOGISTIKA SOHASIDA OMBORXONA XIZMATI FAOLIYATI RIVOJLANTIRISH

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Annotasiya: *Ushbu maqolada logistika tizimimda omborlarning ahamiyati bayon etilgan. Mamlakatimizda xizmat ko‘rsatish sohasini shuningdek, logistika va yuk tashuvlari, omborxona logistikasini rivojlantirish va sifatini yaxshilash kunning dolzarb masalasi hisoblanadi. Ishlab chiqarish jarayonidagi ahamiyatiga ko’ra va xizmat ko‘rsatish sohasiga qarab omborlarning turlari bayon etilgan. Omborxona faoliyatini yanada rivojlantirish va takomillashtirish uchun takliflar keltirilgan.*

Kalit so‘zlar. *ombor xizmati, omborga joylashtirish, logistika, omborxona logistikasi.*

Abstract: *This article describes the importance of warehouses in the logistics system. In our country, the development and improvement of the service sector, as well as logistics and freight transportation, warehouse logistics are urgent issues of the day. Types of warehouses are described according to their importance in the production process and the service sector. Suggestions are made for the further development and improvement of warehouse activities.*

Keywords. *warehouse service, warehousing, logistics, warehouse logistics.*

Аннотация: *В этой статье описывается важность складов в моей логистической системе. Развитие и повышение качества сферы услуг, а также логистики и грузоперевозок, складской логистики является актуальной проблемой в нашей стране. Типы складов описаны в соответствии с их значением в производственном процессе и сфере услуг. Даны предложения по дальнейшему развитию и совершенствованию складской деятельности.*

Ключевые слова. *складские услуги, складирование, логистика, складская логистика.*

KIRISH

Ombor yoki omborlar majmui xizmat ko‘rsatish infrastrukturasi bilan birgalikda ombor xo‘jaligini tashkil etadi. Sanoat korxonasida ombor xo‘jaligining asosiy vazifasi sanoatning tegishli moddiy resurslar bilan to‘g’ri oziqlanishini, ularning saqlanishini tashkil etish va omborxona amaliyotlarini amalga oshirish bilan bog’liq xarajatlarni imkon boricha qisqarishdir. Logistika tizimida omborlarning ahamiyati va o‘rni juda muhim ahamiyat kasb etadi.

Omborlar logistika tizimining asosiy qismlaridan birini tashkil etadi. Logistik tizim omborlarga bo‘lgan tashkiliy va texnik-iqtisodiy talablarni shakllantiradi, omborlar tizimining maqsadini va eng maqbul ishlash mezonini belgilaydi, yuklarni qayta ishlash shartlarini aniqlaydi. O‘z navbatida, materiallarni omborga joylashtirishni tashkil etib (omborni joylashtirishga joy tashlash, maxsulotlarni saqlash usullari va boshqalar) zaxiraning logistika tizimining turli xil ishlarida aylanishi bilan bog’liq xarajatlariga, miqdoriga va harakatiga sezilarli ta’sir ko‘rsatadi.

Ombor xizmati - logistikasining o‘rganish obyekti tovar moddiy qiymatliklarini omborga joylashtirish, yukni qayta ishlash va o‘rash jarayonidir.

Omborga joylashtirish - logistik kanal ishtirokchilari tomonidan zaxiralarni saqlash, ularning butligini ta’minlash, ularni maqsadga muvofiq

(ratsional) joylashtirish, hisobga olish, doimo yangilab turish va xizmatlarning xavfsiz usullaridan iboratdir.

Adabiyotlar tahlili. Xalqaro innovatsion logistika, omborxona xo‘jaligini boshqarish, omborxona logistikasi, innovatsion logistika shuningdek, xalqaro omborxona logistika huquqi va xalqaro transport tashuvlarida omborxona logistika xizmatini samarali tashkil etish bo‘yicha ko‘plab xorijlik va mamlakatimiz olimlari ilmiy izlanishlar olib borishgan.

Bunda chet el olimlaridan Till Becker, Oliver Jeken, Julia Boppert va boshqalarning bir qator asarlari ushbu sohadagi tadqiqotlarga bag’ishlangan. MDH mamlakatlari iqtisodchilari asarlarida ham logistikada innovatsion texnologiyalarni qo‘llash muammolari o‘z aksini topgan bo‘lib, ulardan G.Xamdamova O.Astanakulov А.П.Панкрухин, Е.А.Utkin, Е.П.Голубков, G.L.Bagiyev, Л.Т.Данченок, Г.Л.Гардарики va boshqalarni alohida ko‘rsatish mumkin [1,2,3].

O‘zbekistonlik logistik olimlar xususan Rashidov.K.K, Y.Karriyeva, A.Kucharov va boshqalar ham innovatsion logistika va omborxona logistika nazariyasi va amaliyotini rivojlanishiga kata hissa qo‘shganlar [6, 7, 8].

Lekin ular o‘z asarlarida omborxona logistikasi sohasida innovatsiya binobarin, savdo faoliyati bilan shug’ullanuvchi korxonalari omborxona logistikasi tizimida innovatsion texnologiyalardan foydalanish zaruriyati ushbu magistrlik dissertasiyasining mavzusini, uning maqsad va vazifalarini belgilab berdi.

Metodologiya

Tadqiqotning uslubiy asosini transport xizmatlari ko‘rsatish tizimini takomillashtirish sohasidagi xorijiy va o‘zbekistonlik olimlarning ilmiy ishlarida bayon etilgan fundamental tushuncha va qoidalar tashkil etadi [4,5]. Muallif, shuningdek, ilmiy jamoalarning transport xizmatlarini ko‘rsatish tizimini takomillashtirish, transportning barcha turlaridan cheklangan va cheksiz foydalanish sharoitida ulardan foydalanish samaradorligi muammolarini o‘rganish, shakllantirish, foydalanish sohasidagi tadqiqotlar natijalariga tayanadi [9].

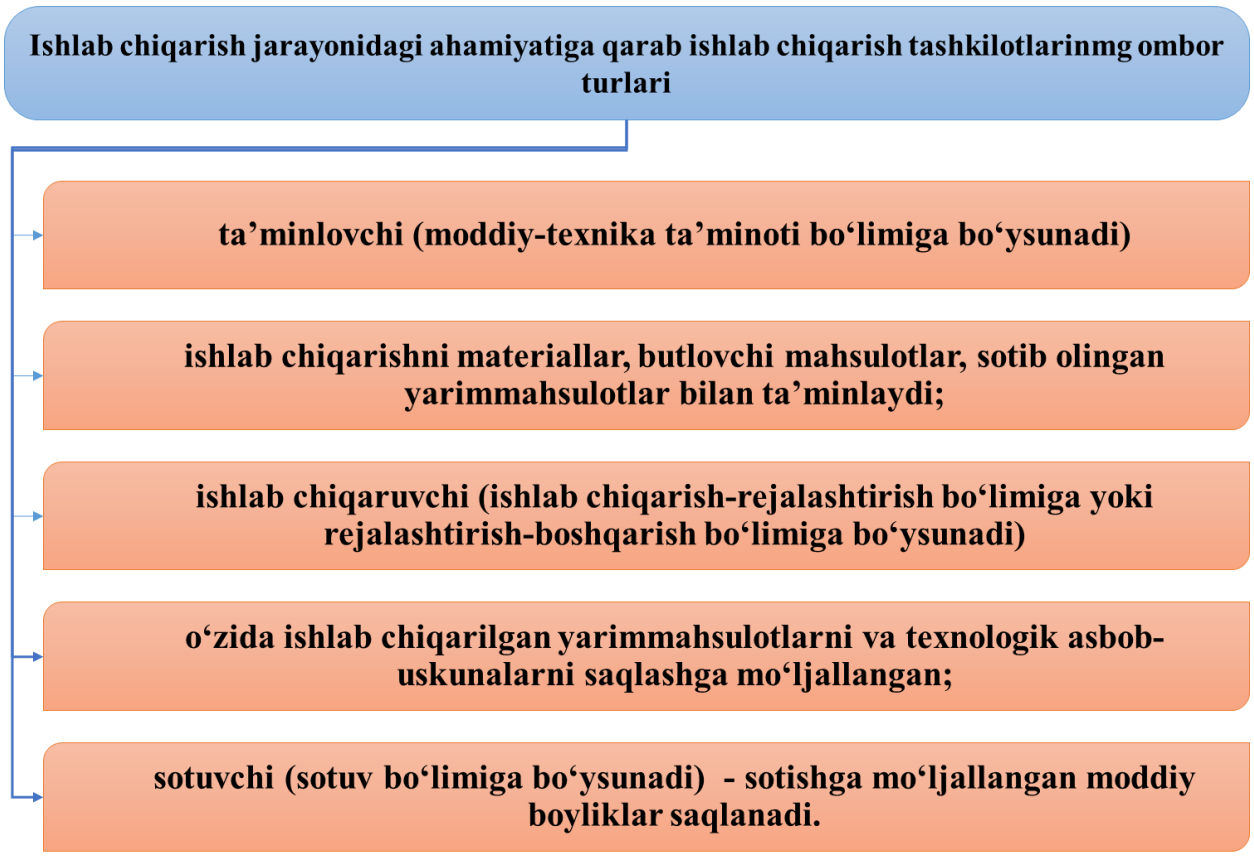
Iqtisodiyotda tovarlarni tashish va iste’mol qilishning yangi yo‘nalishlarini ishlab chiqish, davlat organlari hisobotlari va statistik ma’lumotlar, qonunchilik va me’yoriyhuquqiy hujjatlar, O‘zbekiston kompaniyalarining uzoq muddatli rivojlanish dasturlari va hisobotlari shular jumlasidandir. Tadqiqot jarayonida funksional yo‘naltirilgan qidiruv, iqtisodiy va statistik tahlil, prognozlash va modellashtirishning turli usullari va vositalaridan foydalanildi.

Tahlil va natijalar.

Mahsulotlarni omborda saqlashning salbiy tomoni shundaki, zaxiralarni omborda saqlash bilan bog'liq xarajatlar hisobiga tovar narxi oshadi. Bu omborga joylashtirish amaliyotlariga sarflanadigan xarajatlar, omborxonani ijaraga olish, omborlarni tartibda saqlash bilan bog'liq xarajatlar. Bundan tashqari omborxona zaxirasi tashkil etilishi natijasida boshqa maqsadlarda foydalanilishi mumkin bo'lgan ko'p miqdordagi moliyaviy resurslar ishga solinmay qoladi. Shu sababli mahsulotiarni omborxonaga joylashtirish xarajatlarni kamaytirishga yoki logistik servis sifatini oshirishga imkon bersagina o'zini oqlaydi (talabga tez javob berishga yoki arzon narxlarda oldindan sotib olish hisobiga iqtisodga erishish). Omborga joylashtirishning ijobiy tomoni shundaki, ishlab chiqarish to'g'rilab olinadi, yuklarni butlashga, zaxiralarni to'plashishga va taqsimlashga kerakli texnik va tashkiliy sharoitlar yaratiladi. Demak, ombor xizmati logistikasi - bu ombor xo'jaligida oqimning qayta ishlash jarayonida amalga oshiriladigan o'zaro bog'liq operatsiyaiar kompleksidir.

Ombor logistikasi va ishlab chiqarish logistikasi korxonaga ishlab chiqarish jarayonini amalga oshirishda, resurslarni yetkazib berish, saqlash, boshqarish va ulardan foydalanish funktsiyalarini bajarishda to'liq o'zaro aloqani ta'minlaydi. Bugungi kunda xizmat ko'rsatish bo'yicha 11 mingdan ortiq korxona, jumladan, logistik xizmat ko'rsatish firmalari, omborxona ximat ko'rsatish korxonalari, savdo-maishiy komplekslar, minibanklar va sug'urta kompaniyalari filiallari va boshqa korxonalar tashkil etildi.

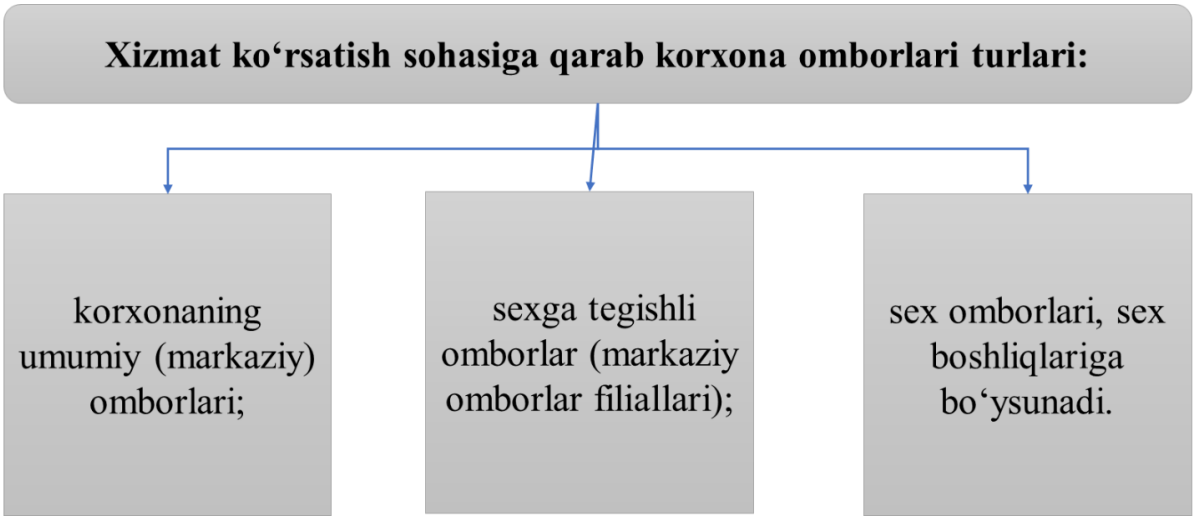
Mahsulot iste'molchilari omborlari texnologik jarayon uzluksiz o'tishini ta'minlashga mo'ljallangan. Mazkur omborlarda tugatilmagan ishlab chiqarish zaxiralari, asboblar, ehtiyot qismlar va boshqalar saqlanadi. Ishlab chiqarish jarayonidagi ahamiyatiga qarab ishlab chiqarish tashkilotlarinmg omborlari quyidagi turlari 1-sxemada keltirilgan.



Mamlakatimizda xizmat ko‘rsatish sohasini shuningdek, logistika va yuk tashuvlari, omborxona logistikasini rivojlantirish va sifatini yaxshilash muhim ahamiyat kasb etadi.

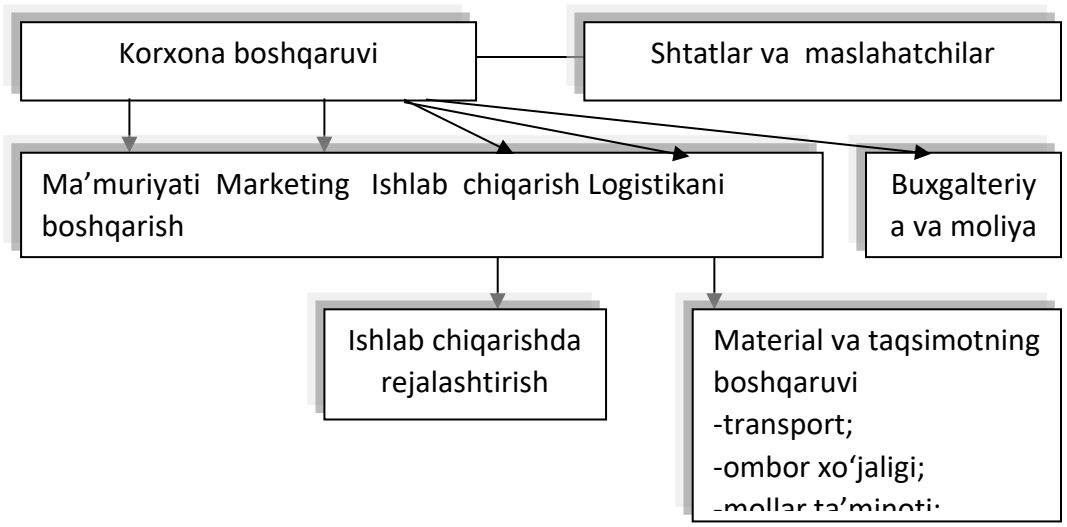
Omborlarning roli va o‘rnini tahlil qilganda iyerarxiyaning turli bosqichlarida, ya’ni umumdavlat, regional, lokal va ishlab chiqarish bosqichlarida ko‘rib chiqish maqsadga muvofiqdir. Ombor xo‘jaligini tashkil etishning eng sodda variantlaridan biri kengtarmoqli tuzilmadir. Bunday tuzilmada qaysidir bir to‘plash punkti boshqa bir nechta punktlar uchun manba - ombor boladi. Bu tizimning keyingi bir bosqichi eshelonlashgan tuzilma bo‘lib, u bir necha iyerarxiya boqichi - joylashtirish eshelonlaridan iborat bo‘ladi. Bunday tizimda iste’molchilardan talablar eng quyi pog’onadagi punktga tushadi. Normal sharoitda tovarlar har bir pog’onadagi omborlar yaqin joylashgan yuqori pog’onadagi ombordan to‘ldiriladi. Masalan, kirim omborlarining zaxiralari ulgurji regional omborlardan to‘ldiriladi. Ba’zan tovar omborga to‘g’ri yetkazib beruvchidan regional va kirim omborlarini cheklab o‘tadi, yoki regional ombordan kirim omborlarini chetlab o‘tadi. Mahsulot ishlab chiqaruvchi korxonalar omborlari ishlab chiqarishga mo‘ljallangan xomashyo, materiallar, butlovchi va boshqa mahsulotiarni saqlashga ixtisoslashtirilgan va bunday omborlar, birinchi navbatda, ishlab chiqaruvchi iste’molchilarni kerakli materiallar bilan ta’minlaydi.

Xizmat ko‘rsatish sohasiga qarab korxona omborlari turlari 2-sxemada keltirilgan.



Sotuvchi tashkilotlar omborlari tovarlaming ishlab chiqarish sohasidan iste’mol sohasiga uzluksiz harakatini ta’minlashga xizmat qiladi. Ularning asosiy vazifalari — ishlab chiqarish mahsulotini iste’mol mahsulotiga aylantirish hamda turli iste’molchilar, shu jumladan, chakana savdo tarmoqlarining uzluksiz ta ’minotini amalga oshirish. Vositachi tashkilotlar (eng avvalo, transport tashkilotlari).

— moddiy boyliklarni jo‘natish bilan bog’liq omborga qo‘shimcha joylashtirishga mo‘ljallangan. Omborlarning bunday turlariga temir yo‘l stansiyalari omborlari, avtotransport, daryo yoki dungix portlarining yuk terminallari, havo transporti terminallari hisoblanadi. Bajarilayotgan yuklarni qayta ishlash amaliyotlarining turi bo‘yicha bu omborlar transportdan tushirilib, boshqasiga ortish imkoniga kiradi.



1-rasm

Omborda materiallar zaxirasi harakatini hisobga olish maxsus kin loteka yordamida olib boriladi. Zaxiralar darajasini tartibga olish miqdorni yozib borish yoki buyurtmalar davriyligi tizimi bo‘yicha amalga oshiriladi. Omborxona xodimlari shtati omborxona amaliyotlari uchun talab qilinayotgan mehnatning ko‘pligiga va qiyinchiliklariga, qo‘llanilayotgan transport vositalariga va yukni tashish-tushirish hamda boshqa omborxona amaliyotlarining va avtomatlashganlik darajasiga qarab belgilanadi. Omborga mahsulotlarni qabul qilish va joylashtirish. Omborga joylashtirish shaklining tanlanishi omborga egalik qilish masalasining hal bo‘lishi bilan bog‘liq. Ombor tanlashda ikkita yo‘li bor: omborga egalik qilish, yoki umumiy omborlardan foydalanish.

XULOSA VA TAKLIFLAR.

Omborlar sonini aniqlash va omborlar tarmoqlarini innovatsion loyihalarning samaradorligi quyidagilarga bog’liq: innovatsion investitsiyalashtirish maqsadlarini nazariy jihatdan asoslanganligiga; innovatsion loyihani bajarish bilan bog’liq bo‘lgan ilmiy-tadqiqot va loyiha hujjatlarini ta’minlashga; innovatsiya loyihasini texnikaviy va iqtisodiy jihatdan asoslanganligiga; innovatsiya loyihalarini amalga oshirish uchun zarur bo‘lgan investitsiya mablag’lariga; innovatsion loyihalar asosida ishlab chiqarish jarayonida yangi namunaviy mahsulot turlarini va umumiy yangi mahsulotni ishlab chiqarishni to‘liq o‘zlashtirishga innovatsion investitsiya samaradorligi ishlab chiqarish davrida olingan yalpi foydaning oshib borishida ifodalanadi. U ishlab chiqarish jarayonida yangilikni qo‘llash asosida yaratilgan qo‘shimcha mahsulot qiymatidan tashkil topishi kerak

Omborxona faoliyatini yanada rivojlantirish va takomillashtirish uchun quyidagi takliflarni amalga oshirish maqsadga muvofiq:

- sotuvchilarga omborxona xizmat ko‘rsatish sifatini oshirish;
- omborxona xizmat ko‘rsatishlar turini ko‘paytirish;
- aholi va korxona tashkilotlarda omborxona xizmatini ko‘rsatishda informasion axborot texnologiyalardan keng va samarali foydalanish;
- maishiy va kompyuter texnikasi va ularning extiyot qismlarini saqlaydigan omborxonalarni kengaytirish, saqlash sharoitlarini yanada yaxshilash;
- aholi va korxona va tashkilotlarga omborxona xizmatini ko‘rsatish xarajatlarini pasaytirish va sifatini oshirish;
- xizmat ko‘rsatishda zamonaviy asbob-uskunalardan keng foydalanish va samarali foydalanish;

- ma’muriy xarajatlar ustidan doimiy nazorat qilish va ularni qisqartirish chora-tadbirlarini ko‘rib chiqish;

- ilg’or texnologiyalardan samaral foydalani va uni iqtisod qilish yo‘llarini aniqlashtirish;

- rivojlangan davlatlar tajribalaridan keng foydalanish va ularni mahalliy ichki bozorga tadbiq etish;

- xodimlar malakasini doimiy ravishda oshirib borish va ularni qayta tayyorlashda yosh malakali kadrlarni jalb etib yangi ish o‘rinlarini tashkil etish.

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TENEBRIO MOLITOR LIINKALARINI YETIŞTIRIŞ VA ULARDAN QURITILGAN OZUQAVIY MAHSULOT TAYYORLAŞ

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Annotatsiya. *Maqolada Tenebrio molitor un qurti liinkalarini yetiştiriş, ularning biomassasini yiğib oliş, quritiş va maydalaş orqali parranda, jumladan bedana oziqasiga qöşiş uun oqsilga boy bioqöşima tayyorlaş texnologiyasi yoritilgan. Tadqiqotda un qurtini yetiştiriş şaroitlari, rivojlaniş bosqilarining davomiyligi, biomassa hosil bölişi, quritiş jarayonidagi massa va namlik özgarişlari hamda tayyor mahsulotning kimyoviy tarkibi tahlil qilindi. Tajriba ma'lumotlariga köra, 1 kg substratdan 420–480 g tirik liinka biomassasi olindi. Liinkalarni 60–70 °C haroratda quritiş natijasida namlik 65–70 % dan 8–10 % gaa kamaydi. Quritilgan liinkalar mexanik usulda maydalanib, un holiga keltirildi. Kimyoviy tarkib körsatkilari quruq modda hisobida xom oqsil 45–55 %, yoğ 30–35 % va kul moddalari 3–5 % ni taşkil etdi. Olingan natijalar Tenebrio molitor unini parrandalar, xususan bedanalar ratsionida muqobil oqsil va energiya manbai sifatida örganiş istiqbolli ekanligini körsatadi. Biroq uning bedanalar mahsuldorligiga ta'sirini baholaş uun alohida oziqlantiriş tajribalari va statistik tahlillar talab etiladi.*

Kalit sözlar: *Tenebrio molitor, un qurti, liinka, bedanailik, bioqöşima, oqsil, quritiş, maydalaş, biomassa, muqobil ozuqa.*

Abstract. *The article describes the tenology of rearing Tenebrio molitor larvae, harvesting their biomass, drying and grinding it to produce a protein-ri feed additive for poultry, including quails. The study considers rearing conditions, developmental stage duration, biomass production, anges in mass and moisture during drying, and the emical composition of the final product. According to the experimental data, 420–480 g of live larval biomass was obtained from 1 kg of substrate. Drying the larvae at 60–70 °C reduced moisture content from 65–70% to 8–10%. The dried larvae were meanically ground into meal. On a dry matter basis, the emical composition was 45–55% crude protein, 30–35% fat and 3–5% aş. The results indicate that Tenebrio molitor meal is a promising alternative source of protein and energy for poultry feed, particularly*

for quails. However, separate feeding trials and statistical analyses are required to determine its effects on quail productivity.

Keywords: *Tenebrio molitor, mealworm, larvae, quail farming, feed additive, protein, drying, grinding, biomass, alternative feed.*

KIRIŞ

Bugungi kunda orvailik va parrandailik tarmoqlarida yuqori sifatli, iqtisodiy jihatdan samarali hamda biologik qiymati yuqori bölgan ozuqa manbalarini izlaş muhim ilmiy-amaliy vazifalardan biri hisoblanadi. Ayniqsa, parranda, jumladan bedana yetiştirişda ratsionning oqsil bilan ta’minlanganligi ösiş, rivojlaniş va mahsuldorlik körsatkilariga bevosita ta’sir körsatadi. An’anaviy oqsil manbalari narxining oşişi muqobil ozuqa komponentlarini işlab iqiş va ulardan foydalaniş zaruratini yuzaga keltirmoqda.

Haşarotlar biomassasi tarkibida oqsil, yoğ, mineral moddalar va boşqa oziqaviy komponentlar mavjudligi sababli ularni yem işlab iqarişda qöllaşga qiziqiş ortib bormoqda. Şu jihatdan *Tenebrio molitor* — un qurti liinkalari istiqbolli biologik xomaşyo hisoblanadi. Uşbu haşarot nisbatan sodda şaroitda yetiştirilişi, turli organik substratlardan foydalanişi va qisqa muddatda biomassa hosil qilişi bilan ajralib turadi.

Makkar va hammualliflar (2014) haşarotlardan olingan biomassani orva va parranda ozuqasida qöllaş imkoniyatlarini tahlil qilib, ularning muqobil oqsil manbai sifatidagi ahamiyatini ta’kidlagan. Rumpold va Slüter (2013) esa haşarotlar tarkibidagi oqsil va yoğ miqdori ularning turi, rivojlaniş bosqii hamda yetiştiriş şaroitlariga boğliqligini qayd etgan.

Mazkur tadqiqotning maqsadi *Tenebrio molitor* liinkalarini yetiştiriş, ularning biomassasini quritiş va maydalaş orqali un holidagi bioqöşima oliş texnologiyasini örganiş hamda uşbu mahsulotning bedana oziqasida foydalaniş istiqbollarini baholaşdan iborat.

MATERIALLAR VA TADQIQOT USULLARI

Tadqiqot obyekti sifatida *Tenebrio molitor* un qurti liinkalari tanlandi. Tadqiqot davomida liinkalarni köpaytiriş, biomassa hosil qiliş, yiğib oliş, quritiş va maydalaş jarayonlari örganildi.

Tenebrio molitor ni köpaytiriş va yetiştiriş uun balandligi kamida 20 sm bölgan, devorlari silliq plastik idişlardan foydalanildi. Bunday idişlar haşarotlarning taşqariga iqib ketişining oldini olişga xizmat qiladi.

Substrat sifatida suli yormasi paralari qöşilgan yoğo qipiğidan foydalanildi. Liinkalarning qöşima oziqlanişi uun karam, maydalangan sabzi va boşqa nam ozuqalar berildi. Yetiştiriş jarayonida harorat 25–28 °C, nisbiy namlik esa 60–70 % darajasida saqlandi.

Un qurtining rivojlanişi tuxum, liinka, ğumbak va imago bosqilaridan iborat. Har bir bosqining davomiyligi kuzatuv asosida qayd etildi.

1-jadval

***Tenebrio molitor* rivojlaniş bosqilarining davomiyligi**

Rivojlaniş bosqii	Davomiyligi, kun
Tuxum	7–12
Liinka	65–85
Ğumbak	8–14
Imago	35–60

Un qurti biomassasining hosil böliş samaradorligini aniqlaş uun substratning boşlanğı massasi va olingan tirik liinkalar biomassasi taqqoslandi.

Biomassa iqişi quyidagi formula orqali hisoblandi: $E = \frac{Ml}{Ms} x100$

Bu yerda: E — biomassa hosil böliş körsatkii, %;

M_l — olingan liinkalar biomassasi, g;

M_s — dastlabki substrat massasi, g.

Mazkur körsatki substrat massasiga nisbatan olingan tirik biomassa uluşini ifodalaydi.

Yetiştirilgan liinkalar rivojlaniş holati va biomassa töplanişiga qarab yiğib olindi. Liinkalar dastlab substratdan ajratildi va mexanik tozalaşdan ötkazildi.

Quritiş jarayoni termostatda 60–70 °C haroratda amalga oşirildi. Quritişdan oldin va keyin namlik hamda massa körsatkilari qayd etildi. Quritilgan mahsulotning yakuniy namligi 8–10 % darajasida böldi.

Quritilgan liinkalar ortiqa substrat qoldiqlaridan tozalandi. Keyingi bosqida ular laboratoriya maydalagii yordamida maydalanib, un holiga keltirildi. Maydalangan mahsulot elakdan ötkazilib, yirik zarraalardan ajratildi.

Natijada bedana va boşqa parrandalar yemiga aralaştiriş uun qulay, bir xil fraksiyali quritilgan un qurti uni olindi.

NATIJALAR

Tadqiqot davomida un qurtini 25–28 °C harorat va 60–70 % nisbiy namlik şaroitida yetiştiriş amalga oşirildi. Kuzatuvlar natijasida liinka bosqii rivojlanişning eng uzoq davom etadigan davri ekanligi qayd etildi. Uşbu davrda liinkalarning oziqlanişi va biomassa töplanişi kuzatildi.

Tajriba natijalariga köra, 1 kg suli kepagi asosidagi substratdan 420–480 g tirik liinka biomassasi olindi. Biomassa hosil böliş davri 70–80 kunni taşkil etdi.

2-jadval

***Tenebrio molitor* liinkalarining biomassa hosil qiliş körsatkilari**

Körsatkilar	Qiymati
Substrat miqdori	1,0 kg
Olingan tirik biomassa	420–480 g
Biomassa hosil böliş davri	70–80 kun
Biomassa iqişi	42–48 %

Hisob-kitob natijalariga köra, 1 kg substratga nisbatan tirik liinkalar biomassasining iqişi 42–48 % ni taşkil etdi. Uşbu qiymat substratning töliq özlaştiriliş darajasini emas, balki boşlanği substrat massasiga nisbatan olingan tirik biomassa uluşini ifodalaydi. Yiğib olingan liinkalar substratdan ajratilib, mexanik tozalaşdan söng quritişga yuborildi. Quritiş 60–70 °C haroratda olib borildi

3-jadval

***Tenebrio molitor* liinkalarini quritiş natijalari**

Körsatki	Quritişdan oldin	Quritişdan keyin
Namlik, %	65–70	8–10
Biomassa massasi, g	400	120–140

Jadval ma’lumotlaridan körinib turibdiki, quritiş jarayonida mahsulot namligi 65–70 % dan 8–10 % gaa kamaydi. Boşlanği 400 g liinka biomassasidan 120–140 g quritilgan mahsulot olindi. Massa kamayişi, asosan, biomassa tarkibidagi suvning buğlanişi bilan izohlanadi.

Quritilgan mahsulot namligining kamayişi uni saqlaş va keyingi texnologik qayta işlaş uun qulay şaroit yaratadi. Biroq quritişning mikrobiologik xavfsizlikni töliq ta’minlaganini tasdiqlaş uun alohida mikrobiologik tahlillar ötkazilişi zarur. Quritişdan keyin liinkalar laboratoriya maydalagii yordamida maydalandi. Maydalaş jarayoni dastlab yirik, keyin esa mayda fraksiyaga ajratiş orqali amalga oşirildi. Olingan mahsulot elakdan ötkazilib, bir xil strukturali un holiga keltirildi.

Maydalangan un qurti biomassasi yem tarkibiga aralaştiriş uun qulay texnologik şaklga ega böldi. Uşbu usul kiik hajmdagi laboratoriya tajribalari uun sodda va amaliy jihatdan qulay hisoblanadi.

XULOSA

Olib borilgan tadqiqotlar natijasida Tenebrio molitor un qurtini sun’iy şaroitda yetiştiriş, undan biomassa oliş hamda orva va parranda ozuqasiga qöşima sifatida foydalaniş uun quritilgan va maydalangan mahsulot tayyorlaş texnologiyasi örganildi. Tadqiqot davomida un qurtini yetiştiriş uun 25–28 °C

harorat va 60–70 % nisbiy namlik eng maqbul şaroit sifatida qöllanildi. Uşbu şaroitda liinkalarning rivojlanişi va biomassa töplanişi kuzatildi.

Umuman olganda, tadqiqot natijalari Tenebrio molitor liinkalaridan quritilgan va maydalangan un şaklidagi bioqöşima tayyorlaş texnologiyasining amaliy imkoniyatlarini körsatdi. Olingan mahsulotni bedanalar ratsioniga qöşima oqsil va energiya manbai sifatida kiritiş istiqbolli yönaliş hisoblanadi. Şu bilan birga, uning bedanalarning tirik vazni, ösiş sur'ati, yem iste'moli, tuxumdorligi va tuxum sifatiga ta'sirini aniqlaş uun turli qöşiş me'yorlarida maxsus oziqlantiriş tajribalarini ötkaziş, şuningdek, olingan natijalarni statistik jihatdan baholaş zarur.

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TASHISH MASOFASINING MOBIL GO‘NG YIG‘ISHTIRISH MASHINASI FOYDALANISH UNUMDORLIGIGA TA’SIRI

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Annotatsiya. *Maqolada mobil go‘ng yig‘ishtirish mashinasining foydalanish unumdorligiga tushirish joyigacha bo‘lgan masofaning ta’siri baholandi. Muzrabot tumanidagi xo‘jalikda 1000 m² maydondan yig‘ilgan 31 m³ go‘ng hajmi asosida yig‘ishtirish, tashish, bo‘shatish va qaytish operatsiyalarini birlashtiruvchi vaqt modeli tuzildi. Qabul qilingan shartlarda 25-150 m masofalar uchun hisobiy unumdorlik 27,90-12,40 m³/soatni tashkil etdi. Masofani 150 m dan 50 m gacha qisqartirish unumdorlikni 80 foizga oshirdi. Natijalar tushirish joyi va qatnov yo‘lini tanlashda qo‘llanishi mumkin.*

Kalit so‘zlar: *go‘ng yig‘ishtirish mashinasi, tashish masofasi, ish sikli, foydalanish unumdorligi, vaqt balansi.*

Abstract. *The effect of unloading distance on the operational capacity of a mobile manure collection machine was assessed. A time model combining collection, transport, unloading and return was developed using a recorded volume of 31 m³ collected from a 1000 m² farm yard in Muzrabot district. Under the adopted conditions, calculated capacity ranged from 27.90 to 12.40 m³/h for one-way distances of 25-150 m. Reducing the distance from 150 to 50 m increased calculated capacity by 80%. The results support planning of unloading locations and travel routes.*

Keywords: *manure collection machine, transport distance, work cycle, operational capacity, time balance.*

KIRISH

Qoramolchilik fermalarida go‘ngni yig‘ishtirish va undan foydalanish o‘zaro bog‘liq texnologik jarayonlardir. Lim va boshq. (2023) go‘ngni yig‘ish, saqlash va undan foydalanish amaliyoti hamda boshqarish xarajatlarini kamaytiruvchi texnologiyalarni tahlil qilgan. Chiqindilarni boshqarish tizimini rejalashtirishda xo‘jalik sharoiti va tabiiy resurslarni muhofaza qilish talablari birgalikda hisobga olinadi (Natural Resources Conservation Service [NRCS], n.d.).

Harrigan (2015) tashish siklini yuklash, tashish, bo‘shatish va qaytish operatsiyalari orqali baholaydi. Adhikari va boshq. (2005) go‘ngdan foydalanish imkoniyatlariga tashish xarajatlarining ta’sirini aniqlagan. Mashina unumdorligini baholashda ish hajmi va bajarish vaqti muhimdir (Hancock va boshq., 1991); qamrov va tezlik bilan birga burilish hamda to‘xtashlar ham hisobga olinadi (Rosentrater, 2026). Qiya transportyor hisobi (Nazarov, 2025) materialni yuklashni tavsiflaydi. Mazkur tadqiqotning maqsadi tushirish masofasining GYM-1 foydalanish unumdorligiga ta’sirini aniqlashdir.

Materiallar va usullar

Tadqiqotda T-16 shassisiga o‘rnatilgan GYM-1 mobil go‘ng yig‘ishtirish mashinasining ish sikli va foydalanish unumdorligiga tashish masofasining ta’siri o‘rganildi. Shnekli ishchi organlar go‘ngni markazga yig‘adi, kurakchali rotor uni qiya qirg‘ichli transportyorga uzatadi. Transportyor materialni yuk sig‘imiga yetkazadi. Sig‘im to‘lgach, mashina tushirish joyiga boradi, pastki qopqoq orqali go‘ngni bo‘shatadi va ish uchastkasiga qaytadi. Muzrabot tumanidagi «MEHNAT-ROHAT» xo‘jaligida 1000 m² maydondan yig‘ishtirilgan 31 m³ go‘ng hajmi tahlilga asos bo‘ldi.

Vaqt balansi tushirish joyigacha bir tomonlama masofaning 25, 50, 100 va 150 m qiymatlari uchun tuzildi. Har bir variantda yig‘ishtiriladigan hajm va ish rejimi bir xil qabul qilinib, masofaning qatnov davomiyligi hamda unumdorlikka hisobiy ta’siri aniqlandi. Go‘ng xossalarining o‘zgaruvchanligi (Nazarov va boshq., 2026) hisobga olinib, zichlik uchun qo‘shimcha shart kiritmasdan, unumdorlik hajmning jami vaqtga nisbati orqali m³/soatda baholandi.

Hisoblash tartibi

1-jadval.

Ish siklini hisoblash parametrlari

Ko‘rsatkich	Qiymat
Qamrov kengligi B; ish tezligi v	2,0 m; 2,0 km/soat
Nominal yuk sig‘imi V_β; foydalanish koeffitsiyenti k_β	1,1 m³; 0,95
O‘rtacha tashish tezligi v_t	6 km/soat
Bo‘shatish t_β; joylashish va manevr t_m	0,5 min; 0,5 min
Qo‘shimcha vaqtni hisobga olish koeffitsiyenti k_t	0,90

Qamrov, ish tezligi va nominal sig‘im mashinaning texnik ko‘rsatkichlaridir. k_β, v_t, t_β, t_m va k_t sikl hisobida qabul qilindi. k_t burilish va qisqa to‘xtashlarga ajratilgan qo‘shimcha vaqtni ifodalaydi; alohida hisoblangan tashish, bo‘shatish va tushirish joyidagi manevr unga qayta kiritilmaydi.

$$V^f = V_\beta k_\beta = 1{,}045\ m^3;\quad N = ceil(V/V^f) = 30 \qquad (1)$$

Bu yerda V^f - bir qatnovdagi foydali sig‘im; V - jami yig‘ilgan hajm; N - butun songacha yuqoriga yaxlitlangan qatnovlar soni. 29 ta to‘liq yukdan keyin 0,695 m³ qisman yuk qoladi. Oxirgi qatnov ham alohida tashish va bo‘shatish operatsiyasini talab qiladi.

$$T_i = 60A / (1000Bv) = 15\ min \qquad (2)$$

Bu yerda A - uchastka yuzasi, m²; B - qamrov, m; v - ish tezligi, km/soat. T_i faqat to‘g‘ri ishchi yurishlar davomiyligini ifodalaydi.

Natijalar va muhokama

Bir tomonlama tashish masofasi L metrda, v_t km/soatda berilganda N ta qatnovning borib-kelish vaqti $2NL\cdot60/(1000v_t)$ ga teng. Har bir qatnovdan keyin, jumladan oxirgi bo‘shatishdan so‘ng ham uchastkaga qaytish hisobga olindi. Ishchi yurish, tashish va bo‘shatishning yig‘indi vaqti quyidagicha ifodalandi:

$$T_0 = T_i + 120NL/(1000v_t) + N(t_\beta + t_m) \qquad (3)$$

Qabul qilingan parametrlar qo‘yilganda $T_0 = 45 + 0{,}6L$, min. Foydalanish vaqti $T_e = T_0/k_t$, hajmiy unumdorlik esa $W_v = 60V/T_e$ bo‘ladi. Natijada masofa uchun quyidagi hisobiy bog‘lanish olindi:

$$W_v(L) = 1674/(45 + 0{,}6L),\ m^3/soat \qquad (4)$$

Bog‘lanish vaqt balansi asosida chiqarilgan; undagi koeffitsiyentlar regressiya orqali tanlanmagan. Hisob natijalari 2-jadvalda keltirilgan.

2-jadval.

Tashish masofasiga bog‘liq hisobiy natijalar

L, m	Tashish vaqti, min	T_e, min	W_v, m³/soat
25	15	66,7	27,90
50	30	83,3	22,32
100	60	116,7	15,94
150	90	150,0	12,40

150 m masofada vaqt balansi 15 min ishchi yurish, 90 min tashish va 30 min bo‘shatish hamda manevrdan iborat. Jami 135 min texnologik vaqt qo‘shimcha vaqtlar bilan 150 min ga yetadi. Texnologik vaqt tarkibida tashish 66,7 foizni egallaydi. Demak, bu sharoitda unumdorlikni oshirishning asosiy tashkiliy zaxirasi qatnov yo‘lini qisqartirishdir.

Masofa 150 m dan 50 m gacha qisqartirilganda foydalanish vaqti 150,0 dan 83,3 min gacha kamayadi, unumdorlik esa 12,40 dan 22,32 m³/soatgacha, ya’ni 80 foizga oshadi. Masofaning har 10 m ga ortishi 30 qatnov uchun

texnologik vaqtga 6 min, foydalanish vaqtiga esa taxminan 6,7 min qo‘shadi. Ushbu natija sig‘im va qatnovlar soni o‘zgarmagan shartga tegishli.

Modelda L barcha qatnovlar uchun bir xil qabul qilingan; yo‘llar farqlansa, o‘rtacha masofa qo‘llanadi. 150 m variant eng katta masofaning barcha qatnovlarga tatbiq etilgan holatidir. Yo‘l holati va bo‘shatish davomiyligi o‘zgarsa, natijalar ham o‘zgaradi. Ogejo (2024) tashish sig‘imi va masofaning materialni olib chiqish vaqtiga ta’sirini ta’kidlaydi. Tushirish joyini tanlashda texnikaning kirib-chiqishi, oqova va hid tarqalishini ham hisobga olish zarur (Kelly & Westendorf, 2014). Shu shartlar doirasida qatnov yo‘lini qisqartirish tavsiya etiladi.

XULOSA

GYM-1 mashinasi uchun yig‘ishtirish, tashish, bo‘shatish va qaytish vaqtlarini birlashtiruvchi hisoblash tartibi ishlab chiqildi. 31 m³ material, 1,045 m³ foydali sig‘im va 30 qatnov shartida 25–150 m masofalarda hisobiy foydalanish unumdorligi 27,90–12,40 m³/soat bo‘ldi. Masofani 150 m dan 50 m gacha qisqartirish unumdorlikni 80 foizga oshiradi. Ishchi organlar rejimini o‘zgartirmasdan natijani yaxshilash uchun tushirish joyi bilan ish uchastkasi o‘rtasidagi qatnov yo‘lini qisqartirish tavsiya etiladi.

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THE ROLE OF ENGINEERING AND COMPUTER GRAPHICS IN THE EDUCATIONAL PROCESS

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Abstract. *This article examines the issues and approaches to teaching engineering and computer graphics in higher technical educational institutions. Increasing students' motivation to obtain the necessary competencies that allow them to read and draw drawings correctly. And also provides the main methods of conducting classes using computer graphics programs.*

Key words: *Engineering graphics, technical education, projection methods, three-dimensional modeling, graphic modeling, geometric modeling, logical thinking, visual representation, orthogonal projections, project activities, computer technology, electronic textbook, interactive board.*

Аннотация. *Ушбу мақолада техника олий ўқув юртларида мухандислик ва компьютер графика ўқитиш масалалари ва ёндашувлари кўрилмоқда. Талабаларни зарур ваколатларга эга бўлиши учун мативацияларни ошириш, чизмаларни саводли ўқиш ва бажариш имкониятини бериши, шунингдек, компьютер графика дастурларидан фойдаланиб машғулотлар ўтказишнинг асосий методлари келтирилмоқда.*

Калитли сўзлар. *Мухандислик графикаси, техникавий таълим, проекциялаш методлари, уч ўлчовли моделлаш, график моделлаш, геометрик моделлаш, мантиқий фикрлаш, яққол тасвир, ортогонал проекциялаш, лойихалаш фаолияти, компьютер технологиялари, электрон дарслик, интерфаол доска.*

Машинасозлик ишлаб чиқаришининг хар қандай лойихасини яратиш чизмасиз тасаввур қилиб бўлмайди.

Чизма- бу техник таълим йўналишлари бакалаврлари учун тушунарли бўлган техник фикрни етказиш усулидир. Олий техника ўқув

юртларининг ўқув дастурларида техника таълим йўналишлари талабалари машина деталлари, техникавий механика, назарий механика, машина механизмлар назарияси, метрология, стандартлаштириш ва сертификатлаштириш каби фанлар билан биргаликда мухандислик графикасини ўрганишлари лозим. Аммо мухандислик техника таълим йўналишига асос солувчи фанлар орасида “Мухандислик графикаси” алохида ўрин тутади. Мухандислик графикасиз лойихалар ва конструкциялаш сохасида ваколатли мутахассис бўлиши мумкин эмас. Хар қандай одам, хатто техника мутахассислигидан узоқ бўлса хам, хаётда чизмаларга дуч келиши мумкин. Булар қурилаётган уй ёки котежнинг чизмаларини, таъмирлаш режаси ёки хонага қимматбахо мебелларни жойлаштириш, корхонада нафақат техголог ва лойихачилар билиши керак бўлган қисмларнинг чизмалари, балки токар, пайвандчи, назоратчи, менежер савдо ва таъминот бўлимидан, катта мижозга малакали маслахат бериш зарурият бўлади.

Мухандислик графикасининг асосий вазифаси анъанавий равишда проекциялаш усуллари ва йиғиш бирликларини лойихалаш қоидаларини ўрганиш бўлганлиги сабабли, курс анча вақт талаб қиладиган чизма ваграфик ишларни қўлда бажариш услубига қаратилган. Ўқув жараёнига компьютернинг киритилиши бу муаммони анча соддалаштирди. Замонавий шароитда лойихалаш ғояси ўзгарганда, аввал техника объектларини уч ўлчовли моделлаштириш табора кўпроқ қўлланилмоқда, сўнгра кўринишлар, қирқим ва кесимларни зарур турлари, бўлимлари, бўлимларнинг кейинчалик автоматлаштирилган лойихалаш, йиғма бирликларни шаклланиши ва бошқалар, автоматлаштирилмаган лойихалаш усуллари самарасиз хисобланади.

Шундай қилиб, олий техника ўқув юртларини битирувчилари чизма ва лойиха хужжатларини яратишда ва уч ўлчовли график моделлаштириш муаммоларини хал қилишга имкон берадиган график тизимларга эса фойдаланувчилар сифатида бўлишлари керак.

Бу эса мухандислик графикасини ўқитишда янги таркибий қисм компьютер графикасини пайдо бўлишига олиб келди. Компьютер графикасини ўрганишнинг мохияти геометрик моделлаштириш асосида интегралашган модел яратишдир. Унинг вазифаларига чизма дастурларини аниқ пакетлари билан ишлаш кўникмаларини шакллантириш киради, чизмаларни компьютерда бажариш усулларини, график лойиха хужжатларини автоматлаштирилган ишлаб чиқиш усулларини, график маълумотлар базаларидан фойдаланилган холда

чизмаларни компьютер ёрдамида лойихалаш усулларини ўрганиш ва амалий ишлаб чиқиш киради.

Хозирги вақтда мухандислик ва компьютер графикасини ўқитиш ва унинг олий даражадаги мутахассисни тайёрлашдаги роли муаммосига икки хил ёндашув мавжуд.

Биринчи ёндашув энг кенг тарқалган – бу компьютер графикасини алохида мавзу сифатида ўрганишдир. Бундай ёндашув билан компьютер графикаси қалам ва чизма тахтаси ўрнига "электрон кулман" ёрдамида чизмалар ясаш техникасини ўрганишга бағишланган фан сифатида қаралади [1].

Шу билан бирга, талабалар курс ва диплом лойихаларини бажаришда график компьютер технологиялардан фойдаланиш учун етарли билимга эга бўлмайдилар ва келажакда улар қўшимча равишда корхонада ихтисослаштирилган лойихалаш курсларида қатнашишлари керак.

Бундай ёндашув асосли эмас, чунки умуман компьютер графикаси билан ягона контексда кўриб чиқилиши керак [2]. Компьютерда яратилган, аммо лойихалашда хатолар билан чизилган кўринишлар, чизмани нотўғри тушунишга ва охири оқибат ишлаб чиқаришда буюмларни нотўғри йиғилишига олиб келади. Компьютерда ишлаш талабалар нафақат график пакетни (AutoCAD ва бошқаларни) дастурларини ўрганишлари, аммо лекин ўрганиш жараёнида тушуниш ва тўғри якуний натижага эришишда мухандислик графикасини ўрганишни давом эттириш керак. Ўқув жараёни мавзуларини самарали тушуниш учун параллел равишда, чизмаларни қўлда ва компьютерда бажаришни оқилона бирлаштирган холда ташкил этилиши лозим. Шу билан бирга самарали ўрганиш учун ажратилган соатлар сонини камайиши ва педагогик вазифаларни хал қилишда ютқазмаслик истаги билан боғлиқ бир қатор қийинчиликларни енгиб ўтиш керак, яъни талабаларнинг фазовий ва мантиқий фикрлашни талаб даражасида ривожлантира олиши керак. Аксарият талабалар мактабда чизмачилиги сабабли қоғозга қалам билан ишлашни истамаслигини рағбатлантирадилар ва кўпчилик ўқувчилар қоғозга қисқа ўлчамдаги кесмани тўғри чиза олади. Бундай холда, график мухаррирда ишлаш хам ёрдам бериши мумкин.

Охир оқибат, талаба учун компьютер қалам ва ўлчагич билан бир хил воситага айланиши керак. Шу билан бирга, мухандислик графикасида талабалар қалам билан чизмаларни қуриш усулларини, қоидаларини ўзлаштирадилар ва компьютер графикасида улар бир вақтнинг ўзида дастурнинг асосий техникаси ва интерфейсини, яъни иш мухитини

сақлаш, чизма форматини аниқлаш, приметивлар билан ишлаш, чизмаларни тахрирлаш, объектни боғлаш, блоклар, қатламлар, матнлар ва бошқалар билан ишлашни ўзлаштирадилар. Шу билан бирга, чизма чизишнинг хар қандай босқичида талаба буюмнинг яққол тасвирини кўриши мумкин, бу ўқув жараёнида жуда мухимдир.

Таълим жараёнида ахборот технологиялардан фойдаланганда мухандислик графикасининг анъанавийтопшириқларини янги мазмунда амалга оширилади. Масалан, уч ўлчовли яққол тасвиридан “ўқ” деталининг 2D тасвирини қуриш осон.

Топшириқни амалга ошириш босқичма-босқич харакатлар ва тушунтиришлар билан тегишли методик кўрсатмалар яратишни талаб қилади. Ишлаб чиқариш жараёнида компьютерда чизмаларни бажариш учун график вазифаларни бажариш бўйича кўрсатмалар тўплами мавжуд.

Бу топшириқларнинг барчаси қўлда чизма каби - чизиқ бўйича бажарилади, чизма чизиш техникаси ишлаб чиқариш пайтида формат бўйича жойлаштирилган усуллари, масштабда детал бажариш қоидалари хисобга олинади. Шу билан бирга, сиз хар доим график топшириқ бажарилишининг тўғрилигини текширишингиз ва чизмани ўз вақтида тўғрилашингиз мумкин. Худди шу усулдан фойдаланиб, ўқитувчи топшириқ шартида кўрсатилган деталнинг геометрик моделини яратади ва кейин уч ўлчовли модел ёрдамида автоматик равишдаунинг ортогонал проекцияларини қуради. Талаба ўз ечимини масалага қиёслаган холда ўз хатоларини мустақил аниқлаб, ечимнинг тўғрилигини тахлил қила олади.

Бу топшириқларни бажаришда талабаларнинг йўл қўядиган хатолари модел шаклининг заиф ифодаланиши билан боғлиқ ва мухандислик графикасининг график масалаларини ечиш бунда ёрдам бериши мумкин. Бундай машқлар проекцион масалаларни ечиш учун тайёргарлик босқичидир. Шунингдек, улар талабага ўқув материалининг қайси қисми талабалар томонидан ўзлаштирилмаганлигини аниқлашга ёрдам беради ва детал шаклини тушунишдаги қийинчиликларни зудлик билан бартараф этади.

Келажакда техника йўналишидаги бакалавр чизма чизиш ва қўлда ишлаш учун компьютер технологияларда хам тенг жараёнда малакали бўлиши керак. Бундан ташқари, фазовий тасаввур, албатда, конструкторлар ва лойихачилар фаолиятида, шунингдек ишлаб чиқаришда чизмани ўқиётганда, қоғоз варағида текис тасвирларни бажаришда кўпроқ ривожланади. Чизмаларни тўғри ўқишни ва қоғозда бажаришни билмаган одам буни компьютерда тўғри бажара олмайди.

Асосий билимлар қалам тўлиқ қиёсли намуналар, макетлар ва моделлар ёрдамида бажарилиши керак. Компьютер технологияларни жорий этиш оқилона чегараларда бўлиши керак. Компьютер графикаси компьютернинг хусусиятлари ва имкониятларини ўрганишга эмас, балки график масалаларни хал қилиш қоидалари ва техникасини ўрганишга қаратилган бўлиши керак.

Шу билан бирга, мухандислик графикаси дарсларида компьютер технологияларнинг жорий этилиши бизга таълимни ривожлантириш ғоясини амалга ошириш, дарс тушунарлигини ошириш, иш вақтини йўқотишни минимал даражага камайтириш, аудиторияда хам, уй вазифасини тайёрлашда хам мустақил иш хажмини ошириш, дарсни янада жонли ва қизиқарли қилиш имконини беради. Компьютер дастурлари билан ишлаш конструкторлик ва ижодий фикрлашни, фазовий тасаввурни ривожлантиради, график мухаррирлар билан ишлаш, маълумотларга мазмунли эгалик қилиш ва кейинчалик уни қайта ишлаш қобилиятларини шакллантиришга ёрдам беради. Амалиёт шуни кўрсатдики, компьютер графикасидан фойдаланиш ўқитиш сифати ва самарадорлигини оширади, ўқув фаолиятини ривожлантиради. Шу билан бирга, бу талабаларнинг билим олишлари учун самарали рағбатлантиришдур. Ўқув йилининг бошида мультимедиали тақдимот билан ишлашни билмаган, компьютер экранида чизган детал чизмасини ўлчагич билан ўлчаган ва машғулот охирида айнан шу талабалар ўзлари оддий йиғиш чизмасини чизишда эркин бўлган талабаларни кузатиш қизиқарли эди.

Улар учун аудиториядаги компьютер – бу мавзуни ранг баранг ва қизиқарли тарзда тақдим этиш, дарс билан бирга дидактик материаллар тайёрлаш, керакли конструкцияларни чексиз кўп марта такрорлаш талабалар учун график топшириқлар ва тестларни ишлаб чиқишга имкон берадиган кенг шароитларга эга воситадир. Мухандислик графикасини ўқитишда компьютер технологияларидан фойдаланиш талабаларнинг кўплаб билим эхтиёжларини тўлдириш имконини беради.

ОТМларда мухандислик ва компьютер графикаси дарсида компьютер технологиялардан фойдаланиш учун етарли моддий база яратилган, чизма дастурлари тўплами билан жихозланган интерфаол доскали компьютер аудиториялари мавжуд. Компьютерда ишлаш кўникмасига эга бўлган талаба исталган дарсда компьютер технологиялардан фойдаланиш методикасидан фойдаланиши мумкин.

Дарсда электрон дасрликлар, қўлланмалар, амалий ишлар тўпламларидан фойдаланган холда мухандислик графикаси бўйича дарсга

асосланган тематик режалаштиришишлаб чиқилган бўлиб, бу дарсга тайёргарлик пайтида вақтни тежашга, дарснинг турли босқичларида замонавий технологиялардан фойдаланган холда дарс йўналишини оптимал равишда тузишга имкон беради.

Хулоса, асосий натижа талабаларнинг “Мухандислик графика” фанини ўрганишга мотивациясини ошириш, шунингдек материални яхши тушуниш ва уни амалда қўллаш қобилияти, индивидуал қобилиятларни такомиллаштириш ва билиш фаолиятини ривожлантириш, мантиқий фикрлаш ва фазовий тасаввурни ривожлантиришдир.

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7-SECTION

STUDY OF POLITICAL TERMS IN TURKIC LANGUAGES

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Annotation: *This section analyzes the study of political terms in Turkic languages from a historical and comparative perspective. Initially, the first manifestations of political lexicon in the language of Turkic written monuments (Orkhon-Yenisei inscriptions, "Kutadgu Bilig," "Diwan Lughat al-Turk," and others), the formation of political terminology in Kazakh, Uzbek, Turkish, Azerbaijani, Kyrgyz, Tatar, and other Turkic languages, the directions of study of terms, and the main scientific schools are highlighted.*

Key words: *Turkic languages, political term, political lexicon, terminological system, comparative study, common Turkic layer, borrowed terms, calque, unity of terms, Karakalpak language*

Turkic languages are a family of languages distributed across a vast territory of Eurasia - from Turkey to the Republic of Sakha (Yakutia), from the Balkans to East Turkestan, which includes more than 30 languages and dialects. Baskakov created the main classification of these languages and divided them into several groups - Oghuz, Kipchak, Karluk, Bulgarian, and others [1]. In this classification, the Karakalpak language belongs to the Kipchak-Nogai (Aral-Caspian) subgroup of the Kipchak group and is considered one of the closest related languages to the Kazakh and Nogai languages [2]. The Uzbek language belongs to the Karluk group, the Turkic and Azerbaijani languages belong to the Oghuz group, and the Kyrgyz and Tatar languages belong to the Kipchak group [3].

In the study of the general lexical fund of Turkic languages, the multi-volume "Comparative-Historical Grammar of Turkic Languages," prepared by E.R. Tenishev, and its volume "Lexicon" are of particular importance [4]. These studies have revealed the general vocabulary of Turkic languages, the laws of word formation, and the ways of lexical assimilation from a comparative historical perspective. However, in these works, specialized vocabulary, including political terminology, was not systematically considered as a separate

object. The development of political terminology in Turkic languages has been studied primarily within the framework of each language, as a matter of national linguistics.

The formation of political terms in Turkic languages is closely linked to socio-historical circumstances. In ancient Turkic written records - Orkhon-Yenisei inscriptions - there are many words related to state governance: khagan, bek, budun (people), el (state, people), to'ru (law, tradition). It is known that later, under the influence of Islam and Arab-Persian culture, many political and legal terms from Arabic and Persian entered Turkic languages: state, government, authority, politics, Sharia, sultan, vizier, and others. From the late 19th and early 20th centuries, new international terms spread through Russian and European languages. Thus, political terminology in Turkic languages is a product of several historical layers.

Several general patterns can be noted in the terminological practice of Turkic languages. Firstly, terminology in all languages has remained not only a scientific issue but also a part of state language policy. Secondly, each language sought a balance between relying on its own internal capabilities in creating terms and introducing them from foreign languages. Thirdly, terminological standardization was often carried out through specialized commissions and scientific institutions (academies, language institutes, terminology committees), but the influence of these commissions varied over time.

Among Turkic languages, the most famous example of rapid renewal of political terminology based on its own language resources is the "language reform" in the Turkish language. After the formation of the Republic of Turkey, along with the transition to the Latin script (1928), the Turkish Language Research Society (later the Turkish Language Institute - Türk Dil Kurumu) was established in 1932, which carried out extensive work on replacing many Arabic-Persian words in the Ottoman language with words based on the Turkish language [5]. Turkologist J. Lewis systematically analyzed this process in his book "Turkish Language Reform: A Catastrophic Achievement," highlighting its achievements and shortcomings.

The impact of the reform on political vocabulary was particularly noticeable. For example, the concept of "hokimiyat-i milliye" (national power) was replaced by "ulus suvereniteti" (national sovereignty), and with the simultaneous use of the concepts of "anayasa" instead of "qonun-i asosiy" and "sechim," "inqilob," or "ihtilol" instead of "intihap," the term "davrim" became widespread, and the word "qurultoy" was revived as a historical Turkic word in the names of political party gatherings. At the same time, a number of results of

this reform are clearly distinguished: words borrowed from the Arabic language, such as "meclis," "millat," "davlat," "hukumat," in most cases retained their place, since they were deeply embedded in the consciousness of the people. This example provides an important lesson about the limits of terminological reform and the consequences of its adoption by society.

The second area of research on political lexicon in Turkic linguistics is its study from the perspective of political discourse and linguistics. In recent years, numerous studies have been published in Turkish linguistics on topics such as "parliamentary discourse," "speeches of political leaders," and "election campaign language." They pay considerable attention to political metaphors, the concepts of nationality and identity, and the use of ideological terms. This new experience in Turkic linguistics is also important as a methodological experience for other representatives of Turkic languages.

The issue of terminology in Kazakh linguistics has been given special attention since the beginning of the 20th century. As the founder of Kazakh terminology, A. Baitursynov made a significant contribution to the creation of national terms and their integration into the language of the people [6]. In his book "Language and Tools," grammatical terms in the Kazakh language were created based on the capabilities of the vernacular, and many of them are still used today. The experience of Baitursynov and representatives of the Alash movement is one of the earliest successful examples of creating terms based on native language material and widely implementing them in social life.

After Kazakhstan gained independence, issues of strengthening the activities of terminology commissions, regulating political and legal terms, preparing dictionaries, and introducing international terms into the Kazakh language were raised. During this period, political terms such as "Parliament," "Majlis," "Senate," "Government," "Governor," and "State" were established in the state language. In Kazakh terminology, words from the old historical layer such as "Majilis" (from Arabic) have been filled with new political and legal meaning, while Turkic words like "Qurultoy" have taken their place in historical culture in the meaning of gathering, council. This situation demonstrates the possibility of reusing terminological layers in a new sense.

The study of political terms in Uzbek linguistics has gone through important stages both before and during independence. It is noted that during the Soviet period, most of the socio-political lexicon of the Uzbek language entered through the Russian language and was formed as a calque of Russian terms. The general structure of the Uzbek language is systematically described in the works of A.N. Kononov [7]. The adoption of the Law "On the State Language" in 1989

and its new edition in 1995 marked the beginning of a new stage in the development of Uzbek terminology [8]. During the years of independence, political and legal terms such as "Oliy Majlis" (Parliament), "Qonunchilik palatasi" (Legislative Chamber), "Senat" (Senate), "Hokim" (Governor), "Mahalla" (Neighborhood community), and "Ombudsman" (Ombudsman) have been thoroughly studied from a lexicographical perspective and identified in multi-volume publications such as the "Explanatory Dictionary of the Uzbek Language" [9]. Comparative-historical, semantic, and terminographic approaches are widely used in the study of political terms in the Uzbek language.

Political terminology also has its own unique ways in other Turkic languages. In the Kyrgyz language, the parliament is called "Jogorku Kenesh," where the Soviet-era word "Sovet" is replaced by the Turkic word "kenesh." In the Turkmen language, terms like "Mejlis" and "Xalq Maslahati" (People's Council) demonstrate the new meaning of the historical layer derived from the Arabic language. In the Azerbaijani language, the term "Milli Majlis" and related terms reflect the intermingling of the Arab-Persian layer with the European layer. While the Tatar term "Davlat Shurosi" retains an Arabic component, terms like "Ҡoroltay" in the Bashkir language and "Il Tuman" in the Sakha (Yakut) language demonstrate the potential for the revival of national vocabulary in the state names of the Turkic republics.

These examples demonstrate the common and distinct features in the formation of political terminology in Turkic languages. Common features: (a) a large number of Arabo-Persian, Russian, and European strata; (b) Revival of old Turkic words in state names; (v) widespread use of the calque method; (g) The connection of terminological standardization with state language policy. Specific features, however, depend on each language's writing system, historical context, dialect, and political-linguistic context. Therefore, political terms in the Karakalpak language should be studied in this common Turkic context, and their main characteristics should stem from its unique historical and linguistic circumstances.

The history of terminological processes in Turkic languages can be divided into three periods: the period from the beginning of the 20th century to the end of the 1920s; The period from the Soviet era to independence; the period of independence. Each period had its own language policy, writing system, and terminological principles.

In the first period, the national awakening movement of the Turkic peoples gave a powerful impetus to the renewal of terminology. The First Turkic Congress, held in Baku in 1926, was an important scientific and organizational

event that discussed issues of common writing, orthography, and terminology for the Turkic peoples. During this period, the practice of using both the Arabic-Persian layer and the resources of the vernacular language to express political and state concepts in Turkic languages became widespread.

In the second period, terminological work was carried out within the framework of the state's centralized language policy. Starting in the mid-1930s, the principle of adopting "international" and Russian loanwords without changes became stronger in terminology. As a result, a large part of the socio-political lexicon - such terms as party, congress, plenum, soviet, committee, presidium, proletariat, bourgeoisie, socialism, communism, collective farm, district committee - were introduced into Turkic languages through the Russian language. In recent times, the political terminology of Turkic languages has acquired a uniform pattern based on the Russian language, which, on the one hand, led to their convergence, and on the other hand, to the limitation of each language's unique word-formation capabilities.

The third period - the years of independence - was a period of dramatic changes in political terminology. Changes in the political system, the establishment of multi-party systems, national states, the formation of parliamentary and presidential institutions, changes in the electoral system, and the widespread integration into international relations have led to the emergence of new terminology. During this period, the transition to the Latin script in most Turkic languages (Uzbek, Turkmen, Azerbaijani, Karakalpak, etc.) led to new issues related to the spelling of terms. Furthermore, because some of the new terms entered through English, they compete with Russian examples.

The main directions of research on political terms in Turkic languages can be outlined as follows:

lexicographical direction: compiling dictionaries of political terms, explanatory and translation dictionaries, determining the composition of terminological dictionaries;

historical-etymological direction: determination of the origin of terms, their historical layers (ancient Turkic, Arabic-Persian, Russian-European);

Structural-semantic direction: studying the semantic structure of terms, synonymy, polysemy, and relationships in terminological systems.

sociolinguistic field: studying the connection of terminology with language policy, writing systems, and public opinion.

comparative-typological approach: comparing political terms in several Turkic languages based on their origins and usage levels.

Discursive-cognitive field: determining the use of political terms in political discourse, their metaphorical models, and ideological meanings.

When examining research on political terms in Turkic languages from a critical perspective, a number of common problems are revealed. Firstly, many works are limited to the material of a single language, and the general comparative political terminology of Turkic languages is not systematically structured. Secondly, in most studies, political terms are considered in conjunction with general vocabulary, and the specific characteristics of the terminological system have not been sufficiently identified. Thirdly, the issues of terminological standardization are often analyzed from a practical point of view, and their theoretical foundations - the motivation of terms, their systematization, and their striving for uniformity - have not been fully explored. Fourthly, the spelling variants of terms related to changes in the writing system, as well as the principles of transliteration and transcription, have not been unified.

The experience of studying political terminology in Turkic languages shows that the formation of terms is closely linked not only to the internal laws of the language but also to socio-political conditions, state language policy, and changes in the writing system. The reform of the Turkish language demonstrates the possibilities and limits of relying on one's own language resources, the experience of the Kazakh and Uzbek languages - the role of state commissions, dictionaries and scientific schools in the creation of national terminology, examples from other Turkic languages - the revival of old words in a new meaning. It is advisable to use this experience as a comparative material and methodological model in the study of political terms in the Karakalpak language.

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INTEGRATING AI-DRIVEN TOOLS INTO THE CURRICULUM TO ENHANCE EFL LEARNERS' ORAL PROFICIENCY

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Abstract. *Oral proficiency remains one of the most difficult skills to develop in English as a Foreign Language (EFL) settings, where learners have limited exposure to authentic speaking practice. Artificial intelligence (AI) tools such as speech recognition, conversational chatbots and automated feedback systems offer new opportunities to extend speaking practice beyond the classroom. This article discusses the theoretical rationale for using AI-driven tools in language teaching, outlines the main types of tools relevant to speaking, and proposes a curriculum-level framework for their systematic integration. It also considers the pedagogical, technical and ethical challenges that teachers and institutions should address. The article argues that AI is most effective when it complements, rather than replaces, the teacher and when its use is aligned with learning outcomes and assessment.*

Keywords: *artificial intelligence, EFL, oral proficiency, speaking skills, curriculum design, chatbots, speech recognition*

In many EFL contexts, learners study English for years yet remain hesitant speakers. Large classes, limited contact hours, exam-oriented syllabi and the lack of an English-speaking environment reduce the amount of spoken output each learner actually produces. A typical learner may speak for only a few minutes in a whole lesson. As a result, learners often develop reasonable reading and grammar knowledge but lack fluency, confidence and the ability to interact spontaneously.

Recent developments in AI have created tools that can listen to learners, respond in natural language and provide immediate feedback at any time of day. These tools have the potential to increase speaking time, lower anxiety and personalise practice. However, technology alone does not improve oral proficiency. Its value depends on how deliberately it is built into the curriculum, that is, into learning outcomes, tasks, materials and assessment. The aim of this

article is to examine how AI-driven tools can be integrated into an EFL curriculum in a principled way to support the development of speaking skills.

Several well-established theories of second language acquisition support the use of AI for speaking practice. Swain's (1985) Output Hypothesis claims that producing language pushes learners to notice gaps in their knowledge and to process language more deeply. Long's (1996) Interaction Hypothesis highlights the role of negotiation of meaning, in which learners receive feedback and modify their utterances during communication. From a sociocultural perspective, Vygotsky (1978) emphasised that learning is mediated by tools and by interaction within the learner's zone of proximal development; AI tools can act as a form of scaffolding when they offer prompts, models and corrective feedback.

Research on computer-assisted language learning (CALL) has long suggested that technology can support communication when it is used for meaningful tasks rather than for mechanical drill (Warschauer & Healey, 1998). Reviews of technology types in language learning indicate generally positive effects, while also noting that the quality of the pedagogical design matters more than the novelty of the tool (Golonka et al., 2014). These findings are important for curriculum planners: the question is not only which AI tool to use, but which learning outcome it serves.

Three groups of tools are especially relevant to speaking. The first is automatic speech recognition (ASR) and pronunciation feedback systems. These convert learners' speech to text and compare it with target forms, helping learners notice mispronounced sounds, stress and intonation. Learners can repeat as many times as they wish without fear of embarrassment, which is difficult to achieve in a large class.

The second group consists of conversational agents: chatbots, intelligent personal assistants and, more recently, generative AI systems with voice interfaces. Early studies of chatbots showed that learners could use them as patient conversation partners (Fryer & Carpenter, 2006), and later work on voice assistants reported positive learner perceptions of speaking practice, together with limitations in understanding accented speech (Dizon, 2017; Moussalli & Cardoso, 2020). Modern generative systems can sustain longer, more flexible dialogues, adapt their language level and play roles such as an interviewer, a customer or a travel agent.

The third group includes analytic and feedback tools that process recordings of learners' speech and report on features such as speaking rate, pauses, vocabulary range and grammatical accuracy. When used together with

teacher feedback, such reports help learners monitor their own progress and set goals.

To avoid using AI as an isolated, occasional ‘extra’, it should be integrated at every stage of the curriculum. The following framework links four curriculum stages with suitable tools and target skills (Table 1).

Table 1. AI integration across the speaking curriculum

Curriculum stage	AI-driven tool / activity	Oral skill targeted
Pre-class preparation	Speech-recognition apps and AI pronunciation trainers giving instant feedback	Pronunciation, intelligibility
In-class practice	Chatbot or voice-assistant role-plays; AI-supported pair and group tasks	Fluency, interaction, turn-taking
Post-class consolidation	Recorded speaking journals analysed by AI (accuracy, pace, vocabulary range)	Accuracy, self-monitoring
Assessment	Rubric-based AI scoring combined with teacher judgement	Overall oral proficiency

First, learning outcomes should be defined clearly in terms of observable speaking behaviours, for example by using descriptors from the Common European Framework of Reference (Council of Europe, 2020). Each AI activity must be linked to at least one of these outcomes. Second, tasks should be communicative and task-based: instead of repeating dialogues, learners might interview a chatbot for a project, prepare a presentation with AI-generated feedback on delivery, or practise a job interview and then reflect on the recording.

Third, the teacher’s role must be redefined rather than reduced. Teachers design the tasks, model effective use of the tools, review learners’ recordings selectively and provide the human feedback on meaning, appropriacy and communication strategies that AI cannot yet offer reliably. A useful classroom routine is practise with AI, perform with peers, reflect with the teacher’: learners rehearse individually with an AI partner, then carry out the same task with classmates, and finally discuss strengths and difficulties with the teacher.

Fourth, assessment should be aligned with this practice. AI-generated scores may be used for formative purposes, such as diagnostic feedback and

progress tracking, while summative judgements should rely on teacher-led rubrics and live speaking tasks. Learners should also be taught to evaluate AI feedback critically instead of accepting it as always correct.

Despite their promise, AI tools present several challenges. Technical limitations include inaccurate recognition of non-native accents, which may penalise learners unfairly, and the occasional production of incorrect or unnatural language by generative systems. Access is another issue: reliable internet, suitable devices and quiet spaces cannot be assumed for all learners, and an AI-dependent curriculum may widen existing inequalities.

There are also pedagogical and ethical concerns. Learners may become over-reliant on AI, or may practise only with a non-human partner and lose opportunities for authentic interaction. Voice recordings are personal data, so institutions must consider privacy, informed consent and data protection when selecting platforms. Finally, many teachers have received little training in the use of AI, which makes professional development essential.

Based on these considerations, several recommendations can be made: (a) start with a small number of tools that match clearly defined outcomes; (b) pilot the tools with a group of learners and collect feedback before wider adoption; (c) provide training for teachers and orientation for learners; (d) keep human interaction at the centre of speaking lessons; and (e) develop institutional guidelines on privacy and responsible use.

AI-driven tools can substantially increase the quantity and quality of speaking practice available to EFL learners by providing flexible, low-anxiety and feedback-rich opportunities for oral production. Their benefits, however, are realised only when they are embedded in a coherent curriculum that links outcomes, tasks, teacher mediation and assessment. Future research should examine the long-term effects of AI-supported speaking programmes on fluency, accuracy and confidence in different EFL contexts, including those where resources are limited. For teachers and curriculum designers, the central message is that AI should serve pedagogy: the most effective approach combines the availability of intelligent tools with the expertise and empathy of the human teacher.

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SECONDARY NOMINATION OF A PERSON IN JANE AUSTEN'S PRIDE AND PREJUDICE: A COGNITIVE-PRAGMATIC ANALYSIS

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Abstract. *The article analyses the secondary nomination of persons in Jane Austen's Pride and Prejudice (1813) from a cognitive-pragmatic perspective. A purposive sample of 388 contextualised examples drawn from all 61 chapters was described by referent, nominator, structure, motivation, connotation and pragmatic function. Evaluative noun phrases (21.1%), epithetic naming (16.5%) and periphrasis (15.5%) are the most frequent devices in the sample; characters produce 63.7% of the renaming acts; and 55.7% of the examples carry a negative or ironic colouring. Secondary nomination serves evaluation, irony, the management of social distance, point-of-view marking and cohesion, and the renaming chains of Darcy and Wickham give linguistic form to the novel's movement from misjudgement to re-evaluation.*

Keywords: *secondary nomination, person nomination, literary discourse, pragmatics, Appraisal, irony, cohesion, Jane Austen.*

1. INTRODUCTION

Nomination, the process of designating a fragment of reality by a linguistic unit, has been widely studied in Russian linguistics (Serebrennikov, 1977; Teliya, 1981; Kubryakova, 1986; Arutyunova, 1988). This tradition distinguishes primary nomination (giving a new name to a new concept) from secondary nomination, in which a unit already available in the language is used in a new nominative function, usually in a figurative sense or with additional evaluation. The naming of persons holds a special place in this field, because the choice of a name allows the speaker to express an attitude towards the person named, the person's status and the speaker's own distance from them.

Pride and Prejudice offers particularly suitable material. The title itself names the theme of judgement and misjudgement; marriage, wealth and reputation function as social capital, so the question of who calls whom what arises from the plot itself; and the narrator's ironic voice interacts constantly with the speech of the characters. Studies of Austen's language have concentrated on her vocabulary and style (Page, 1972; Tave, 1973), whereas the systematic

description of person nomination as a cognitive-pragmatic object still deserves wider attention. The aim of this article is to identify the means of secondary nomination of persons in the novel, to uncover their cognitive foundations and to describe their pragmatic functions.

2. Theoretical framework and method

In this article, secondary nomination is understood as the renaming of a person already named in the text by another linguistic unit that adds meaning, evaluation or attitude. This working definition transfers the traditional conception (a unit used in a new nominative function) to the level of text. The analysis includes metaphor, metonymy, synecdoche, periphrasis, antonomasia, epithetic naming, evaluative noun phrases, social-role and kinship terms (where they add meaning), address forms and ironic naming. Personal pronouns, the bare name and neutral repetitions without pragmatic load were excluded.

From the cognitive side, metaphor is treated as a mechanism of thought (Lakoff & Johnson, 1980) and metonymy as a relation among elements of a single conceptual domain (Radden & Kövecses, 1999). From the pragmatic side, three frameworks are used: Grice's (1975) theory of implicature, under which ironic naming flouts the maxim of quality; Brown and Levinson's (1987) politeness theory, under which a name can protect or threaten the addressee's face; and Martin and White's (2005) Appraisal framework. Cohesion is interpreted following Halliday and Hasan (1976), and point of view following Genette (1980) and Leech and Short (2007).

The material is the complete text of the novel (Austen, 1813; Project Gutenberg eBook no. 1342). Each chapter was read in turn and the most expressive examples were selected according to the clarity of evaluation or irony, the strength of the contextual effect and typicality; only one context was taken for each distinct nomination, sentences are quoted verbatim, and doubtful cases were marked as debatable (16 cases, 4.1%). The result is 388 examples, between three and seven from every chapter, each described by referent, nominator, structure, motivation, connotation and pragmatic function. The principal limitations are that the sample is purposive and that the classification was carried out by a single researcher; the percentages therefore show the structure of the sample rather than absolute frequencies in the novel.

3. Results and discussion

3.1. Quantitative overview

As Table 1 shows, the most frequent type is the evaluative noun phrase (21.1%), followed by epithetic naming (16.5%) and periphrasis (15.5%); together these account for 53.1% of the sample. Metaphor and metonymy

together make up 14.2%. This picture agrees with the general view that Austen's style relies on evaluative vocabulary and irony more than on figurative imagery (cf. Page, 1972; Tave, 1973), although the conclusion holds only within the limits of the sample.

Table 1. Distribution by type of secondary nomination (N = 388)

Type of nomination	Number	Share, %
Evaluative noun phrase	82	21.1
Epithetic naming	64	16.5
Periphrasis	60	15.5
Social role name	51	13.1
Ironic naming	31	8.0
Kinship term	30	7.7
Metaphor	29	7.5
Metonymy	26	6.7
Address form	9	2.3
Synecdoche	4	1.0
Antonomasia	2	0.5
Total	388	100.0

Note: each example is assigned to the type that is its main feature.

As for the nominator, 247 examples (63.7%) belong to the speech of characters and 141 (36.3%) to the narrator. Renaming in the novel is thus first of all a social and communicative act, while the narrator's names often convey the point of view of Elizabeth, Mrs. Bennet or the Meryton community. By connotation (Table 2), negative and ironic examples together account for 55.7%. Among the referents, Darcy (74 mentions, 19.1%), Elizabeth (55) and Wickham (48) are the most frequent; the two male protagonists make up about one third of all mentions, because the central conflict of the novel is built around the evaluation of their reputations.

Table 2. Distribution by connotation (N = 388)

Connotation	Number	Share, %
Negative	128	33.0
Positive	114	29.4
Ironic	88	22.7
Neutral	58	14.9
Total	388	100.0

Note: examples in which irony is the leading feature are placed in the "ironic" category.

3.2. Cognitive mechanisms: metaphor, antonomasia, metonymy and synecdoche

At the opening of the novel, a wealthy young man is regarded by the neighbouring families as *the rightful property of some one or other of their daughters* (ch. 1). The metaphor A PERSON IS PROPERTY is at work here: the man is categorised as a fortune waiting for its owner, and the narrator ironically exposes the economic logic of the whole society. When Elizabeth calls Bingley *the slave of his designing friends* (ch. 24), dependence is understood through the schema of slavery, and the blame is shifted from Bingley to those around him. The angel metaphor shows how unstable the polarity of evaluation can be: Bingley sincerely thinks of Jane as *an angel* (ch. 4); the Meryton community remembers Wickham as *an angel of light* (ch. 48) and, in the same chapter, condemns him as *the wickedest young man in the world*. Antonomasia is rare (two examples) but forceful: the narrator calls Mr. Bennet *the true philosopher* (ch. 42), although this "philosophy" merely masks his evasion of responsibility; in *another Mr. Collins* (ch. 55), Elizabeth turns a proper name into the name of a type.

In metonymic naming a person is replaced by one of his or her attributes. For Kitty and Lydia, Bingley's fortune is worthless beside *the regimentals of an ensign* (ch. 7), and the narrator's remark that Wickham *wanted only regimentals to make him completely charming* (ch. 15) already hints that his charm is superficial. In synecdoche, a part stands for the whole person: Darcy is *a very satirical eye* (ch. 6) and Jane is *the most affectionate, generous heart in the world* (ch. 33). Elizabeth later admits that Wickham's *countenance, voice, and manner*

had established him at once in the possession of every virtue (ch. 36); the act of naming thus reveals the very mechanism of her error.

3.3. Periphrasis, social role and kinship terms: the logic of class

Periphrases and social-role names (111 examples, 28.6%) reveal the class logic of the novel. In chapter 18, Miss Bingley refers to Wickham, speaking to Elizabeth, as *the son of old Wickham, the late Mr. Darcy's steward*: origin is placed in the foreground and the status of a person the hearer respects is lowered, which is a threat to the hearer's positive face (Brown & Levinson, 1987). In chapter 35, Darcy names the same fact as *the son of a very respectable man*. The fact is the same, but the selected attribute and the evaluation differ, so periphrasis is not objective information but a carrier of point of view. The most striking scene in which naming becomes a weapon in a social struggle occurs in chapter 56: Lady Catherine calls Elizabeth *a young woman of inferior birth, of no importance in the world*, and Elizabeth renames herself *a gentleman's daughter*, establishing equality through that very expression.

Kinship terms can serve to belittle, to feign closeness or to express irony. Miss Bingley reminds Darcy that he will have *a charming mother-in-law* (ch. 6): the word is positive, but its function is to demean the family and to threaten Darcy's face. Wickham's address to Elizabeth as *my dear sister* (ch. 52) relies on the relationship created by the marriage to close the distance between them, a manipulative use of the positive-politeness strategy. Mr. Bennet calls Wickham *my son-in-law* (ch. 57) and later, speaking of *all my three sons-in-law* (ch. 59), places him in the same category as Darcy and Bingley; the irony presents Wickham not as a full member of the family but as someone the family has been obliged to accept.

3.4. Evaluation, irony and address forms

Epithets and evaluative phrases correspond mostly to judgement in Martin and White's (2005) system. In the first chapter Mrs. Bennet is assessed as *a woman of mean understanding, little information, and uncertain temper*, and in chapter 3 Darcy is *the proudest, most disagreeable man in the world*, which voices the view of the Meryton community and opens the theme of prejudice. Evaluation also shifts with self-interest: Mrs. Bennet called Bingley *a very undeserving young man* (ch. 40), but once the engagement is announced he becomes *the handsomest young man that ever was seen* (ch. 55).

In ironic naming, what is said and what is meant are opposed (Grice, 1975; Booth, 1974). When Mr. Bennet addresses Mary as *a young lady of deep reflection* (ch. 2), he mocks her pedantry; the narrator calls Miss Bingley Darcy's *faithful assistant* (ch. 8) and shows that she does no more than repeat his

opinions; the maids who wait on Bingley's sisters are *the two elegant ladies* (ch. 9), a parody of Netherfield's snobbery; and Lady Catherine, after her threatening visit, is *her noble guest* (ch. 56). Address forms are few (nine examples) but heavily loaded: when Elizabeth calls Darcy *Teasing, teasing man!* in her inner speech (ch. 54), the form of hatred takes on the tone of affection, and in chapter 58 Darcy addresses her as *dearest, loveliest Elizabeth*, in contrast to the insulting tone of chapter 34.

3.5. The dynamics of names and cohesion

The most important feature of secondary nomination is its changeability over the course of the text. Darcy is *the proudest, most disagreeable man* in chapter 3, *that abominable Mr. Darcy* in chapter 26 and *the last man in the world* in chapter 34. Elizabeth's judgements begin to change after the letter of chapters 35–36 and are confirmed in chapter 43 at Pemberley, where Mrs. Reynolds calls him *the best landlord, and the best master*; the naming by a credible witness, a servant, is therefore a powerful instrument of reversal. In chapter 58 Darcy calls himself *a selfish being* and acknowledges the earlier judgements. The Wickham chain runs in the opposite direction: *completely charming* (ch. 15), *her model of the amiable and pleasing* (ch. 27), *an angel of light* and then *the wickedest young man in the world* (ch. 48), *one of the most worthless young men in Great Britain* (ch. 50), the ironic *a more valuable son-in-law* (ch. 53) and *my son-in-law* (ch. 57). As Darcy's names rise, Wickham's fall, and Elizabeth's inner system of evaluation is rebuilt at their intersection.

Cohesion is visible in lexical chains (Halliday & Hasan, 1976). In chapter 3 Darcy judges Elizabeth merely *tolerable*; in chapter 45 he calls her *one of the handsomest women of my acquaintance*, so that the polarity is reversed. Elizabeth tells Collins that she is *the last woman in the world* to make him happy (ch. 19) and tells Darcy that he is *the last man in the world* she could marry (ch. 34): the same pattern links two refusals. Elizabeth's self-nominations form a chain of their own: she rejects the label *an elegant female* and calls herself *a rational creature* (ch. 19), then *a very selfish creature* (ch. 58) and finally *the happiest creature in the world* (ch. 60); the repetition of "creature" expresses her inner change through one word and changing modifiers. A fourth function is point of view: when Mrs. Forster is called *This invaluable friend* in chapter 41, the phrase conveys Lydia's perception and the narrator's irony at once (Genette, 1980; Leech & Short, 2007).

4. CONCLUSION

First, evaluative noun phrases, epithetic naming and periphrasis lead in the sample (53.1%), while metaphor and metonymy are relatively few (14.2%):

naming in the novel is mainly a means of direct and ironic evaluation, and figurative imagery produces strong effects at selected points. Second, 63.7% of the nominators are characters, so secondary nomination is first of all a social and communicative phenomenon, while the narrator's names often convey a character's point of view. Third, 55.7% of the examples are negative or ironic; ironic naming produces judgement through implicature, and kinship and social-role names reveal the logic of class. Fourth, the dynamics of the names of Darcy, Wickham and Elizabeth reflect the plot of the novel at the level of language and serve as a means of cohesion.

The limitations of the study are the purposive character of the sample and the classification by a single researcher. In the next stage it would be appropriate to annotate the full corpus of the novel, to measure agreement between two coders and to compare the results with Austen's other novels and with translations.

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FROM COMMUNICATIVE COMPETENCE TO SOCIOCULTURAL MEDIATION: THEORETICAL APPROACHES TO TEACHING SPEAKING AND THEIR IMPLICATIONS FOR MEDIA-ENHANCED INSTRUCTION AT INTERMEDIATE LEVEL

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Abstrack. *Choosing a method for teaching speaking requires clarity about the theory of learning on which it rests. This article reviews five bodies of theory that have shaped speaking pedagogy: models of speech production, communicative language teaching, the input, interaction, and output hypotheses, task-based language teaching, and sociocultural theory, complemented by skill acquisition theory. A structured narrative review identified the core constructs of each theory and examined what each implies for teaching speaking to intermediate (CEFR B1) learners and for the integration of media technologies. The review shows that the theories are complementary rather than competing: speech production models explain why intermediate speakers need rehearsal and automatisation; interactionist and output theories justify negotiation and pushed output; task-based teaching offers an organising unit for lessons; and sociocultural theory explains how peers, teachers, and tools mediate development. The article proposes an integrated theoretical position, task-based and interaction-driven, mediated by media tools and supported by repeated practice, which serves as the theoretical basis for the methodology developed in the author's doctoral research for Karakalpak classrooms.*

Keywords: *speaking instruction; communicative competence; task-based language teaching; interaction hypothesis; sociocultural theory; skill acquisition; media technologies*

1. INTRODUCTION

Speaking is the language skill that learners most often say they want to master, and it is also the skill that classroom time, assessment systems, and teacher preparation most often neglect. Methods for teaching it are numerous, but they are not theoretically neutral. A teacher who asks learners to repeat dialogues, one who sets an information-gap task, and one who organises a video-

recording project each assume a different account of how speaking ability develops. Making those assumptions explicit is a prerequisite for designing a coherent methodology and for evaluating it, particularly when new media tools are added, because technology amplifies whichever pedagogy it is attached to.

The present article is the second in a series that develops a methodology for teaching speaking to B1-level learners through media technologies in Karakalpak classrooms. The first article defined the B1 speaking construct using the CEFR Companion Volume (Council of Europe, 2020). This article asks which theories of learning best explain how that construct develops and what they imply for instruction. Three questions guide the review. RQ1: What does each major theory claim about how speaking ability develops? RQ2: What does each imply for teaching speaking at B1? RQ3: How can the theories be combined into a position that supports media-enhanced instruction?

2. METHOD

A structured narrative review was conducted. Sources were selected on three criteria: (a) theoretical or empirical works that are foundational to the theory concerned, (b) peer-reviewed syntheses or critiques that evaluate its application to teaching speaking, and (c) works that discuss technology in relation to the theory. Foundational texts were identified from standard reference works (Richards & Rodgers, 2014; Ellis, 2003; Lightbown & Spada, 2013) and then traced forward through citations. For each theory the review extracted the core claim, the proposed mechanism, the pedagogical implications, and the principal criticisms. These were compared in a matrix (Table 1). Because the review is narrative, it makes no claim to exhaustiveness; a systematic review of the empirical evidence on technology-enhanced speaking is reported in the fourth article of the series.

3. MODELS OF SPEECH PRODUCTION

Any pedagogy of speaking implicitly rests on a model of what speakers do. Levelt's (1989) blueprint describes speaking as a sequence of conceptualisation, formulation, and articulation, with monitoring of the speaker's own output. In first-language speech these processes are largely automatic and run in parallel. In a second language, retrieving words, assembling grammatical frames, and articulating unfamiliar sounds all demand attention, so that processing capacity becomes a bottleneck (Skehan, 1998). The consequence is the pausing, reformulation, and repair that characterise intermediate speech and that the CEFR B1 descriptors acknowledge (Council of Europe, 2020).

Pedagogically, two ideas follow. First, fluency requires proceduralised knowledge, so learners need repeated opportunities to retrieve and assemble

language under mild time pressure (Segalowitz, 2010). Second, learners' limited capacity must be managed: attention to meaning, form, and delivery cannot all be maximised at once, which supports the staging of tasks and the use of planning time. Bygate (1987) complements this view by separating production skills, such as facility and compensation, from interaction skills, such as managing turns and negotiating meaning, while Goh and Burns (2012) integrate language knowledge, core speaking skills, and strategies in a holistic teaching cycle.

4. COMMUNICATIVE LANGUAGE TEACHING

Communicative language teaching (CLT) grew from Hymes's (1972) argument that knowing a language includes knowing when and how to use it appropriately, and from Canale and Swain's (1980) model of communicative competence comprising grammatical, sociolinguistic, and strategic components. Its central principle is that learners learn to communicate by communicating, through activities with an information gap, a choice of what to say, and feedback on whether the message succeeded (Littlewood, 1981; Savignon, 1997). CLT shifted the classroom from drilling forms to using language for purposes.

For B1 speaking, CLT contributes the insistence on meaningful interaction and on topics and functions drawn from learners' lives, which parallels the CEFR's action-oriented approach (Piccardo & North, 2019). Its limitations are well documented. "Weak" and "strong" versions have been interpreted very differently in practice, and critics have noted that in many contexts CLT was adopted as a label without the conditions that make it workable, such as small classes, communicative assessment, and teachers trained to manage open-ended activity (Kumaravadivelu, 2006). These limitations are relevant to large school classes in Uzbekistan and justify a method that scaffolds communicative practice through structured tasks and media rather than relying on spontaneous pair work alone.

5. INPUT, INTERACTION, AND OUTPUT

Krashen's (1982) input hypothesis proposed that acquisition follows from comprehensible input, but it was challenged on the ground that input alone does not explain productive ability. Swain (1985) observed that learners in immersion programmes who received abundant input still lacked productive accuracy, and argued that producing language forces learners to move from semantic to syntactic processing. Later work specified three functions of output: noticing gaps, testing hypotheses, and reflecting metalinguistically (Swain, 1995). Long's (1996) interaction hypothesis added that negotiation of meaning, in which interlocutors signal and repair misunderstanding, makes input comprehensible

and draws attention to form. Empirical support for interaction has been reported in several studies (e.g., Mackey, 1999), and noticing has been proposed as a necessary condition for learning (Schmidt, 1990).

These ideas give a clear rationale for tasks that create a need to communicate and for feedback that follows learners' own production. They also support the use of media. Recording makes output available for noticing and reflection, chat and voice platforms create additional occasions for negotiation, and conversational agents provide a patient interlocutor who allows repair without social cost. The theory also warns that interaction is productive only if learners are actually pushed to produce and to modify their speech; unstructured media use can generate activity without learning.

6. TASK-BASED LANGUAGE TEACHING

Task-based language teaching (TBLT) takes the task, a goal-oriented activity in which meaning is primary and success is judged by outcome, as the unit of syllabus and lesson design (Ellis, 2003; Long, 2015; Prabhu, 1987). Willis (1996) proposed a pre-task, task cycle, and language focus sequence; Skehan (1996) argued that tasks can be selected and sequenced to balance complexity, accuracy, and fluency by manipulating planning, familiarity, and structure. Research on planning and repetition suggests that giving learners time to prepare and the chance to repeat a task tends to improve fluency and, in several studies, complexity (Bygate, 2001; Lambert et al., 2017).

TBLT has been criticised for neglecting systematic attention to form (Swan, 2005) and for being difficult to implement where examinations test discrete grammar (Littlewood, 2004), but many of the misunderstandings can be addressed by a flexible reading of the approach (Ellis, 2009). For B1 speaking, TBLT offers a practical architecture: a media-based task with a clear outcome, a planning stage, performance, and a post-task stage in which recordings are reviewed. This is the architecture adopted for the task design reported in the eleventh article of the series.

7. SOCIOCULTURAL THEORY

Sociocultural theory, grounded in Vygotsky's (1978) work, holds that higher mental functions originate in social interaction and are mediated by tools, including language and, by extension, technologies. Learning occurs in the zone of proximal development, the gap between what a learner can do alone and with assistance. Applied to second language learning, the theory interprets collaborative dialogue as a site where language is both used and learned (Swain, 2000), and it treats scaffolding by teachers, peers, and artefacts as the engine of development (Lantolf & Thorne, 2006; van Lier, 2004).

This perspective explains why media tools are not neutral channels. A recorded model, a speech-recognition display, or a chatbot's reformulation functions as a mediating artefact that shapes what learners can do. It also supports peer feedback, shared online spaces, and teacher-led reflection on recordings, and it warns that tools must be introduced with guidance so that learners can appropriate them rather than use them superficially.

8. SKILL ACQUISITION THEORY

Skill acquisition theory describes learning as movement from declarative knowledge, through procedural knowledge, to automatised performance, achieved through practice that is meaningful and repeated (Anderson, 1982; DeKeyser, 2007). It complements the communicative and interactionist traditions by explaining why intermediate learners who "know" a structure still cannot use it fluently. Its pedagogical corollaries are that practice should be extensive, distributed, and specific to the skill to be performed, so that speaking is best learned by speaking, with immediate feedback. Digital media can multiply practice opportunities outside class, which is particularly relevant where classroom speaking time per learner is minimal.

Table 1

Comparison of Theoretical Approaches to Teaching Speaking

Theory	Core claim	Implication for B1 speaking	Role of media
Speech production models (Levelt, 1989)	Speaking requires conceptualisation, formulation, and articulation under limited capacity	Plan, rehearse, and repeat; sequence demands	Recording and replay for rehearsal
CLT (Canale & Swain, 1980)	Communicative competence is learned through meaningful use	Authentic topics, information gaps, functional language	Authentic video and audio as input and models
Interaction and output (Long, 1996; Swain, 1985)	Negotiation and pushed output drive development	Tasks that require modified output and feedback	Chat, voice, and agents as interlocutors
TBLT (Ellis, 2003)	Tasks with outcomes organise learning	Pre-task, task, post-task cycle; planning and repetition	Media products as task outcomes
Sociocultural theory (Vygotsky, 1978)	Learning is mediated by others and by tools	Scaffolding; peer and teacher feedback	Technologies as mediating artefacts
Skill acquisition (DeKeyser, 2007)	Practice proceduralises knowledge	Frequent, distributed, specific practice	Out-of-class speaking opportunities

Note. The final column states how each theory can be linked to media use; it is an interpretation by the author, not a claim made by the original theorists.

9. An Integrated Position for Media-Enhanced Speaking Instruction

The review shows that the theories address different levels of the same phenomenon (RQ1). Production models and skill acquisition theory describe the cognitive processes that make intermediate speech effortful; interactionist and output theories explain what experiences trigger development; TBLT turns these insights into lesson structure; and sociocultural theory explains how support is provided. At B1, where learners can already sustain simple discourse but depend on planning and interlocutor help (Council of Europe, 2020), these accounts converge on a set of principles (RQ2): tasks should have a communicative purpose and a concrete outcome; learners should plan and rehearse before

performing; performance should be repeated or revisited; feedback should follow actual output; and support should be gradually withdrawn.

Media technologies can serve each principle (RQ3). Recording enables rehearsal, repetition, and reflection; shared platforms extend peer interaction beyond the classroom; speech-recognition and conversational tools provide immediate response; and multimedia models supply input that learners can replay. The integrated position adopted for the doctoral study may therefore be summarised as *task-based, interaction-driven, media-mediated, and practice-supported*. Two cautions follow from the theories themselves. Technology does not guarantee interaction or noticing, so tasks must be designed to require them; and mediation depends on learners' appropriation of tools, so training and scaffolding are essential.

10. CONCLUSION

This article reviewed the main theoretical approaches to teaching speaking and showed that they can be combined into a coherent basis for media-enhanced instruction. The review is limited by its narrative method and by the fact that most of the foundational work was developed outside Central Asian contexts; the transferability of the theories to Karakalpak classrooms, with their multilingual learners and limited resources, remains an empirical question. The next article classifies the media technologies that can implement the principles identified here and traces their development in language teaching.

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MEDIA TECHNOLOGIES IN LANGUAGE TEACHING: A TYPOLOGY, HISTORICAL DEVELOPMENT, AND AFFORDANCES FOR DEVELOPING SPEAKING SKILLS

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Abstract. *Media technologies are often discussed in language teaching as a single category, although video, podcasts, mobile applications, social platforms, speech recognition, conversational agents, and virtual reality differ greatly in what they offer to speaking instruction. This article presents a conceptual classification of media technologies relevant to teaching speaking and traces their development from behaviourist language laboratories to artificial-intelligence tools. Using a structured narrative review of historical frameworks and of research on each technology type, the article classifies technologies by their primary affordance for speaking (input, rehearsal, interaction, feedback, or immersion), maps them to CEFR modes of communication, and identifies constraints that matter in low-resource contexts such as Karakalpak schools. The typology shows that no single technology covers all needs of B1 speakers and that the appropriate choice depends on the pedagogical function required and on infrastructure. Implications for selecting and combining media in a speaking methodology are discussed, and criteria for the empirical review in the next article of the series are proposed.*

Keywords: *media technologies; CALL; typology; affordances; speaking skills; mobile learning; speech recognition; artificial intelligence*

1. INTRODUCTION

The expression “media technologies” covers a wide range of tools, from a classroom audio recorder to an artificial-intelligence conversation partner. Research and practice often treat them collectively, asking whether “technology” improves speaking, although the question is too coarse to guide teachers. A podcast offers learners a model and a product to publish; a speech-recognition application offers instant feedback on pronunciation; a video platform allows asynchronous exchange. Each supports different aspects of the B1 speaking

profile described in the CEFR Companion Volume (Council of Europe, 2020), and each makes different demands on infrastructure and teacher skill.

This article provides the typology on which the methodology of the doctoral study depends. It pursues three questions. RQ1: How has the use of technology in language teaching developed, and what does that history imply for current practice? RQ2: Which types of media technology can be distinguished in relation to speaking, and what does each afford? RQ3: What constraints affect their use in low-resource contexts such as Karakalpak classrooms?

2. METHOD

The article is a structured narrative review. Historical frameworks of computer-assisted language learning (CALL) were identified through foundational sources (Bax, 2003; Levy, 1997; Warschauer & Healey, 1998) and recent handbooks (Chapelle & Sauro, 2017; Stockwell, 2012). For each technology type, representative empirical studies and reviews were selected for their relevance to speaking. The classification used the concept of affordance, which describes the action possibilities that an artefact offers to a user in a given context (Gibson, 1979; van Lier, 2000), rather than technical features, because affordances are what teachers can design for. Technologies were then mapped to the CEFR modes of communication (reception, production, interaction, mediation) and to practical constraints. The article does not evaluate effectiveness; that is the task of the systematic review in the next article.

3. Development of Technology in Language Teaching

Warschauer and Healey (1998) described three phases of CALL: a behaviourist phase of drill programs in the 1960s and 1970s, a communicative phase in the 1980s that used computers to stimulate discussion and creative use, and an integrative phase from the 1990s that combined multimedia and networked communication. Bax (2003) criticised the phase model as implying that older approaches disappear, and proposed instead three stages of restricted, open, and integrated CALL, arguing that the aim is “normalisation”, in which technology becomes as invisible as pencils and books. Both frameworks are useful for speaking because each phase privileged a different aspect: the language laboratory emphasised repetition and pronunciation drill; communicative CALL stimulated talk around the computer; and integrated CALL, with the internet, created communication beyond the classroom (Levy, 1997; Chapelle, 2001).

More recent developments are characterised by mobility, social media, and intelligent systems. Mobile-assisted language learning moved learning into learners’ pockets, supporting short, frequent practice and context-sensitive

activities (Kukulska-Hulme & Shield, 2008; Godwin-Jones, 2011), although much mobile provision remained oriented to vocabulary and drill (Burston, 2014). Web 2.0 tools enabled learner-produced media, including blogs, podcasts, and video, and telecollaboration connected classes across countries (Thorne, 2003; O'Dowd, 2018). More recently, speech recognition, conversational agents, and generative language models have made possible automated practice with responsive interlocutors (Dizon, 2020; Huang et al., 2022; Kohnke et al., 2023). Table 1 summarises this development. The history implies (RQ1) that new technologies tend to add to, rather than replace, earlier ones, so a speaking methodology can legitimately combine simple, well-understood tools with newer ones.

Table 1

Phases in the Development of Technology for Language Teaching

Phase	Typical technology	Orientation to speaking	Source
Behaviourist (1960s–1970s)	Language laboratory; drill software	Repetition of models; pronunciation drill	Warschauer & Healey (1998)
Communicative (1980s)	Stand-alone computer programs	Stimulus for talk and discussion around the computer	Warschauer & Healey (1998)
Integrative (1990s–2000s)	Multimedia, internet, email, chat	Authentic input; communication beyond class	Warschauer & Healey (1998); Levy (1997)
Mobile and social (2010s)	Smartphones, social platforms, podcasts, video	Learner-produced media; anytime practice; telecollaboration	Godwin-Jones (2011); O'Dowd (2018)
Intelligent (late 2010s–)	Speech recognition, chatbots, generative AI, virtual reality	Responsive interlocutors; immediate feedback; simulated settings	Huang et al. (2022); Kohnke et al. (2023)

Note. Periods are approximate and overlapping; older technologies persist alongside newer ones (Bax, 2003).

4. A Typology Based on Affordances for Speaking

Seven types of media technology were distinguished. *Video and audio resources*, including authentic recordings and captioned video, afford input and models, and the combination of audio, image, and text can support

comprehension (Vanderplank, 2010). *Podcasts and learner-produced audio* afford planned production for a real audience, and research suggests that producing and listening to podcasts can support pronunciation awareness and motivation (Lord, 2008; Hasan & Hoon, 2013). *Video-based and digital storytelling projects* afford extended monologue with planning and revision. *Social and messaging platforms* afford asynchronous and synchronous exchange, including voice messages, and extend interaction beyond the classroom (Thorne, 2003). *Speech-recognition and pronunciation tools* afford immediate feedback on intelligibility, although their pedagogical value depends on the feedback design (Ehsani & Knodt, 1998; Neri et al., 2002). *Chatbots and generative AI* afford unlimited conversation practice with a patient partner (Fryer & Carpenter, 2006; Huang et al., 2022). *Virtual reality and simulations* afford immersion in situations that are otherwise inaccessible (Lan, 2015; Parmaxi, 2023).

Table 2 maps these types to their primary affordance, the CEFR mode they most directly serve, and the main constraint in the context studied. The mapping answers RQ2: video and podcasts serve reception and production; social platforms and chatbots serve interaction; and speech-recognition tools serve the quality of production, particularly phonological control. No single type serves all modes, so a methodology for B1 speaking must combine at least one tool for input, one for planned production, one for interaction, and one for feedback.

Table 2

Typology of Media Technologies for Teaching Speaking

Type	Primary affordance	CEFR mode	Main constraint in low-resource contexts
Video and audio resources	Input and models	Reception	Bandwidth for streaming; offline copies needed
Podcasts and learner audio	Planned production, audience	Production	Recording device; storage; privacy of minors
Video and digital storytelling	Extended monologue with planning	Production	Device quality; editing skills; time
Social and messaging platforms	Asynchronous and synchronous exchange	Interaction	Internet access; moderation; platform policy
Speech-recognition tools	Immediate feedback on intelligibility	Production	Recognition of accented speech; connectivity
Chatbots and generative AI	Unlimited conversational practice	Interaction	Reliability; accuracy of feedback; cost; data protection
Virtual reality, simulations	Immersive situations	Interaction	Hardware cost; access; limited evidence for speaking

Note. Constraints are hypotheses based on the literature and are tested against Karakalpak data in the needs analysis (Article 9).

5. Constraints in Low-Resource Contexts

Answering RQ3 requires attention to infrastructure and human factors. Studies of language learning with technology repeatedly show that access, connectivity, and teacher skill mediate any benefit (Chapelle & Sauro, 2017; Stockwell, 2012). In many schools, learners may share devices, connections may be slow or costly, and teachers may have limited training in using technology for pedagogic purposes. Three design implications follow. First, tools should work offline or with minimal data, with synchronisation when connectivity allows. Second, the methodology should rely mainly on devices that learners and teachers already have, typically smartphones, rather than on specialised hardware. Third, the cost of failure, in lost lesson time, should be minimised by simple tools and by a fallback activity for each technology-dependent task. These requirements favour audio and video recording, messaging, and

lightweight AI tools over virtual reality or complex platforms, even where the latter may be more immersive.

Pedagogic and ethical constraints also apply. Recording learners, many of them minors, raises consent and data-protection issues; AI tools may produce inaccurate feedback; and speech-recognition systems may perform differently for different accents, which is relevant to learners whose first language is Karakalpak. These issues are taken up in the design of the methodology and in the article on AI and speech-recognition tools.

6. Implications for Selecting Media

The typology suggests that selection should begin with the pedagogical function needed rather than with the technology, a principle that echoes the argument that technology should be chosen to serve identified learning objectives (Chapelle, 2001). For B1 speakers, the CEFR profile indicates needs for planned monologue, supported interaction, and attention to pronunciation and fluency (Council of Europe, 2020). A minimal combination would pair learner-produced audio or video for planned production, a messaging or discussion platform for interaction, and a speech-recognition or AI tool for individual feedback, supported by authentic video as input. The final selection will depend on the infrastructure findings of the needs analysis and on the evidence reviewed in the next article.

7. CONCLUSION

This article classified media technologies for speaking instruction by their affordances and traced their development. The principal conclusion is that technologies differ in function, so the useful question for teachers and researchers is not whether technology works but which tool serves which aspect of speaking under which conditions. The typology is conceptual and does not assess effectiveness, and the pace of change in AI tools means that specific products will date quickly; the functional categories are expected to be more durable. The next article reviews the empirical evidence for each type.

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ASQAD MUXTORNING “CHINOR” ROMANIDA AVLODLAR VORISLIGI VA INSONIY QADRIYATLAR TALQINI

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Annotatsiya. *Maqolada Asqad Muxtorning “Chinor” romanida shajara motivining syujetni birlashtiruvchi narrativ mexanizmga aylanishi va axloqiy xotiraning badiiy-falsafiy vazifalari tahlil qilinadi. Tadqiqotning diqqat markazida Ochil bobo safari bilan bog‘liq ramkaviy kompozitsiya, tarmoqlangan inson taqdirlari, chinor timsolining ko‘p qatlamli semantikasi hamda individual xotira va avlodlar tajribasi o‘rtasidagi munosabat turadi. Struktur-semantik, narratologik va germenevtik yondashuvlar asosida roman hikoyalari orasidagi bog‘lanish oddiy xronologik izchillikdan ko‘ra shajaraviy va qadriy aloqalar orqali yuzaga kelishi asoslanadi. Asardagi qarindoshlik tarmog‘i personajlarni mexanik birlashtiruvchi vosita emas, balki har bir shaxsiy tanlovni kengroq axloqiy makonda baholash imkonini beradigan badiiy tizim sifatida talqin etiladi. Xulosa sifatida “Chinor”da xotira o‘tmishni takrorlash emas, balki inson mas’uliyati, tarixiy davomiylik va avlodlararo muloqotni qayta anglash usuli ekani ko‘rsatiladi.*

Kalit so‘zlar: *Asqad Muxtor, “Chinor”, shajara narrativi, axloqiy xotira, ramkaviy kompozitsiya, avlodlar vorisligi, narratologiya, roman poetikasi, ramziy obraz, badiiy vaqt.*

Аннотация. *В статье исследуются генеалогический нарратив и поэтика нравственной памяти в романе Аскада Мухтара «Чинар». В центре внимания находятся рамочная композиция, организованная путешествием Очил-бобо, взаимосвязь человеческих судеб, многослойная символика чинара и соотношение индивидуального воспоминания с межпоколенческим опытом. На основе структурно-семантического, нарратологического и герменевтического подходов обосновывается, что единство романа формируется не столько линейной хронологией, сколько системой родственных и ценностных связей. Генеалогическая структура рассматривается как художественный способ соотнесения личного*

выбора с коллективной нравственной ответственностью. Делается вывод о том, что память в романе выступает не пассивным воспроизведением прошлого, а формой осмысления преемственности и человеческого долга.

Ключевые слова: *Аскад Мухтар, «Чинар», генеалогический нарратив, нравственная память, рамочная композиция, преемственность поколений, нарратология, поэтика романа, символ, художественное время.*

Abstract. *This article explores genealogical narrative and the poetics of ethical memory in Asqad Muxtor's novel Chinor. It focuses on the framing journey of Ochil bobo, the interconnected destinies of the characters, the layered symbolism of the plane tree, and the relationship between personal recollection and intergenerational experience. Drawing on structural-semantic, narratological, and hermeneutic approaches, the study argues that the novel achieves coherence less through linear chronology than through kinship relations and shared ethical questions. Genealogy is interpreted not simply as a device for linking characters, but as an artistic structure in which individual choices acquire broader moral significance. The article concludes that memory in Chinor functions as an active mode of interpreting responsibility, historical continuity, and communication between generations.*

Keywords: *Asqad Muxtor, Chinor, genealogical narrative, ethical memory, frame narrative, intergenerational continuity, narratology, novel poetics, symbolism, narrative time.*

KIRISH

XX asr o‘zbek romanchiligida inson va tarix munosabatlarini tasvirlash shakllari sezilarli darajada murakkablashdi. Yirik epik asar faqat voqealarni ketma-ket bayon qiladigan janr bo‘lib qolmay, turli insoniy taqdirlarning tutashuvi, xotira qatlamlari va ma’naviy qadriyatlar bahsini o‘zida mujassam etadigan tafakkur maydoniga aylandi. Asqad Muxtorning “Chinor” romani ana shu jarayonni o‘rganishda muhim badiiy manbadir. Uning o‘ziga xosligi bir markazga to‘plangan yagona syujetdan ko‘ra o‘zaro tutashadigan ko‘plab hayotiy voqealar orqali yaxlit estetik ma’no hosil qilishida ko‘rinadi [1].

Roman boshida qarindosh-urug‘larini yo‘qlab yo‘lga otlangan Ochil bobo qiyofasi badiiy hikoyalashning tayanch nuqtasiga aylanadi. Safar davomida yuzaga chiqadigan alohida taqdirlar tashqi tomondan mustaqil ko‘rinsa-da, ularni qarindoshlik, xotira va ma’naviy javobgarlik birlashtiradi. Bu holat “Chinor”ni o‘rganishda “kimning hayoti hikoya qilinmoqda?” degan savol bilan

bir qatorda “turli hayotlar qanday qilib yagona badiiy butunlikka aylanmoqda?” degan masalani ham qo‘yishni talab etadi.

Mazkur maqolaning maqsadi romanda shajara tushunchasining kompozitsion tamoyil sifatida ishlashini va xotiraning axloqiy mazmunini aniqlashdir. Tadqiqotning yangicha tahliliy nuqtasi “shajara narrativi” va “axloqiy xotira” tushunchalarini o‘zaro bog‘liq holda qo‘llashdan iborat. Birinchi tushuncha hikoyalar va personajlar orasidagi tarmoqlangan munosabatni, ikkinchisi esa o‘tmishni eslashning shaxsiy tanlovlarni baholashdagi ma’naviy vazifasini anglatadi. Ular ushbu maqolada tahlil vositalari sifatida taklif qilinadi; muallif tomonidan aynan shu terminlar ishlatilgani da’vo qilinmaydi.

Adabiyotlar sharhi. “Chinor” romanining asosiy matni tadqiqot uchun birlamchi badiiy manbadir [1]. Nashr tavsiflarida Ochil boboning qarindoshlari sari safari va shu safarga ulanadigan turfa insoniy taqdirlar romanning tashkiliy o‘zagi sifatida ko‘rsatiladi. Aynan shu jihat asarning kompozitsiyasi haqida matnga tayangan mulohaza yuritish uchun muhim boshlang‘ich asos beradi.

F. Usmonovaning “Asqad Muxtorning «Chinor» romani matniy-qiyosiy tadqiqi” maqolasida qo‘lyozma va nashr variantlari qiyoslanib, adib ijodiy laboratoriyasining ayrim xususiyatlari yoritilgan [2]. Ushbu yo‘nalish matnning shakllanish tarixiga e’tibor qaratsa, mazkur ish yakuniy badiiy tuzilmaning ma’no hosil qilish mexanizmini markazga qo‘yadi. Romandagi Akbarali timsoliga bag‘ishlangan tadqiqotda esa vijdon, ruhiy iztirob va shaxsiy mas’uliyat muammolari ko‘tarilgan [3]. Bu masalalar xotiraning axloqiy qirrasi haqida fikr yuritishga yordam beradi, biroq butun roman kompozitsiyasini bitta qahramon ruhiyati bilan tenglashtirish to‘g‘ri bo‘lmaydi.

Roman haqidagi zamonaviy ilmiy-metodik izlanishlarda uning falsafiy-epik tabiatiga, badiiy vaqt-makon masalalariga va avlodlar vorisligiga ham e’tibor qaratilmoqda [4]. Ushbu kuzatuvlardan farqli ravishda, biz shajara tuzilmasi, safar motivi va axloqiy xotirani yagona narrativ model doirasida ko‘rib chiqamiz. Narratologiyaga oid nazariy qarashlar, xususan, hikoya va bayon tartibi o‘rtasidagi farqni tushuntiruvchi yondashuvlar [5], shuningdek, xotira va tarix munosabatlariga doir falsafiy qarashlar [6] tahlilning metodologik asosini kengaytiradi. Mazkur nazariy manbalar asarga tashqaridan tayyor xulosa yuklash uchun emas, undagi kuzatiladigan qurilish tamoyillarini aniqroq ifodalash uchun xizmat qiladi.

Tadqiqot metodologiyasi. Tadqiqotda struktur-semantik tahlil yordamida romanning qismlari va ular orasidagi ma’no aloqalari ajratildi; narratologik yondashuv orqali safar ramkasi, epizodlar almashinuvi, hikoyalash

istiqboli va badiiy vaqtning tashkil etilishi sharhlandi. Germenevtik o‘qish esa chinor ramzi, ildiz va shoxlar metaforasi hamda xotira bilan bog‘liq axloqiy savollarni tushuntirishda qo‘llanildi. Asosiy tahlil birligi sifatida alohida personaj emas, personaj — voqea — xotira — qadriyat aloqasi tanlandi.

Metodologik jihatdan uch daraja farqlanadi: birinchisi, kompozitsion daraja — hikoyalarni bir butun matnga birlashtiradigan ramka; ikkinchisi, semantik daraja — chinor va shajaraning davomiylik ma’nosi; uchinchisi, etik daraja — insonning o‘zi va boshqalar oldidagi mas’uliyati. Mazkur darajalar bir-biriga bog‘langan bo‘lsa-da, bir xil hodisa emas. Masalan, qarindoshlik bir tomondan voqealarni bog‘lasa, ikkinchi tomondan qahramonlar tanloviga baho berish uchun ma’naviy mezonni yuzaga keltiradi.

Tahlilning daliliy chegarasi ham belgilandi: asardan sahifa raqami aniqlanmagan so‘zma-so‘z iqtiboslar keltirilmadi; obrazlarga manbada tekshirilmagan dialog yoki epizodlar nisbat berilmadi. Natijalar romanning tasdiqlangan umumiy kompozitsiyasi va ilmiy manbalardagi aniq qaydlar asosida ilgari surilgan talqinlar sifatida ifodalanadi. Shu sababli ayrim mulohazalar qat’iy matnshunoslik faktidan ko‘ra asoslangan adabiy-estetik interpretatsiya maqomiga ega.

Muhokama va natijalar 1. Shajara narrativi: tarqoq taqdirlardan yaxlit epik tuzilmaga. “Chinor” romanining kompozitsion o‘zagi Ochil boboning safariga bog‘langani asarning epik yaxlitligini anglashda hal qiluvchi ahamiyat kasb etadi. Safar odatda voqealarni bir makondan boshqasiga ko‘chiruvchi dinamik vosita bo‘lsa, bu romanda u hikoyalar o‘rtasidagi aloqani tashkil etadi. Qahramonlar hayoti bir makonda kechishi yoki yagona mojaro doirasida birlashishi shart emas: ularni ko‘zga ko‘rinmas, ammo anglashiladigan nasliy va ma’naviy rishtalar tutashtiradi. Natijada romanning “markazi” bitta hodisada emas, munosabatlar tizimida joylashadi.

Shajara narrativi deganda daraxt shoxlari kabi tarmoqlangan, ammo umumiy ildiz bilan aloqasini yo‘qotmaydigan hikoyalash shaklini tushunamiz. Ushbu tashbeh kompozitsiyaga ikki xil xususiyat beradi: tarmoqlanish alohida taqdirlarning nisbiy mustaqilligini, ildiz esa ularning tarixiy-ma’naviy bog‘liqligini bildiradi. Shunday qurilishda personaj faqat o‘z hayotining bosh qahramoni emas, umumiy insoniy tarixning muayyan bo‘g‘ini ham bo‘lib qoladi. Bunday kompozitsiya syujetning markazlashmaganligini badiiy zaiflikka aylantirmaydi. Aksincha, turli epizodlarning yonma-yon mavjudligi o‘quvchini qiyoslashga undaydi: qahramonlarning boshidan kechirgan voqealari bir xil emas, lekin ular duch kelgan ma’naviy savollar — halollik, sadoqat, vijdon, ehtiyoj va burch o‘rtasidagi ziddiyat — umumiy insoniy o‘lchamga ega.

Yaxlitlikning mohiyati voqealar o‘xshashligida emas, ular o‘rtasidagi mazmuniy rezonansda namoyon bo‘ladi.

Bunda Ochil bobo alohida ahamiyat kasb etadi. Uning yo‘lga chiqishi romanning tashqi harakatini asoslaydi; qarindoshlarni yo‘qlash niyati esa epizodlarni shaxsiy qiziqishdan ortiqroq axloqiy munosabatga bog‘laydi. Bobo obrazi orqali avlodlar orasidagi uzilmaslik g‘oyasi konkretlashadi. Uni barcha voqealarning mutlaq hakami sifatida tasavvur qilish esa roman ko‘povozliligini toraytirgan bo‘lardi: badiiy qimmat aynan turli taqdirlarning o‘z murakkabligini saqlab qolishidadir.

2. Chinor timsolining ko‘p qatlamli semantikasi. Asar sarlavhasidagi “chinor” leksemasi bevosita daraxt nomini anglatsa-da, roman miqyosida u badiiy model darajasiga ko‘tariladi. Uning ildizi — o‘tmish va kelib chiqish, tanasi — uzluksizlik va tayanch, shoxlari — bir-biridan farqlanuvchi avlodlar hamda inson taqdirlari, daraxtning uzoq umr ko‘rishi esa tarixiy davomiylikni eslatadi. Bu ma’nolarni faqat an’anaviy ramzlar lug‘ati bilan cheklamasdan, asarning kompozitsiyasi bilan bog‘liq holda o‘qish zarur: chinor timsolining kuchi avvalo romanning o‘zi ham shajaraga o‘xshash tuzilishidadir.

Ramzning yana bir muhim jihati uning birlik va tafovutni bir vaqtda saqlashidir. Daraxtning shoxlari bir manbadan oziqlansa-da, bir xil yo‘nalishda o‘smaydi. Xuddi shunday, romandagi qahramonlarni bir umumiy genealogik doiraga mansublik belgilasa-da, bu mansublik ularning shaxsiy tanlovi, xatosi yoki axloqiy yutug‘ini bekor qilmaydi. Demak, “chinor” tayyor uyg‘unlik belgisi emas, birlik ichidagi murakkablikning ham ramzidir. Chinor timsolini faqat milliy tarixiy xotiraning ideal ko‘rinishi sifatida baholash ham biryoqlamalikka olib keladi. Asar haqida berilgan tavsiflarda ba’zi insoniy taqdirlar fojiaviy va chigal yakun topishi alohida ta’kidlanadi [1]. Shu sababli daraxt ramzi hayotning faqat ravnaqini emas, sinovlar bilan davom etishini ham qamrab oladi. Fojia umumiy shajaradan tashqaridagi istisno emas; aksincha, avlodlar tajribasining og‘riqli, ammo unutib bo‘lmaydigan qismidir.

3. Xotira va badiiy vaqtning etik vazifasi. Xotira romanda shunchaki o‘tgan voqealar to‘g‘risidagi ma’lumotlar to‘plami emas. Qahramonlar hayoti haqidagi hikoyalar o‘quvchining oldiga ikki vaqt qatlamini keltiradi: boshdan kechirilgan tarix va uni keyinchalik anglash jarayoni. Birinchi qatlam “nima sodir bo‘lgan?” savoliga, ikkinchisi esa “sodir bo‘lgan voqea bugungi inson uchun nimani anglatadi?” degan savolga javob izlaydi. Shu nuqtada xotira estetik vositadan axloqiy tafakkur shakliga aylanadi.

Xotiraning etik mohiyati ayniqsa voqea bilan baho o‘rtasidagi masofada namoyon bo‘ladi. Kechagi qaror o‘sha lahzada shaxsiy manfaat yoki vaziyat

bosimi bilan asoslangan bo‘lishi mumkin; keyingi nigoh esa uning boshqalarga yetkazgan ta’sirini ko‘rishga yordam beradi. Shunday qilib, shajara ichida har bir shaxs taqdiri faqat individual voqelik emas, boshqalar hayotiga ta’sir qiluvchi munosabatga aylanadi. “Axloqiy xotira” atamasi aynan shu qayta baholash imkonini ifodalaydi.

Romandagi hikoyalashning tarmoqlangan tuzilishi vaqtning oddiy chiziqli tasavvurini nisbiylashtiradi. Safar bo‘ylab yangidan ochiladigan taqdirlar o‘tgan va hozirgi holatlar o‘rtasida fikriy ko‘prik yaratadi. O‘quvchi vaqtni bir tekis oldinga siljiydigan hodisalar zanjiri sifatida emas, turli avlodlar tajribasi bir-birini sharhlaydigan maydon sifatida qabul qiladi. Narratologik nuqtai nazardan, bu jarayonni hikoya qilinayotgan tarix bilan hikoyani taqdim etish tartibi o‘rtasidagi farq yordamida izohlash mumkin [5].

P. Rikyorning xotira va tarixga oid qarashlari doirasida xotira shaxs va jamoa o‘rtasidagi murakkab munosabatni idrok etish vositasi sifatida talqin qilinadi [6]. “Chinor”ga nisbatan qo‘llanganda, bu nazariy istiqbol xotiraning ikki qirrasini ajratishga imkon beradi: eslash qarindoshlik rishtasini mustahkamlaydi, ammo u bilan birga odamning o‘tmishdagi qarorlar oldidagi mas’uliyatini ham eslatadi. Shu ma’noda avlodlar vorisligi avtomatik axloqiy mukammallik degani emas; u doimiy ravishda qayta anglanadigan burchdir.

4. Epik ko‘povozlilik va yakunning ochiqligi. Bir nechta taqdirning bitta roman tarkibida berilishi estetik jihatdan muhim natijaga olib keladi: bir insonning haqiqatini boshqasining tajribasi to‘liq almashtirib bera olmaydi. Har bir hikoya o‘z kayfiyati, ichki ziddiyati va baholash imkoniyatini saqlaydi. Shuning uchun ham romanni birgina tarbiyaviy tezisning badiiy namoyishi darajasiga tushirish uning san’atkorona murakkabligini kamaytiradi. Muxtor barcha voqealarni sun’iy tarzda yaxshi yakun bilan tugatishga urinmaydi, degan kuzatuv [1] shu jihatdan ahamiyatlidir. Badiiy yakunning har doim ham baxtli bo‘lmasligi o‘quvchi oldida tayyor hukm emas, mushohada zaruratini yuzaga keltiradi. Yozuvchining qahramon taqdiriga ortiqcha aralashmasligi ularni mas’uliyatdan ozod qilish degani emas: aksincha, murakkab vaziyatdagi tanlov va oqibat o‘rtasidagi bog‘lanishni o‘quvchining o‘zi anglashiga sharoit yaratadi.

Roman ko‘povozliligi shajara modeli bilan zid emas. Genealogik birlik umumiy axloqiy suhbat maydonini yaratadi, polifonik xilma-xillik esa bu maydonda turli javoblar mavjudligini ko‘rsatadi. Ana shu ikki tamoyilning birga ishlashi asarni oddiy “oila tarixi”dan falsafiy-epik asarga aylantiradi. Demak, romanning semantik markazi chinor shoxlaridagi voqealar sonida emas, ular orasidagi ma’naviy munosabatlarni izlash jarayonida joylashadi.

5. Tadqiqot natijalarining umumlashtirilishi. O‘tkazilgan tahlil to‘rtta o‘zaro bog‘liq natijani ko‘rsatadi. Birinchidan, Ochil bobo safari roman qismlarini birlashtiruvchi ramkaviy kompozitsiya vazifasini bajaradi. Ikkinchidan, shajara modeli har bir alohida taqdirni umumiy avlodlar tajribasi bilan bog‘laydi. Uchinchidan, chinor timsoli bu kompozitsiyaning semantik ekvivalenti sifatida birlik va tafovut, davomiylik va sinov, ildiz va tarmoqlanish munosabatlarini mujassamlashtiradi. To‘rtinchidan, xotira asarda axloqiy mas’uliyatni anglashning faol shakli sifatida talqin etilishi mumkin.

Ushbu natijalar “Chinor” romanini matniy-qiyosiy yoki alohida personaj markazidagi izlanishlarga muqobil emas, balki ularni kompozitsion va falsafiy qatlamda to‘ldiruvchi yondashuvni taklif etadi. Tadqiqotning cheklovi shundan iboratki, konkret nashr bo‘yicha sahifalangan epizodlar va til birliklarining to‘liq korpus tahlili bajarilmadi. Kelgusi izlanishlarda turli nashrlarni qiyoslab, har bir hikoya segmentining narrativ istiqboli va vaqt ko‘rsatkichlari izchil xaritalansa, ilgari surilgan model yanada aniq tekshirilishi mumkin.

XULOSA

Asqad Muxtorning “Chinor” romani ko‘plab insoniy taqdirlarni yagona badiiy makonda birlashtirish orqali o‘zbek epik tafakkurining murakkab imkoniyatlarini namoyon etadi. Asarning yaxlitligi faqat voqealar ketma-ketligiga bog‘liq emas: uni qarindoshlik aloqasi, Ochil bobo safari, xotira almashinuvi va umumiy axloqiy savollar ta’minlaydi. Shu jihatdan shajara romanning mavzularidan biri bo‘lish bilan cheklanmay, uning hikoyalash usuliga ham aylanadi. Chinor ramzi ildiz va shoxlar munosabati orqali umumiy tarix bilan shaxsiy taqdirning o‘zaro daxldorligini ifodalaydi. Bu birlik personajlarning farqlarini yo‘qotmaydi; aksincha, ularning turli hayotiy yo‘llarini bir-biri bilan qiyoslash imkonini kengaytiradi. Roman tarkibidagi fojiaviy tajribalarning mavjudligi esa vorislikni soddalashtirilgan tantana emas, sinov va mas’uliyat bilan davom etadigan murakkab jarayon sifatida tushunishga undaydi.

Demak, “Chinor”da xotira o‘tmishning passiv tasviri emas, balki bugungi axloqiy o‘zlikni shakllantiruvchi badiiy mexanizmdir. “Shajara narrativi” va “axloqiy xotira” tushunchalarini birlashtirgan yondashuv romanning kompozitsiyasi, ramziy tizimi hamda falsafiy mazmunini yaxlit sharhlashga xizmat qiladi. Bu talqin Asqad Muxtor roman poetikasini avlodlararo muloqot, badiiy vaqt va shaxsiy javobgarlik masalalari kesimida yanada chuqur o‘rganish uchun metodologik asos yaratadi.

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O‘ZBEKISTONNING ILK O‘RTA ASRLAR DAVRI AHOLISINING MADANIY HAYOTINI TARIX DARSLARIDA O‘RGANISH

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Annotatsiya: *Mazkur maqolada tarixiy manbalar asosida ilk o‘rta asrlar davrida O‘zbekiston hududida yashagan aholining madaniy hayoti, ijtimoiy-maishiy turmush tarzi, diniy e’tiqodlari, me’morchiligi, tasviriy san’ati, hunarmandchiligi, yozuv tizimlari va savdo aloqalari yoritilgan. Shuningdek, umumta’lim maktablari va oliy ta’lim muassasalarida tarix fanini o‘qitish jarayonida mazkur davr madaniy merosini o‘rganishning samarali usullari, pedagogik yondashuvlari hamda ta’limiy ahamiyati tadqiq etilgan.*

Abstract: *This article examines the cultural life, social and everyday lifestyle, religious beliefs, architecture, visual arts, craftsmanship, writing systems, and trade relations of the population living in the territory of Uzbekistan during the Early Middle Ages, based on historical sources. Furthermore, it explores effective methods, pedagogical approaches, and the educational significance of studying the cultural heritage of this period in the process of teaching history in secondary schools and higher education institutions.*

Аннотация: *В статье на основе исторических источников рассматриваются культурная жизнь, социально-бытовой уклад, религиозные верования, архитектура, изобразительное искусство, ремесла, системы письменности и торговые связи населения, проживавшего на территории Узбекистана в период раннего Средневековья. Кроме того, исследуются эффективные методы, педагогические подходы и образовательное значение изучения культурного наследия данного периода в процессе преподавания истории в общеобразовательных школах и высших образовательных учреждениях.*

Kalit so‘zlar: *Ilk o‘rta asrlar, O‘zbekiston tarixi, madaniy hayot, Sug‘diyona, Choch, Farg‘ona, Toxariston, Buyuk Ipak yo‘li, Afrosiyob, Varaxsha, Bolaliktepa, tarix ta’limi, tarixiy tafakkur, arxeologik manbalar.*

Keywords: *Early Middle Ages, History of Uzbekistan, cultural life, Sogdiana, Chach, Fergana, Tokharistan, Great Silk Road, Afrasiab, Varakhsha, Bolaliktepa, history education, historical thinking, archaeological sources.*

Ключевые слова: *Раннее Средневековье, история Узбекистана, культурная жизнь, Согдиана, Чач, Фергана, Тохаристан, Великий шёлковый путь, Афрасиаб, Варахша, Балык-тепа, историческое образование, историческое мышление, археологические источники.*

O‘zbekiston hududi qadimdan Markaziy Osiyoning muhim tarixiy-madaniy markazlaridan biri bo‘lib kelgan. Ayniqsa, ilk o‘rta asrlar davri mamlakatimiz xalqlari tarixida siyosiy, iqtisodiy, ijtimoiy va madaniy o‘zgarishlar jadallashgan muhim bosqich hisoblanadi. Tarixiy davrlashtirishga ko‘ra, ilk o‘rta asrlar V–VIII asrlarni qamrab olib, ushbu davrda hududimizda Sug‘d, Choch, Farg‘ona, Ustrushona, Buxoro, Xorazm va Toxariston kabi tarixiy-madaniy o‘lkalar rivojlangan.

Mazkur hududlarda mahalliy hokimliklar va siyosiy birliklarning mavjudligi aholining turmush tarzi, xo‘jaligi, urf-odatlari hamda madaniy an’analarining shakllanishiga bevosita ta’sir ko‘rsatgan. Har bir voha o‘ziga xos madaniy xususiyatlarga ega bo‘lib, ular o‘rtasidagi savdo-sotiq va madaniy aloqalar umumiy taraqqiyot jarayonini tezlashtirgan. Tarixiy manbalarda ushbu hududlarning ayrimlari o‘z tangalarini zarb qilgani, mustaqil tashqi aloqalar olib borgani va shahar madaniyatini rivojlantirgani qayd etiladi.[1]

Ilk o‘rta asrlarda aholining asosiy mashg‘ulotlari dehqonchilik, chorvachilik, bog‘dorchilik, hunarmandchilik va savdo-sotiqdan iborat bo‘lgan. Ayniqsa, sun’iy sug‘orishga asoslangan dehqonchilik tizimi vohalarning iqtisodiy hayotida katta ahamiyat kasb etgan. Sug‘orish inshootlari va kanallarning rivojlanishi natijasida yangi yerlar o‘zlashtirilgan, aholi manzilgohlari kengaygan va shaharlar iqtisodiy jihatdan mustahkamlangan.

Ushbu davr madaniy taraqqiyotining muhim omillaridan biri Buyuk ipak yo‘li bo‘lgan. Mazkur xalqaro savdo yo‘li orqali Markaziy Osiyo aholisi Xitoy, Hindiston, Eron, Vizantiya va boshqa mamlakatlar bilan iqtisodiy hamda madaniy munosabatlarni rivojlantirgan. Savdo aloqalari natijasida nafaqat moddiy boyliklar, balki ilmiy bilimlar, diniy qarashlar, san’at namunalari va turli texnologiyalar ham tarqalgan.[2]

Tarix darslarida ushbu mavzuni o‘rganish o‘quvchilarga O‘zbekiston hududidagi qadimiy madaniy jarayonlarning uzviyligini anglash imkonini beradi. Ayniqsa, tarixiy xaritalar, arxeologik topilmalar, qadimiy shahar xarobalari va yozma manbalardan foydalanish orqali o‘quvchilarning tarixiy tafakkurini rivojlantirish mumkin.Ilk o‘rta asrlarda O‘zbekiston hududida

shaharsozlik va me’morchilik sezilarli darajada rivojlandi. Samarqand, Buxoro, Kesh, Choch, Termiz va boshqa shaharlar nafaqat iqtisodiy, balki siyosiy va madaniy markazlar sifatida ham muhim o‘rin egalladi. Shaharlar tarkibida hukmdor qarorgohlari, mudofaa inshootlari, hunarmandchilik ustaxonalari, savdo rastalari va turar joylar mavjud bo‘lgan.

Shahar hayotining rivojlanishi aholining ijtimoiy tarkibiga ham ta’sir ko‘rsatdi. Jamiyatda hukmdorlar, zodagonlar, harbiylar, ruhoniylar, savdogarlar, hunarmandlar va dehqonlar kabi turli ijtimoiy qatlamlar shakllangan. Ularning har biri iqtisodiy va madaniy hayotda o‘ziga xos vazifani bajargan.

Aholining kundalik turmushida uy-joy qurilishi, kiyinish madaniyati, taom tayyorlash, oilaviy munosabatlar va marosimlar muhim o‘rin tutgan. Arxeologik qazishmalar davomida topilgan turar joy qoldiqlari, sopol buyumlar, metall idishlar, taqinchoqlar va kiyim-kechak tasvirlari o‘sha davr kishilarining moddiy madaniyatini o‘rganishda muhim manba hisoblanadi.

Ayniqsa, Surxondaryo hududidagi Bolaliktepa yodgorligi ilk o‘rta asrlar aholisi turmush tarzini o‘rganishda katta ahamiyatga ega. Bu yerdan aniqlangan devoriy suratlarda ziyofat marosimlari, insonlarning kiyimlari, taqinchoqlari va o‘zaro munosabatlari aks ettirilgan. Mazkur tasvirlar orqali o‘sha davr jamiyatining estetik qarashlari, kiyinish madaniyati va ijtimoiy hayoti haqida tasavvur hosil qilish mumkin.[3]

Buxoro vohasidagi Varaxsha yodgorligi ham davr madaniyatini o‘rganishda muhim manba hisoblanadi. Bu yerda hukmdorlar saroyi, me’moriy bezaklar va devoriy suratlar aniqlangan. Ayniqsa, tasviriy san’at namunalarida ov manzaralari, hayvonlar va saroy hayotiga oid lavhalarning aks etishi o‘sha davr aholisi dunyoqarashi va badiiy didini namoyon etadi.

Ilk o‘rta asrlarda O‘zbekiston hududida yashagan aholining ma’naviy hayoti turli diniy e’tiqodlar, urf-odatlar, marosimlar va dunyoqarashlar bilan chambarchas bog‘liq bo‘lgan. Ushbu davrda zardushtiylik, buddaviylik, moniylik, xristianlikning sharqiy yo‘nalishlari hamda mahalliy diniy e’tiqodlar mavjud bo‘lgan. Bu holat Markaziy Osiyoning turli xalqlar va sivilizatsiyalar o‘rtasidagi madaniy aloqalar markazi bo‘lganini ko‘rsatadi.[5]

Sug‘d hududida zardushtiylik keng tarqalgan diniy qarashlardan biri hisoblangan. Ushbu dinning ta’siri aholining dafn marosimlari, olovga munosabati, ibodatxonalari va kundalik turmushida namoyon bo‘lgan. Zardushtiylik qarashlari yaxshilik va yomonlik, ezgulik va yovuzlik o‘rtasidagi kurash kabi tushunchalarni o‘zida mujassam etgan.

Buddaviylik esa, ayniqsa, Toxariston hududida muhim o‘rin egallagan. Termiz atrofidagi Fayoztepa va Qoratepa kabi yodgorliklar buddaviylikning

mintaqada tarqalganini tasdiqlovchi muhim arxeologik manbalardir. Bu yodgorliklardan topilgan haykallar, me’moriy inshootlar va diniy buyumlar o‘sha davrning diniy hamda badiiy madaniyatini o‘rganish imkonini beradi.

Moniylik va xristianlikning sharqiy yo‘nalishlari ham ayrim hududlarda tarqalgan. Ayniqsa, Buyuk ipak yo‘li bo‘ylab savdogarlar va sayohatchilar harakati turli diniy qarashlarning tarqalishiga sharoit yaratgan. Natijada mintaqada diniy bag‘rikenglik va madaniy aloqalarning o‘ziga xos tarixiy muhiti shakllangan.

Ilk o‘rta asrlarda yozuv madaniyati ham rivojlandi. Sug‘d yozuvi savdo-sotiq, diplomatik munosabatlar, huquqiy bitimlar va kundalik yozishmalarda keng qo‘llanilgan. Sug‘d savdogarlari o‘z faoliyati davomida ushbu yozuvdan foydalanib, uzoq hududlar bilan iqtisodiy va madaniy munosabatlarni amalga oshirganlar.

Bu borada Mug‘ tog‘idan topilgan sug‘d hujjatlari alohida ahamiyatga ega. Ushbu hujjatlar VIII asr boshlaridagi ijtimoiy-iqtisodiy hayot, diplomatik aloqalar, xo‘jalik munosabatlari va oilaviy huquq masalalarini yoritadi. Hujjatlar orasida maktublar, shartnomalar, xo‘jalik yozuvlari va nikohga oid ma’lumotlarning mavjudligi o‘sha davr jamiyatining murakkab tuzilishini ko‘rsatadi.[6]

Tarix darslarida diniy qarashlar va yozuv madaniyatini o‘rganishda qiyosiy tahlil usulidan foydalanish samarali hisoblanadi. O‘quvchilarga turli diniy yodgorliklar, qadimiy yozuv namunalari va tarixiy hujjatlar taqdim etilib, ularning o‘xshash va farqli jihatlarini aniqlash topshiriladi. Ilk o‘rta asrlar O‘zbekiston tarixida tasviriy san’at, me’morchilik va amaliy bezak san’ati rivojlangan davrlardan biri hisoblanadi. Ushbu davrda yaratilgan san’at asarlari mahalliy aholining dunyoqarashi, estetik qarashlari, diniy tasavvurlari va kundalik hayoti haqida qimmatli ma’lumot beradi.

Ayniqsa, Samarqanddagi Afrosiyob yodgorligi ilk o‘rta asrlar tasviriy san’atining noyob namunalaridan biridir. Afrosiyob saroy devorlaridan topilgan rangtasvirlarda turli mamlakatlardan kelgan elchilar, tantanali marosimlar, hukmdorlar va ularning atrofidagi kishilar tasvirlangan. Ushbu suratlar VII asrdagi xalqaro diplomatik munosabatlar, kiyinish madaniyati va saroy hayotini o‘rganishda katta ahamiyatga ega.[7]

Afrosiyob devoriy suratlarining tarixiy qiymati shundaki, ular orqali o‘sha davrdagi xalqlarning tashqi ko‘rinishi, kiyimlari, qurol-aslahalari, ot anjomlari va marosimlari haqida ma’lumot olish mumkin. Tasvirlarda turli hududlardan kelgan kishilarning aks etishi Samarqandning xalqaro madaniy va siyosiy aloqalar markazi bo‘lganini ko‘rsatadi.Bolaliktepa va Varaxsha

yodgorliklaridagi devoriy suratlar ham Markaziy Osiyo tasviriy san’atining o‘ziga xos xususiyatlarini namoyon etadi. Ularda inson qiyofasi, hayvonlar, o‘simliklar va turli marosimlarga oid manzaralar badiiy mahorat bilan ifodalangan.

Hunarmandchilik sohasida kulolchilik, metallga ishlov berish, zargarlik, to‘qimachilik, yog‘och o‘ymakorligi va qurolsozlik rivojlangan. Kulollar kundalik turmushda ishlatiladigan idishlar bilan birga badiiy bezatilgan sopol buyumlarni ham tayyorlaganlar. Zargarlar esa oltin, kumush, bronza va qimmatbaho toshlardan turli taqinchoqlar yasaganlar.To‘qimachilik ham muhim hunarmandchilik tarmoqlaridan biri bo‘lgan. Sug‘d savdogarlarining ipak va boshqa matolar savdosida faol ishtirok etishi mahalliy ishlab chiqarish hamda xalqaro savdo aloqalarining rivojlanishiga xizmat qilgan.[8]

Me’morchilikda mudofaa devorlari, qal’alar, saroylar, ibodatxonalar va turar joylar qurilishi keng rivojlandi. Qurilishda xom g‘isht, paxsa va yog‘och materiallaridan foydalanilgan. Binolarning ichki qismlari devoriy suratlar, naqshlar va turli bezaklar bilan ziynatlangan.

Tarix darslarida ushbu madaniy yodgorliklarni o‘rganishda vizual metodlardan foydalanish alohida ahamiyatga ega. Jumladan, Afrosiyob, Bolaliktepa va Varaxsha suratlarini taqqoslash, ularning mazmunini sharhlash hamda tarixiy ahamiyatini aniqlash orqali o‘quvchilarda san’at asarlarini tarixiy manba sifatida tahlil qilish ko‘nikmasi shakllanadi. O‘quvchilarga quyidagi amaliy topshiriqni berish mumkin: uchta yodgorlikning tasviriy san’at namunalarini taqqoslab, ularda aks etgan umumiy va o‘ziga xos jihatlarni jadval ko‘rinishida ifodalash. Bu usul tarixiy bilimlarni mustahkamlash bilan birga, o‘quvchilarning kuzatuvchanligi va ijodiy fikrlashini ham rivojlantiradi.

O‘zbekistonning ilk o‘rta asrlar davri aholisining madaniy hayotini tarix darslarida o‘rganish o‘quvchilarda tarixiy xotira, milliy o‘zlikni anglash, ajdodlar merosiga hurmat va mustaqil fikrlash kabi fazilatlarni shakllantirishda muhim ahamiyat kasb etadi. Mazkur mavzuni o‘qitishda faqat nazariy ma’lumotlarni bayon qilish bilan cheklanib qolmasdan, tarixiy manbalar, arxeologik topilmalar, xaritalar, tasviriy materiallar va interfaol metodlardan foydalanish lozim.

Birinchidan, tarixiy-xronologik metoddan foydalanish maqsadga muvofiqdir. Ushbu metod orqali o‘quvchilar V–VIII asrlarda sodir bo‘lgan siyosiy va madaniy jarayonlarning ketma-ketligini o‘rganadilar. Masalan, eftaliylar hukmronligi, Turk xoqonligining tashkil topishi, mahalliy hokimliklarning rivojlanishi va arablar istilosi bilan bog‘liq tarixiy jarayonlarni o‘zaro bog‘liqlikda tahlil qilish mumkin.

Ikkinchidan, tarixiy xaritalar bilan ishlash usuli muhim o‘rin tutadi. O‘quvchilarga ilk o‘rta asrlardagi Sug‘d, Choch, Farg‘ona, Ustrushona, Buxoro va Toxariston hududlari ko‘rsatilgan xaritalar taqdim etiladi. Ular orqali tarixiy o‘lkalar joylashuvi, savdo yo‘llari va madaniy markazlar aniqlanadi. Natijada o‘quvchilar tarixiy voqealarning geografik muhit bilan bog‘liqligini tushunib boradilar.

Uchinchidan, muammoli ta’lim metodidan foydalanish yaxshi natija beradi. Masalan, o‘qituvchi «Nima sababdan ilk o‘rta asrlarda Sug‘d shaharlari xalqaro savdo va madaniyat markazlariga aylangan?» degan muammoli savolni o‘rtaga tashlaydi. O‘quvchilar savolga javob izlash jarayonida Buyuk ipak yo‘lining ahamiyati, hunarmandchilikning rivojlanishi va savdogarlarning faoliyatini tahlil qiladilar.

To‘rtinchidan, guruhlarda ishlash metodidan foydalanish mumkin. Bunda sinf o‘quvchilari bir necha guruhga ajratiladi:

Birinchi guruh — ilk o‘rta asrlarda aholining kundalik turmushini o‘rganadi.

Ikkinchi guruh — diniy qarashlar va yozuv madaniyatini tahlil qiladi.

Uchinchi guruh — me’morchilik va tasviriy san’at namunalarini o‘rganadi.

To‘rtinchi guruh — hunarmandchilik va savdo aloqalarining rivojlanishini yoritadi.

Har bir guruh o‘ziga berilgan mavzu yuzasidan ma’lumot to‘playdi, tarixiy dalillarni tahlil qiladi va yakuniy xulosalarini taqdim etadi. Bu usul o‘quvchilarning hamkorlikda ishlash, fikr almashish va o‘z nuqtayi nazarini asoslash ko‘nikmalarini rivojlantiradi.

Beshinchidan, tarixiy manbalar bilan ishlash metodidan foydalanish zarur. Masalan, Mug‘ tog‘i hujjatlari, Afrosiyob devoriy suratlari, qadimiy tangalar va arxeologik topilmalar o‘quvchilarga bevosita tarixiy dalillar asosida bilim olish imkonini beradi. Bunda o‘qituvchi manbaning yaratilgan davri, mazmuni va tarixiy ahamiyatini tushuntirishi kerak.

Shuningdek, zamonaviy axborot-kommunikatsiya texnologiyalaridan foydalanish ham mavzuning samarali o‘zlashtirilishiga yordam beradi. Elektron taqdimotlar, virtual muzey sayohatlari, tarixiy videolavhalar va raqamli xaritalar yordamida o‘quvchilar tarixiy obidalarni ko‘z oldilarida gavdalantirish imkoniyatiga ega bo‘ladilar.

Demak, ilk o‘rta asrlar madaniy hayotini o‘rganishda an’anaviy va zamonaviy pedagogik metodlarni uyg‘unlashtirish tarix fanining ta’limiy va tarbiyaviy samaradorligini oshiradi.

Xulosa qilib aytganda, O‘zbekistonning ilk o‘rta asrlar davri aholisi madaniy hayoti mamlakatimiz tarixidagi eng muhim taraqqiyot bosqichlaridan birini tashkil etadi. V–VIII asrlarda hududimizda yuz bergan siyosiy, iqtisodiy va ijtimoiy jarayonlar mahalliy aholining moddiy va ma’naviy madaniyati rivojlanishiga katta ta’sir ko‘rsatgan.

Ushbu davrda Sug‘d, Choch, Farg‘ona, Buxoro, Xorazm va Toxariston kabi tarixiy-madaniy hududlarda shaharsozlik, dehqonchilik, hunarmandchilik va savdo-sotiq taraqqiy etgan. Buyuk ipak yo‘li orqali turli mamlakatlar bilan olib borilgan aloqalar mahalliy madaniyatning boyishiga, yangi bilimlar va texnologiyalarning tarqalishiga xizmat qilgan.

Afrosiyob, Bolaliktepa va Varaxsha kabi tarixiy yodgorliklardan topilgan devoriy suratlar, me’moriy qoldiqlar, sopol buyumlar va boshqa arxeologik topilmalar o‘sha davr aholisining yuksak badiiy tafakkuri hamda madaniy salohiyatidan dalolat beradi. Shuningdek, Mug‘ tog‘idan topilgan yozma hujjatlar aholining ijtimoiy munosabatlari, savdo faoliyati, diplomatik aloqalari va oilaviy hayotini o‘rganishda muhim manba hisoblanadi[9].

Ilk o‘rta asrlarda turli diniy qarashlarning mavjud bo‘lishi, yozuv madaniyatining rivojlanishi va xalqaro savdo aloqalarining kengayishi O‘zbekiston hududining jahon sivilizatsiyasi taraqqiyotidagi o‘rnini belgilab bergan muhim omillardan hisoblanadi.

Mazkur tarixiy davrni ta’lim jarayonida o‘rganish bir necha jihatdan muhim ahamiyatga ega. Birinchidan, o‘quvchilarda tarixiy xotira va milliy o‘zlikni anglash tuyg‘usini shakllantiradi. Ikkinchidan, ajdodlarimizning madaniy merosiga nisbatan hurmat va mas’uliyat hissini kuchaytiradi. Uchinchidan, tarixiy manbalarni tahlil qilish, voqea-hodisalarni taqqoslash va mustaqil xulosa chiqarish ko‘nikmalarini rivojlantiradi. Shu bilan birga, tarix darslarida arxeologik topilmalar, muzey eksponatlari, tarixiy xaritalar, yozma manbalar va zamonaviy axborot texnologiyalaridan foydalanish ta’lim samaradorligini oshiradi. Ayniqsa, o‘quvchilarning tarixiy obidalar haqidagi bilimlarini amaliy mashg‘ulotlar va virtual sayohatlar bilan boyitish mavzuni yanada qiziqarli o‘zlashtirishga yordam beradi.

Mavzu yuzasidan quyidagi takliflarni ilgari surish mumkin:

Tarix darslarida Afrosiyob, Bolaliktepa va Varaxsha yodgorliklarining fotosuratlari hamda tarixiy rekonstruksiyalaridan muntazam foydalanish.

Ilk o‘rta asrlarga oid yozma manbalar va arxeologik topilmalarni o‘quvchilarga mustaqil tahlil qilish uchun taqdim etish.

Tarixiy xaritalar yordamida Buyuk ipak yo‘lining O‘zbekiston hududidan o‘tgan tarmoqlarini o‘rganish.

Mavzuga oid tarixiy loyihalar, guruhli topshiriqlar va ijodiy taqdimotlar tashkil etish.

O‘quvchilarni muzeylar, tarixiy obidalar va arxeologik yodgorliklar bilan tanishtirishga qaratilgan ta’limiy tadbirlarni kengaytirish.

Umuman olganda, O‘zbekistonning ilk o‘rta asrlar davri aholisining madaniy hayotini tarix darslarida o‘rganish nafaqat tarixiy bilimlarni shakllantirish, balki yosh avlodni ajdodlar merosiga hurmat, vatanparvarlik va milliy qadriyatlarga sadoqat ruhida tarbiyalashga ham xizmat qiladi. Zero, o‘z tarixini chuqur bilgan avlodgina bugungi taraqqiyotning tarixiy ildizlarini anglaydi va kelajak oldidagi mas’uliyatini to‘g‘ri his etadi.

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TIL, OG‘ZAKI MEROS VA IJRO AN’ANALARINI RAQAMLASHTIRISHNING MADANIYATSHUNOSLIK ASOSLARI

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Annotatsiya. *Maqolada til, og‘zaki folklor va ijro an’analarini raqamli muhitda saqlash hamda o‘rganishning madaniyatshunoslik asoslari tahlil qilinadi. Milliy til korpusining reprezentativligi, folklor matnlarining nashr va ijro variantlari, qadimiy yozuvlarni raqamli o‘qish, baxshichilik va maqom ijrosining konteksti, sheva va frazeologizmlarning madaniy mazmuni, parallel korpuslar hamda bolalar folklorini raqamli taqdim etish masalalari ko‘rib chiqiladi. Sun’iy intellektning imkoniyatlari bilan bir qatorda, algoritmik xatolar, manba shaffofligi, ijrochi hissasini e’tirof etish va madaniy tafovutlarni saqlash zarurati asoslanadi. Raqamlashtirish jarayonida asl manba, transkripsiya, tahrir va ilmiy sharhni alohida qatlamlarda saqlash bo‘yicha takliflar ilgari suriladi.*

Kalit so‘zlar: milliy til korpusi, og‘zaki meros, folklor, raqamlashtirish, sun’iy intellekt, madaniy reprezentativlik, baxshichilik, maqom, sheva, frazeologizm.

Аннотация. В статье анализируются культурологические основы цифрового сохранения и изучения языка, устного фольклора и исполнительских традиций. Рассматриваются репрезентативность национального языкового корпуса, варианты публикации и исполнения фольклорных текстов, цифровое прочтение древних письменных памятников, контекст бахшиского искусства и исполнения макома, культурное содержание диалектов и фразеологизмов, параллельные корпуса и цифровое представление детского фольклора. Наряду с возможностями искусственного интеллекта обосновывается необходимость учитывать алгоритмические ошибки, прозрачность

источников, авторский вклад исполнителей и сохранение культурных различий. Предлагается раздельно хранить первоисточник, транскрипцию, редакторскую обработку и научный комментарий.

Ключевые слова: национальный языковой корпус, устное наследие, фольклор, цифровизация, искусственный интеллект, культурная репрезентативность, бахшиское искусство, маком, диалект, фразеологизм.

Abstract. *The article examines the cultural foundations of digitally preserving and studying language, oral folklore, and performance traditions. It addresses the representativeness of a national language corpus; publication and performance variants of folklore texts; digital reading of ancient inscriptions; the performance context of bakhshi traditions and maqom; the cultural meaning of dialects and phraseological units; parallel corpora; and the digital presentation of children's folklore. Alongside the opportunities offered by artificial intelligence, the article emphasizes the need to account for algorithmic errors, source transparency, performers' contributions, and the preservation of cultural differences. It proposes keeping original sources, transcripts, editorial versions, and scholarly commentary as distinct but linked layers.*

Keywords: *national language corpus, oral heritage, folklore, digitalization, artificial intelligence, cultural representativeness, bakhshi tradition, maqom, dialect, phraseology.*

KIRISH

Raqamli texnologiyalar til va nomoddiy madaniy merosni qayd etish, izlash, qiyoslash hamda keng auditoriyaga taqdim etish imkoniyatlarini kengaytirmoqda. Biroq raqamlashtirish jarayoni merosni shunchaki elektron shaklga ko‘chirish bilan cheklanmaydi: tanlangan manbalar, yozib olish sharoiti, tahrir, transkripsiya va algoritmik qayta ishlash natijaning mazmuniga ta’sir ko‘rsatadi. Shu bois raqamli resurslarda saqlangan ma’lumot bilan butun madaniy amaliyot o‘rtasidagi nisbatni aniqlashtirish muhim ilmiy vazifadir.

Mazkur maqolaning maqsadi til, og‘zaki meros va ijro an’analarini raqamlashtirish jarayonini madaniyatshunoslik nuqtayi nazaridan tahlil qilish, sun’iy intellektdan foydalanishning imkoniyatlari va chegaralarini ko‘rsatish hamda milliy merosning tarixiy, hududiy va ijroviy xususiyatlarini saqlashga doir takliflarni asoslashdan iborat. Tadqiqotda qism va butun, mazmun va shakl, ayniyat va tafovut, manba va talqin munosabatlari tahliliy yondashuv sifatida qo‘llanadi. Maqola konseptual-tahliliy xarakterga ega; unda yangi empirik tajriba natijalari da’vo qilinmaydi.

Korpus bilan milliy til munosabati qism va butun kategoriyalarini madaniy tahlilga tatbiq etishni talab qiladi. Baxtiyor Mengliyevning ta’rifiga ko‘ra: «Milliy til korpusi – elektron qidiruv imkoniyatiga ega tizim, tabiiy tilning raqamlashgan yozma va og‘zaki matnlari jamlanmasi.» [21] **Qism — yaxlit munosabatning muayyan tarkibiy jihati; butun — qismlar va ularning aloqalari birligidir.** Korpus qayd etilgan qismni, milliy til esa qayd etilmagan amaliyotlarni ham qamraydi. Shuning uchun korpusdagi taqsimotni xalq hayotining bevosita tuzilishi deb qabul qilish qism xususiyatini butunga asossiz ko‘chirish bo‘ladi.

MILLIY TIL KORPUSI VA MADANIY REPRESENTATIVLIK

Masalan, elektron nashrlari ko‘p dostonning algoritmik javoblarda ustunligi uning har bir hududda asosiy janr ekanini isbotlamaydi. Qayd tanlovi, nashr siyosati va raqamlashtirish imkoniyati ko‘rinish nisbatini o‘zgartiradi. **Korpusning madaniy reprezentativligi — qayd etilgan materialning qaysi jamoalar, janrlar va nutq vaziyatlarini qanday chegarada ifodalashini asoslash imkoniyatidir.** U barcha ovozlarning bir xil miqdorda bo‘lishiga teng emas; farqlar va qamrov chegaralarining tushunarliligiga bog‘liq.

O‘zbekiston hududiy korpuslarida janr, avlod, ijro muhiti va yozib olish sharoiti ko‘rsatilishi shu gnoseologik chegarani ochadi. Sun’iy intellekt yetishmagan hududiy materialni to‘qima matn bilan to‘ldirsa, axborot ko‘payadi, ammo butun haqidagi bilim kengaymaydi. Aksincha, qayddagi bo‘shliq yangi dala tadqiqoti uchun asos bo‘ladi. Bunda qismning cheklanganligi nuqsonni yashirishga emas, xulosaning ko‘lamini belgilashga xizmat qiladi. Korpus o‘z chegarasini ko‘rsatganida milliy meros haqidagi da’vo tekshiriladigan bilimga aylanadi.Ertaklarni sun’iy intellekt bilan o‘rganishdan oldin korpusga qaysi nashrlar kirganini aniqlash kerak. Nashr qilingan matn ijrochidan yozib olingan nusxaning aynan o‘zi bo‘lmasligi mumkin: tahrir, qisqartirish, yoshga moslashtirish va imlo yangilanishi unga aralashadi. Rasulova janrni belgilab, «Ertak o‘zbek folklorining epik turiga mansub qadimiy janrlaridan biridir.»[22] deb yozadi. Janrning qadimiyligi muayyan elektron nusxaning qadimiyligini isbotlamaydi; bu ikki vaqt o‘lchovi alohida ko‘rsatiladi. Nashr tanlovi madaniy xotiraning ko‘rinishini o‘zgartiradi. Agar tizimga faqat maktab xrestomatiyalari kiritilsa, u xalq ertakchiligining tarbiyaviy tahrirdan o‘tgan qismini o‘rganadi. Keyin shu natijani butun an’anaga tatbiq etish estetik me’yorni bir yo‘nalishga

[21] Mengliyev B. Shu sohada ishlayotganimdan xijolatda yuraman – tilshunos Baxtiyor Mengliyev ta’limdagi muammolar haqida. — Oyina.uz. 04.01.2024. — korpus lingvistikasiga oid javob, «Milliy til korpusi» abzasi.
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tortib qo‘yadi. Aksincha, barcha variantni izohsiz yig‘ish ham ularning kelib chiqishi haqidagi savolni hal qilmaydi. Muharrir ishtiroki yashirilmagan katalog ikki muammoni birgalikda kamaytiradi. Kitob muqovasidagi sana yozib olish sanasidan farq qilishi foydalanuvchiga ko‘rinishi shart.

FOLKLOR MATNLARINI RAQAMLASHTIRISH VA MANBASHUNOSLIK

O‘zbekistonda ertak matnlari uchun qo‘lyozma, birinchi nashr, keyingi qayta nashr va ommaviy moslashtirish o‘rtasidagi aloqalarni ko‘rsatuvchi bibliografik qayd tavsiya etiladi. Algoritm farqlangan jumlalarni topadi; ularning sababini matnshunos tekshiradi. Bu ish sun’iy intellekt yaratgan ertakni an’anaviy variantlar qatoriga avtomatik kiritishga yo‘l qo‘ymaydi. Madaniy rivojlanish yangi ertak yaratilishida ham namoyon bo‘ladi, ammo ijodiy yangilikning maqomi tarixi bor xalq matnidan farqlanishi lozim. Bunday ajratish ijod erkinligi va manbashunoslik aniqligini bir vaqtda ta’minlaydi. Qadimiy yozuvni raqamli o‘qish tayyor harfni tanishdan ko‘ra murakkabroq vazifadir. Tog‘ yoki tosh sathining yemirilishi, belgilarning o‘xshashligi va o‘qish an’anasi natijaga ta’sir qiladi. G‘aybulla Boboyor yozma meros tadqiqidagi yangilanishni «Birinchidan, yangi bitiglarning topilishi oldinlari yanglish o‘qilgan so‘z va atamalarni tuzatish imkonini berayapti.»[23] degan fikr bilan ko‘rsatadi. Demak, elektron transkripsiya ham qayta ko‘rib chiqilishi mumkin bo‘lgan ilmiy talqin sifatida saqlanadi.

Sun’iy intellekt noaniq belgini eng ehtimoliy harf bilan to‘ldirganda, o‘qish ravonlashadi. Biroq ravon matn aslidagi shikastni yashirishi mumkin. Qaydning ilmiy qiymati aynan qaysi belgi ko‘rinayotgani, qaysisi qiyosiy asosda tiklanganini ajratishga bog‘liq. Eski o‘qishni yangi dalil asosida tuzatish xato tarixini o‘chirish emas; bilimning rivojlanishini hujjatlashtirishdir. Tizim asl tasvir, o‘qish varianti va ilmiy izohni birgalikda ko‘rsatganida bu jarayon tushunarli bo‘ladi. O‘zbek madaniy merosi uchun arab yozuvidagi qo‘lyozmalar, eski lotin nashrlari va kirill matnlarini qidiruvda bog‘lash muhimdir. Ammo yozuv almashtirish bilan matnni zamonaviylashtirish bir amal emas. Tarixiy shaklni o‘qishga qulay nusxa bilan bog‘lash, har ikkisining vazifasini belgilash taklif etiladi. Sun’iy intellekt tuzatish nomzodini taklif qiladi; qabul qilingan qarorning asosi saqlanadi. Shu usul avlodlar o‘rtasidagi yozuv to‘sig‘ini kamaytiradi va merosni zamonaviy tilga zo‘rlab moslashtirishdan saqlaydi. Qidiruv qulayligi manbaning tarixiy xususiyatini yo‘qotish hisobiga yaratilmasligi lozim.

[23] Boboyor G‘. O‘rxun-Enasoy bitiktoshlarining tili bugungi turkiy tillardan qay biriga yaqinroq?. — Oyina.uz. 10.11.2025. — Asosiy matn, «Birinchidan, yangi bitiglarning...» jumlasi.

OG‘ZAKI IJRODA MAZMUN, SHAKL VA IJRO KONTEKSTI

Mazmun — asarda ifodalangan munosabat va ma’nolar birligi; shakl — ularni tashkil etuvchi va anglatuvchi ifoda tartibidir. Og‘zaki merosda ular ijro orqali bog‘lanadi. Madayevning «Folklor so‘z san’atining asosini tashkil etadi.»[24] degan fikri bu munosabatni ochishga yo‘l beradi. Baxshi aytgan jumlaning so‘zlari transkripsiyada saqlanishi mumkin, lekin ohang, pauza va tinglovchiga murojaat o‘zgarsa, jumlaning madaniy vazifasi ham o‘zgaradi. Demak, shakl tayyor mazmunning tashqi qobig‘igina emas; uning anglanishida ishtirok etadi.

Masalan, hazil ohangidagi tanbeh neytral yozuvda qat’iy hukmdek o‘qilishi mumkin. Bu holda avtomatik transkripsiya lug‘aviy jihatdan to‘g‘ri bo‘lsa ham, madaniy talqin noto‘g‘ri chiqadi. Kontekst ma’noga keyin qo‘shiladigan bezak emas, uning shakllanish shartlaridan biridir. Shu bilan birga, ohangdan har qanday ma’noni chiqarish mumkin emas: sharh aniq ijro, janr va qabul vaziyatiga tayanishi kerak.

Raqamli ijro konteksti — og‘zaki asarning ijrochisi, tinglovchisi, vaqti, joyi va ifoda xususiyatlarini asl yozuv bilan bog‘lab saqlovchi madaniy ma’lumotlar majmuasidir. O‘zbek baxshichilik arxivida o‘zgartirilmagan yozuv, vaqt bilan bog‘langan transkripsiya va mutaxassis sharhi birga taqdim etiladi. Sun’iy intellekt qidiruvni tezlashtiradi; qatlamlardan birini boshqasiga tenglashtirmaydi. Sharhning dalilini ovozga qaytib tekshirish imkoniyati saqlansa, vositachilik yashirinmaydi. Natijada raqamli merosning ilmiy qiymati so‘zlarni yo‘qotmaslik bilangina emas, ifoda shaklining ma’no yaratishdagi ishtirokini ochish bilan ham belgilanadi. Xalq ijodining jamoaviyligi individual mahoratning yo‘qligini anglatmaydi. Shomirza Turdimov ogohlantiradi: ««Kollektiv ijod»ni ko‘pchilikning bir joyga to‘planib, muayyan asarni hashar yo‘li bilan yaratishi deb tushunish noto‘g‘ri.»[25] Bu fikr sun’iy intellekt tomonidan ko‘p matnni birlashtirib yaratishni xalq ijodining o‘zi bilan tenglashtirish mumkin emasligini tushuntiradi. An’ana jamoada yashaydi, ammo har bir ijro muayyan insonning xotirasi, tanlovi va munosabati orqali yuzaga chiqadi.

Baxshi tayyor syujetdan foydalanib, tinglovchiga mos urg‘u va obraz tanlashi mumkin. Uning hissasi faqat yangi satr qo‘shishda emas, tanish asarni qanday ma’noda aytganida ham namoyon bo‘ladi. Mashina turli ijrolardan

[24] Madayev O. O‘zbek xalq og‘zaki ijodi. — Toshkent: MUMTOZ SO‘Z, 2010. — B. 8.
[25] Turdimov Sh.; suhbatdosh Q. Ochil. O‘chmas sira donish chirog‘i. — Tafakkur, 2015. № 1. — Folklorning kollektiv ijod ekani haqidagi javob; elektron matn. Oyina.uz, 25.02.2022; veb-sarlavha: Boy folklor va adabiyotimiz soyasida qolib ketayotgandaymiz.

parchalarni yig‘sa, bu ijtimoiy munosabatni boshdan kechirgan bo‘lmaydi. Shu sabab sintetik matnning an’anaviy belgilarga o‘xshashligi uning jamoa tomonidan qabul qilinganligini isbotlamaydi. Bunday qabul keyingi madaniy amaliyotda o‘rganilishi mumkin.

Raqamli folklor katalogida asarning janri bilan birga aytgan, yozib olgan va nashrga tayyorlagan shaxslarni ko‘rsatish zarur. Ularning hissalari bir xil emas, lekin har biri manbaning bizga yetib kelishida ishtirok etadi. O‘zbekistonda mahalliy ijrochilar arxivini takomillashtirish ana shu mehnatni ko‘rinadigan qilishdan boshlanadi. Sun’iy intellekt yangi matn yaratganda uning yaratilish usuli belgilanadi; xalq varianti sifatida taqdim etilmaydi. Shunda jamoaviy an’ana noma’lum material zaxirasiga aylanmay, inson mahoratlari o‘rtasidagi davomiy munosabat sifatida namoyon bo‘ladi. Yangi texnologiyaning madaniy o‘rni ushbu munosabatga qanday qo‘shilayotgani bilan baholanadi.

BAXSHICHILIK VA MAQOM MEROSINING RAQAMLI TALQINI

Maqom merosining raqamli talqinida nota, ovozyozuv va ijro maktabi bir-birini to‘ldiruvchi manbalardir. Nota kuyning tarkibiy qurilishini o‘rganishga xizmat qilsa, ovozyozuv nafas, tembr va bezaklarni eshitish imkonini beradi. Maktab haqidagi ma’lumot esa ijrochining mahoratni qayerda va kimdan olganini tushuntiradi. Ularning birini mutlaq namunaga aylantirish merosning boshqa qatlamlarini cheklaydi. Murtazova zamonaviy musiqa ta’limi oldida «qadimiy merosimizni ilmiy asosda o‘rganish, uni yosh avlod ongiga singdirish va xalqaro miqyosda targ‘ib etish kabi muhim vazifalar turibdi»[26] deb qayd etadi. Mualliflik tahlilida bu vazifa ijrochilar o‘rtasidagi farqlarni eshittirish bilan bog‘lanadi. Sun’iy intellekt bir nechta ovozdan o‘rtacha tembr yaratganda, u muayyan maktabning uslubini avtomatik tiklagan bo‘lmaydi. Aksincha, individual nafas va ijro qarorlari yo‘qolishi mumkin. Tozalangan yozuv qulay eshitiladi, lekin shovqinni kamaytirish paytida nozik musiqiy bo‘yoq ham o‘zgargan-o‘zgarmagani mutaxassis tomonidan baholanishi zarur.O‘zbek musiqiy arxivlari uchun qisqa parchalarni ularning to‘liq ijrosiga bog‘lagan holda taqdim etish taklif qilinadi. Qiyosiy eshitishda bir parchaning turli talqinlari ketma-ket beriladi; algoritm vaqt bo‘yicha moslashtirishni yengillashtiradi. Shogird uchun farqning mavjudligi kamchilik emas, ustozning estetik qarorini anglash imkoniyatiga aylanadi. Raqamli tavsiyalar ommabop ijrochilarnigina takrorlamasdan, qayd etilgan mahalliy maktablarni ham ochib

[26] Murtazova S. XX asr o‘zbek maqom san’ati rivojiga hissa qo‘shgan namoyandalar faoliyatidan. — Tamaddun nuri. №9(84), II qism. B.210–212, 2026. — B. 212.

berishi lozim. Bunday ish milliy musiqani yagona sintetik ovozga qisqartirishdan saqlaydi va an’ana ichidagi ijodiy davomiylikni qo‘llab-quvvatlaydi.

FOLKLOR VARIANTLARI: AYNİYAT VA TAFO VUT

Ayniyat — obyektning muayyan munosabatda o‘zligini saqlashi; tafovut — qiyoslanayotgan obyektlar yoki holatlarning farqli xususiyatlaridir. Doston variantlari shu munosabatda o‘rganiladi. Bir syujetning saqlanishi ijrolarni umumiy an’anaga bog‘laydi; mahalliy toponim, hazil va tinglovchiga murojaatdagi farq esa har bir ijroning alohidaligini ko‘rsatadi. Ayniyatni mutlaq o‘xshashlikka aylantirish variantni xatodek baholaydi, tafovutni mutlaqlashtirish esa ijrolarning tarixiy aloqasini ko‘rinmas qiladi. Sun’iy intellektda o‘xshashlik foizi shu munosabatning faqat tanlangan belgilar bo‘yicha ifodasidir.

Yuldasheva tadqiqot masalasini «Til me’yorini saqlash, raqamli texnologiyalarning kommunikativ madaniyat, ta’lim va ommaviy ongga ta’siri bilan bog‘liq muammolar ko‘rib chiqiladi.»[27] deb belgilaydi. Me’yorni asrash bilan ijro farqini asrash o‘rtasida amaliy taranglik mavjud. Masalan, shevadagi so‘zni adabiy muqobilga avtomatik almashtirish qidiruvni osonlashtiradi, ammo obrazning mahalliy vazifasini o‘zgartirishi mumkin. Shu sabab me’yorlashtirilgan matn asl variant o‘rnini egallamaydi.

Ayniyat qonuni bu yerda tarixiy o‘zgarmaslikni isbotlovchi qonun sifatida emas, bir muhokamada asar, variant va tahrir tushunchalarini almashtirmaslik talabi sifatida ishlaydi. O‘zbekiston folklor korpusida bir dostonning turli ijrolari o‘zaro bog‘lanadi, har birining qayd sanasi va ijrochisi saqlanadi. Algoritm yaqin parchalarni ko‘rsatadi; folklorshunos qaysi umumiylik syujetga, qaysi tafovut ijro sharoitiga tegishliligini asoslaydi. Shu usul raqamli saqlashni yagona to‘g‘ri matn yaratishga qisqartirmaydi va an’ananing o‘ziga xosligi o‘zgarishlar orqali ham davom etishini ochadi.

SHEVALAR, FRAZEOLOGIZMLAR VA MADANIY XOTIRA

Frazeologik birlikning ma’nosi tarkibidagi so‘zlarni alohida tarjima qilish orqali ochilmaydi. Shevada esa bu muammoga mahalliy talaffuz va tarixiy qatlam qo‘shiladi. Jamalatdinova xulosasiga ko‘ra, «Xorazm shevalaridagi frazemalar etimologik ko‘p qatlamliligi, lingvokulturologik boyligi va dialektal o‘ziga xosligi bilan ajralib turadi.»[28] Ushbu fikr o‘zbek etnomadaniyatini

[27] Yuldasheva F. Русский язык в эпоху цифровой трансформации: проблемы и перспективы. — O‘zMU xabarlari. T. 1, № 1.11.1. DOI: 10.69617/nuuz.v1i1.11.1.9897, 2025. — Elektron nashr, Annotatsiya (Abstract) bo‘limi; sahifalanmagan.

[28] Jamalatdinova L. Xorazm shevalarida frazemalarning etimologik va lingvokulturologik xususiyatlari. — Tamaddun nuri. №5(80), II qism. B.157–159, 2026. — B. 159.

o‘rganuvchi sun’iy intellekt tizimi uchun iboraning yaxlit qo‘llanishini saqlash zarurligini ko‘rsatadi.

Frazema tarkibidagi forsiy yoki arabiy manba milliy madaniyatga tashqi, begona element sifatida avtomatik baholanmaydi. O‘zlashtirilgan birlik uzoq davom etgan muloqotda mahalliy ma’no kasb etishi mumkin. Demak, so‘zning etimologik kelib chiqishi bilan uning hozirgi madaniy mansubligi turli savollarga javob beradi. Tizimning faqat kelib chiqish tiliga qarab tasniflashi o‘zbek nutqining tarixiy ko‘p qatlamliligini noto‘g‘ri aks ettiradi. Shu bilan birga, har qanday mahalliy iborani qadimiy deb ko‘rsatish ham asossizdir; ilk qayd va hozirgi qo‘llanish bir-biridan farqlanadi.

Raqamli sheva lug‘atlarida iboraga ma’no, vaziyat, aytilish ohangi va tushunishdagi ehtimoliy qiyinchilikni qo‘shish taklif etiladi. Bir hududda hazil bo‘lgan ifoda boshqa muhitda haqoratdek tuyulishi mumkin. Sun’iy intellekt bunday parchani izohlashda so‘zlovchining niyatini qat’iy belgilamasdan, mavjud kontekstga tayanishi kerak. Lug‘atdagi misollar aniq qayddan olinadi; sun’iy yaratilgan namunalar o‘quv misoli sifatida ajratiladi. Shu yo‘l bilan sheva boyligi bezakli ro‘yxat darajasida qolmay, o‘zbek madaniy muloqotining tirik ma’no mexanizmi sifatida o‘rganiladi. Qiyosiy madaniyatshunoslikda boshqa turkiy xalq tajribasi o‘zbek materialini tushuntirish uchun tayyor javob emas, yangi savol manbai bo‘lishi mumkin. Anvar Bo‘ronov qarachaylar tiliga oid kuzatuvida «ammo folklorda o‘z qatlam so‘zlar, so‘zlardagi milliy ruh saqlanib qolgan»[29] deb qayd etadi. Bu bayon o‘zbek shevalarida ham xuddi shu natija aniqlanganini anglatmaydi. U kundalik nutqda kamaygan birliklar folklor ijrosida saqlanganmi, degan tekshiriladigan savolni qo‘yishga imkon beradi.

Sun’iy intellekt yordamida zamonaviy suhbat va an’anaviy ijro matnlaridagi so‘zlarni qiyoslash mumkin. Biroq kam uchrash so‘z yo‘qolganini bildirmaydi: u faqat maxsus marosimda ishlatilishi yoki yozuvga kam tushgan bo‘lishi mumkin. Shuningdek, folklordagi qadimiy shakl hozir ham barcha ijrochi tomonidan bir xil anglanadi, deb bo‘lmaydi. So‘z saqlanishi va ma’noning faol bilinishi alohida o‘rganiladi. Bu farq madaniy davomiylikni faqat lug‘aviy qoldiqlar soni bilan o‘lchashga to‘sqinlik qiladi. O‘zbek hududiy korpuslarida kam qo‘llanadigan so‘zlar uchun ijrochi izohini biriktirish foydali bo‘ladi. Tizim ehtimoliy arxaik birlikni ko‘rsatadi, mahalliy bilim egasi uning vazifasini tushuntiradi. Boshqa turkiy tildagi o‘xshash shakl qiyos uchun beriladi, etimologik ayniyat esa maxsus dalil talab qiladi. Ana shunda raqamli

[29] Bo‘ronov A. Yevropoid qiyofasidagi turkiy tilli qarachaylilar – ular bugun qanday yashashadi?. — Ma’naviy hayot. 2024. № 1; Oyina.uz elektron qayta nashri, 25.06.2024. — elektron matnning oxirgi abzasi. Bosma jurnal sahifasi o‘rniga tekshirilgan elektron matn lokatori berildi.

resurs tillarni bir-biriga sun’iy yaqinlashtirmasdan, ularning tarixiy muloqoti va mustaqil ma’no taraqqiyotini ochadi. Qiyos milliy merosning o‘ziga xosligini keng madaniy munosabatlar doirasida ko‘rishga xizmat qiladi.

ONOMASTIKA VA FOLKLOR OBRAZLARINING RAQAMLI TALQINI

Folklordagi ism shaxsni atash bilan cheklanmaydi: u kutilgan xulq, hazil yoki ijtimoiy mavqeni ham ishora qilishi mumkin. Matyakubov bu xususiyatni «Avtostereotiplar onimlar tarkibida barqarorlashib, avlodlar o‘rtasida etnik qadriyatlar va ijtimoiy ideallarni translatsiya qilish mexanizmi vazifasini o‘taydi.» [30] degan fikr bilan ifodalaydi. Semiotik yondashuvda nomning yozilishi, u ko‘rsatayotgan obyekt va qo‘llanish vazifasi farqlanadi. Bir xil belgi turli janrda boshqa munosabatni anglatishi mumkin. Afandi haqidagi latifada ism muayyan badiiy vazifaga ega; tarixiy arxivdagi xuddi shunday ism esa alohida insonni ko‘rsatadi. Sun’iy intellekt ularni yagona ma’lumot obyektiga birlashtirsa, badiiy xususiyat biografik faktga aylanib qolishi mumkin. Shuning uchun shaxs, personaj, laqab va umumlashma tip o‘rtasidagi chegara katalogda belgilanadi. Qaysi holatda atama hazil sifatida aytilganini bilish uchun jumlaning o‘zi ba’zan yetarli bo‘lmaydi; suhbat vaziyati va janr ham hisobga olinadi.

Onomastik kontekst — ism yoki nomning kimni, nimani va qanday madaniy munosabatni ifodalayotganini belgilaydigan janriy, tarixiy va nutqiy shartlar majmuasidir. O‘zbek elektron folklor resurslarida personajlar lug‘atiga ushbu kontekstni qo‘shish ma’qul. Algoritm o‘xshash nomlarni bog‘lashni taklif qiladi, tasdiqlangan aloqa bilan ehtimoliy aloqa ajratiladi. Natijada xalq hajviyatining umumlashtirish usuli saqlanib, tirik insonlarga asossiz tavsif berish xavfi kamayadi. Bu tahlil nom orqali madaniy xotiraning ishlashini ochadi va milliy xarakterni o‘zgarmas belgilar yig‘indisiga qisqartirishdan saqlaydi.

FOLKLORIZM VA ADABIY MEROS BILAN RAQAMLI MULOQOT

Zamonaviy she’rda folklor belgisining uchrashi o‘sha she’rni xalq og‘zaki ijodi namunasiga aylantirmaydi. Muallif an’anaviy timsolni shaxsiy estetik maqsadga bo‘ysundirishi, uning ma’nosini o‘zgartirishi yoki unga tanqidiy munosabat bildirishi mumkin. Eshanova tadqiqotida «etnografik folklorizmlar

[30] Matyakubov X. Toponimik nominatsiya jarayoni kognitiv jihatdan tahlili. — Tamaddun nuri. №5(80), I qism. B.322–325, 2026. — B. 324.

etnomadaniy kontekstni yoritish vositasi ekanligi asoslandi»[31]. Bu xulosadan kelib chiqib, raqamli qidiruvda timsolning borligi bilan uning vazifasini ajratish zarur, degan mualliflik pozitsiyasi ilgari suriladi.

Raqamli folklor allyuziyasi — yangi matnda an'anaviy obraz, ibora yoki syujetga ishorani uning avvalgi manbasi va yangi badiiy vazifasi bilan bog'lab ko'rsatadigan talqin birligidir. Masalan, she'rdagi ostona timsoli oilaviy muqaddaslikni ham, chiqib ketish istagini ham anglatishi mumkin. Germenevtik qism–butun munosabatida ostona obrazi she'rning umumiy ziddiyati orqali, she'r ma'nosi esa shu obrazning vazifasi orqali aniqlashtiriladi. Qismdan butunga va butundan qismga qaytish dastlabki talqinni tuzatadi. Sun'iy intellekt kalit so'zni topadi; mazkur o'zaro tekshirishni avtomatik yakunlamaydi.

O'zbek adabiy merosi platformasida folklor manbasiga ishora, matnlararo o'xshashlik va to'g'ridan-to'g'ri iqtibos munosabatlarini farqlash taklif etiladi. Shunda yangi asar an'ananing mexanik davomi sifatida emas, u bilan ijodiy muloqot sifatida ko'rinadi. Bunday izoh sun'iy intellektdan foydalanuvchi ijodkor uchun ham ahamiyatli: tayyor timsolni qo'shishning o'zi milliy mazmunni kafolatlamaydi. Milliylik obrazlar ro'yxatida emas, ular orqali qo'yilgan madaniy savolda namoyon bo'ladi. Taklif etilgan talqin tartibi mualliflik ovozi, estetik o'zgarish va an'anaviy xotiraning o'zaro munosabatini saqlab qolishga qaratilgan.

PARALLEL KORPUSLAR VA MADANIY TARJIMA

Parallel korpus bir asarning turli tillardagi matnlarini bir-biriga moslashtirib o'rganish imkonini beradi. Muhammadiyeva «Boburnoma» asosida bunday resurs tuzish «til tipologiyasi, tarjimashunoslik va kompyuter lingvistikasi sohalarida tadqiqot olib borish imkoniyatlarini beradi» [32] deb ta'kidlaydi; parcha inglizcha annotatsiyadan tarjima qilindi. Korpusning qiymati lug'aviy muqobilni topishdan tashqari, tarjimada qaysi tarixiy ma'no ochilgani yoki o'zgarganini ko'rishdadir. O'zbekcha, turkcha va qozoqcha nusxalarda bir xil joy tasviri turlicha jumlalarga bo'linishi mumkin. Shuning uchun mexanik satr tengligi mazmun tengligiga aylantirilmaydi. Unvon, taqvim sanasi yoki kiyim nomi tarjimon izohisiz tushunarsiz qolganda, sun'iy intellekt zamonaviy muqobilni tanlashga moyil bo'lishi mumkin. Tarjimonning izohi asosiy matnga

[31] Eshanova Z. Istiqlol davri o'zbek she'riyatida an'analar sathidagi sintez. — Hamkor konferensiyalar. T.1, №18. B.479–486, 2025. — Annotatsiya bo'limi; sahifalanmagan veb-nashr.
[32] Muhammadiyeva D. "Boburnoma" matni o'zbekcha-turkcha-qozoqcha parallel korpusining tarjimaga asoslangan ekstralingvistik va intralingvistik ma'lumotlar bazasi. — O'zMU xabarlari. T.1, №1.12. B.312–315, 2025. — Elektron nashr, Abstract bo'limi; sahifalanmagan. Inglizcha annotatsiyadan muallifning o'zbekcha tarjimasi.

aralashtirilsa, keyingi foydalanuvchi uni tarixiy muallifning gapi deb o‘qiydi. Bu xatoni bartaraf etish uchun asosiy bayon va keyingi sharh chegarasi saqlanadi.

Milliy raqamli meros loyihalarida tarjima juftlariga nashr yili, tarjimon, tayanch nusxa va moslashtirish birligi haqida ma’lumot biriktirish tavsiya etiladi. **Madaniy tarjima tafovuti — lug‘aviy yaqinlik saqlangan holda tarixiy vazifa, qadr yoki qo‘llanish muhitida yuzaga kelgan ma’no farqidir.** Bunday farqni nuqson deb belgilashdan avval tarjimaning vazifasi o‘rganiladi. Ommabop talqin bilan ilmiy nashr turli o‘quvchiga mo‘ljallangan bo‘lishi mumkin. Korpus ushbu tafovutlarni ko‘rinadigan qilsa, sun’iy intellekt turkiy tillar yaqinligini madaniy birxillik bilan almashtirmaydi va tarixiy o‘zbek matnining o‘ziga xosligini xalqaro muloqotda saqlaydi.

BOLALAR FOLKLORINI RAQAMLI MUHITDA TAQDIM ETISH

Bolalar folklorini raqamli muhitda taqdim etishda yoshga moslikni faqat matn uzunligi bilan o‘lchab bo‘lmaydi. Qayumov taklif etadi: «Bolalarga dastlab tez aytishlar, keyin topishmoqlar, keyin miflar(asotirlar), keyinchalik biroz murakkab syujetli ertaklar matnlarini o‘rgatish lozim.»[33] Ushbu ketma-ketlikni barcha bola uchun qat’iy algoritmga aylantirish shart emas; undan janrning nutqiy va tasavvurga oid murakkabligini hisobga olish tamoyili kelib chiqadi.

Tez aytishda tovushlar harakati, topishmoqda yashirin munosabatni topish, ertakda esa voqealar sababini anglash ustuvor bo‘ladi. Sun’iy intellekt bu vazifalarni bir xil savol-javob shakliga keltirsa, janrlar o‘rtasidagi madaniy farq yo‘qoladi. Masalan, topishmoqqa darhol tayyor javob chiqarish bolaning qiyoslash faoliyatini qisqartiradi. Tizim avval ishora berishi, so‘ng bolaning o‘z talqinini tinglashi mumkin. Bu yerda samaradorlik tez javob olishda emas, fikrlash va birga aytish imkoniyatida ko‘rinadi.

O‘zbekiston sharoitida ota-ona va bola birgalikda foydalanadigan folklor ilovalari uchun og‘zaki muloqotni davom ettiruvchi topshiriqlar taklif qilinadi. Kattalarning eslagan varianti bola eshitgan variantdan farq qilsa, bu xato sifatida emas, avlodlararo suhbat mavzusi sifatida qabul qilinadi. Ilovaning madaniy vazifasi oila a’zosini almashtirish emas, uning bilimini faollashtirishdir. Amaliyotni baholashda ekranda o‘tkazilgan vaqtdan ko‘ra bolaning qayta aytishi, savol berishi va boshqa variantni eshitishga qiziqishi kuzatilishi lozim. Bular kelgusi sinov uchun taklif etilgan belgilar, tayyor empirik natijalar emas.

RAQAMLI MADANIY XIZMATLARDA TIL VA FOYDALANUVCHI ISHTIROKI

[33] Qayumov O. Boshlang‘ich sinf o‘quvchilari axloqiy tarbiyasida bolalar folklorining o‘rni. — Tamaddun nuri. №11(62). B.9–11, 2024. — B. 11.

Sun’iy intellektga asoslangan madaniy xizmatning o‘zbekcha interfeysida atamalar tushunarli bo‘lishi foydalanuvchining ishtirokini belgilaydi. Qiyin texnik so‘zlarni o‘zbekchalashtirishning o‘zi yetarli emas; yangi birikma kutubxonachi, ijrochi va oddiy o‘quvchi uchun qanday ma’no anglatayotgani tekshiriladi. Baxtiyor Mengliyevning «Inson o‘zi uchun tushunarli, ixcham va ifodali bo‘lgan so‘zni tabiiy ravishda tanlaydi.»[34] degan fikri atama qabul qilinishida til egasining faol rolini ko‘rsatadi.

Masalan, portal uchun bir xil amalni anglatuvchi bir nechta sun’iy atama tanlansa, foydalanuvchi ular o‘rtasida asossiz farq izlaydi. Aksincha, saqlash, nashr qilish va ommaga ochish bir so‘z bilan berilsa, madaniy material taqdiriga oid turli qarorlar tushunarsiz bo‘ladi. Tushunarlilik ma’noni soddalashtirib yo‘qotish emas, amalning oqibatini aniq aytishdir. Shu bois interfeys tili madaniyatshunoslik tadqiqotining chetdagi texnik masalasi bo‘lib qolmaydi.

O‘zbek etnomadaniy arxivlarida atamalarni tanlash uchun kichik foydalanuvchi muhokamalari tashkil etish mumkin. Unda bir so‘zni yoqtirishdan ko‘ra, ishtirokchining u orqali qaysi amalni tushungani aniqlanadi. Sun’iy intellekt muqobil ifodalar taklif qiladi, lekin ommalashganlikni yagona mezon deb olmaydi. Mahalliy ijrochilarning kasbiy nomlari tushuntirish bilan saqlanishi muhim. Bunday ish milliy tilni faqat ekran bezagi sifatida emas, madaniy xizmatni anglab boshqarish vositasi sifatida rivojlantiradi. Natijada raqamlashtirish jarayonida til egasining ovozi qaror mazmuniga kirib boradi.

XULOSA

Yuqoridagi tahlil raqamli texnologiyalar til va nomoddiy madaniy merosni saqlashda muhim vosita bo‘lishi bilan birga, ularning natijasi manbaning qamrovi va qayd etilish sharoitiga bevosita bog‘liqligini ko‘rsatadi. Milliy til korpusi butun til amaliyotining aynan o‘zi emas, balki hujjatlashtirilgan qatlamidir. Shu sabab korpusning hududiy, janriy va ijtimoiy qamrovi ochiq ko‘rsatilishi, mavjud bo‘shliqlar esa sun’iy yaratilgan matnlar bilan yashirilmasligi lozim.

Folklor namunalarini raqamlashtirishda qo‘lyozma, ilk nashr, qayta nashr, moslashtirilgan matn va ijro yozuvi o‘zaro farqlanishi zarur. Og‘zaki ijro mazmuni so‘zlar bilangina belgilanmaydi; ohang, pauza, tembr, ijrochi va tinglovchi munosabati ham uning madaniy ma’nosini shakllantiradi. Shuning uchun asl audioyozuv, vaqt belgilari bilan bog‘langan transkripsiya va mutaxassis sharhini birgalikda saqlash ilmiy ishonchlilikni oshiradi.

[34] Mengliyev B. Kabinetda o‘ylab topilayotgan atamalar – atamashunoslikdagi xaoslar haqida Mengliyev tahlili. — Oyina.uz. 04.09.2026. — «Tarixiy tajriba ko‘rsatadiki» abzasi.

Sun’iy intellekt matnlarni qidirish, qiyoslash, transkripsiya qilish va tasniflashni yengillashtiradi, biroq u tarixiy manbaning o‘rnini bosa olmaydi hamda noaniq belgilar yoki madaniy ma’nolarni mustaqil ravishda uzil-kesil hal qilmaydi. Algoritm taklif qilgan natija tekshiriladigan taxmin sifatida belgilanishi, asl tasvir yoki ovoz bilan qayta solishtirish imkoniyati saqlanishi kerak. Shuningdek, sheva birliklari, frazeologizmlar, folklor personajlari, tarjima variantlari va bolalar folklorini raqamli taqdim etishda mahalliy kontekst hamda foydalanuvchi tajribasi hisobga olinishi lozim. Raqamli platformalar ijrochi, yozib oluvchi, muharrir, tarjimon va tadqiqotchining hissasini alohida qayd etishi, sun’iy yaratilgan materiallarni an’anaviy manbalardan aniq ajratishi maqsadga muvofiq. Demak, milliy merosni raqamlashtirishning asosiy mezoni ma’lumot hajmini ko‘paytirish emas, balki manbaning kelib chiqishi, talqin chegaralari va madaniy tafovutlarini ishonchli saqlashdir.

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JÖRA FOZILNING «BUXORO MALIKASI» QISSASIDA MUROJAAT BIRLIKLARNING IJTIMOIY-LISONIY TAHLILI

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Annotatsiya: *Mazkur ilmiy maqolada taniqli adib Jöra Fozil qalamiga mansub «Buxoro malikasi» tarixiy qissasida qöllanilgan murojaat birliklari (vokativlar) sotsiolingvistik aspektda tadqiq etiladi. Tadqiqot doirasida qadimgi Poykent, Romitan va Buxoroning arablar tomonidan zabt etilişi bilan boğliq voqealar tasvirlangan matndan 16 ta xarakterli nutq vaziyati tanlab olindi. Işda personajlar nutqidagi murojaat vositalari tahlili orqali öşa davr jamiyatidagi ijtimoiy iyerarxiya, sulolaviy aloqalar, harbiy hamda huquqiy subordinatsiya, şuningdek, konfessional birdamlik masalalari oçib berilgan. Şu bilan birga, Rojer Braun va Albert Gilmanning «hokimiyat va birdamlik» nazariyasi asosida matndagi assimmetrik va simmetrik muloqot şakllari, sakral-mifologik murojaatlar hamda leksik-etimologik qatlamlarning sotsiopragmatik vazifalari çuqur yoritilgan.*

Kalit sözlar: *Jöra Fozil, «Buxoro malikasi», sotsiolingvistika, murojaat birliklari, vokativ, hokimiyat va birdamlik, ijtimoiy iyerarxiya, subordinatsiya, pragmatika.*

Abstract: *This scientific article explores the sociolinguistic characteristics of address terms (vocatives) in the historical novella «The Queen of Bukhara» (Buxoro malikasi) by the prominent writer Jura Fozil. The study is based on 16 representative speech contexts selected from the text, which depict the historical events surrounding the Arab conquest of the ancient cities of Paykend, Romitan, and Bukhara. Through the analysis of communicative address strategies employed by the characters, the research elucidates the social hierarchy of the era, dynastic relations, judicial and military subordination, and confessional integration. Furthermore, drawing upon Roger Brown and Albert Gilman's «Power and Solidarity» framework, the paper examines asymmetric and symmetric communicative models, sacred-mythological invocations, and the pragmatic functions of etymological layers using comparative-historical and sociopragmatic methods.*

Keywords: *Jura Fozil, «The Queen of Bukhara», sociolinguistics, address terms, vocative, power and solidarity, social hierarchy, subordination, pragmatics.*

KIRIŞ

Özbek adabiyotida milliy ötmiş manzaralarini badiiy tasvirlaş orqali xalqimizning tarixiy xotirasi va özlikni anglaş tuyğularini yuksaltirişga ulkan hissa qöşgan ijodkorlardan biri – taniqli adib va Özbekiston Yozuvçilar uyuşmasi a'zosi Jöra Fozildir. Adibning serqirra ijodiy merosi qadimiy va boqiy Buxoro zamini, uning boy ma'naviy ildizlari hamda şonli tarixi bilan çambarças boğliqdir. Xususan, uning "Buxoro malikasi" tarixiy qissasi qadimiy Poykent, Romitan hamda Buxoro şaharlarining arab bosqinçilari tomonidan istilo qilinişi davridagi murakkab jarayonlarni, Buxoro xalqining ozodlik va erk yölidagi mardonavor kuraşini atrofliça aks ettirgani bilan ham adabiyotşunoslik, ham tilşunoslik fanlari uçun muhim manba bölib xizmat qiladi.

Muallifning 85 yillik yubileyi nişonlanayotgan ayni paytda uning asarlari tilini zamonaviy lisoniy paradigmalar, xususan, jadal rivojlanib borayotgan sotsiolingvistika fani talablari asosida örganiş alohida dolzarb ahamiyat kasb etadi. Ma'lumki, badiiy matnda qahramonlarning xarakteri, ularning jamiyatdagi ijtimoiy mavqei, özaro muloqot masofasi hamda ruhiy keçinmalari birinçi navbatda murojaat birliklari (vokativlar) orqali yaqqol namoyon böladi. Tarixiy asar personajlarining muloqot tizimini örganiş faqat tor doiradagi leksik tahlil bilan çeklanib qolmay, balki öşa davr jamiyatidagi siyosiy-ijtimoiy ziddiyatlar, gölib va mağlub munosabatlari hamda sulolaviy an'analarning tildagi aksini töla oçib beradi. Mazkur maqolada Jöra Fozilning badiiy matnda qahramonlar nutqini şakllantirişdagi sotsiolingvistik mahorati va vokativlarning funksional-semantik xususiyatlari keng qamrovli faktik materiallar asosida tadqiq etiladi.

Tadqiqot materiali va metodlari. Mazkur tadqiqotning empirik bazasini taniqli yozuvçi Jöra Fozilning "Buxoro malikasi" tarixiy qissasi matni taşkil etadi. Asardan uzluksiz tanlab oliş (continuous sampling) usuli orqali qadimiy Buxoro, Poykent va Romitanning arab bosqinçilari tomonidan istilo qilinişi davridagi ijtimoiy-siyosiy munosabatlarni özida eng yorqin mujassam etgan 16

ta xarakterli nutqiy vaziyat (murojaat birliklari iştirok etgan replika va monologlar) ajratib olindi.

Murojaat birliklarini sotsiolingvistik va sotsiopragmatik jihatdan xolis tahlil qilişda quyidagi kompleks ilmiy metodlardan foydalanildi:

Sotsiolingvistik distributiv tahlil: Vokativlarning muloqot iştirokçilari yoşi, jinsi, ijtimoiy mavqei va muloqot vaziyatiga köra taqsimlanişini aniqlaş.

Qiyosiy-sotsiopragmatik metod: R. Braun va A. Gilmanning «Hokimiyat va birdamlik» modeli hamda J. Liçning xuşmuomalalik tamoyillari asosida assimmetrik va simmetrik muloqot strategiyalarini oçib beriş.

Leksik-etimologik va lingvomadaniy tahlil: Murojaat tarkibidagi unvon, mansab va teonimlarning tarixiy-etimologik ildizlarini (söğdiy-eroniy, qadimiy turkiy va arabça-islomiy qatlamlar) qiyosiy örganiş.

Kvantitativ (miqdoriy) tahlil: Ajratib olingan murojaat birliklarining funksional-semantik turlari böyiça statistik uluşini hisoblaş va umumlaştiriş.

Nazariy-metodologik asos: R. Braun va A. Gilman modeli. Badiiy matnda personajlarning özaro muloqot tizimi va murojaat şakllarini sotsiolingvistik jihatdan baholaşda amerikalik tilşunoslar Rojer Braun (Roger Brown) va Albert Gilman (Albert Gilman) tomonidan 1960 yilda fanga kiritilgan «Hokimiyat va birdamlik» modeli yetakçi nazariy baza bölib xizmat qiladi [Brown, Gilman, 1960: 253–276]. Mazkur model ikki asosiy ijtimoiy öq kesişuvida şakllanadi:

1. Hokimiyat öqi: Ijtimoiy notenglik va iyerarxiyaga asoslanadi (assimmetriya). Yuqori turuvçi şaxs quyidagiga nisbatan erkin, ba’zan buyruq ohangida yoki «sen»lab murojaat qilsa, quyi maqomdagi şaxs masofa saqlovçi, ehtiromli unvonlar («şohim», «malikam», «hazratim») va «siz»laş şakllarini qöllaydi.

2. Birdamlik öqi: Muloqotdagi yaqinlik, öxşaşlik va ruhiy muştaraklikni körsatadi (simmetriya, «azizim», «birodarim», «döstim»). Umumiy maqsad, qarindoşlik yoki umumiy tahdid va duşman oldida ijtimoiy masofalar qisqarib, uşbu model faollaşadi.

3. Tarixiy asarlarda, xususan, uruş va bosqinçilik davrlari tasvirlangan matnlarda uşbu ikki öq örtasida doimiy dinamik harakat kuzatiladi. Tinç va rasmiy vaziyatlarda Hokimiyat semantikasi ustun kelib, saroy etiketi hamda subordinatsiya qat’iy saqlansa, ekstremal xavf paytida Birdamlik semantikasi faollaşadi va his-tuyğuga asoslangan lisoniy yaqinlaşuv röy beradi.

Tadqiqot natijalari va tahlil. Qissadan tanlab olingan 16 ta faktik murojaat birligi funksional, ijtimoiy-huquqiy, oilaviy-sulolaviy va konfessional

xususiyatlariga köra 7 ta asosiy tematik yönalişga ajratilib, sotsiolingvistik tahlildan ötkazildi:

1. Sakral-mifologik murojaat va e'tiqodiy birdamlik:

«Ey Siyovuş, şahid öğlon! Sen tiriklarning tirigisan, şu bois ruhingdan madad istab keldim».

«Ey Ahuramazda, neçun u qonxörlarga, ölaksaxör qizğunlarga ölim yubormaysan?! Bunaqada butun olam qora kuçlar saltanatiga aylanmaydurmi, Ahramanning qöli baland kelmaydurmi?»

Uşbu örinda Bidun Buxorxudotning Romitanning bosib olingani haqidagi xabardan söng şahar asosçisi Siyovuş qabriga borib yuzlanişi sotsiolingvistik nuqtayi nazardan sakral vokativ hisoblanadi. Dunyoviy vositalar ojiz qolganda podşoh ajdodlar ruhi va oliy ilohiy kuçlarga («Ey Ahuramazda») yuzlanadi. «Şahid öğlon» va «tiriklarning tirigi» epitetlari qadimiy mahalliy e'tiqoddagi ölmaslik tuşunçasini ifodalasa, bosqinçilarning «qonxörlar» va «Ahraman» kuçlari bilan tenglaştirilişi degumanizatsiya orqali ğanimni batamom begonalaştiriş (othering) jarayonini körsatadi.

2. Sulolaviy maqom va oilaviy muloqotdagi assimmetriya:

«– Baxayr, şohim, tongla şabistonimga taşrif buyurmişsen?»

«– Ustozingning aytişiça, ot miniş, qiliçbozlik, çavgon öynaşga uquving yaxşi emiş... Öğlim, sen Buxorodek buyuk bir mamlakat taxt vorisi – valiahd şahzodasan... Uqdingmi, öğlim?»

Malika Qabojning yotoğida eriga qarata «şohim» deb murojaat qilişi oilaviy munosabatlarda erga nisbatan hurmat bilan birga uning mutlaq hukmdorlik maqomini tan oliş belgisidir. R. Braun va A. Gilman nazariyasiga köra, bu yerda er-xotinlik birdamligidan köra davlat maqomining ustunligi lisoniy jihatdan dominant bölib çiqmoqda. Öğliga murojaatda esa «Öğlim» vokativi ikki marta qöllanib, dastlab samimiy onalik mehrini (birdamlik semantikasi), nutq söngidagi «Uqdingmi, öğlim?» söroq-vokativi esa bölajak hukmdorga nisbatan qat'iy pedagogik-institutsional talabni anglatadi.

3. Harbiylar va oliy hukmdor munosabatidagi subordinatsiya:

«– Malikam, ruxsat et, laşkarni qal'a taşqarisiga boşlab çiqay, la'nati arablarning ta'zirini beray».

Laşkarboşi Xinning murojaatidagi «Malikam» birligi sof institutsional harbiy-ma'muriy subordinatsiyani ifodalaydi. Sarkarda jangovar şijoatga ega bölişiga qaramay, amrsiz qadam bosolmasligini bildiradi va qaror qabul qiliş huquqi faqat oliy hukmdorga tegişli ekanini lisoniy jihatdan tasdiqlaydi.

«La’nati arablar» birikmasi esa duşmanga nisbatan ijtimoiy-psixologik nafratni aks ettiruvçi peyorativ ifodadir.

4. Ekstremal krizis davrida birdamlik (Solidarity) modeli:

«– Sendan qançalar qarzdorman, azizim! Sen köp marhamatlarga loyiqdursan. Yoğiyni da’f etaylik, boşingdan zar soçgayman, zar!»

Malika Qabojning jang rejasi tuzilayotgan pallada öz sarkardasi Hamukka nisbatan «azizim» deya murojaat qilişi va unga «sen»lab söz qotişi diqqatga loyiq. Bu örinda oliy hukmdor va fuqaro örtasidagi iyerarxik tösiq vaqtinça yöqoladi. Sotsiolingvistikada bu ekstremal vaziyatdagi birdamlik (solidarity over power) deyiladi. Umumiy duşman xavfi oldida sadoqatli sarkardaga mehr va minnatdorlik ifodasi orqali emotsional yaqinlik hosil qilinadi.

5. Siyosiy-diplomatik nizo va kinoyali vokativlar:

«– Ey, Xurosonning buyuk amiri! Sen şu yurak bilan Buxoroni fath etişga bel boğlamişmisan?! Nahot huzuringga kelgan mehmonni qiliç bilan qarşilasang».

«Ey Tarxun, uluğ podşoh! Men beçora yana kimning oyoğiga boş uray?»

«Hoy musulmon laşkari, orqangizga qarangiz!»

Amir Sa’id huzuriga kirgan qahramonning «Ey, Xurosonning buyuk amiri!» deya yuzlanişi sotsiopragmatik jihatdan psevdo-hurmat (kinoyaviy assimmetriya) hodisasidir: rasmiy unvon orqali adresatning maqomi tilga olinsa-da, keyingi ritorik söroqlar va «sen»laş orqali uning qörqoqligi foş etiladi. Malika Qabojning Tarxunga murojaatida esa özini «men beçora» deya kamsitib, adresatni «uluğ podşoh» darajasiga kötarişi orqali sun’iy assimmetriya va siyosiy iltijo semantikasi yaratiladi. Jang maydonidagi «musulmon laşkari» xitobi esa kollektiv konfessional birdamlik çaqiriğidir.

6. Sud-huquqiy munosabatlar va axloqiy hakamlik:

«– Qani söyla, ey yigit, şu navjuvon yoşingda qanday qabohatga qöl urmişsanki, qozi seni ölimga hukm etibdur?»

«Ha la’nati çol, önlab xotin ustiga bir yigit sevgilisiga tikkan közlaring öyilsin...»

«– Ey, uluğ Kohin, gap mening amrim vojibligida emas, axir! Gap e’tiqod xususida ketayotir-ku! Nahot tuşunmaysan?»

Taxtda ötirgan Malika Qabojning mahkumga qarata «ey yigit» deya yuzlanişi Brown va Gilman nazariyasidagi mutlaq vertikal hokimiyat (unilateral power) namunasidir. Zöravon qişloq oqsoqoliga ğoyibona qaratilgan «la’nati çol» ifodasi esa peyorativ vokativ sifatida hukmdorning axloqiy hakamlik rolini körsatadi. Kohin va podşoh dialogida esa «podşohim» va «Ey, uluğ Kohin»

unvonlari orqali diniy va dunyoviy institutlar örtasidagi statuslar muvozanati hamda davlat amrining ustunligi namoyon böladi.

7. Epik-romantik qatlam va ekzistensial monolog:

«Kimsan, ey gözal qiz, bunday ajoyib qöşiq aytişni kimdan örganding?..» – «Nahot meni tanimasang, barno yigit?..»

«Ey tangrim, nahot bu arab atalmiş balodan omonlik bölmasa? Najot yöli qayda? Qayda u saodat yöli? Nima qilay, kimga suyanay, kimdan madad kutay?»

Asarning afsonaviy-romantik qatlamidagi «ey gözal qiz» va «barno yigit» vokativlari qahramonlarning asl martabasi ma'lum bölguniga qadar gorizontal simmetriya asosiga quriladi. Buning aksiça, Qabojning öz-öziga monologidagi «Ey tangrim» vokativi dunyoviy çora-tadbirlar tugagan paytda oliy adolatga yolvorişni va yetakçining içki ekzistensial iztirobini aks ettiradi.

Murojaat birliklarining kvantitativ (miqdoriy) tahlili

Jöra Fozilning "Buxoro malikasi" qissasidan tanlab olingan 16 ta xarakterli murojaat birligining sotsiopragmatik funksiyalari böyiça olib borilgan miqdoriy tahlil quyidagi statistik manzarani beradi:

Hokimiyat va subordinatsiya (Assimmetrik vokativlar) – 37,5% (6 ta): «Şohim», «Malikam», «Ey yigit», «Podşohim», «Öğlim» (pedagogik imperativ), «Ey, Xurosonning buyuk amiri!» (kinoya). Qadimgi Buxoro davlatçiligida saroy etiketi va ma'muriy iyerarxiya ustunligini körsatadi.

Birdamlik va ijtimoiy yaqinlik (Simmetrik vokativlar) – 25,0% (4 ta): «Azizim», «Hoy musulmon laşkari», «Öğlim» (ona mehri), «Ey gözal qiz» / «Barno yigit». Ekstremal vaziyatlarda va oilaviy-romantik muloqotda tabaqaviy masofa qisqarişini bildiradi.

Sakral-transsendent murojaatlar – 18,75% (3 ta): «Ey Siyovuş», «Ey Ahuramazda», «Ey tangrim». Istilo davridagi çorasizlik va ruhiy tanglikni ifodalaydi.

Peyorativ va siyosiy-iltijo vokativlari – 18,75% (3 ta): «Ha la'nati çol», «Ey Tarxun, uluğ podşoh!» hamda salbiy epitetli murojaatlar.

Vokativlarning tarixiy-etimologik va lingvomadaniy qatlamlari

Jöra Fozil VIII asr Buxoro muhitini haqqoniy jonlantiriş maqsadida murojaat birliklarini tanlaşda davrning uçta yirik lisoniy-madaniy qatlamidan foydalangan:

Qadimiy söğdiy-eroniy substrat qatlami: «Şohim», «Uluğ Kohin», «Ey Siyovuş» va «Ey Ahuramazda» kabi vokativlar mahalliy aholining tarixiy

xotirasi, zarduştiylik e’tiqodi va saroy madaniyatining çuqur ildizlarini körsatadi.

Qadimiy turkiy boşqaruv va harbiy leksika: «Ey Tarxun» (qadimiy turkiy va söğdiy oliy harbiy-ma’muriy unvon), «Şahid öğlon», «Ey yigit» hamda «Barno yigit» kabi birliklar mardlik va harbiy şijoat semantikasini taşiydi.

Arabça-islomiy yangi qatlam: «Xurosonning buyuk amiri», «Hoy musulmon laşkari» va «Valiahd» kabi vokativlar bosqinçilarning ma’muriy ustunligi va konfessional jipslaşuv mafkurasini ifodalaydi.

Jöra Fozilning “Buxoro malikasi” qissasidagi murojaat birliklarining sotsiolingvistik tasnifi

T/r	Matndan olingan urojaat birligi	Muloqot iştirokçilari	Sotiolingvistik modeli	Pragmatik vazifasi	Leksik-semantik qatlami
1.	«Ey Siyovuş, ahid öglon!»	Bidun xudot → Siyovuş ruhi	Sakral ssimmetriya	Ajdodlar ruhidan nadad söraş	Mifologik-sakral
2.	«Şohim»	Malika Qaboj → n Buxorxudotga	Vertikal ssimmetriya	Er-xotinlikda ierarxiyasini taniş	Rasmiy-sulolaviy
3.	«Malikam»	Laşkarboşi Xin Malika Qabojga	Harbiy-idoraviy ubordinatiya	Jang qiliş uçun y ruxsat söraş	Ma’muriy-harbiy
4.	«Azizim»	Malika Qaboj → ondon Hamukka	Krizisdagi birdamlik	Minnatdorlik, atni rağbatlantiriş	Emotional-ekspressiv
5.	«Ey tangrim»	Malika Qaboj → y YAratganga	Transsendent iltijo	Ojizlik, najot iş, ruhiy iztirob	Diniy-monologik
6.	«Ey, osonning buюk amiri!»	Noma’lum yigit Amir Sa’idga	Psevdo-miyat (Istehzo)	Ğanimning oqligini foş etiş	Siyosiy-kinoyaviy
7.	«Ey Tarxun, luğ podşoh!»	Malika Qaboj → Tarxunga	Sun’iy nmetriya (Iltijo)	Harbiy ittifoq va panoh söraş	Diplomatik-murojaat
8.	«Hoy musulmon laşkari»	Abdulloh ibn lon → Qöşinga	Kollektiv birdamlik	Askarlarni diniy ç bilan töxtatiş	Diniy-konfessional
9.	«Öğlim» (1-örinda)	Ona (Malika) → ahd Tağşodaga	Oila birdamligi	Onalik mehri, aqinlik izhori	Qarindoşlik
10.	«Öğlim» (2-örinda)	Malika → ahd Tağşodaga	Pedagogik imiyat (Power)	Taxt vorisiga s’uliyat юklaş	Institutional-tarbiyaviy
11.	«Ey yigit»	Malika Qaboj → ahkum yigitga	Unilateral hokimiyat	Sud-huquqiy öroq, tergov	Ijtimoiy-neytral
12.	«Ha la’nati çol»	Malika Qaboj → loq oqsoqoliga	Salbiy peyorativ ssimmetriya	Zöravonlikni aş, adolat örnatiş	Salbiy-baholovçi
13.	«Podşohim»	Boş kohin → alika Qabojga	Saroy etiketi	Dunyoviy ndorga ehtirom bildiriş	Ma’muriy-unvon
14.	«Ey, uluğ Kohin»	Malika Qaboj → Boş kohinga	Statuslar balansi)avlat ↔ Din)	Davlat amrining dan ustunligini eslatiş	Diniy-martabaviy
15.	«Ey gözal qiz» / Barno yigit»	Zariadr ↔ Odatida	Gorizontal ietriya (Tenglik)	Romantik aşuv, estetik etiket	Folklorşunoslik, poetik
16.	«Ey Ahuramazda»	Malika Qaboj → huramazdaga	Sakral e’tiqodiy xitob	Istiloçilarni la’natlaş, gumanizatiya	Zarduştiy teonim

XULOSA

Jöra Fozilning “Buxoro malikasi” tarixiy qissasida qöllangan murojaat birliklarini sotsiolingvistik jihatdan tadqiq etiş quyidagi ilmiy xulosalarga keliş imkonini beradi:

Asardagi vokativlar VIII asr Buxoro davlatining ma’muriy, harbiy va huquqiy tuzilmasini aniq körsatuvçi ijtimoiy belgilar hisoblanadi.

R. Braun va A. Gilman nazariyasi asar matniga töla tatbiq etilib, tinç şaroitda ijtimoiy tabaqalaniş (şohim, malikam), uruş paytida esa birdamlik (azizim, musulmon laşkari) ustun kelişi isbotlandi.

Tarixiy fojialar davrida personajlarning sakral kuçlarga murojaatlari jamiyatning ruhiy tangligini oçib bergan.

Asarda söğdiy-eroniy, qadimiy turkiy va arabça-islomiy leksik qatlamlarning özaro sintezi davr koloritini ta’minlagan.

Jöra Fozil tarixiy qahramonlar tilini şakllantirişda ularning mavqei va ruhiyatiga mos keladigan vokativlarni tanlaş orqali davr ruhini haqqoniy tiklaşga erişgan.

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CHO‘LPON IJODIDA MILLIY UYG‘ONISH VA ERK G‘OYALARINING BADIIY TALQINI

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Annotatsiya. *Mazkur maqolada XX asr o‘zbek adabiyotining yirik namoyandasi Abdulhamid Sulaymon o‘g‘li Cho‘lpon ijodining o‘ziga xos xususiyatlari, shoir she’riyatida milliy uyg‘onish, ozodlik, Vatan taqdiri va insoniylik masalalarining badiiy talqini tahlil etiladi. Adibning she’riy, nasriy va dramaturgik merosi, xususan, «Kecha va kunduz» romanining g‘oyaviy-badiiy xususiyatlari yoritiladi. Shuningdek, Cho‘lponning adabiyot va san’at haqidagi qarashlari, o‘zbek adabiy tilining rivojlanishiga qo‘shgan hissasi hamda ijodiy merosining bugungi adabiy jarayondagi ahamiyati xususida fikr yuritiladi.*

Kalit so‘zlar: *Cho‘lpon, jadid adabiyoti, milliy uyg‘onish, istiqlol, erk, ozodlik, she’riyat, lirika, nasr, dramaturgiya, «Kecha va kunduz», badiiy tafakkur, ma’rifatparvarlik.*

Аннотация. *В данной статье анализируются особенности творчества крупнейшего представителя узбекской литературы XX века Абдулхамид Сулеймановича Чолпона, а также художественное отражение в его поэзии вопросов национального пробуждения, свободы, судьбы Родины и гуманизма. Освещается поэтическое, прозаическое и драматургическое наследие писателя, в частности идейно-художественные особенности романа «Ночь и день». Кроме того, рассматриваются взгляды Чолпона на литературу и искусство, его вклад в развитие узбекского литературного языка, а также значение его творческого наследия в современном литературном процессе.*

Ключевые слова: *Чолпон, джадидская литература, национальное пробуждение, независимость, свобода, поэзия, лирика, проза, драматургия, «Ночь и день». художественное мышление, просвещение.*

Abstract*. This article analyzes the features of the work of the leading figure of 20th-century Uzbek literature, Abdulhamid Suleymanovich Cholpon, as well as the artistic reflection in his poetry of the themes of national awakening, freedom, the fate of the homeland, and humanism. It covers the*

poet's, prose writer's, and playwright's legacy, particularly the ideological and artistic features of the novel "Night and Day". Additionally, Cholpon's perspectives on literature and art, his contribution to the development of the Uzbek literary language, and the significance of his creative legacy in the modern literary process are discussed.

***Keywords**: Cholpon, Jadid literature, national awakening, independence, freedom, poetry, lyric, prose, drama, "Night and Day", artistic thinking, enlightenment.*

KIRISH

XX asr boshlari o‘zbek adabiyoti tarixida milliy o‘zlikni anglash, ma’rifatparvarlik, ijtimoiy yangilanish va istiqlol g‘oyalarining badiiy tafakkurda tobora mustahkamlanishi bilan alohida ahamiyat kasb etadi. Ushbu davrda shakllangan jadid adabiyoti xalqni jaholat va qoloqlikdan xalos etish, millatning ma’naviy taraqqiyotiga erishish, zamonaviy bilim va madaniyatni targ‘ib qilishni o‘zining asosiy maqsadlaridan biri sifatida belgiladi. Ana shu murakkab tarixiy-adabiy jarayonda Abdulhamid Sulaymon o‘g‘li Cho‘lpon ijodi alohida o‘rin egallaydi.

Cho‘lpon o‘zbek adabiyotiga shunchaki yangi mavzu va obrazlarni olib kirgan ijodkor emas, balki millatning ruhiy olami, tarixiy xotirasi va ozodlikka intilishini o‘z asarlarida mujassamlashtira olgan yirik badiiy tafakkur sohibidir. Uning ijodida shaxs erkinligi, milliy qadriyatlar, ijtimoiy adolatsizlik, muhabbat, inson qadr-qimmati va Vatan taqdiri bir-biri bilan uzviy bog‘liq holda namoyon bo‘ladi.

Cho‘lpon ijodining qimmati, avvalo, uning davr muammolarini chuqur his etishi, xalqning dardu tashvishlarini badiiy obrazlar orqali ifodalashi hamda adabiyotga ijtimoiy-ma’naviy mas’uliyat yuklay bilishida ko‘rinadi.

CHO‘LPONNING HAYOTI VA IJODIY SHAKLLANISHI

Abdulhamid Sulaymon o‘g‘li Cho‘lpon 1897-yilda Andijon shahrining Qatorterak mahallasida tavallud topgan. Dastlab eski maktabda, keyinchalik madrasa va boshqa ta’lim muassasalarida tahsil olgan. Sharq mumtoz adabiyoti, xalq og‘zaki ijodi, turkiy va jahon adabiyoti bilan tanishishi uning badiiy dunyoqarashi shakllanishida muhim omil bo‘ldi[35].

Adibning ijodiy faoliyati XX asr boshlaridagi milliy matbuot bilan chambarchas bog‘liq. Uning dastlabki asarlari «Sadoyi Turkiston» va «Sadoyi Farg‘ona» gazetalarida chop etilgan. «Qurboni jaholat», «Do‘xtir

[35] Mirzayeva Z., Jalilov K., Nurmuhammadov J. Adabiyot. 11-sinf uchun darslik. I qism. – Toshkent: Zamin Nashr, 2022. – B. 28–30.

Muhammadiyor» kabi hikoyalari, «Adabiyot nadir?» maqolasi hamda ilk she’rlari yosh ijodkorning ijtimoiy hayotga befarq bo‘lmaganini ko‘rsatadi[36].

Cho‘lponning adabiy-estetik qarashlari shakllanishida jadidchilik harakati muhim o‘rin tutdi. Biroq uning ijodini faqat jadidchilik g‘oyalari bilan chegaralash to‘g‘ri bo‘lmaydi. Chunki adib badiiy tafakkurida milliy uyg‘onish masalalari umuminsoniy qadriyatlar, inson erki, ruhiy kechinmalar va estetik go‘zallik bilan uyg‘unlashgan.

1937-yilda qamoqqa olingan adib 1938-yil 4-oktabrda qatl etildi. 1958-yilda oqlangan Cho‘lponning adabiy merosi keyingi yillarda qayta tiklanib, uning milliy adabiyotimiz tarixidagi munosib o‘rni e’tirof etildi [1].

Cho‘lpon she’riyati XX asr o‘zbek lirikasining mazmun va shakl jihatidan yangilanishida muhim bosqich hisoblanadi. Shoir mumtoz she’riyat an’analaridan oziqlangan holda, zamonaviy insonning ruhiy kechinmalari, ijtimoiy iztiroblari va milliy orzu-intilishlarini yangi badiiy ifoda vositalari orqali namoyon etdi.

Uning «Uyg‘onish» (1922), «Buloqlar» (1923), «Tong sirlari» (1926), «Soz» (1935) kabi she’riy to‘plamlari ijodiy evolyutsiyasining muhim bosqichlarini aks ettiradi.

Cho‘lpon she’riyatida Vatan obrazi alohida poetik mazmun kasb etadi. Shoir uchun Vatan oddiy geografik makon emas, balki xalqning tarixi, tili, madaniyati, or-nomusi va kelajagini o‘zida mujassam etgan muqaddas tushunchadir. Shu bois uning lirik qahramoni Vatan taqdiriga befarq qaray olmaydi. Yurtning ozodligi va xalqning ma’naviy uyg‘onishi shoirning eng muhim ijodiy ideallaridan biriga aylanadi.

«Go‘zal», «Binafsha», «Ko‘ngil», «Kishan» kabi she’rlarida lirik kechinma, ramziy obraz va ijtimoiy mazmun o‘zaro uyg‘unlashadi. Ayniqsa, «Kishan» she’rida erksizlik va qaramlik holati badiiy timsol orqali ifodalanib, insonning ozodlikka bo‘lgan tabiiy ehtiyoji teran ochib beriladi.

- Abdulhamid Cho‘lponning “Men va boshqalar” she’ri o‘zbek she’riyatida ayol erksizligi, inson qadr-qimmati, ijtimoiy tengsizlik va ozodlik istagini chuqur badiiy ifodalagan asarlardan biridir.
- She’r 1921-yil aprel oyida Toshkentda yozilgan. Uning sarlavhasi ostida **“O‘zbek qizi og‘zidan”** degan izoh berilgan. Asar sonet shaklida yozilgan.

Kulgan boshqalardir, yig‘lagan menman,
O‘ynagan boshqalar, ingragan menman.

[36] Abdulhamid Cho‘lpon - Vikipediya

Erk ertaklarini eshitgan boshqa,
Qullik qo‘shig‘ini tinglagan menman...

Boshqada qanot bor, ko‘kka uchadir,
Shoxlarga qo‘nadir, bog‘da yayraydir.
So‘zlari sadafdek, tovushi naydek,
Kuyini har yerda elga sayraydir.

Menda-da qanot bor, lekin bog‘langan…
Bog‘ yo‘qdir, shox yo‘qdir, qalin devor bor.
So‘zlari sadafdek, tovushi naydek.

Kuyim bor... uni-da devorlar tinglar…
Erkin boshqalardir, qamalgan menman,
Hayvon qatorida sanalgan menman[37]...

- She’rni tahlil qilishda eng muhim jihat shuki, undagi “men” shoirning bevosita o‘zi emas, balki o‘z huquqlaridan mahrum etilgan, erkin yashash imkoniyatiga ega bo‘lmagan o‘zbek qizining lirik obrazidir.
- Asarning asosiy mavzusi — Sharq ayolining, xususan, XX asr boshlaridagi o‘zbek qizining og‘ir ijtimoiy-maishiy ahvoli, erksizligi va ozodlikka intilishidir.
- Cho‘lpon jamiyatdagi ikki xil hayotni qarama-qarshi qo‘yadi:
- Bir tomonda — kulayotgan, o‘ynayotgan, erkin yashayotgan insonlar.
- Ikkinchi tomonda — yig‘layotgan, iztirob chekayotgan, qamalgan va o‘z taqdirini o‘zi belgilay olmayotgan qiz.
- Shoir shu qarama-qarshilik orqali jamiyatdagi adolatsizlikni ochib beradi.
- Asarning yetakchi g‘oyasi — inson erkinligi uning eng muhim huquqi ekanligi, ayol ham jamiyatning teng huquqli a’zosi sifatida yashashga haqli ekanidir.[38]

Shoir ijodida tabiat tasvirlari ham o‘ziga xos ramziy vazifa bajaradi. Tong, bahor, quyosh, yulduz, gul va buloq kabi obrazlar ko‘pincha yangilanish, umid, go‘zallik va uyg‘onish ma’nolarini anglatadi. Bu jihatdan Cho‘lpon

[37] Men va boshqalar - Wikisource
[38] https://chatgpt.com/c/6af6a8b2-07f4-83eb-8e6c-426c1ccd4436

tabiat manzarasini tasvirlash bilangina cheklanmaydi, balki tabiat orqali inson qalbidagi murakkab kechinmalarni ifodalaydi.

Shoirning lirik mahorati uning sodda, ravon, musiqiy va ta’sirchan ifoda uslubida ham namoyon bo‘ladi. Xalqona ohang, jonli tasvir, ichki ritm va ramziylik uning she’riyatiga o‘ziga xos joziba bag‘ishlaydi.

«KECHA VA KUNDUZ» ROMANIDA IJTIMOIY HAYOT VA INSON TAQDIRI

Cho‘lpon nasriy merosining eng yuksak namunasi «Kecha va kunduz» romanidir. Mazkur asar XX asr o‘zbek romanchiligi taraqqiyotida muhim badiiy hodisa bo‘lib, unda Turkiston hayotining murakkab ijtimoiy-siyosiy manzarasi, inson taqdiri va jamiyatdagi ziddiyatlar keng tasvirlangan.

Asarda voqealar markazida Zebi obrazi turadi. Zebi o‘zining tabiiy go‘zalligi, samimiyligi, beg‘uborligi va hayotga intilishi bilan kitobxon e’tiborini tortadi. Biroq uning shaxsiy orzu-istaklari mavjud ijtimoiy muhit, eskicha qarashlar va ayollar huquqsizligi bilan to‘qnashadi.

Zebi taqdiri orqali yozuvchi o‘z davrida ayolning jamiyatdagi mavqei, uning erkin tanlov huquqi, oilaviy munosabatlardagi adolatsizlik va ijtimoiy tengsizlik muammolarini yoritadi. Bu obrazning badiiy qimmati shundaki, u shunchaki muayyan davr ayolining timsoli emas, balki o‘z baxti va insoniy qadr-qimmati uchun kurashish imkoniyatidan mahrum etilgan insonning umumlashma obrazidir.

Romandagi Razzoq so‘fi, Qurvonbibi, Miryoqub, Akbarali mingboshi kabi obrazlar orqali muallif jamiyatning turli qatlamlari, ularning dunyoqarashi, ma’naviy qiyofasi va o‘zaro munosabatlarini ochib beradi.

Cho‘lponning romandagi muhim yutug‘i voqealarni bir tomonlama bayon qilmasdan, qahramonlarning ichki dunyosi, ruhiy holati, psixologik ziddiyatlari va xarakter xususiyatlarini chuqur tasvirlay olganidadir. Tabiat manzaralari, portret tasvirlari, dialog va ichki kechinmalar asarning badiiy yaxlitligini ta’minlaydi.

Shu jihatdan «Kecha va kunduz» o‘zbek nasrida psixologik tasvir, xarakter yaratish va ijtimoiy muammolarni badiiy tahlil etish borasida muhim tajriba maktabi hisoblanadi.

CHO‘LPON DRAMATURGIYASI VA TARJIMONLIK MAHORATI

Cho‘lpon ijodining yana bir muhim yo‘nalishi dramaturgiyadir. U teatr san’atining xalq ma’naviy hayotiga ta’sirini yaxshi anglagan va sahna asarlarini yaratish orqali ijtimoiy muammolarni keng jamoatchilikka yetkazishga intilgan.

Adibning «Yorqinoy», «Xalil farang», «Cho‘rining isyoni», «Yana uylanaman», «Mushtumzo‘r», «Hujum» kabi dramatik asarlari o‘zbek dramaturgiyasi rivojida muhim o‘rin tutadi. Ayniqsa, «Yorqinoy» dramasida muhabbat, sadoqat, jasorat, insoniy qadr-qimmat va adolat masalalari yetakchi o‘ringa ko‘tariladi. Cho‘lpon dramaturg sifatida milliy teatrning shakllanishi va rivojlanishiga ham katta hissa qo‘shgan. Uning teatr faoliyati faqat asar yozish bilan cheklanmagan, balki tarjimonlik, sahna jarayoni va teatr adabiyoti bilan ham uzviy bog‘liq bo‘lgan.

Adibning tarjimonlik faoliyati ham alohida e’tiborga loyiq. U jahon adabiyotining ko‘plab nodir namunalarini o‘zbek tiliga tarjima qilgan. Uilyam Shekspirning «Hamlet» tragediyasi tarjimasi Cho‘lponning tarjimonlik mahoratini namoyon etuvchi muhim asarlardan biridir. Shuningdek, Pushkin, Gogol, Gorkiy va boshqa ijodkorlarning asarlarini o‘zbek kitobxoniga yetkazishda faol qatnashgan.

Cho‘lponni faqat shoir, yozuvchi va dramaturg sifatida baholash uning adabiy shaxsiyatini to‘liq anglash imkonini bermaydi. U, shuningdek, o‘zbek adabiy tanqidchiligi va adabiyotshunoslik tafakkuri taraqqiyotiga munosib hissa qo‘shgan munaqqid hamdir. Uning 1914-yilda e’lon qilingan «Adabiyot nadir?» maqolasi adabiyotning mohiyati, jamiyat hayotidagi vazifasi va millat ma’naviyatidagi o‘rni haqidagi muhim estetik qarashlarni mujassamlashtiradi. Cho‘lpon nazarida adabiyot insonni fikrlashga, hayot hodisalariga teran munosabat bildirishga, go‘zallikni anglashga va ma’naviy kamolotga intilishga undashi lozim.

Uning adabiy-tanqidiy maqolalarida badiiy asarning mazmuni va shakli, ijodkor mahorati, adabiy jarayon, tarjima san’ati hamda milliy adabiyotning rivojlanish masalalari muhim o‘rin egallaydi.Cho‘lponning adabiy-estetik qarashlari bugungi adabiyotshunoslik uchun ham ahamiyatlidir. Chunki u badiiy ijodga mafkuraviy targ‘ibot vositasi sifatida emas, balki inson ruhiyatini anglash, milliy tafakkurni rivojlantirish va estetik didni shakllantirish vositasi sifatida yondashadi.

XULOSA

Abdulhamid Cho‘lpon ijodi o‘zbek adabiyoti tarixida milliy uyg‘onish va badiiy tafakkur yangilanishining yorqin namunasi hisoblanadi. Uning she’riyati, nasri, dramaturgiyasi, tarjimalari va adabiy-tanqidiy maqolalari o‘zbek adabiyotining mazmunan hamda shaklan boyishiga katta ta’sir ko‘rsatdi.

Ayniqsa, adibning «Adabiyot nadir?» maqolasida ilgari surilgan adabiyotning millat hayotidagi o‘rni haqidagi qarashlari bugungi kunda ham

o‘z ahamiyatini yo‘qotmagan. Bu qarashlar badiiy so‘zning inson ma’naviyati va jamiyat taraqqiyotidagi mas’uliyatini yana bir bor namoyon etadi.

Cho‘lponning ijodiy merosini o‘rganish faqat adib hayoti va asarlarini tahlil qilish bilangina cheklanmaydi. Bu, ayni paytda, XX asr boshlaridagi milliy tafakkur, jadidchilik harakati, adabiy-estetik qarashlar va o‘zbek badiiy tafakkurining yangilanish jarayonlarini chuqur anglash imkonini beradi.

Demak, Cho‘lpon ijodi vaqt chegaralaridan ustun turadigan, har bir avlodni erkin fikrlashga, milliy qadriyatlarni qadrlashga va insoniylik mohiyatini anglashga chorlaydigan bebaho ma’naviy merosdir.

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DARIY TILIDAGI HARBIY UNVONLAR TIZIMINING LEKSIK-SEMANTIK TAVSIFI

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Annotatsiya. *Maqolada dariy tilidagi harbiy va politsiya unvonlari tizimi leksik-semantik jihatdan tavsiflanadi. Komponent, so‘z yasalishi, qiyosiy va diaxron tahlil asosida unvonlarning genetik qatlamlari, darajalanish usullari va paradigmatik munosabatlari aniqlanadi. Zamonaviy armiya unvonlari asosan uchta pashtu o‘zagiga (brid, turan, dagar) qurilgani va bu o‘zaklar ofitserlar hamda generallar toifasida takrorlanishi ko‘rsatiladi. Politsiya unvonlarining parallel qatori, serjant unvonlarining gibrid tabiati, “bo‘linma nomi + mashar” modelidan zamonaviy tizimga o‘tish hamda Eron forschasidagi muqobillardan farqlar yoritiladi. Natijalar dariy–o‘zbek harbiy tarjimasi va terminografiyasi uchun xulosalar bilan yakunlanadi.*

Kalit so‘zlar: *dariy tili, harbiy unvon, harbiy terminologiya, leksik-semantik tizim, pashtu o‘zlashmalari, so‘z yasalishi, giponimiya, terminologik ekvivalentlik.*

Annotation. *The article describes the lexical-semantic system of military and police ranks in Dari. Using componential, word-formation, comparative and diachronic analysis, it identifies the genetic layers of rank terms, the ways rank grades are expressed and the paradigmatic relations between them. Modern army ranks are shown to rest mainly on three Pashto stems (brid, turan, dagar), which recur in both the officer and the general-officer grades. The article also covers the parallel police series, the hybrid nature of non-commissioned ranks, the shift from the “unit name + mashar” model to the modern system, and differences from Iranian Persian equivalents. Implications for Dari–Uzbek military translation and terminography are drawn.*

Keywords: *Dari language, military rank, military terminology, lexical-semantic system, Pashto borrowings, word formation, hyponymy, terminological equivalence.*

KIRISH

Harbiy unvonlar harbiy terminologiyaning eng qat’iy tartiblangan mikrotizimidir. Har bir unvon ierarxiyada aniq bir o‘rinni egallaydi va qo‘shni unvonlar bilan “yuqori – quyi” munosabatida turadi. Shu sababli unvonlar

terminlar o‘rtasidagi giponimik va paradigmatik munosabatlarni o‘rganish uchun qulay material hisoblanadi (Lyons, 1977; Суперанская и др., 1989).

Dariy tilidagi unvonlar alohida qiziqish uyg‘otadi. Afg‘oniston armiyasi va politsiyasida qo‘llanadigan zamonaviy unvonlarning aksariyati pashtu tiliga mansub, ammo ular dariy matnida erkin ishlatiladi. Bu bir davlat doirasidagi ikki rasmiy til o‘rtasidagi terminologik almashinuvning yaqqol namunasidir. L.N. Kiseleva afg‘on dariysining Eron forschasidan farq qiluvchi leksik xususiyatlari, jumladan pashtu o‘zlashmalari haqida yozgan (Киселева, 1973). Biroq unvonlar tizimi alohida leksik-semantik tizim sifatida hali o‘rganilmagan.

Mavzuning amaliy ahamiyati ham katta. Tarjimon *jagran* (mayor) va *jagturan* (katta kapitan), *turan* (kapitan) va *turan jenral* (general-mayor darajasi) kabi unvonlarni oson adashtirishi mumkin. Eron forschasi asosida tuzilgan lug‘atlar (Рубинчик, 1970) esa afg‘on unvonlarini qamramaydi.

Tadqiqot maqsadi – dariy tilidagi harbiy va politsiya unvonlari tizimini leksik-semantik jihatdan tavsiflash. Tadqiqotda komponent tahlil, so‘z yasalishi tahlili, qiyosiy va diaxron metodlar qo‘llandi. Nazariy asos sifatida terminni tizim ichida aniq o‘rinni egallovchi maxsus tushuncha ifodasi deb qaraydigan yondashuv olindi (Реформатский, 1961; Лейчик, 2006; Sager, 1990; Hojiyev, 1985). Pashtu o‘zaklarining ma’nolari M.G. Aslanov lug‘ati asosida izohlandi (Асланов, 1966).

ASOSIY QISM

1. Unvonlar tizimining tarkibi.

Afg‘oniston armiyasida ofitserlar uchun 13 ta unvon qo‘llanadi. Ular uch toifaga bo‘linadi: kichik ofitserlar, katta ofitserlar va generallar. Politsiyada ham shuncha unvondan iborat parallel qator mavjud. 1-jadvalda ikkala qator NATO ekvivalentlari va Eron forschasidagi muqobillar bilan birga berilgan.

1-jadval.

Dariy tilidagi ofitser unvonlari va ularning muqobillari

NATO ekvivalenti	Afg’oniston armiyasi	Afg’oniston politsiyasi	Forscha
Marshal	*marshal* مارشال	*marshal* مارشال	—
Four Star General	*star jenral* ستر جنرال	*star posvol* ستر پاسوال	*arteshbod* ارتشبد
Lieutenant General	*dagarjenral* دگرجنرال	*loy posvol* لوی پاسوال	*sepahbod* سپهبد
Major General	*turan jenral* تورن جنرال	*posvol* پاسوال	*sarlashkar* سرلشکر
Brigadier General	*brid jenral* برید جنرال	*mal posvol* مل پاسوال	*sartip* سرتیپ

NATO ekvivalenti	Afg’oniston armiyasi	Afg’oniston politsiyasi	Forscha
Colonel	*dagarvol* دګروال	*samunvol* سمونوال	*sarhang* سرهنګ
Lieutenant Colonel	*dagarman* دګرمن	*samunmal* سمونمل	*sarhang-e dovvom* سرهنګ دوم
Major	*jagran* جګړن	*samunyor* سمونیار	*sargord* سرګرد
Senior Captain	*jagturan* جګتورن	*sarxoran* سرخارن	—
Captain	*turan* تورن	*xoran* خارن	*sarvan* سروان
First Lieutenant	*lumray bridman* لمړی بریدمن	*lumray xoran* لمړی خارن	*sotvan-e yekom* ستوان یکم
Second Lieutenant	*dvahom bridman* دوهم بریدمن	*dvahom xoran* دوهم خارن	*sotvan-e dovvom* ستوان دوم
Sub Lieutenant	*dreyam bridman* دریم بریدمن	*dreyam xoran* دریم خارن	*sotvan-e sevvom* ستوان سوم

Izoh: unvonlar o‘zbekcha transliteratsiyada va asl yozuvda berilgan; “—” belgisi muqobil pog‘ona yo‘qligini bildiradi.

Serjantlar unvonlari bitta o‘zak atrofida qurilgan: *barkamshar* (Corporal), *muovini sar barkamshar* (Sergeant), *sar barkamshar zobit* (Sergeant First Class), *muovini sar barkamshar qadamdor* (Master Sergeant) va *sar barkamshar qadamdor* (Sergeant Major). Politsiyada ularga *dreyam*, *dvahom*, *lumray* va *sar sotanman* unvonlari mos keladi.

2. Unvonlarning genetik qatlamlari.

Unvonlar tizimida to‘rt genetik qatlam ajraladi. Asosiy qatlam pashtu tiliga mansub: barcha ofitser unvonlarining o‘zaklari shu tildan olingan. Lug‘atlarda bu o‘zaklar quyidagi ma’nolarda qayd etiladi: *brid* – “hujum”, *tura* – “qilich” (*turan*), *ḍagar* – “maydon, jang maydoni” (*dagarman*, *dagarvol*), *jag* – “baland” (*jagturan*), *sotal* – “qo‘riqlamoq” (*sotanman*). Darajalovchi so‘zlar ham pashtucha: *lumray* “birinchi”, *dvahom* “ikkinchi”, *dreyam* “uchinchi”, *mal* “hamroh, yordamchi”, *loy* “katta”, *star* “buyuk” (Асланов, 1966). Pashtu so‘zlari dariy imlosiga qisman moslashadi, masalan pashtucha لومړی o‘rniga لمړی yoziladi.

Ikkinchi qatlam – g‘arbiy Yevropa tillaridan kirgan *jenral* va *marshal*. *Jenral* mustaqil unvon sifatida qo‘llanmaydi: u pashtu o‘zagi bilan birikib, gibrid unvonlar hosil qiladi (*brid jenral, turan jenral, dagarjenral*). Uchinchi qatlam – arabcha so‘zlar: *zobit* “ofitser”, *muovin* “o‘rinbosar”, shuningdek *rutba* “unvon” va *tarfe’* “unvon oshirish” atamalari. To‘rtinchi qatlam – fors (dariy) yasovchi vositalari: *sar-* “bosh” old qismi (*sarxoran, sar sotanman*), *-dor* qo‘shimchasi (*qadamdor*) va *xurd* “kichik” sifati (*xurd zobit*).

Serjantlar unvonlarida bu qatlamlar bitta birikmada uchrashadi. Masalan, *muovini sar barkamshar qadamdor* arabcha *muovin* va *qadam*, forscha *sar-* va *-dor*, pashtucha *barkamshar* unsurlaridan tuzilgan. *Barkamshar* tarkibida pashtucha *mashar* “katta, boshliq” so‘zi ajraladi.

3. Darajalanish usullari va komponent tuzilishi.

Unvonlar darajasi to‘rt xil vosita bilan ifodalanadi. Birinchisi – tartib so‘zlari: *dreyam* < *dvahom* < *lumray* < *sar* (*dreyam bridman* → *lumray bridman*; *dreyam xoran* → *sarxoran*). E’tiborli tomoni shundaki, “uchinchi” eng past, “birinchi” esa yuqoriroq darajani bildiradi. Ikkinchisi – qo‘shimchalar qatori: *dagarman* (podpolkovnik) < *dagarvol* (polkovnik); politsiyada bitta o‘zakka uch qo‘shimcha qo‘shilib, *samunyor* < *samunmal* < *samunvol* qatori hosil bo‘ladi. Uchinchisi – hajm sifatlari: *mal posvol* < *posvol* < *loy posvol* < *star posvol*.

To‘rtinchi vosita armiya tizimining eng muhim xususiyatidir. *Brid* < *turan* < *dagar* tartibi ikki marta takrorlanadi: avval kichik va katta ofitserlarda (*bridman* → *turan* → *dagarman, dagarvol*), so‘ng generallarda (*brid jenral* → *turan jenral* → *dagarjenral*). Demak, general unvonining ma’nosi tarkibiy qismlaridan kelib chiqadi: *turan jenral* = [general toifasi] + [ikkinchi pog‘ona]. Politsiyada esa har bir toifaga alohida o‘zak to‘g‘ri keladi: *xoran* – kichik ofitserlar, *samun* – katta ofitserlar, *posvol* – generallar.

Bu tuzilma tarjimada jiddiy xavf tug‘diradi. Yakka *turan* kapitanni bildiradi, *turan jenral* esa general-mayor darajasidagi unvondir. Xuddi shuningdek, *brid* o‘zagi ham leytenantlar, ham brigada generali unvonida qatnashadi.

4. Ekvivalentlik, giperonimiya va polisemiya.

Armiya va politsiya unvonlari bir-biriga to‘liq ekvivalent qatorlar hosil qiladi: *loy posvol* = *dagarjenral*, *dvahom xoran* = *dvahom bridman* va hokazo. Dariy tilidagi matnlarda politsiya unvoni ko‘pincha qavs ichida armiya unvoni bilan izohlanadi. Bu armiya qatori so‘zlovchilar uchun markaziy va tanish, politsiya qatori esa periferik ekanini ko‘rsatadi.

Aniq unvon o‘rnida umumlashtiruvchi so‘zlar – giperonimlar ham keng qo‘llanadi. *Jenral* so‘zi darajasi ko‘rsatilmay, hurmat formulalarida keladi (*jenral sohib*); ofitserlar uchun *afsar*, serjantlar uchun *zobit* giperonim vazifasini bajaradi. *Zobit* so‘zi polisemantik: u bir tomondan kichik komandir, serjantni (*xurd zobit, zobit-i tolay* “rota serjanti”), boshqa tomondan zaxiradagi ofitserni (*zobit-i ehtiyot*) bildiradi. Arab tilidagi asl “ofitser” ma’nosi faqat ikkinchi qo‘llanishda saqlangan.

5. Diaxron o‘zgarishlar.

Hozirgi tizim avvalgi modelning o‘rnini egallagan. XX asrning birinchi yarmida ofitser unvonlari “bo‘linma nomi + *mashar* ‘boshliq’” modeliga ko‘ra yasalgan: *tolay mashar* (*tolay* – rota), *kandak mashar* (*kandak* – batalyon), *g‘und mashar* (*g‘und* – polk), *firqa mashar* (*firqa* – diviziya). Bunday unvon ofitser boshqaradigan bo‘linmani metonimik tarzda bildirgan. Ofitserlar umumiy holda *sohib mansab* deb atalgan; zamonaviy tilda bu ma’noda *afsar* qo‘llanadi. Politsiyada esa *subador* unvoni va *kotval* lavozimi kabi hind-forsiy atamalar ishlatilgan.

Shunday qilib, tizim bo‘linmaga bog‘liq metonimik modeldan “o‘zak + daraja ko‘rsatkichi” modeliga o‘tgan. Yangi tizimda unvon bo‘linmadan mustaqil, uning ichki tuzilishi esa qat’iy va oldindan aytib bo‘ladigan.

6. Forscha bilan qiyos.

1-jadvaldan ko‘rinib turibdiki, dariy va fors tizimlari leksik jihatdan deyarli kesishmaydi. Forscha o‘z o‘zaklari va *sar-* “bosh” old qismiga tayanadi (*sarhang*, *sargord*, *sarvan*), dariy esa pashtu o‘zaklariga. Ammo motivatsiya darajasida o‘xshashlik bor. Forscha *sarhang* “polk boshi” va *sargord* “batalyon boshi” eski afg‘oncha *g‘und mashar* va *kandak mashar* bilan bir xil “bo‘linma + boshliq” modeliga qurilgan. Bundan tashqari, dariy tizimida fors tizimida yo‘q *jagturan* (katta kapitan) pog‘onasi mavjud.

XULOSA

Tahlil dariy tilidagi harbiy unvonlar qat’iy tartiblangan va ichki jihatdan izchil leksik-semantik mikrotizim ekanini ko‘rsatdi. Birinchidan, zamonaviy ofitser unvonlarining o‘zaklari pashtu tiliga mansub; Yevropa, arab va fors unsurlari asosan gibrid birikmalarda qatnashadi. Ikkinchidan, daraja to‘rt vosita – tartib so‘zlari, qo‘shimchalar qatori, hajm sifatlari va o‘zaklarning takrorlanishi orqali ifodalanadi. Uchinchidan, armiyada *brid*, *turan*, *dagar* o‘zaklari ofitserlar va generallar toifasida takrorlanadi, politsiyada esa har bir toifaning o‘z o‘zagi bor. To‘rtinchidan, unvonlar tizimi “bo‘linma + *mashar*” metonimik modelidan mustaqil darajalar tizimiga o‘tgan.

Dariy tili harbiy unvonlari forschadagi unvonlar bilan mos kelmaganligi sababli, dariy–o‘zbek harbiy lug‘atida har bir unvon uchun pashtucha asl shakli, imlo variantlari, politsiyadagi parallel unvon va NATO ekvivalentini ko‘rsatish tavsiya etiladi. Tarjimada unvonni transliteratsiya qilib, birinchi qo‘llanishda funksional muqobilini qavs ichida berish maqsadga muvofiq: *turan jenral* (general-mayor), *jagturan* (katta kapitan).

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SHE'RIYATDA MILLIY O'ZLIK, VATANPARVARLIK VA MA'NAVIY QADRIYATLAR TALQINI

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Annotatsiya. *Ushbu maqolada O'zbekiston xalq shoiri Erkin Vohidovning ba'zi she'rlaridagi milliy o'zlik, vatanparvarlik va ma'naviy qadriyatlar talqiniga oid masalalar tahlil qilingan. Shoir ijodining o'ziga xos jihatlarini aks ettiruvchi g'oyalar o'rganilib, ularga ilmiy-amaliy munosabat bildirilgan. Shuningdek, ijodkorning badiiy mahorati va o'ziga xos timsollar tizimi ochib berilgan.*

Kalit so'zlar: *she'riyat, milliy o'zlik, vatanparvarlik, ma'naviy qadriyatlar, shoir, tahlil, talqin, she'r, ijtimoiy, badiiy, san'at, ifoda.*

Аннотация. *В данной статье анализируются вопросы интерпретации национальной идентичности, патриотизма и духовных ценностей в отдельных стихотворениях народного поэта Узбекистана Эркина Вахидова. Рассматриваются идеи, отражающие своеобразие творчества поэта, и даётся их научно-практическая оценка. Кроме того, раскрываются особенности художественного мастерства автора и своеобразие созданной им системы образов.*

Ключевые слова: *поэзия, национальная идентичность, патриотизм, духовные ценности, поэт, анализ, интерпретация, стихотворение, социальный, художественный, искусство, выражение.*

Abstract. *This article analyzes the interpretation of national identity, patriotism, and spiritual values in selected poems by Erkin Vohidov, the People's Poet of Uzbekistan. It explores the ideas reflecting the distinctive features of the poet's work and provides a scholarly and practical assessment of these ideas.*

Furthermore, the article examines the poet's artistic mastery and the distinctive system of imagery employed in his poetry.

Keywords: *poetry, national identity, patriotism, spiritual values, poet, analysis, interpretation, poem, social, artistic, art, expression.*

KIRISH (INTRODUCTION)

O‘zbek adabiyotining eng yetuk namoyondalaridan biri bo‘lgan Ekrin Vohidovning she’rlaridagi har bir misra adabiyot ixlosmandlari ko‘ngillarni zabt etgan. Shoirning ijodida milliy o‘zlikni anglash, vatanparvarlik hamda milliy qadriyatlarni ulug‘lash g‘oyalari alohida ajralib turadi. Turli xil mavzularda yozilgan she’rlarida vatanga bo‘lgan ehtirom, insoniy fazilatlar, milliy an’ana va urf-odatlar o‘ziga xos mavzuga aylanadi. “Ushbu mavzu millatlarning o‘zligini anglashida va ularning milliy dunyoqarashini shakllantirishda asosiy omillardan biri bo‘lib xizmat qilgan” [1, 5]. Shu ma’noda Erkin Vohidov ijodi o‘zbek xalqining milliy o‘zligini anglash, tarixiy xotirasini asrash, ona Vatanga muhabbat va sadoqat tuyg‘ularini mustahkamlash hamda ma’naviy qadriyatlarini e’zozlashda muhim badiiy-estetik ahamiyat kasb etadi. Shoir she’riyatida millat taqdiri, xalqning o‘tmishi va buguni, milliy g‘urur va insoniy kamolot masalalari o‘zaro uzviy bog‘liqlikda namoyon bo‘ladi.

-Mavzuga oid adabiyotlarning tahlili (Literature review)

Vatanparvarlik – shoirning ijodida eng yetakchi mavzulardan biri ekanligi e’tirof etdik. Uning “O‘zbegim” qasidasi ayni shunday mavzudagi ijodiy bitik bo‘lib, lirik qahramon tilidan milliy o‘zlikni anglatish g‘oyalari ko‘tarinki ruhda aks ettirilganligini ko‘rish mumkin.

Menga Pushkin bir jahon-u
Menga Bayron bir jahon,
Lek Navoiydek bobom bor,
Ko‘ksi osmon o‘zbegim.[2, 8]

Shoirning eng mashhur asarlaridan biri bo‘lgan “O‘zbegim” she’rida jahon adabiyotining eng taniqli namoyondalaridan bo‘lgan Pushkin va Bayron bilan bir qatorda o‘z ajdodi Alisher Navoiyni ham buyuk shoir deb tilga olishi orqali o‘zbek adabiyotini jahon adabiyoti bilan bir qatorda ko‘rishini anglatadi. Ushbu she’r shoirning o‘z millatiga va ajdodlariga bo‘lgan hurmatni ko‘rsatib beruvchi asar sifatida baholanadi. “Shoir “O‘zbegim” qasidasini yozish orqali o‘ta murakkab va ziddiyatli bir zamonda beqiyos jasorat ko‘rsatdi, o‘zi mansub xalqning barhayot badiiy siymosini yaratdi” [3, 49].

Shoir ijodining salmog‘ini oshirishga xizmat qilgan shunday mazmundagi she’rlar qatoriga quyidagini ham kiritish o‘rinli bo‘ladi.

Bu dunyoda yaxshi, yomon kunlar ko‘rdim,

O‘kinchim yo‘q, mayli, yillar qaddim egsin.
Men hamon bir askaringman, ona yurtim,
Sen tomonga otilgan o‘q menga tegsin. [2, 19]

Erkin Vohidovning “16-fevral 1999-yil” she’rida ham vatanga, yurtga bo‘lgan muhabbat – vatanparvarlik g‘oyasi bo‘rtib turadi. Lirik qahramon yurt uchun har qanday vaziyatda ham vatanining xizmatida tayyorligini namoyon etadi. She’rda xalq tinchligi, yurt osoyishtaligi va millat taqdiri bilan bog‘liq kechinmalar orqali Vatanga sadoqat tuyg‘usi ifodalanadi. Shoir mamlakat hayotida yuz bergan fojiali voqealarga munosabat bildirish orqali tinchlikning qadriga yetish, milliy birlikni asrash va yurt ravnaqi uchun mas’uliyatni his etish, vatan uchun jon fido qilshga ham tayyor bo‘lish zarur degan g‘oyalarni ilgari suradi.

O‘z muborak tuprog‘in inson
Yot nazardan asrab har nafas,
Uni quchib fido etdi jon,
Qoni bilan qildi muqaddas.[2, 22]

Ushbu she’rda esa vatan tuprog‘i muqaddas emas, balki uni inson qonini to‘kib muqaddaslashtirganligi, asrash uchun jonida kechganligi, ko‘p mehnat qilganligi takidlar ekan, bu ikki tushuncha bir-biridan ayro emaslinigi ifodalaydi. Bu banda ham insonni vatanparlikka undovchi tasvir aks etganligini ko‘rish mumkin.

Kelding olamga, demak,
Yetmas uni so‘rmak, yemak,
Yerni etmog‘ing kerak
Bo‘ston o‘zing, rizvon o‘zing.[2, 82]

Insonning zamindagi vazifasi nafaqat yashash, uni tugatish, balki yerni obod qilish, uni gullab yashnatish, atrofni bo‘stonga aylantirish ekanini ta’kidlaydi. Bu yerda ijtimoiy faollik va mas’uliyat g‘oyasi ilgari surilib, chin insoniylikning targ‘ib-u tashviqi suratini chizishga eriashdi.

Men jilg‘aman,
Daryo bo‘lib to‘lgim keladi.
Ona yurtim,
Senga o‘g‘lon bo‘lgim keladi.
Bugun senga
Faqatgina she’r bag‘ishladim.
Kerak bo‘lsa,
Jonni fido qilgim keladi.[2, 107]

She’rda lirik qahramon o‘zini kichik jilg‘aga, vatanni esa daryoga qiyoslagan. Bu qiyoslash orqali insonlarning vatani oldidagi ado etilishi kerak bo‘lgan insoniy burchlari ko‘p ekanligini anglash mumkin. Istak mazmunda yurt uchun faqat she’r yozish emas, balki jonini fido qilishga intilayotgan ifoda o‘quvchini ham ana shunday xususiyatlarga ega bo‘lishga undaydi.

Kamtarin bo‘l, hatto bir qadam
O‘tma g‘urur ostonasidan.
Piyolani inson shuning-chun
O‘par doim peshonasidan.[2, 215]

“Kamtarlik haqida”gi she’rda insonning yaxshi fazilatlaridan biri xususidagi g‘oya o‘ziga xos tasvir bilan berilgan. Piyola, ya’ni kamtarin insonning peshonasidan o‘pilishi – e’zozlanishi o‘quvchining ko‘z o‘ngida gavdalanib, o‘z ta’sirini o‘tkazadi. Ushbu holatda shoir husni talil badiiy san’atining ikmoniyatlaridan yuksak mahorat bilan foydalanganligini ko‘rishimiz mumkin. Kundalik hayotimizda har kuni duch keladigan choynak va piyola ramzi orqali shoir ijod namunasini o‘ziga xos san’at darjasiga olib chiqqan.

XULOSA VA TAKLIFLAR (CONSCLUSION/RECOMMENDATIONS)

Ta’kidlash mumkinki, Erkin Vohidovning she’rlari ma’naviy qadriyatlar mohiyati va milliy o‘zlikni anglashga, qolaversa, inson qalbida vatanparvarlik tuyg‘ularini o‘stirishga xizmat qilayotgan o‘ziga xos adabiy merosdir. Tahlilga tortilgan mavzuga doir she’rlarida samimiyat takorlanmas falsafiy badiiyatga aylangan. “Shoirning ko‘plab asarlari hozir ham o‘z mavqeyini, samimiyligini hamda ma’no-mantig‘ini yo‘qotganicha yo‘q. Ijodkor asarlarini qayta-qayta o‘qish orqali haligacha betakror jilosini mohirona chiroyini saqlab turganligini sezish mumkin” [4, 28]. Ayonlashadiki, har bir talqin ijodkorni yuksak mahorat sohibi sifatida namoyon qilgan.

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PRIORITY DIRECTIONS OF STATE SOCIAL POLICY AIMED AT GENDER CULTURE IN THE HIGHER EDUCATION SYSTEM OF UZBEKISTAN

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Annotatsiya. *Ushbu maqolada Yangi O‘zbekistonda oliy ta’lim tizimida gender madaniyatini shakllantirishga qaratilgan davlat ijtimoiy siyosatining ustuvor yo‘nalishlari va ularning sotsiologik jihatlari tadqiq etilgan. Qonunchilik bazasi, 2030-yilgacha mo‘ljallangan Gender strategiyasi, ehtiyojmand qizlar uchun maqsadli grantlar, magistratura kontraktlarini qoplash va ta’lim kreditlari kabi kompensatsion instrumentlar tahlil qilingan. Shuningdek, talabalar hamda professor-o‘qituvchilar tarkibidagi gender dinamikasi, vertikal va gorizontal segregatsiya muammolari o‘rganilib, miqdoriy ko‘rsatkichlardan sifat o‘zgarishlariga o‘tish yo‘nalishlari bo‘yicha amaliy tavsiyalar berilgan.*

Kalit so‘zlar: *gender tengligi, gender madaniyati, oliy ta’lim, ijtimoiy siyosat, IMRAD, gender audit, segregatsiya, inson kapitali.*

Abstract. *This article analyzes the priority directions of state social policy aimed at forming a gender culture in the higher education system of New Uzbekistan. The legal framework, the Gender Strategy until 2030, and compensatory instruments such as targeted grants, master's contract coverage, and student loans are examined. Furthermore, the gender dynamics among students and faculty, alongside issues of vertical and horizontal segregation, are studied, providing actionable recommendations for transitioning from quantitative parities to qualitative institutional transformations.*

Keywords: *gender equality, gender culture, higher education, social policy, IMRAD, gender audit, segregation, human capital.*

KIRISH

Yangi O‘zbekiston taraqqiyotining hozirgi bosqichida gender tengligi masalasi xotin-qizlarni alohida ijtimoiy guruh sifatida qo‘llab-quvvatlash doirasidan chiqib, inson kapitali sifatini, ijtimoiy mobillikni, bilim iqtisodiyotiga kirish imkoniyatini va davlat institutlarining inklyuzivligini belgilovchi omillardan biriga aylanmoqda. Shu nuqtayi nazardan oliy ta’lim gender siyosatining strategik maydonidir: universitetga kirish, ta’lim yo‘nalishini

tanlash, ilmiy resurslardan foydalanish, magistratura va doktoranturaga o‘tish, akademik lavozimlarda ko‘tarilish hamda olingan malakani mehnat bozorida kapitalga aylantirish imkoniyatlari shaxsning keyingi ijtimoiy trayektoriyasini shakllantiradi. Gender madaniyati aynan mana shu trayektoriyada tenglikning qay darajada odatiy, qonuniy va kundalik amaliyotga aylanganini ifodalaydi.

Sotsiologik yondashuvda davlat ijtimoiy siyosati faqat huquqiy normalar yoki imtiyozlar yig‘indisi emas. U jamiyatdagi resurslar, maqomlar va imkoniyatlar taqsimotiga ta’sir etuvchi institutlar tizimidir. Shu bois oliy ta’limga qaratilgan gender siyosatini uch o‘lchamda tahlil qilish maqsadga muvofiq: birinchisi — normativ-huquqiy tenglikni belgilash; ikkinchisi — boshlang‘ich imkoniyatlar notengligini kompensatsiya qiluvchi moliyaviy va tashkiliy instrumentlarni yaratish; uchinchisi — universitetlar ichidagi boshqaruv, kadrlar siyosati, ta’lim va ilmiy faoliyatni genderga sezgir tarzda qayta tashkil etish. Mazkur tadqiqotning maqsadi O‘zbekiston oliy ta’lim tizimida gender madaniyatini yuzaga keltirayotgan davlat ijtimoiy siyosatining institutsional mexanizmlari hamda ularning amaliy samaradorligini sotsiologik nuqtayi nazardan baholashdan iborat.

Tadqiqot metodologiyasi

Tadqiqotda institutsional va sotsiologik yondashuvlar, qiyosiy-huquqiy tahlil, hujjatlar tahlili (document analysis) hamda statistik ma’lumotlarni ikkilamchi qayta ishlash metodlaridan foydalanildi. Nazariy-metodologik asos sifatida Joan Ackerning “Genderlashgan tashkilotlar” konsepsiyasi (Acker, 1990), Amartya Senning “Imkoniyatlar yondashuvi” (Sen, 1999) hamda Sylvia Walbyning “Gender mainstreaming” nazariyasi (Walby, 2005) qo‘llanilgan.

Empirik baza sifatida O‘zbekiston Respublikasi Konstitutsiyasi, O‘RQ-562-son Qonun, 2030-yilgacha O‘zbekiston Respublikasida gender tenglikka erishish strategiyasi hamda Vazirlar Mahkamasining tegishli qarorlaridan foydalanildi. Statistik tahlil O‘zbekiston Respublikasi Milliy statistika qo‘mitasining 2025/2026-o‘quv yili boshiga oid rasmiy press-relizlari, Oliy ta’lim va ilm-fan vazirligi hamda Oila va xotin-qizlar qo‘mitasining 2025–2026-yillardagi hisobot ma’lumotlari va Jahon banki hamda BMT Rivojlanish dasturi (UNDP)ning tahliliy materiallariga tayanadi.

Natijalar va uning muhokamasi

1. Huquqiy va institutsional asoslarning shakllanishi. O‘zbekiston Respublikasining yangi tahrirdagi Konstitutsiyasining 58 va 51-moddalari gender tengligi hamda bepul oliy ta’lim olish huquqini uzviy bog‘ladi. O‘RQ-562-sonli Qonunning 26-moddasi va 8^1–8^2 moddalarida belgilangan gender audit instituti oliy ta’lim muassasalarida kadrlar va boshqaruv amaliyotini

genderga sezgir mezonlar bo‘yicha baholashning huquqiy mexanizmini yaratdi. Oliy Majlis Senatining SQ-297-IV-son qarori bilan tasdiqlangan 2030-yilgacha Gender strategiyasi esa “gender mainstreaming” tamoyilini joriy etishga xizmat qilmoqda.

2. Talabalar kontingenti va qabul dinamikasidagi gender pariteti. Milliy statistika qo‘mitasi ma’lumotlariga ko‘ra, 2025/2026-o‘quv yili boshida O‘zbekiston OTMlarida 1 535,0 ming talaba tahsil olgan bo‘lib, shundan 782,9 ming nafari (51,0%) qizlardir. 2021/2022-o‘quv yilidagi 369,1 ming kishilik ko‘rsatkichga nisbatan qiz talabalar soni 2,1 baravarga oshgan. Qabul jarayonida ham 2025/2026-o‘quv yilida qabul qilingan 409,7 ming talabaning 226,8 ming nafari (55,4%) qizlarni tashkil etdi (1-jadval).

1-jadval

Oliy ta’lim tashkilotlari talabalarining gender tarkibi dinamikasi

O‘quv yili	Qizlar, ming	O‘g‘il bolalar, ming	Jami, ming	Qizlar ulushi, %
2021/2022	369,1	439,3	808,4	45,7
2022/2023	494,8	547,3	1 042,1	47,5
2023/2024	656,6	657,9	1 314,5	49,9
2024/2025	724,7	708,1	1 432,8	50,6
2025/2026	782,9	752,1	1 535,0	51,0

Manba: O‘zbekiston Respublikasi Milliy statistika qo‘mitasi ma’lumotlari asosida muallif hisob-kitobi.

3. Kompensatsion moliyaviy mexanizmlarning samaradorligi. Vazirlar Mahkamasining 402-son va 447-son qarorlariga muvofiq, ehtiyojmand oilalardagi qizlar uchun ajratiladigan alohida grant kvotasi 2025/2026-o‘quv yilida 4 mingtagacha ko‘paytirildi. Davlat OTMlari magistraturasida tahsil olayotgan 11 161 nafar xotin-qizlarning to‘lov-kontrakt summalari uchun budjetdan 122,7 milliard so‘m ajratildi. Tijorat banklari tomonidan 67,3 ming xotin-qizga 1,1 trillion so‘m ta’lim kreditlari berildi. Bu chora-tadbirlar oliy ta’lim olishdagi resurs to‘siqlarini keskin kamaytirdi.

4. Vertikal va gorizontal segregatsiya muammolari. Umumiylikda 51 foizlik gender paritetiga erishilgan bo‘lsa-da, akademik va kasbiy ierarxiyada gender tafovuti saqlanib qolmoqda. Professor-o‘qituvchilar tarkibida ayollar ulushi 45,2 foizni (24,8 ming kishi) tashkil etgani holda, fan doktorlari (DSc) orasida bu ko‘rsatkich 26,5 foizni, falsafa doktorlari (PhD) orasida esa 40,1 foizni tashkil etadi. Shuningdek, Jahon banki va BMT Rivojlanish dasturi (UNDP) tadqiqotlari STEM yo‘nalishlarida va IT ta’limida qizlarning ishtiroki

hamda ta’limdan mehnat bozoriga o‘tishda (NEET darajasi ayollarda 42%, erkaklarda 8,8%) sezilarli nomutanosibliklar borligini ko‘rsatmoqda.

Aynan shu munosabat bilan tadqiqotimiz doirasida “gender pariteti paradoksi” konsepsiyasi ilgari suriladi: oliy ta’limga kirish bosqichida miqdoriy tenglikka erishilgan taqdirda ham, akademik nufuz, ilmiy daraja, STEM va boshqaruv resurslari darajasida gender nomutanosibligi qayta ishlab chiqarilishi mumkin. Mazkur holat siyosatni faqat kvotalar ajratishdan tashkilotlarning ichki madaniyati hamda kadrlar trayektoriyasini o‘zgartirishga yo‘naltirishni talab etadi.

XULOSA

Olib borilgan sotsiologik tahlillar Yangi O‘zbekistonda oliy ta’lim tizimiga qaratilgan davlat gender siyosatini “formal tenglik — kompensatsion imkoniyat — institutsional transformatsiya” modeli asosida baholash zarurligini ko‘rsatdi. Oliy ta’limda qizlar ulushining 51 foizga yetishi va qabulda 55,4 foizni tashkil etishi kirish bosqichidagi ulkan yutuqdir. Biroq barqaror gender madaniyatini shakllantirish uchun davlat ijtimoiy siyosatining istiqboldagi ustuvor yo‘nalishlari sifatida quyidagilar taklif etiladi:

1. Miqdoriy paritetdan sifat paritetiga o‘tish: ta’limning butun hayotiy sikli bo‘yicha (qabul, bitiruv, bandlik, PhD/DSc darajalari, rahbarlik) gender ko‘rsatkichlarini integratsiyalashgan monitoring qilish;

2. Gender auditini OTMlarning sifat boshqaruvi va attestatsiya jarayonlariga majburiy komponent sifatida kiritish hamda Maslahat kengashlari faoliyatini real kadrlar va resurslar tahliliga yo‘naltirish;

3. Kompensatsion moliyaviy yordamni (grantlar, magistratura kontraktlari) mentorlik, STEM va IT loyihalariga jalb etish hamda karera navigatsiyasi dasturlari bilan integratsiyalash;

4. Universitet ta’lim va tarbiya jarayoniga mas’uliyatli erkaklik hamda teng sheriklik me’yorlarini singdirish orqali gender stereotiplarini ijtimoiy-madaniy transformatsiya qilish.

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ARTISTIC AND AESTHETIC FUNCTIONS OF FAUNISTIC SYMBOLS IN MODERN ENGLISH AND UZBEK POETRY: A COMPARATIVE STUDY OF TED HUGHES AND SHAVKAT RAHMON

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Abstract. *This research paper examines the artistic and aesthetic functions of faunistic symbols (animal and bird imagery) in modern English and Uzbek poetry, focusing specifically on the works of Ted Hughes and Shavkat Rahmon. Using a qualitative comparative approach and textual analysis, the study explores how these poets use animals to explain deep human emotions, mental states, and philosophical concepts. The study focuses on Ted Hughes's poem 'The Thought-Fox' and Shavkat Rahmon's lyrical work describing a woman through bird images (dove, pigeon). The analysis shows that while Ted Hughes uses the fox to represent the primal, instinctual process of artistic creation and inspiration, Shavkat Rahmon uses birds to show vulnerability, pure human feelings, and the delicate nature of life. The paper explains that despite their different cultural backgrounds, both poets use faunistic symbols as an important aesthetic tool to connect the inner human world with external reality.*

Keywords: *Faunistic symbols, Ted Hughes, Shavkat Rahmon, Comparative poetry, Animal imagery, Aesthetic function.*

1. INTRODUCTION

In modern literature, the natural world is not just a passive background for human events. Instead, poets use elements of nature, especially animals and birds, to express complex thoughts and emotions. The use of animal images in literature is called faunistic symbolism. These symbols help writers to cross the limits of regular language and connect directly with the reader's imagination. Animals have unique biological traits, behaviors, and cultural meanings that make them excellent tool for artistic expression. This paper presents a comparative analysis of the artistic and aesthetic functions of faunistic symbols in modern English and Uzbek poetry. We focus on the works of two major poets of the twentieth century: Ted Hughes from England and Shavkat Rahmon from Uzbekistan. Both poets lived in different societies and followed different literary traditions. Hughes is famous for his powerful, raw descriptions of the English

countryside and wildlife, which often challenge civil human ideas. On the other hand, Shavkat Rahmon is a key figure in modern Uzbek poetry, known for his emotional honesty, national pride, and deep philosophical reflections. By analyzing Hughes's poem 'The Thought-Fox' and Rahmon's poem about a woman compared to a bird, this study aims to show how fauna serves a universal aesthetic purpose while keeping local cultural values.

2. Literature Review

The study of animals in literature has a long history. In traditional literature, animals were often used in fables to teach moral lessons. However, modern poetry changed this approach. According to literary critics, modern poets use animals not to teach moral behavior, but to explore the human mind and universal truths. Ted Hughes is widely studied as a poet who brought a new energy to nature poetry. Critics like Sagar (1975) mention that Hughes's animals are independent of human laws. They represent the pure, untamed forces of life. In his poems, animals are often sharp, focused, and deeply connected to the creative mind. In Uzbek poetry, faunistic symbols have traditional roots in classical literature and folklore, where birds like the nightingale (bulbul) usually represented romantic love or spiritual desire. Modern Uzbek literature transformed these symbols. Scholars like Sharafiddinov (2001) observe that poets like Shavkat Rahmon used natural images to express social truth, personal freedom, and deep human suffering. Rahmon's poetry moves away from simple romantic decorations. He chooses symbols that show real, vivid human experiences. Although critics have studied both poets individually, there is a lack of comparative research showing how a modern English poet and a modern Uzbek poet use animal images to solve similar creative and emotional problems. This paper fills that gap by looking at their specific stylistic choices.

3. Methodology

This study uses a qualitative comparative method alongside textual analysis. The main materials for this research are selected poems by Ted Hughes and Shavkat Rahmon. Specifically, we analyze 'The Thought-Fox' by Hughes (1957) and an influential poem by Shavkat Rahmon (1997) where he describes a woman's presence using the images of a dove and a pigeon ('musicha, kaptarday'). The analysis is organized into two main parts: first, we examine the individual aesthetic functions of the symbols in each poem. Second, we compare the two approaches. We look at how the physical characteristics of the chosen animals (the movement of the fox, the gentleness of the birds) help the poets build their central artistic themes.

4. Results and Discussion

4.1. Ted Hughes: The Fox as the Symbol of Poetic Inspiration

In 'The Thought-Fox', Ted Hughes describes the difficult process of writing a poem. The setting is a dark, silent night where the poet sits alone with a blank page. The animal symbol appears not as a real creature in the forest, but as an idea inside the author's mind. Hughes uses the following lines to set the atmosphere:

I imagine this midnight moment's forest:
Something else is alive
Beside the clock's loneliness
And this blank page where my fingers move.

Aesthetically, the fox serves a psychological function. The 'midnight moment's forest' represents the deep, dark areas of the human subconscious mind. The clock's loneliness and the blank page show a state of creative emptiness. When the fox appears, it brings life to this emptiness. Hughes describes the fox's nose touching the twigs and its feet leaving prints in the snow. These physical details show how a vague, abstract thought slowly becomes a real, clear poem. The fox is natural, wild, and careful. It does not belong to the rational human world. By using the fox, Hughes argues that true poetic inspiration is an instinctual process that comes from our primal connection to nature. The poem ends with the fox entering the writer's head, and the page is finally printed. The animal symbol successfully turns an invisible mental event into a vivid visual experience for the reader.

4.2. Shavkat Rahmon:
Bird Imagery and Emotional Sensitivity

Shavkat Rahmon uses faunistic symbols differently, focusing on human relationships, tenderness, and internal thoughts. In his poem, the poet looks at a woman and describes his deep feelings by comparing her to gentle birds. He writes:

Bu ayol .....
Ko'zimga qushday ko'rindi,
musicha, kaptarday - surganda xayol.
Qaydanam sozladim tasavvurimni,
qushga o'xshayverar hadeb bu ayol !

In Uzbek culture, the dove ('musicha') and the pigeon ('kaptar') are traditional symbols of peace, innocence, gentleness, and vulnerability. By using these specific birds, Rahmon creates a powerful aesthetic effect. The woman is not described by her physical appearance (like her eyes or hair), but through her inner energy and emotional nature. She appears as light, fragile, and pure as a

bird. The lines 'Qaydanam sozladim tasavvurimni, / qushga o'xshayverar hadeb bu ayol!' show the poet's own surprise and internal struggle. The word 'sozladim' (tuned) shows that the poet's imagination is like a musical instrument that is tuned to a very high level of sensitivity. Once his mind is set to see the world through this pure natural lens, he cannot see the woman in any other way. Every time he looks at her, she reminds him of a bird. This faunistic symbol serves an emotional and aesthetic function: it shows that the woman possesses a pure, innocent soul that needs protection from the harsh realities of the world. Rahmon uses these birds to highlight the beauty of vulnerability in human life.

4.3. Comparative Synthesis

To understand the structural differences and similarities between Ted Hughes and Shavkat Rahmon, we can look at their artistic choices in the following comparison table:

Aesthetic Feature	Ted Hughes ("The Thought-Fox")	Shavkat Rahmon (Bird Poem)
Faunistic Symbol	A Fox (wild animal / predator)	Dove and Pigeon (gentle, peaceful birds)
Primary Meaning	The movement of poetic inspiration and artistic creation.	Pure human emotion, innocence, and vulnerability.
Aesthetic Function	Turns an abstract mental process into a real physical action.	Expresses deep spiritual sensitivity and respect for life.
Poet's Position	An observer waiting for the wild idea to enter his mind.	An emotional observer whose imagination is captured by beauty.

The table shows that both poets reject using animals just for simple decoration. For both authors, the animal or bird is the central key to the poem's meaning. However, their directions are different. Hughes looks downward and inward into the dark, primal areas of the mind, using a wild predator to show the power of art. Rahmon looks outward at another human being, using peaceful birds to show the beauty of emotional harmony and soul connection.

5. CONCLUSION

In conclusion, the analysis of faunistic symbols in the poetry of Ted Hughes and Shavkat Rahmon shows the great artistic and aesthetic power of animal imagery in modern literature. Through 'The Thought-Fox', Ted Hughes successfully shows how a wild animal can symbolize the mysterious and instinctual nature of poetic inspiration. In contrast, Shavkat Rahmon's use of bird imagery ('musicha, kaptarday') demonstrates how fauna can express the finest

aspects of human feelings, vulnerability, and pure spiritual beauty. Although these two poets come from different literary traditions and cultures, they both use fauna to solve a major artistic problem: how to make internal human experiences visible and clear. Hughes uses the instinct of the predator, while Rahmon uses the gentleness of the bird. Together, they prove that faunistic symbols are a universal language in modern poetry, helping writers to share deep psychological and emotional truths with the world.

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IX–XI ASRLARDA XORAZM VA QUYI SIRDARYO SAVDO MARKAZLARIDA VOHA HAMDA DASHT AHOLISI O‘RTASIDAGI AYIRBOSHLASH MUNOSABATLARI

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Annotatsiya: *Maqolada IX asrdan XI asrgacha Xorazm va quyi Sirdaryo savdo markazlarida voha hamda dasht aholisi o‘rtasidagi ayirboshlash munosabatlari tahlil qilinadi. Yozma manbalar va arxeologik tadqiqotlar asosida dehqonchilik, hunarmandchilik hamda chorvachilik mahsulotlarining savdodagi o‘rni yoritiladi. Gurganj va Yangikent misolida savdogarlar vositachiligi, savdo yo‘llari hamda aholining o‘zaro xo‘jalik ehtiyojlarining hududiy iqtisodiy aloqalar rivojlanishiga ta’siri ko‘rib chiqiladi.*

Kalit so‘zlar: *Xorazm, quyi Sirdaryo, Gurganj, Yangikent, voha va dasht, ayirboshlash munosabatlari, savdo yo‘llari, hunarmandchilik, chorvachilik.*

Abstract*: This article examines exchange relations between oasis and steppe populations in the trading centres of Khwarazm and the lower Syr Darya region from the ninth to the eleventh centuries. Drawing on written sources and archaeological research, it explores the role of agricultural produce, craft goods, and livestock products in trade. Using Gurganj and Yangikent as examples, the article considers how the intermediary role of merchants, trade routes, and the complementary economic needs of these populations influenced the development of regional economic ties.*

Keywords: *Khwarazm, lower Syr Darya, Gurganj, Yangikent, oasis and steppe, exchange relations, trade routes, craft production, animal husbandry.*

KIRISH

IX asrdan XI asrgacha Xorazm va quyi Sirdaryo savdo markazlarida kechgan ayirboshlash munosabatlarini o‘rganish voha hamda dasht aholisi iqtisodiy hayotining o‘zaro bog‘liqligini tushunishda muhim ahamiyatga ega. Dehqonchilik, hunarmandchilik va chorvachilik mahsulotlariga bo‘lgan ehtiyoj, savdogarlar qatnovi hamda yuk tashish imkoniyatlarini birgalikda ko‘rib chiqish

shahar bozorlarining qanday xo‘jalik aloqalariga tayanganini aniqlashga yordam beradi. Shu jihatdan, Xorazm shaharlari bilan quyi Sirdaryo manzilgohlarini o‘zaro aloqador hududlar sifatida tadqiq etish, savdo markazlarining taraqqiyotini ularga tutash qishloqlar, yaylovlar va karvon yo‘llari bilan bog‘liq holda yoritish zarur.

Xorazmning dasht hududlari bilan savdo aloqalaridagi mavqeyi o‘rta asr geografik asarlarida o‘z ifodasini topgan. Savdo aloqalarining davomiyligi savdogar bilan mahalliy aholi o‘rtasidagi munosabatlarga ham bog‘liq bo‘lgan. Ibn Fadlonning o‘g‘uzlar haqidagi xabarida musulmon savdogarning mezbonidan safar uchun tuya, ot yoki pul olishi, qaytganida esa olganlarini qaytarishi bayon etiladi. Muallif bu tartibni quyidagicha ifodalaydi: “Borgan joyidan qaytganida, uning pulini to‘laydi va tuyalari hamda otlarini unga qaytarib beradi” [1, Ahmad ibn Fadlon – 61-bet]. Mazkur xabar savdogarlarning harakatini ta’minlagan shaxsiy aloqalar va o‘zaro majburiyatlarni yoritadi. Unda tasvirlangan munosabatlar Xorazm orqali dashtga yo‘nalgan savdoning ijtimoiy asoslarini tushunishga yordam beradi. Shu bilan birga, bu ma’lumotni bevosita Yangikent yoki Jand bozorida kuzatilgan hodisa sifatida talqin qilish uchun asos yo‘q.

Ibn Fadlon keltirgan dalil ayirboshlash munosabatlarining mazmunini kengroq o‘rganishni talab qiladi. Tovarni tovarga almashtirish, pul bilan hisoblashish, safar davomida ulovdan foydalanish va mehmondorchilik doirasidagi hadyalar alohida munosabatlar bo‘lib, ularning har biri manbadagi bayoniga muvofiq baholanishi kerak. Savdogarning mahalliy mezbon bilan aloqasi yo‘lga chiqish, safarni davom ettirish va olingan mulkni qaytarish kabi vazifalarni birlashtirgan. Shuning uchun tadqiqotda savdo ishtirokchilarining mahsulot yetkazib berishdagi o‘rni bilan birga, qatnovni ta’minlashdagi ishtiroki ham e’tiborga olinadi.

Quyi Sirdaryo savdo markazlarining Xorazm bilan aloqalarini yoritishda arxeologik tadqiqotlar alohida ahamiyat kasb etadi. Yangikent materiallarini o‘rgangan H. Härke va I. Arzhantseva quyidagi fikrni bildiradi: “Janubda, Amudaryo bo‘yida joylashgan Xorazm sivilizatsiyasi bilan bevosita aloqalar sopol buyumlar va me’morchilikda namoyon bo‘ladi” [2, Härke H., Arzhantseva I. – 54-bet]. Mualliflar qayd etgan moddiy o‘xshashliklar Yangikentni Xorazm bilan aloqada rivojlangan shahar sifatida o‘rganishga asos beradi. Bunday topilmalarni sharhlashda buyumlar savdosi, ustalar harakati va qurilish tajribasining tarqalishi singari ehtimollarni farqlash muhimdir. Sopol idish yoki me’moriy shakldagi o‘xshashlik aloqaning mavjudligini ko‘rsatishi mumkin,

ammo uning aynan qaysi yo‘l bilan yuzaga kelganini aniqlash qo‘shimcha dalillarni talab qiladi.

Geografik asar, sayohatnoma va arxeologik tadqiqot ma’lumotlari masalaning turli tomonlarini yoritadi. Geografik tavsif shaharning savdo yo‘llaridagi mavqeyini, sayohatnoma savdo ishtirokchilari o‘rtasidagi munosabatlarni, arxeologik materiallar esa buyumlar va ishlab chiqarish an’analaridagi yaqinlikni kuzatish imkonini beradi. Ularni qiyoslashda har bir xabarning yozilgan davri, hududiy qamrovi va dalillash imkoniyati hisobga olinadi. X asrga oid yozma ma’lumotlarni IX va XI asrlarning barcha bosqichlariga bir xil tatbiq etish tarixiy farqlarni xiralashtirishi mumkin. Shu sababli maqolada savdo markazlarining mavqeyi va aloqalari davriy o‘zgarishlarni hisobga olgan holda o‘rganiladi.

Tadqiqotning asosiy masalalaridan biri mahalliy xo‘jalik ehtiyojlari bilan uzoq masofali savdo o‘rtasidagi munosabatni aniqlashdir. Bunda mahsulotning qayerda ishlab chiqarilgani, qaysi markaz orqali o‘tgani va kim tomonidan iste’mol qilingani farqlanadi. Muayyan shahardan olib chiqilgan tovarning shu shaharda yoki unga tutash hududda ishlab chiqarilganini alohida tekshirish zarur. Xuddi shuningdek, dasht orqali keltirilgan mahsulotning kelib chiqish joyini faqat uning savdo yo‘nalishiga qarab belgilab bo‘lmaydi. Ushbu farqlash Xorazm va quyi Sirdaryo markazlarining mahalliy ayirboshlashdagi vazifalarini ularning vositachilik faoliyati bilan bog‘liq holda baholashga xizmat qiladi.

Voha va dasht tushunchalari ham aholining xo‘jalik mashg‘ulotlarini o‘rganishda ehtiyotkorlik bilan qo‘llanadi. Tadqiqotda dehqonchilik, chorvachilik va hunarmandchilikning muayyan manzilgoh hayotidagi ulushi mavjud dalillar asosida baholanadi. Aholining yashash joyi bilan uning mahsulot yetkazib beruvchi, xaridor, savdogar yoki yuk tashuvchi sifatidagi vazifasini ajratib ko‘rish savdo ishtirokchilari haqida aniqroq tasavvur hosil qiladi. Bunday yondashuv shahar bozorini unga mahsulot olib kelgan va undan zarur buyumlarni xarid qilgan aholi bilan birgalikda o‘rganish imkonini beradi.

Adabiyotlar tahlili

IX–XI asrlarda Xorazm va quyi Sirdaryo savdo markazlarida voha hamda dasht aholisi o‘rtasidagi ayirboshlash munosabatlarini o‘rganishda xo‘jalik tarixi, tarixiy geografiya va etnik jarayonlarga bag‘ishlangan tadqiqotlar muhim o‘rin tutadi. Ushbu yo‘nalishdagi asarlarda savdoning rivojlanishi aholining kundalik ehtiyojlari, ishlab chiqarish imkoniyatlari, shaharlarning joylashuvi va qo‘shni hududlar bilan aloqalari orqali tushuntiriladi. V. V. Bartold, S. G. Agadjanov, K. Shoniyozov va O‘. Mavlonovning tadqiqotlarini qiyoslash voha va dasht o‘rtasidagi iqtisodiy aloqalarning turli jihatlarini birgalikda ko‘rib

chiqishga imkon beradi. Bu asarlarning mavzu uchun ahamiyati ulardagi dalillarning davri, hududiy qamrovi va mualliflar ilgari surgan xulosalar bilan belgilanadi.

V. V. Bartoldning “Туркестан в эпоху монгольского нашествия” asarida Xorazmning savdo aloqalari vohadagi ishlab chiqarish va qo‘shni chorvador aholining ehtiyojlari bilan bog‘liq holda yoritiladi. Olim xorazmlik savdogarlarning faoliyatini tahlil qilar ekan, dasht bilan ayirboshlashning hunarmandchilikka ta’siriga e’tibor qaratadi: “Nihoyat, ko‘chmanchilar bilan ayirboshlash uchun tovarlarga bo‘lgan ehtiyoj jun va paxta gazlamalari ishlab chiqarishning sezilarli rivojlanishiga olib keldi” [3, Bartold V. V. – 297-298-betlar]. Bartoldning mazkur xulosasi savdo bilan ishlab chiqarish o‘rtasidagi bog‘liqlikni ochib beradi. Uning talqinida dasht aholisining xarid ehtiyoji voha hunarmandchiligi rivojiga ta’sir ko‘rsatgan. Shu jihatdan, Xorazm bozorlarini o‘rganishda mahalliy iste’mol bilan birga tashqi talabni ham hisobga olish zarur. Asarning ilmiy ahamiyati mahsulotlar harakatini xo‘jalikdagi o‘zgarishlar bilan bog‘lab tushuntirishidadir. Ayni paytda, keltirilgan parchada gazlama ishlab chiqarish hajmi va uning alohida asrlar bo‘yicha o‘sish miqdori ko‘rsatilmagan. Shu sababli bu fikr savdo va hunarmandchilik aloqasini tushuntiruvchi xulosa sifatida qo‘llanadi; ishlab chiqarish ko‘lami esa qo‘shimcha dalillar asosida aniqlashtiriladi.

S. G. Agadjanovning “Очерки истории огузов и туркмен Средней Азии IX–XIII вв.” monografiyasi voha va dasht aloqalarini o‘g‘uzlar xo‘jaligi hamda Sirdaryo shaharlari faoliyati orqali yoritishi bilan ahamiyatlidir. Muallif chorvador aholining qo‘shni dehqonchilik o‘lkalari bilan savdosida shaharlarning tutgan o‘rnini quyidagicha baholaydi: “O‘g‘uzlar va turkmanlarning Yettisuv, Xorazm, Movarounnahr bilan savdosida X–XI asrlarda Sirdaryo vodiysi shaharlari muhim o‘rin tutgan” [4, Agadjanov S. G. – 99-bet]. Bu qarash quyi Sirdaryo shaharlarining iqtisodiy hayotini qo‘shni vohalar bilan aloqada o‘rganishga asos bo‘ladi. Agadjanovning yondashuvi Yangikent singari markazlarning dasht aholisi bilan o‘troq aholi o‘rtasidagi savdoni bog‘lovchi vazifasini tushunishga yordam beradi. Bunda shahar bozoriga mahsulot olib kelish, uni xarid qilish va boshqa hududlarga yetkazish o‘zaro bog‘langan jarayonlar sifatida ko‘rinadi. Monografiyaning davriy qamrovi keng bo‘lgani uchun undagi ma’lumotlarni asrlar bo‘yicha ajratish muhimdir. Tanlangan iqtibos bevosita X–XI asrlarga taalluqli. Keyingi davrlardagi savdo odatlari va xo‘jalik shakllarini IX–XI asrlarga tatbiq etishda esa ularning davomiyligini tasdiqlovchi dalillar talab qilinadi.

Karim Shoniyozovning “O‘zbek xalqining shakllanish jarayoni” monografiyasida Xorazm va unga tutash dashtlardagi aholining munosabatlari etnik tarix bilan xo‘jalik hayotining bog‘liqligi asosida ko‘rib chiqiladi. Olim voha aholisining chorvachilik mahsulotlariga ehtiyojini ayirboshlashni davom ettiruvchi muhim omil sifatida ko‘rsatadi: “Ma’lumki g‘uzlar va boshqa ko‘chmanchi xalqlarning asosiy boyligi chorva edi. Vohada yashovchi aholining chorva mahsulotlariga talabi katta bo‘lgan” [5, Shoniyozov K. – 220-bet]. Shoniyozovning mulohazasi ayirboshlashning kundalik xo‘jalik ehtiyojlariga tayanganini tushuntirish uchun muhimdir. Voha aholisining chorva mahsulotlariga talabi dasht aholisi bilan aloqalarni saqlashdan manfaatdorlikni yuzaga keltirgan. Muallif shu sahifada savdoning har ikki tomon uchun foydaliligini, osoyishta sharoitda g‘uzlarning Jurjoniya va Barategin bozorlariga kelishini ham qayd etadi. Bu yondashuv siyosiy munosabatlar bilan iqtisodiy manfaatlarni birgalikda baholashga undaydi. Asarning asosiy maqsadi xalqning shakllanish jarayonini yoritish bo‘lgani sababli savdo masalalari keng etnik tarix doirasida bayon qilingan. Mazkur maqola uchun esa ana shu kuzatuvlarni alohida savdo markazlari, mahsulot turlari va ayirboshlash ishtirokchilari bo‘yicha aniqlashtirish ahamiyatlidir.

O‘ktam Mavlonovning “Markaziy Osiyoning qadimgi yo‘llari: shakllanishi va rivojlanish bosqichlari” monografiyasi mavzuning tarixiy geografiyasini yoritishga xizmat qiladi. Muallif quruqlik yo‘llari, daryo qatnovi va kechuvlarni shaharlar faoliyati bilan bog‘lab o‘rganadi. Sirdaryoning o‘rta va quyi oqimidagi savdo markazlariga to‘xtalib, quyidagi fikrni bildiradi: “Xususan, bu shaharlar Janubiy Qozog‘iston dashtlaridan Xorazmga va Zarafshon vohasiga keluvchi yo‘llar o‘tgan kechuvlarni nazorat qiluvchi muhim punktlardan edi” [6, Mavlonov O‘. M. - Markaziy Osiyoning qadimgi yo‘llari: shakllanishi va rivojlanish bosqichlari, 247-bet]. Mavlonovning kuzatuvi savdo markazlarining joylashuvini tushuntirishda kechuvlar va yo‘llar tutashgan manzillarga alohida e’tibor qaratadi. Bu qarash Jand va Yangikentning voha hamda dasht o‘rtasidagi aloqalarda tutgan o‘rnini hududiy jihatdan baholashga yordam beradi. Shaharni o‘rab turgan yo‘llar, daryo orqali o‘tish imkoniyati va qo‘shni o‘lkalarga chiqish yo‘nalishlari uning savdodagi vazifasini aniqlashtiradi. Shu bilan birga, keltirilgan fikr rivojlangan o‘rta asrlarning keng davriga tegishli. Uni IX–XI asrlar doirasida qo‘llashda har bir shahar va kechuvning aynan shu davrdagi faoliyatini tasdiqlovchi ma’lumotlarga tayanish lozim.

Ko‘rib chiqilgan asarlar mavzuni o‘zaro yaqin, ayni paytda turlicha yo‘nalishlarda yoritadi. Bartold ayirboshlashning ishlab chiqarishga ta’sirini,

Agadjanov Sirdaryo shaharlarining savdodagi o‘rnini, Shoniyozov aholining xo‘jalik ehtiyojlari va manfaatdorligini, Mavlonov esa yo‘llar hamda kechuvlarning ahamiyatini oldinga chiqaradi. Ularning qarashlarini qiyoslash savdo markazini mahsulot tayyorlanadigan, jamlanadigan, xarid qilinadigan va boshqa hududlarga uzatiladigan joy sifatida o‘rganishga imkon beradi. Ayrim xulosalar bir xil o‘rta asr yozma manbalariga tayanishi mumkinligi sababli, tadqiqotchilar fikrlarining mos kelishini baholashda ularning daliliy asosini ham solishtirish zarur.

Tanlangan adabiyotlarning muhokama qilingan o‘rinlari asosida yanada aniqlashtirilishi lozim bo‘lgan masalalar ham ko‘rinadi. Jumladan, muayyan mahsulotning ishlab chiqarilgan joyi, uni bozorga olib kelgan aholi guruhi, savdogar vositachiligi va yakuniy iste’mol manzili o‘rtasidagi bog‘lanish alohida e’tibor talab qiladi. Xorazm bozoriga keltirilgan har bir buyumning kelib chiqishini aniqlash mahalliy ishlab chiqarish bilan tashqaridan olib kelingan mahsulotlarni farqlashga yordam beradi. Shuningdek, mahsulotni mahsulotga almashtirish, pul bilan xarid qilish va savdo yo‘llarida xizmat ko‘rsatish shakllarini dalillar doirasida ajratib o‘rganish zarur. Mazkur maqolada ushbu masalalarni IX–XI asrlar chegarasida, Xorazm va quyi Sirdaryoning muayyan savdo markazlari misolida yoritishga e’tibor qaratiladi.

Metodologiya

Tadqiqot IX asrdan XI asrgacha Xorazm va quyi Sirdaryo savdo markazlarida voha hamda dasht aholisi o‘rtasidagi ayirboshlash munosabatlarini yozma xabarlar, arxeologik topilmalar tavsifi va numizmatik ma’lumotlarni qiyoslash orqali o‘rganishga asoslanadi. Asosiy e’tibor mahsulotning kelib chiqishi, uni yetkazib bergan aholi guruhi, savdo amalga oshgan joy hamda tovar harakatining yo‘nalishiga qaratiladi. Har bir ma’lumotning davri, hududiy mansubligi va qanday dalilga tayangani alohida aniqlanadi. Bunday tartib shahar bozorlarining mahalliy xo‘jalik bilan aloqasini, dasht aholisining ayirboshlashdagi ishtirokini va savdogarlar vositachiligini birgalikda yoritishga xizmat qiladi.

Tadqiqotning hududiy doirasi Xorazm vohasi va Sirdaryoning quyi oqimidagi savdo manzilgohlarini qamrab oladi. Gurganj, Kot, Yangikent va Jand haqidagi ma’lumotlar ularning daryo o‘zanlari, sug‘oriladigan yerlar, yaylov hududlari hamda qatnov yo‘llariga nisbatan joylashuvi bilan bog‘liq holda ko‘rib chiqiladi. Tarixiy geografik tahlilda Yahyo G‘ulomovning Xorazm yo‘llarini yozma tavsiflar va arxeologik kuzatuvlar yordamida tekshirish tajribasi hisobga olinadi. Olim bu haqda quyidagicha yozadi: “Arab geograflarining tavsiflari va arxeologik tadqiqotlar Amudaryoning chap sohili bo‘ylab Tuyamo‘yingacha

boradigan yo‘l X asrda va keyinchalik eng gavjum va obod bo‘lganini tasdiqlaydi” [7, G‘ulomov Yahyo – 140-bet]. Mazkur tadqiqotda ham savdo yo‘llari haqidagi xabarlar manzilgohlarning joylashuvi, qadimgi o‘zanlar, suv bilan ta’minlanish imkoniyatlari va yo‘l bo‘yidagi inshootlar to‘g‘risidagi ma’lumotlar bilan qiyoslanadi. Amudaryo bo‘yidagi yo‘lga tegishli kuzatuv o‘z hududiy doirasida baholanadi; quyi Sirdaryo yo‘nalishlari tegishli dalillar asosida tekshiriladi. Joy nomlarini aniqlashda ularning turli yozilish shakllari, qo‘shni manzilgohlarga nisbati, masofa haqidagi xabarlar va arxeologik yodgorliklarning davri birgalikda hisobga olinadi. Nomlarning o‘xshashligi qo‘shimcha tekshiruvni talab qiladigan belgi sifatida qaraladi.

Yozma ma’lumotlarni o‘rganishda asarning yaratilgan vaqti bilan unda tasvirlangan voqelikning davri ajratiladi. Muallifning shaxsiy kuzatuvi, boshqa kishilardan eshitgan xabari va oldingi asarlardan olingan ma’lumotlar imkon qadar farqlanadi. Bir xabarning keyingi asarlarda takrorlanishi uning mustaqil dalillar sonini oshirgan deb hisoblanishiga yo‘l qo‘ymaydi. Shu bois ma’lumotlarning bir-biriga bog‘liqligi, bayondagi o‘xshash jumlalar va mualliflar foydalangan manbalar tekshiriladi. Savdo, bozor, mahsulot olib kelish, olib chiqish yoki karvon qatnoviga oid iboralar ular keltirilgan jumla va voqea mazmuni doirasida talqin qilinadi.

Yozma xabarlarni moddiy dalillar bilan o‘zaro tekshirishda J. Shepard va L. Treadwellning tadqiqot usulidan foydalaniladi. Mualliflar o‘z ishlarining manbaviy asosini quyidagicha ifodalaydi: “Bizning tadqiqotimizda numizmatik va boshqa moddiy dalillar yozma manbalar tahlili bilan birlashtiriladi” [8, Shepard J., Treadwell L. – 12-bet]. Ushbu yondashuvga muvofiq, savdo munosabatlariga doir yozma xabarlar tangalar, sopol buyumlar, ishlab chiqarish qoldiqlari va manzilgohlarning tuzilishiga oid nashr etilgan ma’lumotlar bilan solishtiriladi. Arxeologik dalilni baholashda topilmaning qaysi qatlamdan chiqqani, uning sanasi, topilgan joyi hamda qanday sharoitda saqlangani muhim hisoblanadi. Mahalliy ishlab chiqarishni aniqlash uchun ustaxona, o‘choq, xomashyo, ishlab chiqarish chiqindisi va tayyor buyumlar o‘rtasidagi bog‘liqlik tekshiriladi. Boshqa hudud buyumlariga o‘xshash topilmalar savdo, ustalarning ko‘chishi va mahalliy taqlid ehtimollarini hisobga olgan holda sharhlanadi.

Numizmatik ma’lumotlar savdo aloqalarining yo‘nalishi va hisoblash vositalarini o‘rganishda qo‘llanadi. Bunda tanganing zarb qilingan joyi va sanasi, topilma tarkibi hamda topilgan sharoiti alohida qayd etiladi. Yakka tanga, xazina, qabr yoki turar joy qatlamidan chiqqan tangalarning dalillash imkoniyatlari farqlanadi. Tanganing zarb sanasi bilan uning muomalada bo‘lgan va yerga tushgan vaqtini aniqlash masalalari o‘zaro bog‘liq holda ko‘rib

chiqiladi. Muayyan joydagi pul muomalasi haqidagi xulosa topilmalar tavsifi, ularning davri va boshqa savdo belgilarining mos kelishiga tayantiriladi.

Ayirboshlashning xo‘jalik mazmunini ochishda bevosita mahsulot almashinuvi, savdogarlar vositachiligi va karvonlarga xizmat ko‘rsatish farqlanadi. Bu masalada A. M. Xazanovning quyidagi mulohazasi uslubiy ahamiyatga ega: “Uzoq masofali karvon savdosi va unga xizmat ko‘rsatish ba’zan ko‘chmanchilarga chorvachilik mahsulotlarini dehqonchilik va hunarmandchilik mahsulotlariga bevosita ayirboshlashdan ko‘proq foyda keltirgan” [9, Xazanov A. M. – 337-bet]. Ushbu fikr asosida voha va dasht aholisi savdodagi vazifalariga ko‘ra o‘rganiladi. Mahsulot ishlab chiqaruvchi, uni xarid qiluvchi, vositachilik qiluvchi hamda tashishni ta’minlovchi kishilarning faoliyati ajratib ko‘rsatiladi. Dasht aholisining chorva va chorvachilik mahsulotlarini yetkazib berishi bilan ulov, yo‘lboshchilik yoki yuk tashish xizmatlaridagi ishtiroki alohida tekshiriladi. Xazanov qayd etgan foyda nisbati qiyoslash uchun qo‘yilgan masala sifatida olinadi. Xorazm va quyi Sirdaryoda mazkur faoliyatlarning iqtisodiy ahamiyati hududga tegishli dalillarning mazmuniga qarab baholanadi.

Mahsulotlar harakatini o‘rganishda ishlab chiqarilgan joy, savdoga chiqarilgan markaz va iste’mol hududi ajratiladi. Xorazm orqali olib o‘tilgan tovarning kelib chiqishi uning mahalliy ishlab chiqarishga mansubligi haqidagi ma’lumotlar bilan tekshiriladi. Xuddi shunday tartib quyi Sirdaryo markazlarida qayd etilgan mahsulotlarga ham qo‘llanadi. Tovarning savdo yo‘nalishi ma’lum, ishlab chiqarilgan joyi esa ochiq qolgan hollarda bu farq saqlanadi. Natijada mahalliy ehtiyojlarni qondirgan ayirboshlash bilan uzoq hududlarni bog‘lagan savdo aloqalarini aniqroq tavsiflash imkoniyati yaratiladi.

Tadqiqotda pul orqali oldi-sotdi, mahsulotlarni bevosita almashtirish, hadya, boj, o‘lpon va safar uchun berilgan yordam manbadagi mazmuniga qarab farqlanadi. Tovarning bir qo‘ldan ikkinchi qo‘lga o‘tishi haqidagi xabar savdo munosabati sifatida baholanishidan oldin uning sababi, ishtirokchilari va to‘lov shakli tekshiriladi. Mazkur tartib siyosiy majburiyat, shaxsiy kelishuv va bozor ayirboshlashini o‘zaro ajratishga yordam beradi. Voha hamda dasht aholisi tushunchalari qo‘llanganda esa yashash muhiti, xo‘jalik mashg‘uloti va savdodagi vazifa o‘rtasidagi farqlar hisobga olinadi.

Davriy qiyoslash IX, X va XI asrlarga oid ma’lumotlarni alohida ko‘rib chiqishga asoslanadi. Keng davr bilan sanalangan arxeologik materialning vaqt chegarasi saqlanadi; uni torroq davrga kiritish tegishli dalil bilan asoslanadi. Shaharlarning rivojlanishi, qatnov yo‘nalishlarining o‘zgarishi va ayirboshlash shakllaridagi farqlar shu tartibda tekshiriladi. X asrdagi holatni tasvirlagan xabar

undan oldingi yoki keyingi davr uchun qo‘llanganda davomiylikni ko‘rsatuvchi qo‘shimcha ma’lumot izlanadi.

Tahlilning ishonchliligi dalillarning saqlanishi va o‘rganilganlik darajasini hisobga olish orqali ta’minlanadi. Don, jun va teri singari mahsulotlar haqidagi yozma ma’lumotlar arxeologik topilmalar tarkibi bilan qiyoslanganda ularning saqlanish sharoitiga e’tibor beriladi. Topilmalar soni qazilgan maydon, qatlamlarning holati va nashrlarning to‘liqligi bilan bog‘liq holda baholanadi. Savdo hajmi yoki narxga oid hisoblashlar uchun davri, joyi va o‘lchov birligi aniqlangan ma’lumotlar tanlanadi. Yakuniy xulosalarda manbada bevosita qayd etilgan holat, bir nechta dalilning mos kelishidan chiqarilgan fikr va qo‘shimcha tekshiruv talab qiladigan taxminning chegaralari ochiq ko‘rsatiladi.

Natijalar

Yozma manbalar va e’lon qilingan arxeologik tadqiqot natijalarini qiyoslash Xorazm hamda quyi Sirdaryo savdo markazlarida mahsulot almashinuvi aholining kundalik ehtiyojlari bilan chambarchas bog‘langanini ko‘rsatadi. O‘rganilgan dalillarda mahalliy mahsulotlarni sotish, boshqa hududlardan keltirilgan mollarni tarqatish va shahar aholisini oziq-ovqat bilan ta’minlash vazifalari ajralib turadi. Bu vazifalar savdo markazlarini voha dehqonchiligi, hunarmandchilik va chorvachilik xo‘jaliklari bilan bog‘lagan.

Xorazmga oid ma’lumotlar savdoga chiqarilgan mahsulotlarning kelib chiqishi turlicha bo‘lganini ko‘rsatadi. Al-Muqaddasiy bulg‘orlardan keltirilgan mollarni sanagach, vohaning o‘zida yetishtiriladigan va tayyorlanadigan mahsulotlarga o‘tadi. Ushbu ro‘yxatning dastlabki qismi quyidagicha tarjima qilinadi: “Unda uzum va kunjut yetishtiriladi, ko‘p miqdorda mayiz, pishiriqlar, yo‘l-yo‘l kiyimlar, gilamlar va ko‘rpalar tayyorlanadi” [10, al-Muqaddasiy – 202-bet]. Ro‘yxatning tuzilishi Xorazmning ishlab chiqarish va savdo vositachiligi vazifalarini ajratishga imkon beradi. Mo‘yna, mum, asal va boshqa mollarning bulg‘orlar orqali kelishi ularning yetkazib berilish yo‘nalishini bildiradi. Vohaning mahalliy mahsulotlari esa dehqonchilik va hunarmandchilikning savdodagi ishtirokini ko‘rsatadi. Shu asarning Gurganj tavsifida qo‘y sotiladigan maydon qayd etilishi chorva savdosining shahar ichida muayyan joyga ega bo‘lganini dalillaydi. Biroq bu xabar sotilgan chorvaning barcha kelib chiqish manzillarini aniqlashga yetarli ma’lumot bermaydi.

Quyi Sirdaryoda Yangikentning oziq-ovqat ta’minoti daryo qatnovi bilan bog‘langan. Ibn Havqal Yangikent, Jand va Xuvorani birgalikda tilga olib, ular orasida Yangikentni eng yirik markaz sifatida tavsiflaydi. Sirdaryo haqida so‘z yuritar ekan, u quyidagilarni qayd etadi: “U orqali Yangikentga aholi tinchlik yoki sulh holatida bo‘lgan paytda oziq-ovqat olib kelinadi” [11, Ibn Havqal –

25-bet]. Bu xabar Yangikentning tashqaridan oziq-ovqat qabul qilganini hamda tashish imkoniyati siyosiy osoyishtalik bilan bog‘langanini ko‘rsatadi. Muallif Yangikentdan Xorazmgacha bo‘lgan masofani o‘n kunlik yo‘l deb belgilaydi. Ushbu ma’lumot ikki hududning yo‘l aloqalarini tushunishga yordam beradi. Daryo orqali keltirilgan oziq-ovqatning ishlab chiqarilgan joyi esa tanlangan parchada ochiq qoladi. Shu sababli uni to‘liq Xorazm mahsuloti sifatida baholash qo‘shimcha dalil talab qiladi.

Yangikent bilan bog‘lanadigan Jankent yodgorligida chorva ta’minotiga oid mustaqil dalillar ham olingan. K. Larson va hammualliflarning tadqiqotida IX–X asrlarga mansub qatlamlardan olingan 16 qo‘yning tish emalidagi uglerod hamda kislorod izotoplari o‘rganilgan. Mualliflar aniqlangan farqlarni hayvonlarni boqish sharoitlari bilan bog‘lab, quyidagi talqinni taklif qiladilar: “Kuzatilgan izotop tafovutlari Jankentning mahalliy chorvachilik hamda mintaqaning boshqa hududlaridan keltirilgan hayvonlar hisobiga ta’minlanganini taxmin qilishga asos beradi” [12, Larson K. va boshqalar – 8-9-betlar]. Mazkur natija shaharning chorva ta’minotida mahalliy xo‘jaliklar va atrof hududlar o‘rtasidagi aloqalar birgalikda qatnashgan bo‘lishi mumkinligini ko‘rsatadi. Izotop tafovutlari hayvonlarning aynan qaysi bozorda sotilgani yoki ular uchun qanday haq to‘langanini belgilamaydi. Shunga qaramay, bu dalillar shahar hayotida chorvachilikning bevosita ishtirokini o‘rganishga asos bo‘ladi.

Dalillarni birgalikda ko‘rib chiqish savdo markazlarining vazifalari o‘zaro farqlanganini ko‘rsatadi. Xorazmga oid mahsulotlar ro‘yxatida mahalliy ishlab chiqarish va uzoq hududlar bilan vositachilik aloqalari aniqroq ko‘rinadi. Yangikent haqidagi xabarlarda esa oziq-ovqat qabul qilish va shahar ehtiyojlarini qondirish masalasi yaqqol namoyon bo‘ladi. Bunday farqni shaharlarning xo‘jalikdagi o‘rni, ularni ta’minlagan hududlar va foydalanilgan yo‘llar bilan bog‘lab tushuntirish mumkin.

XULOSA

Yozma manbalar va arxeologik ma’lumotlar Xorazm hamda quyi Sirdaryoda voha va dasht aholisi o‘rtasidagi ayirboshlashning asosini o‘zaro xo‘jalik ehtiyojlari tashkil etganini ko‘rsatadi. Voha dehqonchiligi va hunarmandchiligi oziq-ovqat, gazlama hamda ro‘zg‘or buyumlariga bo‘lgan talabni qondirishga xizmat qilgan bo‘lsa, dasht aholisi chorva va chorvachilik mahsulotlarini yetkazib berishda qatnashgan. Gurganj va Yangikent kabi markazlar mahalliy mahsulotlar savdosi, tashqaridan keltirilgan tovarlarning taqsimlanishi va shahar aholisining ta’minotida muhim o‘rin tutgan. Savdogarlar vositachiligi, ulov va yo‘l xizmatlari, daryo hamda quruqlik yo‘llaridan foydalanish ushbu aloqalarni qo‘llab-quvvatlagan. Ayirboshlashning ko‘lami va

yo‘nalishi esa ishlab chiqarish imkoniyatlari, qatnov sharoiti hamda tinchlik va sulh munosabatlariga bog‘liq bo‘lgan.

Tadqiqotda foydalanilgan dalillar asosan X asr yozma xabarlari va IX–X asrlarga oid arxeologik materiallarga tayangani uchun XI asrdagi davomiylik va o‘zgarishlarni shu davr manbalari bilan aniqlashtirish zarur. Olingan natijalar savdo markazlarining rivojlanishi voha va dasht xo‘jaliklari o‘rtasidagi aloqalar bilan chambarchas bog‘langanini, ayirboshlash esa aholining kundalik ehtiyojlarini qondirish va hududlararo iqtisodiy munosabatlarni mustahkamlashga xizmat qilganini ko‘rsatadi.

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THE EFFECTIVENESS OF TASK-BASED LANGUAGE TEACHING IN DEVELOPING UNIVERSITY STUDENTS' COMMUNICATIVE COMPETENCE

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Abstract. *The development of communicative competence is one of the major objectives of modern foreign language education. However, university students learning English as a foreign language often experience difficulties in applying their theoretical knowledge to real-life communication. Traditional teaching approaches frequently emphasize grammatical rules, vocabulary memorization, and language exercises, providing limited opportunities for meaningful interaction. Task-Based Language Teaching (TBLT) offers an alternative approach that places purposeful communication and practical language use at the center of the learning process. This article examines the effectiveness of TBLT in developing university students' communicative competence, with particular attention to speaking fluency, listening comprehension, vocabulary acquisition, learner autonomy, and interaction skills. The study employs a qualitative literature review and thematic analysis of previous research on task-based language instruction. The reviewed literature suggests that meaningful communicative tasks can create opportunities for authentic language use, encourage active participation, and support the development of speaking performance. At the same time, successful implementation requires appropriate task design, teacher preparation, effective assessment, and consideration of students' language proficiency levels. The article concludes that TBLT can serve as an effective pedagogical approach in higher education when integrated systematically into university English language curricula.*

Keywords: *Task-Based Language Teaching, communicative competence, higher education, English language teaching, language acquisition, interactive learning, learner autonomy.*

1. INTRODUCTION

In the context of globalization and international cooperation, English language proficiency has become an essential requirement for academic achievement, professional development, and intercultural communication.

Universities are increasingly expected to prepare students who can use English effectively in academic, professional, and everyday situations. Therefore, developing communicative competence has become one of the central objectives of contemporary English language teaching. Despite the growing importance of English, many university students experience difficulties when communicating in real-life situations. They may possess sufficient knowledge of grammar and vocabulary but struggle to express their opinions, participate in discussions, ask questions, or communicate confidently. This situation indicates that knowledge about a language does not necessarily guarantee the ability to use it effectively. One possible explanation is the continued reliance on teacher-centered instructional practices in which grammatical explanations, translation exercises, and memorization occupy a significant proportion of classroom time. Although these methods can contribute to linguistic knowledge, students also need opportunities to use the language for meaningful communication.

Task-Based Language Teaching (TBLT) represents an important methodological approach that addresses this need. Unlike traditional approaches that primarily organize instruction around grammatical structures, TBLT organizes learning around communicative tasks. Students use the target language to solve problems, exchange information, make decisions, complete projects, and achieve specific outcomes. According to Ellis (2003), task-based instruction emphasizes meaning-focused language use while allowing learners to develop their linguistic resources through communication. Similarly, Nunan (2004) highlights the importance of classroom tasks that connect language learning with real-world language use.

The relevance of TBLT is particularly significant in higher education, where students need English not only for examinations but also for presentations, academic discussions, research activities, international cooperation, and future employment.

The purpose of this study is to examine the effectiveness of Task-Based Language Teaching in developing university students' communicative competence and to identify practical recommendations for its implementation in higher education.

The study addresses the following research questions:

1. How does Task-Based Language Teaching contribute to the development of university students' communicative competence?

2. Which types of communicative tasks are most appropriate for university-level English language instruction?

3. What challenges may arise during the implementation of TBLT in higher education?

4. How can university English language teachers improve the effectiveness of task-based instruction?

2. METHODS

This study adopts a qualitative literature review approach to investigate the pedagogical effectiveness of Task-Based Language Teaching in higher education.

The research is based on an examination of academic books, peer-reviewed journal articles, theoretical studies, and systematic reviews related to task-based language instruction and communicative competence. Particular attention is given to the theoretical contributions of Ellis (2003), Nunan (2004), and Willis (1996), as well as empirical research and literature reviews examining the outcomes of TBLT in English as a Foreign Language (EFL) contexts.

The selected publications were analyzed thematically, focusing on four major dimensions:

The development of speaking fluency and accuracy;

The improvement of interactive and communicative abilities;

The influence of task-based activities on student motivation and participation;

The challenges associated with implementing TBLT in university classrooms.

The study also considers practical classroom activities that can be adapted to different university subjects, student proficiency levels, and educational objectives.

As the research is based on previously published literature, it does not involve original experiments, interviews, or questionnaires. Consequently, the findings represent a synthesis of existing research rather than newly collected statistical data.

3. RESULTS AND DISCUSSION

3.1. The Role of TBLT in Developing Communicative Competence

Communicative competence refers to the ability to use language appropriately and effectively in different communication contexts. It involves more than grammatical accuracy; it also includes vocabulary knowledge, discourse organization, sociolinguistic awareness, and the ability to maintain interaction.

Task-Based Language Teaching supports the development of these abilities by encouraging students to use English for meaningful purposes. Instead

of simply repeating grammatical structures, learners are required to exchange information, negotiate meaning, express ideas, and reach specific outcomes. For example, students may be asked to organize a university conference, prepare a business proposal, conduct an interview, or discuss solutions to an environmental problem. Such activities require learners to combine different language skills and apply their knowledge in realistic situations. Research by Huynh and Nguyen (2023), which reviewed 25 studies on TBLT and EFL speaking performance, found that task-based instruction supported improvements in general speaking performance as well as linguistic complexity, accuracy, and fluency. Similarly, Bryfonski and McKay (2019) conducted a meta-analysis of 52 studies and reported an overall positive effect of TBLT implementation on language learning outcomes. These findings provide support for considering task-based instruction as a valuable approach to language education.

3.2. Effective Types of Communicative Tasks in University Education

The effectiveness of TBLT largely depends on the selection and organization of classroom tasks. Activities should reflect students' academic needs, language proficiency, and future professional requirements. Several task types are particularly useful in university English language courses.

1. Problem-solving tasks

Students work individually or in groups to identify solutions to a particular problem. For example, they may discuss how universities can improve environmental sustainability or how technology can support modern education. These tasks develop critical thinking, vocabulary use, negotiation, and collaborative communication.

2. Role-play activities

Students assume different professional or social roles and participate in simulated situations. Examples include job interviews, business negotiations, customer service conversations, and academic consultations. Role-play allows students to practice appropriate expressions, improve speaking confidence, and develop the ability to respond spontaneously.

3. Group discussions and debates

Students discuss controversial or academic topics, express personal opinions, provide arguments, and respond to opposing viewpoints. These activities encourage students to organize their thoughts, support their opinions with evidence, and develop interactive speaking skills.

4. Information-gap activities

Students receive different pieces of information and must communicate with one another to complete a task. For example, students may compare schedules, exchange details about research projects, or solve a puzzle using information available only to their partners. Such activities create a genuine need for communication and encourage active listening.

5. Project-based tasks

Students collaborate to prepare presentations, research reports, posters, or educational projects. These activities integrate speaking, listening, reading, and writing while promoting responsibility and independent learning. By incorporating these task types into university English courses, teachers can create a more interactive and learner-centered educational environment.

3.3. The Impact of TBLT on Students' Motivation and Language Confidence

Student motivation is an important factor influencing successful foreign language acquisition. Learners are more likely to participate actively when classroom activities are meaningful, relevant, and connected to their personal or professional interests. Task-based instruction can increase motivation by giving students opportunities to use English for practical purposes. Rather than focusing exclusively on completing grammar exercises, students become active participants who cooperate, exchange ideas, and work toward shared objectives. A systematic review by Yu et al. (2024), which examined 38 studies on TBLT and EFL speaking proficiency, identified positive associations between task-based instruction, speaking development, learner engagement, and motivation. Furthermore, collaborative tasks can help create a supportive learning environment in which students have opportunities to practice without being constantly interrupted by grammatical correction. This is particularly important for students who experience anxiety when speaking a foreign language. Pair work and small-group activities can provide a less intimidating environment and gradually encourage learners to participate in larger classroom discussions. However, motivation should not be considered an automatic result of task-based instruction. Tasks must be appropriately designed, achievable, and relevant to students' interests and educational levels.

3.4. Challenges in Implementing TBLT in Higher Education

Nevertheless, the successful implementation of TBLT requires careful planning, appropriate task selection, effective classroom management, and assessment methods that recognize communicative performance. Teachers must also consider differences in students' proficiency levels, motivation, and learning needs.

The study recommends that higher education institutions gradually integrate task-based activities into English language curricula, provide professional development opportunities for teachers, and promote assessment practices that evaluate students' ability to communicate effectively. In conclusion, Task-Based Language Teaching can contribute significantly to improving the quality of English language education in higher education. Its systematic implementation can help transform students from passive recipients of linguistic knowledge into active and confident users of English.

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ISPANIYA VA O‘ZBEKISTONDA BOLALARNING IJTIMOIY MOSLASHUVI UCHUN KOMMUNIKATIV YORDAM

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Annotatsiya. *Bolaning dars va tengdoshlar bilan birgalikdagi faoliyatda qatnashishi uning ko‘rsatmani tushunishi, fikrini ifodalashi va suhbatni davom ettira olishiga bog‘liq. Maqolada kommunikativ yordamning shu vazifalari psixolingvistik tadqiqotlar hamda Ispaniya va O‘zbekistonning ta’limga oid hujjatlari asosida tahlil qilinadi. Qiyoslash ehtiyojni aniqlash, yordamni tashkil etish, mutaxassislar ishtiroki, til tajribasi va oila bilan hamkorlikni qamrab oladi. Me’yoriy talablar maktabdagi amaliy natijalardan ajratib ko‘rsatiladi. O‘zbekiston maktablari uchun tushunarli ko‘rsatmalar, mos ifoda vositalari va turli vaziyatlarda kuzatuvni birlashtirish tavsiya etiladi. Ish nazariy xarakterga ega; takliflarning ta’siri keyingi tadqiqotlarda tekshirilishi kerak.*

Kalit so‘zlar: *psixolingvistika, ijtimoiy moslashuv, kommunikativ yordam, inklyuziv ta’lim, til tajribasi, Ispaniya, O‘zbekiston.*

Аннотация. *Участие ребёнка в уроке и совместной деятельности со сверстниками зависит от того, насколько он понимает инструкции, выражает мысль и поддерживает разговор. Эти функции коммуникативной помощи рассматриваются на основе психолингвистических исследований и образовательных нормативных документов Испании и Узбекистана. Сопоставление охватывает выявление потребностей, организацию помощи, участие специалистов, языковой опыт и сотрудничество с семьёй. Нормативные требования отделяются от результатов школьной практики. Для школ Узбекистана предлагается сочетать понятные инструкции, доступные способы выражения и наблюдение в разных ситуациях. Работа носит теоретический характер; влияние предложенных мер требует дальнейшего изучения.*

Ключевые слова: *психолингвистика, социальная адаптация, коммуникативная помощь, инклюзивное образование, языковой опыт, Испания, Узбекистан.*

Abstract. *A child's participation in classroom activities and joint interaction with peers depends on the ability to understand instructions, express ideas, and maintain a conversation. This article examines these functions of communicative support based on psycholinguistic research and educational policy documents from Spain and Uzbekistan. The comparison covers the identification of needs, the organization of support, the involvement of specialists, language experience, and cooperation with families. Regulatory requirements are considered separately from practical outcomes in the school environment. For schools in Uzbekistan, it is recommended to combine clear instructions, accessible means of expression, and observation of the child across different situations. The study is theoretical in nature; the effectiveness of the proposed approaches should be tested in future research.*

Keywords: *psycholinguistics, social adaptation, communicative support, inclusive education, language experience, Spain, Uzbekistan.*

KIRISH

Sinfga moslashish bolaning darsda o‘tirishi yoki maktab qoidalarini bilishi bilangina belgilanmaydi. U topshiriqni tushunishi, o‘z fikrini aytishi, tengdoshining gapiga javob qaytarishi va birgalikdagi faoliyatga qo‘shilishi kerak. Muloqotdagi qiyinchilik shu imkoniyatlarni cheklashi mumkin. O‘qituvchi bolaning sukutini topshiriqqa qiziqmaslik deb qabul qilsa, uning yordamga ehtiyoji sezilmay qoladi. Shuning uchun ijtimoiy moslashuvni o‘rganishda bolaning sinfdagi kommunikativ ishtirokiga e’tibor berish zarur.

Bunday qiyinchiliklarning sababi har xil bo‘ladi. Ayrim bolalarga aytilgan gapni tushunish, boshqalariga esa fikrini ifodalash yoki vaziyatga mos javob topish qiyin. Ta’lim tilini yangi o‘rganayotgan bola ham qisqa javob berishi mumkin. Bir xil tashqi belgi bu holatlarni bir guruhga kiritish uchun yetarli emas. Yordam tanlashda til tajribasi, faoliyat mazmuni va suhbatdoshning bolaga qo‘ygan talabi birgalikda ko‘rib chiqilishi kerak.

Maqolaning maqsadi kommunikativ yordamning psixolingvistik asoslarini Ispaniya va O‘zbekistonning inklyuziv ta’limga oid me’yorlari bilan qiyoslashdir. Tahlil uch savolga javob izlaydi: ehtiyoj qanday tushuniladi, yordam maktab faoliyatiga qanday bog‘lanadi va uning natijasi nimada kuzatilishi mumkin? Qiyoslash asosida O‘zbekiston sharoitida tekshirib ko‘rish mumkin bo‘lgan pedagogik yo‘nalishlar belgilanadi.

Kommunikativ qiyinchilikning psixolingvistik talqini

Vygotskiy til va tafakkur rivojini ijtimoiy o‘zaro ta’sir bilan bog‘laydi. Bruner bola tilni kattalar bilan birgalikdagi faoliyatda o‘zlashtirishiga e’tibor qaratadi [1; 2]. Bu qarashlarda muloqot vaziyatdan ajralgan so‘zlar yig‘indisi sifatida tushunilmaydi. Suhbatdosh, umumiy faoliyat va berilgan ko‘mak bolaning gapni anglashiga ham, uni ifodalashiga ham ta’sir qiladi. Pedagogik yordam ham shu sharoitlarni hisobga olishi kerak.

Retseptiv jihat aytilgan gap yoki ko‘rsatmani tushunishni qamrab oladi. Ekspressiv jihat fikrni ifodalash bilan bog‘liq. Pragmatik jihat esa suhbatdosh va vaziyatga qarab muloqotni boshqarishda namoyon bo‘ladi. Masalan, bola savolning lug‘aviy ma’nosini tushunsa ham, javobini qachon boshlash yoki tushunmagan joyini qanday so‘rashni bilmasligi mumkin. Shu sababli nutqning grammatik to‘g‘riligi kundalik muloqot haqida to‘liq tasavvur bermaydi.

Wieczorek va hammualliflar 130 tadqiqot ma’lumotlarini umumlashtirib, til ko‘nikmalari bilan ijtimoiy kompetensiya o‘rtasida bog‘liqlikni aniqlagan. Ushbu natija sababiy yo‘nalishni belgilamaydi; tanlanmalarning tarkibi ham uni barcha bolalarga bir xil tatbiq etishni cheklaydi [3]. Van der Wilt va hammualliflarning sharhi esa og‘zaki muloqot ko‘nikmalari bilan tengdoshlar guruhidagi mavqe o‘rtasidagi aloqani yoritadi [4]. Ikkala ish ham bolaning nutqini ijtimoiy vaziyatdan ajratib baholash cheklanganini ko‘rsatadi.

Ko‘p tilli muhitda bolaning qaysi tilni kim bilan va qancha muddat ishlatgani muhim. ASHA tavsiyalariga ko‘ra, ko‘p tillilikning o‘zi buzilish emas; baholashda oiladagi va maktabdagi tillar, ularni o‘zlashtirish tarixi hamda turli sharoitlardagi nutq namunalari hisobga olinadi [5]. Bir til bo‘yicha topshiriq bolaning umumiy qobiliyatini to‘liq ifodalamaydi. Shu bilan birga, uyda faol gapirishi haqidagi ma’lumot ham boshqa qiyinchiliklarni tekshirish zaruratini o‘z-o‘zidan bekor qilmaydi.

Material va tahlil usuli

Ishda bolalar tili va ijtimoiy muloqotiga oid tadqiqotlar, inklyuziv ta’lim bo‘yicha me’yoriy hujjatlar hamda UNICEFning amaliy qo‘llanmalari tanlab tahlil qilindi. Bu tizimli adabiyotlar sharhi yoki maktablarda o‘tkazilgan tajriba emas. Manbalar kommunikativ ehtiyojni tushuntirish, yordamni tashkil etish va kuzatiladigan natijalarni ajratish uchun ishlatildi.

Ispaniya bo‘yicha Ley Orgánica 2/2006 qonunining konsolidatsiyalangan matni, jumladan 71–72-moddalar ko‘rib chiqildi [6]. O‘zbekiston bo‘yicha “Ta’lim to‘g‘risida”gi Qonun, PQ-4860-son qaror va 638-son qarorga birinchi ilova olindi [7; 8; 9]. PQ-4860 bilan tasdiqlangan konsepsiya 2020–2025-

yillarga mo‘ljallangan tarixiy dastur sifatida keltiriladi; undan 2026-yildagi barcha maktablarning holatini tavsiflash uchun foydalanilmaydi.

Qiyoslash mezonlari ehtiyojning ta’rifi, yordamni boshlash asoslari, mutaxassislar vazifasi, til sharoiti va oila ishtirokidan iborat. Qonunda belgilangan talab bilan uning amalda bajarilishi farqlanadi. Hujjatda bir mexanizmning mavjudligi uning barcha hududlarda bir xil ishlayotganini ko‘rsatmaydi. Maktablar o‘rtasidagi farqni aniqlash uchun alohida kuzatuv va boshqa empirik ma’lumotlar kerak.

Ispaniya hujjatlarida yordamga ehtiyoj

Ley Orgánica 2/2006 qonuni 71-moddasida alohida pedagogik yordam talab qiladigan holatlar turlicha sanaladi. Ular orasida til va kommunikatsiya rivojlanishidagi buzilishlar, ta’lim tilini jiddiy darajada bilmaslik, ta’lim tizimiga kech qo‘shilish hamda ijtimoiy-ta’limiy zaiflik bor [6]. Mazkur ro‘yxat bir xil darajada kam gapiradigan ikki bolaning ehtiyojiga turli sabab asos bo‘lishi mumkinligini hisobga olish uchun ahamiyatli.

Shu modda ehtiyojni erta aniqlash va u aniqlangan paytdan yordam ko‘rsatishni nazarda tutadi. 72-modda zarur mutaxassislar va resurslar, maktabni moslashtirish hamda pedagoglarni tayyorlash masalalarini belgilaydi [6]. Kommunikativ yordamni tashkil etishda shu vazifalarning o‘zaro bog‘lanishi muhim: ehtiyoj haqidagi ma’lumot o‘qituvchining ishiga ta’sir qilishi, tavsiya esa darsdagi aniq harakatda bajarilishi kerak.

O‘zbekiston uchun ushbu yondashuvdan olinadigan savol — yordamga ehtiyojni qanday asoslash masalasidir. Ta’lim tilidagi qiyinchilik, muloqotni boshqarishdagi qiyinchilik va topshiriqning tushunarsiz berilishi bir-biridan farqlanishi kerak. Xorijiy tizimdagi lavozim nomini ko‘chirishdan oldin maktabda shu vazifani kim bajarishi, qanday ma’lumot yig‘ilishi va o‘qituvchiga qanday tavsiya yetkazilishi aniqlanadi.

O‘zbekistonning me’yoriy asoslari

“Ta’lim to‘g‘risida”gi Qonunning 20-moddasi inklyuziv ta’limni alohida ehtiyojlar va individual imkoniyatlarning xilma-xilligini hisobga olgan holda teng ta’lim olish imkoniyatlari bilan bog‘laydi [7]. Kommunikativ yordam nuqtayi nazaridan bu tamoyil bolaning axborotni qanday tushunishi va o‘z fikrini qanday ifodalashini hisobga olishni talab etadi. Darsdagi ishtirokni baholash shu individual sharoitlarni ham qamrab olishi kerak.

PQ-4860-son qaror inklyuziv ta’limni bosqichma-bosqich rivojlantirish, pedagoglarni tayyorlash va ota-onalarni jalb qilish vazifalarini belgilagan [8]. 638-son qarorga birinchi ilova umumiy o‘rta ta’lim maktablaridagi tashkiliy tartibni aniqlashtiradi. Uning 25 va 27-bandlari individual ta’lim dasturini

o‘zlashtirishdagi yordamni, 58-bandi esa ota-onalar bilan hamkorlikni ko‘rsatadi [9].

Ushbu qoidalarni kommunikativ vazifalarga aylantirish uchun maktab ichida kuzatuv va maslahat tartibi kerak. Sinf o‘qituvchisi bolaning qaysi faoliyatda qiynalishini tavsiflaydi, tegishli mutaxassis bu kuzatuvni o‘z baholashi bilan to‘ldiradi, oila esa kundalik muloqot haqida ma’lumot beradi. Kelishilgan tavsiyada kim qanday o‘zgarishni sinab ko‘rishi va keyingi maslahatgacha qaysi holatlarni qayd etishi belgilanadi.

Me’yoriy yondashuvlarni qiyoslash

Jadvalda ikki mamlakatning ko‘rib chiqilgan hujjatlari ehtiyojni aniqlash, yordamni tashkil etish, til sharoiti, oila ishtiroki va ta’limdagi qatnashuv mezonlari bo‘yicha jamlangan.

Mezon	Ispaniya hujjatlarida	O‘zbekiston hujjatlarida
Ehtiyojni aniqlash	Til rivojlanishidagi buzilish va ta’lim tilini jiddiy darajada bilmaslik turli holatlar sifatida sanaladi [6].	Individual imkoniyatlar va alohida ta’lim ehtiyojlari hisobga olinadi [7].
Yordamni tashkil etish	Ehtiyojni erta aniqlash, tegishli mutaxassis va resurslarni ta’minlash belgilangan [6].	Individual dastur, maxsus pedagog va yordamchi xodim ishtiroki tartibga solingan [9].
Til sharoiti	Ta’lim tilini bilmaslik qo‘shimcha yordamga asos bo‘lishi mumkin [6].	Ko‘rib chiqilgan umumiy normalar individual ehtiyojga mos yordamni belgilaydi [7; 9].
Oila ishtiroki	Ota-onaning ta’limga oid qarorlardagi ishtiroki va axborot olishi nazarda tutiladi [6].	Maktabning ota-onalar bilan hamkorligi alohida qayd etiladi [9].
Ta’limda ishtirok	Yordamni normalizatsiya va inklyuziya tamoyillari asosida tashkil etish belgilangan [6].	Moslashtirilgan ta’lim muhiti va individual dastur orqali ishtirokni ta’minlash nazarda tutilgan [9].

Sinfdagi kommunikativ to‘siqlarni kamaytirish

Birinchi yo‘nalish darsdagi til yuklamasini ko‘rib chiqishdir. Uzun ko‘rsatma, bir vaqtda berilgan ko‘p talab yoki mavzuga yangi so‘zlar bolaning javobini qiyinlashtirishi mumkin. O‘qituvchi topshiriqni qismlarga ajratib, asosiy so‘zlarni tushuntirib va tushunganini tekshirish uchun vaqt ajratib ko‘radi. Shundan keyingi kuzatuv avvalgi holat bilan solishtiriladi. Bu harakatlar bolaning qiyinchiligi haqida shoshilinch xulosa chiqarishni kamaytiradi.

Ikkinchi yo‘nalish javob berish usulini moslashtirishdir. Og‘zaki javobdan tashqari rasmni tanlash, yozish, ishora yoki kommunikatsiya vositasidan foydalanish ayrim bolalarga fikrini ifodalashda zarur bo‘lishi mumkin. UNICEF

materiallari axborot va o‘quv mazmunini tushunarli shakllarda taqdim etishga e’tibor qaratadi [11]. Mos vositaning ishlatilishi uning vaqtincha yoki doimiy kerakligiga qarab ko‘rib chiqiladi; barcha vositalarni imkon qadar tez olib tashlash umumiy maqsad qilib qo‘yilmaydi.

Uchinchi yo‘nalish muloqotdagi imkoniyatni rejalashdir. Guruhga bo‘lib ishlashning o‘zi barcha bolani suhbatga jalb qilmaydi. Kimdir doim javob bersa, boshqasiga gapirish uchun imkon qolmasligi mumkin. Vazifada har bir qatnashchiga kerak bo‘ladigan ma’lumot yoki harakat ajratilishi, javob uchun vaqt berilishi va tengdoshlarning bir-birini tinglashi kuzatilishi mumkin. Bunda bolaning ishtiroki faqat gaplar soni bilan baholanmaydi.

Shartli holat sifatida tabiatshunoslik darsini olaylik. Bola o‘simlik qismlarini rasmda to‘g‘ri ko‘rsatadi, lekin guruh muhokamasida javob bermaydi. Keyingi topshiriqda unga rasmli tayanch va javobni oldindan o‘ylash uchun vaqt beriladi. Agar u fikrini bildira olsa, qaydda aynan shu sharoit yoziladi. Bu misol bilimni bilish bilan uni suhbatda ifodalash talabi turlicha ekanini tushuntiradi; u kuzatuv natijasi sifatida taqdim etilmaydi.

Oila va mutaxassislar bilan maslahatlashish

Oiladan olinadigan ma’lumot bolaning tanish sharoitdagi muloqotini tushunishga yordam beradi. UNICEF Innocenti qo‘llanmalari ota-ona, o‘qituvchi va maktab xodimlari bolaning ehtiyojlarini birgalikda muhokama qilishini tavsiya etadi [10]. Bunda ota-onadan o‘qituvchining vazifasini bajarish kutilmaydi. Maktab kuzatuvi bilan uy sharoitidagi farq aniqlansa, shu farqning sababi haqida aniq savol beriladi.

Mutaxassislar o‘rtasidagi maslahat qisqa va bajariladigan tavsiya bilan yakunlanishi kerak. “Nutqini rivojlantirish” kabi umumiy yozuv o‘rniga darsda qaysi o‘zgarish sinab ko‘rilishi va undan keyin nima kuzatilishi ko‘rsatiladi. Tavsiya bolaning imkoniyatiga, o‘qituvchining ish sharoitiga va mavjud vositalarga mos kelishi lozim. Bir nechta maqsadni birdan yuklash qaysi o‘zgarish foydali bo‘lganini tushunishni qiyinlashtiradi.

Natijalarni talqin qilish va cheklovlar

Adams va hammualliflarning tadqiqotida kommunikatsiyaga qaratilgan yordamning ayrim suhbat va kundalik faoliyat ko‘rsatkichlariga ta’siri tilning strukturaviy test natijasidan farq qilgan [12]. Shu bois pedagogik kuzatuvda grammatik topshiriq, suhbatdagi ishtirok va kattalar yordamiga ehtiyoj alohida ko‘rsatilishi mumkin. Bir ko‘rsatkichdagi ijobiy o‘zgarish boshqa barcha yo‘nalish yaxshilangani sifatida talqin qilinmaydi.

Kommunikativ ishtirok vaziyatga bog‘liq. Tanish sherik bilan erkin gapirish yangi guruhda ham shunday bo‘lishini kafolatlamaydi. Qayta kuzatuvda

topshiriq, suhbatdosh va yordam sharoiti qayd etilishi kerak. O‘qituvchi ko‘rsatmani o‘zgartirgan bo‘lsa, natijani faqat bolaning ichki qobiliyati o‘sgani bilan tushuntirish ham asosli emas. Muhitdagi moslashtirishning o‘zi ishtirokni yengillashtirishi mumkin.

Maqola tanlab olingan adabiyotlar va hujjatlarga asoslangan. Unda ikki mamlakat maktablarida bir xil usul bilan yig‘ilgan ma’lumotlar yo‘q. Shu sababli qiyoslashdan yordamning keng tarqalganligi, resurslar yetarliligi yoki qaysi tizim samaraliroq ekani haqida xulosa chiqarilmaydi. Keyingi ishda maktab kuzatuvlari, mutaxassislar va oilalar bilan suhbatlar orqali tavsiyalarning bajarilish sharoiti o‘rganilishi mumkin.

XULOSA

Kommunikativ yordam bolaning topshiriqni tushunishi, o‘z fikrini ifodalashi va birgalikdagi faoliyatga qo‘shilishiga qaratiladi. Ispaniya va O‘zbekistonning ko‘rib chiqilgan me’yorlari ehtiyojni aniqlash va yordamni individuallashtirish uchun asos beradi. Maktabdagi keyingi vazifa bu talablarni tushunarli ko‘rsatmalar, qulay ifoda vositalari va muntazam kuzatuv orqali aniq faoliyatga aylantirishdir.

O‘zbekiston sharoitida til tajribasini hisobga olish, o‘qituvchi kuzatuvini mutaxassis va oila ma’lumoti bilan to‘ldirish hamda dars muhitini moslashtirish birgalikda ko‘rib chiqilishi lozim. Keyingi tadqiqotda ushbu yo‘nalishlarning bajarilish sharoiti va natijasi o‘rganilishi mumkin. Bunda bolaning turli vaziyatlardagi muloqoti, tanlangan vositalardan foydalanishi va zarur ko‘mak hajmi qayd etiladi.

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COGNITIVE STYLISTICS AS A RAPIDLY DEVELOPING FIELD OF STUDY

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Abstract. *This article examines why cognitive stylistics has developed so quickly into a distinct interdisciplinary field and how its main theoretical and methodological resources explain literary reading. The study is a narrative review of foundational and recent works in stylistics, cognitive linguistics and cognitive poetics. The analysis shows that the field rests on the inseparability of style and meaning, draws on schema theory, text world theory, conceptual blending, conceptual metaphor theory and foregrounding theory, and increasingly combines close linguistic analysis with eye-tracking, neuroimaging and reader-response evidence. Unlike traditional stylistics, it treats textual features as cues to mental processes and presents the reader as an active co-creator of meaning. This explanatory orientation accounts for the field's growth and its capacity to generate new research questions.*

Keywords: *cognitive stylistics; literary reading; schema theory; text world theory; conceptual blending; conceptual metaphor; foregrounding; eye-tracking.*

Annotatsiya. *Maqolada kognitiv stilistikaning nega qisqa muddatda alohida fanlararo yo'nalishga aylangani va uning asosiy nazariy hamda metodologik vositalari badiiy matnni o'qish jarayonini qanday izohlashi tahlil qilinadi. Tadqiqot stilistika, kognitiv tilshunoslik va kognitiv poetikaga oid asosiy hamda so'nggi ishlarning tavsifiy sharhi shaklida bajarilgan. Tahlil natijalariga ko'ra, soha uslub va ma'noning bir-biridan ajralmasligi tamoyiliga tayanadi, sxema nazariyasi, matn olamlari nazariyasi, konseptual aralashuv, konseptual metafora va oldinga surish (foregrounding) nazariyalaridan foydalanadi hamda puxta lingvistik tahlilni ko'z harakatini kuzatish, neyrovizualizatsiya va o'quvchi javoblarini o'rganish ma'lumotlari bilan tobora ko'proq uyg'unlashtiradi. An'anaviy stilistikadan farqli ravishda, kognitiv yondashuv matn belgilarini ongdagi jarayonlarni ishga soluvchi signallar deb biladi va o'quvchini ma'no yaratishda faol ishtirokchi sifatida ko'rsatadi. Aynan*

shu izohlovchi yo‘nalish sohaning tez o‘sishini va yangi tadqiqot savollarini yuzaga keltirish qobiliyatini tushuntiradi.

Kalit so‘zlar: *kognitiv stilistika; badiiy o‘qish; sxema nazariyasi; matn olamlari nazariyasi; konseptual aralashuv; konseptual metafora; foregrounding (oldinga surish); ko‘z harakatini kuzatish.*

Аннотация. *В статье рассматривается, почему когнитивная стилистика за короткое время превратилась в самостоятельную междисциплинарную область и как её основные теоретические и методологические ресурсы объясняют чтение художественного текста. Исследование выполнено в форме описательного обзора базовых и новейших работ по стилистике, когнитивной лингвистике и когнитивной поэтике. Анализ показывает, что область опирается на принцип неразделимости стиля и значения, использует теорию схем, теорию текстовых миров, теорию концептуальной интеграции, теорию концептуальной метафоры и теорию выдвижения (foregrounding) и всё чаще сочетает тщательный лингвистический анализ с данными айтрекинга, нейровизуализации и экспериментов с читателями. В отличие от традиционной стилистики, когнитивный подход рассматривает особенности текста как сигналы, запускающие мыслительные процессы, а читателя как активного соавтора смысла. Именно эта объяснительная направленность обусловливает рост области и её способность порождать новые исследовательские вопросы.*

Ключевые слова: *когнитивная стилистика; литературное чтение; теория схем; теория текстовых миров; концептуальная интеграция; концептуальная метафора; выдвижение; айтрекинг.*

1. INTRODUCTION

Cognitive stylistics has become one of the most active interdisciplinary fields at the meeting point of linguistics, literary studies and cognitive science. Semino and Culpeper (2002) characterise it as an approach that pairs the explicit and detailed linguistic analysis typical of stylistics with a theoretically grounded account of the mental structures and processes involved in producing and receiving language. The definition has two parts. The first keeps the field tied to close reading: how texts are organised, which grammatical options authors choose, and how those choices accumulate across a work. The second goes further. Naming a metaphor, an inversion or a rhythmic pattern no longer completes an analysis; what matters is what such a feature does in the reader’s mind. Traditional stylistics tended to stop at a catalogue of formal features and rarely asked how actual readers process them (Simpson, 2004).

A guiding assumption of the approach is that style and meaning cannot be separated (Leech & Short, 2007). If a passive construction, a fragmented sentence or an unexpected metaphor shapes what a text means, an analysis that ignores form is incomplete. Reading is therefore not passive decoding but active construction of meaning. Werth (1999) describes it as guided world-building, in which the author supplies linguistic cues and the reader assembles a mental world from them using personal and cultural knowledge. Stockwell (2002) adds that grammar and syntax are cognitive tools that shape how meaning unfolds, not neutral conventions.

Because the field draws on many frameworks and methods, a compact synthesis is useful for students and researchers entering it. This article has three aims: to outline the main theoretical frameworks of cognitive stylistics, to describe the methods it employs, and to explain why the field has expanded so quickly and what it offers beyond traditional stylistics.

2. METHODS

The study follows a qualitative, descriptive-analytical design in the form of a narrative literature review. The corpus consisted of foundational monographs and articles in stylistics, cognitive linguistics and cognitive poetics, together with empirical studies of literary reading that use eye-tracking, neuroimaging and reader-response techniques. A work was included when it (a) defined the field or one of its central concepts, (b) developed a framework applied to literary texts, or (c) reported evidence on how readers process literary language.

The sources were read closely, and their key claims were extracted and sorted into three analytical categories: theoretical frameworks, research methods, and the questions that motivated the field's development. A comparative procedure was then used to contrast cognitive stylistics with traditional stylistics in terms of how each treats formal features, the reader and explanation. The findings were synthesised interpretively. Because the selection was purposive rather than exhaustive, the review does not claim to cover every contribution to the field.

3. RESULTS

3.1. Theoretical frameworks

The analysis identified five interconnected frameworks, each addressing a different aspect of literary reading. Schema theory, which grew out of Gestalt psychology and was adapted for cognitive science by Rumelhart and Ortony (1977), treats a schema as a structured package of background knowledge that readers bring to a text. Reading combines bottom-up processing, in which

meaning is built from linguistic detail, with top-down processing, in which existing schemas generate expectations. A reader who lacks the relevant cultural schema may fail to understand a passage even when every word is decoded. Writers exploit this by refreshing or disrupting schemas, which produces defamiliarisation, the experience of seeing the familiar as if for the first time (Cook, 1994).

Text World Theory (Werth, 1999; Gavins, 2007) holds that reading creates a mental space, a text world, which is gradually filled with characters, settings, events and relations. Such worlds accumulate step by step and can be embedded in one another when a narrative moves between temporal, spatial or hypothetical frames. The theory thus explains how readers follow shifts of perspective, complex time structures and coherence across long or discontinuous texts.

Conceptual blending theory (Fauconnier & Turner, 2002; Sweetser, 1990; Coulson, 2001) explains how new meanings arise. Two or more input spaces, each representing a distinct domain, are mapped onto one another, and their shared structure is projected into a blend that acquires emergent structure absent from either input. This accounts for the flash of insight produced by a successful metaphor, allegory or ironic juxtaposition, in which an unexpected correspondence between domains is recognised.

Conceptual metaphor theory (Lakoff & Turner, 1989) rejects the view that metaphor is mere poetic ornament and treats it as a basic pattern of thought. Abstract concepts such as time, argument or life are understood through concrete, bodily domains: time as a resource that is spent or wasted, argument as a battle, life as a journey. A poet who uses spatial or journey imagery therefore activates structures that readers already use to make sense of experience, which helps explain why some figures feel natural and others forced.

Foregrounding theory, rooted in the Prague School (Mukařovský, 1970) and tested empirically by van Peer (1986), concerns the effects of deviation from linguistic norms and of unexpected repetition and parallelism. Such features interrupt automatic processing and draw attention to the form of the language itself. Reading slows, engagement increases, and the outcome is both aesthetic pleasure and fuller interpretation. Semino and Culpeper (2002) note that even small-scale choices consequently carry measurable cognitive and affective effects.

3.2. Research methods

Close linguistic analysis of grammar, syntax, lexis and discourse remains the base of the field, since claims about cognitive effects are speculative without it. Increasingly, however, it is supported by empirical work. Eye-tracking

records where readers look, where they slow down and where they return, showing which features register and which pass unnoticed (Freeman, 2023). Neuroimaging with functional magnetic resonance imaging (fMRI), which detects changes in blood oxygenation linked to neural activity, and electroencephalography (EEG), which records electrical activity through scalp electrodes, indicates that literary language engages not only language areas but also networks for motor simulation, emotion and sensory imagery (Dehaene, 2009; Holland, 2009). Reader-response experiments compare interpretations across readers and reveal both recurring patterns and individual variation (Miall, 2006). Tsur (1992) shows, in his work on prosody, that rhythm and sound patterns systematically influence processing and emotional response.

3.3. Questions behind the field's growth

Burke (2006) places two questions at the centre of the field: what readers actually do when they read, and which cognitive and emotional effects literary language produces. Formal analysis alone cannot answer them, because they require models of reading as a dynamic, time-bound and variable process. Cognitive stylistics responds by tracing how specific linguistic choices trigger specific mental processes. Its scope has since widened to include temporality in reading (Tsur, 1992), multimodal sensory processing (Freeman, 2023) and individual and cultural variation in interpretation. Turner (1991) anticipated this turn when he predicted that the humanities would move toward the study of the mind.

4. Discussion

The comparison with traditional stylistics shows that the main advantage of the cognitive approach lies in how it treats form. Earlier approaches analysed syntactic patterns, lexical choices and figurative language largely in isolation, assuming that a thorough description of formal properties would itself explain literary effects. Cognitive stylistics treats these features as cues that set cognitive and affective processes in motion (Simpson, 2004). The shift has theoretical and practical consequences. Theoretically, an analysis is incomplete unless it links a formal feature to its effect: describing a metaphor is not enough without explaining the mapping it triggers, the domains it brings together and the interpretive results that follow. Practically, the field has to engage with the empirical study of reading and with the findings of cognitive science, instead of working only within literary criticism.

The approach also changes the status of the reader. Stockwell (2002) argues that cognitive stylistics can remain close to the subjectivity of the literary text while describing interpretive processes in a principled and systematic way.

The reader becomes a co-creator of meaning whose background knowledge, schemas and emotional responses are part of how a text means. At the same time, the variety of frameworks that Semino and Culpeper (2002) regard as a sign of the field's vitality creates a task of integration, since findings from different models and methods must be brought into a coherent account. Individual differences between readers also call for caution when experimental results are generalised.

5. CONCLUSION

Cognitive stylistics has grown rapidly because it answers questions about reading that formal description alone cannot. It treats linguistic features as cues to mental processes, combines close textual analysis with evidence from psychology and neuroscience, and draws on schema, text world, blending, conceptual metaphor and foregrounding theories. In this way it connects textual analysis with cognitive science and gives a fuller account of how literary language works. Future research may concentrate on integrating these frameworks and on testing them with more varied groups of readers.

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LINGO-SEMANTIC ASPECTS IN TELEGRAM INTERFACE TRANSLATION INTO UZBEK

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Abstract: *This study examines the lingo-semantic aspects of translating English-language mobile application interfaces into Uzbek using the Telegram application as an example. Using a qualitative descriptive-comparative approach, we analyze six interface strings from the Android version of Telegram, obtained from its official localization platform. The analysis focuses on semantic correspondence, functional adequacy, and linguistic adaptation. The findings identify four translation procedures: lexical explicitation, borrowing, grammatical transformation, and descriptive translation. The results reveal that functional adequacy does not always ensure semantic precision, as some Uzbek translations introduce slight shifts in meaning. The study highlights the importance of contextual analysis in achieving accurate and natural Uzbek interface translations.*

Keywords: *telegram interface translation, lingo-semantic analysis, contextual meaning, functional adequacy.*

INTRODUCTION

Due to the fact that mobile application interfaces contain short linguistic elements, such as menu labels, button names, commands, notifications, settings, and system messages, translating them requires not only linguistic accuracy but also an understanding of their semantic and functional characteristics. Previous studies of international scholars and researchers have examined various aspects of software and application localization. For example, Spanish scholar De la Cova, specializing in translation and localization discusses the term *'tab'* saying

that “the different options to translate [...] depend on what kind of semiotic referent it is” [1]. Although the study focuses on web applications, its findings are relevant to mobile interfaces as well, since the meaning of an interface element is often determined by its visual representation and practical purpose. Another Spanish scholar Sánchez Ramos [2], in turn, explores the professional requirements of mobile application localization, highlighting the technical knowledge and specialized training required in this field. These studies demonstrate that interface translation is a context-dependent process in which linguistic choices are closely connected with the technical and functional organization of an application.

Uzbek researchers have also made contributions to the study of translation issues in mobile application interfaces, approaching the subject from various linguistic perspectives, including semantic analysis, lexicographic examination, and the investigation of borrowing, calquing and linguistic adaptation. For instance, Makhammadov examined multilingual terminology used in Android mobile applications, focusing on its representation in Uzbek, Russian, and English. The author observes that “word-to-word translation is often used, especially in mobile applications” [3], highlighting a translation practice that raises questions about semantic accuracy and contextual appropriateness. Similarly, Arzimurodova [4] explored the lexicographic representation of mobile communication terminology in Uzbek and English. Despite the contributions of these studies, the translation of individual linguistic elements within mobile application interfaces requires further examination from a contextual and functional perspective.

The purpose of this study is to examine the lingo-semantic features of translating the Telegram application interface from English into Uzbek and to identify the main semantic and functional challenges arising in the process. By analyzing actual interface elements and their Uzbek equivalents, the study aims to assess the extent to which translation choices preserve the intended meaning and communicative function of mobile application interfaces.

Research methodology

Our research methodology employs a qualitative descriptive-comparative approach to investigate the lingo-semantic aspects of translating the Telegram mobile application interface from English into Uzbek.

Analysis and discussion

We have selected six most linguistically challenging interface strings from Telegram's Android localization platform demonstrating that translating mobile application interfaces involves more than replacing English words with their

Uzbek equivalents. The selected examples reveal cases in which semantic correspondence and functional adequacy do not fully coincide. The empirical material consists of six selected interface strings from the Android version of Telegram. The application was selected as the object of analysis based on its widespread use in Uzbekistan. According to the National Study of Media Consumption in Uzbekistan, published in November 2026, Telegram was used by 86.1% of the surveyed respondents. The survey covered 1,411 adults from all 14 regions of the country [5]. Furthermore, Similarweb's ranking of Android applications placed Telegram first among free applications in the Communication category in Uzbekistan on October 29, 2026 [6].

'Data and Storage' → *'Ma'lumotlar va xotira'*, demonstrates context-dependent lexical selection. The English term *'storage'* has several possible meanings, including the act of storing information and the place or capacity in which data are stored. In the context of mobile application settings, however, it refers to the storage-related options available to the user. The Uzbek equivalent *'xotira'* conveys this meaning in a concise and familiar form. Although the semantic scope of storage and *'xotira'* is not identical in every context, the selected equivalent is appropriate for the particular interface category. It preserves the communicative function of the original label and conforms to common Uzbek usage. Therefore, this example can be considered a successful instance of contextual lexical adaptation. We suggest *'Ma'lumot saqlash joyi'* as it provides a broader and more precise semantic coverage than *'xotira'* (*'memory'*), accurately reflecting the technical definition of *'storage'* as a persistent data repository rather than temporary system memory.

'Media files' → *'Media fayllar'* illustrates lexical borrowing and linguistic adaptation. The Uzbek equivalent retains the international lexical element *'media'* while combining it with the Uzbek-adapted form *'fayllar'* – (*'files'*). This translation preserves the original reference to digital media content and reflects the established use of the term *'fayl'* in Uzbek digital terminology. Rather than replacing the English expression with a descriptive phrase, the translation maintains a concise and recognizable form. This example demonstrates how borrowing can facilitate the adaptation of international digital terminology into Uzbek while preserving semantic clarity and familiarity for users. We suggest *'axoborot materiallari'* as an alternative translation as, to our opinion, draws on native Uzbek lexical resources rather than direct borrowing.

'When using mobile data' → *'Mobil internet orqali ulanganda'*, demonstrates a possible semantic shift. The English expression refers to the condition in which the user is using mobile data. The Uzbek translation,

however, can be interpreted as *'when connected via mobile internet'* because the verb *'ulanmoq'* emphasizes the act or state of connecting rather than the use of mobile data itself. Although the two meanings are closely related in the context of mobile network settings, they are not entirely identical. The translation nevertheless retains its practical function by indicating the network condition under which a particular setting applies. Thus, its functional adequacy is relatively high, while its semantic correspondence is less precise. The alternative wording *'mobil internetdan foydalanganda'* would convey the idea of using mobile internet more directly; however, it is treated here only as an alternative suggestion rather than the primary translation displayed on the platform. We suggest *'mobil internetda'* as a shorter and more contextually appropriate alternative as this formulation reduces linguistic length while preserving the intended meaning, reflecting the importance of linguistic economy and screen-space constraints in mobile interface localization.

'When roaming' → *'Rouming orqali ulanganda'*. The English expression when roaming refers to the condition or period during which a mobile device uses a network outside its home operator's coverage area. The Uzbek translation introduces the construction *'orqali ulanganda'*, which places greater emphasis on connecting through roaming than on the condition of roaming itself. Consequently, a slight semantic shift occurs. Nevertheless, the translation remains understandable within the settings context and performs the intended function of identifying when the relevant option applies. The word *'rouming'* represents borrowing, as it is an internationally used telecommunications term adapted to Uzbek spelling. The alternative *'rouming paytida'* is more concise and semantically closer to the English expression, but it is not considered the primary translation in this analysis. We suggest *'sayyor aloqada'* as an alternative translation as this equivalent draws on the original meaning of movement and mobility.

'Disabled' → *'Yoqilmagan'*, illustrates grammatical transformation and the importance of contextual interpretation. The English adjective disabled describes a feature or function that is inactive or unavailable. Its Uzbek equivalent *'yoqilmagan'* is formed as a negative participial construction and literally conveys the meaning *'not turned on'*. The translation changes the grammatical form of the source expression while preserving its intended status-related function in the settings context. However, *'yoqilmagan'* and *'o'chirilgan'* do not necessarily express identical meanings in every situation: the former emphasizes that something has not been turned on, whereas the latter generally indicates that it has been switched off. Therefore, the suitability of the chosen

equivalent depends on the particular state represented by the interface. In this example, the translation is functionally understandable, although its semantic interpretation may be narrower than that of the English term. We suggest *'faol emas'* as an alternative as it describes the inactive state of a function without implying whether it has never been activated or has been switched off, offering a more neutral and contextually appropriate equivalent.

'Reset Auto-Download Settings' → *'Avtomatik yuklab olish sozlamalarini asliga qaytarish'*, demonstrates descriptive translation. The English verb reset is rendered through the phrase *'asliga qaytarish'*, meaning *'to restore to its original state'.* The example demonstrates how descriptive translation can preserve meaning when a concise lexical equivalent is not used. We suggest *'avtomatik yuklash sozlamalarini tiklash'* as a more concise alternative to the existing translation. Replacing the lengthy expression *'asliga qaytarish'* with *'tiklash'* improves linguistic economy while preserving the intended function of the interface command.

Our suggested translations for the terms described above are presented in Table 1 (see tab. 1):

Table 1.

English original	Uzbek in-app translation	Suggested translations
Data and Storage	Ma'lumotlar va xotira	Ma'lumot saqlash joyi
Media files	Media fayllar	Axborot materiallari
When using mobile data	Mobil internet orqali ulanganda	Mobil aloqa orqali / Mobil internetdan
When roaming	Rouming orqali ulanganda	Sayyor aloqada
Disabled	Yoqilmagan	Faol emas
Reset Auto-Download Settings	Avtomatik yuklab olish sozlamalarini asliga qaytarish	Avtomatik yuklash sozlamalarini tiklash

The analysis of the selected examples reveals that different translation procedures may be required even within a single application and one section of its interface, and confirms the importance of examining mobile interface translations in their functional context rather than evaluating them solely through isolated dictionary equivalents.

CONCLUSION

The study has examined the lingo-semantic aspects of translating English-language mobile application interfaces into Uzbek, focusing on six selected interface strings from the Android version of Telegram. The analysis demonstrates that interface translation is not limited to the direct replacement of

source-language words with their target-language equivalents. It requires consideration of contextual meaning, communicative function, and the linguistic characteristics of the target language.

The findings indicate that the selected Uzbek translations employ different translation procedures, including lexical explicitation, borrowing, grammatical transformation, and descriptive translation. These procedures help adapt interface elements to Uzbek linguistic conventions while maintaining their intended functions.

The analysis also reveals that semantic correspondence and functional adequacy do not always coincide. The examples given above confirm that a translation may remain understandable and functional while still requiring greater semantic precision.

Based on the findings, three criteria are particularly important when evaluating Uzbek translations of mobile application interfaces: semantic correspondence, functional adequacy, and linguistic adaptation. Considering these criteria together makes it possible to assess not only whether a translation conveys the original meaning but also whether it performs the intended function and sounds natural in Uzbek.

The study has certain limitations. Its empirical material is restricted to six selected strings from one mobile application, and the analysis is based on textual data available on the official Telegram Translation Platform rather than direct usability testing in the application. Therefore, the findings should be regarded as a focused examination of selected localization examples rather than as a general assessment of Uzbek mobile application localization.

Despite these limitations, the study highlights the importance of contextual and lingo-semantic analysis in translating mobile application interfaces into Uzbek. The findings may contribute to further research on Uzbek digital localization and support the development of more accurate, consistent, and user-oriented translations of mobile interface elements.

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Annotatsiya. *Maqolada ijodkor va badiiy matn örtasidagi munosabatlarni tahlil etişda hikoya qiliş usulining tutgan örni hamda uning öziga xos jihatlari yoritiladi. Hikoya qiliş faqat voqealarni bayon etiş bilan çeklanmay, tasvirlaş vazifasini ham bajarişi ta'kidlanadi. Bunda tabiat manzaralari, kundalik hayot körinişlari, personajlarning taşqi qiyofasi va ruhiy holatiga xos ayrim belgilar söz vositasida jonli hamda aniq gavdalantiriladi.*

Mustaqillik davri nasrida ijodkorlar öz fikr-keçinmalari, ijodiy mehnat jarayonidagi murakkabliklar, ruhiy özgarişlar, qalb tubidagi iztirob va orzu-armonlarni asarlaridagi ijodkor obrazlari orqali ifodaladilar. Ş.Xolmirzayevning "Quyoş-ku falakda kezib yuribdi" (Qudrat aka), "Yozuvçi" (Odil Yoqubov) va "Bulut tösgan oy" (Quvvatjon) hikoyalarida, E.A'zamning "Şoirning töyi" qissasi (Otaşqalb şoir) hamda "Yozuvçi" hikoyasida (domla), N.Eşonqulning "Momoqöşiq" (Şamsi Saloh) va "Tun panjaralari" (ismsiz qahramon) qissalarida ijodkor ruhiyatining turli holatlari — kötarinki va tuşkun, iztirobli va quvonçli keçinmalari, şuningdek, ijtimoiy muhitga munosabati va tanqidiy qaraşlari haqqoniy tasvirlanadi.

Kalit sözlar: *uslub, hikoyaçilik, nutq, muallif, ijodkor, obraz.*

Annotation. *The article examines the role and distinctive features of the narrative method in analyzing the relationşip between an author and a literary text. It is emphasized that narration is not limited to recounting events; it also serves the function of description. Through the use of language, elements suç as natural landscapes, scenes from daily life, the physical appearance of çaracters, and specific indicators of their psyçological state are rendered in a vivid and precise manner.*

In the prose of the independence era, authors have expressed their own thoughts and inner experiences—the complexities encountered during the

*creative process, psyçological şifts, and the profound anguiş or aspirations held deep within their hearts—through the çaracters of writers depicted in their works. In stories suç as Ş.Kholmirzayev's "The Sun Wanders the Heavens" (featuring the çaracter Qudrat aka), "The Writer" (by Odil Yokubov), and "The Moon Obscured by Clouds" (featuring Quvvatjon); in E.A'zam's novella "The Poet's Wedding" (featuring the passionate poet) and his story "The Writer" (featuring the *domla* [teaçer/mentor]); and in N.Eşonqul's novellas "Mother-Song" (featuring Şamsi Salokh) and "Bars of the Night" (featuring an unnamed protagonist), the various states of an author's psyçe—ranging from elation to despondency, from anguiş to joy—are portrayed authentically, alongside their attitudes toward the social environment and their critical perspectives.*

Keywords: *style, storytelling, speeç, author, creator, çaracter.*

KIRIŞ

Ijodkor şaxsi bilan badiiy asar örtasidagi aloqani tadqiq etişda matnning kim tomonidan va qanday usulda hikoya qilinişi alohida ahamiyat kasb etadi. Öquvçi köpinça asardagi hikoyaçi bilan muallifni bir şaxs sifatida qabul qiladi. Vaholanki, hikoyaçi — yozuvçining özi yoki real hayotdagi muayyan kişi bölişi şart bölmagan, badiiy töqima asosida yaratilgan nutq egasidir. U yozuvçining voqealarni öquvçiga yetkaziş uçun tanlagan ğoyaviy-badiiy vositasi hisoblanadi. Adabiyotşunoslikda bunday bayon qiluvçi şaxs roviy deb ham ataladi. Roviy badiiy matn ehtiyojidan kelib çiqib yuzaga çiqadi. Uni bevosita muallif bilan tenglaştirib bölmaydi: yozuvçi muayyan asarni yaratişdan oldin ham mavjud bölgan, asar yozilgaç ham hayot keçirib, ijodini davom ettiradi.

Adabiyotşunoslikda "hikoya qiliş" tuşunçasi ikki xil kölamda izohlanadi. Tor ma'noda u muayyan vaqtda sodir bölgan hodisani söz orqali batafsil bayon etişni anglatadi. Keng ma'noda esa voqeani hikoya qiliş bilan birga, nisbatan turğun holatlarni tasvirlaşni ham qamrab oladi. Masalan, tabiat manzarasi, maişiy vaziyat, qahramonning taşqi körinişi yoki ruhiy keçinmalarining ayrim tomonlari söz yordamida köz oldimizda gavdalantiriladi.

Adabiyotlar tahlili va metodlar. N.D.Tamarçenko talqinida hikoyaçi, bir tomondan, nasriy asar bayonini taşkil etuvçi subyekt, ikkinçi tomondan esa muallifning özi bilan aynan bir bölmagan şartli, töqima personajdir.[39] H.Şou ham hikoyaçini oğzaki yoki yozma şaklda voqealar tarixini bayon qiluvçi vositaçi sifatida tuşuntiradi. Badiiy matnda u muallif tasavvuri bilan yaratiladi; hikoya birinçi yoki uçinçi şaxs nomidan olib borilişi, hikoyaçi esa voqealarga

[39] Тамарченко Н.Д. Теоретическая поэтика: понятия и определения. Хрестоматия для студентов филологических факультетов. – М.: РГГУ, 1999. – Словарь .Wielpert G. von. Saçw? rterbuç der literature. –C. 264-265.

daxldor mavhum qiyofa yoki muallifga yaqin obraz sifatida namoyon bölişi mumkin.

Bu masalani tahlil etişda, avvalo, asarda yuz bergan voqea-hodisalar bilan ularning öquvçiga yetkaziliş jarayonini bir-biridan farqlaş lozim. M.M.Baxtin tomonidan rus adabiyotşunosligida alohida ajratilgan uşbu ikki tuşunça keyinçalik keng ilmiy muomalaga kirdi. Qahramonlar hayotida sodir bölgan hodisalar öquvçiga muayyan bayonçi orqali ma'lum böladi. Şunda tabiiy ravişda "Bu voqealarni kim hikoya qilmoqda?" degan savol tuğiladi. Muallif va hikoyaçi munosabatlariga bağişlangan izlanişlar aynan şu savol atrofida şakllangan.[40]

Mazkur yönalişning rivojida B.M.Eyxenbaum, V.V.Vinogradov va M.M.Baxtinning 1920-yillardagi tadqiqotlari muhim örin tutadi. Keyinçalik B.O.Korman, Valgina, Yu.M.Lotman, I.Ilin va Ye.I.Orlova muallif obrazi hamda hikoyaçi masalalarini kengroq örgandilar. Özbek adabiyotşunosligida esa O.Şarafiddinov, U.Normatov, S.Mamajonov, S.Mirvaliyev, A.Rasulov, S.Meli va boşqa olimlarning işlarida roviy obraziga doir qaraşlar rivojlantirildi.

Hikoyaçi muammosini örgangan dastlabki tadqiqotçilardan biri Volfgang Kayzer hisoblanadi. U hikoyaçini badiiy asarning butun tuzilişiga singib ketgan obraz sifatida izohlaydi. Ayrim hollarda hikoyaçi xabarçi vazifasini bajarib, voqeani göyo özi boşidan keçirganidek bayon etadi. Kayzerning "Romanni kim sözlab beradi?" mazmunidagi tadqiqoti hikoyaçilik turlarini tasniflaşga oid nazariy qaraşlarning şakllanişiga ta'sir körsatgan.[41] Tilşunos olim M.Rahmatov lirik asarlarda roviy obrazi haqida töxtalib, şunday deydi: "Adresat matnni öqir ekan, asardan muallif yoki qandaydir bir şaxsni emas, balki asar orqali (asarning içki struktura elementlari ma'nosidan) konkret şaxsni kaşf etadi, uning iştirokini, keçinmalarini his qiladi va u orqali asarda bayon qilingan fikrlarni tuyadi, lirik tasvirlarning iştirokçisiga aylanadi"[42].

Yozuvçi özining badiiy maqsadi va ğoyasini öquvçiga yetkazişda roviy, ya'ni hikoyaçi obraziga murojaat qiladi. Bayon muallif, hikoyaçi yoki boşqa bir roviy nomidan olib borilişidan qat'i nazar, matnning barça unsurlarini birlaştirib turuvçi asosiy omil — muallifning hayot va inson haqidagi qaraşlari, dunyoqaraşi hamda estetik niyatidir. Şu ma'noda hikoyaçi muallif obrazining matnda namoyon böliş şakllaridan biri sanaladi.

Hikoyaçi tabiat manzaralari va voqealarni muayyan nigoh orqali idrok etadi. U köpinça alohida ismga yoki közga körinadigan taşqi qiyofaga ega

[40] Бахтин М.М. Автор и герой в эстетической деятельности Текст. // Бахтин М.М. Эстетика словесного творчества. – М .: Искусство, 1979.-С. 424. – С. 7-180.
[41] Кайзер В. Учебние пособие. Das spraçliçe Kunstwerk. – 89 с.
[42] Rahmatov M.M. Alisher Navoiy lirikasining sintaktik-semantik va kommunikativ xususiyatlari. F.f.doc.diss.Toshkent. 2022. B. 56.

bölmaydi. Bunday mavhum bayonçi yozuvçi tafakkurida şakllanadi va muallif bilan badiiy olam örtasida vositaçi vazifasini bajaradi. R.Kojinov hikoyaçini adabiy asar bayoni uning nomidan olib boriladigan şartli inson obrazi sifatida tavsiflaydi. Uning fikriça, epik asarlarda hikoyaçi har doim ham aniq şaxs sifatida körinmaydi; ba'zan bayon betaraf va obyektiv tus olib, muallif çekinadi hamda hayot manzaralari bevosita tasvirlangandek taassurot uyğotadi.[43]

A.Rasulov özbek adabiyotşunosligida "roviy obrazi"ga alohida e'tibor qaratib, uni yozuvçining işonçli vakili, voqealarni köriş rakursi va baholaş markazi, asar ruhiyatini ifodalovçi vosita sifatida izohlaydi. Olim roviy yozuvçining aynan özi emasligini, biroq uning irodasi va san'atkorlik mahoratini matnda namoyon etişini ta'kidlaydi.[44] Demak, roviy öquvçini badiiy haqiqat olamiga olib kiruvçi muhim vositaçidir.

Roviy muallif va badiiy matn örtasida turar ekan, bu ikki tuşunça bir-biridan muayyan darajada farqlanadi. Hikoyaçi ayrim vaziyatlarda muallif rejasidan taşqarida, tasvirlanayotgan makon va zamon talablariga muvofiq harakat qilayotgandek taassurot uyğotişi mumkin. V.V.Vinogradov hikoyaçi obrazini asar mazmun-mohiyatining umumlaşgan holda namoyon bölişi bilan boğlaydi.[45]

Badiiy asar tuzilişida hikoyaçining vazifasi katta. Ba'zan roviy çekinib, voqealar rivojini qahramonlar nutqi orqali oçişga imkon beradi; ayrim örinlarda esa personajlar kam gapiradi va asosiy bayon hikoyaçi zimmasiga yuklanadi. Bayonçi ovozining köp yoki kam namoyon bölişi asarning mazmuni va kompozitsion qurilişiga bevosita ta'sir körsatadi.

Hikoyaçi matnda turli şakllarda — mustaqil bayonçi, qahramon yoki boşqa personaj qiyofasida namoyon bölişi mumkin. Muallifning fikrlari, xarakter xususiyatlari va dunyoqaraşi ma'lum darajada roviyga singadi, undan esa asar voqealari va qahramonlar talqiniga köçadi. Hikoyaçining ruhiy holati quvnoq, mahzun, vazmin, bosiq, sergap yoki kamgap bölişi mumkin. Bu xususiyatlar asarning umumiy ohangini belgilaydi.

Masalan, fojiaviy hodisalar kinoya yoki hajv ohangida hikoya qilinsa, öquvçi ularni boşqaça ruhda qabul qiladi. Aksinça, hikoyaçi ezilgan va iztirobli kayfiyatda bayon qilsa, kitobxonda ham hamdardlik va tuşkunlik hissi paydo bölişi mumkin. Şunday qilib, roviy kayfiyati matnning hissiy ta'sirçanligini belgilab, öquvçi ruhiyatiga ham köçadi. Hikoyaçilar ma'naviy-intellektual saviyasi va dunyoqaraş kölamiga köra ham farqlanişi mumkin.

[43] Кожинов В. Рассказчик // Словарь литературоведческих терминов. – 1964. – С. 310.
[44] Расулов А. Бадиийлик – безавол янгилик. – Т.: Шарқ, 2007. – Б. 310.
[45] Виноградов В.В. О теории художественной речи. – М., 1971. – С. 156.

Natijalar va muhokama. Hikoyaçilik tabiatiga oid nazariy qaraşlar tadqiqotçi uçun bir neça muhim xulosalarni yuzaga çiqaradi. Avvalo, ular hikoya qilişning özіga xos mohiyatini anglaşga yordam beradi. Ikkinçidan, yozuvçi közlagan badiiy vazifaga mos hikoyaçi turini tanlaş estetik tafakkur va mahorat bilan boğliq ekanini körsatadi. Uçinçidan, bayonning bir turidan boşqasiga ötiş ayrim hollarda zaruratga aylanib, asarning badiiy samaradorligini kuçaytirişi mumkin. Nihoyat, muallifning “men”i oçiq namoyon bölişidan çekiniş ham muayyan badiiy imkoniyatlarni yuzaga keltiradi, biroq bunday usul ayrim murakkabliklarni ham keltirib çiqaradi.

Ye.I. Orlova hikoya qiluvçining kimligiga asoslanib, bayonning uç asosiy turini farqlaydi: muallif-hikoyaçi, qahramon bölmagan hikoyaçi va qahramon-hikoyaçi.[46]

Badiiy matnda muallif-hikoyaçi şakli ham uçraydi. Bunday usul yozuvçiga öz fikrini nisbatan oçiq va bevosita ifodalaş imkonini beradi hamda muayyan adabiy vazifaga xizmat qiladi. Biroq muallif-hikoyaçi mavjudligi asarni töliq avtobiografik deb qabul qilişga asos böla olmaydi. Hatto lirik asardagi “men” ham biografik muallif bilan aynan teng emas; u, eng avvalo, poetik özlikni ifodalaş şaklidir.

Erkin A’zamning “Şoirning töyi” qissasi bu jihatdan e’tiborga molik. Ayrim zamonaviy tadqiqotlarda bunday asarlar şaxsiy “men”i aniq gavdalanmagan jamoaviy hikoya şakli sifatida talqin qilinadi. Unda mustaqil va yaxlit hikoyaçi obrazi közga taşlanmasa-da, bayonni bevosita muallif hikoyasi deb belgilaş ham töğri bölmaydi. Asardagi voqealar muallifning kinoyaviy munosabati bilan jamoaviy hikoyaçining ijodkor hayotini sodda tarzda bayon etişi örtasidagi tafovut orqali oçiladi.

“Şoirning töyi” qissasida roviy voqealarning bevosita iştirokçisi emas, ammo qahramonlar bilan bir makonda turgandek, ularning xatti-harakatlarini yaqindan kuzatgandek hikoya qiladi. Professor Qozoqboy Yöldoşev asarning öqişli va ta’sirçan çiqişida roviy nutqining muhimligini ta’kidlab, yozuvçining özbek tili ifoda imkoniyatlarini puxta egallaganiga e’tibor qaratadi.[47]

Qissada uzoq ötgan zamon fe’llarining qöllanişi hikoya qilinayotgan vaqt bilan roviy nutqi örtasida masofa borligini bildiradi. Muallif hikoyaçini izçil boşqaradi: roviy taşqi tomondan vazmin va bosiq körinsa-da, uning bayonida muallif ruhiyatiga xos yaşirin norozilik, ğazab va nafrat sezilib turadi. Muallif pozitsiyasi turli qaraşlarga ega personajlar orqali namoyon böladi. Otaşqalb şoir, Oqsoqol şoir, Alvastixonim, Ajoyib domla, Mafkuraxonim, Tepakal,

[46] Орлова Е.И. Образ автора в литературном произведении: учебное пособие. – М.: МГУ, 2008. – С. 44.
[47] Yöldoşev Q. Hozirgi özbek qissaçiligining taraqqiyot tamoyillari // Sohibqiron yulduzi. – 2010. – № 2.

Ma’şuqaxonim, Fan arbobi, Jiyanbeka va Yoş şoir singari bir-biridan keskin farq qiluvçi obrazlar yagona badiiy tizimga birlaştirilgan.

Qissada ikki xil roviylik körinişi kuzatiladi: voqealarni hamma joyda hozirdek kuzatib, batafsil bayon qiluvçi köp qiyofali hikoyaçi hamda qahramon-roviy — Oqsoqol şoir. Asosiy hikoya uçinçi şaxs tilidan olib boriladi. Bunday bayonçi voqealar makonidan taşqarida turib, tasvirlanayotgan olamni keng qamrovda kuzatadi. Bu usul mumtoz va an’anaviy nasrda ham keng uçraydi: hikoyaçi göyo çetdan turib, hodisalarning mayda va yirik jihatlarini köra oladigan, biroq tasvirlanayotgan olamning bevosita iştirokçisi bölmagan şaxs sifatida namoyon böladi.

N.Eşonqulning “Momoqöşiq” qissasida esa muallif-hikoyaçi şakli yetakçilik qiladi. Roviy voqealarni dastlab tasvir makonidan taşqarida turib hikoya qiladi, keyinçalik bayon “u” şaxsidan “sen”ga, undan esa “men”ga köçadi. Yozuvçining özi ham bir voqelikni “men”, “sen” va “u” nuqtayi nazarlaridan hikoya qilişga intilganini qayd etadi. Ikkinçi şaxsda bayon qilingan matnlarda hikoyaçining aniq pozitsiyasini belgilaş murakkab: “sen” ortida tasvirlanayotgan olamga mansub bölmagan, hamma narsani biluvçi “u” obrazi ham yaşirinişi mumkin.

Qissa avval uçinçi şaxs tilidan boşlanadi: “Törtta haşarçi daraxtzordan çiqaverişda töxtab qolgan, göyo qimir etsalar dunyoning uluğ möjizasidan quruq qolişadigandek, közlarini ham yummay turardilar”[48]. Keyingi örinlarda esa bayon “sen” şakliga ötib, muallif ovozi bilan Şamsi Salohning içki keçinmalari örtasidagi çegarani noaniqlaştiradi: “...O sen momoqöşiq! Qalbimning muqaddas qöşiği. Sen bu biyobondan, bu mardumlar dilidan nelar izlab yuribsan? Sen bu ruhlar qabristonidan nelar izlayapsan?”[49] Bu murojaat qissada takrorlanib, asosiy roviy monologining muhim qismiga aylanadi.

Asar yakunida hikoya “men” tiliga ötadi va muallif ovozi oçiqroq seziladi: “Muazzam, men sening sodda qalbingning tepişlarini, sening xayol va orzularingni irkit böyoqlarimda aks ettira oldimmi, bilmayman, men çizgan suratlarga qarab, seni biron kişi sevib qolarmikin va seni men his etgançalik tuşunarmikin, buni ham bilmayman..”[50]. Bu parçada muallif-roviy özini namoyon etib, Şamsi Saloh bilan bir makon va zamon doirasiga yaqinlaşadi. Natijada uning hikoyaçi sifatidagi maqomi yanada ravşanlaşadi.

[48] Эшонқул Н. Момоқўшиқ. / Ялпиз ҳиди. Тошкент: Шарқ, 2008. – Б. 161.

[49] Эшонқул Н. Момоқўшиқ. / Ялпиз ҳиди. Тошкент: Шарқ, 2008. – Б. 164.
[50] Ўша манба. – Б. 167.

Muallif-hikoyaçi şaklida matn muallif bilan kitobxon örtasidagi öziga xos muloqotga quriladi. Bayon jarayoni göyo asar öquvçi köz öngida yaratilayotgandek taassurot uyğotişi mumkin. Muallif qahramonlar örtasidagi munosabatlarni taşkil etadi, ularning murakkabligini esa öziga xos bayon usuli va munosabati orqali anglaş imkonini beradi.

Ayrim asarlarda voqealarni boşidan keçirgan va ayni paytda ularni hikoya qilayotgan şaxs muallif-qahramon-hikoyaçi sifatida namoyon böladi. Bunday şaklda taşqi tomondan közga taşlanmaydigan muallif voqealarning haqqoniyligi taassurotini yuzaga keltiradi. Qahramon-hikoyaçining köp uçraşi yozuvçilarning inson içki olamiga, uning özini anglaş jarayoniga va şaxsiy iqrorlariga bölgan qiziqişi bilan izohlanişi mumkin.

Ş. Xolmirzayevning “Yozuvçi” hikoyasi birinçi şaxs, ya’ni “men” tilidan bayon qilinadi va “Ketayapmiz. Yöl uzun, öng yonda – Jiportepa qolib ketdi. Çap qölda – sayoz Izmasoy...” jumlalari bilan boşlanadi.[51] Hikoyaçi voqea sodir bölayotgan makonda bölib, hodisalarga guvoh sifatida sözlaydi. Şu sababli bu örinda adib muallif-hikoyaçi vazifasini bajaradi.

Birinçi şaxs — “men”, ayrim hollarda “biz” nomidan hikoya qilinganda, bayonçi boşqa qahramonlar bilan bir qatorda voqealar içida iştirok etadi. Bunday usulda boşqa personajlarning içki dunyosini töliq biliş va batafsil oçiş imkoniyati çeklangan böladi. Şu bois roviy qahramonning holati haqida fikr bildirganda “şekilli”, “balki” singari taxmin ma’nosidagi birliklardan foydalanadi. Demak, u boşqa obrazlar ruhiyatiga oid xulosalarni aniq bilim sifatida emas, öz kuzatuvi va farazlari asosida beradi.

Muallif-qahramon-roviy öz mavjudligini kitobxonga bevosita sezdiradi. U içki keçinmalarini bayon etiş orqali öz ruhiy olamini oçadi va öquvçi oldida öziga xos tarzda namoyon böladi.

Birinçi şaxs nomidan sözlaydigan har qanday hikoyaçi ham voqealar qahramoni bölavermaydi. Ayrim bayonçilar hodisalarda qatnaşmaydi, faqat ularni tasvirlaydi. Şunga qaramay, qahramon bölmagan hikoyaçi ham badiiy olamning tarkibiy qismidir va tasvir obyektiga aylanişi mumkin. Odatda bunday hikoyaçining ismi, tarjimai holi yoki öziga xos xarakteri böladi. Uning bayoni nafaqat boşqa personajlar va hodisalarni, balki hikoyaçining öz şaxsiyatini ham oçib beradi.

E. A’zamning “Yozuvçi” hikoyasida voqealarni bayon qiluvçi roviy şunday obrazlardan biridir. U hikoya voqealarida bevosita qatnaşmaydi, biroq özining qaraşlari va baholari bilan mustaqil personaj darajasida namoyon böladi.

[51] Холмирзаев Ш. Сайланма. 4 жилд. Т.: Шарқ, 2005. – Б 102.

Jumladan, u qahramon haqida: “U örtamiyona yozuvçi edi. Bu endi har baloni öqiyverib osmonga sapçiydigan bölib qolgan bizga öxşaş ‘dono’larning fikri... bizning davra bayroq qilgan Joys, Prust yoki Dos Passos degan maşhuri jahonlardan esa mutlaqo xabarsiz bir ‘lodon’ edi”, deya fikr bildiradi.[52]

Uşbu mulohazalardan roviy voqealar makoniga yaqin nuqtadan turib gapirayotgandek taassurot uyğotişi anglaşiladi, ammo u hodisalarning bevosita iştirokçisi emas. Hikoya voqealar ortida turuvçi, köp narsadan xabardor bayonçi tomonidan olib boriladi. Uning nutqi vazmin, biroq kinoya va hajvga boy. Roviy ayrim örinlarda muallifga, boşqa joylarda qahramonga yaqinlaşadi, ba’zan esa öz nuqtayi nazarini kengaytirib, batafsil izohlar beradi. U personajlarning mustaqil sözlaş imkoniyatini çeklab, voqealarga munosabat va yakuniy bahoni köpinça özi bildiradi.

XULOSA.

Jahon adabiyotşunosligida muallif muammosi turli ilmiy yondaşuvlar va nazariy konsepsiyalar asosida örganilgan. Tadqiqotlar muallifning badiiy matndagi iştiroki faqat bitta nuqta yoki alohida obraz bilan çegaralanmasligini körsatadi. Muallif ğoyalarini ifodalovçi, unga ma’naviy va estetik jihatdan yaqin qahramon badiiy strukturaning turli qatlamlarida namoyon bölişi mumkin. Syujet rivojidan tortib eng kiçik badiiy detallargaça bölgan unsurlarni tahlil qiliş orqali muallif pozitsiyasining qay darajada aks etganini va hikoya qanday nuqtayi nazardan taşkil etilganini aniqlaş mumkin.

Muallif hamda qahramonning asardagi iştiroki qay darajada sezilişiga köra hikoyaçilikni uç turga ajratiş mumkin: muallif hikoyaçiligi, muallifga tegişli bölmagan hikoyaçilik va muayyan şaxsga biriktirilmagan bevosita nutq.

Bayon kimning nomidan olib borilişidan qat’i nazar, badiiy matnning barça tarkibiy qismlarini yagona ğoya va maqsad atrofida birlaştiruvçi kuç muallifning inson, jamiyat va hayot haqidagi qaraşlaridir. Şu bois roviy obrazini örganiş asarning mazmun-mohiyatini, kompozitsion qurilişini hamda ijodkorning estetik pozitsiyasini anglaşda muhim nazariy va amaliy ahamiyatga ega.

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"BAND", "STROFA" VA "BAYT" ATAMALARINING GENEZISI VA MA'NO CHEGARALARI

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Annotatsiya: *maqolada o'zbek she'rshunosligida keng qo'llanadigan "bayt", "band" va "strofa" atamalarining kelib chiqishi, tarixiy ma'no taraqqiyoti va hozirgi ilmiy muomaladagi chegaralari tadqiq etiladi. Arab, fors va yunon manbalaridagi etimologik asoslar, Sharq mumtoz poetikasi hamda Yevropa versifikatsiya nazariyasidagi talqinlar qiyosiy-tarixiy usulda tahlil qilinadi. Tadqiqot natijasida bayt – mumtoz she'rning tugal ma'noli ikki misrali asosiy birligi, band – ikki va undan ortiq baytdan yoki misradan tashkil topgan, takroriy tuzilishga ega kompozitsion birlik, strofa esa Yevropa she'rshunosligidan kirgan va o'zbek tilida "band"ning nazariy sinonimi sifatida qo'llanadigan umumiy termin ekanligi asoslanadi. Atamalarni farqlash mezonlari taklif etiladi.*

Kalit so'zlar: *bayt, band, strofa, misra, musammat, tarje'band, strofika, versifikatsiya, terminologiya, mumtoz poetika.*

Abstract:*the article examines the origin, historical semantic development and current boundaries of the terms "bayt", "band" and "strophe" in Uzbek studies of verse. Etymological foundations in Arabic, Persian and Greek sources, as well as interpretations in classical Eastern poetics and European versification theory, are analyzed by the comparative-historical method. The study shows that the bayt is the basic two-line semantic unit of classical verse; the band is a compositional unit of two or more bayts or lines with a recurring structure; and "strophe" is a general term borrowed from European scholarship, used in Uzbek as the theoretical synonym of "band". Criteria for distinguishing the terms are proposed.*

Keywords: *bayt, band, stanza, strophe, verse line, musammat, tarji'band, strophics, versification, terminology.*

Аннотация: *В статье рассматриваются происхождение, историческая семантическая эволюция и современные границы научного употребления терминов «байт», «банд» и «строфа», широко используемых в узбекской поэтике. На основе сравнительно-*

исторического подхода анализируются этимологические истоки этих понятий, восходящие к арабским, персидским и греческим источникам, а также их интерпретации в классической восточной поэтике и европейской теории стихосложения. В работе делается вывод, что «байт» — это базовая единица классической поэзии, состоящая из двух строк (полустиший), образующих целостную смысловую единицу; «банд» — композиционная единица с повторяющейся структурой, состоящая из двух или более «байтов» (или строк); а «строфа» — это общее понятие, заимствованное из европейской поэтики, которое в узбекском литературоведении выступает в качестве теоретического синонима термина «банд». Предложены критерии для разграничения данных терминов.

Ключевые слова: *байт, банд, строфа, строка (полустишие), мусаммат, таржебанд, строфика, стихосложение, терминология, классическая поэтика.*

KIRISH

Har qanday fan sohasining rivoji uning terminologik tizimi qanchalik aniq va izchil ekaniga bog'liq. Adabiyotshunoslikda, xususan, she'rshunoslikda atamalarning ma'no chegaralari aniq belgilanmagan holatlar hamon uchraydi. Bunday noaniqlik ayniqsa she'rning tarkibiy birliklarini ifodalovchi "bayt", "band" va "strofa" atamalarida yaqqol ko'rinadi.O'zbek adabiyotshunosligida bu uch atama turli manbalarda turlicha qo'llanadi. Ayrim darslik va qo'llanmalarda "band" va "strofa" to'liq sinonim sifatida beriladi, ba'zilarida esa "band" faqat barmoq vaznidagi she'rlarga nisbatan ishlatiladi. Mumtoz she'riyat tahlilida esa g'azal yoki ruboiyning baytlari ba'zan "band" deb ataladi. Bu holat terminlarning genezisi va tarixiy ma'no taraqqiyotini maxsus o'rganish zaruratini keltirib chiqaradi.

Jahon she'rshunosligida strofika versifikatsiya nazariyasining mustaqil bo'limi sifatida shakllangan. V.M. Jirmunskiy strofani she'rning ritmik-sintaktik jihatdan tugal va takrorlanuvchi birligi sifatida ta'riflagan.[1] M.L. Gasparov Yevropa she'riyati tarixida strofik shakllarning paydo bo'lishi va tarqalishini tizimli yoritgan.[2] O'zbek adabiyotshunosligida Izzat Sulton,[3] To'xtasin Boboyev[4] va boshqa olimlar she'r tuzilishiga oid masalalarni nazariy jihatdan tahlil qilgan. "Adabiyotshunoslik lug'ati"da ham bu atamalarga ta'rif berilgan.[5] Biroq mazkur ishlarda uch atamaning o'zaro munosabati maxsus tadqiqot obyekti bo'lmagan.

Material va metodlar

Tadqiqot materialini uch guruh manbalar tashkil etadi.

Leksikografik manbalar: arab, fors va yunon tillarining izohli va etimologik lug'atlari, shuningdek, Mahmud Koshg'ariyning "Devonu lug'otit turk" asari.

1. **Mumtoz poetika risolalari:** Shams Qays Roziyning "Al-Mu'jam fi ma'oyiri ash'oril-'ajam", Alisher Navoiyning "Mezon ul-avzon" va Zahiriddin Muhammad Boburning "Muxtasar" risolalari.
2. **Zamonaviy ilmiy adabiyotlar:** rus va o'zbek she'rshunoslarining nazariy tadqiqotlari, adabiyotshunoslik lug'atlari va ensiklopediyalari.

Maqolada quyidagi metodlardan foydalanildi:

- **qiyosiy-tarixiy metod** – atamalarning turli davr va madaniyatlardagi ma'no taraqqiyotini kuzatish uchun;
- **etimologik tahlil** – atamalarning dastlabki leksik ma'nosini aniqlash uchun;
- **struktur-semantik metod** – har bir atama ifodalaydigan she'riy birlikning tarkibiy belgilarini aniqlash uchun;
- **tasniflash metodi** – atamalarni farqlash mezonlarini tizimlashtirish uchun.

Tahlil uch bosqichda olib borildi: dastlab atamalarning etimologiyasi o'rganildi, so'ng mumtoz va zamonaviy manbalardagi ta'riflar qiyoslandi, oxirida esa farqlash mezonlari ishlab chiqildi.

Natijalar

1. "Bayt" atamasining genezisi

"Bayt" arabcha so'z bo'lib, "uy", "chodir", "boshpana" ma'nolarini anglatadi.[6] Arab aruz ilmida she'r tuzilishi ko'chmanchi chodir obraziga qiyoslab nomlangan. Baytning ikki teng qismi "misra'" deb atalgan, bu so'z ikki tavaqali eshikning bir tavaqasini bildiradi. Vaznning eng kichik bo'laklari "sabab" (arqon) va "vatad" (qoziq) deb nomlangan. Demak, bayt dastlab she'rni yaxlit "bino" sifatida tasavvur qilishdan kelib chiqqan.Fors-tojik poetikasida bayt ikki misradan iborat, vazn va ma'no jihatidan tugal birlik sifatida mustahkamlangan. Shams Qays Roziy she'rni vaznli va qofiyali so'z deb ta'riflab, baytni uning asosiy o'lchov birligi sifatida qaraydi.[7] Alisher Navoiy "Mezon ul-avzon" risolasida aruz bahrlarini bayt misolida tahlil qiladi va baytni vazn tahlilining asosiy birligi sifatida qo'llaydi.[8] Zahiriddin Muhammad Bobur ham "Muxtasar" risolasida har bir vazn va uning tarmoqlarini bayt misollari bilan ko'rsatadi.[9] Shunday qilib, mumtoz poetikada bayt uch belgiga ega: **ikki misralilik**, **ma'no tugalligi** va **vazn birligi**. G'azal, qasida, masnaviy va qit'a kabi janrlar baytlarning tizimidan tashkil topadi. Baytning o'zi esa band emas: u

takrorlanuvchi qofiya sxemasini emas, balki ma'no va vazn butunligini ifodalaydi.

2. "Band" atamasining genezisi

"Band" forscha so'z bo'lib, "bog'", "tugun", "bog'lam", "to'g'on" ma'nolarini bildiradi. Poetikada u dastlab mumtoz she'rning bir necha bayt yoki misradan tarkib topgan, ichki jihatdan bog'langan qismini anglatgan. Bu ma'no ayniqsa "tarje'band" ("qaytuvchi band") va "tarkibband" ("tarkibiy band") janr nomlarida saqlangan. Bu janrlarda har bir bo'lak bir qofiyali baytlardan iborat bo'lib, "band" yoki "xona" deb atalgan va vosita bayt bilan bog'langan.Musammatlar tizimida ham band asosiy tuzilish birligidir. "Musammat" so'zi arabcha "simt" – "marjon ipi" so'zi bilan bog'liq bo'lib, ipga tizilgan marjon kabi ketma-ket bandlardan tuzilgan she'rni bildiradi. Murabba'da band to'rt misradan (aaaa, bbba), muxammasda besh misradan (aaaaa, bbbba), musaddasda olti misradan iborat. A. Hojiahmedov mumtoz she'r shakllarini tasniflashda bandning misralar soni va qofiyalanish tizimini asosiy mezon sifatida ko'rsatadi.[10]Turkiy she'riyatda bandli tuzilish yanada qadimiy ildizlarga ega. "Devonu lug'otit turk"dagi she'riy parchalarning aksariyati to'rt misrali, ichki qofiyalangan birliklardan iborat.[11] Ular maxsus atama bilan nomlanmagan bo'lsa-da, mohiyatan band vazifasini bajaradi. Bu to'rtliklar keyinchalik xalq qo'shiqlari va barmoq vaznidagi she'riyatning asosiy band shakliga aylangan.

Demak, "band" atamasi ikki belgiga tayanadi: **bir necha misra yoki baytning ichki bog'langanligi** va **bunday birliklarning she'r davomida takrorlanishi**.

3. "Strofa" atamasining genezisi

"Strofa" yunoncha "strophē" so'zidan olingan bo'lib, "burilish", "aylanish" ma'nosini anglatadi. Qadimgi yunon fojiasida xor sahna bo'ylab bir tomonga harakatlanib qo'shiq aytgan. Bu qism "strofa" deb, qarama-qarshi tomonga harakat paytidagi qo'shiq esa "antistrofa" deb atalgan.[12] Shunday qilib, atama dastlab musiqiy-raqs harakati bilan bog'liq bo'lgan.Keyinchalik Yevropa she'rshunosligida strofa she'rning qofiyalanish tizimi, misralar soni va ritmik-intonatsion tugalligi bilan ajralib turadigan, takrorlanuvchi birligi sifatida ta'riflangan. B.V. Tomashevskiy strofani misralarning qofiya va sintaksis orqali birlashgan guruhi sifatida tavsiflaydi.[13] O'zbek adabiyotshunosligiga bu atama XX asrda rus she'rshunosligi orqali kirib kelgan.

Muhokama

Natijalar shuni ko'rsatadiki, uch atama turli madaniy-poetik an'analardan kelib chiqqan va dastlab turli she'riy hodisalarni ifodalagan. Ularning o'zbek adabiyotshunosligida aralash qo'llanishi asosan ikki sabab bilan

izohlanadi.Birinchidan, XX asrda o'zbek she'rshunosligi rus nazariy maktabi ta'sirida shakllandi. "Strofa" atamasi nazariy umumiy tushuncha sifatida qabul qilindi, "band" esa uning milliy muqobili sifatida qo'llana boshladi. Natijada "band"ning mumtoz poetikadagi aniq, tor ma'nosi kengayib, umumiy nazariy tushunchaga aylandi.Ikkinchidan, mumtoz she'riyatni tahlil qilishda bayt va bandni farqlash mezonlari aniq belgilanmadi. Masalan, ruboiy to'rt misradan iborat bo'lsa-da, uni band deb atash noto'g'ri: ruboiy ikki baytdan iborat mustaqil janr bo'lib, takrorlanuvchi tuzilish birligi emas. Shuningdek, g'azalning har bir bayti alohida "band" emas, chunki g'azalda qofiya baytlar bo'ylab davom etadi va she'r baytlar zanjiridan iborat bo'ladi. Aksincha, muxammasning har bir besh misrali qismi to'liq ma'noda banddir.Yu.M. Lotman she'riy matnning har bir sathi ma'no hosil qilishda ishtirok etishini ta'kidlaydi.[14] Bu nuqtayi nazardan bayt va band nafaqat shakl birligi, balki ma'no tashkil etuvchi birlik hamdir. Bayt ma'noni ikki misrada yakunlaydi, band esa uni bir necha misra davomida rivojlantiradi va keyingi bandga uzatadi. Shu farq ularni ajratishda asosiy mezon bo'lishi mumkin. U. To'ychiyevning aruz tizimiga oid tadqiqotida ham baytning vazn va ma'no birligi sifatidagi alohida o'rni ko'rsatilgan.[15]

"Devonu lug'otit turk"dagi to'rtliklar: band tamoyilining shakllanishi

Mahmud Koshg'ariy "Devonu lug'otit turk" asarida so'zlarning ma'nosini izohlash uchun yuzlab she'riy parchalar keltiradi. U she'rni "qoshug'" atamasi bilan ataydi.[14] Parchalarning aksariyati to'rt misrali bo'lib, barmoq vaznida yaratilgan.

Alp Er To'nga marsiyasidan olingan quyidagi to'rtlik eng ko'p tahlil qilinadigan namunalardan biridir:

Alp Är Toŋa öldi mü, Ësiz ajun qaldı mu, Ödläk öčin aldı mu, Ämdi yüräk yırtılur.

Mazmuni: Alp Er To'nga o'ldimi, / Yovuz dunyo qoldimi, / Zamon o'chini oldimi, / Endi yurak yirtilur.

Ushbu to'rtlikni tuzilish jihatidan tahlil qilamiz.

1. **Vazn.** Har bir misra 7 bo'g'indan iborat (Alp-Är-To-ŋa / öl-di-mü). Turoqlanish 4+3 tarzida. Bu barmoq vaznining eng qadimiy va barqaror o'lchovlaridan biri.

2. **Qofiya.** Dastlabki uch misra "öldi mü – qaldı mu – aldı mu" so'zlari bilan o'zaro qofiyalanadi, "mu" so'roq yuklamasi esa radif vazifasini bajaradi. To'rtinchi misra ("yırtılur") boshqa qofiyada. Natijada aaab sxemasi hosil bo'ladi.

3. **Intonatsiya va ma'no.** Dastlabki uch misra ritorik so'roqlardan iborat: shoir qahramonning o'limiga ishonmay, taqdirdan so'raydi. To'rtinchi misra esa

so'roqdan tasdiqqa o'tib, hissiy yakun yasaydi. Shunday qilib, band ichida ma'no va intonatsiya uch bosqichda kuchayib, to'rtinchi misrada tugallanadi.

4. **Bandlararo bog'lanish.** Tadqiqotchilar "Devon"dagi to'rtliklarda to'rtinchi misralar keyingi bandlarning to'rtinchi misralari bilan qofiyalanishini (aaab, cccb, dddb) qayd etgan.[15] Bu – bandlarni bir-biriga "bog'lovchi" misra. Demak, "band" so'zining "bog'" ma'nosi turkiy she'riyatda forscha atama kirib kelmasidan oldin ham tuzilish darajasida mavjud bo'lgan.

Bu to'rtliklarni o'zbek adabiyotshunosligida ilk bor Abdurauf Fitrat to'plab, ilmiy tahlil qilgan.[16] Aaab, cccb tizimi keyinchalik mumtoz she'riyatdagi murabba' (aaaa, bbba) va xalq qo'shiqlarining band tuzilishida davom etgan. Bu turkiy band an'anasining uzluksizligini ko'rsatadi.

3.4. "Qutadg'u bilig": bayt va to'rtlikning yonma-yon qo'llanishi

Yusuf Xos Hojibning 1069–1070-yillarda yozilgan "Qutadg'u bilig" dostoni turkiy she'riyatda aruz vaznidagi ilk yirik asardir. Doston mutaqorib bahrida masnaviy shaklida yozilgan, ya'ni baytlar tizimidan iborat. Shu bilan birga, unda alohida to'rtliklar ham uchraydi.[17]

Dostondan olingan quyidagi bayt keng iqtibos qilinadi:

Uquš kimdä ärsä uluγluq bulur, Bilig kimdä ärsä bädüklük bulur.

Mazmuni: Kimda aql bo'lsa, ulug'likka erishadi, / Kimda bilim bo'lsa, buyuklikka erishadi.

Izlanishlar natijalariga tayanib, atamalarni farqlashning quyidagi mezonlari taklif etiladi:

1. **Misralar soni mezoni.** Bayt qat'iy ikki misradan iborat; band va strofa ikki va undan ortiq misradan tuzilishi mumkin.

2. **Takrorlanish mezoni.** Band va strofa bir she'r doirasida bir xil tuzilishda takrorlanadi; bayt esa she'rning ma'no birligi sifatida takrorlanadi, lekin qofiya sxemasi uni alohida birlikka ajratmaydi.

3. **Qofiya avtonomligi mezoni.** Bandda qofiya tizimi har bir bandda yangilanadi yoki o'z ichida yopiladi; g'azal va qasidaning baytlarida esa umumiy qofiya butun she'r bo'ylab davom etadi.

4. **Atama maqomi mezoni.** "Strofa" xalqaro nazariy termin, "band" esa uning milliy muqobili sifatida qo'llanishi maqsadga muvofiq. "Bayt" esa mumtoz she'riyatga xos xususiy termin sifatida saqlanadi.

Bu mezonlar o'zbek she'rshunosligida terminlarni bir xil qo'llashga va mumtoz hamda zamonaviy she'riyat tahlilida izchillikni ta'minlashga xizmat qiladi.

XULOSA

Yuqoridagi tahlillar asosida quyidagi xulosalarga kelindi.

1. "Bayt" arabcha "uy, chodir" ma'nosidagi so'zdan kelib chiqqan bo'lib, mumtoz poetikada vazn va ma'no jihatidan tugal ikki misrali asosiy birlikni anglatadi. U g'azal, qasida, masnaviy, qit'a va ruboiy kabi bayt asosidagi janrlarning tuzilish birligidir.

2. "Band" forscha "bog', tugun" ma'nosidagi so'zdan olingan bo'lib, dastlab tarje'band, tarkibband va musammatlarning ichki bog'langan, takrorlanuvchi qismini ifodalagan. Turkiy she'riyatda esa bandli tuzilish "Devonu lug'otit turk"dagi to'rtliklardan boshlanadi.

3. "Strofa" yunoncha "burilish" ma'nosidagi so'zdan kelib chiqqan bo'lib, o'zbek adabiyotshunosligiga XX asrda rus she'rshunosligi orqali kirgan umumiy nazariy atamadir.

4. Zamonaviy o'zbek she'rshunosligida "band" va "strofa" nazariy sinonim sifatida qo'llanishi mumkin. Biroq "bayt"ni "band" bilan almashtirish ilmiy jihatdan noto'g'ri.

5. Atamalarni farqlash uchun misralar soni, takrorlanish, qofiya avtonomligi va atama maqomi mezonlari taklif etildi.

Kelgusi izlanishlarda bu mezonlarni zamonaviy erkin she'r va sarbastdagi strofik birliklarni tahlil qilishda qo'llash, shuningdek, boshqa turkiy xalqlar she'rshunosligidagi atamalar bilan qiyoslash istiqbolli yo'nalish hisoblanadi

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O‘ZBEK VA TURK TILLARIDAGI FRAZEOLOGIK BIRLIKLAR VA KOLOKATSIYALARNI QIYOSIY O‘RGANISHNING NAZARIY ASOSLARI HAMDA O‘ZBEK TILI ELEKTRON KORPUSIDA ULARNING CHASTOTASINI ANIQLASH

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Annotatsiya: *Maqolada o‘zbek va turk tillaridagi frazeologik birliklar hamda kolokatsiyalarni qiyosiy o‘rganishning nazariy asoslari yoritilgan va o‘zbek tilidagi tanlangan birliklarning chastotasi Sketch Engine platformasidagi Turkic web – Uzbek korpusi (24 570 516 token) asosida aniqlangan. Kam uchraydigan frazeologik birliklarning qidiruv natijalari qo‘lda tekshirilib, takrorlar va frazeologik bo‘lmagan qo‘llanishlar ajratilgan; kolokatsiyalar chastotasi esa qo‘lda tozalanmagan xom ko‘rsatkich sifatida berilgan. “Qaror qabul qilmoq” kolokatsiyasi uchun MI va T-score ko‘rsatkichlari taxminiy hisoblangan. Maqolada korpusning apostrof bo‘yicha tokenizatsiyasi bilan bog‘liq qiyinchiliklar va ularni yengish usullari ham ko‘rsatilgan. Turk tili korpusi bo‘yicha chastotalar keyingi bosqichda aniqlanadi.*

Abstract: *The article discusses the theoretical foundations of comparing phraseological units and collocations in Uzbek and Turkish and measures the frequency of selected Uzbek units in the Turkic web – Uzbek corpus (24,570,516 tokens) on Sketch Engine. Search results for the low-frequency phraseological units were checked manually, and duplicates and non-phraseological uses were excluded; the frequencies of the collocations are reported as raw, uncleaned counts. Approximate Mutual Information and T-score values were calculated for the collocation “qaror qabul qilmoq”. The paper also describes the difficulties caused by the corpus tokenization of apostrophes and the ways of dealing with them. Frequencies in the Turkish corpus will be measured at the next stage.*

Kalit so‘zlar: *o‘zbek tili, turk tili, frazeologizm, kolokatsiya, qiyosiy tahlil, elektron korpus, Sketch Engine, MI, T-score.*

Keywords: *Uzbek language, Turkish language, phraseologism, collocation, comparative analysis, electronic corpus, Sketch Engine, MI, T-score.*

KIRISH

Frazeologik birliklar tilning eng nozik va eng kam o‘rganilgan qatlamlaridan biri hisoblanadi. Ularning ma’nosi tarkibidagi so‘zlar ma’nosining oddiy yig‘indisidan chiqmaydi, shuning uchun ularni boshqa tilga so‘zma-so‘z o‘girib bo‘lmaydi. O‘zbek va turk tillari tarixiy-genetik jihatdan yaqin bo‘lgani uchun bu ikki tilda obrazi va tuzilishi bir-biriga mos keladigan turg‘un birikmalar ko‘p uchraydi. Biroq tashqi o‘xshashlik har doim ma’noviy va uslubiy moslikni anglatmaydi.

So‘nggi yillarda bunday birikmalarni qo‘lda terish o‘rniga elektron korpuslardan foydalanish keng yo‘lga qo‘yilmoqda. Korpus birlikning real matnlardagi chastotasini, qo‘llanish doirasini va hamrohlarini aniq ko‘rsatadi. N. Z. Abduraxmonova “Kompyuter lingvistikasi” darsligida lisoniy birliklarni raqamli muhitda qayta ishlash uchun ularning morfologik, leksik va semantik tuzilishini aniq formal qoidalarga solish zarurligini ta’kidlaydi [1]. Agglyutinativ tillarda bu vazifa ayniqsa murakkab.

Tadqiqotning maqsadi o‘zbek va turk tillaridagi frazeologik birliklar va kolokatsiyalarni qiyosiy o‘rganishning nazariy asoslarini yoritish hamda o‘zbek tilidagi tanlangan birliklarning chastotasini korpus yordamida aniqlashdan iborat. Shu maqsadda quyidagi vazifalar qo‘yildi: tanlangan birliklarning turk tilidagi ekvivalentlarini keltirish; apostrof tokenizatsiyasini hisobga oladigan qidiruv so‘rovlarini tuzish; natijalarni qo‘lda tekshirib, takrorlarni va frazeologik bo‘lmagan qo‘llanishlarni ajratish; barqaror kolokatsiya uchun statistik ko‘rsatkichlarni hisoblash.

Ish natijalarining o‘zbek tilidagi qismi to‘liq keltirilgan. Turk tili korpusi bo‘yicha chastotalar keyingi bosqichda aniqlanadi (“Cheklovlar” bo‘limiga qarang). Empirik qism bir nechta tanlangan birlikka tayanadi, shu sababli olingan natijalar dastlabki (pilot) xarakterga ega va umumlashtirishga da’vo qilmaydi.

NAZARIY ASOS

Frazeologik birliklar va tillararo ekvivalentlik

Frazeologik birlik deb tarkibidagi komponentlar birgalikda yaxlit, ko‘pincha ko‘chma ma’no ifodalaydigan, nutqda tayyor holda qo‘llanadigan turg‘un birikmaga aytiladi. O‘zbek frazeologiyasining asosiy manbalaridan biri Sh. Rahmatullayev boshchiligidagi mualliflar jamoasi tuzgan frazeologik lug‘atdir [2]. Turk tilshunosligining umumiy nazariy asoslari D. Aksan asarida bayon etilgan [3]. Turk tilida bunday birliklar odatda deyim deb ataladi.

Ikki til frazeologizmlarini solishtirganda ekvivalentlikning bir necha darajasi farqlanadi. To‘liq ekvivalentlikda obraz va komponentlar mos keladi:

“joni halqumiga kelmoq” – “canı boğazına gelmek”. Qisman ekvivalentlikda bitta komponent yoki grammatik shakl farq qiladi. Funksional ekvivalentlikda esa bir xil ma’no boshqa obraz orqali beriladi: quvonchni o‘zbek tilida “boshi osmonga yetmoq”, turk tilida “ağzı kulaklarına varmak” deb ifodalash shunday holatga misol bo‘la oladi.

Kolokatsiyalarda ham shunga o‘xshash farq bor. O‘zbek tilida “qaror qabul qilmoq” deyiladi, turk tilida esa “karar vermek” (so‘zma-so‘z “qaror bermoq”). “Hissa qo‘shmoq” birikmasiga turk tilida “katkıda bulunmak” mos keladi, bunda fe’l ham, grammatik tuzilish ham butunlay boshqacha. Demak, ma’nosi bir xil birikmalar turli fe’llar bilan hosil bo‘lishi mumkin. Bu mashina tarjimasi va lug‘at tuzishda so‘zma-so‘z moslashtirish yaramasligini ko‘rsatadi.

Kolokatsiya va korpus yondashuvi

Kolokatsiya tushunchasi J. R. Firth qarashlariga borib taqaladi: so‘zning ma’nosi uning hamrohlari orqali ochiladi [4]. Korpus lingvistikasida kolokatsiya ikki yoki undan ortiq leksik birlikning matnda tasodifdan ko‘p birga kelish moyilligi sifatida o‘lchanadi [5; 6]. Korpusga yo‘naltirilgan (corpus-based) yondashuvda mavjud farazlar korpus ma’lumotlari bilan tekshiriladi, korpus tomonidan boshqariladigan (corpus-driven) yondashuvda esa xulosalar to‘g‘ridan-to‘g‘ri korpusdagi qonuniyatlardan chiqariladi [6; 7]. Bu ishda birinchi yondashuv ustun: birliklar lug‘at va o‘z kuzatuvlarimiz asosida oldindan tanlandi, korpus esa ularning chastotasi va qo‘llanishini tekshirish uchun ishlatildi. Korpus tahlilining umumiy tamoyillari rus tilidagi darslikda ham bayon etilgan [8].

Kolokatsiya barqarorligini baholash uchun odatda ikki ko‘rsatkich qo‘llanadi. Mutual Information (MI) ikki so‘zning birga kelishi tasodifan kutiladiganidan necha marta ko‘pligini logarifmik shkalada beradi; T-score esa chastotaviy dalil kuchini ko‘rsatadi:

$$MI = \log_2(O / E), \qquad E = f_1 \times f_2 / N, \qquad t = (O - E) / \sqrt{O}$$

Bunda O – birikmaning kuzatilgan chastotasi, E – tasodifan kutiladigan chastota, f_1 va f_2 – so‘zlarning alohida chastotalari, N – korpus hajmi. Amaliyotda MI uchun taxminan 3 dan, T-score uchun 2 dan yuqori qiymat birikma barqaror ekanini bildiradi. MI kam uchraydigan, lekin o‘zaro mahkam bog‘langan birikmalarni, T-score esa tez-tez uchraydigan birikmalarni yaxshiroq ajratadi.

MATERIAL VA METODIKA

Korpus

Tadqiqotda Sketch Engine platformasidagi Turkic web – Uzbek korpusi ishlatildi. Korpus tavsifiga ko‘ra, matnlar SpiderLing dasturi yordamida asosan

.uz domenidagi veb-saytlardan avtomatik yig‘ilgan (2011-yil dekabr – 2012-yil yanvar), korpus ma’lumotlari 2012-yil yanvarida yangilangan [9; 10]. Platformada korpus hajmi 24 570 516 token deb ko‘rsatiladi, korpus tavsifida esa taxminan 18 mln so‘z keltirilgan [10]; bu farq tokenizatsiya (tinish belgilari, apostrofdan bo‘linish) bilan bog‘liq bo‘lishi mumkin, shu sababli ipm token asosida hisoblangani yodda tutilishi kerak. Korpus morfologik teglanmagan, ya’ni lemma va so‘z turkumi haqida ma’lumot yo‘q (1-jadval). Korpusning janr tarkibi bo‘yicha alohida metama’lumot keltirilmagan.

1-jadval.

Tadqiqotda ishlatilgan korpus

Ko‘rsatkich	Qiymat
Korpus nomi	Turkic web – Uzbek (Sketch Engine)
Yig‘ish usuli	SpiderLing, 2011-yil dekabr – 2012-yil yanvar (asosan .uz domeni)
Hajmi	24 570 516 token (korpus tavsifida taxminan 18 mln so‘z)
Teglash	teglanmagan (lemma va so‘z turkumi yo‘q)
Qayta ishlash	takrorlardan tozalangan, UTF-8

Qidiruv usuli

Korpus teglanmaganligi uchun qidiruv faqat so‘z shakllari bo‘yicha, CQL (Corpus Query Language) yordamida amalga oshirildi. Turlanish va tuslanish shakllarini qamrab olish uchun har bir so‘zning negizi va qo‘shimchalari muntazam ifodalar bilan yozildi, katta-kichik harf farqi hisobga olinmadi. Masalan, “tilini tishlamoq” birikmasi quyidagicha qidirildi:

[word="(?i)til.*"] [word="(?i)tishla(m|d|b|y|g|sh).*"]

Dastlabki so‘rovda “tishla” negizi umumiy tarzda olingani uchun “tish” otining ko‘plik shakllari (tishlar, tishlari) ham topildi. Bunday xatolarni yo‘qotish maqsadida fe’l qo‘shimchalari aniq ko‘rsatildi.

Tokenizatsiya xususiyati

Korpusni tekshirish jarayonida muhim xususiyat aniqlandi: to‘g‘ri apostrof bilan yozilgan so‘zlar apostrof oldidan ikkiga bo‘lingan, apostrofning o‘zi esa keyingi bo‘lakka yopishgan. Masalan, “ko‘rsatganini” so‘zi “ko‘” va “'rsatganini” tokenlariga ajralgan. Egri apostrofli shakllar (“ko‘zni”, “qo‘shdi”) odatda yaxlit saqlangan, shuningdek, apostrofsiz yozilgan variantlar (“qoshsak”) ham uchraydi. Shu sababli apostrofli so‘zlar qatnashgan birliklar uchun qidiruv

bir necha imlo va tokenlash variantini birga qamrab oladigan qilib kengaytirildi. Masalan, “ko‘z” so‘zi uchun ikkala variant birga yozildi:

([word="(?i)ko.?z.*"] | [word="(?i)ko.?"] [word="(?i).?z.*"])

Qo‘lda tekshiruv va hisoblash

Frazeologik birliklar (“tilini tishlamoq”, “joni halqumiga kelmoq”) bo‘yicha topilgan har bir qator qo‘lda ko‘rib chiqildi: u frazeologik (ko‘chma) ma’noda yoki boshqa ma’noda qo‘llanganligi aniqlandi, bir xil matnning takrorlanishi belgilandi. “Hissa qo‘shmoq” (13 ta) va “qaror qabul qilmoq” (2 237 ta) uchun chastota qo‘lda tozalanmagan xom ko‘rsatkich sifatida berildi: ikkinchisining natijalari to‘liq tekshirilmadi, faqat dastlabki qatorlar tanlab ko‘zdan kechirildi.

Chastota million tokenga nisbatan (ipm) berildi: $ipm = hits / N \times 10^6$. “ipm (xom)” barcha topilgan qatorlar bo‘yicha, “ipm (iboraviy)” esa faqat takrorsiz va frazeologik ma’noda qo‘llangan hollar bo‘yicha hisoblandi; ikkinchi ko‘rsatkich faqat qo‘lda tekshirilgan birliklar uchun berilgan (2-jadval).

Kolokatsiya ko‘rsatkichlari yuqorida keltirilgan formulalar bilan hisoblandi. Bunda O sifatida uch so‘zdan iborat “qaror + qabul + qil...” ketma-ketligining chastotasi, f_1 sifatida “qaror...” shabloni, f_2 sifatida esa “qabul qil...” shabloni barcha shakllarining chastotasi olindi. O va f_2 turli uzunlikdagi shablonlar asosida aniqlangani va “qaror...” shabloni tasodifiy so‘zlarni ham qamrab olishi mumkinligi sababli E, MI va T-score qiymatlari taxminiy hisoblanadi.

Tahlil va natijalar

Natijalar 2-jadvalda umumlashtirilgan. Turk tilidagi ekvivalentlar solishtirish uchun keltirilgan, ularning korpus chastotasi keyingi bosqichda aniqlanadi. “Hits” ustunida qidiruv natijalarining xom soni, “Iboraviy” ustunida esa qo‘lda tekshirishdan keyin takrorsiz va frazeologik ma’noda qo‘llangan hollar soni berilgan; “–” belgisi ko‘rsatkich hisoblanmaganini bildiradi.

2-jadval.

O‘zbek korpusidagi qidiruv natijalari

Birlik	Turk tilidagi ekvivalenti	Hits (xom)	Iboraviy (takrorsiz)	ipm (xom)	ipm (iboraviy)
tilini tishlamoq	dilini ısırmak	12	7	0,49	0,28
joni halqumiga kelmoq	canı boğazına gelmek	1	1	0,04	0,04

Birlik	Turk tilidagi ekvivalenti	Hits (xom)	Iboraviy (takrorsiz)	ipm (xom)	ipm (iboraviy)
ko‘z tikmoq / ko‘z qo‘ymoq	göz dikmek / göz koymak	0	0	0	0
hissa qo‘shmoq	katkıda bulunmak	13	–	0,53	–
qaror qabul qilmoq	karar vermek	2 237	–	91,04	–

Izoh: ipm – million tokenga nisbatan chastota. “ipm (xom)” barcha topilgan qatorlar bo‘yicha, “ipm (iboraviy)” takrorsiz iboraviy qo‘llanishlar bo‘yicha hisoblangan.

Frazeologik birliklar

“Tilini tishlamoq” birikmasi 12 marta (xom chastota 0,49 ipm) uchradi. Qo‘lda tekshirishda bu qo‘llanishlarning 7 tasi ko‘chma ma’noda ekani, 4 tasi frazeologik bo‘lmagan (to‘g‘ri ma’nodagi yoki tasodifiy) birikma ekani, 1 tasi esa takror ekani aniqlandi. Takrorsiz 11 ta qo‘llanishning 7 tasi, ya’ni taxminan 64 foizi frazeologik bo‘lib, bu 0,28 ipm ga teng. Birlikning ko‘p qo‘llanishlari “tilini tishlab qoldi”, “tilimni tishladim”, “tilimizni tishlab qoldik” kabi egalik va tuslanish shakllarida uchradi. Demak, birlik tarkibi qat’iy emas: “til” so‘zi egalik qo‘shimchalarini oladi, fe’l esa turli shaklda keladi.

“Joni halqumiga kelmoq” birikmasi korpusda faqat bir marta, “jonini halqumiga keltirar” shaklida (orttirma nisbatdagi fe’l bilan) topildi (0,04 ipm). Bu qo‘llanish ko‘chma ma’noda va takror emas. Bitta misolga asoslanib birlikning umumiy faolligi haqida xulosa qilib bo‘lmaydi, lekin u frazeologizmning grammatik jihatdan o‘zgarishi mumkinligini ko‘rsatadi.

“Ko‘z tikmoq” va “ko‘z qo‘ymoq” birliklari uchun so‘rovlar (orasida 0–3 so‘zgacha masofa va ikkala tokenlash varianti bilan) birorta ham natija bermadi. Bu birliklar tilda yo‘q degani emas. Korpus veb-saytlardan avtomatik yig‘ilgan va janr bo‘yicha teglanmagan; ko‘zdan kechirilgan qatorlar asosan yangilik va rasmiy matnlardan iborat bo‘lgani sababli, bunday matnlarda mazkur turdagi ibora kam uchrashi mumkin. Bundan tashqari, apostrofli so‘zlarning tokenlanishi qidiruvni qiyinlashtirgan bo‘lishi ehtimoli bor. Shu sababli bu natija “korpusda topilmadi” deb baholanadi.

Kolokatsiyalar

“Qaror qabul qilmoq” birikmasi korpusda 2 237 marta (xom chastota 91,04 ipm) uchradi. “Qaror” so‘zi alohida 16 090 marta (654,85 ipm), “qabul

qil...” esa 18 118 marta (737,39 ipm) uchraydi. Tasodifan kutiladigan chastota atigi taxminan 11,9 bo‘lgani holda kuzatilgan chastota 2 237 ni tashkil qiladi. Shu sababli taxminiy MI ≈ 7,6 va T-score ≈ 47,1 chiqdi (3-jadval). Ikkala ko‘rsatkich ham odatdagi chegaralardan ancha yuqori, ya’ni birikma barqaror kolokatsiya hisoblanadi.

3-jadval.

“Qaror qabul qilmoq” kolokatsiyasining ko‘rsatkichlari

Ko‘rsatkich	Qiymat
O (birga uchrashi)	2 237
f_1 (“qaror...”)	16 090
f_2 (“qabul qil...”)	18 118
N (korpus hajmi, token)	24 570 516
E (kutilgan chastota)	≈ 11,9
MI	≈ 7,6
T-score	≈ 47,1

“Qaror” so‘zi uchrashlarining taxminan 13,9 foizida, “qabul qil...” uchrashlarining taxminan 12,3 foizida aynan shu birikma hosil bo‘lgan. Chastotalar qo‘lda tozalanmagani uchun bu foizlar ham xom ko‘rsatkichdir. Tanlab ko‘zdan kechirilgan dastlabki qatorlarning aksariyati davlat organlari va ommaviy axborot saytlaridan olingan, ya’ni birikma rasmiy-ma’muriy va publitsistik uslubda faol ko‘rinadi; bu kuzatuv tizimli o‘lchovga asoslanmagan.

“Hissa qo‘shmoq” birikmasi 13 marta (xom chastota 0,53 ipm) uchradi, so‘rov imlo va tokenlash variantlarini (“qo‘shdi”, “qoshsak” va h.k.) qamrab oldi. Ko‘rilgan qo‘llanishlarda birikma asosan madaniyat, adabiyot, falsafa va taraqqiyot rivojiga hissa qo‘shish kabi ilmiy-madaniy kontekstlarda keldi. Fe’lning apostrof sabab bo‘linib ketgan shakllari chastotasi noaniq bo‘lgani uchun bu birikma uchun MI va T-score hisoblanmadi.

Muhokama

Natijalar ikki masalani ko‘rsatadi. Birinchidan, bir xil korpusda kolokatsiya (“qaror qabul qilmoq”, 2 237 hit, 91,04 ipm) va frazeologizmlar (“tilini tishlamoq”, 7 iboraviy qo‘llanish, 0,28 ipm; “joni halqumiga kelmoq”, 1 hit, 0,04 ipm) chastotasi o‘rtasida katta farq bor: hitlar nisbati birinchi holatda taxminan 320 baravar (2 237 : 7), ikkinchisida taxminan 2 200 baravar (2 237 :

1). Ikkinchi nisbat bitta qo‘llanishga tayanadi, shu sababli u faqat tartibni ko‘rsatadi.

Bu farqni ikki omil bilan izohlash mumkin, ammo hozirgi tadqiqot dizayni ularni bir-biridan ajratib bermaydi. Birinchisi – birlik turi: “qaror qabul qilmoq” rasmiy-ma’muriy uslubda keng qo‘llanadigan kolokatsiya, “tilini tishlamoq” va “joni halqumiga kelmoq” esa obrazli frazeologizmlardir. Ikkinchisi – korpus tarkibi: faraz sifatida aytish mumkinki, frazeologizmlar ko‘proq so‘zlashuv va badiiy nutqqa xos bo‘lib, veb-saytlardan avtomatik yig‘ilgan va janr bo‘yicha teglanmagan korpusda kam uchraydi. Bu faraz tekshirilmagan: buning uchun badiiy yoki so‘zlashuv korpusida, shuningdek, chastotasi oldindan o‘lchangan boshqa kolokatsiyalar va frazeologizmlar bilan solishtirish kerak. Shunga qaramay, frazeologizmlarni o‘rganishda korpus tarkibi va janrni hisobga olish metodik jihatdan muhimligi ko‘rinadi.

Ikkinchidan, bitta birlikning o‘zi bir necha shaklda uchraydi: egalik qo‘shimchalari, fe’l nisbati va imlo variantlari qidiruvni murakkablashtiradi. Teglanmagan korpusda bunday shakllarni aniq qamrab olish uchun muntazam ifodalardan foydalanish va natijalarni qo‘lda tekshirish zarur. Aks holda chastota ham oshirib, ham kamaytirib ko‘rsatilishi mumkin. Buni “tishla” negizi bilan qilingan dastlabki so‘rov yaqqol ko‘rsatdi.

Qiyosiy nuqtai nazardan tanlangan juftliklar ikki turga bo‘linadi. “Joni halqumiga kelmoq” – “canı boğazına gelmek” juftligida obraz va komponentlar mos keladi. “Qaror qabul qilmoq” – “karar vermek” va “hissa qo‘shmoq” – “katkıda bulunmak” juftliklarida ise ma’no bir xil, lekin fe’l komponenti farq qiladi. Bunday birikmalarni mashina tarjimasida va ikki tilli lug‘atlarda alohida birlik sifatida berish maqsadga muvofiq. Turkiy tillar uchun ochiq manbali morfologik tahlil va mashina tarjimasi vositalari mavjud, masalan, Apertium loyihasining turkiy tillar bo‘limi [11]; ulardan turk korpusini qayta ishlashda foydalanish mumkin.

Cheklovlar

Tadqiqotning bir necha cheklovi bor. Birinchidan, korpus 2012-yilda veb-saytlardan yig‘ilgan va janr bo‘yicha teglanmagan; ko‘zdan kechirilgan qatorlar yangilik va rasmiy matnlar tomonga siljigan ko‘rinadi, so‘zlashuv va badiiy nutq esa yetarlicha vakillik qilmasligi mumkin. Ikkinchidan, korpus morfologik teglanmagan, shuning uchun qidiruv faqat so‘z shakllariga tayanadi va lemmatizatsiya yo‘q. Uchinchidan, apostrof tokenizatsiyasi tufayli apostrofli birliklarning chastotasi to‘liq ishonchli emas; shuningdek, korpus tavsifida taxminan 18 mln so‘z ko‘rsatilgan bo‘lsa, ipm 24 570 516 tokenga nisbatan hisoblangan, shu sababli boshqa korpuslar bilan solishtirishda hisoblash birligini

(so‘z yoki token) moslashtirish zarur. To‘rtinchidan, frazeologizmlarning chastotasi juda past (0–12 hit), shuning uchun ular bo‘yicha statistik xulosa chiqarib bo‘lmaydi. Beshinchidan, “hissa qo‘shmoq” va “qaror qabul qilmoq” chastotalari qo‘lda tozalanmagan xom ko‘rsatkich, shu sababli ularni frazeologizmlarning takrorsiz iboraviy chastotasi bilan to‘g‘ridan-to‘g‘ri solishtirib bo‘lmaydi. Oltinchidan, natijalarni qo‘lda tekshirishni bitta tadqiqotchi bajargan. Yettinchidan, MI va T-score uch so‘zli ketma-ketlik asosida hisoblangan, “qaror...” shabloni esa tasodifiy so‘zlarni ham qamrab olgan bo‘lishi mumkin, shu sababli qiymatlar taxminiy hisoblanadi.

Eng muhim cheklov shuki, turk tili korpusi bo‘yicha chastotalar hali o‘lchanmagan. Shu sababli bu maqolada qiyosiy qism ekvivalentlarni va tuzilish farqlarini solishtirish bilan chegaralangan. Keyingi bosqichda turk tilidagi korpusda xuddi shu usul bilan chastotalar aniqlanib, ikki tilning ipm ko‘rsatkichlari bevosita solishtiriladi. Turk tili uchun Sketch Engine’da alohida trTenTen [2012] korpusi mavjud [10]; uning hajmi (taxminan 3,4 mlrd so‘z) o‘zbek korpusidan keskin farq qilgani uchun ipm ko‘rsatkichlarini solishtirishda bu farq hisobga olinadi.

XULOSA

Tadqiqot shuni ko‘rsatdiki, elektron korpuslar frazeologik birliklar va kolokatsiyalarning chastotasini va qo‘llanish doirasini aniq o‘lchash imkonini beradi, biroq natijaning ishonchliligi korpus tarkibiga, teglanganlik darajasiga va tokenizatsiya sifatiga bog‘liq. O‘zbek tilidagi Turkic web – Uzbek korpusida “qaror qabul qilmoq” kolokatsiyasi yuqori chastota (xom 91,04 ipm) va yuqori barqarorlik (taxminiy MI ≈ 7,6; T-score ≈ 47,1) ko‘rsatdi, frazeologik birliklar esa juda kam uchradi (“tilini tishlamoq” 0,28 ipm – takrorsiz iboraviy qo‘llanishlar bo‘yicha, “joni halqumiga kelmoq” 0,04 ipm), “ko‘z tikmoq” va “ko‘z qo‘ymoq” esa topilmadi. Bu natijalar dastlabki xarakterga ega va past chastota sababli umumlashtirilmaydi.

Apostrofli so‘zlarning tokenlanishi o‘zbek tili korpuslari bilan ishlashda alohida e’tibor talab qiladigan muammo ekani aniqlandi, buni yengish uchun qidiruv so‘rovlarini bir necha imlo va tokenlash variantiga moslab yozish va natijalarni qo‘lda tekshirish tavsiya etiladi. Keyingi ishlarda turk tilidagi korpusda ham xuddi shu birliklarning chastotasi o‘lchanib, ikki tilli o‘quv frazeologik lug‘atlari va kolokatsiyalar bazasini yaratish uchun empirik asos shakllantiriladi. Bunday baza tarjima sifatini oshirishga va turkiy tillarni qiyosiy o‘rganishga xizmat qilishi mumkin.

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NIZOMULMULK “SIYOSATNOMA” SIDAGI MA'MURIY-BOSHQARUV TAMOYILLARI (YANGI O'ZBEKISTON MA'MURIY TARTIBOTI UCHUN YO'RIQNOMA)

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Annotatsiya. *Mazkur tadqiqot buyuk davlat arbobi va mutafakkir Xo'ja Nizomulmulk Tusiyning “Siyosatnoma” (“Siyar-ul-muluk”) asaridagi ma'muriy-devoniy tamoyillarning bugungi kundagi ahamiyatini tahlil etishga qaratilgan. Maqolada Nizomulmulk ilgari surgan davlat boshqaruvi yondashuvlari zamonaviy byurokratik tizim bilan qiyoslanib, Yangi O'zbekistonda kechayotgan ma'muriy islohotlar uchun amaliy ahamiyati ochib berilgan. Tadqiqot tavsifiy-qiyosiy metod asosida olib borilib, natijalar “Siyosatnoma”dagi boshqaruv tizimi sakkiz asosiy yo'nalishda namoyon bo'lishini ko'rsatdi.*

Annotatsiya. *This study aims to analyze the significance of administrative and bureaucratic principles in the "Siyasatname" ("Siyar al-Muluk") by the great statesman and thinker Khwaja Nizam al-Mulk Tusi. The article compares Nizam al-Mulk's approaches to state governance with modern bureaucratic systems and reveals their practical importance for ongoing administrative reforms in New Uzbekistan. Conducted using a descriptive-comparative method, the research demonstrates that the governance system in "Siyasatname" is manifested in eight main directions.*

Kalit so'zlar: *Davlat boshqaruvi, “Siyosatnoma”, Nizomulmulk, ma'muriy farosat, Yangi O'zbekiston, ma'muriy islohotlar, samarali boshqaruv, meritokratiya.*

Keywords: *State governance, "Siyasatname", Nizam al-Mulk, administrative wisdom, New Uzbekistan, administrative reforms, efficient governance, meritocracy.*

KIRISH

Axloqiy-didaktik asarlar, odobnomalar va davlatchilik risolalari Sharq davlatchilik madaniyatida siyosiy-ma'muriy tafakkurning eng qadimiy va barkamol shakllaridan biridir. Siyosatnomachilik an'anasining zamirida

muayyan tarixiy davrda kotiblar, devon ahli va oqil vazirlar tomonidan to'plangan davlatchilik tajribasi mujassamdir. Nizomulmulk Movarounnahr va Xuroson hududlarini qamrab olgan ulkan Saljuqiylar saltanatida o'ttiz yil davomida bosh vazirlik mansabini egallab, mintaqa tarixidagi eng shukuhli ma'muriy boshqaruv davrlaridan biriga rahbarlik qildi. U o'z tajribalarini “Siyosatnoma” asarida tizimlashtirib, qadimgi Sharq merosini isloh huquqi va odil boshqaruv tizimlari bilan mohirona uyg'unlashtirdi.

Bugungi kunda Yangi O'zbekistonda amalga oshirilayotgan keng ko'lamli ma'muriy islohotlar sharoitida quyidagi masalalar dolzarb ahamiyat kasb etadi:

1. Nizomulmulkning “Siyosatnoma” asaridagi ma'muriy boshqaruv modeli zamonaviy boshqaruv talablariga qay darajada mos keladi?

2. “Siyosatnoma” va zamonaviy byurokratiyani qiyoslash orqali Yangi O'zbekiston ma'muriy tizimini takomillashtirish, davlat xizmatida meritokratiya va hisobdorlikni mustahkamlashda undan qanday foydalanish mumkin?

ASOSIY QISM

Tadqiqot metodologiyasi va nazariy asoslari

Tadqiqot tavsifiy-qiyosiy metodga asoslanadi. Bunda Maks Veberning zamonaviy ratsional byurokratiya konsepsiyasi hamda Nizomulmulkning “Siyosatnoma” asaridagi ma'muriy boshqaruv tamoyillari qiyosiy tahlil qilinadi. Veber byurokratiyasini uch asosiy yondashuv (siyosatshunoslik, sotsiologik va ommaviy tushuncha) asosida tasniflab, uning rasmiy-shaxssiz munosabatlar, samaradorlik, ierarxiya, mehnat taqsimoti, meritokratiya, qonun-qoidalar, shaffoflik va nazorat kabi tarkibiy qismlarini ajratib ko'rsatgan.

“Siyosatnoma”dagi davlat boshqaruvining sakkiz ustuvor yo'nalishi

Tahlil natijalari “Siyosatnoma”dagi davlatchilik tizimi quyidagi sakkiz yo'nalishda namoyon bo'lishini ko'rsatdi:

1. Davlat rahbarligi va yuksak ijtimoiy mas'uliyat: Davlat rahbarining adolatli siyosati va shaxsiy mas'uliyati (mazolim majlisi, rahbarlik farosati).

2. Nazorat va devon (ma'muriy ijro) tizimi: Rahbar tomonidan fuqarolarning shikoyat va arzlarini muntazam ravishda bevosita eshitib borish mexanizmi.

3. Ma'muriy tizim va tashkiliy aloqa-axborot tarmoqlari: Axborotning tezkor va to'g'ri almashinuvini ta'minlovchi maxsus choparlar va xabar berish tizimlari.

4. Profilaktika va ogohlantirishning ustunligi: Davlat xizmatchilarini ilk xatosidanoq darhol jazolamasdan, avval ogohlantirish va tushuntirish ishlarini olib borish.

5. Davlat apparati samaradorligi: Og'zaki va pala-partish buyruqlarga qarshi kurashish, hujjatlarning qat'iy rasmiylashtirilishini ta'minlash.

6. Davlat xizmatida intizom va meritokratiya: Kadrlarni qarindosh-urug'chilikka emas, balki bilim, malaka va sadoqatiga ko'ra tanlash.

7. Ko'pmansablilik va unvonparastlikni bartaraf etish: Bir mansabdorning bir nechta lavozimni egallab olishi va sun'iy monopoliya yaratishiga chek qo'yish.

8. Yakkahokimlikni daf etish, “sabr, kengash va qonuniylik” tamoyili: Qarorlarni qabul qilishda collegiallik (mashvarat) va qonun ustuvorligiga tayanib ish ko'rish.



G'arbning zamonaviy byurokratik modelida sovuq ratsionalizm va ruhsiz qog'ozbozlik ustuvor bo'lsa, Nizomulmulk boshqaruv tizimi milliy-ma'naviy qadriyatlarga, axloqiy mas'uliyatga va xalq bilan doimiy muloqotga asoslanadi.

Yangi O'zbekiston ma'muriy tartiboti va “Siyosatnoma” g'oyalarining uyg'unligi

Bugungi kunda Yangi O'zbekistonda amalga oshirilayotgan ma'muriy islohotlar (Xalq qabulxonalari instituti, davlat xizmatini raqamlashtirish, davlat fuqarolik xizmatiga ochiq tanlovlar orqali qabul qilish) Nizomulmulk ilgari surgan ezgu tamoyillarning zamonaviy shakldagi amaliy ifodasidir. Vazirliklar va mahalliy hokimliklar vakolatlarining aniq chegaralanishi aynan “Siyosatnoma”dagi tadbirkorlik qoidalariga mos keladi.

XULOSA VA TAVSIYALAR

Nizomulmulkning “Siyosatnoma” asaridan kelib chiqqan holda, Yangi O'zbekiston ma'muriy tartibotini yanada takomillashtirish bo'yicha quyidagi amaliy tavsiyalar ishlab chiqildi:

- Davlat xizmatida meritokratiya va axloqiy tarbiyani kuchaytirish.
- Bir shaxsga faqat bitta mas'uliyatli vazifani yuklash orqali ko'pmansablilikning oldini olish.
- Ortiqcha byurokratik hujjatbozlikni kamaytirib, qarorlarning ijrosini ta'minlash.
- Profilaktika va ogohlantirish mexanizmlarini ustuvor qo'yish.
- Jamoaviy kengash va ochiq muhokama an'anasini (mashvarat) kengaytirish.
- Xalq bilan doimiy va bevosita muloqotni ta'minlash.

Yangi O'zbekiston ma'muriy tartibotini isloh qilishda tarixiy milliy boshqaruv donishmandligini zamonaviy raqamli texnologiyalar va ilg'or menejment usullari bilan uyg'unlashtirish mamlakatni qudratli, adolatli va xalqparvar davlatga aylantirishning mustahkam poydevori bo'lib xizmat qiladi.

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AXBOROT-KOMMUNIKATSIYA TEXNOLOGIYALARINING NUTQ FAOLIYATI SIFATIGA TA’SIRI VA ULARNI METODIK QO‘LLASH

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Annotatsiya. *Maqolaning maqsadi axborot-kommunikatsiya texnologiyalarining nutq faoliyati sifatiga ta’sirini tahlil qilish va ularni o‘qitishda samarali metodik qo‘llash yo‘llarini asoslashdan iborat. Tadqiqotda adabiyotlar tahlili, qiyosiy yondashuv va metodik umumlashtirish qo‘llanib, raqamli muhitda og‘zaki va yozma nutqni rivojlantirishga doir nazariy qarashlar solishtirildi. Natijalar shuni ko‘rsatdiki, AKT nutq sifatiga asosan topshiriqning mazmuniy boyligi, o‘zaro ta’sir darajasi va tezkor qayta aloqa orqali ta’sir qiladi; sinxron va asinxron muhitlar esa fikrni rejalash, tahrirlash, talaffuzni tekshirish va javobni qayta ishlash imkonini kengaytiradi. Shu bilan birga, texnologiya faqat vosita sifatida qolsa, faoliyat yuzaki mashqqa aylanadi va kommunikativ maqsadga erishilmaydi. Xulosa qilib aytganda, AKTni samarali qo‘llash uchun topshiriqni maqsad, auditoriya va natija bilan bog‘lash, multimedia hamda muloqot shakllarini uyg‘unlashtirish va baholashda mazmun, mantiq, leksik boylik hamda talaffuzni birgalikda hisobga olish zarur.*

Kalit so‘zlar: *axborot-kommunikatsiya texnologiyalari, nutq faoliyati, kommunikativ yondashuv, multimedia, sinxron aloqa, asinxron muhit, raqamli savodxonlik, metodik qo‘llash.*

Abstract. *The aim of the article is to analyze the impact of information and communication technologies on the quality of speech activity and to substantiate effective methodological ways of using them in teaching. The study applies literature analysis, a comparative approach, and methodological generalization, comparing theoretical views on the development of oral and written speech in digital environments. The results show that ICT influence speech quality primarily through the content richness of tasks, the level of interaction, and the speed of feedback; synchronous and asynchronous environments make it possible to plan ideas, revise texts, check pronunciation, and repeatedly edit responses. At the same time, if technology remains only a*

tool, the activity turns into a superficial exercise and does not lead to a communicative goal. In conclusion, effective ICT use requires linking tasks with purpose, audience, and outcome, combining multimedia and communicative formats, and assessing content, logic, lexical richness, and pronunciation together.

Keywords: *information and communication technologies, speech activity, communicative approach, multimedia, synchronous communication, asynchronous environment, digital literacy, methodical use.*

KIRISH

Axborot-kommunikatsiya texnologiyalari nutq faoliyatini o‘qitish jarayonini mazmunan va tashkiliy jihatdan sezilarli o‘zgartiradi: matn, audio, video, interaktiv platformalar va sinxron aloqa vositalari og‘zaki hamda yozma nutqni bir vaqtning o‘zida mashq qilish imkonini kengaytiradi. Biroq texnologik qulaylikning o‘zi nutq sifatini avtomatik oshirmaydi; u kommunikativ maqsad, topshiriq dizayni va baholash mezonlari bilan uyg‘unlashgandagina samarali bo‘ladi. Kommunikativ yondashuv nutqni ma’no almashinuvi, vazifa bajarish va ijtimoiy kontekstda qo‘llash bilan bog‘laydi, shu bois raqamli muhitda ham til kompetensiyasi aynan real muloqotga yaqin sharoitlarda shakllanadi [2]. Shu bilan birga, multimedia materiallar kognitiv yukni to‘g‘ri taqsimlash, eshitish va ko‘rish kanallarini muvofiqlashtirish orqali tushunish va ifodalashni qo‘llab-quvvatlaydi [5].

Mavjud tadqiqotlarda elektron muhitdagi muloqotning faollik, ishtirok va fikrni yozma ravishda aniqroq ifodalashga ta’siri ko‘rsatilgan bo‘lsa-da, nutq faoliyati sifatini baholashda metodik yondashuvlar har doim ham yetarli darajada tizimlashtirilmagan [6, 7]. Ayniqsa, AKT vositalarini dars maqsadi, topshiriq turi va kompetensiya darajasi bilan bog‘lab qo‘llash bo‘yicha amaliy tavsiyalar kam yoritilgan. Ushbu maqolaning maqsadi axborot-kommunikatsiya texnologiyalarining nutq faoliyati sifatiga ta’sirini tahlil qilish va ularni o‘qitishda samarali metodik qo‘llash yo‘llarini asoslashdan iborat.

ASOSIY QISM

Adabiyotlar tahlili shuni ko‘rsatadiki, nutq faoliyati sifatini baholashda kommunikativ kompetensiya, topshiriqning maqsadga muvofiqligi va til amaliyotining real muloqotga yaqinligi asosiy mezonlar sifatida qaraladi [1, 2]. Bazan til testlarida til bilimini emas, balki uni vaziyatga mos qo‘llash qobiliyatini o‘lchash zarurligini ta’kidlaydi; bu yondashuv AKT vositalari orqali tashkil etilgan og‘zaki va yozma topshiriqlarning ham kommunikativ natijaga yo‘naltirilishini asoslaydi [1]. Warschauer elektron muhokamalar va tarmoq

asosidagi til o‘qitish tajribalarida raqamli muhit ishtirokchilar faolligini, fikr almashish hajmini va yozma nutqning davomiyligini oshirishini ko‘rsatadi, biroq mazmuniy aniqlik va muloqot intizomi metodik boshqaruvga bog‘liqligini qayd etadi [6, 7]. Hampel sinxron onlayn muhitda topshiriq dizayni, o‘zaro ta’sir va texnik cheklovlar o‘rtasidagi muvozanatni muhim deb biladi [3]. Mayerning multimedia o‘qitish haqidagi qarashlari matn, tasvir va ovozni birlashtirish axborotni qayta ishlashni yengillashtirishini ko‘rsatadi [5]. Hockly raqamli savodxonlikni nutq faoliyatining ajralmas tarkibi sifatida talqin qiladi [4]. Ushbu maqolada nazariy tahlil, qiyosiy yondashuv va metodik umumlashtirish qo‘llanadi; manbalar mazmuni solishtirilib, AKTning nutq sifati ko‘rsatkichlariga ta’siri kommunikativ, kognitiv va texnik jihatlardan tahlil qilinadi. Shuningdek, UNESCO va Yevropa Kengashi materiallari ta’limda raqamli vositalarni kompetensiyaga yo‘naltirilgan va ochiq o‘quv muhitida qo‘llash zarurligini tasdiqlaydi [8, 9].

Tahlil natijalari AKT nutq faoliyati sifatiga eng avvalo topshiriqning mazmuniy boyligi, o‘zaro ta’sir darajasi va qayta aloqa tezligi orqali ta’sir qilishini ko‘rsatdi. Sinxron va asinxron raqamli muhitlar o‘quvchiga fikrni rejalash, matnni qayta ko‘rish, talaffuzni tekshirish va javobni takroriy tahrirlash imkonini beradi; bu esa nutqning aniqligi, izchilligi va moslashuvchanligini oshiradi [3, 5, 7]. Shu bilan birga, texnologiya faqat vosita bo‘lib qolsa, faoliyat yuzaki mashqqa aylanadi: mazmuniy vazifa bo‘lmasa, o‘quvchi til shakllarini alohida takrorlash bilan cheklanib, kommunikativ maqsadga erishmaydi [2, 7].

Ko‘rib chiqilgan manbalar raqamli savodxonlik nutq sifatining ajralmas sharti ekanini ham tasdiqlaydi. Hockly ta’kidlagan raqamli kompetensiyalar matn, audio va video bilan ishlashni, manbani tanlashni hamda onlayn muloqot etiketi va xavfsizligini o‘z ichiga oladi [4]. Bu ko‘nikmalar shakllanmaganda, AKT nutqni rivojlantirish o‘rniga chalg‘ituvchi omilga aylanishi mumkin. Multimedia materiallari esa, Mayer ko‘rsatganidek, ma’lumotni bir nechta kanalda taqdim etish orqali tushunishni yengillashtiradi, biroq ortiqcha vizual yuklama nutqiy diqqatni pasaytirishi mumkin [5].

Metodik jihatdan eng samarali yondashuv topshiriqni maqsad, auditoriya va natija bilan bog‘lash, juftlik va guruhli muloqotni raqamli platformalarda tashkil etish, hamda baholashda mazmun, mantiqiy bog‘lanish, leksik boylik va talaffuzni birgalikda hisobga olishdan iborat bo‘ldi [1, 2, 6]. Shu asosda AKT nutq faoliyatini faollashtiradi, ammo uning sifati didaktik dizayn va pedagogik boshqaruvga bevosita bog‘liq ekani aniqlandi.

Olingan natijalar avvalgi tadqiqotlarda ilgari surilgan fikrlarni tasdiqlaydi: raqamli muhit nutqni avtomatik ravishda yaxshilamaydi, balki topshiriqning

kommunikativ yo‘nalishi va o‘quvchi faolligiga bog‘liq holda samara beradi [2, 3, 7]. Ayniqsa, sinxron muloqotda tezkor javob va hamkorlik, asinxron muhitda esa fikrni qayta ishlash va tahrirlash imkoniyati nutq sifatining turli jihatlarini rivojlantiradi; bu holat multimedia materiallarining eshitish va ko‘rish kanallari orqali idrokni yengillashtirishi haqidagi qarashlar bilan uyg‘unlashadi [5]. Biroq texnologik vositalarning ko‘pligi metodik aniqlikni almashtira olmaydi: topshiriq maqsadi, baholash mezoni va qayta aloqa tizimi aniq belgilanmasa, o‘quvchi faqat texnik amallarni bajarib qoladi. Tadqiqotning cheklovi shundaki, u asosan mavjud adabiyotlar va amaliy kuzatishlarga tayangan, shuning uchun natijalarni barcha ta’lim bosqichlariga bir xil tatbiq etish ehtiyotkorlikni talab qiladi. Amaliy jihatdan esa AKTni nutq faoliyatiga qo‘shishda muloqot vazifasi, til materiali va refleksiyani bir butun tizim sifatida loyihalash zarurligi ko‘rinadi [1, 4, 8].

XULOSA

Mazkur tahlil shuni ko‘rsatadiki, axborot-kommunikatsiya texnologiyalari nutq faoliyati sifatini oshirishda faqat texnik imkoniyat emas, balki metodik jihatdan puxta tashkil etilgan didaktik muhit sifatida ahamiyat kasb etadi. Nutqning aniqligi, izchilligi, muloqotga mosligi va tezkor qayta ishlanishi topshiriq mazmuni, aloqa shakli hamda baholash mezonlari bilan bevosita bog‘liq ekanligi tasdiqlandi [1, 2, 3]. Shuning uchun AKTdan foydalanishda maqsadni aniq belgilash, kommunikativ vazifalarni real hayotiy vaziyatlarga yaqinlashtirish va o‘quvchini faol subyekt sifatida jalb etish zarur. Multimedia, sinxron va asinxron vositalar bir-birini to‘ldirgan holda qo‘llanganda, og‘zaki va yozma nutqni kompleks rivojlantirish imkoniyati kengayadi [5, 7].

Amaliy tavsiya sifatida, o‘qituvchi raqamli topshiriqlarni faqat tayyor resurs sifatida emas, balki tahlil, tahrir, hamkorlik va refleksiya bosqichlarini o‘z ichiga olgan jarayon sifatida loyihalashi lozim. Baholashda esa til me’yoriga rioya qilish bilan birga, fikrning mantiqiyligi, kommunikativ samaradorlik va auditoriyaga moslik ham inobatga olinishi kerak. Shu yo‘l bilan AKT nutq faoliyatini jadallashtiruvchi emas, balki uning sifatini barqaror oshiruvchi metodik vositaga aylanadi.

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O‘ZBEK VA TURK TILLARIDA SHAKLDOSH SO‘ZLAR: O‘XSHASH VA FARQLI JIHATLARINING QIYOSIY-TARIXIY TAHLILI

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Annotatsiya. *Maqolada o‘zbek va turk tillaridagi shakldosh so‘zlar ikki darajada – til ichidagi omonimiya va tillararo shakldoshlik (“soxta do‘stlar”, turkcha “yalancı eş değer”) darajasida qiyosiy tahlil qilinadi. Izohli lug‘atlardan ajratilgan 70 dan ortiq so‘z juftligi qiyosiy-tipologik, qiyosiy-tarixiy, komponent va leksikografik usullar bilan o‘rganildi. Ikki tilda shakldoshlarning bir xil turlari mavjudligi va umumturkiy merosdan kelgan omonim juftliklar (yoz/yaz, och/aç, tosh/taş) parallel saqlangani aniqlandi. Ko‘plab omonimlar esa faqat bir tilda uchraydi; bu asimmetriya o‘g‘uz tillaridagi jaranglashuv (ot – at/ad), qarluq tillarida ŋ ning saqlanishi (ming/min- – bin) va imlo tamoyillaridagi farq bilan izohlanadi. Tillararo shakldoshlar to‘liq, qisman va tovush muvofiqligi orqali yuzaga keladigan turlarga ajratildi. 2026-yilgi alifbo qonuni o‘zbekcha boş (bosh), köz (ko‘z) kabi shakllarni turkcha so‘zlar bilan grafik jihatdan tenglashtirib, yangi tillararo shakldoshlarni vujudga keltirishi ko‘rsatildi.*

Kalit so‘zlar: *shakldosh so‘zlar, omonimiya, tillararo omonimlar, soxta do‘stlar, o‘zbek tili, turk tili, tovush muvofiqligi, qiyosiy tahlil.*

Аннотация. *В статье омонимы узбекского и турецкого языков сопоставляются на двух уровнях: внутриязыковой и межъязыковой омонимии («ложные друзья переводчика», тур. yalancı eş değer). Более 70 пар слов из толковых словарей двух языков исследованы сравнительно-типологическим, сравнительно-историческим, компонентным и лексикографическим методами. Установлено, что в обоих языках представлены одни и те же типы омонимов, а ряд омонимических пар общетюркского происхождения (yoz/yaz, och/aç, tosh/taş) сохраняется параллельно. Многие омонимы, однако, существуют лишь в одном языке; эта асимметрия объясняется огузским озвончением (ot – at/ad), сохранением ŋ в карлукских языках (ming/min- – bin) и различием*

орфографических принципов. Межъязыковые омонимы разделены на полные, частичные и возникающие на основе звуковых соответствий. Показано, что закон 2026 года об узбекском латинском алфавите графически уравнивает узбекские формы boş (bosh), köz (ko‘z) с турецкими словами и порождает новые межъязыковые омонимы.

Ключевые слова: *омонимы, омонимия, межъязыковые омонимы, ложные друзья переводчика, узбекский язык, турецкий язык, звуковые соответствия, сопоставительный анализ.*

Abstract. *The article compares homonyms in Uzbek and Turkish at two levels: language-internal homonymy and interlingual homonymy (“false friends”, Turkish yalancı eş değer). More than 70 word pairs from the explanatory dictionaries of the two languages were examined through comparative-typological, comparative-historical, componential and lexicographic analysis. Both languages have the same types of homonyms, and several homonymous pairs inherited from the common Turkic stock (yoz/yaz, och/aç, tosh/taş) survive in parallel. Many homonyms, however, occur in only one language; this asymmetry is explained by Oghuz voicing (ot vs. at/ad), the retention of ŋ in Karluk (ming/min- vs. bin) and different orthographic principles. Interlingual homonyms are classified as full, partial and correspondence-based. The 2026 law on the Uzbek Latin alphabet is shown to make Uzbek forms such as boş (bosh ‘head’) and köz (ko‘z ‘eye’) graphically identical to Turkish words, creating new interlingual homonyms.*

Key words: *homonyms, homonymy, interlingual homonyms, false friends, Uzbek, Turkish, sound correspondences, comparative analysis.*

KIRISH

Shakldoshlik, ya’ni shakli bir xil, ma’nosi har xil so‘zlarning mavjudligi har qanday tilga xos universal hodisadir: omonimlar so‘z o‘yini, askiya va tuyuq janrining asosini tashkil etadi, kontekst yetarli bo‘lmaganda esa tushunmovchilikka sabab bo‘ladi. Qardosh tillar aloqasida bu hodisa yangi o‘lchov kasb etadi: bir tildagi so‘z ikkinchi tildagi shakli o‘xshash, ammo ma’nosi boshqa so‘z bilan adashtiriladi. Tarjimashunoslikda bunday so‘zlar “soxta do‘stlar” (*faux amis*) deb ataladi [Koessler, Derocquigny, 1928], turk tilshunosligida esa “yalancı eş değer” (soxta muqobil) yoki “biçimsel eş değer” (shakliy muqobil) atamalari bilan o‘rganiladi [Çetin, 2014; Gedik, Uçar, 2015].

O‘zbek tili turkiy tillarning qarluq, turk tili esa o‘g‘uz guruhiga mansub [Johanson, Csató, 1998]. Umumiy leksik fondi katta bo‘lsa-da, shakli yaqin, ma’nosi farqli so‘zlar ularning o‘zaro tushunarliligini sezilarli darajada pasaytiradi: A. Merhan ikki til o‘rtasida ma’nosi butunlay farq qiladigan 236 ta

shakldosh so‘zni qayd etgan [Merhan, 2012]. Masalan, o‘zbekcha *pul* turkchada “pochta markasi”, *muz* esa “banan” ma’nosini bildiradi.

Masalaning dolzarbligi so‘nggi yillarda ortdi: 2024-yilda Turkiy davlatlar 34 harfli Umumturkiy alifbo loyihasi bo‘yicha kelishuvga erishdi [Anadolu Agency, 2024], 2026-yil 21-oktabrda imzolangan qonun bilan esa o‘zbek lotin alifbosida *sh, ch, o‘, g‘* o‘rniga *ş, ç, ö, ğ* harflari kiritildi [UzDaily, 2026]. Natijada ilgari asosan og‘zaki nutqda seziladigan shakldoshlik endi yozuvda ham namoyon bo‘la boshlaydi.

Mavjud ishlarda o‘zbek–turk soxta muqobillari asosan ro‘yxat va tasnif shaklida berilgan [Merhan, 2012; Gedik, Uçar, 2015], frazeologizmlar [Keçeci, 2024] va muqobilsiz fe’llar [Arslan, 2020] ham o‘rganilgan. Biroq ko‘rib chiqilgan manbalarda ikki tilning til ichidagi omonimiya tizimlari o‘zaro qiyoslanmagan, bir tildagi omonimning ikkinchi tilda nega omonim emasligi tarixiy fonetika asosida izohlanmagan, yangi o‘zbek imlosining ta’siri esa tahlil qilinmagan. Shu bois maqolada uch savolga javob izlanadi: ikki tilda til ichidagi shakldoshlik qaysi jihatlarda o‘xshash va farqli; bu farqlarning sababi nimada; tillararo shakldoshlarni qanday tasniflash mumkin va 2026-yilgi imlo ularga qanday ta’sir ko‘rsatadi.

ADABIYOTLAR SHARHI

Omonimiya nazariyasidagi markaziy masala omonimlarni ko‘p ma’noli so‘zlardan farqlashdir. V.V. Vinogradov omonimlar polisemiyaning parchalanishi hamda turli manbali so‘zlarning shaklan mos kelib qolishi natijasida paydo bo‘lishini ko‘rsatib, ularni yondosh hodisalardan ajratish mezonlarini muhokama qilgan [Виноградов, 1960]; O.S. Axmanova leksik omonimlar, omofonlar, omograflar va omoformalarni farqlovchi tasnifni lug‘atda izchil qo‘llagan [Ахманова, 1974].

O‘zbek tilida shakldoshlar Sh. Rahmatullayevning omonimlar lug‘atida tizimli qayd etilgan [Rahmatullayev, 1984] va leksik omonim (*ot* “hayvon” – *ot* “ism”), omofon (*mard* – *mart*), omograf (*atlas* “mato” – *atlas* “xaritalar to‘plami”) hamda omoforma (*o‘qi* “o‘qi!” – *o‘q-i* “uning o‘qi”) turlariga ajratiladi [Rahmatullayev, 2006]. Turk tilshunosligida bu hodisa “eş seslilik” yoki “sesteşlik” deb nomlanadi va ko‘p ma’nolilik bilan qiyoslab o‘rganiladi [Aksan, 1998]; omograflarni yozuvda farqlovchi düzeltme işareti (^) qoidalari esa Turk til kurumi imlo qo‘llanmasida belgilangan [TDK, 2012].

P.J. Chamizo Domínguez soxta do‘stlarni kelib chiqishiga ko‘ra tasodifiy (turli manbali so‘zlarning shaklan mos kelishi) va semantik (umumiy manbadan kelib, ma’nosi ajralgan), ma’no munosabatiga ko‘ra esa to‘liq va qisman turlarga ajratadi [Chamizo Domínguez, 2008]. O‘zbek–turk materialida A. Merhan

shakldoshlarni ma’nosi butunlay farqli, faqat turk shevalarida saqlangan va birlamchi ma’nolari mos kelmaydigan so‘zlarga ajratgan [Merhan, 2012]; M. Çetin O‘zbekistonda turk tilini o‘qitishda shakliy muqobillar muloqotga to‘siq bo‘lishini kuzatgan [Çetin, 2014]; S. Gedik va İ. Uçar Oybekning “Bola Alisher” qissasidagi soxta muqobillarni tahlil qilgan [Gedik, Uçar, 2015].

Tarixiy izoh uchun qiyosiy turkologiya ma’lumotlari muhim: L. Ligeti o‘g‘uz tillarida birlamchi cho‘ziq unlidan keyingi jarangsiz undoshning jaranglashishini (*āç > *ac* “och”, *ōt > *od* “olov”) aniqlagan, T. Tekin bu masalani turkiy tillar materialida tizimlashtirgan [Tekin, 1995]; qarluq va o‘g‘uz tillarining fonetik farqlari umumturkologik ishlarda tavsiflangan [Баскаков, 1969; Johanson, Csató, 1998]. Ko‘rib chiqilgan manbalarda tillararo shakldoshlarni ikki tilning omonimiya tizimi va tarixiy fonetikasi bilan bog‘lab izohlovchi tadqiqot uchramadi; mazkur maqola shu bo‘shliqni to‘ldirishga qaratilgan.

TADQIQOT METODOLOGIYASI

Tadqiqot materiali “O‘zbek tilining izohli lug‘ati” [O‘TIL, 2006–2008], “O‘zbek tili omonimlarining izohli lug‘ati” [Rahmatullayev, 1984] va Turk til kurumining “Güncel Türkçe Sözlük” lug‘atidan [TDK GTS] maqsadli tanlov asosida ajratilgan, umumiste’mol leksikaga oid 70 dan ortiq so‘z juftligidan iborat. Tillararo shakldoshlar ro‘yxati A. Merhan ma’lumotlari bilan solishtirildi [Merhan, 2012], so‘zlarning kelib chiqishi etimologik lug‘atlar asosida aniqlandi [Clauson, 1972; Nişanyan, 2002–].

Qiyosiy-tipologik usul shakldoshlik turlarini solishtirish, qiyosiy-tarixiy usul ularning kelib chiqishini muntazam tovush muvofiqliklari orqali izohlash, komponent (sema) tahlili tillararo shakldoshlarning ma’no munosabatini aniqlash uchun qo‘llandi; grafik modellashtirishda o‘zbekcha so‘zlar 1995-yilgi va 2026-yilgi imloda yozilib, turkcha shakllar bilan solishtirildi. Tillararo shakldoshlar shakl mosligi darajasi va ma’no munosabati mezonlari asosida tasniflandi.

Tadqiqot lug‘at materialiga tayanadi: so‘zlarning chastotasi va tushunmovchilik ehtimoli korpus yoki tajriba asosida o‘lchanmagan, shevalar materiali kiritilmagan. 2026-yilgi qonunning rasmiy matni tahlil qilinmagan, yangi alifbo haqidagi ma’lumotlar axborot agentligi xabariga tayanadi [UzDaily, 2026], shu sababli 4-jadvaldagi shakllar imlo qoidalari rasmiy e’lon qilingach aniqlashtirilishi lozim.

NATIJALAR VA MUHOKAMA

1. Til ichidagi shakldoshlik: turlar va ularning tizimiy asoslari

1-jadval. O‘zbek va turk tillarida til ichidagi shakldoshlik turlari

Turi	O‘zbek tili	Turk tili
Leksik omonim (shakli to‘liq bir xil)	*ot* “hayvon” – *ot* “ism” – *ot-* “otmoq”; *yoz* “fasl” – *yoz-* “yozmoq”	*yüz* “yuz (a’zo)” – *yüz* “yuz (son)” – *yüz-* “suzmoq”; *dolu* “to‘la” – *dolu* “do‘l”
Omofon (talaffuzi bir xil, yozilishi har xil)	*mard* – *mart*; *yod* “xotira” – *yot* “begona”	Fonetik imlo tufayli deyarli uchramaydi: “xotira” va “begona” ma’nolari bir xil – *yad* shaklida yoziladi
Omograf (yozilishi bir xil, talaffuzi har xil)	*atlas* “mato” – *atlas* “xaritalar to‘plami” (urg‘u farqi)	düzeltme işareti tushirilganda: *hala* “amma” – *hâlâ* “hali ham”; *kar* “qor” – *kâr* “foyda”; *adet* “dona” – *âdet* “odat”
Omoforma (grammatik shakllar mos kelishi)	*o ‘qi* “o‘qi!” – *o ‘q-i* “uning o‘qi”; *terim* “hosil yig‘imi” – *teri-m* “mening terim”	*gelin* “kelin” – *gel-in* “keling!”; *yazar* “yozuvchi” – *yaz-ar* “yozadi”; *karın* “qorin” – *kar-ın* “qoring”

Izoh: misollar (2006–2008; Rahmatullayev, 1984; TDK GTS; TDK, 2012) asosida.

1-jadvaldan ko‘rinadiki, ikki tilda ham shakldoshlarning to‘rt asosiy turi mavjud, biroq ularning salmog‘i va manbai har bir tilning imlo va morfologik tizimiga bog‘liq. Birinchidan, omofoniya o‘zbek tiliga ko‘proq xos. O‘zbek imlosi so‘zning morfologik shaklini saqlaydi, shu bois oxirgi jarangli undosh jarangsiz talaffuz qilinsa ham yozuvda o‘zgarmaydi (*mard* [mart], *yod* [yot]). Turk imlosi esa fonetik tamoyilga tayanadi va oxirgi jarangsizlanishni aks ettiradi (*kitap* – *kitabı*), shu sababli talaffuzdagi moslik to‘liq omonimga aylanadi: o‘zbekcha *yod* “xotira” va *yot* “begona” turk tilida yagona *yad* shaklida ifodalanadi [TDK GTS].

Ikkinchidan, turk tilidagi omograflar asosan arab va fors o‘zlashmalaridagi unli cho‘ziqligi bilan bog‘liq va düzeltme işareti yordamida farqlanadi [TDK, 2012]; raqamli yozishmalarda bu belgi ko‘pincha tushirib qoldirilgani sababli *hala*/*hâlâ* kabi juftliklar amalda omografga aylanadi. O‘zbek tilida bunday vosita yo‘q.

Uchinchidan, omoformalar ikki tilning morfologik farqini aks ettiradi. Turk tilida -(A)r/-(I)r qo‘shimchali sifatdosh muntazam otlashadi: *yazar* “yozuvchi” – “yozadi”, *okur* “o‘quvchi” – “o‘qiydi”, *gelir* “daromad” – “keladi”,

gider “xarajat” – “ketadi”. O‘zbek tilida bu model samarali emas (*yozuvchi*, *daromad*), shuning uchun bunday omoformalar deyarli uchramaydi. Turkcha *gelin* “kelin” va *gelin* “keling!” esa o‘zbek tilida *kelin* va *keling* shaklida farqlanadi, chunki o‘zbekcha buyruq qo‘shimchasida qadimgi *ŋ* saqlangan [Кононов, 1960; Göksel, Kerslake, 2005].

2. Parallel va asimmetrik shakldoshlik

Ikki tildagi omonimlar solishtirilganda uch holat kuzatiladi (2-jadval). Birinchi holatda omonim juftlik har ikki tilda muntazam tovush muvofiqligi bilan saqlangan: bu umumturkiy merosdan kelgan mushtarak qatlam bo‘lib, unga *kech*/*kech-* – *geç*/*geç-*, *sog‘* “sog‘lom” / *sog‘-* “sog‘moq” – *sağ*/*sağ-* kabi juftliklar ham kiradi. Parallel omonimiya o‘zlashmalarda ham uchraydi: o‘zbekcha *sir* so‘zining “maxfiy gap” va “sopol idish sirti” ma’nolari turkcha *sır* da ham mavjud (O‘TIL, 2006–2008; TDK GTS).

2-jadval. O‘zbek va turk tillarida parallel va asimmetrik shakldoshlik

O‘zbek tili	Turk tili	Izoh (sabab)
A. Omonimiya ikki tilda ham mavjud (parallel)		
yoz “fasl” / *yoz-* “yozmoq”	*yaz* / *yaz-*	Umumturkiy meros; o‘zb. *o* ~ turk. *a*
och “och” / *och-* “ochmoq”	*aç* / *aç-*	Umumturkiy meros
so‘l “chap” / *so‘l-* “so‘lmoq”	*sol* / *sol-*	Umumturkiy meros; o‘zb. *o‘* ~ turk. *o*
B. Omonimiya faqat o‘zbek tilida		
ot “hayvon” / *ot* “ism”	*at* / *ad*	O‘g‘uz tillarida birlamchi cho‘ziq unlidan keyin *t* > *d* (*āt > *ad*)
o‘t “o‘simlik” / *o‘t* “olov” / *o‘t* “safro”	*ot* / *od* (esk.) / *öd*	Shu qonuniyat (*ōt > *od*)
tut “tut daraxti” / *tut-* “ushlamoq”	*dut* / *tut-*	So‘z boshida *t-* > *d-* (o‘g‘uzcha)

O‘zbek tili	Turk tili	Izoh (sabab)
ko‘r “ko‘zi ojiz” / *ko‘r-* “ko‘rmoq”	*kör* / *gör-*	So‘z boshida *k-* > *g-* (o‘g‘uzcha)
tuz “osh tuzi” / *tuz-* “tuzmoq”	*tuz* / *düz-*	O‘zbek tilida *u/ü* farqining yo‘qolishi; *t-* > *d-*
C. Omonimiya faqat turk tilida		
ming “1000” / *min-* “minmoq”	*bin* / *bin-*	O‘g‘uz tillarida *ŋ* > *n*
yod “xotira” / *yot* “begona”	*yad* / *yad*	Turk imlosining fonetik tamoyili
choy / *soy*	*çay* “choy” / *çay* “soy”	Turli manbali so‘zlarning shaklan mos kelishi

Izoh: tarixiy shakllar (Tekin, 1995; Clauson, 1972) asosida.

Ikkinchi holatda omonimiya faqat o‘zbek tilida mavjud va uning izohi tarixiy fonetikada. Birlamchi cho‘ziq unlilar o‘g‘uz tillarida keyingi jarangsiz undoshni jaranglashtirgan: *āt “ism” > *ad*, *ōt “olov” > *od*, qisqa unlili *at “ot (hayvon)” va *ot “o‘t (o‘simlik)” esa o‘zgarmagan [Tekin, 1995]; turk tilida bu so‘zlar hozir ham farqli turlanadi (*atı – adı*). O‘zbek tilida unli cho‘ziqligi yo‘qolgan, undosh jaranglashmagan, *a* esa *o* ga o‘tgan, natijada *ot* “hayvon” va “ism”, *o‘t* “o‘simlik”, “olov” va “safro” bir shaklga kelgan. Ikkinchi omil – o‘g‘uz tillarida so‘z boshidagi *t-*, *k-* ning faqat bir qism so‘zlarda jaranglashuvi (*dut – tut-*, *kör – gör-*, *kir – gir-*), uchinchisi – o‘zbek adabiy tilida unlilar uyg‘unligi va old-orqa qator farqining yo‘qolishi: turkcha *tuz* va *düz-* ga o‘zbek tilida bir xil *tuz* shakli mos keladi [Boeschoten, 1998].

Uchinchi holatda, aksincha, omonimiya faqat turk tilida mavjud. Uning muhim manbai – o‘g‘uz tillarida *ŋ* ning *n* ga o‘tishi: qadimgi turkiy *biŋ* “ming” va *bin-* “minmoq” turk tilida *bin* shaklida tenglashgan, o‘zbek tilida esa *ŋ* saqlangani uchun *ming* va *min-* farqlanadi [Clauson, 1972; Баскаков, 1969]; *gelin – keling* omoformasi ham shu qonuniyat bilan bog‘liq. Boshqa turkcha omonimlar o‘zbek tilida turli o‘zaklarga mos keladi (*çay – choy*, *soy*). Demak, omonimiyaning ikki tildagi taqsimoti tasodifiy emas, balki muntazam tovush o‘zgarishlari bilan belgilanadi.

3. Tillararo shakldoshlar tasnifi

Tillararo shakldoshlar ikki mezon – shakl mosligi va ma’no munosabati – asosida uch guruhga ajratildi (3-jadval).

3-jadval. O‘zbek–turk tillararo shakldoshlarining tasnifi

O‘zbekcha so‘z va ma’nosi	Turkcha so‘z va ma’nosi
A. To‘liq tillararo shakldoshlar: shakli bir xil, ma’nolari kesishmaydi	
kel! – “kelmoq” fe’lining buyrug‘i	*kel* – “kal, sochsiz”
dil – “ko‘ngil, qalb”	*dil* – “til (a’zo va nutq)”
pul – “pul”	*pul* – “pochta markasi; baliq tangachasi”
muz – “muz”	*muz* – “banan”
boy – “badavlat”	*boy* – “bo‘y; urug‘, qabila”
bor – “mavjud”	*bor* – “bor (kimyoviy element)”
B. Qisman tillararo shakldoshlar: umumiy ma’no bilan birga farqli ma’no ham bor	
bilak – “qo‘lning tirsakdan kaftgacha qismi”	*bilek* – “bilak bilan kaft tutashgan joy”
eshik – “eshik”	*eşik* – “ostona”
sichqon – “sichqon”	*sıçan* – “kalamush”
qurt – “qurt; quritilgan suzma”	*kurt* – “qurt; bo‘ri”
chal- – “cholg‘u, qo‘ng‘iroq chalmoq”	*çal-* – “chalmoq; o‘g‘irlamoq”
C. Tovush muvofiqligi orqali yuzaga keladigan (kesishgan) shakldoshlar	
qara! – “qaramoq” fe’lining buyrug‘i	*kara* – “qora”
ayiq – “ayiq”	*ayık* – “hushyor”
tun – “tun”	*dün* – “kecha, o‘tgan kun”
kecha – “o‘tgan kun; tun”	*gece* – “tun”

O‘zbekcha so‘z va ma’nosi	Turkcha so‘z va ma’nosi
yomon – “yomon”	*yaman* – “zo‘r, mohir; qo‘rqinchli”
hozir – “ayni vaqt”	*hazır* – “tayyor”
jinoyat – “jinoyat”	*cinayet* – “qotillik”
amaliyot – “amaliyot, tajriba”	*ameliyat* – “jarrohlik operatsiyasi”
chiroq – “chiroq”	*çırak* – “shogird”

Izoh: ma’nolar (O‘TIL, 2006–2008; TDK GTS) asosida.

To‘liq tillararo shakldoshlarning aksariyati turli manbali so‘zlarning tasodifiy mos kelishidir: o‘zbekcha *dil* fors tilidan “yurak” ma’nosida o‘zlashgan, turkcha *dil* esa turkiy *til* ning o‘g‘uzcha shakli; turkcha *bor* kimyoviy element nomi sifatida Yevropa tillaridan kirgan. Umumiy manbadan kelib, ma’nosi butunlay ajralgan so‘zlar ham bor: fors tilidagi “mayda mis tanga” ma’nosidagi so‘z o‘zbek tilida “pul”, turk tilida esa tangaga o‘xshash “marka” va “tangacha” ma’nolarini olgan [Nişanyan, 2002]. Qisman shakldoshlarda ma’no ko‘chishi ko‘pincha metonimiya asosida yuz bergan: *bilak* – *bilek* qo‘lning qo‘shni qismlarini, *eshik* – *eşik* esa eshik va uning ostonasini bildiradi.

Uchinchi guruh qardosh tillar uchun ayniqsa xarakterli. Bu so‘zlar yozuvda aynan bir xil emas, ammo ikki tilni biladigan kishi muntazam muvofiqliklarni (o‘zb. *o* ~ turk. *a*, *q* ~ *k*, *t-* ~ *d-*, *k-* ~ *g-*) ongsiz qo‘llab, notanish so‘zni tanish shaklga “o‘girib” oladi. Turkcha *kara* “qora” *k* ~ *q* almashinuvi bilan o‘zbekcha *qara!* shakliga to‘g‘ri keladi, holbuki uning muqobili *qora* dir; turkcha *dün* “kecha (o‘tgan kun)” o‘zbekcha *tun* bilan, o‘zbekcha *kecha* esa turkcha *gece* “tun” bilan tenglashadi. Bu “kesishgan muvofiqlik” natijasida bir tildagi so‘z ikkinchi tildagi boshqa so‘zning tovush muvofig‘iga aylanadi. Arab va fors o‘zlashmalari ham ikki tilda turli yo‘nalishda taraqqiy etgan: arabcha “hozir bo‘lgan” ma’nosidagi so‘z o‘zbek tilida “ayni vaqt”, turk tilida “tayyor” ma’nosini, forscha *čirāġ* “chiroq” esa turk tilida “shogird” ma’nosini olgan [Nişanyan, 2002].

4. 2026-yilgi imlo islohoti va yangi grafik shakldoshlik

Yangi alifboda *sh*, *ch*, *o‘*, *g‘* o‘rniga *ş*, *ç*, *ö*, *ğ* harflarining qo‘llanishi [UzDaily, 2026] tillararo shakldoshlikni yozuvga ko‘chiradi. Buni tekshirish uchun o‘zbekcha so‘zlar yangi imloda yozilib, turkcha so‘zlar bilan solishtirildi (4-jadval).

4-jadval. Yangi o‘zbek imlosida yuzaga keladigan grafik mosliklar

O‘zbekcha (1995-yilgi imlo)	2026-yilgi imlo	Turkcha so‘z va ma’nosi	Munosabat
bosh “kalla”	*boş*	*boş* “bo‘sh”	soxta
ko‘z “ko‘z”	*köz*	*köz* “cho‘g‘”	soxta
ko‘k “ko‘k rang; osmon”	*kök*	*kök* “ildiz”	soxta
o‘n “10”	*ön*	*ön* “old tomon”	soxta
chok “chok, tikuv”	*çok*	*çok* “ko‘p, juda”	soxta
tush “tush; tushmoq”	*tuş*	*tuş* “klaviatura tugmasi”	soxta
eshik “eshik”	*eşik*	*eşik* “ostona”	qisman
cho‘p “cho‘p, xas”	*çöp*	*çöp* “axlat; cho‘p”	qisman
ko‘r “ko‘zi ojiz; ko‘rmoq”	*kör*	*kör* “ko‘zi ojiz”	qisman
cho‘l “cho‘l”	*çöl*	*çöl* “cho‘l”	mos
so‘z “so‘z”	*söz*	*söz* “so‘z; va’da”	mos

Izoh: 2026-yilgi imlodagi shakllar (UzDaily, 2026) da e’lon qilingan harf almashinuvlari asosida; turkcha ma’nolar (TDK GTS) asosida.

Bir guruh so‘zlar yozuvda ham, ma’noda ham mos keladi (*çöl*, *söz*, shuningdek *öç* “o‘ch”, *öl-* “o‘lmoq”, *öp-* “o‘pmoq”) va o‘zaro tushunishni osonlashtiradi. Ikkinchi guruhda esa yozuvi aynan bir xil, ma’nosi boshqa so‘zlar paydo bo‘ladi: ilgari farqlangan o‘zbekcha *bosh* va turkcha *boş* endi bir xil yoziladi. O‘zbekcha *ö* (eski *o‘*) turkcha *ö* ga ham (*söz*), *o* ga ham (*yöl* – turk. *yol*, *qöl* – turk. *kol*) muvofiq keladi, chunki o‘zbek adabiy tilida old va orqa qator unlilar farqi yo‘qolgan [Boeschoten, 1998]. Amaliy jihatdan bu “shaffoflik illyuziyasi” xavfini oshiradi: o‘quvchi yoki mashina tarjimasi tizimi yozuvdagi moslikni ma’no mosligi deb qabul qilishi mumkin.

5. O‘xshash va farqli jihatlar

Ikki tildagi shakldoshlikning o‘xshash jihatlari: shakldoshlarning tiplari mushtarak; umumturkiy ot va fe’l o‘zaklarining omonim juftliklari parallel saqlangan; arab va fors o‘zlashmalari ikki tilda ham shakldoshlik manbai. Farqli jihatlar: o‘zbek tilida omonimiya ko‘proq fonetik birlashuv (unli cho‘ziqligi va uyg‘unligining yo‘qolishi, so‘z boshida jaranglashuv yo‘qligi), turk tilida esa *ŋ* > *n* o‘zgarishi va sifatdoshlarning otlashishi natijasida yuzaga keladi; imloning morfologik yoki fonetik tamoyili omofon va omograflar taqsimotini belgilaydi; turk tilida omograflarni farqlovchi diakritik belgi bor, o‘zbek tilida yo‘q.

XULOSA

Tadqiqot o‘zbek va turk tillaridagi shakldoshlik ikki tilning umumiy merosi va mustaqil taraqqiyotining mahsuli ekanini ko‘rsatdi. Ikki tilda shakldoshlarning bir xil turlari mavjud va umumturkiy qatlamdagi qator omonim juftliklar parallel saqlangan. Shu bilan birga ko‘plab omonimlar faqat bir tilda uchraydi va bu asimmetriya muntazam: o‘g‘uz tillaridagi jaranglashuv turk tilida ma’nolarni ajratgan (*at – ad*, *ot – od*, *dut – tut*-), o‘zbek tilida esa bu so‘zlar bir shaklga kelgan; aksincha, *ŋ* > *n* o‘zgarishi va sifatdoshning otlashishi turk tilida omonimlarni ko‘paytirgan (*bin*, *gelin*, *gelir*). Tillararo shakldoshlarni to‘liq, qisman va tovush muvofiqligi orqali yuzaga keladigan turlarga ajratish ularni o‘qitish va tarjimada farqlash uchun amaliy asos beradi. 2026-yilgi alifbo islohoti ikki tilni grafik jihatdan yaqinlashtirsa-da, *boş*, *köz*, *kök*, *çok* kabi yangi grafik shakldoshlarni ham vujudga keltiradi.

Natijalar asosida quyidagilar tavsiya etiladi: ikki tilli lug‘atlarda tillararo shakldoshlarni maxsus belgi bilan ajratish; yangi imlo asosida “O‘zbek–turk tillararo shakldoshlar lug‘ati”ni tuzish; turk va o‘zbek tillarini o‘qitishda soxta qardosh so‘zlarga oid mashqlar tizimini ishlab chiqish; mashina tarjimasi tizimlarini baholash uchun shakldosh juftliklardan test to‘plamini yaratish; shakldoshlarning matndagi chastotasi va tushunmovchilik ehtimolini korpus asosida o‘rganish.

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“ALPOMISH” DOSTONIDA XALQ MAQOLLARINING QO‘LLANISHI VA MA’NOVIY XUSUSIYATLARI

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Annotatsiya. *Maqolada o‘zbek xalq qahramonlik eposining yirik namunasi bo‘lgan “Alpomish” dostonida (Fozil Yo‘ldosh o‘g‘li varianti) qo‘llangan xalq maqollari mavzuviy, semantik va funksional jihatdan tahlil qilinadi. Doston matnidan 13 ta maqol ajratib olinib, ular davlat (baxt-iqbol), xudo (taqdir), sulton (hokimiyat), sabr, birlik, jamiyat hayoti va o‘lim kabi yetti mavzuviy guruhga tasniflangan. Har bir maqolning leksik-semantik tarkibi, badiiy tasvir vositalari (tazod, tajnis, qofiya) va dostondagi kontekstual vazifasi ochib berilgan. Tadqiqot natijalari maqollarning dostonda nafaqat badiiy bezak, balki qahramon xarakterini ochish, voqea rivojini sharhlash va xalq dunyoqarashini ifodalash vositasi ekanini ko‘rsatadi.*

Kalit so‘zlar: *“Alpomish”, doston, baxshi, qahramonlik eposi, maqol, paremiya, mavzuviy tasnif, semantik tahlil, xalq donishmandligi, badiiy funksiya.*

Аннотация. *В статье анализируются пословицы, употреблённые в узбекском народном героическом эпосе «Алпомиш» (вариант Фозила Юлдаш-оглы). Из текста дастана выделено 13 пословиц, которые сгруппированы по семи тематическим группам: счастье (давлат), Бог и судьба, правитель, терпение, единство, общественная жизнь и смерть. Раскрываются их значение, художественные средства и функция в тексте эпоса.*

Ключевые слова: *«Алпомиш», дастан, бахши, героический эпос, пословица, тематический анализ, народная мудрость.*

Abstract. *The article analyzes the proverbs used in the Uzbek heroic epic “Alpomish” (the version of Fozil Yoldosh-ogli). Thirteen proverbs were*

extracted from the text and classified into seven thematic groups: fortune (davlat), God and fate, the ruler, patience, unity, social life, and death. Their meaning, stylistic devices, and function within the epic are examined.

Keywords: *"Alpomish", doston, bakhshi, heroic epic, proverb, thematic analysis, folk wisdom.*

O‘zbek xalq og‘zaki ijodida dostonlar alohida o‘rin tutadi: ular xalqning tarixiy xotirasi, axloqiy qadriyatlari va badiiy tafakkurini yaxlit holda saqlab kelgan janrdir. Doston folklorshunos olimlarning diqqatini alohida tortgan, o‘zbek xalq og‘zaki ijodida eng ko‘p o‘rganilgan va uning merosini butun dunyoga tanitgan janrdir. "Alpomish" shunday dostonlarning biridir.

"Doston" so‘zi fors tilidan olingan bo‘lib, "qissa", "hikoya", "tarix" ma'nolarini bildiradi. Uning yana bir ma'nosi — el orasida gapirilmoq, kuylanmoq, og‘izga tushmoq. Demak, dostondagi qahramon bir tomondan asar obrazi, ikkinchi tomondan el og‘ziga tushgan, shuhrat topgan inson timsolidir. Ayniqsa ijobiy qahramonlarning og‘izga tushishi ularning xalq pedagogikasi talablariga javob beradigan inson sifatida tanilishi bilan bog‘liq [2: 160–161].

Dostonni baxshilar kuylaydi. Ular o‘z ustozlaridan maxsus dostonchilik sirlarini o‘rgangan san'atkorlardir. Maqol va topishmoqni millatning istalgan vakili aytishi, qo‘shiqni har bir oshiq-ma'shuq ijro etishi mumkin. Doston ijrosi esa shogirdlik maktabini o‘tagan, maxsus ta'lim olgan va iqtidorli shaxsgagina nasib etadi [2: 160–161]. Shu yo‘l bilan "Kuntug‘mish", "Rustamxon", "Go‘ro‘g‘li", "Avazxon", "Alpomish" kabi dostonlar baxshilar tomonidan kuylanib, keyinchalik yozib olinib, meros sifatida saqlanib kelmoqda.

Bu dostonlar matnida qo‘llangan maqollar xalq donishmandligining eng ixcham shakli bo‘lib, ular orqali eposning g‘oyaviy-axloqiy asoslari va baxshi uslubining o‘ziga xosligi namoyon bo‘ladi. Shu bois maqollarni doston kontekstida o‘rganish folklorshunoslik, lingvofolkloristika va adabiyot o‘qitish metodikasi uchun birdek ahamiyatlidir.

Ushbu ishda "Alpomish" dostonidagi maqollarni ajratib olish va ro‘yxatga kiritish. Maqollarni mavzuviy guruhlarga ajratish. Har bir maqolning ma'nosi va undagi badiiy tasvir vositalarini izohlash. Maqolning doston syujeti va qahramonlar nutqidagi vazifasini aniqlash kabi tahlillar amalga oshiriladi. Ishdada dostonning Fozil Yo‘ldosh o‘g‘lidan yozib olingan varianti asos qilib olindi [1]. Ishda tavsifiy, mavzuviy-tasniflash, semantik va kontekstual tahlil metodlaridan foydalanildi.

"Alpomish" qadimiy qahramonlik eposining yorqin namunasidir. Qahramonlik xarakteri uning bosh xususiyati bo‘lib, dostonning butun mohiyati va asosiy yo‘nalishini shu belgilaydi. V.G.Belinskiyning fikricha, xalqning

go‘daklik davrida uning hayoti ko‘proq botirlik va qahramonlikda namoyon bo‘ladi; qadimiy qahramonlik eposi ham aynan shunday davrda paydo bo‘ladi. Bu qarash “Alpomish”ning ildizlari urug‘chilik jamiyati va ilk davlatchilik davriga borib taqalishini tushunishga yordam beradi. Doston qahramonlik, mardlik, vatanparvarlik, turli elat va xalqlarning birodarligi, sevgi va sadoqat, oilani mustahkamlash va urug‘ birligini kuylaydi. Voqealar qo‘ng‘irot urug‘i boshliqlari, aka-uka Boybo‘ri va Boysarining farzandsizligi tasviri bilan boshlanadi. Syujet quyidagi asosiy bosqichlarda rivojlanadi [3: 257, 259]:

1. Alpomish va Barchinning ajoyib sharoitda tug‘ilishi.
2. Alpomishning bahodirona yoshligi va birinchi pahlavonlik namoyishi.
3. Boysarining Boybo‘ridan arazlab qalmoq eliga ko‘chishi.
4. Alpomishning yorini olib kelish uchun o‘zga yurtga safari va Qorajon bilan do‘stlashishi.
5. Qalmoq alplari bilan bellashib Barchinning shartlarini bajarishi va yori bilan o‘z eliga qaytishi.
6. Qaynatasi Boysarini qutqarish uchun ikkinchi safarida yetti yil asirlikda qolishi.
7. Oti Boychibor yordamida asirlikdan qutulib, Barchinning zo‘ravon Ultontoz bilan to‘yi paytida yetib kelishi, raqibini yengib, o‘z hokimiyatini o‘rnatishi.

Ko‘rinib turibdiki, syujet ikki yirik qismga — qahramonning uylanish safari va uning qaytishi (“qaytib kelgan er” motivi) qismlariga bo‘linadi. Har ikki qismda ham sinov, ayriliq va visol, sadoqat va xiyonat qarama-qarshiligi markaziy o‘rinda turadi. Shu sababli doston xalq ongida mardlik, jasorat, sadoqat, hijron va visol, an’analar timsoli sifatida yashaydi. Bu timsollarni ixcham va ta’sirchan ifodalashda maqollar katta ahamiyatga ega.

Maqol bu – xalqning ijtimoiy-tarixiy va hayotiy-maishiy tajribasi umumlashgan, badiiy va obrazli hikmatli so‘zlarga aytiladi. “Maqol” atamasi arabcha “qavl” (gapirmoq, aytmoq) so‘zidan olingan. Folklorshunoslikda maqollar matal, hikmatli so‘z va aforizmlar bilan birga paremiyalar (kichik janrlar) tarkibiga kiritiladi.

Maqolni matal bilan farqlash muhim: matal hukm chiqarmaydi, faqat holatni obrazli tasvirlaydi, maqol esa tugal xulosa beradi. Dostonda maqollar alohida mustaqil matn sifatida emas, balki qahramon yoki baxshi nutqining uzviy qismi sifatida keladi. Shu sababli ularning ma’nosi kontekst bilan birga tahlil qilinishi lozim.

“Alpomish” matnidan 13 ta maqol ajratildi va ular 7 ta mavzuviy guruhga bo‘lindi. Maqollar dostonning she’riy qismida kelgani uchun ularning ayrimlari ikki misrali, qofiyali hikmatli bayt shaklida uchraydi.

Mavzu	Maqollar soni	Ulushi, %
Davlat (baxt-iqbol)	3	23,1
Jamiyat hayoti	3	23,1
Xudo (taqdir)	2	15,4
Sulton (hokimiyat)	2	15,4
Sabr	1	7,7
Birlik	1	7,7
O‘lim	1	7,7
Jami	**13**	**100**

Jadvaldan ko‘rinadiki, davlat va jamiyat hayoti mavzusidagi maqollar ustunlik qiladi. Bu dostonda shaxsiy baxt, el-yurt taqdiri va kishilar o‘rtasidagi munosabatlar asosiy masala ekanini tasdiqlaydi.

1. Davlat mavzusi. Xalq og‘zaki ijodida “davlat” so‘zi ko‘pincha “baxt-iqbol”, “omad”, “tole” ma’nolarida qo‘llanadi. Dostondagi uchala maqolda ham shu ma’no yetakchi.

Davlat qo‘nsa bir chibinning boshiga,
Semurg‘ qushlar salom berar qoshiga. (41-bet)

Baxt-iqbol kimga yor bo‘lsa, eng ojiz odam ham ulug‘lar hurmatiga sazovor bo‘ladi. Maqolda tazod (antiteza) san’ati qo‘llangan: “chibin” ojizlik va kichiklik, “Semurg‘” esa sharq mifologiyasida qudrat va ulug‘lik timsoli sifatida qarama-qarshi qo‘yilgan. “Davlat qo‘nsa” birikmasi qadimiy “davlat qushi” (Humo) haqidagi tasavvur bilan ham bog‘liq: bu qush kimning boshiga qo‘nsa, o‘sha odam baxtli bo‘ladi, deb ishonilgan.

Ushbu damning damlarini dam dema,
Boshing eson, davlatingni kam dema. (43-bet)

Maqolda hozirgi damni g‘animat bilish va boshning omonligini eng katta boylik deb anglash g‘oyasi ifodalangan. “Dam” so‘zining bir misrada uch marta, turli ma’nolarda takrorlanishi tajnis (so‘z o‘yini) hosil qilgan. Bu usul baxshi nutqiga ohangdorlik va ta’sirchanlik bag‘ishlaydi.

Har toliga bersa yetmas dunyo mol. (48-bet)

Maqolda mol-dunyoning o‘zi inson tole-u baxtini ta’minlay olmasligi ta’kidlanadi. Bu yerda moddiy boylik va ma’naviy baxt qarama-qarshi qo‘yiladi: tole Yaratganning in’omi bo‘lib, uni mol bilan sotib olib bo‘lmaydi. Bu g‘oya

farzandsiz Boybo‘ri va Boysarining boyligi bo‘la turib, baxtsizligi tasviri bilan hamohangdir.

2. Xudo mavzusi

Bu guruhdagi maqollar xalqning taqdir, iymon va tavakkul haqidagi diniy-falsafiy qarashlarini aks ettiradi.

Banda ko‘nar tangri qilgan ishiga. (41-bet)

Inson taqdirga bo‘ysunadi, iymon va tavakkulga tayanadi. Maqolda qadimiy turkiy “tangri” so‘zining qo‘llanishi diqqatga sazovor: u dostonning qadimiy qatlami islomdan oldingi tasavvurlar bilan ham bog‘liq ekanini ko‘rsatadi.

Xudodan beamr ishlar bo‘lmas,

Ajal yetmay chibin o‘lmas. (294-bet)

Hamma narsa Alloh irodasi bilan sodir bo‘ladi, ajal yetmaguncha hech bir jon o‘lmaydi. Maqol qismat va taqdir haqidagi xalq tushunchasini aks ettiradi. Ikkinchi misradagi “chibin” obrazi umumiy qoidani eng kichik jonzot misolida isbotlaydi, ya’ni xususiydan umumiyga xulosa chiqaradi. Bu maqol yetti yil zindonda qolgan Alpomishning omon qolishi g‘oyasi bilan mantiqan bog‘lanadi.

Maqollarning doston matnidagi badiiy-kompozitsion vazifasi

Maqollar dostonda faqat bezak emas, balki voqeaga mos holatda, aniq badiiy maqsad bilan aytiladi. Tahlil natijasida ularning quyidagi asosiy vazifalari aniqlandi:

1. Xulosalash vazifasi: maqol voqea yoki qahramon kechinmasidan keyin umumiy hikmatli xulosa chiqaradi (masalan, o‘lim haqidagi maqol).

2. Asoslash va ishontirish vazifasi: qahramon o‘z qarori yoki fikrini xalq tajribasiga tayangan holda dalillaydi (sabr, taqdir haqidagi maqollar).

3. Xarakter yaratish vazifasi: maqollar qahramonning sabrliligi, tavakkuli, el-yurtga sadoqati kabi fazilatlarini ochib beradi.

4. Istehzo va kinoya vazifasi: maqol raqibni mazax qilish, vaziyatga kulgili baho berish uchun qo‘llanadi.

5. Ritmik-uslubiy vazifa: qofiyali bayt shaklidagi maqollar she’riy matnga organik singib, baxshi ijrosining ohangdorligini oshiradi.

Xulosa o’rnida shuni aytish mumkinki, “Alpomish”dagi maqollar jamiyat orasida shakllangan qadriyatlar, dunyoqarash va donishmandlikni ifodalashda muhim o‘rin tutadi. Maqollardagi haqiqatlar bugungi hayotimiz bilan ham uzviy bog‘liq. Ularni o‘rganish dostonning g‘oyaviy mohiyatini chuqurroq anglashga, shuningdek, adabiyot darslarida yoshlarni milliy qadriyatlar ruhida tarbiyalashga xizmat qiladi. Kelgusida maqollarni dostonning boshqa baxshilar variantlari bilan qiyosiy o‘rganish istiqbolli yo‘nalish hisoblanadi.

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DUAL PERFORMANCE AND SPATIAL DIFFERENTIATION: A STUDY ON HERITAGE SYMBOL SOCIAL PRACTICE OF SAMARKAND CITY DAY

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Abstract: *Taking Samarkand City Day as a field case, this paper compares festival performances in old and new urban areas, proposes a dual practice model of heritage symbols, and provides a new perspective for Silk Road heritage activation.*

Keywords: *Samarkand; City Day; heritage symbol; spatial differentiation; dual performance*

1. INTRODUCTION

Driven by global tourism and social media, World Heritage sites in Silk Road historic cities have gradually become core resources for urban external communication and cultural tourism revenue. Existing studies mostly focus on tourism development, viral communication and tourist gaze, defining heritage simply as a "tourism consumption landscape", while ignoring the public cultural function of heritage in local urban society.

As a core heritage city along the Silk Road in Central Asia, Samarkand boasts a complete architectural heritage system of the Timurid Dynasty. The annual Samarkand City Day on October 18 is an iconic urban public cultural festival hosted by the local government. Based on on-site field research conducted on October 17, 2026, this study finds that the City Day celebration presents significant spatial differentiation: the official authority arranges two independent event venues in the old town heritage area and the southern new residential area, constructing two separate heritage narratives and performance systems for tourists and local residents respectively.

This paper aims to explore the dual social practice logic of heritage symbols in Silk Road heritage cities, and explain the formation mechanism and social value of heritage spatial differentiation.

2. MATERIALS AND METHODS

2.1 Theoretical Foundation

This study draws on disembedding theory and spatial semiotics. Disembedding theory points out that cultural symbols in modern society can separate from original material carriers and spatial-temporal scenes, realizing cross-space flow and reconstruction. For historical heritage, visual symbols such as architectural forms and mosaic patterns hold independent communication value, which can be applied to public cultural construction and urban image building beyond the scope of cultural relic protection and tourism.

This paper defines dual differentiation of heritage space as follows: the World Heritage resources of a single city are split and adapted into two functionally independent spatial systems in urban governance. One is the tourism performance space centered on original heritage entities, and the other is the civic ritual space carried by abstract heritage symbols.

2.2 Research Design

This study adopts field observation and comparative research methods. The author conducted on-site investigation at two core venues of Samarkand City Day: Registan Square in the old town and New Uzbekistan Park in Karasu New District. First-hand data including participant composition, activity content and spatial carriers were collected, and a comparative analysis of the two spatial practice models was carried out.

3. RESULTS

The pre-celebration of Samarkand City Day forms two completely independent performance scenes in the old town heritage area and Karasu new district, with essential differences in audience, carrier, function and narrative logic.

3.1 Registan Old Town: Tourism-oriented Heritage Performance Space

As the core carrier of Samarkand World Heritage, Registan Square serves as the city's traditional cultural tourism signature. Driven by global communication and the internet celebrity economy, the core function of this space is external tourism performance.

The space takes real historical buildings and cultural relic landscapes as its core carrier, and its audience is mainly transnational tourists, overseas bloggers and international media. Whether for regular scenic sightseeing or viral event communication, the core logic is to build heritage entities into standardized tourism landscapes to meet external groups' demands for cultural gaze, punch-in consumption and media communication. In this scene, the core values of heritage

are commercial value and external communication value, and local citizens are not the core service subjects of the space.

3.2 Karasu New District: Citizen-oriented Heritage Identity Ritual Space

The official pre-celebration of this City Day is held in New Uzbekistan Park, a public space in the southern Karasu new residential area. It is far from the core heritage area of the old town, with no original historical buildings, and the event is fully carried out relying on modern urban public space.

The core cultural carrier of the activity is not physical heritage buildings, but disembedded heritage symbols: the stage screen continuously plays landmark images of Registan Square and traditional mosaic geometric patterns of the Timurid Dynasty, transplanting the cultural symbols of the thousand-year-old heritage into the modern living space of citizens. Hosted by the municipal government, the event invites well-known local artists to perform, and creates an exclusive urban festival for local citizens through free participation and a closing fireworks ceremony.

Field observation shows that almost all participants are local residents of Samarkand, mainly family groups and ordinary citizens, with no large-scale tourist groups. The core demand of the audience is to participate in urban public rituals and perceive urban cultural belonging. In this scene, heritage completely strips away the attribute of tourism commodity and transforms into a cultural spiritual symbol that condenses the urban community.

4. DISCUSSION

4.1 Formation Logic of Dual Heritage Practice

The dual practice of heritage symbols in Samarkand is jointly driven by three factors.

First, the dual goals of urban governance. As a key cultural tourism city, Samarkand needs to rely on the scarcity of World Heritage to build an international cultural tourism IP, attract global tourists, boost the tourism economy and enhance international popularity, which determines the commercial and outward-oriented performance attribute of the old town heritage space. On the other hand, rapid urban expansion has spawned a large number of new residential areas, and residents in new districts lack a sense of historical spatial belonging. The government needs to sink the thousand-year heritage culture into citizens' daily lives through public cultural activities, forming a localized and inward-oriented cultural construction system.

Second, the detachable attribute of heritage symbols. Historical heritage is not a solidified material entity, but a composite system composed of "physical

architecture + cultural symbols + historical narrative". Physical buildings are and irreproducible, suitable for external display as scarce tourism resources; while visual symbols, cultural IP and historical imagery have the advantages of reproducibility, transplantability and low-cost communication, which can adapt to various urban public spaces and serve local public cultural construction, providing feasibility for dual spatial differentiation.

Third, the demand difference between audience groups. Tourists and local citizens have essentially different demands for heritage: tourists pursue landscape freshness, punch-in experience and cultural novelty, and need real and unique heritage entities as consumption carriers; local citizens pursue cultural belonging, urban pride and public participation, and do not need physical heritage scenes, only familiar urban cultural symbols can complete identity construction.

4.2 Academic Value and Practical Implications

Theoretically, this study breaks through the single "tourism-only" perspective in existing Silk Road heritage research, and proves that the value system of World Heritage includes two dimensions: external economic value and internal social value. Heritage is not only a consumable tourism resource, but also a public cultural asset of the local urban society. The practice of symbol disembedding enables heritage to break through the single framework of cultural relic protection and tourism development, and enriches the theoretical connotation of heritage activation from the perspective of tourism sociology.

Practically, the dual performance model of Samarkand provides a reference for similar historical cities in Central Asia: utilizing heritage resources by zone, target audience and level. The core heritage area focuses on international cultural tourism development to maximize the economic value of scarce heritage; the new urban area revitalizes heritage cultural symbols and carries out inclusive public cultural activities to balance the cultural needs of citizens, effectively avoiding the industry pain points of excessive commercialization of heritage and the loss of local culture.

5. CONCLUSION

The festival practice of Samarkand City Day intuitively presents the dual symbol practice and spatial differentiation mechanism of the Silk Road World Heritage. Under the dual background of globalization and urbanization, the physical heritage space of the old town undertakes the functions of external tourism performance, media communication and economic income generation, serving the city's international development; the new citizen public space undertakes the functions of condensing citizen identity and shaping urban

collective memory by transplanting and reconstructing heritage cultural symbols, serving the city's internal social governance.

The disembedded reconstruction of heritage symbols, the differentiated adaptation of audience needs and the dual goals of urban governance jointly give birth to two distinct heritage social practice modes. The activation and utilization of historical and cultural heritage should take into account both external cultural tourism empowerment and internal cultural nourishment, and realize the coordinated development of heritage economic value and socio-cultural value through spatial function differentiation and symbol resource splitting.

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BADIIY TAFAKKURDA GO‘ZALLIK FENOMENINING TRANSFORMATSIYASI: ESTETIK IDROKDAN BADIIY OBRAZGACHA

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Annotatsiya. *Maqolada ijodkorning badiiy tafakkurida sodir bo‘ladigan murakkab ijodiy estetik hodisaning reallikka aylanishidagi ba’zi jihatlar to‘g‘risida falsafiy fikr mulohazalar bildirildi. Shuningdek, faylasuflar, shoir va rassomlarning asarlaridagi go‘zallik tushunchalari hamda badiiy obrazlarning ma’nosiga e’tibor qaratildi.*

Kalit so‘zlar: *go‘zallik, estetika, badiiy tafakkur, estetik reallik, badiiy obraz, ijodiy jarayon.*

Аннотация*. В статье представлены философские размышления о некоторых аспектах превращения сложного творческого эстетического феномена, происходящего в художественном мышлении творческой личности, в реальность. Особое внимание также уделено понятиям красоты и значению художественных образов в произведениях философов, поэтов и художников.*

Ключевые слова: *красота, эстетика, художественное мышление, эстетическая реальность, художественный образ, творческий процесс.*

Abstract*. The article presents philosophical reflections on some aspects of the transformation of a complex creative and aesthetic phenomenon occurring in the artistic thinking of a creative individual into reality. Particular attention is also paid to the concepts of beauty and the meaning of artistic images in the works of philosophers, poets, and artists.*

Keywords: *beauty, aesthetics, artistic thinking, aesthetic reality, artistic image, creative process.*

KIRISH

Go‘zallik insonning borliqni estetik o‘zlashtirishining eng murakkab va ko‘p qatlamli shakllaridan biri bo‘lib, uning mazmuni tarixiy-madaniy taraqqiyot jarayonida doimiy ravishda qayta talqin etib kelinadi. Go‘zallikning tabiatdagi mavjudligi, inson tomonidan uni idrok etish xususiyatlari va badiiy ijod vositasida qayta namoyon qilinishi o‘rtasidagi munosabat estetika fanining

fundamental masalalaridan biridir. Ayniqsa, rassom, yozuvchi, shoir, bastakor kabi ijodkorlarning go‘zallikni qanday ko‘rishi, unga qanday ma’nolar berishi va qanday badiiy shaklga aylantirishi masalasi go‘zallikning obyektiv xususiyatlari bilan ijodkorning subyektiv-estetik tajribasi o‘rtasidagi murakkab munosabatni ochib beradi. Shu ma’noda badiiy asarni go‘zallikning oddiy nusxasi yoki borliqdagi estetik hodisaning oddiy aks-sadosi sifatida emas, balki ijodkor tafakkurida qayta tashkil etilgan, ma’noli va yangi estetik reallik sifatida tadqiq etish zarurati yuzaga keladi.

Adabiyotlar tahlili

Go‘zallik muammosining dastlabki falsafiy konseptual mohiyati Platon va Aristotel qarashlarida shakllangan. Platonning estetik qarashlarida go‘zallik hissiy tajribada namoyon bo‘lsa-da, uning haqiqiy mohiyati hissiy predmetlardan tashqaridagi ideal go‘zallik bilan bog‘lanadi.

Gegel esa san’atni “g‘oyaning hissiy namoyon bo‘lishi” bilan bog‘lab, badiiy shakl va mazmunning dialektik birligini markazga qo‘yadi.[1;197.] Bu yondashuvda san’atkorning vazifasi tashqi reallikni mexanik takrorlash emas, balki uning ichki mazmunini badiiy shaklda ochib berishdan iborat. Gadamer tadqiqotlarida Platon, Kant va Gegel estetikasining zamonaviy san’at tajribasiga ta’siri ham alohida ko‘rsatiladi. [2;479.] XX asrda Gusserl fenomenologiyasi estetik muammolarni tadqiq etish uchun yangi metodologik imkoniyatlar yaratdi. Fenomenologiya uchun asosiy masala predmetning inson ongidan tashqaridagi “o‘z-o‘zicha mavjudligi”ni tasvirlash emas, balki uning **ongga qanday namoyon bo‘lishi, qanday idrok qilinishi va qanday ma’noga ega bo‘lishi**dir.[3.] Xaydegger san’at asarini oddiy estetik predmet sifatida emas, balki borliqning o‘ziga xos tarzda ochilishi bilan bog‘laydi. Uning estetikasida badiiy asar tomoshabin yoki o‘quvchiga “murojaat qiluvchi” hodisa sifatida namoyon bo‘ladi.[4;229.]

Tadqiqot metodologiyasi.

Mazkur ishning metodologik asosini go‘zallik fenomenining badiiy tafakkurda shakllanishi, idrok etilishi, qayta talqin qilinishi va badiiy obrazga transformatsiyalanishini kompleks falsafiy-estetik tahlil qilish tamoyili tashkil etadi. Ishda analitik, fenomenologik, germenevtik va sinergetik metodlarning o‘zaro integratsiyasiga tayanildi. Mazkur metodologik birlik badiiy ijodning ham mazmunan, ham jarayonli, ham interpretativ xususiyatlarini bir vaqtning o‘zida ochib berish imkonini beradi.

Muhokama

Go‘zallik fenomenini faqat obyektning muayyan shakliy xususiyati sifatida tushuntirish zamonaviy badiiy tafakkurning murakkab tabiatini to‘liq ochib bera olmaydi. Go‘zallikning badiiy mavjudligi obyektning tashqi ko‘rinishidan ko‘ra kengroq ontologik va gnoseologik mazmunga ega bo‘lib, u borliq, insoniy idrok, ijodiy tafakkur va madaniy tajribaning kesishish nuqtasida shakllanadi. Shu ma’noda mazkur ishda go‘zallikni **“narsa” emas, “munosabat”; “tayyor sifat” emas, “ma’no hosil bo‘lish jarayoni”; “reproduksiya” emas, “transformatsiya”** sifatida tushunish taklif etilmoqda.

Bunday yondashuv klassik estetik tafakkurdagi go‘zallik haqidagi ayrim qarashlarni qayta ko‘rib chiqishni taqozo etadi. Klassik va nemis mumtoz estetikasida go‘zallik ko‘pincha shakl, uyg‘unlik, g‘oya va hissiy namoyon bo‘lish munosabatlari orqali izohlangan bo‘lsa, fenomenologik va germenevtik burilish go‘zallikning inson tomonidan qanday boshdan kechirishi, anglashi va ma’noga ega bo‘lishi masalasini dolzarblashtiradi. Ayniqsa, Gadamer estetikasida san’at tajribasi subyektning oddiy estetik zavqi bilan chegaralanmaydi; san’at asari insonni muayyan ma’no bilan yuzlashtiruvchi, uning dunyoni anglash tarzini o‘zgartiruvchi hodisa sifatida talqin qilinadi. [5; 594]

“Estetik idrok, badiiy tafakkur, interpretatsiya, badiiy obraz” ketma-ketligi go‘zallikning badiiy ontologiyasini tushuntirish uchun metodologik jihatdan samarali model sifatida namoyon bo‘ladi. Chunki real borliqdagi estetik hodisa hali badiiy asar emas. U ijodkorning individual sezgisi, xotirasi, hissiy tajribasi, madaniy ongi va dunyoqarashi orqali qayta tashkil topgandagina badiiy mazmun kasb etadi.

“Go‘zallik”, “estetik idrok”, “badiiy obraz” va “badiiy tafakkur” kategoriyalarini bir-biridan farqlashimiz kerak. Bu haqda o‘zbek olimlarining qator xulosalari ham mavjud. Go‘zallik estetik mazmunning potensial manbai; estetik idrok ushbu potensialning subyekt tomonidan o‘zlashtirilish jarayoni; badiiy tafakkur o‘zlashtirilgan estetik tajribani qayta tashkil etuvchi faol intellektual-emotsional mexanizm; badiiy obraz esa mazkur jarayonning moddiy yoki ramziy shaklda obyektivlashgan natijasidir. [6; 192.]

Shuning uchun badiiy asarni “voqelikning aksi” sifatida belgilash metodologik jihatdan yetarli emas. Aks ettirish modeli san’atning reprezentativ funksiyasini tushuntirishi mumkin, biroq ijodkorning **tanlash, qisqartirish, kuchaytirish, umumlashtirish, ramzlashtirish va qayta konfiguratsiyalash** faoliyatini to‘liq izohlab bermaydi. Badiiy tafakkur voqelikni shunchaki

qaytarmaydi; u voqelikning estetik imkoniyatlarini selektiv tarzda ajratib, yangi semantik konfiguratsiyaga keltiradi.

Erkin Vohidov yoki Abdulla Oripov uchun tabiat manzarasi shunchaki tashqi obyekt emas. U insonning ichki kechinmasi bilan birlashib, tashqi va ichki dunyo o‘rtasidagi chegarani nisbiylashtiradi. Shu o‘rinda tadqiqotning muhim nazariy xulosasi yuzaga keladi: **go‘zallikni ko‘rish – go‘zallikni yaratishning dastlabki bosqichidir, biroq ko‘rishning o‘zi hali ijod emas.** Estetik tajriba badiiy tafakkur tomonidan qayta ishlanganidan keyingina u obrazli shaklga ega bo‘ladi.

Gadamerning san’at falsafasida asarning ma’nosi tayyor va yakunlangan mazmun sifatida emas, balki asar bilan uchrashuv jarayonida ochiladigan hodisa sifatida talqin qilinadi. San’at tajribasi talqin bilan bog‘liq bo‘lib, asar insonni ma’no bilan yuzlashtiradi. Bu nazariy pozitsiya biz tahlil qilgan Akmal Nur ijodidagi ramziy obrazlar uchun ayniqsa muhimdir. Masalan, anor, bog‘, oy, daraxt yoki qayiq kabi obrazlarning badiiy qiymati ularning predmet sifatidagi mazmuni bilan tugamaydi. Ular madaniy xotira, shaxsiy tajriba va retsipientning interpretativ ufqi bilan o‘zaro ta’sirga kirishib, yangi ma’no qatlamlarini hosil qiladi.

Shuningdek, ijodkor tafakkurini yopiq va qat’iy determinatsiyalangan mexanizm sifatida tasavvur qilish badiiy ijodning variativligi va kutilmaganligini izohlashda yetarli emas. Aksincha, ijodiy tafakkur ko‘plab ichki va tashqi omillar o‘zaro ta’sir qiladigan murakkab, ochiq va dinamik tizim sifatida qaralishi mumkin.

Ijodkorning dastlabki estetik taassuroti hali tartiblangan badiiy tizim emas. U xotira, hissiyot, assotsiatsiya, bilim, madaniy tajriba va tasavvurning turli elementlari bilan qo‘shilib ketadi. Ijodiy jarayon davomida ayrim elementlar kuchayadi, boshqalari susayadi; ayrim obrazlar markaziy mavqega chiqadi, boshqalari esa ikkilamchi holatga tushadi. Natijada dastlabki ko‘pvariantli ichki holatdan muayyan dominant badiiy konfiguratsiya ajralib chiqadi.

Buni quyidagi bosqichda ifodalash mumkin: **ko‘pvariantli estetik taassurot, ichki beqarorlik, variantlarning raqobati, dominant obrazning ajralib chiqishi, strukturaviy yaxlitlik, badiiy shakl.** Bu jarayonning muhim xususiyati shundaki, yakuniy obraz boshlang‘ich taassurotda to‘liq mavjud bo‘lmaydi. U ijodiy tizimning ichki dinamikasi natijasida **emergent**, ya’ni oldingi elementlarning oddiy yig‘indisiga teng bo‘lmagan yangi sifat sifatida vujudga keladi. Demak, badiiy ijodning natijasi **“mavjud go‘zallik va ijodkor”** yig‘indisidan iborat emas. Bu yerda yangi ontologik sifat — **estetik reallik**

vujudga keladi. Estetik reallik real borliqni inkor qilmaydi, lekin uni aynan takrorlamaydi ham. U borliqning insoniy-estetik tajriba orqali qayta tashkil topgan shaklidir.

Akmal Nur ijodidagi Sharqona ramziylik, Erkin Vohidov va Abdulla Oripov poetikasidagi tabiat va inson munosabati, Said Ahmad nasridagi hayotiylik va xalqona obrazlilik turli shakllarda namoyon bo‘lsa-da, ularning umumiy jihati — **estetik mazmunning milliy madaniy xotira orqali individuallashtirishi**dir.[7; 232.]

Shu ma’noda milliylik universal estetik kategoriyaning torayishi emas, balki uning konkret tarixiy-madaniy shaklda namoyon bo‘lishidir. Universal “go‘zallik” abstrakt kategoriya sifatida mavjud bo‘lishi mumkin, biroq san’atda u doimo muayyan rang, tovush, obraz, til, ritm, timsol va tarixiy xotira orqali mavjud bo‘ladi.

Aytish mumkinki, badiiy jarayon chiziqli emas, **rekursiv** xarakterga ega. Asar yaratilgach, u yana yangi idrok obyekti sifatida ijodkorning o‘ziga ham, retsipientga ham qaytadi. Demak, ijodiy jarayon “ijodkor → asar” bilan tugamaydi; “asar → retsipient → yangi talqin → yangi estetik tajriba” bosqichi orqali davom etadi. Shu ma’noda badiiy asar yakunlangan obyekt emas, balki yangi estetik tajribalarni ishlab chiqaruvchi **ochiq semantik tizim**dir. Shu nuqtayi nazardan, Alisher Mirzo va Akmal Nur tasviriy tafakkurida rang va ramzning, Erkin Vohidov va Abdulla Oripov poetik tafakkurida so‘z va ruhiy kechinmaning, Said Ahmad nasrida esa hayotiy detal va insoniy munosabatlarning estetik konfiguratsiyaga aylanishi bir xil fundamental qonuniyatni — **borliqning badiiy tafakkur orqali semantik-estetik transformatsiyasi qonuniyatini** namoyon qiladi. Nazariy jihatdan aytish mumkinki, **go‘zallik badiiy tafakkurning boshlang‘ich obyekti bo‘lish bilan birga, uning yakuniy mahsuliga ham aylanadi**. Boshqacha aytganda, ijodkor go‘zallikni faqat topmaydi balki uni idrok, interpretatsiya, tanlov va ijodiy sintez orqali qayta yaratadi. San’atning ontologik o‘ziga xosligi ham aynan mana shu ikki holat ya’ni, **go‘zallikni qabul qilish va go‘zallikni yangi shaklda vujudga keltirish** o‘rtasidagi dialektik harakatda namoyon bo‘ladi.

XULOSA

Yuqoridagi natijalar go‘zallik fenomenining badiiy tafakkurdagi mavjudligi oddiy reprezentatsiya yoki voqelikni tashqi jihatdan nusxalash mexanizmi bilan izohlanmasligini ko‘rsatdi. Go‘zallik badiiy ijod jarayonida obyektiv borliqdan ijodkorning estetik idroki, hissiy tajribasi, individual dunyoqarashi, madaniy xotirasi va interpretativ faoliyati orqali o‘tib, yangi semantik-estetik konfiguratsiyaga ega bo‘ladi. Badiiy asar go‘zallikning tayyor

nusxasi emas, balki uning ijodiy tafakkurda qayta shakllangan ontologik va semantik ko‘rinishidir.

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“SHOHNOMAI DEVONA ANDALIB” DOSTONIDA FOJIAVIYLIK, GO‘ZALLIK VA ULUG‘VORLIK TALQINI

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Annotatsiya. *Ushbu maqolada XIX asr Qo‘qon adabiy muhitiga mansub “Shohnomai Devona Andalib” dostonining poetik xususiyatlari go‘zallik, ulug‘vorlik va fojiaviylik estetik kategoriyalari asosida tahlil qilinadi. Dostonda Buxoro amirligining Qo‘qon xonligiga yurishi, ijtimoiy-ma’naviy inqiroz, qatliomlar hamda vatan ozodligi yo‘lidagi kurash badiiy talqinda aks etgani ko‘rsatiladi. Tadqiqotda estetik-kognitiv, strukturaviy tahlil va matnshunoslik yondashuvlaridan foydalanilib, qo‘lyozma nusxalarining qiyosiy-ilmiy matni asosida lirik, epik va dramatik parchalar o‘rganiladi. Tahlil uch estetik kategoriyaning doston mazmuni va poetikasidagi o‘zaro aloqasini ochib beradi.*

Kalit so‘zlar. *Devona Andalib, “Shohnoma”, poetika, estetika, fojiaviylik, ulug‘vorlik, go‘zallik, irfoniy estetika, marsiya, monolog.*

Abstract. *This article examines the poetic features of “Shohnomai Devona Andalib,” a work associated with the nineteenth-century literary milieu of Kokand, through the aesthetic categories of beauty, the sublime, and the tragic. It considers the poem’s artistic representation of the Bukhara Emirate’s campaign against the Kokand Khanate, social and spiritual crisis, massacres, and the struggle for the homeland. The study draws on aesthetic-cognitive, structural, and textual approaches and analyzes lyrical, epic, and dramatic passages in the comparative scholarly text of the manuscript copies. The analysis reveals how the three aesthetic categories interact in the poem’s meaning and poetics.*

Keywords. *Devona Andalib, “Shahnameh”, poetics, aesthetics, the tragic, the sublime, beauty, mystical aesthetics, elegy, monologue.*

KIRISH

XIX asr o‘zbek adabiyoti, xususan, Qo‘qon adabiy muhiti janriy rang-barangligi va ijtimoiy-siyosiy voqelikka daxldorligi bilan ajralib turadi. Ushbu muhitda yaratilgan hamda bugungi kunda manbashunoslik nuqtayi nazaridan

o‘rganilayotgan asarlardan biri — “Shohnomai Devona Andalib” dostonidir. Maqolada doston taxminan 1842–1844-yillardagi voqealar bilan bog‘liq holda talqin qilinadi,eski o‘zbek tilida bitilgan asar xalqona uslubi, bayon soddaligi va subyektiv-estetik munosabatga boyligi bilan e’tiborni tortadi.

Uning badiiy tahlili akademik A.P.Qayumovning “Qo‘qon adabiy muhiti” [Qayumov,1961] kitobida manbashunoslik nuqtayi nazaridan tahlil etilsa, professor Sh.Vohidovning “Qo‘qon xonligida tarixnavislik” [Vohidov,2010] nomli monografiyasida, shuningdek yosh tadqiqotchilardan M.A.Maxamatxonovaning “O‘zbek adabiyotida “Shohnomai Andalib” ning o‘rni’’ [Maxamatxonova, 2024] nomli maqolalarida ma’lumotlar keltiriladi.

Adabiy matnni go‘zallik, ulug‘vorlik va fojiaviylik kategoriyalari asosida tadqiq etish asarning mazmuniy qatlamlarini, muallifning badiiy niyatini hamda davrning falsafiy-estetik qarashlarini ochishga xizmat qiladi. Shu jihatdan “Shohnomai Devona Andalib” faqat tarixiy voqealar bayoni emas, balki millat fojiasi va qahramonligining badiiy umumlashmasi sifatida namoyon bo‘ladi.

Tadqiqotning maqsadi — dostonda go‘zallik, ulug‘vorlik va fojiaviylik kategoriyalarining badiiy ifodasi hamda o‘zaro munosabatini aniqlash. Buning uchun estetik kategoriyalar namoyon bo‘lgan lirik, epik va dramatik parchalar tahlil qilinadi.

TADQIQOT METODOLOGIYASI

Tadqiqotning metodologik asosini estetik-kognitiv tahlil, strukturaviy tahlil va matnshunoslik metodlari tashkil etadi. Tadqiqot obyekti sifatida Abu Rayhon Beruniy nomidagi Sharq qo‘lyozmalari markazida 696 hamda 596/11 raqamlari ostida saqlanayotgan qo‘lyozma nusxalarining qiyosiy-ilmiy matni olingani dastlabki matnda qayd etilgan.

Doston strukturasi estetik kategoriyalarning matndagi funksional namoyon bo‘lishiga ko‘ra ko‘rib chiqildi. Badiiy tasvir vositalari, obrazlar tizimi, lirik kechinma va dramatik vaziyatlar adabiyotshunoslik mezonlari asosida tahlil qilindi.

NATIJALAR

“Shohnomai Devona Andalib” dostonining badiiy pafosini belgilovchi yetakchi estetik kategoriyalardan biri — fojiaviylikdir. Shoir bu kategoriyani ijtimoiy inqiroz va shaxsiy qismat dramasi orqali ochib beradi. Buxoro amiri Nasrullohning Qo‘qon zaminiga bostirib kirishi oddiy harbiy yurish sifatida emas, balki madaniyat va insoniylikka yetkazilgan kulfat sifatida tasvirlanadi:

Qon suvdek oqib qilurdi mavvoj,
Mo‘min vatanini qildi toroj...
Gardung‘a yetishdi xoyi xo‘yi,

Olamg‘a tushib bu zulm bo‘yi.
Hech qolmadi bir kitobi Qur’on,
Oldi hammani u nomusulmon.
Ilm uyini ham xarob qildi,
Masjidni yiqib turob qildi.
*[*Андалиб,2015 *]*

Andalib fojiaviy vaziyatni dushmanning “shum, zolim va badnihod” tabiati hamda masjid, madrasa va Qur’on kabi milliy-ma’naviy qadriyatlarning poymol etilishi orqali kuchaytiradi.Nafaqat milliy boyliklarni,balki xalqning e’tiqodi,ruhiy tayanchi ham mahv etilganini tasvirlaydi.Qon suv kabi oqishi fojianing ko‘lami dahshatli ekanligi o‘quvchi ko‘z o‘ngida tasvirlanadi.

Asardagi fojiaviylikning e’tiborli nuqtasi Muhammad Alixon, Sulton Mahmudxon va uning go‘dak farzandi Muhammad Aminxonning qatl etilishi bilan bog‘liq sahnalarda ko‘rinadi. Ayniqsa, olti yoshli shahzodaning jallod qo‘lidagi so‘nggi lahzalari va marsiya-monologi dramatik ta’sir kuchiga ega:

Muhammad Aminxoni mazlum,
Farzandi azizi xoni marhum.
Qasd ayladi u navnihola,
Yosh erdiyu yetmagan kamola.
Har yonga boqib telmurardi,
Ham jolasifat yoshin to‘kardi.
[Андалиб,2015*]*

“Navnihol”, “yosh erdiyu yetmagan kamola” kabi birikmalar go‘daklik pokligi va taqdir shafqatsizligi o‘rtasidagi ziddiyatni ifodalaydi. Shahzodaning chorasiz nigohi va ko‘z yoshlarining jola kabi to‘kilishi o‘quvchida achinish, iztirob va adolatsizlikka nisbatan norozilik tuyg‘ularini uyg‘otadi. Uning o‘lim oldidan aytgan monologi zulmga qarshi badiiy norozilik ifodasi sifatida talqin qilinadi:

Yig‘lab dedilarki, man g‘aribman,
Ham do‘stlarimdan ayrilibman.
Jallod yuziga telmurubon,
Ko‘b yolboribon yoshin to‘kubon…
Rahm ayla bu ko‘zdagi yoshimg‘a,
Tanhoyig‘aribqolonboshimg‘a.
*[*Андалиб,2015*]*

Jallodning va uning ortida turgan “gurgi xunxor” — Amir Nasrulloh obrazining rahmsizligi fojiaviylikni yanada kuchaytiradi. Shu tariqa shaxsiy fojia milliy fojiaga ulanadi.

Fojiaviylik bilan yonma-yon ravishda dostonda ulug‘vorlik pafosi ham namoyon bo‘ladi. Bu kategoriya xalqning o‘z erkini tiklashga intilishi, mardlik va adolat g‘oyalarida ifodalanadi. Sheralixon obrazi milliy xaloskor va vatanparvar hukmdor sifatida ulug‘vor bo‘yoqlarda tasvir etiladi:

Bir mardi go‘zal xuruj etibdur,
Farg‘ona sari uruj etibdur.
Azmi vatan aylamish o‘shal mard,
Ermish o‘zi mardi diloro fard.
*[*Андалиб,2015 *]*

Matnda Sheralixon taxtga o‘tirgach, bir oy ichida Qo‘qon atrofida mudofaa qal’asi barpo ettirgani qayd etiladi. Bu lavha xalq va davlat birligi g‘oyasini kuchaytiradi. Jang sahnalarida Qo‘qon askarlarining qarshiligi “Shohnoma” an’analariga xos epik qudrat va mubolag‘alar vositasida tasvirlanadi:

Xo‘qand sipohi sheri nardek,
Himmat qo‘rini jolib kamardek.
Har birlari Rustami zamona,
Doro kabi har biri yagona.
*[*Андалиб,2015*]*

Askarlarning Rustami doston va Doro kabi buyuk qahramonlarga qiyoslanishi, “sheri nardek” na’ra tortishi milliy g‘urur va ulug‘vorlik estetikasini yuzaga chiqaradi. Bunda tarixiy voqelik epik tasvir va qahramonlik ideali bilan badiiy umumlashtiriladi.

Dostonda go‘zallik kategoriyasi tashqi ko‘rinish tasviri bilan cheklanmay, falsafiy-irfoniy mazmun kasb etadi. Andalib badiiy tafakkurida go‘zallik mutlaq haqiqat va ilohiy nurning inson olamida namoyon bo‘lishi sifatida talqin etiladi. Shoir Farg‘ona vodiysining ma’naviy go‘zalligini “ilohiy nur” va “sirli gavharlar” ramzlari orqali ifodalaydi:

Anvori azal qilib tajalli,
Farg‘ona bo‘lub aning mahalli.
Ikki sarzulfi anbaraffshon,
Bizlarga yuborgan erdi Subhon.
*[*Андалиб,2015*]*

Bu parchada go‘zallik jismoniy yoki moddiy mezonlar bilan emas, balki ruhiy yuksalish, ilohiy marhamat va muqaddaslik tushunchalari bilan bog‘lanadi.

Dostondagi yana bir muhim estetik qatlam — poetik so‘z va nutq go‘zalligidir. Muallif ijodiy ilhomini “ma’no gulzori” hamda qush tumshug‘idan sochilgan shakarga qiyoslovchi obrazlar orqali ifodalaydi:

Tab’imni xush ayladi tamanno,
Gulzori ma’oniya taqozo.
Minqordin ayladi shakarrez,
Bir turfa hikoyati dilovez.
*[*Андалиб,2015 *]*

Andalibning so‘z san’atiga bergan bahosi doston poetikasida go‘zallik kategoriyasi yuksak estetik mezonlarga tayanishini ko‘rsatadi. Shoir uchun go‘zallik — fojiaviy voqealar ichida ham ilohiy mazmun va so‘z latofatini saqlab qolgan badiiy tafakkurdir.

MUHOKAMA

“Shohnomai devona Andalib” dostoni an’anaviy ishqiy dostonlardan ham, voqealarni xolis qayd etishga intilgan saroy solnomalaridan ham o‘zining hissiy-estetik munosabati bilan farqlanadi. Muallif tarixiy voqealarni shunchaki bayon qilmaydi, balki ularga badiiy va ma’naviy baho beradi.

Tahlil natijalari dostonda irfoniy go‘zallik ideali, fojiaviylik pafosi va milliy ozodlikka intilish bilan bog‘liq ulug‘vorlik bir-birini to‘ldirishini ko‘rsatadi. Begunoh bolalar o‘limi hamda muqaddas maskanlarning vayron etilishi fojiaviylikni kuchaytirsa, xalqning qarshiligi va qahramonlik obrazlari ulug‘vorlikni yuzaga chiqaradi. Shu jihatdan uch estetik kategoriya dostonning g‘oyaviy-badiiy yaxlitligini ta’minlaydi.

XULOSA

“Shohnomai Devona Andalib” dostonini estetik kategoriyalar asosida o‘rganish uning badiiy qiymatini chuqurroq anglash imkonini beradi. Dostonda fojiaviylik zulm va begunohlik to‘qnashuvi, ulug‘vorlik vatan ozodligi va mardlik tasviri, go‘zallik esa ilohiy-irfoniy mazmun hamda poetik nutq latofati orqali namoyon bo‘ladi.

Ushbu kategoriyalar alohida-alohida emas, balki o‘zaro aloqador holda dostonning estetik tizimini shakllantiradi. Natijada asar tarixiy xotira, milliy fojiaga munosabat va qahramonlik g‘oyalarini birlashtirgan badiiy yodgorlik sifatida namoyon bo‘ladi.

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TAYANCH: TRANSFERRING A COMPETITION-WINNING POSE MODEL TO ISOLATED UZBEK SIGN LANGUAGE RECOGNITION

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Abstract. *Uzbek Sign Language (UzSL) has little labelled data, so knowledge must be borrowed from other sign languages. We propose TAYANCH, a concept that keeps the network of the winning Google Isolated Sign Language Recognition solution unchanged, pretrains it on two Russian Sign Language datasets and fine-tunes it on a 3,531-class UzSL corpus. Under leave-one-signer-out evaluation over ten signers, the base model outperforms our earlier pose encoder by 6.1 percentage points (99% CI 3.7–8.3) for every signer; a 2 × 2 experiment attributes the gap to the architecture, not the training recipe. Stage 1 will anchor the input to the signer's body.*

Keywords: *sign language recognition; Uzbek Sign Language; transfer learning; pose estimation; leave-one-signer-out evaluation; Transformer.*

INTRODUCTION

Models of isolated sign recognition built on landmarks extracted by MediaPipe (Google AI Edge, 2026) are compact and run on an ordinary processor, which matters for dictionaries and learning applications. The Google – Isolated Sign Language Recognition (GISLR) competition (Google & Kaggle, 2023) produced strong landmark models for 250 American signs; the first-place solution (Sohn, 2023) combines depthwise one-dimensional convolutions with Transformer blocks (Vaswani et al., 2017) and is released under the MIT licence.

Published systems for Uzbek Sign Language (UzSL) cover fingerspelling or a few hundred signs from a few signers, with random splits that put the same people in training and test (Akmalov, 2025; Ergashev et al., 2026). A recogniser for a new signer faces a large vocabulary with one to a few recordings per sign. A natural remedy is pretraining on a related sign language: Russian Sign

Language (RSL) has two large open datasets, Slovo (Kapitanov et al., 2023) and Bukva (Kvanchiani et al., 2024).

This paper presents TAYANCH (Uzbek for “support, anchor”), a concept of UzSL recognition based on three decisions: (i) take Sohn's network without changes; (ii) pretrain it on RSL and fine-tune it on UzSL; (iii) change only the input, one lever at a time, so that the coordinates are anchored to the signer's body. We compare its base model with our earlier pose encoder and give the plan of stage 1.

MATERIALS AND METHODS

Data.

The UzSL corpus contains 7,815 recordings of isolated signs in 3,531 classes: words, letters of the Latin and Cyrillic manual alphabets and digits. They come from openly posted video lessons, a video dictionary and a pilot session recorded with the participants' informed consent. Ten signers are held out in turn (leave-one-signer-out, LOSO); recordings without a signer identifier stay in training, and a test recording is scored only if its class occurs in training. The labels are still being checked, so all results are preliminary. Pretraining uses Slovo (20,000 videos, 1,000 RSL signs, 194 signers) and Bukva (3,757 videos of 33 RSL letters, 155 signers). Landmarks come from MediaPipe Holistic Landmarker 1.1.1 with thresholds 0.5.

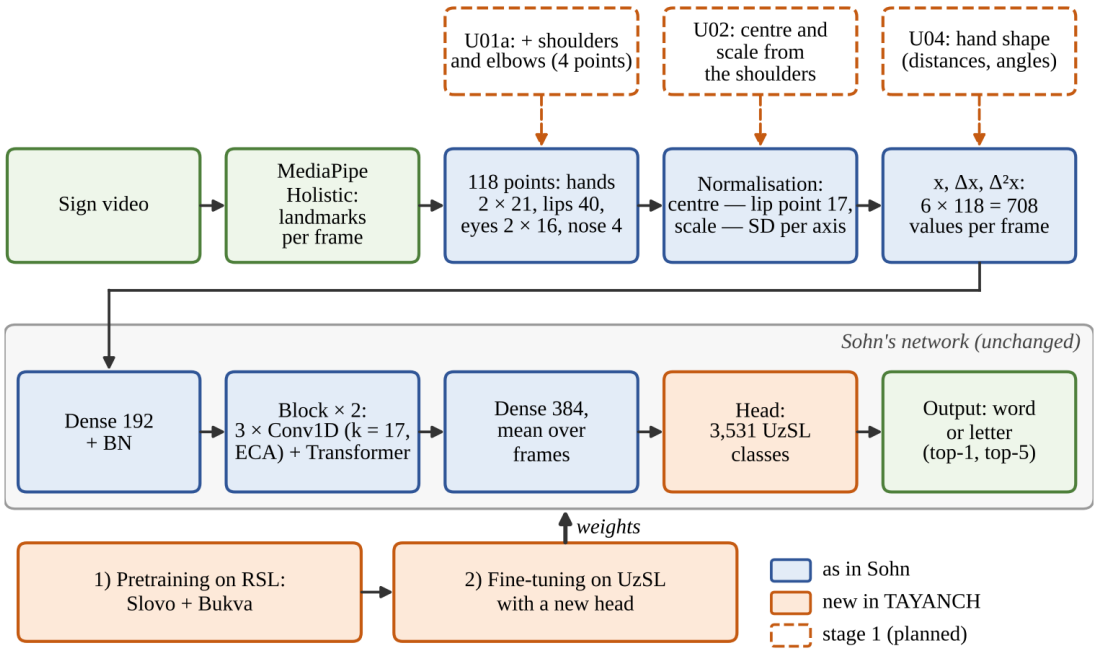

Figure 1. TAYANCH. Blue: Sohn's preprocessing and network, unchanged; orange: added by TAYANCH; dashed: stage 1 input changes.

Base model.

Sohn's preprocessing keeps 118 landmarks of the hands, lips, eyes and nose. The coordinates are centred on lower-lip point 17 and divided by their standard deviation, separately for *x* and *y* and once per recording; the first and second temporal differences are appended, giving $6 \times 118 = 708$ values per frame (Fig. 1). The network has two blocks of three depthwise Conv1D layers (kernel 17, efficient channel attention; Wang et al., 2020) and a Transformer layer, followed by a masked mean over frames and late dropout 0.8. Sohn's recipe uses RAdam with Lookahead, label smoothing 0.1 and adversarial weight perturbation (Wu et al., 2020), 300 epochs.

We use our PyTorch re-implementation (3.09 million parameters with the UzSL head). On GISLR its five-fold validation curve lies on average 2.71 points below that of the original notebook (73.30% versus 75.89% at the last epoch), so every comparison is repeated with this shortfall added. The TAYANCH base is pretrained on Slovo + Bukva and fine-tuned on UzSL with a new 3,531-class head. The baseline A1 is our earlier pose encoder (32-frame window, 85 landmarks normalised to the shoulders), pretrained on the same RSL data.

Protocol.

Each configuration is trained with three seeds per fold; macro top-1 is the mean per-signer top-1 over the ten signers. Systems are compared by the paired difference over signers with a 99% interval from 20,000 bootstrap resamples of signers (Efron & Hastie, 2016) and by the number of signers with a positive difference. A 2×2 experiment crossed the two architectures, each with its own input and pretraining, with the two fine-tuning recipes.

Stage 1 plan.

Three input changes are tested one per step. A change is accepted only if macro top-1 on internal validation signers grows by at least 1.008 points and improves in at least 6 of 10 folds; it is then confirmed with three seeds on the test signers. Each change gets its own RSL pretraining:

– U02: centre at the mid-point of the shoulders and scale by the shoulder width (medians over the recording) instead of the lip point and the per-axis deviation;

– U01a: add both shoulders and elbows (122 landmarks, 732 values per frame), swapped by the left–right flip; a well-chosen body subset helped in Brazilian Sign Language (dos Santos et al., 2025);

– U04: hand-shape features — distances between joints divided by the palm length and finger angles.

RESULTS

Fig. 2a summarises the paired comparisons. The TAYANCH base is more accurate than A1 by 6.13 points of macro top-1 (99% CI [3.70; 8.34]) and is better for all ten held-out signers; with the port shortfall added, the gap is 8.84 [6.41; 11.05]. By the 2 × 2 experiment, the gap comes from the architecture with its input and pretraining: with Sohn's recipe it adds 5.86 [4.58; 7.15] points (10 of 10 signers), with the A1 recipe 4.20 [1.81; 6.19] (9 of 10), while changing only the recipe of A1 gives 0.28 [−1.94; 2.64], an effect not established. Averaging three seeds adds 1.05 [0.07; 2.05] (7 of 10). Ten synthetic signers added to training, each training recording copied with changed bone lengths, amplitude and tempo, did not help: −0.97 [−3.54; 1.63] (2 of 10).

The advantage grows with the amount of data per class (Fig. 2b): for classes with a single training recording, top-1 differs by only 0.9 points, for classes with five or more recordings by 12.4 points. Such classes are 22.8% of the test, so signs with few examples remain the main limit. By a coarse hand-shape descriptor and the wrist position relative to the nose, 54.6% of TAYANCH errors fall on pairs close by both, 19.7% on pairs differing mainly in location and 11.3% in hand shape; 7 of the 30 most frequent confusions are one letter in the Latin and Cyrillic alphabets, kept as separate classes.

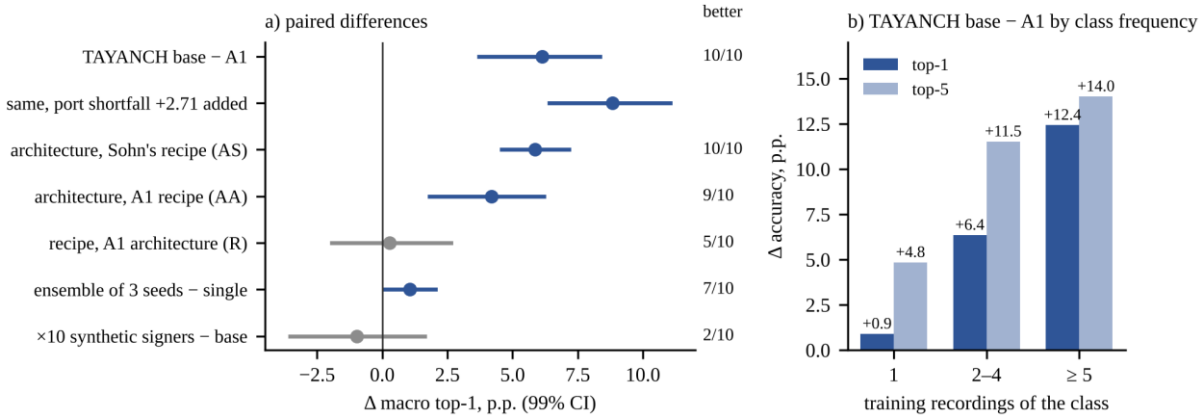

Figure 2. a) Paired differences in macro top-1, 99% bootstrap intervals; right: signers with a positive difference. b) TAYANCH base − A1, record-level accuracy, by training recordings of the class.

The base model has fewer parameters than A1 (3.09 versus 3.87 million) and is faster on the processor (3.84 versus 8.34 ms per recording; PyTorch, one thread, batch 1, landmarks given), but its training took about 6.4 times more GPU hours (64.4 versus 10.0, inflated by runs sharing one GPU). MediaPipe Holistic takes 33.85 ms per frame on one core (≈ 2.5 s for a median recording of 73 frames), so the classifier is below 0.4% of the delay for both models.

DISCUSSION

First, a network built for a competition in another sign language, transferred unchanged, beats on UzSL the encoder we designed for it: with scarce data, a released and well-tuned architecture is the stronger start. Second, the recipe matters little next to the architecture, so stage 1 changes the input. Third, Sohn's input is anchored to the mouth, and the body is absent. A fifth of the errors differ mainly in location, and UzSL lessons vary in distance and framing, unlike GISLR selfie videos; hence U02 and U01a come first. Limitations: labels not yet fully verified, a corpus mostly from lessons, and a port 2.7 points below the original.

CONCLUSION

TAYANCH reuses Sohn's network unchanged, adds pretraining on Russian Sign Language and fine-tunes on UzSL. Under LOSO over ten signers on 3,531 classes, its base version beats our earlier pose encoder for every signer, owing to the architecture with its input and pretraining, at a classifier cost small next to landmark extraction. Stage 1 will test, one at a time, body-anchored normalisation, shoulder and elbow landmarks and hand-shape features; labels will be verified before final numbers are published.

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NATO HARBIY TERMINLARINING TURK VA O‘ZBEK TILLARIDAGI MUQOBILLARI: KOMPONENT DARAJASIDAGI QIYOSIY TAHLIL

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Annotatsiya. *Maqolada NATO harbiy terminlarining turk va o‘zbek tillaridagi muqobillari 656 yozuvdan iborat ingliz–turk–o‘zbek korpusi asosida komponent darajasida qiyosiy tahlil qilinadi. Inglizcha tomon NATOTerm bilan tekshirilgan, turkcha shakllar «Askerî Terminoloji» (2015) ro‘yxatidan olingan, o‘zbekcha shakllar muallif tarjimasidan iborat. Terminlarning aksariyati so‘z birikmasi (turkchada 94,7 %, o‘zbekchada 95,0 %), shu sababli moslashuv komponentlar darajasida ro‘y beradi. Intelligence va reconnaissance turkchada istihbarat va keşif deb ajratilgan, o‘zbekcha ustunda esa bitta razvedka so‘ziga birlashgan. Natijalar korpus doirasida tavsifiy bo‘lib, mustaqil o‘zbekcha manbalar bilan tekshirishni talab qiladi.*

Abstract. *The article presents a component-level comparative analysis of Turkish and Uzbek equivalents of NATO military terms based on a 656-entry English–Turkish–Uzbek corpus. The English side was verified against NATOTerm; the Turkish forms come from the 2015 list “Askerî Terminoloji”; the Uzbek forms are the author’s translations. Most terms are multi-word units (94.7% in Turkish, 95.0% in Uzbek), so adaptation operates at the level of components. Intelligence and reconnaissance are distinguished in Turkish (istihbarat, keşif) but merged into a single word, razvedka, in the Uzbek column. The results are descriptive within the corpus and require verification against independent Uzbek sources.*

Kalit so‘zlar: *NATO harbiy terminlari, adaptatsiya, standartlashuv, qiyosiy tahlil, turk tili, o‘zbek tili, NATOTerm.*

Keywords: *NATO military terms, adaptation, standardization, comparative analysis, Turkish, Uzbek, NATOTerm.*

KIRISH

NATO 1949-yil 4-aprelda Vashingtonda 12 davlat imzolagan Shimoliy Atlantika shartnomasi asosida tuzilgan siyosiy va harbiy ittifoq; 2024-yil 7-martda Shvetsiya qo‘shilgach, uning a’zolari soni 32 taga yetdi (NATO, Founding treaty; NATO, Member countries). Kelishilgan terminlar va ta’riflar

AAP-06 glossariysida va NATOTerm elektron bazasida e’lon qilinadi (NATO Standardization Office, 2020; NATOTerm, 2025). Dissertatsiyamizda «NATO harbiy terminlari» deganda aynan shu rasmiy tizimda kelishilgan va ta’rif bilan tasdiqlangan terminlar tushuniladi.

Turkiya 1952-yildan ittifoq a’zosi bo‘lib, harbiy terminologiyani milliy tilda ifodalash tajribasiga ega; terminologik ishlar Türk Dil Kurumu (TDK) atrofida muvofiqlashtiriladi (Arslan, 2026). O‘zbekiston NATO bilan hamkorlik qiladi, ammo o‘zbek tilida NATO terminlarining tizimli mustaqil manbasi (lug‘at yoki tarjima qilingan hujjat) bizning qidiruvimizda 2026-yil 17-oktabr holatiga topilmadi. Mavjud tadqiqotlar harbiy leksikaning boshqa jihatlariga qaratilgan: Alimova (2025) siyosiy diskursdagi harbiy terminlarni, İnce (2020) esa Türkçe Sözlük’dagi 148 ta harbiy o‘zlashma terminni o‘rgangan. NATO terminlarining uch tildagi muqobillarini bir xil tushuncha asosida qiyoslash esa tizimli yoritilmagan.

Tadqiqot maqsadi — NATO harbiy terminlarining turkcha va o‘zbekcha muqobillarini inglizcha komponentlar bo‘yicha qiyoslab, ularning tuzilishi va ifodalanish farqlarini aniqlash. Savol: bir xil inglizcha komponent ikki tilda bir xil usul bilan beriladimi?

ASOSIY QISM

Materiallar va metodlar

Tadqiqot materiali — 656 yozuvdan iborat maqsadli korpus: 620 yozuv NATO Agreed maqomida, 36 tasi Admitted, Obsolete yoki Deprecated. U muallifning ingliz–turk–o‘zbek lug‘atidan (5 686 yozuv) NATOTerm bilan solishtirish orqali tanlangan va NATOTermning 2025-yil 24-aprel eksportidagi taxminan 3 260 yozuvning taxminan 19 foizini tashkil etadi. Tahlil birligi — «sarlavha + aniq NATO ta’rifi». Inglizcha tomon NATOTerm eksporti bilan to‘liq tekshirilgan (656/656); turkcha tomon T.C. Dışişleri Bakanlığı veb-saytidagi «Askerî Terminoloji» (2015) ro‘yxatidan olingan, har bir turkcha shakl inglizcha termin bilan muallif tomonidan biriktirilgan; o‘zbekcha tomon muallifning tarjimasidan iborat.

Qo‘llanilgan usullar: tavsifiy, qiyosiy-tipologik, komponent va miqdoriy tahlil; tushunchaviy yondashuv (Temmerman, 2000) bo‘yicha taqqoslash NATO ta’rifi asosida olib borildi. Kuzatuvlarni tekshirish uchun korpusdan tasodifiy 60 yozuv qo‘lda tasniflandi (bir kodlovchi, ikkinchi kodlovchi bilan kelishuv o‘lchanmagan).

Cheklovlar. Birinchidan, o‘zbekcha shakllar muallif tarjimasi bo‘lgani uchun ular o‘zbek tilida qo‘llanish yoki me’yor dalili emas: 656 yozuvdan atigi 14 tasining o‘zbekcha shakli Dadaboyev va Yodgorov (2021) qo‘llanmasi

matnida aynan shu ko‘rinishda uchraydi, qo‘llanma esa termin ro‘yxati emas. Ikkinchidan, korpus tasodifiy namuna emas, shu sababli sonlar butun NATOTerm bazasiga umumlashtirilmaydi.

NATIJALAR

1. Termin tuzilishi. Terminlarning aksariyati so‘z birikmasi: ikki va undan ortiq so‘zli terminlar inglizcha ustunda 569 ta (86,7 %), turkchada 621 ta (94,7 %), o‘zbekchada 623 ta (95,0 %). O‘rtacha so‘z soni mos ravishda 2,27, 2,56 va 2,73. To‘rt va undan ko‘p so‘zli birinchi variantlar turkchada 13,3 %, o‘zbekchada 23,5 %. Demak, moslashuv odatda butun terminda emas, uning komponentlari darajasida sodir bo‘ladi.

2. Komponentlar. 1-jadvalda bir xil inglizcha komponentning ikki tildagi ifodasi keltirilgan.

1-jadval. Inglizcha komponentlarning turkcha va o‘zbekcha ifodasi (656 yozuvli korpus; muallif hisobi)

Komponent (yozuvlar soni)	**Turkcha**	**O‘zbekcha**
operation (23)	harekât — 22; operasyon — 1	operatsiya — 23
intelligence (15)	istihbarat — 15	razvedka
reconnaissance (9)	keşif — 9	razvedka
mine (20)	mayın — 20	mina — 20
missile (8)	füze — 8	raketa — 8
support (19)	destek (dest- ildizi) — 19	yordam — 6; ta’minot — 5; qo‘llab-quvvatlash — 8
warning (6)	ikaz — 3; ihbar — 1; uyarı — 1	ogohlantirish — 5

Jadvaldan ko‘rinadiki, mina / mayın va missile bo‘yicha ikki tilda bir ildiz izchil; support bo‘yicha turkchada bitta ildiz, o‘zbekchada uch xil shakl; intelligence va reconnaissance uchun esa turkchada ikki, o‘zbekchada bitta so‘z (jami 24 yozuv).

3. Variantlar. Turkcha ustunda 35 yozuvda, o‘zbekchada 24 yozuvda ikki shakl berilgan. Bu ko‘rsatkich haqiqiy variantlilik emas: turkcha ustun bitta ro‘yxatdan, o‘zbekcha ustun bitta tarjimondan olingan.

4. Qo‘lda kodlangan namuna (60 yozuv). Kalka — 19, aralash — 14, tavsifiy — 11, mavjud so‘z yoki qayta tushunchalash — 10, ma’no mos emas — 4, xalqaro shakldagi o‘zlashma — 1, aniqlanmagan — 1. Avtomatik «milliy so‘z» belgisi berilgan 46 yozuvdan faqat 18 tasi qo‘lda kalka deb topildi.

MUHOKAMA

Eng muhim tushunchaviy kuzatuv intelligence va reconnaissance bilan bog‘liq. NATOTerm ularni alohida terminlar sifatida beradi: intelligence — axborotni yo‘naltirilgan yig‘ish va qayta ishlash mahsuli, reconnaissance —

ma’lumot olish uchun bajariladigan vazifa. Turkcha ustunda bu farq istihbarat va keşif orqali saqlangan; o‘zbekcha ustunda ikkala tushuncha razvedka so‘zi bilan aralashadi, faqat «razvedka ma’lumotlari» birikmasi (3 yozuv) ma’noni qisman ajratadi. Bu kuzatuv o‘zbek harbiy leksikasida ruscha qatlam kuchli ekani haqidagi faraz bilan mos keladi (Dadaboyev & Yodgorov, 2021), ammo vositachi tilning roli mustaqil etimologik manba bilan tasdiqlanmagan va hozircha faraz sifatida qoladi.

Turkcha tomonda tanlov bitta yo‘nalishda emas: operation, force, intelligence kabi asosiy elementlar arab va turkiy qatlamdagi so‘zlar bilan (harekât, kuvvet, istihbarat), control va system esa fransuz tilidan kirgan xalqaro shakllar bilan berilgan (Nişanyan Sözlük). O‘zbekchada support komponentining uch shakli tilning haqiqiy tebranishi emas, balki bitta tarjimon izchilligining belgisi sifatida o‘qiladi.

Avtomatik belgilar qo‘pol, yakuniy tasnif qo‘lda va ikkinchi kodlovchi bilan bajarilishi kerak. Namunada 4 yozuv (6,7 %) ma’no moslik xatosi bo‘lib chiqdi; bu ulush butun korpusga tatbiq etilmaydi, ammo adaptatsiya turini belgilashdan oldin turkcha va o‘zbekcha shaklning NATO ta’rifidagi ma’noga mosligini tekshirish zarurligini ko‘rsatadi.

XULOSA

Birinchidan, NATO harbiy terminlarining 95 foizga yaqini ikki va undan ortiq so‘zli birikma, shu sababli turk va o‘zbek tillaridagi moslashuvni komponent darajasida o‘rganish maqsadga muvofiq. Ikkinchidan, korpusda mine, missile kabi tor ma’noli komponentlar ikki tilda izchil berilgan, support kabi ko‘p ma’noli komponentlar esa o‘zbekcha ustunda bir necha shaklga ega. Uchinchidan, intelligence va reconnaissance turkchada ajratilgan, o‘zbekchada bitta razvedka so‘ziga birlashgan; bu NATO ta’rifidagi tushunchaviy farq yo‘qolishi xavfini ko‘rsatadi. To‘rtinchidan, o‘zbekcha shakllar muallif tarjimasi bo‘lgani uchun natijalar korpus doirasida tavsifiy; ularni mustaqil o‘zbekcha matnlar va mutaxassislar ekspertizasi bilan tekshirish keyingi bosqichning vazifasi.

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THE TRANSFORMATION OF THE GULF COOPERATION COUNCIL: THEORETICAL APPROACHES TO REGIONALISM, POLITICAL INTEGRATION AND INSTITUTIONAL DEVELOPMENT

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Abstract*. This study examines the institutional and political transformation of the Gulf Cooperation Council (GCC) through the theoretical perspectives of regionalism, neofunctionalism, realism, and regional security complex theory. Established in 1981, the GCC has evolved from a framework for intergovernmental coordination among six Arab monarchies into a significant regional platform for economic cooperation, security coordination, and diplomatic engagement. The research focuses on the relationship between national sovereignty and collective regional interests, the institutional limitations of the organization, and the influence of changing geopolitical conditions on its development. Particular attention is paid to the applicability of classical and contemporary theories of regional integration to the GCC experience. The article argues that the GCC represents a distinctive model of regionalism characterized by selective integration, intergovernmental decision-making, and the continued predominance of national interests.*

Keywords: *Gulf Cooperation Council, regionalism, political integration, institutional transformation, neofunctionalism, regional security, geopolitics, national sovereignty.*

INTRODUCTION

The transformation of regional organizations has become an increasingly important subject in contemporary political science and international relations. In the context of globalization, geopolitical competition, and emerging security challenges, regional institutions have acquired a significant role in coordinating national policies, facilitating economic cooperation, and strengthening the international positions of their member states.

The Gulf Cooperation Council (GCC), established on 25 May 1981, represents one of the most distinctive examples of regional institutional

cooperation in the Middle East. The organization brings together six states: Saudi Arabia, Kuwait, Bahrain, Qatar, the United Arab Emirates, and Oman. Its establishment reflected the common political, economic, geographical, and security interests of these countries, particularly in response to the changing strategic environment of the Persian Gulf.

According to Article 4 of the GCC Charter, the principal objectives of the organization include achieving coordination, integration, and interconnection among member states in various fields, including economic, financial, educational, social, and administrative affairs[53]. Nevertheless, more than four decades after its establishment, the GCC continues to face a fundamental institutional challenge: balancing collective regional objectives with the sovereign interests and independent foreign policy priorities of its members.

The central research question of this study is how the GCC has transformed institutionally and politically and to what extent classical and contemporary theories of regional integration can explain this process.

The main argument is that the GCC should not be evaluated exclusively according to the model of supranational integration. Instead, it should be understood as a distinctive form of regionalism based on intergovernmental coordination, selective institutional integration, and strategic cooperation.

Theoretical Foundations of the GCC's Institutional Transformation

The theoretical examination of the GCC requires the application of several approaches within international relations and political science.

One of the most influential approaches is neofunctionalism, developed by Ernst B. Haas. According to this theory, cooperation in specific economic and functional sectors can gradually generate demands for further integration in other policy areas. This process is commonly associated with the concept of functional spillover[54].

In the context of the GCC, this theoretical approach helps explain the relationship between economic cooperation and broader institutional development. Initiatives related to customs coordination, trade liberalization, infrastructure development, and monetary cooperation have created opportunities for deeper regional interaction. However, the GCC experience also demonstrates the limitations of the neofunctionalist model. Functional cooperation has not automatically produced a unified political decision-making

[53] Cooperation Council for the Arab States of the Gulf. (1981). Charter of the Cooperation Council for the Arab States of the Gulf, Article 4.
[54] Haas, E. B. (1958). The Uniting of Europe: Political, Social, and Economic Forces, 1950–1957. Stanford University Press, pp. 297–298.

structure or transferred substantial sovereign authority to supranational institutions.

A second important theoretical perspective is realism. Classical realist approaches emphasize that states primarily seek to protect their national interests, political independence, and security. From this perspective, regional organizations remain dependent on the strategic calculations and political preferences of their member states. This interpretation is consistent with Hans Morgenthau's understanding of international politics as a sphere shaped by national interests and the struggle for power[55].

The GCC provides a relevant example of this relationship. Although its members share certain political and security interests, differences in their foreign policy priorities have periodically complicated collective decision-making. The diplomatic crisis involving Qatar in 2017 demonstrated the extent to which national strategic preferences can challenge institutional cohesion.

A third approach is Regional Security Complex Theory, developed by Barry Buzan and Ole Wæver. This theory argues that security dynamics are strongly influenced by geographical proximity and the interconnected nature of threats within particular regions[56]. The Persian Gulf can therefore be examined as a regional security environment in which developments involving Iran, external powers, maritime routes, and regional conflicts influence the strategic calculations of GCC member states.

Finally, the theory of new regionalism, particularly associated with Amitav Acharya, provides an opportunity to examine regional organizations beyond the institutional experience of the European Union. This approach emphasizes the importance of regional identities, historical circumstances, political practices, and locally specific institutional arrangements[57].

Applied to the GCC, new regionalism suggests that the organization's institutional development should be assessed within the political and geopolitical characteristics of the Gulf rather than exclusively through European models of integration.

Institutional and Political Dimensions of GCC Transformation

The institutional transformation of the GCC can be analyzed through three interconnected dimensions: economic integration, political coordination, and regional security cooperation.

[55] Morgenthau, H. J. (1967). Politics Among Nations: The Struggle for Power and Peace. 4th ed. New York: Alfred A. Knopf.
[56] Buzan, B., & Wæver, O. (2003). Regions and Powers: The Structure of International Security. Cambridge University Press.
[57] Acharya, A. (2007). The Emerging Regional Architecture of World Politics. World Politics, 59(4), 629–652.

First, economic integration has remained one of the principal instruments of GCC institutional development. The organization has promoted economic coordination through agreements concerning trade, customs regulations, investment, and the movement of goods and services. The GCC Economic Agreement and subsequent institutional initiatives illustrate the gradual expansion of economic cooperation among member states.

Nevertheless, the development of a fully integrated economic space has encountered practical limitations. Differences in national economic structures, development strategies, and domestic regulatory systems have influenced the implementation of common policies. Fred H. Lawson's analysis of transformations in GCC regional economic governance demonstrates that regionalism within the organization has changed considerably since its establishment[58].

Second, political coordination represents another important dimension of institutional transformation. The GCC provides an institutional platform for consultations between political leaders and government representatives. Its Supreme Council, Ministerial Council, and General Secretariat constitute the main organizational structures responsible for coordinating collective activities.

However, the existence of institutional mechanisms does not necessarily guarantee the implementation of unified political decisions. The foreign policy priorities of individual member states continue to influence the effectiveness of collective action.

Third, regional security cooperation has become increasingly important in determining the political relevance of the GCC. The strategic significance of the Strait of Hormuz, regional military competition, maritime security, and the involvement of external powers have contributed to the development of common security concerns.

From the perspective of Regional Security Complex Theory, these issues demonstrate that the security of individual Gulf states cannot be completely separated from the broader regional environment. At the same time, differences in threat perceptions and strategic partnerships prevent the formation of a completely unified regional security policy.

Consequently, the transformation of the GCC reflects an ongoing process in which institutional cooperation expands while the independent political authority of member states remains largely intact.

[58] Lawson, F. H. (2012). Transformations of Regional Economic Governance in the Gulf Cooperation Council. Occasional Paper No. 10. Georgetown University School of Foreign Service in Qatar.

The Uzbek Political Science Perspective on Regionalism and Geopolitical Transformation

The theoretical analysis of the GCC can also benefit from the methodological contributions of Uzbek political scientists specializing in international relations, geopolitics, and regional security.

Farkhod Tolipov's research on geopolitics and regional integration provides a useful analytical perspective for understanding how geographical conditions, strategic interests, and political identities influence regional institutional processes. In his study of the micro-geopolitics of Central Asia, Tolipov emphasizes the importance of examining regional political developments through the interaction of geographical and strategic factors[59].

Although his research primarily focuses on Central Asia, its methodological implications can be applied comparatively to the study of the Persian Gulf. In particular, it highlights the importance of analyzing regional organizations in relation to their specific geopolitical environments rather than treating institutional integration as an entirely uniform process.

Similarly, Ulugbek Khasanov's research on geopolitical pluralism and international relations provides an additional methodological basis for examining the relationship between national interests and regional political structures. His work emphasizes the complexity of contemporary international relations and the interaction of multiple geopolitical actors[60].

These perspectives are relevant to the GCC because its transformation is influenced not only by internal institutional processes but also by the changing international distribution of power, regional competition, and relations with external political actors.

The comparative application of these approaches makes it possible to identify both similarities and differences between regional integration processes in Central Asia and the Persian Gulf. In particular, it demonstrates that regional institutional development is shaped by the interaction of national sovereignty, geopolitical interests, and the demand for collective security.

CONCLUSION

The transformation of the Gulf Cooperation Council demonstrates the complexity of regional integration in contemporary international politics. Since its establishment in 1981, the organization has expanded its institutional

[59] Tolipov, F. (2011). Micro-Geopolitics of Central Asia: A Uzbekistan Perspective. Strategic Analysis, 35(4), 629–639.
[60] Khasanov, U. (2005). On Modern Geopolitical Pluralism or One-Nation Hegemonism. Central Asia and the Caucasus, 6(4), 29–36.

activities and strengthened cooperation in economic, political, diplomatic, and security-related fields.

However, the GCC has not developed into a supranational political organization. Its institutional structure continues to depend primarily on intergovernmental coordination and the willingness of member states to pursue common objectives.

The theoretical analysis indicates that neofunctionalism explains the expansion of functional cooperation, realism clarifies the continued predominance of national interests, and Regional Security Complex Theory demonstrates the influence of interconnected security challenges. Meanwhile, new regionalism provides a broader framework for understanding the GCC as a distinctive model of regional institutional development.

The principal conclusion of this study is that the GCC represents a model of selective regional integration in which institutional cooperation and national sovereignty coexist. Its future transformation will largely depend on the capacity of member states to reconcile their strategic differences, strengthen institutional mechanisms, and develop more coordinated responses to regional and international challenges.

Thus, the GCC should be regarded not merely as an economic cooperation organization but as an evolving regional political framework whose institutional significance extends beyond its original objectives.

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РЕЧЕВАЯ АГРЕССИЯ И РЕЧЕВЫЕ МАНИПУЛЯЦИИ КАК СПОСОБЫ ВОЗДЕЙСТВИЯ НА ЛИЧНОСТЬ В РОМАНЕ Ф. М. ДОСТОЕВСКОГО «ИДИОТ»

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Аннотация. *В статье рассматриваются речевая агрессия и речевые манипуляции в романе Ф. М. Достоевского «Идиот». Анализируются диалоги и коммуникативные стратегии Настасьи Филипповны, князя Мышкина и Парфёна Рогожина. Особое внимание уделяется оскорблениям, иронии, провокационным высказываниям и психологическому давлению, через которые раскрываются внутренние переживания героев и характер их взаимоотношений. Показано, что речевая агрессия служит не только выражением отрицательных эмоций, но и способом психологического воздействия.*

Ключевые слова: *речевая агрессия, речевая манипуляция, речевое поведение, диалог, психологическое воздействие, Достоевский.*

Annotatsiya. *Maqolada F. M. Dostoyevskiyning «Telba» romanida nutqiy agressiya va nutqiy manipulyatsiyaning namoyon bo‘lishi tahlil qilinadi. Nastasья Filippovna, knyaz Mishkin va Parfyon Rogojin obrazlarining nutqiy xatti-harakatlariga e’tibor qaratiladi. Dialoglarda uchraydigan haqorat, kinoya, keskin va provokatsion fikrlar hamda ruhiy bosimning qahramonlar ichki kechinmalari va o‘zaro munosabatlarini ochib berishdagi o‘rni yoritiladi. Nutqiy agressiya salbiy hissiyotlarni ifodalash bilangina cheklanmay, suhbatdoshga psixologik ta’sir ko‘rsatish vositasi sifatida ham namoyon bo‘lishi asoslanadi.*

Kalit so‘zlar: *nutqiy agressiya, nutqiy manipulyatsiya, nutqiy xulq, dialog, psixologik ta’sir, Dostoyevskiy.*

Abstract. *The article examines verbal aggression and verbal manipulation in Fyodor Dostoevsky’s novel The Idiot. It focuses on the speech behavior and communicative strategies of Nastasya Filippovna, Prince Myshkin, and Parfyon Rogozhin. The analysis considers insults, irony, provocative statements, and psychological pressure in the characters’ dialogues. These speech practices reveal the characters’ inner experiences and the complexity of their*

interpersonal relationships. The article argues that verbal aggression functions not only as an expression of negative emotions but also as a means of psychological influence.

Keywords: *verbal aggression, verbal manipulation, speech behavior, dialogue, psychological influence, Dostoevsky.*

ВВЕДЕНИЕ

В художественном произведении речь не только передаёт информацию, но и раскрывает внутренний мир персонажей. В романе Ф. М. Достоевского «Идиот» диалоги становятся важной частью изображения человеческих отношений: герои спорят, обвиняют друг друга, оправдываются и пытаются повлиять на решения собеседников. Поэтому их высказывания нередко превращаются в средство эмоционального давления и психологического воздействия.

Актуальность темы связана с возможностью через анализ речевого поведения глубже понять характеры героев и причины конфликтов. Цель работы — выявить основные проявления речевой агрессии и речевых манипуляций в романе «Идиот». Для этого рассматриваются понятия речевой агрессии и манипуляции, анализируются коммуникативные особенности центральных персонажей и определяется художественная роль конфликтного общения.

1. Речевая агрессия в межличностном общении

Речевая агрессия — это форма речевого поведения, направленная на причинение собеседнику психологического дискомфорта, унижение его достоинства или изменение его позиции. Она может быть прямой (оскорбления, угрозы, обвинения) и косвенной (насмешка, ирония, сарказм, пренебрежительные замечания и провокационные вопросы).

В романе «Идиот» конфликтная речь часто связана с обидой, страхом, неуверенностью и стремлением защитить собственное достоинство. Внешне резкое высказывание не всегда означает открытую враждебность: за ним могут скрываться душевная боль и желание быть понятым. Благодаря диалогам автор раскрывает характеры героев и показывает, как слово способно обострить конфликт.

2. Речевое поведение центральных персонажей

Настасья Филипповна отличается эмоционально напряжённой и противоречивой манерой общения. Она использует резкие, иронические и провокационные высказывания, проверяя искренность окружающих и заставляя их открыто проявлять свои чувства. Её слова становятся своеобразным психологическим испытанием для собеседников. При этом

агрессивность героини связана не только с желанием задеть другого, но и с пережитым унижением, душевной травмой и болезненным отношением к собственному прошлому. Следовательно, речевая агрессия выполняет одновременно защитную и воздействующую функции.

Речевое поведение князя Мышкина противопоставлено подобной манере общения. Его речь отличается искренностью, открытостью и стремлением понять другого человека. Даже в конфликтных ситуациях он старается не отвечать агрессией на агрессию и не унижать собеседника. Однако доброжелательность князя воспринимается окружающими неоднозначно: одни видят в ней человечность, другие — слабость или наивность. Через образ Мышкина Достоевский показывает, что добрые намерения сами по себе не всегда способны преодолеть враждебность и сложность человеческих отношений.

В речевом поведении Парфёна Рогожина проявляются ревность, подозрительность и стремление обладать другим человеком. Его эмоционально напряжённые высказывания отражают внутреннюю борьбу и могут становиться средством психологического давления. Отдельные манипулятивные черты заметны и в поведении Гани Иволгина: его общение зависит от общественного мнения, материальных интересов и желания сохранить своё положение.

3. Речевые манипуляции и их художественная функция

Речевая манипуляция предполагает воздействие на эмоции, мнение или поведение собеседника при частичном или полном сокрытии истинных намерений говорящего. В романе она проявляется через провокационные вопросы, эмоциональный шантаж, апелляцию к чувству вины и самолюбию, а также намеренное обострение конфликтов. При этом не каждое резкое или эмоциональное высказывание является манипуляцией: для такой оценки необходимо учитывать ситуацию общения, намерение говорящего и ожидаемый результат.

Речевая агрессия и манипуляция выполняют важную художественную функцию. Они помогают раскрыть внутренние противоречия персонажей, показать причины столкновений и сложность межличностных отношений. Диалог у Достоевского часто становится психологическим противоборством, в котором проявляются потребность в любви и признании, страх, ревность и неспособность услышать другого.

ЗАКЛЮЧЕНИЕ

Проведённый анализ показывает, что речевая агрессия и речевые манипуляции занимают значимое место в системе отношений персонажей

романа Ф. М. Достоевского «Идиот». Настасья Филипповна использует резкие и провокационные слова как форму психологической защиты и проверки окружающих; Мышкин стремится к искреннему и доброжелательному общению; Рогожин выражает через речь ревность, страсть и стремление к обладанию. Таким образом, речевые конфликты служат средством психологической характеристики героев и раскрывают нравственные проблемы произведения. Роман подчёркивает значение искренности, сострадания и взаимного уважения в человеческом общении.

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PSYCHOLOGICAL DETERMINANTS OF ANXIETY IN WOMEN AND PSYCHOLOGICAL METHODS OF ITS CORRECTION

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Annotation: *This paper theoretically analyzes the cognitive, personal and social determinants of anxiety in women and describes evidence-based methods of its diagnosis and psychological correction.*

Keywords: *anxiety, women, psychological determinants, psychological correction, cognitive-behavioral approach, rumination.*

Anxiety is a universal emotional response to a perceived threat, but when it becomes persistent and disproportionate to the real danger, it reduces well-being, interferes with daily functioning and may develop into an anxiety disorder. Epidemiological reviews report that anxiety disorders are more prevalent among women than among men, which makes the study of their psychological determinants and methods of correction a socially significant task [1].

A key distinction in the psychology of anxiety is made between state anxiety, a temporary reaction to a specific situation, and trait anxiety, a relatively stable personal tendency to perceive a wide range of situations as threatening [2]. This distinction is important both for diagnostics and for the choice of a correction strategy, since state anxiety is often reduced by changing the situation, while trait anxiety requires work with the underlying beliefs and habits of thinking.

The literature allows us to group the main psychological determinants of anxiety in women as follows:

1) cognitive determinants: overestimation of threat, catastrophic interpretation of events and underestimation of one's own ability to cope, which form the core of the cognitive model of anxiety [3];

2) repetitive negative thinking: rumination and uncontrollable worry maintain emotional tension and are associated with anxious and depressive symptoms, and some studies report that women are more prone to this style of thinking [4];

3) personal characteristics: high trait anxiety [2], low self-esteem, perfectionism and a strong need for approval;

4) social and role-related factors: overload caused by combining family, work and caregiving responsibilities, social expectations and insufficient social support;

5) biographical and biological factors: stressful life events, unfavorable early experience and individual biological vulnerability, whose interaction shapes the course of anxiety [1].

Because these determinants interact, correction is most effective when it is based on a careful diagnosis. Standardized self-report instruments, such as the State-Trait Anxiety Inventory, make it possible to assess the level of situational and personal anxiety and to track changes during the work [2]. A clinical conversation and observation complement the test data.

Among psychological methods of correction, the cognitive-behavioral approach has the strongest empirical support: a review of meta-analyses indicates its effectiveness for anxiety-related disorders [5]. It includes psychoeducation, identification and restructuring of distorted thoughts, gradual exposure to feared situations and training in problem solving. Mindfulness-based programs, which develop non-judgmental attention to present experience, may help to reduce the tendency to ruminate and can be used as a complement [6]. Relaxation techniques, breathing exercises and group work aimed at increasing social support also contribute to reducing tension.

It should be noted that psychological correction does not replace medical help: in cases of severe or prolonged anxiety, panic attacks or a risk of other mental health problems, a woman should be referred to a clinical specialist. The effectiveness of the proposed correction program should be evaluated at the empirical stage of the study by comparing diagnostic results before and after the intervention.

In conclusion, anxiety in women is determined by an interaction of cognitive, personal, social and biographical factors. A correction program that is based on accurate diagnostics, relies on the cognitive-behavioral approach and is supplemented by mindfulness and social support techniques provides a scientifically grounded way of reducing anxiety and improving the psychological well-being of women.

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PSYCHOLOGICAL FACTORS OF AGGRESSIVE BEHAVIOR DEVELOPMENT IN ADOLESCENTS AND DIRECTIONS OF ITS PSYCHOLOGICAL PREVENTION

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Annotation: *This paper provides a theoretical analysis of the personal, family and social factors that shape aggressive behavior in adolescents, summarizes the main approaches to explaining aggression and substantiates directions of psychological prevention at the levels of the individual, the family and the school.*

Keywords: *adolescents, aggressive behavior, determinants of aggression, emotion regulation, psychological prevention, school-family cooperation.*

Adolescence is a period of intensive personal development, when the need for autonomy, peer acceptance and self-affirmation grows rapidly, while the ability to regulate emotions and control impulses is still maturing. For this reason, aggressive behavior among adolescents remains one of the most persistent problems of developmental and educational psychology: it affects the formation of personality, relationships with peers and teachers, and adjustment to school life. In societies where the family and the neighborhood community traditionally play a significant role in upbringing, preventive work with adolescents should take into account both universal psychological mechanisms and local socio-cultural conditions.

In psychological literature, aggression is understood as behavior directed at another person with the intention of causing harm when that person is motivated to avoid it [1]. Researchers distinguish hostile aggression, driven by anger, from instrumental aggression, which is used to achieve a goal. The structure of aggressive tendencies is commonly described through four components, namely physical aggression, verbal aggression, anger and hostility, and these components underlie the widely used Aggression Questionnaire [2].

The existing theoretical approaches make it possible to systematize the origins of adolescent aggression as follows:

1) social learning theory explains aggression as behavior acquired through observation, imitation and reinforcement of models in the family, among peers and in the media [3];

2) the social information-processing model links aggression to biased interpretation of social cues, in particular to the tendency to attribute hostile intent to others in ambiguous situations [4];

3) the coercion model shows that harsh, inconsistent discipline and conflict in the family train children to achieve their goals through hostile behavior [5];

4) the developmental taxonomy distinguishes antisocial behavior that is limited to adolescence from persistent behavior beginning in early childhood, which calls for different preventive strategies [6];

5) the ecological approach considers aggression as a result of interaction between the individual and the nested systems of family, school, peer group and wider culture [7].

Taken together, these approaches indicate that the psychological factors of adolescent aggression include low empathy, impulsivity, weak emotion regulation, unstable self-esteem and hostile attribution bias. Social factors include family conflict, authoritarian or neglectful parenting, negative peer influence and an unfavorable school climate [3; 5]. It is the combination of these factors, rather than any single one of them, that increases the likelihood of aggressive behavior.

Psychological prevention is therefore most effective when it is organized at several levels: universal programs for all students, selective work with at-risk groups and individual correction for adolescents with stable aggressive patterns. The main directions include training in emotion regulation and anger management, development of empathy and social problem-solving skills, correction of hostile attributions, counseling for parents on non-violent discipline, and training teachers to recognize early signs of aggression [4; 5]. Diagnostics may rely on standardized instruments such as the Aggression Questionnaire [2].

In settings where the family and the local community remain close to the daily life of the adolescent, cooperation between the school, the family and the community can be regarded as an important resource for prevention, since it allows a consistent system of adult support to be built around the adolescent. At the same time, the effectiveness of such work depends on the features of family relations and upbringing practices in a particular social context; this assumption

should be verified at the empirical stage of the study with the help of diagnostic methods and a comparison of groups.

In conclusion, aggressive behavior in adolescents is a multifactorial phenomenon that develops under the combined influence of individual psychological characteristics, family relations and the social environment. A multilevel system of psychological prevention that combines work with adolescents, parents and teachers and takes the social context into account provides a scientific basis for reducing aggression among adolescents.

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PSYCHOLOGICAL FEATURES OF THE INFLUENCE OF ARTIFICIAL INTELLIGENCE USE ON STUDENTS' INDEPENDENT THINKING

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Annotation: *This paper analyzes the psychological mechanisms through which the use of artificial intelligence tools may influence the independent thinking of students, including cognitive offloading, automation bias, self-regulation of learning and academic motivation, and substantiates psychological directions for the reflective and responsible use of such tools in education.*

Keywords: *artificial intelligence, independent thinking, critical thinking, cognitive offloading, self-regulated learning, students.*

Artificial intelligence tools such as chatbots and text generators have become part of everyday academic life: students use them to obtain explanations, summarize sources, draft texts and solve tasks within seconds. Large language models offer real educational opportunities, including personalized explanations and immediate feedback, but they also raise concerns about overreliance and the weaker development of students' own skills [1]. For psychology, the central question is whether such tools support independent thinking or gradually replace it.

Independent thinking can be understood as the ability to formulate problems, search for and evaluate information, build arguments and make decisions without external dictation. In the expert consensus on critical thinking, its core skills are interpretation, analysis, evaluation, inference, explanation and self-regulation [2]. These are exactly the operations that may be shortened or skipped when a ready-made answer is available at any moment.

The literature makes it possible to identify the following psychological mechanisms through which the use of artificial intelligence may influence students' thinking:

1) cognitive offloading: the transfer of mental operations to external tools reduces cognitive effort in the short term; it is useful when it frees resources for more complex tasks, but it becomes risky when it replaces skills that students still need to develop [4];

2) changes in memory strategies: studies of search engines show that people tend to remember where information can be found rather than the information itself [3], and a similar shift is possible with generative tools;

3) automation bias and complacency: a tendency to accept machine-generated output without sufficient verification, especially when it is presented in a fluent and confident form [5];

4) self-regulation of learning: planning, monitoring and evaluating one's own work; students with well-developed self-regulation tend to use external tools as support rather than as a substitute for their own effort [6];

5) academic motivation: according to self-determination theory, the needs for autonomy and competence underlie high-quality motivation; when artificial intelligence is used to bypass a task, the sense of competence may weaken, whereas its use to deepen understanding may strengthen it [7].

An additional perspective is offered by the concept of desirable difficulties: learning conditions that require effort, such as generating an answer before checking it, often improve long-term retention and transfer [8]. Tools that remove all effort from the learning process may therefore reduce the depth of learning, even when the final product looks accurate.

The effect of artificial intelligence on independent thinking is not uniform. It depends on the purpose of use (support or substitution), the level of digital and information literacy, academic self-efficacy, the type of task and the rules set by instructors. At the same time, the available evidence is still developing and the results of studies are mixed, so conclusions should be formulated with caution.

From the psychological point of view, the following directions of work seem appropriate: teaching students to formulate requests critically and to verify generated answers against reliable sources; requiring an independent first attempt before consulting a tool; using reflective journals in which students describe how they used a tool and what they learned; designing assignments that evaluate the reasoning process rather than only the final text; and developing metacognitive skills of planning and self-monitoring [1; 6].

At the empirical stage, the relationship between the frequency and purposes of artificial intelligence use and the level of independent thinking can be studied with the help of critical thinking tests, self-regulation questionnaires and a survey on students' practices, followed by a comparison of groups with different patterns of use.

In conclusion, artificial intelligence is neither a threat nor a benefit for independent thinking in itself: its influence is determined by how students use it. A reflective, purposeful and controlled use, supported by the development of

critical thinking and self-regulation, allows students to benefit from new technologies while preserving and strengthening their own intellectual independence.

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SOCIO-ETHNIC CHARACTERISTICS OF GENDER STEREOTYPE FORMATION IN THE FAMILY

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Annotation: *This paper theoretically analyzes the social and ethnic factors that influence the formation of gender stereotypes in the family and describes the mechanisms through which gender roles are acquired in the process of family upbringing.*

Keywords: *gender stereotypes, gender role, family upbringing, socio-ethnic factors, traditional values, socio-cultural context.*

Gender stereotypes are widely shared beliefs about the characteristics, roles and behavior that are considered typical or appropriate for women and men. They begin to form in early childhood and influence educational and professional choices, the distribution of family responsibilities, self-esteem and interpersonal relations. For this reason, the family, as the first and most influential institution of socialization, occupies a central place in the study of how such stereotypes are acquired [1].

Social role theory explains stereotypes as a result of the observed division of labor between women and men: when people repeatedly see women in caregiving roles and men in providing roles, they come to believe that these roles reflect inherent qualities [1; 2]. Social cognitive theory adds that children acquire gender-typed behavior through observation, modeling of significant adults and the feedback they receive from the environment [3]. Studies of gender development show that children form basic gender knowledge early and then refine it throughout childhood and adolescence [4].

Based on these approaches, the socio-ethnic factors that shape gender stereotypes in the family can be grouped as follows:

1) family structure and composition: in extended, multi-generational families, role expectations are often transmitted directly by older relatives, which strengthens the continuity of traditional models;

2) traditional values and customs: ethnic norms concerning honor, modesty, respect for elders and the roles of wife, husband, son and daughter form the normative framework within which gender expectations are expressed, and

they are especially pronounced in societies with strong collectivist orientation [5];

3) division of household and economic responsibilities: observation of who earns, who manages the household and who cares for children provides children with everyday models of gender roles [1; 3];

4) upbringing practices: different expectations, permissions and forms of control in relation to sons and daughters transmit stereotypes through ordinary parenting [3; 4];

5) social change: education, urbanization, labor migration and information technologies introduce alternative models and may create tension between traditional and modern gender attitudes [6].

Societies with a multiethnic population and strong community ties are characterized by the joint participation of the family, relatives and the neighborhood community in the upbringing of children. This suggests that gender stereotypes in such settings are formed under the combined influence of the family and the community. At the same time, it would be incorrect to treat such a population as homogeneous: the content and strength of stereotypes may differ depending on the ethnic group, the type of family, the level of education of parents and urban or rural residence, and these assumptions require empirical verification.

For the empirical stage, standardized tools such as the Bem Sex-Role Inventory [7] can be used to assess how respondents describe themselves in terms of traditionally masculine and feminine attributes. They can be supplemented with questionnaires on attitudes toward family roles and with semi-structured interviews with parents and adolescents. Stereotypes should be studied as psychological phenomena, without evaluating or labeling the traditions of any group.

The practical significance of such research lies in the possibility of developing psychological education programs for parents and teachers that raise awareness of how everyday expectations shape children’s choices and that support equal opportunities for the development of girls and boys while respecting national values.

In conclusion, gender stereotypes in the family are formed through observation, modeling and everyday upbringing practices under the influence of social and ethnic conditions. Studying these factors in a specific socio-cultural context will make it possible to describe the real mechanisms of stereotype formation and to base psychological recommendations for families on scientific data.

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PSYCHOLOGICAL FEATURES OF PROFESSIONAL IDENTITY AND MOTIVATION IN CAREER CHOICE

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Annotation: *This paper examines the psychological features of professional identity and motivation in career choice, summarizes the main theoretical approaches to vocational development and shows how clarity of professional identity and the quality of motivation determine the process and outcomes of choosing a profession.*

Keywords: *professional identity, career choice, motivation, vocational development, self-efficacy, career counseling.*

Choosing a profession is one of the key developmental tasks of late adolescence and early adulthood. It requires young people to answer the questions of who they are, what they value and where they want to go, and the quality of the answers influences later satisfaction with education and work. Professional identity is commonly understood as a clear and stable picture of one's own goals, interests and abilities in relation to the world of work [1]. From the developmental perspective, career development is a process of implementing one's self-concept through occupational roles [2].

The psychological roots of this process lie in identity formation, which Erikson described as the central task of adolescence [3]. Marcia's model distinguishes four identity statuses, namely diffusion, foreclosure, moratorium and achievement, which are defined by the presence or absence of exploration and commitment [4]. Applied to the occupational sphere, this means that a mature professional choice is usually based on a period of active exploration of alternatives followed by a conscious commitment, and not on accidental or imposed decisions.

Several theoretical directions explain career choice and can be summarized as follows:

1) the developmental approach treats vocational choice as a long process in which the self-concept is gradually clarified and translated into occupational roles [2];

2) the person–environment fit approach argues that satisfaction and stability are higher when personal interests and personality types correspond to the characteristics of the work environment [5];

3) the social cognitive approach emphasizes self-efficacy, outcome expectations and personal goals as factors that shape interests and choices [6];

4) self-determination theory distinguishes autonomous motivation, based on interest and personal values, from controlled motivation, based on pressure and external rewards [7];

5) the career construction approach focuses on life themes, personal narratives and adaptability as resources for navigating changing career conditions [8].

Motivation plays a special role in this system. Autonomous motives, such as interest in the content of activity and the wish to realize personal values, are generally associated with greater engagement and persistence, whereas controlled motives, such as prestige, income or family expectations, may be significant but can lead to dissatisfaction when they dominate over personal interests [7]. A realistic analysis of motives therefore helps young people to separate their own aspirations from external pressure.

Professional identity and motivation are closely connected. A clear vocational identity reduces indecision and helps to set stable goals, while high-quality motivation provides the energy for exploration and for overcoming barriers; in other words, identity gives direction and motivation gives momentum [1]. This relationship is mutual: successful experiences in the chosen field strengthen both the sense of identity and the motivation to continue.

Career choice is also influenced by personal factors (interests, values, abilities, self-efficacy), the family and social environment (expectations and role models), educational experience and the availability of reliable information about professions. The combined action of these factors explains why students with similar abilities may make very different choices.

Psychological support in career choice may include diagnostics of interests, values and motives; career counseling aimed at clarifying personal goals; exploration activities such as internships and meetings with professionals; reflection on the results of these experiences; and training in decision-making skills. At the empirical stage of the study, the level of professional identity can be assessed with standardized instruments, such as the scale of vocational identity [1], together with questionnaires on the structure of career motives and self-efficacy.

In conclusion, successful career choice rests on the interaction of a clear professional identity and autonomous motivation. Taking these two components into account in psychological counseling and educational guidance helps young people to make informed decisions that correspond to their interests, abilities and values.

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PSYCHOLOGICAL CHARACTERISTICS OF RELATIONSHIPS BETWEEN ADOPTIVE PARENTS AND CHILDREN

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Annotation: *This paper analyzes the psychological characteristics of relationships between adoptive parents and children, including attachment formation, the child's understanding of adoption, parental acceptance of differences, communicative openness and parenting style, and substantiates directions of psychological support for adoptive families.*

Keywords: *adoptive family, adoptive parents, parent–child relationships, attachment, openness in adoption, parenting style, psychological support.*

Adoption creates a family in which the bond between parents and a child is based not on biological kinship but on shared daily life, care and emotional commitment. The quality of this bond largely determines the child's psychological well-being, sense of security and further personal development, as well as the satisfaction and stability of the adoptive family. For this reason, the psychological characteristics of relationships between adoptive parents and children are of both theoretical and practical importance for developmental and family psychology and for the work of specialists who prepare and support adoptive families.

A basic framework for understanding these relationships is provided by attachment theory, which describes attachment as an emotional bond formed in the early years of life that gives the child a sense of security and a base for exploring the world [1]. Researchers distinguish secure and insecure patterns of attachment, the latter including avoidant and ambivalent types [2]. Children who enter an adoptive family may have experienced loss, separation or institutional care, which can make it harder for them to trust new caregivers. However, a sensitive and consistent caregiving environment gives an opportunity to restore the sense of security.

On the basis of the literature, the main psychological characteristics of relationships between adoptive parents and children can be grouped as follows:

1) formation of attachment: building trust is a gradual process whose course depends on the age of the child at placement and on the child's previous

experience; a meta-analysis shows that children adopted early tend to be as securely attached as non-adopted peers, while later placement is more often associated with insecure attachment, although adoption considerably improves security in comparison with remaining in institutional care [5];

2) the child's understanding of adoption: this understanding develops with age, and school-age children begin to realize that adoption implies the loss of the birth family, which may cause curiosity, sadness or ambivalent feelings that need to be recognized by parents [3];

3) parental acceptance of differences: according to the concept of shared fate, parents who acknowledge the differences between adoptive and biological parenthood show more empathy toward the child's feelings than parents who reject these differences [7];

4) communicative openness: honest and emotionally supportive discussion of the child's origin is associated with trust in the family and with the formation of a coherent identity [8];

5) parenting style: an authoritative style, which combines warmth with clear and consistent boundaries, is considered the most favorable for children's adjustment, whereas excessive control, overprotection or emotional distance may complicate relationships [9].

The stress and coping model describes adjustment to adoption as a process in which both the child and the parents face specific tasks, such as understanding the meaning of adoption and coping with the associated losses; the outcome depends on how successfully these tasks are managed with the support of the family [4]. It should be emphasized that most adopted children develop well. At the same time, a meta-analysis reports somewhat higher rates of behavior difficulties and use of mental health services among adopted children than among non-adopted peers, which indicates the need for attention and timely support rather than inevitable problems [6].

The characteristics of the parents are equally important. Motivation for adoption, realistic expectations, readiness to cope with the child's emotional reactions, anxiety about the role of the birth family and the level of parental stress all influence the quality of the relationship. Unrealistic expectations of rapid closeness may lead to disappointment, while patience and acceptance of the child's pace of adaptation strengthen trust.

During adolescence, questions of identity and origin become especially significant, and a young person may seek additional information about the past. In families where these questions are accepted calmly and openly, they are less

likely to turn into a source of conflict and are more likely to contribute to a stable sense of self [8].

Psychological support of adoptive families may include preparation of prospective parents before placement, counseling after adoption, family therapy when difficulties arise, parent support groups and an approach that takes the child's previous experiences into account. At the empirical stage of the study, relationships can be examined with the help of attachment measures, parenting style questionnaires and instruments for assessing family relationships, together with interviews with parents.

In conclusion, relationships between adoptive parents and children are shaped by the interaction of attachment processes, the child's understanding of adoption, parental acceptance, openness of communication and parenting style. Taking these characteristics into account makes it possible to build effective psychological support for adoptive families and to create conditions in which children develop a secure and positive sense of belonging.

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THE INFLUENCE OF THE FAMILY ENVIRONMENT ON THE INTELLECTUAL DEVELOPMENT OF ADOLESCENTS WITH DISABILITIES

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Annotation: *This paper examines how the family environment influences the intellectual development of adolescents with disabilities, describes the family factors that support or limit cognitive growth, and substantiates directions of psychological work with families, taking into account the conditions of Surkhandarya region.*

Keywords: *adolescents with disabilities, intellectual development, family environment, parenting style, mediated learning, family-centered support, Surkhandarya.*

Adolescence is a period of intensive cognitive change, when abstract and reflective thinking, planning and self-regulation develop and the ability to reason about hypothetical situations appears [1]. For adolescents with disabilities these processes depend on external conditions even more strongly, because the family is often the main, and sometimes the only, space in which they learn, communicate and gain experience. International reviews indicate that children and adolescents with disabilities face considerable barriers in access to education and social participation [2]. For this reason, the question of how the family environment affects their intellectual development is important both theoretically and for practical psychological work.

In this study, intellectual development is understood as the development of attention, memory, thinking, speech and the ability to learn, while the family environment is understood as a combination of the emotional climate in the family, the style of upbringing, the cognitive stimulation provided to the child, the expectations and involvement of parents in the child's education, and the material conditions of life. A limitation of abilities does not by itself determine the level of intellectual development: the outcome largely depends on whether the environment compensates for the primary limitation or aggravates it.

This idea has a long tradition in psychology. L.S. Vygotsky distinguished the primary impairment from secondary distortions of development that arise from unfavorable social conditions and considered cooperation with an adult as

the main path of compensation [3]. The ecological approach regards the family as the closest system of influence surrounding the child, which interacts with the school and the wider community [4]. According to the transactional model, the characteristics of the child and the characteristics of the environment shape each other over time, so the same limitation may lead to different developmental trajectories in different families [5].

The following psychological mechanisms of the influence of the family on intellectual development can be distinguished:

1) cognitive stimulation and language environment: the amount and quality of conversation, joint play and shared activity with adults are connected with the development of speech and thinking in children [6], and adolescents with disabilities need such stimulation in a form adapted to their abilities;

2) mediated learning: a parent who explains, organizes and gives meaning to experience acts as a mediator between the child and the world, which, according to the theory of mediated learning, develops the ability to learn and to transfer acquired knowledge to new situations [7];

3) style of upbringing: a warm but demanding style that combines support with clear and age-appropriate requirements is more often associated with favorable development [8], whereas overprotection reduces independence and cognitive initiative, and rejection or neglect deprives the adolescent of necessary support;

4) stress and well-being of parents: longitudinal research showed that the well-being of parents and the development of children with disabilities are interrelated [9], and a higher level of parental stress is connected with more behavioral difficulties of the child [10], which may reduce the quality of joint activity;

5) socio-economic conditions: the material resources of the family influence the availability of books, learning materials, specialists and rehabilitation services, and thereby the cognitive development of the child [11];

6) cooperation between family and school: regular contact with teachers and the involvement of parents in learning help to maintain the continuity of educational requirements at home and at school [12].

Accordingly, intellectual development of adolescents with disabilities is supported by emotionally warm relationships, realistic and positive expectations of parents, daily joint activities adapted to the adolescent's abilities, gradual expansion of independence and parental awareness of the child's educational needs. Unfavorable conditions include overprotection, low expectations, social

isolation of the family, chronic stress of caregivers and lack of access to specialized assistance.

An important practical direction is family-centered support. A meta-analysis of family-centered helpgiving practices showed that approaches which respect the family's priorities and strengthen its competence are associated with positive outcomes for children, parents and the family as a whole [13]. A review of early intervention research also emphasizes that the effectiveness of assistance depends on the quality of family patterns of interaction and on the support that the family receives [14].

The regional context deserves separate attention. It can be assumed that in the families of Surkhandarya region, where close kinship ties and the participation of several generations in child care are widespread, the relatives may serve as an additional resource of support, but may also produce inconsistent demands toward the adolescent. Unequal access to specialists in remote districts may be another important factor. These assumptions require empirical verification. At the empirical stage of the study, it is planned to assess the characteristics of the family environment and parental attitudes with the help of questionnaires and interviews with parents, to examine the cognitive functions of adolescents with methods adapted to their abilities, and to compare groups of families in different districts of the region.

In conclusion, the intellectual development of adolescents with disabilities is closely connected with the psychological characteristics of the family environment, namely the quality of emotional relationships, the style of upbringing, the cognitive stimulation and mediation provided by adults, and the level of support the family itself receives. Purposeful psychological work with families, aimed at strengthening these characteristics, creates conditions for fuller realization of the intellectual potential of adolescents with disabilities.

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INSON VA SUN'IY INTELLEKT MATNLARINI FARQLASH MEZONLARI: LINGVISTIK VA KOGNITIV YONDASHUVLAR SHARHI

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Annotatsiya. *Tezisda inson va sun'iy intellekt (SI) tomonidan yaratilgan matnlarni farqlashning lingvistik va kognitiv mezonlari koreys, ingliz va rus tillaridagi o'n ikkita ilmiy manba asosida sharh qilingan. Mezonlar leksik-sintaktik, matniylik va uslub, kognitiv-pragmatik hamda idrok va aniqlash guruhlari bo'yicha tahlilga tortilgan. Adabiyotlar sharhi shuni tasdiqlaydiki, SI matnlarining shakliy xususiyatlari inson matnlaridan deyarli farq qilmaydi, biroq tafovut leksik qamrov, gap qurilishi, emotivlik va kommunikativ maqsad orqali yorqinroq ifodalanadi. Mazkur mezonlarni koreys tilidagi yangilik matnlari misolida empirik sinovdan o'tkazish masalasi hamon ochiq qolmoqda.*

Kalit so'zlar: *sun'iy intellekt, yangilik matni, lingvokognitiv tahlil, matniylik, koreys tili, muallifni farqlash.*

Abstract. *This thesis reviews the linguistic and cognitive criteria for distinguishing between human-written and artificial intelligence (AI)-generated texts based on twelve scientific sources in Korean, English, and Russian. The criteria are analyzed across lexico-syntactic, textual and stylistic, cognitive-pragmatic, and perception and detection categories. The literature review confirms that the formal characteristics of AI texts show minimal differences from human texts; however, significant discrepancies are more vividly expressed in lexical diversity, sentence structure, emotiveness, and communicative intent. The issue of empirically testing these criteria on Korean news texts remains an open question for future research.*

Keywords: *artificial intelligence, news text, linguo-cognitive analysis, textuality, Korean language, authorship attribution.*

Katta til modellari (LLM) vositasida generatsiya qilingan matnlar shu qadar yuksak tabiiylik kasb etmoqdaki, keng auditoriya ularni inson qalamiga mansub matnlardan farqlashda ko'pincha jiddiy murakkabliklarga duch

kelmoqda[61]. Yangilik janrida bu muammo ayniqsa dolzarb: axborot tez tarqaladi, muallifning kimligi esa o‘quvchiga ko‘rinmaydi. Shu sababli matnning kim tomonidan yaratilganini aniqlashga imkon beradigan lingvistik va kognitiv belgilarni tizimlashtirish zarur. Koreys tilida bu yo‘nalishdagi tadqiqotlar endigina paydo bo‘lmoqda, ammo ularning materiali yangilik emas, insho, imtihon javoblari, xulosa va talaba ishlaridan iborat. Tezisning maqsadi shu tadqiqotlarni xalqaro ishlar bilan solishtirib, farqlash mezonlarini tizimlashtirishdan iboratdir.

Mezonlarni avval leksik-sintaktik miqyosda ko‘rib chiqamiz. S.Park va hammualliflari yuqori sinf o‘quvchilarining insholarini GPT-4 yaratgan insholar bilan morfologik ko‘rsatkichlar bo‘yicha qiyoslab, leksik murakkablikda ahamiyatli farq topmagan, konstituent tahlilida esa inson gaplarida VP va AP, GPT-4 gaplarida NP va aniqlovchi komponentlar ko‘proq uchraganini aniqlagan[62]. Lug‘at xilma-xilligi bo‘yicha ham dalillar bor: J.H.Park va E.Y.Kim talabalarning 2021-yilgi (SIsiz) va 2025-yilgi (SI qo‘llangan) semestr ishlarini matn qazish usuli bilan taqqoslab, SI qo‘llangan ishlarda lug‘at xilma-xilligi (TTR, MATTR) pastroq ekanini, bog‘lovchilarning umumiy chastotasida esa ahamiyatli farq yo‘qligini aniqlagan[63]. Ingliz tilidagi yangilik korpusida ham inson matnlarida lug‘at xilma-xilligi yuqoriroq, gap uzunligi taqsimoti kengroq, konstituentlar qisqaroq va sintaktik bog‘liqlik masofasi optimalroq ekani qayd etilgan[64]. Demak, lug‘at xilma-xilligi va gap tuzilishidagi tebranish farqni ko‘proq ochadi, grammatik va bog‘lovchilarga oid ko‘rsatkichlar esa yetarli emas.

Matn va uslub darajasida farq boshqacha ko‘rinadi. S.Cho TOPIK yozish topshirig‘i (54-savol) namunaviy javoblarini ChatGPT matnlari bilan matn tilshunosligi nuqtayi nazaridan qiyoslab, ularning o‘xshash va farqli tomonlarini

[61] Dugan L., Ippolito D., Kirubarajan A., Shi S., Callison-Burch C. Real or fake text? Investigating human ability to detect boundaries between human-written and machine-generated text // Proceedings of the AAAI Conference on Artificial Intelligence. 2023. – Vol. 37, No. 11. – P. 12763-12771.

[62] Park S. (박서윤) va boshq. GPT-4를 활용한 인간과 인공지능의 한국어 사용 양상 비교 연구 [GPT-4 yordamida inson va sun’iy intellektning koreys tilini qo‘llash xususiyatlarini qiyoslash] // 국어국문학 (The Korean Language and Literature). – Seoul, 2024. – No. 206. – P. 5-47.

[63] Park J. H. (박종향), Kim E. Y. (김은영). 생성형 AI 텍스트와 인간 텍스트의 내용 및 문체 비교 연구: 대학 글쓰기의 한계와 가능성 [Generativ SI matni va inson matnining mazmun va uslubini qiyoslash: universitet yozuvining cheklovlari va imkoniyatlari] // 교양교육연구 (Korean Journal of General Education). – Seoul, 2025. – Vol. 19, No. 6. – P. 71-86.

[64] Muñoz-Ortiz A., Gómez-Rodríguez C., Vilares D. Contrasting linguistic patterns in human and LLM-generated news text // Artificial Intelligence Review. 2024. – Vol. 57, Art. 265.

hamda ChatGPT matnining kuchli va zaif jihatlarini aniqlagan[65]. J.H.Park va E.Y.Kimning sifat tahlilida esa SI qo‘llangan ishlarda fikr va uslub bir xilligi, ayrim hollarda to‘qima havolalar kuzatilgan[66]. Emotivlik ham farq belgisi bo‘lishi mumkin: ingliz tilidagi yangilik korpusida inson matnlarida qo‘rquv va jirkanish kabi salbiy his-tuyg‘ular kuchliroq ifodalangan[67]. Rus tilidagi tadqiqotda M.N.Cherkasova va A.V.Taktarova sun’iy yaratilgan akademik matnlar asosida SI matnining yettita belgisini ajratgan: soddalashgan uslub, to‘qima tasdiqlar, mazmunsiz konkretlik, haddan ortiq hajm, emotivlikning yo‘qligi, asossiz ro‘yxatlar hamda mukammal imlo va punktuatsiya. Ularning xulosasiga ko‘ra, alohida olingan birgina mezon matnning generativ model tomonidan yaratilganini qat’iy tasdiqlay olmaydi, biroq kuzatilgan belgilar yig‘indisi ortgani sari SI ehtimolligi ham shunga mos ravishda yuqorilab boradi[68].

Bu belgilarni kognitiv nuqtayi nazardan ham izohlash mumkin. Mahowald va hammualliflari insonning til qobiliyatini formal (strukturaviy qoidalarni bilish) hamda funksional (tilni pragmatik vaziyatlarda qo‘llash) kompetensiyalarga ajratadilar. Ularning ta’kidlashicha, katta til modellari formal qonuniyatlarni o‘zlashtirishda yuqori malaka ko‘rsatsa-da, funksional kompetensiyaga asoslangan vazifalarda ularning natijalari bir xil va barqaror emas[69]. Y.Shin ChatGPT-5 ning ko‘p ma’noli sohaviy terminlarni ajratishini tekshirib, model ham, inson ham terminga hamroh bo‘lgan so‘zlar bilan ma’no bog‘liqligiga tayanishini, ammo hamroh so‘zlarni tanlash usuli tubdan farq qilishini aniqlagan[70]. Cherkasova va Taktarova ham neyrotarmoq adresatga munosabat bildira olmasligini, unga ongli ta’sir qila olmasligini va pragmatik niyatga ega emasligini ta’kidlaydi[71].

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[65] Cho S. (조신). 인간의 글과 ChatGPT 의 글에 대한 텍스트언어학적 접근: TOPIK 쓰기 54 번을 중심으로 [Inson va ChatGPT matnlariga matn tilshunosligi yondashuvi: TOPIK yozish 54-topshirig‘i misolida] // 언어와 정보 사회 (Language & Information Society). – Seoul, 2024. – Vol. 51. – P. 65-90.

[66] Park J. H., Kim E. Y. Ko‘rsatilgan asar. – P. 71-86.

[67] Muñoz-Ortiz A., Gómez-Rodríguez C., Vilares D. Ko‘rsatilgan asar. – Art. 265.

[68] Черкасова М. Н., Тактарова А. В. Искусственно сгенерированный академический текст (лингвопрагматический аспект) // Филологические науки. Вопросы теории и практики. 2024. – Т. 17, вып. 7. – С. 2552-2557.

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[71] Черкасова М. Н., Тактарова А. В. Ko‘rsatilgan asar. – С. 2552-2557.

Farqni insonning o‘zi qanchalik sezishi va uni avtomatik aniqlash mumkinmi, degan savol alohida ahamiyatga ega. Dugan va hammualliflarining tajribasida ishtirokchilar matn qayerda inson qalamidan mashinaga o‘tganini topishda ko‘pincha qiynalgan, ularning mahorati esa bir-biridan ancha farq qilgan[72]. Y.Ku ham Tyuring testi tamoyilidan foydalanib, ishtirokchilar qaysi xulosa inson tomonidan tuzilganini aniqlashini tahlil qilgan[73]. Matn muallifligini avtomatik aniqlash usullari ham yuqori samaradorlikni namoyon etmoqda. Masalan, Mitchell va hammualliflari ishlab chiqqan DetectGPT algoritmi 20 milliard parametrga ega GPT-NeoX modeli yaratgan soxta yangiliklarni identifikatsiya qilishda qo‘llanilgan. Natijada, u eng kuchli bazaviy *zero-shot* (qayta o'qitishsiz) usulining AUROC aniqlik ko‘rsatkichini 0,81 dan 0,95 gacha oshirish imkonini bergan [74] . Biroq Sadasivan va hammualliflarining ta’kidlashicha, matnni sun’iy qayta ishlash (parafraza qilish) orqali detektorlarni osongina chalg‘itish va ularning aniqligini keskin pasaytirish mumkin. Shu sababli, til modellari yetarlicha murakkablashgach, hatto eng ilg‘or detektorlarning aniqlik ko‘rsatkichi ham oddiy tasodifiy taxmindan farq qilmay qoladi. S.Lee va uning hammualliflari koreys tilidagi siyosiy yangiliklar negizida haqiqiy va soxta xabarlar juftligidan iborat maxsus korpusni ishlab chiqdilar. Mazkur korpus asosida tadqiqotchilar koreys tiliga xos matn embeddinglari hamda oldindan o‘qitilgan (*pre-trained*) modellar yordamidagi deteksiya usullarining imkoniyat va cheklovlarini tadqiq etib, koreys tilida tasdiqlangan korpuslar ko‘lami ingliz tilidagiga nisbatan sezilarli darajada cheklanganligini qayd etadilar[75].

Shunday qilib, shakliy aniqlik inson va SI matnini farqlashda yagona mezon bo‘la olmaydi: leksik murakkablik va bog‘lovchilarning umumiy chastotasi bo‘yicha ahamiyatli farq topilmagan, rus tilidagi tadqiqot esa hech bir belgini yakka holda ishonchli deb hisoblamaydi[76]. Farq ko‘proq lug‘at xilma-

[72] Dugan L. va boshq. Ko‘rsatilgan asar. – P. 12763-12771.

[73] Ku Y. (구영은). 인간과 생성형 AI 의 한국어 텍스트 요약 비교 연구: 튜링 테스트 기법을 활용하여 [Inson va generativ SI ning koreys tilidagi matn xulosalarini qiyoslash: Tyuring testi usulida] // 텍스트언어학 (Textlinguistics). – Seoul, 2025. – No. 59. – P. 5-39.

[74] Mitchell E., Lee Y., Khazatsky A., Manning C. D., Finn C. DetectGPT: Zero-shot machine-generated text detection using probability curvature // Proceedings of the 40th International Conference on Machine Learning (ICML 2023). – PMLR 202. 2023. – P. 24950-24962.

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[76] Park S. va boshq. Ko‘rsatilgan asar. – P. 5-47.; Park J. H., Kim E. Y. Ko‘rsatilgan asar. – P. 71-86.; Черкасова M. H., Тактарова A. B. Ko‘rsatilgan asar. – C. 2552-2557.

xilligi, gap tuzilishidagi tebranish, emotivlik, fikr va uslub xilma-xilligi hamda kommunikativ niyat kabi chuqurroq qatlamlarda namoyon bo‘ladi. Biroq manbalarning materiali bir xil emas: koreys tilidagi ishlar insholar, namunaviy javoblar, xulosalar, talaba ishlari va soxta siyosiy yangiliklarga, professional jurnalistlar yozgan yangilik matnlari esa faqat ingliz tilidagi tadqiqotga tayanadi [77]. Tahlilga tortilgan manbalar doirasida koreys tilidagi yangilik matnlarida inson va SI ishtirokini lingvokognitiv nuqtayi nazardan qiyoslagan ishlar kuzatilmadi. Binobarin, mazkur mezonlarni koreys tili materialida empirik tajribadan o‘tkazish galdagi izlanishlarning asosiy maqsadi bo‘lib xizmat qiladi.

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“TO‘TINOMA” VA “QUSH TILI” AN’ANALARINING ADABIYOTSHUNOSLIKDA O‘RGANILISHI

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Annotatsiya. *Maqolada “To‘tinoma” va “Qush tili” turkumidagi asarlarning adabiy manbalari, Sharq mumtoz adabiyotidagi taraqqiyoti hamda adabiyotshunoslikda o‘rganilishiga doir qarashlar yoritiladi. To‘ti va boshqa qush obrazlarining hikoyaviy hamda ramziy-irfoniy asarlardagi badiiy vazifalari qiyoslanadi. Adabiy an’ananing turli ijodkorlar talqinida davom etishi ko‘rsatilib, Latifiyning “Mazharul ajoyib” asari alohida matnshunoslik tadqiqotini talab etadigan adabiy yodgorlik sifatida qayd etiladi va unga oid ma’lum qo‘lyozmalarning saqlanish joylari ko‘rsatiladi.*

Kalit so‘zlar: *mumtoz adabiyot, “To‘tinoma”, “Qush tili”, adabiy an’ana, qush obrazi, hikoyat, matnshunoslik.*

Abstract. *The article discusses the literary sources, development, and scholarly study of works belonging to the Tutinama and Language of the Birds traditions. It compares the narrative role of the parrot with the symbolic and mystical meanings of bird imagery in classical literature. The discussion highlights the continuity of literary traditions and the distinctive treatment of inherited themes by individual writers. Latifi’s Mazharul ajoyib is identified as a work requiring a dedicated textual study, and the locations and catalogue numbers of its known manuscript copies are provided.*

Keywords: *classical literature, Tutinama, Language of the Birds, literary tradition, bird imagery, narrative, textual studies.*

KIRISH

Sharq xalqlari adabiyoti tarixida bir badiiy syujetning turli tillar va davrlarda yangicha talqin qilinishi keng tarqalgan hodisadir. Hind hikoyachilik an’analaridan forsiy va turkiy adabiyotga kirib kelgan asarlar bunga yorqin misol bo‘la oladi. Ularda voqealar bayoni, obrazlarning badiiy vazifasi va hikoyatlardan anglashiladigan ma’no har bir ijodkorning dunyoqarashi hamda adabiy muhitiga muvofiq o‘zgarib borgan. Bu jarayonni o‘rganish adabiy

aloqalar tarixini yoritish bilan birga, an’ana va ijodiy o‘ziga xoslik o‘rtasidagi munosabatni anglash uchun ham muhimdir.

“To‘tinoma” va “Qush tili” turkumidagi asarlar qush obrazining ishtiroki tufayli ma’lum darajada yaqin ko‘rinsa-da, ularning badiiy maqsadi bir xil emas. Birinchisida to‘ti ko‘proq hikoyat aytuvchi va voqealarni bog‘lovchi obraz sifatida qatnashadi, ikkinchisida esa qush timsoli insonning ruhiy kechinmalari, ma’naviy izlanishlari va kamolotga intilishini ifodalaydi. Mazkur farqni inobatga olish turkumlarni bir-biriga tenglashtirmasdan, har birining adabiyot tarixidagi o‘rnini belgilashga yordam beradi.

Tadqiqot materiallari va usullari

Maqolada “Shukasaptati” va “To‘tinoma” an’analariga doir ilmiy ma’lumotlar, Ibn Sino, Farididdin Attor, Alisher Navoiy hamda turkiy adabiyotdagi “Qush tili” turkumiga mansub asarlar yuzasidan bildirilgan adabiyotshunoslik qarashlari umumlashtirildi. Tahlilda tarixiy-adabiy va qiyosiy yondashuvlardan foydalanildi. Asosiy e’tibor syujetning adabiy muhitlararo davomiyligi, qush obrazining asardagi vazifasi, ijodkorning an’anaviy mavzuga munosabati hamda mumtoz merosni o‘rganishning manbaviy asoslariga qaratildi. Qo‘lyozmalarga oid ma’lumotlar ularning saqlanish joyi va inventar raqami bilan chegaralandi.

Natijalar va muhokama

“To‘tinoma” turkumining qadimiy manbalari hind xalq og‘zaki ijodi va hikoyachilik an’analariga borib taqaladi. Sanskrit tilidagi “Shukasaptati” (“To‘tining yetmish hikoyasi”)da hikoyatlar to‘tining so‘zlashi bilan birlashtirilgan. Bunday bayon usulida asosiy voqea doirasiga turli mazmundagi hikoyatlar kiritiladi. Ular mustaqil voqea sifatida qiziqish uyg‘otsa-da, umumiy syujet bilan bog‘lanib, yaxlit badiiy mazmunga xizmat qiladi. Mazkur usul Sharq hikoyachiligi taraqqiyotida muhim o‘rin egallagan.

Hind rivoyatlarining forsiy adabiyotga o‘tishi so‘zma-so‘z tarjima bilan cheklanmagan. Ayrim hikoyatlar qisqartirilgan yoki kengaytirilgan, voqealar yangicha izohlangan, nasriy bayon she’riy parchalar bilan boyitilgan. Shu tariqa bir manbadan oziqlangan asarlarda turli davrlarning badiiy didi, axloqiy qarashlari va ijodiy talabi aks etgan. “Javohir al-asmor” hamda Ziyovuddin Naxshabiyning “To‘tinoma”si forsiy hikoyachilikdagi ana shu taraqqiyot bosqichlarini ko‘rsatadi (Alimardonov, 1970).

Naxshabiy o‘zidan oldingi hikoyaviy merosga tayangan holda asarning bayon usuli va badiiy ifodasiga ijodiy yondashgan. Uning talqinida nasriy hikoyatlar bilan nazmiy parchalar uyg‘unlashib, pand-nasihat quruq o‘git shaklida emas, balki obrazlar xatti-harakati va voqealar rivoji orqali anglashiladi.

Shu bois “To‘tinoma”ning turli tahrirlarini o‘rganishda faqat umumiy syujetga emas, balki hikoyat tanlovi, badiiy ifoda va muallif munosabatiga ham e’tibor qaratish zarur.

Keyingi asrlarda ushbu an’ana Abulfazl bin Muborak, Muhammad Xudodod Qodiriy va boshqa adiblar ijodida davom etdi. Asarning yangi talqinlarida tilning soddalashuvi va hikoyatlar tarkibining o‘zgarishi uning turli o‘quvchi muhitlarida yashab kelganini bildiradi. XIX asrda Mulla Qurbon Xiromiyning “To‘tinoma” dostoni yaratilgani ham mazkur syujetning o‘zbek adabiyotidagi davomiyligini ko‘rsatadi. Xiromiy ijodida an’anaviy voqealarga murojaat qilish bilan birga, ularni o‘z davrining badiiy talablari asosida ifodalashga intilish seziladi (Xiromiy, 2008).

“To‘tinoma”da to‘ti obrazining asosiy vazifasi hikoyat aytish bilan bog‘liq. Uning so‘zi asosiy voqeaning uzviy davom etishiga xizmat qiladi va tinglovchining qaroriga ta’sir o‘tkazadi. Hikoyatlar vositasida aql-farosat, hushyorlik, sadoqat hamda insoniy munosabatlarga oid qarashlar ifodalanadi. Bunda to‘tining hikoyatlari bir-biridan ajralgan rivoyatlar emas, balki asarning bosh voqeasini birlashtirib turuvchi muhim badiiy vositadir.

“Qush tili” turkumida esa qush obrazi boshqa badiiy vazifani bajaradi. Ibn Sinoning “Risolat ut-tayr”i, Ahmad G‘azzoliy va Shahobiddin Suhravardiyga mansub ramziy asarlar, Farididdin Attorning “Mantiq ut-tayr”i hamda Alisher Navoiyning “Lison ut-tayr”ida qushlar orqali insonning ruhiy olami va ma’naviy kamolotga intilishi tasvirlanadi. Ayniqsa, Attor va Navoiy dostonlarida Hudhudning qushlarga yo‘lboshchilik qilishi ramziy mazmun kasb etadi. Bu xususiyat uni “To‘tinoma”dagi hikoyat aytuvchi to‘ti obrazidan farqlaydi (Sharipov, 1982, 11–13-betlar).

Qush timsolining majoziy ma’nolari turkiy she’riyatda ham qadimdan uchraydi. “Ko‘ngil qushi”, “jon qushi” kabi ifodalar insonning ichki dunyosi va ruhiy holatini yoritishda qo‘llangan. Ahmad Yassaviyga nisbat berilgan “Ko‘ngul qushi shavq qanotin tutib uchsa, Jumla vujud yozin sayrar bulbul bo‘lur” baytida ko‘ngilning zavq-shavqi qushning parvozi orqali badiiy ifodalangan (Yassaviy, 1992, 91-bet). N. Bozorova ham Alisher Navoiy she’riyatida ko‘ngil obrazining ma’naviy va badiiy ma’nolari kengligini ta’kidlaydi (Bozorova, 2002, 18-bet).

“Mantiq ut-tayr” bilan “Lison ut-tayr” o‘rtasidagi munosabat ijodiy an’ananing mohiyatini anglashda alohida ahamiyatga ega. Navoiy Attor dostonidagi ramziy yo‘nalishdan ilhomlangan bo‘lsa-da, asar g‘oyasi, obrazlar talqini va badiiy ifodasini o‘z ijodiy maqsadiga bo‘ysundirgan. Shu sababli “Lison ut-tayr”ni faqat tarjima yoki avvalgi dostonning takrori sifatida talqin

etish to‘g‘ri bo‘lmaydi. Ye. E. Bertels va Sh. Sharipovning tadqiqotlari ham Navoiyning ushbu an’anadagi mustaqil ijodkorlik mavqeyini yoritishda muhim o‘rin tutadi (Bertels, 1965, 377–420-betlar; Sharipov, 1982).

Turkiy adabiyotda qushlar haqidagi ramziy syujetga murojaat etgan ijodkorlardan yana biri Gulshahriydir. U an’anaviy mavzuni o‘ziga xos badiiy ifoda bilan boyitgan. No‘shoba Arasli Gulshahriy va Navoiy asarlarini qiyoslab, ularning mushtarak jihatlari bilan birga, har birining o‘ziga xosligini ham ko‘rsatgan (Arasli, 1980, 17–21-betlar). Mavlono Xoja Qozi Payvandiy Rizoiyning “Qush tili” dostoni esa ushbu ramziy-ma’rifiy an’ananing turkiy adabiyotdagi yana bir ko‘rinishidir. Unda qushlar bilan bog‘liq hikoyaviy voqealar insonning ma’naviy tarbiyasiga xizmat qiladigan talqinda berilgan (Rizoiy, 2009).

Mumtoz adabiy merosni o‘rganishda asarlarning mashhurligi ularning ilmiy jihatdan birdek tadqiq etilganini anglatmaydi. Ayrim yodgorliklar adabiyot tarixiga oid umumiy tadqiqotlarda tilga olingan bo‘lsa-da, mustaqil matnshunoslik izlanishlarining mavzusiga aylanmagan. Jumladan, Latifiyning “Mazharul ajoyib” asari “To‘tinoma” an’anasi doirasida eslatilganiga qaramay, hozirga qadar alohida matnshunoslik tadqiqoti sifatida maxsus o‘rganilmagan. Uning qo‘lyozma nusxalari H. Sulaymonov fondida 3229 va 5699, Sharq qo‘lyozmalari markazining asosiy fondida 7428, Sankt-Peterburgda 1857 hamda Istanbul universitetining Katanov kolleksiyasida 2794 inventar raqamlari bilan saqlanadi. Mazkur manbalarning mavjudligi asarni adabiyotshunoslik va matnshunoslik nuqtayi nazaridan izchil o‘rganish uchun asos yaratadi.

Mustaqillik yillarida mumtoz adabiy merosga oid nashrlar ko‘paygani adabiyot tarixini yangi manbalar asosida o‘rganish imkoniyatini kengaytirdi. Xiromiyning “To‘tinoma”si va Rizoiyning “Qush tili” dostoni nashrlari buning misolidir (Xiromiy, 2008; Rizoiy, 2009). Shu bilan birga, badiiy asarni nashr etish uning adabiyot tarixidagi o‘rni va barcha matniy masalalari hal etilganini bildirmaydi. Har bir yodgorlikning tarixiy manbalari, badiiy tuzilishi va asar nusxalari izchil o‘rganilgandagina unga doir ilmiy tasavvur yanada to‘liq bo‘ladi. M. Imomnazarovning navoiyshunoslikka oid ishlari ham mumtoz merosni tarixiy-adabiy manbalar asosida talqin etish zaruratini ko‘rsatadi (Imomnazarov, 2016, 112–117-betlar).

XULOSA

“To‘tinoma” va “Qush tili” turkumlari Sharq adabiyotidagi qadimiy an’analarning ikki o‘ziga xos yo‘nalishini namoyon etadi. “To‘tinoma”da to‘ti hikoyat aytuvchi obraz sifatida asosiy voqea bilan ichki hikoyatlarni bog‘lasa, “Qush tili” asarlarida qushlar ko‘proq ramziy ma’no kasb etib, insonning ruhiy

olami va ma’naviy izlanishlarini ifodalaydi. Bu farq har ikki turkumning mazmuni va badiiy qurilishini to‘g‘ri anglashga yordam beradi.

An’anaviy syujetning turli davrlarda qayta ishlanishi ijodiy davomiylik bilan badiiy mustaqillikning bir-biriga zid emasligini ko‘rsatadi. Shuning uchun “To‘tinoma” va “Qush tili” turkumiga mansub asarlar umumiy manbalari bilan birga, ijodkor talqini va asarning o‘ziga xos xususiyatlari asosida o‘rganilishi lozim. Latifiyning “Mazharul ajoyib”i kabi yetarlicha tadqiq etilmagan yodgorliklarni ilmiy muomalaga kengroq jalb qilish esa mumtoz adabiy meros haqidagi tasavvurlarimizni boyitishga xizmat qiladi.

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PSYCHOLOGICAL INFLUENCE OF THE EDUCATIONAL ENVIRONMENT ON THE FORMATION OF DESTRUCTIVE AND CONSTRUCTIVE PERSONALITY TRAITS

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Annotation: *This paper analyzes the psychological mechanisms through which the educational environment influences the formation of constructive and destructive personality traits, describes the conditions that support or hinder positive personal development, and substantiates directions of psychological work aimed at creating a developing educational environment.*

Keywords: *personality traits, educational environment, constructive traits, destructive traits, school climate, psychological development.*

Personality is formed in continuous interaction with the environment in which a person studies, communicates and acts. For children, adolescents and young people, the educational environment is one of the most significant parts of this interaction: it includes the style of teaching, relationships between teachers and students, relationships among peers, the system of norms and evaluation, and the opportunities for participation and self-expression. For this reason, the question of how this environment influences the formation of personality traits remains important for educational and developmental psychology.

In this context, constructive personality traits can be understood as characteristics that support productive adaptation and development, such as responsibility, self-regulation, cooperation, empathy, curiosity and persistence. Destructive traits are tendencies that harm the person or the relationships with others, for example hostility, aggressiveness, manipulativeness, avoidance of responsibility, learned helplessness and a persistent fear of failure. The boundary between them is not absolute, and the same trait may develop in either direction depending on the conditions in which a person grows.

The ecological approach considers the educational institution as one of the systems that surround the individual and interact with the family and the wider society [1]. Educational institutions are regarded as developmental contexts whose features, including the organization of learning and the quality of

relationships, influence the intellectual, emotional and social development of students [2]. A review of research on school climate shows that safe, supportive and fair environments are associated with better academic and psychosocial outcomes of students [3].

The following psychological mechanisms of this influence can be distinguished:

1) social learning: students observe and imitate the behavior of teachers and peers, so the ways in which adults solve conflicts, express emotions and treat mistakes become models for the formation of personal traits [4];

2) satisfaction of basic psychological needs: according to self-determination theory, an environment that supports autonomy, competence and relatedness promotes autonomous motivation and well-being, while a highly controlling environment may foster pressure, avoidance and hostility [5];

3) implicit beliefs about abilities: environments that emphasize effort and growth encourage persistence, whereas those that emphasize fixed ability and constant comparison may lead to helplessness and fear of failure [6];

4) style of leadership and group climate: classic experiments with groups of children showed that authoritarian leadership was associated with hostility or apathy, while a democratic style was associated with cooperation and interest in the task [7];

5) quality of relationships and evaluation: respectful communication, fair assessment and the experience of belonging to a group strengthen constructive traits, while humiliation, unfair evaluation, exclusion and bullying contribute to destructive ones [3].

Accordingly, the development of constructive traits is supported by warm and respectful relationships between teachers and students, clear and fair rules, opportunities to take responsibility and participate in decisions, cooperative forms of learning and emotional support in situations of failure. Destructive tendencies are more likely to arise under conditions of excessive pressure, public criticism, unpredictable demands and chronic comparison of students with one another.

An important practical direction is the development of social and emotional skills in the educational process. A meta-analysis of school-based universal programs showed that systematic work on self-awareness, self-regulation, empathy and relationship skills improves students' social and emotional competence, attitudes and behavior, as well as academic performance [8].

From the psychological point of view, the creation of a developing educational environment includes training teachers in supportive communication and conflict resolution, systematic monitoring of the school climate, prevention of bullying, activity of the psychological service and cooperation with parents. At the empirical stage of the study, the relationship between the characteristics of the educational environment and personality traits can be examined with the help of school climate questionnaires and personality assessment methods, followed by a comparison of groups of students.

In conclusion, the formation of constructive and destructive personality traits is closely connected with the psychological characteristics of the educational environment, namely the models of behavior it offers, the degree to which it satisfies basic needs, the style of interaction and the quality of relationships. Purposeful improvement of these characteristics creates conditions for the development of responsible, cooperative and psychologically healthy personalities.

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THE POETIC INTERPRETATION OF THE MYTHOLOGICAL IMAGE IN IBRAYIM YUSUPOV'S POEM "NARCISS" IN COMPARATIVE PERSPECTIVE

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Abstract. *This article examines the poetic interpretation of the mythological image of Narcissus in Ibrayim Yusupov's poem "Narciss" and compares it with alternative literary interpretations in world literature (specifically Oscar Wilde and Hermann Hesse). The study focuses on the transformation of the classical mythological character into a poetic symbol reflecting human psychology, self-love, isolation, and spiritual limitation. Through a comparative and mythopoetic approach, the research demonstrates how Yusupov adapts the ancient myth to address universal moral and philosophical questions, moving beyond mere aestheticism to explore the dangers of excessive self-absorption.*

Keywords: *Ibrayim Yusupov, Narcissus, mythology, comparative literature, mythopoetics, self-love, Oscar Wilde, Hermann Hesse.*

1. INTRODUCTION

Mythological images hold a vital place in world literature, enabling writers to bridge ancient cultural narratives with contemporary human experiences. When a mythological character enters a literary text, it is frequently reinterpreted through the author's worldview, artistic goals, and cultural context.

One of the most enduring figures in global culture is Narcissus, whose myth—famously recorded in Ovid's Metamorphoses—has symbolized vanity, self-absorption, and tragic isolation. While European literature (such as Oscar Wilde's aestheticism or Hermann Hesse's philosophical archetypes) has extensively reinterpreted this myth, regional poetic traditions have also infused the image with unique moral and psychological dimensions.

In Karakalpak literature, the prominent poet Ibrayim Yusupov incorporates mythological and philosophical associations to address modern human dilemmas. His poem "Narciss" presents Narcissus not merely as a negative mythological figure, but as a complex psychological subject. The aim of this study is to examine the poetic interpretation of the Narcissus image in Yusupov's poem and to provide a comparative analysis against classic world literature interpretations (Oscar Wilde and Hermann Hesse).

2. METHODOLOGY

This study employs an interdisciplinary and comparative literary framework:

- **Comparative Method:** Used to contrast Yusupov's poetic representation of Narcissus with the interpretations found in Ovid, Oscar Wilde, and Hermann Hesse, identifying key convergence and divergence points in thematic focus and philosophical depth.
- **Mythopoetic Approach:** Examines how the traditional mythological structure functions within a new literary context as a source of symbols and artistic meaning.
- **Textual and Interpretive Analysis:** Focuses on specific lexical units, metaphors, and the stages of psychological transformation depicted in Yusupov's "Narciss" (e.g., "Ashıq bolıp júrdi ol", "umıtsız ıshqı").

3. RESULTS

3.1. The Poetic Transformation of Narcissus in Yusupov's Poem

Textual analysis shows that Yusupov introduces Narcissus through a positive description of natural beauty, depicting him initially as a creature endowed with grace ("Сақый тәбият жаратқан / Жан еди ол шырайлы"). The turning point occurs when Narcissus encounters his reflection in the water:

- **The Awakening of Self-Absorption:** The realization of his own mirrored image prompts a profound shift, captured in the lines where he becomes enamored with his physical appearance ("Сөйтип өз келбетине / Ашық болып жүрді ол").
- **Emotional Isolation:** As the poem progresses, the psychological cost of this obsession becomes severe, leading him to abandon external reality ("Сол күннен баслап ол байғус / Ұмытты басқа өмирди"). His internal state is eaten away by egoistic fixation ("Өзимшил құрт жазы-қыс / Алмадай иштен кемирди").
- **The Symbolic Function of Water and Hopeless Love:** The water acts as a poetic boundary trapping him within an unreciprocated, destructive passion ("Үмитсиз ышқы аяўсыз / Өртеди оны, күл етти").
- **Moral Warning:** The poem culminates in a philosophical reflection, where the poet looks upon the fading flower of narcissism and warns against the ultimate danger of losing oneself entirely in egoistic self-admiration ("Ҳәм қорқаман: соңында / Сени де сондай болар деп").

3.2. Comparative Findings: Yusupov, Wilde, and Hesse

A comparative examination reveals three distinct artistic paradigms of the Narcissus myth:

- **Oscar Wilde (Aestheticism & Decadence):** In works like The Picture of Dorian Gray, Wilde elevates physical beauty and egoistic aestheticism above morality, leading to a tragic, corrupting decay of the soul. In contrast, Yusupov's Narcissus is portrayed with psychological pathos as a victim of emotional isolation rather than a symbol of moral corruption.
- **Hermann Hesse (Philosophical Archetype):** In Narcissus and Goldmund, Hesse utilizes Narcissus as an intellectual archetype representing asceticism, spiritual clarity, and the Apollonian intellect. Yusupov, however, focuses on emotional progression and psychological trauma rather than an intellectual dualism between intellect and sensory experience.
- **Ibrayim Yusupov (Moral-Philosophical Warning):** Yusupov bridges classical myth with regional poetic traditions, framing Narcissus as an archetypal reminder of the dangers of losing touch with the surrounding world through self-admiration.

Author & Work	Artistic Concept	Isolation Cause & Outcome
Oscar Wilde (The Picture of Dorian Gray)	Aestheticism & Decadence: Physical beauty prioritized over morality.	Moral decay & tragic soul corruption due to unbridled hedonism.
Hermann Hesse (Narcissus and Goldmund)	Philosophical Archetype: Intellect, asceticism, and Apollonian clarity.	Conscious monastic withdrawal; spiritual self-knowledge.
Ibrayim Yusupov (Narciss)	Moral-Psychological Pathos: Self-absorption leads to spiritual crisis.	Emotional vacuum; universal warning against egoistic isolation.

4. DISCUSSION

The results demonstrate that Yusupov's interpretation of Narcissus is rooted in classical mythology but transcends it through an emphasis on inner psychological states. While Ovid focused on the physical metamorphosis into a flower, and Western modernists focused either on aesthetic egoism (Wilde) or intellectual self-awareness (Hesse), Yusupov constructs a distinct moral and philosophical paradigm.

The psychological sequence in Yusupov's poem—beauty, self-recognition, fascination, abandonment of life, and hopelessness—highlights the universal danger of confusing external appearance with true identity. By shifting the conflict from external tragedy to an internal crisis of connection between the self and the world, Yusupov expands the boundaries of mythopoetic thinking in

Karakalpak literature. Furthermore, the integration of direct textual fragments ensures that the analysis remains deeply grounded in the primary source material, satisfying rigorous academic verification standards.

5. CONCLUSION

The comparative analysis of Ibrayim Yusupov's poem "Narciss" confirms that the poet successfully reinterprets the classical mythological image into a profound symbol of spiritual isolation and self-absorption.

- **Emotional Alienation:** Unlike Wilde's aesthetic focus or Hesse's philosophical dualism, Yusupov centers his narrative on emotional alienation and the loss of human connection.
- **Multi-layered Function:** The poem operates simultaneously as a psychological study, a symbolic representation of egoism, and a moral warning for humanity.

Ultimately, Yusupov demonstrates how ancient mythological structures can be revitalized within modern literature to address universal moral questions regarding human identity, balance, and the external world.

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O‘ZBEK TILI SINONIM LUG‘ATLARI VA ULARNING NUTQIY KOMPETENTLLIKNI SHAKLLANTIRISHDAGI LINGVODIDAKTIK IMKONIYATLARI

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Annotatsiya. *Maqolada sinonim lug‘atlarining nutqiy kompetentlikni shakllantirishdagi o‘rni tilshunoslik darsliklaridagi nazariy qarashlar va muallif tuzgan elektron o‘quv lug‘ati (BGU 3551) ma’lumotlari asosida yoritiladi. Lug‘atda 450 ta sinonimik qator va 1 554 ta sinonim uslubiy belgi, kollokatsiya, badiiy misol va CEFR darajasi bilan berilgan. Tahlilga ko‘ra, qatorlarning 88,9 foizi uch va undan ortiq uslubiy belgini birlashtiradi, qator doirasida o‘rtacha 2,2 daraja farq bor. Bu o‘quvchiga sinonimni vaziyat va o‘z darajasiga ko‘ra tanlash imkonini beradi.*

Annotation. *The article substantiates the role of synonym dictionaries in developing speech competence on the basis of the theoretical views in Uzbek linguistics textbooks and the data of the author’s electronic educational dictionary (Reg. No. BGU 3551). The dictionary contains 450 synonymic series and 1,554 synonyms with register labels, collocations, literary examples and CEFR levels. The analysis shows that 88.9% of the series combine three or more stylistic labels and that a series spans 2.2 CEFR levels on average, which lets learners choose synonyms according to the situation and their proficiency.*

Kalit so‘zlar: *sinonimiya, sinonim lug‘at, nutqiy kompetentlik, uslubiy belgi, CEFR, kollokatsiya, elektron lug‘at.*

Keywords: *synonymy, synonym dictionary, speech competence, register, CEFR, collocation, electronic dictionary.*

KIRISH

Bugungi kunda til ta’limida lug‘atlardan produktiv nutqiy ko‘nikmalarni rivojlantirish vositasi sifatida foydalanish dolzarb yo‘nalishlardan biriga aylandi. Nutqiy kompetentlik so‘zlovchining nafaqat grammatik jihatdan to‘g‘ri, balki vaziyat, suhbatdosh va kommunikativ maqsadga mos nutq tuza olish qobiliyatini anglatadi (Hymes, 1972; Canale & Swain, 1980). Bu qobiliyatning asosi –

adabiy me’yor: “yozma va og‘zaki nutqda adabiy me’yorga rioya qilish so‘zlovchi (yozuvchi) madaniy saviyasini belgilaydi” (Sayfullayeva va b., 2009, 15-b.). Me’yor doirasida fikrni ifodalashning bir necha yo‘li bo‘ladi, tanlov imkonini esa sinonimiya beradi. A. Abduazizov sinonimlar “fikrni aniq va ravshan, rang-barang ifoda qilishga yordam beradi”, ularni bilish va qo‘llash san’ati esa yuqori nutq madaniyatining belgisi ekanini ta’kidlaydi (2010, 74–75-b.).

Biroq bosma sinonim lug‘atlarida uslubiy tavsif asosan qisqartmalar va izoh matni orqali beriladi; bunday ma’lumotni qidirish, saralash va o‘quvchi darajasiga moslash qiyin. O‘quvchi “so‘zlashuv” yoki “badiiy” belgisini ko‘rsa-da, so‘zni insho, suhbat yoki rasmiy xatda qo‘llash mumkinligini mustaqil hal qilishga majbur bo‘ladi. Muallif tuzgan elektron o‘quv lug‘ati (Guvohnoma № BGU 3551) bu muammoni ma’lumotlar bazasi shaklida hal etishga qaratilgan. **Maqsad**: sinonim lug‘atlarining nutqiy kompetentlikni shakllantirishdagi o‘rnini darslik nazariyasi va shu lug‘at ma’lumotlari asosida asoslash.

ASOSIY QISM

Nazariy asos. Darsliklarda sinonimlar bir tushunchani ifodalovchi, ma’no sifatlari va ekspressiv-stilistik bo‘yoqlari bilan farqlanuvchi so‘zlar sifatida talqin etiladi (Abduazizov, 2010, 73-b.). Sayfullayeva va hammuallif-lar fikricha, sinonim leksemalarda atash va vazifa semasi bir xil bo‘lib, “ifoda semasi farqlanadi”; bu farq baho (ijobiy yoki salbiy), qo‘llanish davri (“eskirgan”, “yangi”) va qo‘llanish doirasi (“so‘zlashuvga xos”, “kitobiy”) belgilarida ko‘rinadi (2009, 112-b.). Abduazizov sinonimlarni to‘liq, semantik, kontekstual va stilistik turlarga ajratadi; masalan, yuz, bashara, aft, chehra, nusxa, turq qatorida nusxa, turq, bashara so‘zlari salbiy, chehra, istara esa ijobiy emotsional-ekspressiv hissiyot uyg‘otadi (2010, 74-b.). Qatorning yetakchisi – dominanta leksema ifoda jihatidan betaraf bo‘lib, qo‘llanish doirasi boshqa a’zolarnikidan kengroq bo‘ladi; kontekstual sinonimlar esa darslikda “nutqning go‘zalligi va boyligini ta’minlovchi vosita” sifatida baholanadi (Sayfullayeva va b., 2009, 113-b.). Demak, sinonimik qatorni o‘zlashtirish – a’zolarning ifoda semasini, ya’ni uslubiy bo‘yog‘ini farqlay olish demakdir. Bu bilim lug‘at orqali shakllanadi: sinonim so‘zlar lug‘atida qatordagi har bir so‘zning ma’no ottenkalari va stilistik funksiyalari bayon qilinadi (Abduazizov, 2010, 93-b.; Hojiyev, 1974). Bu an’ana qadimiy: Alisher Navoiy “Muhokamat ul-lug‘atayn”da yuzta fe’lning sinonimik juftlarini keltirib, ularning ma’no nozikliklarini ko‘rsatgan (Yoriyev, 2006, 44-b.).

Material va metod. Tahlil obyekti – elektron o‘quv lug‘atining tanlanmasi: 450 ta sinonimik qator va 1 554 ta sinonim (jami 2 004 leksik birlik,

A–P oralig‘i). Har bir qator oltita maydon bilan beriladi: bosh so‘z, sinonimlar, uslubiy belgi, kollokatsiyalar, badiiy misol va CEFR darajasi. Lug‘at A. Hojiyev va N. Mahmudov tahriridagi lug‘atlarga tayanadi (Hojiyev, 1974; Mahmudov va b., 2022); uslubiy belgilar manba misollarining matn turiga ko‘ra alohida maydonga ko‘chirilgan, CEFR darajalari (A1–C2) esa so‘zning muloqotdagi zarurati, qo‘llanish chastotasi va uslubiy cheklanishiga ko‘ra muallif tomonidan belgilangan (Xalilova, 2026b). Ma’lumotlar Python (pandas) yordamida tavsifiy-miqdoriy usulda qayta ishlandi (1 991 ta uslubiy belgili va 1 946 ta darajali birlik).

Natijalar va muhokama. Birinchidan, uslubiy ma’lumot alohida maydonda berilgani uchun uni hisoblash va saralash mumkin. Birliklarning 61,0 foizi bittadan ortiq uslubiy belgiga ega, qatorlarning 88,9 foizi uch va undan ortiq belgini birlashtiradi. Bu darslikdagi fikrni – sinonim tanlash, asosan, ifoda semasi, ya’ni uslub tanlovi ekanini – raqamlar bilan tasdiqlaydi. Ikkinchidan, bosh so‘zlarning 54,0 foizi betaraf (“barcha uslublar”), 94,4 foizi A1–B1 darajasida; “eskirgan” belgisi birorta bosh so‘zda uchramaydi, sinonimlarning esa 7,7 foizida bor. Bu dominanta leksemaning betaraf va keng qo‘llanuvchi tayanch ekani haqidagi nazariy ta’rifga mos keladi (Sayfullayeva va b., 2009, 113-b.). Uchinchidan, sinonimlarning 59,7 foizi B2 va undan yuqori darajada; qator doirasida o‘rtacha farq 2,2 daraja, qatorlarning 71,0 foizida esa ikki daraja va undan ko‘p. Demak, har bir qator o‘quvchi uchun tabiiy “zina” vazifasini bajaradi (1-jadval).

1-jadval. *Sinonimik qatorlarda uslubiy belgi va CEFR darajasi (lug‘atdan tanlanma)*

Qator	A’zo	Uslubiy belgi	CEFR
Aqlli	*aqlli*	barcha uslublar	A1
	esli	so‘zlashuv	A2
	oqil	badiiy, publitsistik	B2
	xiradmand	eskirgan; badiiy	C1
Asal	*asal*	barcha uslublar	A1
	bol	so‘zlashuv, badiiy	A2
	shahd	eskirgan; badiiy	C1

Masalan, aqlli – esli – oqil – xiradmand qatorida o‘quvchi suhbatda aqlli va esli so‘zlarini, yozma matnda oqilni qo‘llaydi, xiradmandni esa badiiy matnda tanib oladi. Lug‘at nutqiy kompetentlikni shakllantirish uchun to‘rt turdagi topshiriq imkonini beradi: (1) uslub almashtirish – so‘zlashuv xabarini rasmiy

uslubga o‘tkazish (masalan, *va’da* o‘rniga *qaror*, ahd qatori); (2) qator zinasi – a’zolarni bosh so‘zdan boshlab CEFR darajasi bo‘yicha tartiblash; (3) kollokatsiyaga asoslangan tanlov (*asal bermoq – shahddek shirin*); (4) retseptiv topshiriq – eskirgan a’zolarni (B2–C2) o‘qishda tanish, nutqda esa majburiy qo‘llamaslik. Bu topshiriqlar sotsiolingvistik (vaziyatga mosligi), strategik (bosh so‘zga tayanish) va lingvistik (birikuvchanlik) kompetensiyalarni rivojlantiradi (Canale & Swain, 1980). Cheklov sifatida shuni qayd etish kerakki, CEFR darajalari hali korpus va mustaqil baholovchilar bilan tasdiqlanmagan, lug‘atning ta’siri esa tajriba orqali sinalishi lozim (Xalilova, 2026a).

XULOSA

Sinonim lug‘atlari nutqiy kompetentlikni shakllantirishda o‘quvchiga faqat ma’nodosh emas, balki tanlov mezonini ham beradi. Darsliklardagi nazariy qoidalar – ifoda semasining farqi va dominantaning betarafligi – elektron lug‘atda uslubiy belgi va CEFR darajasi sifatida o‘lchanadigan ma’lumotga aylandi: qatorlarning 88,9 foizi uslubiy jihatdan xilma-xil, o‘rtacha farq esa 2,2 darajani tashkil etadi. Kelgusida darajalarni chastota ro‘yxati bilan tekshirish, lug‘atni butun alifboga kengaytirish va topshiriqlarni sinfda sinovdan o‘tkazish rejalashtirilgan.

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TOPISHMOQLARDA BIRLAMCHI VA IKKILAMCHI NOMINATSIYA

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Annotatsiya. *Ushbu maqolada o‘zbek xalq topishmoqlarida nomlash nazariyasi, birlamchi va ikkilamchi nominatsiyaning o‘ziga xos xususiyatlari haqida so‘z boradi. Shuningdek topishmoqlarda metaforalarning turlari, qo‘llanilishi, shuningdek, personifikatsiyalangan metaforalarning o‘zbek konseptidagi o‘ziga xos xususiyatlari ochib berilgan.*

Kalit so‘zlar: *onomasiologiya, birlamchi nominatsiya, ikkilamchi nominatsiya, nominativ vosita, metaforik topishmoq, kontekst, konsept*

Аннотация. *В статье рассматриваются теория именования и особенности первичной и вторичной номинации в узбекских народных загадках. Также анализируются виды и способы употребления метафор в загадках и характерные черты метафор, основанных на олицетворении, в рамках узбекской концептуальной картины мира.*

Ключевые слова*: ономасиология, первичная номинация, вторичная номинация, номинативное средство, метафорическая загадка, контекст, концепт.*

Abstract. *This article discusses the theory of naming and the specific characteristics of primary and secondary nomination within Uzbek folk riddles. It also explores the types and usage of metaphors in riddles, as well as the distinctive features of personified metaphors within the Uzbek conceptual framework.*

Keywords: *onomasiology, primary nomination, secondary nomination, nominative device, metaphorical riddle, context, concept.*

Nomlash nazariyasiga (onomasiologiyaga) bo‘lgan qiziqishning tilshunoslik nazariyasida tobora ortib borayotgani sababli, topishmoq fenomenini onomasiologiya nuqtai nazaridan o‘rganish dolzarb masala hisoblanadi. Onomasiologiya (nomlash nazariyasi) — narsa va hodisalarni belgilash, nomlash hamda atash jarayonlarini o‘rganuvchi tilshunoslik bo‘limi bo‘lib, ular o‘rtasidagi xususiyatlar va munosabatlarni umumlashtiradi hamda farqlaydi, shuningdek, til birliklarining ma’nolari va nomlarida aks etgan ijtimoiy va tarixiy tajribani saqlaydi va avlodlarga yetkazadi.

Inson tafakkur faoliyati jarayonida borliqdagi o‘rganilayotgan narsa, xususiyat va munosabatlarga nom beradi. Bu jarayon nominatsiya (nomlash) deb ataladi. Nominatsiya — bu «ekstralingvistik voqelik hodisalarining til tizimi va tuzilmasining xususiyatiga, so‘zlovchi ongida jamiyat tajribasini aks ettiruvchi lingvistik ma’noga aylanish jarayoni»dir [1]. Shuningdek, u insonning atrof-muhitni anglash jarayoniga doimiy hamroh bo‘luvchi jarayon bo‘lib, «til birliklarining ular ifodalagan obyektlar bilan bog‘lanishi natijasida yuzaga keladigan nomlash jarayoni va uning natijasi» sifatida ham talqin etiladi [2].

Nomlash (nominatsiya) akti obyektning bir yoki bir nechta muhim belgilarini tanlashni nazarda tutadi. Ko‘pchilik hollarda eng xarakterli belgi tanlanadi. Nominatsiyaning ikkita asosiy jihatini ajratish mumkin: 1) nomlanishni asoslovchi belgini tanlash; 2) ushbu belgining nom tuzilishida ifodalanish usuli. Birinchi jihat insonning bilish faoliyati bilan bog‘liq bo‘lgan til tashqarisidagi (ekstralingvistik) omilni ifodalasa, ikkinchi jihat tanlangan belgining leksik ma’no uchun «texnik belgi» sifatida til vositalari orqali ifodalanishi bilan bog‘liq ichki til (intralingvistik) omilni anglatadi [3].

Tilning nominativ vositalari tizimi ikki pog‘onali tuzilishga ega bo‘lib, u birlamchi va ikkilamchi nomlash vositalarini o‘z ichiga oladi. Birlamchi nominatsiya obyektiv borliqdagi narsa va hodisalarning bevosita verbal ifodalanish darajasi hisoblanadi. Bu til belgilarining asosiy vazifasidir. Ikkilamchi nominatsiya esa insonning lingvokreativ tafakkuriga asos bo‘ladigan interpretatsion faoliyati natijasida yuzaga keluvchi ko‘chma nomlashlar darajasidir. Ushbu turdagi nominatsiyaning mohiyati «tilda mavjud bo‘lgan nominativ vositalardan ular uchun yangi bo‘lgan nomlash vazifasida foydalanish»dan iboratdir [4].

Nomning borliqni ifodalash xususiyatiga ko‘ra ikkilamchi nominatsiyaning ikki turi farqlanadi: avtonom va noavtonom (bilvosita) nominatsiya.

Bevosita nominatsiya — so‘zlarning ikkilamchi ma’nolari mustaqil nominativ vazifani bajarib, obyektiv borliqning muayyan bir bo‘lagini, uning belgisi yoki harakatini bitta nom asosida mustaqil ravishda ifodalashidir.

Bilvosita ikkilamchi nominatsiyada esa yangi til birligi tilning kombinator imkoniyatlaridan foydalanish orqali shakllanadi. Bunda til belgisi o‘z ifodalayotgan obyekt bilan doimo bilvosita bog‘lanadi, ya’ni mazkur birikmada semantik jihatdan tayanch vazifasini bajaruvchi nom orqali anglashiladi.

Motivlovchi belgilarga ko‘ra ikkilamchi nominatsiyaning ikki turi ajratiladi: 1) to‘g‘ridan-to‘g‘ri nominatsiya — bunda nomlash obyektning xususiyatlarini bevosita aks ettirish asosida yuzaga keladi; 2) bilvosita

nominatsiya. Bilvosita nominatsiyaning asosini metaforalashtirish usuli tashkil etadi [5].

Ko‘pchilik topishmoqlarning yuzaga kelishi, yaratilishi uchun tildagi sirli nutq hodisalari asos bo‘lib xizmat qilgan.[6]

Asosiy mohiyat (konsept)dan farq qiluvchi boshqa konseptga mansub metafora topishmoq janrida juda qulay vosita hisoblanadi. Chunki topishmoqning asosiy janriy xususiyati shundan iboratki, unda ifodalanayotgan konsept (ya’ni javob) topishmoq matnining o‘zida bevosita nomlanmaydi. Masalan:

“Yer tagida yumronqoziq” **Javobi:** turp.[7]

Metaforik topishmoqlar bir qator kognitiv xususiyatlari bilan tavsiflanadi. Topishmoqlarda asosiy metafora turi substansial (otga asoslangan) metafora hisoblanadi. Bu holat topishmoq janrining muhim xususiyati, ya’ni asosiy mohiyatni (obyektni) bevosita ifodalashning imkonsizligi bilan izohlanadi. Bunday metafora substansial xarakterga ega bo‘lsa-da, aksariyat hollarda yashirin konseptning ma’nosini aniqlashtirish va faollashtirishga xizmat qiladigan qo‘shimcha belgilar bilan kengaytirilishini talab etadi.

Topishmoq yaratuvchisi nuqtayi nazaridan substansial metafora o‘z-o‘ziga yetarli hisoblanadi, chunki uning ongida konseptualizatsiya qilinayotgan obyekt bilan uni ifodalovchi obraz o‘rtasida aniq ikki tomonlama assotsiativ bog‘lanish mavjud bo‘ladi. Topishmoqni qabul qiluvchi (retsipient) nuqtai nazaridan esa bu ikki tomonlama bog‘lanish buziladi. Sababi, tasvirlanayotgan denotat unga noma’lum bo‘ladi, uning ongida esa substansial metafora orqali ifodalangan muayyan obraz shakllanadi. Ushbu obraz real olamdagi obyektlarning o‘zaro chambarchas bog‘liqligi tufayli turli konseptual sohalarga mansub ko‘plab kategoriyalar bilan assotsiativ aloqaga kirishishi mumkin [6].

Shunga ko‘ra, ikkilamchi nominatsiya qilinayotgan konseptni aniqlash imkoniyatini yaratish uchun substansial metafora til egalari tomonidan muayyan konseptni topishmoq kabi til birligi orqali verballashtirish jarayonida ajratib ko‘rsatiladigan bir qator belgilar bilan kengaytirilishi zarur.

Masalan, kalendar yiliga bag‘ishlangan quyidagi topishmoqda:

Bir daraxtda o‘n ikki shox,

O‘n ikki shoxda o‘ttiz yaproq,

Yaprog‘ining bir yog‘i qora, bir yog‘i oq.

(javobi: **yil, o‘n ikki oy, kunlar, kecha va kunduz**)

Topishmoqda **“daraxt”** substansial metaforasi qo‘llangan. Ushbu metaforaning daraxt tavsifi orqali kengaytirilishi natijasida «vaqt» konseptual sohasi bilan «o‘simliklar olami» konseptual sohasi o‘rtasidagi assotsiativ

bog‘lanish mexanizmi oydinlashadi. Mazkur ikki konseptual sohaning kesishish nuqtasi ularning kichik qismlarga bo‘linish xususiyatidir. Xuddi daraxtning yirik shoxlari va ulardan tarqaluvchi mayda shoxchalari bo‘lgani kabi, yil ham oylar va haftalarga bo‘linadi.

Demak, metafora hamda u bilan yagona kontekstni hosil qiluvchi leksik birliklar orqali ifodalangan belgilar majmui konseptualizatsiya qilinayotgan mohiyat chegaralarini aniqlashga xizmat qiladi. Shu bilan birga, ular tanlangan obrazning motivlanganligini izohlash uchun ham yetarli asos bo‘ladi.

Birinchi metafora ikkinchi metafora uchun kompozitsion asos yaratish bilan birga uni kengaytirishga ham xizmat qiladi. Shu orqali verballashtirilayotgan kategoriyalar o‘rtasidagi bog‘liqlikni ko‘rsatadi va inson boshi hamda uning ajralmas belgisi bo‘lgan sochlarni o‘zaro qiyoslash imkonini beradi. Topishmoq janrining bu xususiyati uning muallifini obrazlar sonini, ularning real yoki xayoliy bo‘lishini, shuningdek, qiyoslash uchun tanlanadigan belgilar va ularning miqdorini erkin tanlashda cheklamasligi bilan izohlanadi.

Shunday qilib, bitta kategoriyani ifodalovchi ikki metaforali topishmoqlar quyidagi o‘ziga xos xususiyatga ega: ular asosiy mohiyat bilan bevosita bog‘liq bo‘lgan **asosiy metafora**ni hamda asosiy metaforani kengaytiruvchi va asosiy mohiyat bilan bilvosita bog‘langan **qo‘shimcha metafora**ni o‘z ichiga oladi.

Topishmoqdagi metaforaning asosiy xususiyati shundan iboratki, undagi yordamchi va asosiy mohiyat turli konseptual sohalarga mansub bo‘ladi. Topishmoq janri metafora orqali noreal obraz yaratish imkonini beradi, ya’ni konseptualizatsiya qilinayotgan mohiyatga aslida real hayotda xos bo‘lmagan belgilarni yuklashga yo‘l qo‘yadi.

Metafora barcha tillarga va barcha tarixiy davrlarga xos bo‘lgan til universaliyalaridan biridir. U tilning turli jihatlarini qamrab oladi va, ayniqsa, topishmoqlarda yorqin namoyon bo‘ladi. Shu sababli topishmoqlarni o‘rganish inson tafakkurining o‘ziga xos xususiyatlarini chuqurroq anglash, turli tillarga xos bo‘lgan tipik assotsiatsiyalarni aniqlash hamda har bir tildagi metaforalashuv jarayonining o‘ziga xosligini belgilash imkonini beradi.

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KASBIY YO‘NALGANLIKNING INDIVIDUAL-PSIXOLOGIK O‘ZIGA XOSLIGI:O‘ZBEKISTON RESPUBLIKASI QUROLLI KUCHLARI TIZIMIDA SHAXSIY SALOHIYATNI KASBIY TALABLAR BILAN UYG‘UNLASHTIRISH

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Annotatsiya: *Maqolada harbiy kasbiy yo‘nalganlik shaxsning qiziqishlari, qadriyatlari, motivatsiyasi va individual-psixologik xususiyatlari harbiy xizmat talablari bilan uyg‘unlashadigan ko‘p komponentli jarayon sifatida tahlil qilinadi. Harbiy kasb tanlash va xizmat davomida kasbiy barqarorlikni ta’minlashda motivatsion, kognitiv, emotsional-irodaviy, kommunikativ va qadriyat-me’yoriy omillarning o‘rni yoritiladi. Ilmiy manbalar tahlili asosida muallif tomonidan besh komponentli amaliy konseptual model taklif etiladi. Model kasbiy yo‘naltirish, psixologik saralash, mutaxassislikka taqsimlash va individual rivojlanish rejasini tuzishda qo‘llash uchun mo‘ljallangan. Shuningdek, baholashda kompleks yondashuv, kasbiy vazifaga moslik va dinamik kuzatuv zarurligi asoslanadi.*

Tayanch so‘zlar: *kasbiy yo‘nalganlik, harbiy xizmat, individual-psixologik xususiyatlar, kasbiy motivatsiya, psixologik saralash, emotsional barqarorlik, stressga chidamlilik, kasbiy moslashuv, harbiy mutaxassislik.*

Аннотация: *В статье профессиональная направленность рассматривается как многокомпонентный процесс согласования интересов, ценностей, мотивации и индивидуально-психологических особенностей личности с требованиями военной службы. Раскрывается роль мотивационных, когнитивных, эмоционально-волевых, коммуникативных и ценностно-нормативных факторов при выборе военной профессии и поддержании профессиональной устойчивости. На основе анализа научных источников автором предложена практическая концептуальная модель, включающая пять взаимосвязанных*

компонентов. Модель предназначена для применения в профессиональной ориентации, психологическом отборе, распределении по военным специальностям и разработке индивидуальных планов развития. Обосновывается необходимость комплексной оценки, учета требований конкретной должности и динамического психологического сопровождения военнослужащих.

Ключевые слова: *профессиональная направленность, военная служба, индивидуально-психологические особенности, профессиональная мотивация, психологический отбор, эмоциональная устойчивость, стрессоустойчивость, профессиональная адаптация, военная специальность.*

Abstract: *The article examines professional orientation as a multidimensional process through which an individual's interests, values, motivation and psychological characteristics are aligned with the demands of military service. It discusses the contribution of motivational, cognitive, emotional-volitional, communicative and value-based factors to choosing a military career and maintaining professional stability. Based on a review and comparative analysis of recent research, the author proposes an applied conceptual model consisting of five interrelated components. The model is intended to inform career guidance, psychological selection, assignment to military occupational specialties and the design of individual development plans. The article also substantiates the need for comprehensive assessment, role-specific criteria and continuous psychological support throughout military service.*

Keywords: *professional orientation, military service, individual psychological characteristics, professional motivation, psychological selection, emotional stability, resilience, professional adaptation, military occupational specialty.*

KIRISH:

Mudofaa salohiyati zamonaviy qurol-yarog‘, texnika va tashkiliy resurslar bilangina emas, balki ularni boshqaradigan, ulardan xavfsiz va samarali foydalanadigan, murakkab vaziyatlarda mas’uliyatli qaror qabul qila oladigan harbiy xizmatchilarning kasbiy tayyorgarligi bilan ham belgilanadi. Shu sababli harbiy kadrlarni tanlash va tayyorlashda nomzodning bilim hamda jismoniy imkoniyatlarini aniqlash bilan cheklanib qolmasdan, uning kasbiy yo‘nalganligi va individual-psixologik xususiyatlarini ham hisobga olish zarur.

Kasbiy yo‘nalganlik - shaxsning muayyan faoliyat turiga nisbatan barqaror qiziqishi, anglangan maqsadlari, motivlari, qadriyatlari va o‘z imkoniyatlariga bergan bahosining yaxlit tizimidir. Harbiy xizmat sharoitida ushbu tizim Vatanga xizmat qilish, qonuniylik, intizom, jamoaviy mas’uliyat, kasbiy mahoratni muntazam oshirish va xavfli vaziyatlarda vazifani bajarishga tayyorlik kabi mazmunlar bilan boyiydi. Biroq harbiy kasbga qiziqishning o‘zi kasbiy moslikni kafolatlamaydi: qiziqish real xizmat sharoitlari haqidagi tasavvur, psixologik resurslar va kasbiy talablar bilan muvofiq bo‘lishi kerak.

Mavzuning dolzarbligi harbiy mutaxassisliklar mazmunining murakkablashuvi, texnologik vositalar ulushining ortishi, jamoaviy boshqaruv va tezkor qaror qabul qilishga bo‘lgan talab, shuningdek, xizmat faoliyatida stress omillarining mavjudligi bilan belgilanadi. Turli harbiy lavozimlar bir xil psixologik profilni talab qilmaydi: texnik mutaxassis uchun diqqat va aniqlik, aloqa yo‘nalishida axborotni tez qayta ishlash va kommunikativ aniqlik, komandirlik faoliyatida esa mas’uliyat, tashabbus, o‘zini boshqarish va jamoaga ta’sir ko‘rsatish ko‘nikmalari muhim bo‘lishi mumkin.

Tadqiqotning maqsadi — harbiy kasbiy yo‘nalganlikning individual-psixologik tarkibiy qismlarini tizimlashtirish hamda O‘zbekiston Respublikasi Qurolli Kuchlari tizimida kasbiy yo‘naltirish, psixologik saralash va kasbiy rivojlanishni takomillashtirishga xizmat qiluvchi amaliy konseptual modelni ishlab chiqish.

Tadqiqot obyekti va qo‘llanilgan metodlar:

Tadqiqot obyekti - harbiy xizmatga yo‘naltirilayotgan nomzodlar hamda harbiy ta’lim va xizmat jarayonidagi shaxslarning kasbiy yo‘nalganligini shakllantirish jarayoni. Tadqiqot predmeti — kasbiy yo‘nalganlik va individual-psixologik xususiyatlar o‘rtasidagi o‘zaro bog‘liqlik, ularni baholash va rivojlantirish imkoniyatlaridir.

Ish nazariy-tahliliy va amaliy-konseptual xarakterga ega. Unda ilmiy adabiyotlarni tizimli ko‘rib chiqish, qiyosiy tahlil, tushunchalarni mazmuniy tahlil qilish, harbiy kasbiy faoliyat talablarini funksional guruhlash hamda mualliflik konseptual modellashtirish usullaridan foydalanildi. Xorijiy harbiy psixologiya tadqiqotlarida shaxs xususiyatlari, emotsional barqarorlik va psixologik chidamlilikning tayyorgarlik natijalari bilan aloqasi o‘rganilgan. Jumladan, harbiy tayyorgarlikni muvaffaqiyatli yakunlash bilan ayrim shaxsiy-kognitiv ko‘rsatkichlar o‘rtasida bog‘liqlik aniqlangan [1], psixologik chidamlilikni baholash vositasi esa bir nechta mudofaa tashkilotlarida nomzodlarning keyingi tayyorgarlik natijalari bilan bog‘liq bo‘lgan [2].

Mazkur maqolada empirik so‘rovnoma yoki psixodiagnostik sinov o‘tkazilgani haqida da’vo qilinmaydi. Shuning uchun keltirilgan model muallif tomonidan ilmiy manbalar va harbiy faoliyatning umumiy kasbiy talablarini tahlil qilish asosida ishlab chiqilgan nazariy-amaliy taklif hisoblanadi. Uni muayyan harbiy qism yoki ta’lim muassasasida joriy etishdan oldin mahalliy sharoitga mos empirik tekshiruvdan o‘tkazish lozim.

Olingan natijalar va ularning tahlili:

Tahlil natijasida harbiy kasbiy yo‘nalganlikni besh o‘zaro bog‘liq komponent orqali ko‘rib chiqish taklif etildi: motivatsion-maqsadli, kognitiv-kasbiy, emotsional-irodaviy, kommunikativ-jamoaviy hamda qadriyat-me’yoriy komponentlar. Ushbu yondashuv kasbiy yo‘nalganlikni faqat harbiy xizmatga kirish istagi yoki alohida shaxsiy sifatlar bilan tenglashtirmaydi. Aksincha, u shaxsning kasbni anglash darajasi, ichki motivlari, psixologik resurslari va xizmat me’yorlariga munosabatini yagona tizimda baholash imkonini beradi.

Motivatsion-maqsadli component:

Motivatsion-maqsadli komponent shaxsning nima sababdan harbiy xizmatni tanlayotgani, ushbu faoliyatdan qanday ma’no va natija kutayotgani hamda uzoq muddatli kasbiy maqsadlarini qamrab oladi. Ichki motivatsiya — jamiyat va Vatan xavfsizligiga hissa qo‘shish, kasbiy mahoratni egallash, jamoa oldidagi mas’uliyatni his etish — tashqi rag‘batlar bilan birga mavjud bo‘lishi mumkin. Biroq xizmatni faqat moddiy manfaat, mavqe yoki tashqi bosim sababli tanlash kasbiy qiyinchiliklar yuzaga kelganda motivatsiyaning pasayish xavfini oshirishi mumkin.

Nomzod bilan suhbatda uning harbiy xizmat haqidagi tasavvuri, tanlovining mustaqilligi, kasbiy maqsadlarining aniqligi va xizmatning kundalik talablarini qanchalik real anglagani aniqlanishi maqsadga muvofiq. Motivatsiyani baholashda ijtimoiy maqbul javoblarni takrorlash emas, balki nomzodning turli vaziyatlardagi qarashlari va xatti-harakatlari izchilligiga e’tibor berish kerak.

Kognitiv-kasbiy komponent

Kognitiv-kasbiy komponent idrok, diqqat, xotira, tafakkur, axborotni qayta ishlash tezligi, vaziyatni tahlil qilish va qaror qabul qilish xususiyatlarini o‘z ichiga oladi. Harbiy faoliyatning ko‘plab yo‘nalishlarida ko‘rsatmalarni aniq tushunish, bir vaqtning o‘zida bir nechta axborot manbasini kuzatish, muhim va ikkinchi darajali belgilarni farqlash hamda o‘zgaruvchan sharoitga moslashish talab etiladi.

Bu sifatlarning ahamiyati mutaxassislikka qarab farqlanadi. Texnik va operatorlik vazifalarida diqqat barqarorligi, tafsilotlarga e’tibor va algoritmik

fikrlash ustuvor bo‘lishi mumkin. Boshqaruv vazifalarida esa tizimli tafakkur, vaziyatni oldindan baholash, noaniqlik sharoitida muqobil qarorlarni solishtirish muhim. Shu bois barcha nomzodlarga bir xil psixologik profilni qo‘llash o‘rniga, lavozim tahliliga asoslangan mezonlar ishlab chiqish zarur. Nye va hammualliflarining tadqiqoti shaxs xususiyatlari harbiy mutaxassisliklar bo‘yicha tasniflashda qo‘shimcha ma’lumot berishi mumkinligini ko‘rsatadi [3].

Emotsional-irodaviy component:

Emotsional-irodaviy komponent hissiyotlarni anglash va boshqarish, zo‘riqish sharoitida o‘zini nazorat qilish, qat’iyat, sabr, intizom, qiyinchilikni yengib o‘tish va muvaffaqiyatsizlikdan keyin faoliyatni davom ettirish qobiliyatlarini qamrab oladi. Harbiy xizmatda psixologik barqarorlik hissiyotlarning umuman mavjud emasligini anglatmaydi. Muhimi — kuchli hissiy holatni tanish, uni vaziyatga mos boshqarish va vazifa talablariga muvofiq xatti-harakatni saqlashdir.

Chidamlilikni faqat “stressga bardosh bera oladi” degan umumiy xulosa bilan baholash yetarli emas. U tiklanish, yordam so‘rash, tajribadan xulosa chiqarish va zarur paytda jamoaviy resurslardan foydalanish qobiliyatini ham o‘z ichiga oladi. Oprins va hammualliflari tomonidan o‘tkazilgan ko‘p tashkilotli tadqiqotda chidamlilik ko‘rsatkichlari keyingi tayyorgarlik va sog‘liq mezonlari bilan bog‘liqligi, emotsional barqarorlik esa muhim prediktorlardan biri bo‘lgani qayd etilgan [2]. Bu natija psixologik baholashda bitta testga tayanmasdan, bir nechta manbadan olingan ma’lumotlarni birlashtirish zarurligini ko‘rsatadi.

Kommunikativ-jamoaviy component:

Harbiy xizmat ko‘p hollarda qat’iy vazifa taqsimoti va o‘zaro bog‘liq harakatlarni talab qiladigan jamoaviy faoliyatdir. Shu sababli tinglash, aniq va qisqa axborot uzatish, fikrni tushunarli ifodalash, nizolarni xizmat intizomi doirasida hal etish, o‘zaro ishonchni saqlash va zarur vaziyatda yordam so‘rash ko‘nikmalari muhim ahamiyatga ega.

Komandirlik salohiyati faqat qat’iylik yoki buyruq berish qobiliyatidan iborat emas. U vazifani tushuntirish, mas’uliyatni taqsimlash, xodimlarning holatini kuzatish, fikr-mulohazani qabul qilish va jamoa manfaatini shaxsiy manfaatdan ustun qo‘yishni ham talab qiladi. Shu bilan birga, barcha harbiy mutaxassisliklar yuqori darajadagi ekstraversiyani talab qilmaydi. Ayrim vazifalarda sokin, diqqatni jamlay oladigan va mustaqil ishlashga moyil shaxslar ham yuqori natija ko‘rsatishi mumkin. Demak, kommunikativ sifatlar lavozimning real vazifalari bilan bog‘liq holda baholanishi kerak.

Qadriyat-me’yoriy component:

Qadriyat-me’yoriy komponent Vatanga sadoqat, Konstitutsiya va qonunlarga rioya qilish, harbiy qasamyod va xizmat intizomiga mas’uliyat bilan munosabatda bo‘lish, inson sha’ni va huquqlarini hurmat qilish, maxfiylik va xizmat etikasi talablariga amal qilishni qamrab oladi. Harbiy kasbiy yo‘nalganlikning barqarorligi shaxsiy manfaat va xizmat burchi o‘rtasidagi muvozanatni anglash bilan ham belgilanadi.

Qadriyatlarni baholashda faqat deklarativ javoblar bilan cheklanmaslik lozim. Vaziyatli topshiriqlar, kasbiy-axloqiy dilemmalar va suhbat orqali nomzodning qonuniy buyruq, xavfsizlik, jamoa oldidagi mas’uliyat va inson qadr-qimmatiga oid qarorlarni qanday asoslashini o‘rganish mumkin. Bunda baholash qonuniy vakolatlar, amaldagi me’yorlar va inson huquqlariga muvofiq olib borilishi shart.

Mualliflik konseptual modeli va amaliy qo‘llash:

Yuqoridagi tahlil asosida harbiy kasbiy yo‘nalganlikni baholash va rivojlantirishning quyidagi ketma-ketligi taklif etiladi: (1) harbiy mutaxassislikning psixologik-professiografik xaritasini tuzish; (2) nomzodning motivatsiyasi va kasbiy tasavvurlarini aniqlash; (3) individual-psixologik xususiyatlarni bir nechta metod orqali baholash; (4) natijalarni lavozim talablari bilan solishtirish; (5) kasbiy rivojlanish va psixologik qo‘llab-quvvatlash rejasini belgilash; (6) ta’lim va xizmat davomida dinamik qayta baholash.

Birinchi bosqichda lavozimning kundalik vazifalari, xatolik oqibatlari, axborot yuklamasi, jamoaviy aloqa darajasi va stress omillari tavsiflanadi. Ikkinchi bosqichda nomzodga xizmatning ijobiy jihatlari bilan birga uning cheklovlari, intizomiy talablari, navbatchilik va jismoniy-ruhiy yuklamalari haqida haqqoniy ma’lumot beriladi. Bu realistik kasbiy tasavvur shakllanishiga yordam beradi.

Uchinchi bosqichda psixologik suhbat, standartlashtirilgan psixodiagnostik vositalar, vaziyatli topshiriqlar, kuzatuv va zarur hollarda guruh mashqlaridan foydalanish mumkin. Har bir metodning ishonchliligi, validligi, til va madaniy muhitga mosligi tekshirilishi kerak. Psixologik test natijasi mustaqil ravishda yakuniy qaror chiqarish uchun yagona asos bo‘lmasligi lozim. To‘rtinchi bosqichda nomzodning kuchli tomonlari va rivojlantirilishi zarur jihatlari muayyan harbiy mutaxassislik talablari bilan taqqoslanadi.

Beshinchi bosqichda individual rivojlanish rejasi tuziladi. Masalan, diqqatni taqsimlashda qiyinchilik kuzatilgan nomzod uchun bosqichma-bosqich murakkablashadigan mashqlar, emotsional o‘zini boshqarish ehtiyoji bo‘lgan shaxs uchun stressni boshqarish va tiklanish ko‘nikmalari, kommunikativ

qiyinchiliklar mavjud bo‘lsa, jamoaviy mashg‘ulotlar va fikr-mulohaza berish amaliyoti rejalashtirilishi mumkin. Oltinchi bosqichda rivojlanish dinamikasi qayta baholanadi; bunda dastlabki natijalar bilan keyingi o‘quv va xizmat ko‘rsatkichlari taqqoslanadi.

Mualliflik modelining amaliy ahamiyati shundaki, u “mos” yoki “mos emas” degan ikkilik xulosadan ko‘ra, shaxsning muayyan lavozimga mos kuchli jihatlari, xavf omillari va rivojlanish imkoniyatlarini ajratib ko‘rsatadi. Bu yondashuv harbiy kadrlarni mutaxassislikka oqilona taqsimlash, ta’lim jarayonini individuallashtirish va xizmatga moslashuvni qo‘llab-quvvatlashga xizmat qilishi mumkin. Shu bilan birga, psixologik ma’lumotlar maxfiyligi, xolislik, diskriminatsiyaga yo‘l qo‘ymaslik va qarorlarning kasbiy mezonlar bilan asoslanishi ta’minlanishi zarur.

Ilmiy yangilik va tadqiqot cheklovlari:

Maqolaning ilmiy yangiligi harbiy kasbiy yo‘nalganlikni besh komponentli yaxlit tizim sifatida talqin qilish va uni kasbiy yo‘naltirishdan boshlab xizmat davomidagi dinamik kuzatuvgacha bo‘lgan yagona amaliy algoritmga birlashtirish taklifida namoyon bo‘ladi. Model motivatsiya, kognitiv imkoniyat, emotsional-irodaviy resurs, jamoaviy hamkorlik va qadriyat-me’yoriy tayyorgarlikni alohida-alohida emas, balki lavozim talablari bilan o‘zaro ta’sirda ko‘rib chiqadi.

Tadqiqotning cheklovi — model hozircha nazariy-amaliy tahlil natijasi bo‘lib, O‘zbekiston Respublikasi Qurolli Kuchlari harbiy xizmatchilari orasida empirik tanlanma asosida sinovdan o‘tkazilmagan. Kelgusida turli harbiy mutaxassisliklar kesimida anonim va etik talablarga muvofiq tadqiqot o‘tkazish, psixologik ko‘rsatkichlarni o‘quv natijalari, xizmatga moslashuv va kasbiy barqarorlik mezonlari bilan solishtirish maqsadga muvofiq. Bunday tekshiruv modelning mahalliy sharoitdagi validligini baholash imkonini beradi.

XULOSA:

Harbiy kasbiy yo‘nalganlik shaxsning harbiy xizmatga bo‘lgan qiziqishi bilangina cheklanmaydi; u kasbiy motivatsiya, realistik kasbiy tasavvur, kognitiv imkoniyatlar, emotsional-irodaviy barqarorlik, jamoada ishlash va xizmat qadriyatlariga munosabatning uyg‘unligidan tarkib topadi. Individual-psixologik xususiyatlarning ahamiyati harbiy mutaxassislik va bajariladigan vazifaga qarab o‘zgaradi. Shu sababli barcha nomzodlarni yagona ideal psixologik qolip asosida baholash ilmiy va amaliy jihatdan yetarli emas.

Taklif etilgan besh komponentli model kasbiy yo‘naltirish, psixologik saralash, mutaxassislikka taqsimlash va individual rivojlanish rejasini tuzishda qo‘llanishi mumkin. Uning samarali tatbiqi uchun lavozimga xos mezonlar,

valid psixodiagnostik vositalar, bir nechta baholash manbalari, psixologik ma’lumotlar maxfiyligi va muntazam qayta baholash zarur. Kelgusidagi empirik tadqiqotlar modelni O‘zbekiston harbiy ta’limi va xizmat sharoitlariga moslashtirish hamda uning amaliy samaradorligini aniqlashga xizmat qiladi.

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O‘ZBEK VA XITOY TILLARIDAGI ASOSIY RANGNI IFODALOVCHI LEKSEMALARNING LINGVOKULTUROLOGIK MAZMUNINING QIYOSIY TAHLILI

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Annotatsiya. *Mazkur tezisda o‘zbek va xitoy tillaridagi asosiy rang bildiruvchi leksemalarning lingvokulturologik xususiyatlari qiyosiy jihatdan tahlil qilinadi. Xususan, oq, qora, qizil, sariq, yashil va ko‘k rang nomlarining lug‘aviy ma’nolari, ko‘chma ma’nolari, ramziy ifodalanishi hamda ushbu ranglarning ikki xalq milliy madaniyati, urf-odatlari va dunyoqarashidagi o‘rni yoritiladi. Shuningdek, rang leksemalarining milliy tafakkur va madaniy qadriyatlarni ifodalashdagi ahamiyati ochib beriladi.*

Abstract. *This thesis presents a comparative analysis of the linguocultural features of the basic color-denoting lexemes in the Uzbek and Chinese languages. In particular, it examines the lexical and figurative meanings, symbolic representations, and cultural significance of the color terms white, black, red, yellow, green, and blue in the national cultures, traditions, customs, and worldviews of the two peoples. Furthermore, the study highlights the role of color-denoting lexemes in expressing national mentality, cultural identity, and traditional values.*

Kalit so‘zlar: *lingvokulturologiya, rang leksemalari, o‘zbek tili, xitoy tili, milliy madaniyat, ramziy ma’no, qiyosiy tahlil, til va tafakkur.*

Keywords: *linguoculturology, color lexemes, Uzbek language, Chinese language, national culture, symbolic meaning, comparative analysis, language and thought.*

KIRISH

Til va madaniyat o‘zaro chambarchas bog‘liq bo‘lgan murakkab ijtimoiy hodisalardir. Har bir xalqning tili uning tarixiy tajribasi, milliy qadriyatlari, urf-odatlari va dunyoqarashini o‘zida aks ettiradi. Shu jihatdan til birliklarini

lingvokulturologik nuqtayi nazardan o‘rganish muhim ilmiy ahamiyat kasb etadi. Tilshunoslikda rang bildiruvchi leksemalar nafaqat predmet va hodisalarning tashqi belgisini ifodalovchi birliklar, balki muayyan xalqning madaniy tafakkuri, tarixiy xotirasi va milliy tasavvurlarini namoyon etuvchi lingvistik vositalar sifatida ham qaraladi. O‘zbek va Xitoy tillari turli til oilalariga mansub bo‘lishiga qaramay, har ikkala tilda rang nomlari keng semantik imkoniyatlarga ega. Ular kundalik muloqotda, badiiy adabiyotda, maqol va iboralarda, shuningdek, marosim va an’analarda faol qo‘llaniladi. Mazkur tadqiqotning asosiy maqsadi O‘zbek va Xitoy tillaridagi asosiy rang leksemalarining lingvokulturologik mazmunini aniqlash, ularning o‘xshash va farqli jihatlarini qiyosiy tahlil qilishdan iborat.

ASOSIY QISM

Lingvokulturologik tadqiqotlarda rang tushunchasi alohida o‘rin egallaydi. Chunki ranglarning inson ongida shakllangan ramziy ma’nolari ko‘pincha muayyan xalqning tarixiy, diniy, ijtimoiy va madaniy tajribasi bilan bog‘liq bo‘ladi.

O‘zbek va Xitoy tillarida asosiy ranglarni ifodalovchi leksemalar quyidagicha ifodalanadi:

O‘zbek tilida	Xitoy tilida	Pinyin
Oq	白色	báisè
Qora	黑色	hēisè
Qizil	红色	hóngsè
Sariq	黄色	huángsè
Yashil	绿色	lǜsè
Ko‘k	蓝色 / 青色	lánsè / qīngsè

1. Oq rang leksemasining lingvokulturologik xususiyatlari

Oq rang o‘zbek madaniyatida poklik, ezgulik, halollik, yorug‘lik va ezgu niyat ramzi hisoblanadi. Masalan, “oq ko‘ngil”, “oq yo‘l”, “oq fotiha”, “oq niyat” kabi birikmalarda ushbu rang ijobiy semantik mazmunni ifodalaydi. “Oq yo‘l” birikmasi kishiga omad, muvaffaqiyat va yaxshi tilak bildirish ma’nosida ishlatiladi. Xitoy tilida ham 白色 (báisè) leksemasi muayyan vaziyatlarda poklik va soddalikni ifodalasa-da, an’anaviy xitoy madaniyatida u motam va dafn marosimlari bilan ham bog‘liq. Masalan, 白事 (báishì) birikmasi dafn marosimini anglatadi. Demak, oq rang har ikki madaniyatda ham muhim ramziy

ma’noga ega bo‘lsa-da, o‘zbek madaniyatida uning ijobiy mazmuni ko‘proq namoyon bo‘ladi, xitoy madaniyatida esa u motam bilan bog‘liq alohida madaniy vazifani ham bajaradi.

2. Qora rang leksemasining lingvokulturologik xususiyatlari

Qora rang o‘zbek tilida ko‘pincha qayg‘u, musibat, yomonlik va salbiy holatlarni ifodalaydi. Masalan, “qora kun”, “qora niyat”, “qora xabar” kabi birikmalar salbiy mazmunni anglatadi. Shu bilan birga, qora rang ayrim kontekstlarda kuch, jiddiylik va salobat ramzi sifatida ham namoyon bo‘ladi. Xitoy tilida 黑色 (hēisè) leksemasi ham ko‘pincha salbiy ma’nolarni ifodalaydi. Masalan, 黑心 (hēixīn) — noinsof, yovuz niyatli; 黑社会 (hēishèhuì) — jinoiy guruh yoki uyushgan jinoyatchilik ma’nolarida qo‘llaniladi. Har ikki tilda qora rangning salbiy konnotatsiyasi mavjudligi kuzatiladi. Bu holat ranglarning inson tafakkurida shakllangan umumiy assotsiativ xususiyatlarini namoyon etadi.

3. Qizil rang leksemasining lingvokulturologik xususiyatlari

Qizil rang o‘zbek madaniyatida hayotiylik, go‘zallik, muhabbat, quvonch va jo‘shqinlik bilan bog‘liq. Shuningdek, u ayrim kontekstlarda xavf, ogohlantirish va uyat ma’nolarini ham ifodalashi mumkin. Xitoy madaniyatida 红色 (hóngsè) alohida ramziy ahamiyatga ega. U baxt, omad, farovonlik, quvonch va tantanavorlik belgisi hisoblanadi. Ayniqsa, Xitoy Yangi yili va nikoh marosimlarida qizil rangdan keng foydalaniladi.

Masalan:

红包 (hóngbāo) — qizil konvertda beriladigan pul sovg‘asi;

红火 (hónghuǒ) — gullab-yashnayotgan, rivojlanayotgan;

红双喜 (hóng shuāngxǐ) — qo‘shaloq baxt ramzi, nikoh marosimlarida ishlatiladigan belgi.

O‘zbek va xitoy madaniyatida qizil rangning quvonch va tantana bilan bog‘liq jihatlari mavjud. Biroq xitoy madaniyatida uning omad va farovonlik ramzi sifatidagi mavqeyi ancha kuchli namoyon bo‘ladi.

4. Sariq rang leksemasining lingvokulturologik xususiyatlari

O‘zbek tilida sariq rang tabiat hodisalari, kuz fasli, xazonrezgi, ayrim holatlarda esa kasallik va rangparlik bilan bog‘liq tasavvurlarni ifodalaydi. Masalan, “sariq barg”, “sariq kasal” kabi birikmalarni keltirish mumkin. Xitoy tilida 黄色 (huángsè) leksemasi tarixiy-madaniy jihatdan alohida ahamiyatga ega. Qadimgi Xitoyda sariq rang imperator hokimiyati, markaziylik va yuksak

mavqe bilan bog‘langan. Shuningdek, u yer va tabiatning muhim ramzlaridan biri sifatida qaralgan. Masalan, 黄河 (Huáng Hé) — Sariq daryo nomida ham ushbu rangning geografik va madaniy ahamiyati namoyon bo‘ladi. Shunday qilib, sariq rang o‘zbek madaniyatida ko‘proq tabiat va kundalik hayot bilan bog‘liq assotsiatsiyalarni uyg‘otsa, xitoy madaniyatida tarixiy hokimiyat va an’anaviy ramziylik bilan ham chambarchas aloqador

5. Yashil rang leksemasining lingvokulturologik xususiyatlari

Yashil rang o‘zbek xalqining milliy tafakkurida tabiat, bahor, yangilanish, yoshlik va hayotiylik ramzi hisoblanadi. “Yashil tabiat”, “yashil vodiy”, “yashil olam” kabi birikmalarda uning ijobiy mazmuni namoyon bo‘ladi. Xitoy tilidagi 绿色 (lǜsè) leksemasi ham tabiat, o‘sish, yangilanish va hayotiylikni anglatadi. Biroq xitoy tilida 绿帽子 (lǜ màozi) iborasi alohida ko‘chma ma’noga ega bo‘lib, xotinining xiyonatiga uchragan erkakka nisbatan ishlatiladi. Ushbu misol yashil rangning turli madaniyatlarda turlicha konnotativ mazmun kasb etishini ko‘rsatadi. Demak, rang leksemalarini tarjima qilishda ularning faqat lug‘aviy ma’nosini emas, balki madaniy kontekstini ham hisobga olish zarur.

6. Ko‘k rang leksemasining lingvokulturologik xususiyatlari

O‘zbek tilida ko‘k rang osmon, kenglik, tabiat va ayrim hollarda yoshlik hamda yangilanish bilan bog‘liq. “Ko‘k yuz”, “ko‘kalamzor”, “ko‘k rang” kabi ifodalarda ushbu leksemaning turli semantik xususiyatlari kuzatiladi. Xitoy tilida ko‘k rangning asosiy ifodasi 蓝色 (lánsè) bo‘lib, u osmon va suv rangini ifodalashda qo‘llaniladi. 青色 (qīngsè) esa tarixiy va zamonaviy qo‘llanishiga qarab ko‘k, zangori yoki yashil tuslarni ifodalashi mumkin. Bu jihat o‘zbek va xitoy tillarida ranglarni tasniflashda muayyan farqlar mavjudligini ko‘rsatadi. Xususan, o‘zbek tilidagi “ko‘k” leksemasining semantik qamrovi xitoy tilidagi 蓝色 va 青色 birliklari bilan to‘liq mos kelmaydi.

Qiyosiy tahlil natijalari

O‘tkazilgan lingvokulturologik tahlil natijasida o‘zbek va xitoy tillaridagi rang leksemalari o‘rtasida bir qator umumiy va farqli xususiyatlar mavjudligi aniqlandi.

Birinchidan, oq, qora va qizil ranglar har ikki tilda ham kuchli ramziy xususiyatga ega. Ular orqali insonning ruhiy holati, ijtimoiy munosabatlar va turli hayotiy vaziyatlar ifodalanadi.

Ikkinchidan, ranglarning konnotativ ma’nolari milliy madaniyat va tarixiy tajriba bilan belgilanadi. Masalan, qizil rang xitoy madaniyatida omad va

farovonlikning muhim ramzi bo‘lsa, sariq rang tarixiy imperatorlik an’analari bilan bog‘liq.

Uchinchidan, bir xil rang nomi turli tillarda bir-biriga yaqin yoki mutlaqo farqli madaniy ma’nolarni anglatishi mumkin. Buni xitoy tilidagi 绿帽子 iborasi va o‘zbek tilidagi “yashil” rangning odatiy tabiat bilan bog‘liq ijobiy assotsiatsiyalari misolida ko‘rish mumkin.

To‘rtinchidan, rang leksemalarining semantik xususiyatlarini o‘rganish tarjima nazariyasi va madaniyatlararo kommunikatsiya uchun ham muhim ahamiyat kasb etadi.

XULOSA

Xulosa qilib aytganda, o‘zbek va xitoy tillaridagi asosiy rang bildiruvchi leksemalar nafaqat rang-tusni ifodalovchi til birliklari, balki ikki xalqning milliy madaniyati, tarixiy xotirasi, qadriyatlari va dunyoqarashini aks ettiruvchi muhim lingvokulturologik vositalardir. Qiyosiy tahlil shuni ko‘rsatadiki, ayrim ranglarning ramziy ma’nolari ikki madaniyatda o‘xshash bo‘lsa-da, ularning konnotativ mazmuni, qo‘llanish doirasi va madaniy talqini jihatidan sezilarli tafovutlar mavjud. Ayniqsa, qizil, oq, sariq va yashil ranglar misolida milliy-madaniy xususiyatlar yaqqol namoyon bo‘ladi. Mazkur tadqiqot natijalari o‘zbek va xitoy tillarini qiyosiy o‘rganish, lingvokulturologik tadqiqotlarni rivojlantirish, tarjima jarayonida milliy-madaniy xususiyatlarni hisobga olish hamda madaniyatlararo muloqot samaradorligini oshirishga xizmat qiladi.

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ОТ МЕМОВ ДО МЕДИАТЕКСТОВ: ВЛИЯНИЕ СОЦИАЛЬНЫХ СЕТЕЙ НА РАЗВИТИЕ СОВРЕМЕННОГО РУССКОГО ЯЗЫКА

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Аннотация. *В статье рассматривается влияние социальных сетей на развитие современной русской лексики и речевых практик. Актуальность работы обусловлена высокой скоростью распространения цифрового контента и превращением интернет-платформ в значимую среду языкового творчества. Цель исследования — выявить и охарактеризовать основные типы лексических и речевых явлений, получающих распространение в русскоязычных социальных сетях, и определить особенности их функционирования в современной русской коммуникации. Материал составили 11 лексических и фразеологических единиц, отобранных целевым образом из опубликованных аналитических обзоров и документированных медиапубликаций 2025–2026 годов: «имба», «окак», «вайб», «чекать», «рофл», «воздухан», «черемша», «бурмалда», «котость», «Можно, а зачем?» и «фа, ватафа, пепе, шнейне». Методологическую основу составили описательно-аналитический, контекстуальный, семантический и сопоставительный методы. Использованы опубликованные результаты мониторинга социальных медиа; самостоятельный сбор и статистический подсчёт первичных постов в рамках данной работы не проводились. Анализ позволил разграничить четыре типа явлений: заимствованные единицы, семантически переосмысленные слова, мемные речевые формулы и авторские игровые образования. Показано, что социальные сети выступают одновременно каналом распространения языковых инноваций и средой их коллективного переосмысления. При этом частотность*

упоминаний не тождественна появлению нового слова, а мемная популярность сама по себе не свидетельствует о закреплении единицы в общеязыковой системе. Научная значимость работы состоит в систематизации разнородных цифровых примеров с учётом их происхождения и коммуникативной функции. Полученные наблюдения могут быть использованы в дальнейших исследованиях интернет-дискурса, медиалингвистики и современной русской лексики.

Ключевые слова: *русский язык; социальные сети; интернет-коммуникация; интернет-мем; молодёжный сленг; англицизмы; цифровой дискурс; медиатекст; языковые инновации.*

Abstract. *This article examines the influence of social media on contemporary Russian vocabulary and speech practices. The relevance of the study stems from the rapid circulation of digital content and the growing role of online platforms as an environment for linguistic creativity. The aim is to identify and characterize the main types of lexical and speech phenomena spreading in Russian-language social media and to determine the specifics of their functioning in contemporary Russian communication. The material consists of 11 lexical and phraseological items purposively selected from published analytical reports and documented media publications from 2025–2026: imba, okak, vibe, chekat, rofl, vozdukhan, cheremsha, burmalda, kotost, "Mozhno, a zachem?" and "fa, vatafa, pepe, shneine". The study applies descriptive, contextual, semantic and comparative analysis. It draws on published social-media monitoring results; no independent collection or statistical counting of primary posts was conducted for this article. The analysis distinguishes four types of phenomena: borrowings, semantically reinterpreted words, meme-based speech formulas and author-created playful formations. The findings suggest that social media function both as channels for circulating linguistic innovations and as environments in which users collectively reinterpret them. At the same time, mention frequency should not be equated with the emergence of a new word, and meme popularity alone does not prove that an item has become established in the general language system. The contribution of the article lies in a structured classification of heterogeneous digital examples according to their origin and communicative function. The observations may inform further research into internet discourse, media linguistics and contemporary Russian vocabulary.*

Keywords: *Russian language; social media; internet communication; internet meme; youth slang; English borrowings; digital discourse; media text; linguistic innovation.*

ВВЕДЕНИЕ

Цифровая коммуникация стала одной из наиболее заметных сфер повседневного использования языка. Социальные сети, видеоплатформы, мессенджеры и сетевые сообщества не просто обеспечивают передачу информации, но и создают условия для быстрого распространения языковых форм, их повторения, трансформации и переосмысления. Для современной русскоязычной коммуникации характерно взаимодействие литературной лексики, разговорной речи, профессиональных жаргонов, англоязычных заимствований и игровых словесных конструкций.

В исследованиях интернет-коммуникации подчёркивается, что цифровая среда формирует особые условия производства и восприятия текста: значение сообщения зависит не только от словесной формы, но и от визуального ряда, платформенного контекста, реакции аудитории и повторного использования другими участниками коммуникации (Crystal, 2001; Herring, 2004; Shifman, 2014). Для русского языка эти процессы проявляются в активизации молодёжного жаргона, расширении семантики уже известных слов, освоении англицизмов и превращении отдельных медийных реплик в устойчивые формулы сетевого общения.

Отдельные аспекты данной проблематики уже получили научное освещение. Исследователи описывают особенности молодёжного жаргона, его тематическую и словообразовательную организацию (Карамова, Сметанина, 2024), функционирование сленга с оценочным значением в интернет-коммуникации (Абайдельданова, Гусман Тирадо, 2024), прагматические функции англицизмов в цифровой речи (Фролова, 2024), а также трансформацию фразеологических единиц в интернет-мемы (Доброва, 2022; Полонский и др., 2023). В работах по медиалингвистике мем рассматривается как сложный мультимодальный феномен, сочетающий словесный, визуальный и культурный компоненты.

Вместе с тем в публичном обсуждении языковых трендов нередко смешиваются разные процессы: возникновение новой лексемы, рост частотности ранее существовавшего слова, изменение его значения и кратковременная популярность мемной формулы. Такое смешение затрудняет лингвистическую интерпретацию цифровых явлений. Поэтому важно не только фиксировать популярные слова, но и определять тип языкового изменения, его контекст и степень устойчивости.

Настоящая статья предлагает описательно-аналитическое сопоставление примеров, документированных в опубликованных научных работах, а также в аналитических обзорах и медиапубликациях 2025–2026

годов. Работа не претендует на исчерпывающее описание всего русскоязычного сегмента социальных сетей и не содержит самостоятельного количественного мониторинга первичных сообщений.

ЦЕЛЬ И ЗАДАЧИ ИССЛЕДОВАНИЯ

Цель исследования — выявить и охарактеризовать основные типы лексических и речевых явлений, получающих распространение в русскоязычных социальных сетях, и определить особенности их функционирования в современной русской коммуникации.

Для достижения цели поставлены следующие задачи: 1) рассмотреть социальные сети как среду распространения языковых инноваций; 2) разграничить заимствования, семантические изменения, мемные формулы и авторские игровые образования; 3) проанализировать документированные примеры 2025–2026 годов; 4) описать основные коммуникативные функции интернет-лексики; 5) определить ограничения использования данных мониторинга социальных медиа для лингвистических выводов.

Объект исследования — русскоязычная цифровая коммуникация. Предмет исследования — лексические и фразеологические единицы, распространяемые в социальных сетях и медиатекстах, а также их семантические и прагматические характеристики.

МАТЕРИАЛЫ И МЕТОДЫ

Материалом послужили 11 единиц, отобранных целевым образом из публикаций и аналитических обзоров, посвящённых русскоязычным социальным медиа в 2025–2026 годах: «имба», «окак», «вайб», «чекать», «рофл», «воздухан», «черемша», «бурмалда», «котость», «Можно, а зачем?» и «фа, ватафа, пепе, шнейне». Выборка является иллюстративной, а не статистически репрезентативной: в неё включены примеры, для которых в доступных публикациях описаны контекст распространения или особенности употребления.

В качестве источников фактических сведений использованы опубликованный словарь сленга Brand Analytics, мониторинговый обзор мемов «Медиалогии», научные исследования молодёжного сленга и интернет-дискурса, а также медиапубликации, документирующие происхождение отдельных мемных формул. Показатели частотности приводятся только в тех случаях, когда они прямо опубликованы соответствующей организацией, и не пересчитываются автором.

Применялись описательно-аналитический метод для характеристики единиц, контекстуальный и семантический анализ для выявления значений

и функций, сопоставительный метод для разграничения типов языковых явлений, а также обобщение результатов предшествующих исследований. Самостоятельный сбор публикаций из социальных сетей, формирование полного корпуса сообщений, подсчёт частотности и опрос пользователей в рамках данной статьи не проводились. Следовательно, количественные показатели сторонних платформ рассматриваются как результаты соответствующих мониторинговых проектов, а не как собственные эмпирические данные автора.

Ограничение исследования связано с тем, что аналитические платформы используют различные массивы данных, периоды наблюдения, критерии отбора и алгоритмы подсчёта. Поэтому показатели разных проектов нельзя сопоставлять напрямую. Кроме того, отдельные мемы могут быть представлены не только текстовыми упоминаниями, но и изображениями, аудио или видео, что влияет на полноту текстового мониторинга.

РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЯ

1. Социальные сети как среда распространения языковых инноваций

Социальные сети изменили скорость и масштаб циркуляции языковых единиц. Пользовательская публикация может в короткий срок выйти за пределы первоначального сообщества, стать объектом цитирования, пародирования и многократного воспроизведения. При этом сетевое распространение не означает автоматического перехода единицы в литературный язык: её употребление может оставаться ограниченным определённой платформой, возрастной группой или субкультурой.

Масштаб цифрового распространения иллюстрирует исследование Brand Analytics «От имбы до кукожа», основанное на анализе более 90 млн публикаций в русскоязычных социальных медиа за период с 1 января по 31 октября 2025 года. В опубликованный словарь вошли 85 слов и выражений. В числе наиболее часто упоминавшихся единиц компания назвала «имба», «окак», «чекать», «вайб» и «рофл» (Борода, 2025). Эти данные характеризуют частотность упоминаний в рамках конкретной методики, но сами по себе не устанавливают время возникновения каждой лексемы.

Другой пример мониторингового подхода — рейтинг «Медиалогии», в котором анализировались обсуждения мемов в русскоязычном сегменте социальных сетей с января по июль 2026 года. В числе заметных феноменов были «черемша», «воздухан», «Можно, а зачем?», «бурмалда», «фа, ватафа, пепе, шнейне» и «котость» (Медиалогия, 2026). Данный

рейтинг показывает интенсивность публичного обсуждения мемов в заданный период, но не является словарём новых слов и не доказывает их нормативного закрепления.

2. ОСНОВНЫЕ ТИПЫ ЯЗЫКОВЫХ ЯВЛЕНИЙ

Сопоставление отобранных примеров позволяет условно выделить четыре типа явлений. Такое деление носит аналитический характер: одна единица может одновременно обладать признаками нескольких типов.

Первый тип — англоязычные заимствования и образования на их основе. К нему относятся «вайб», «чекать» и «рофл». Их распространение связано с цифровой культурой, игровыми сообществами и международной медиасредой. Заимствованная основа может включаться в русскую грамматическую систему: от «чекать» образуются формы «чекаю», «чекнул», «чекнуть». Подобная адаптация показывает не механическое воспроизведение английской формы, а её освоение средствами русского словоизменения и словообразования. Фролова (2024) рассматривает англицизмы как функционально-прагматические маркеры молодёжной цифровой коммуникации; Карамова и Сметанина (2024) также отмечают роль внешних заимствований и словообразовательных процессов в развитии молодёжного жаргона.

Второй тип — семантическое расширение или переосмысление уже существующих единиц. Слово «имба», пришедшее из игрового жаргона и связанное с английским imbalanced, первоначально обозначало чрезмерно сильный игровой элемент, нарушающий баланс. В современной разговорной интернет-речи оно используется как положительная оценка чего-либо выдающегося. В данном случае социальные сети способствуют расширению сферы употребления лексемы и её выходу за пределы исходного игрового контекста.

Третий тип — мемные речевые формулы. Выражение «окак» демонстрирует переход от сочетания «о как» к графически слитной форме, которая функционирует как краткая реакция на неожиданную ситуацию. В публикации РБК Тренды отмечается, что в мае 2025 года мем с котом в капюшоне получил широкое распространение в TikTok и Instagram Reels; само выражение стало использоваться как самостоятельная реакция удивления (Башкиров, 2025). Сходным образом реплика «Можно, а зачем?», первоначально прозвучавшая в интервью, стала воспроизводиться вне исходного контекста как ироническая формула ответа (Медиалогия, 2026).

Четвёртый тип — авторские игровые образования и абсурдные конструкции. Примеры «фа, ватафа, пепе, шнейне» (Немеров, б. д.) и «котость» демонстрируют, как необычная звуковая форма, повторение и визуальное сопровождение могут способствовать популяризации единиц, значение которых не всегда стабильно. В таких случаях важным условием распространения становится не столько словарная семантика, сколько узнаваемость формы, эмоциональный эффект и принадлежность к конкретному мемному сюжету.

3. Семантика и коммуникативные функции интернет-лексики

Отобранные примеры позволяют выделить несколько взаимосвязанных функций. Экспрессивно-оценочная функция проявляется в словах «имба» и «вайб», с помощью которых пользователь быстро выражает оценку, эмоциональное отношение либо общее впечатление. Идентификационная функция связана с тем, что владение актуальными мемными формулами и сленгом может сигнализировать о принадлежности к определённому поколению или сетевому сообществу. Игровая функция проявляется в намеренном изменении формы слов, создании абсурдных сочетаний и использовании неожиданных словообразовательных моделей. Контактная функция выражается в кратких репликах, которые поддерживают взаимодействие и позволяют быстро отреагировать на сообщение собеседника.

Выделенные функции не являются взаимоисключающими. Одна и та же единица может одновременно передавать эмоциональную оценку, создавать комический эффект и маркировать общность участников коммуникации. Исследования молодёжного сленга в медиатекстах также описывают полифункциональность подобных единиц и сочетание экспрессивно-оценочной, идентификационной, контактной и игровой функций (Шалупов, 2026). В более широком плане мемные формулы могут рассматриваться как элементы коллективного цифрового репертуара, которые пользователи повторяют и преобразуют в зависимости от ситуации (Shifman, 2014).

ОБСУЖДЕНИЕ

Полученные наблюдения позволяют уточнить, что влияние социальных сетей на язык не сводится к механическому пополнению словаря новыми словами. В цифровой среде происходят по меньшей мере три разных процесса: распространение уже существующих единиц, изменение их значения и формирование новых устойчивых речевых

шаблонов. Эти процессы могут взаимодействовать, однако требуют раздельного описания.

Особенно важно различать частотность и новизну. Высокое число упоминаний слова в мониторинговом отчёте показывает его заметность в исследованном массиве сообщений, но не устанавливает, когда слово появилось в языке. Например, «вайб» и «рофл» употреблялись в русскоязычной интернет-коммуникации до 2025 года; рост их упоминаемости нельзя автоматически интерпретировать как возникновение новых лексем. Напротив, мемная форма «окак» представляет интерес с точки зрения графического и прагматического переоформления разговорного выражения.

Мемы также не всегда становятся устойчивыми элементами языка. Часть из них сохраняется как повторяемая формула, часть быстро утрачивает актуальность вместе с исходным медиасобытием, а некоторые продолжают существовать преимущественно в виде изображений, видеороликов и аудиофрагментов. Поэтому исследование мемной лексики должно учитывать мультимодальность: значение формируется не только вербальным компонентом, но и визуальным образом, звуком, монтажом, повторяемым сюжетом и коллективной интерпретацией.

Социальные сети создают условия для языкового творчества и одновременно усиливают вариативность речевых практик. Использование сленга может способствовать экспрессивности, экономии языковых средств и поддержанию групповой идентичности. Вместе с тем перенос сетевых выражений в официальную, академическую или деловую коммуникацию не всегда уместен. Это не означает, что интернет-лексика сама по себе разрушает литературную норму. Скорее, актуальной становится задача формирования стилистической компетенции — умения выбирать языковые средства с учётом адресата, цели и ситуации общения.

С методологической точки зрения анализ цифровых языковых явлений требует осторожности. Отчёты компаний мониторинга дают полезные сведения о масштабе обсуждения и динамике упоминаний, однако их результаты зависят от состава платформ, доступности данных, поисковых запросов и алгоритмов обработки. Научная интерпретация должна сопровождаться точным описанием периода, массива и единицы подсчёта. Если исследователь не собирал первичные публикации самостоятельно, это необходимо прямо указывать, как сделано в настоящей работе.

Ограничением статьи является иллюстративный характер выборки из 11 единиц и опора на вторичные источники для части примеров. Перспективой дальнейшего исследования может стать создание открытой картотеки мемных выражений с фиксацией даты публикации, платформы, контекста, графических вариантов и динамики употребления. Такой корпус позволит проверить, какие единицы остаются кратковременными трендами, а какие приобретают устойчивость и выходят за пределы исходных интернет-сообществ.

ЗАКЛЮЧЕНИЕ

Социальные сети выступают значимым фактором распространения и переосмысления современной русской лексики. На материале документированных примеров 2025–2026 годов выявлены четыре условных типа явлений: англоязычные заимствования и производные от них формы; семантически переосмысленные слова; мемные речевые формулы; авторские игровые образования. Их распространение связано с повторением, визуально-аудиальным сопровождением, коллективной интерпретацией и стремлением пользователей к краткому и эмоционально выразительному общению.

Показано, что частотность упоминаний не равна лексической новизне, а популярность мема не означает его автоматического закрепления в системе русского языка. Для корректного анализа необходимо учитывать происхождение единицы, её контекст, прагматическую функцию, платформенную специфику и длительность употребления. Представленная работа носит описательно-аналитический характер и не претендует на статистическую репрезентативность. Дальнейшие исследования целесообразно направить на создание корпуса русскоязычных медиатекстов и наблюдение за переходом мемных формул из сетевого общения в более широкие речевые практики.

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КОГНИТИВНЫЕ И ФОРМАЛЬНЫЕ ПАРАМЕТРЫ СЛОВООБРАЗОВАТЕЛЬНЫХ МОДУЛЕЙ

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Аннотация. *В тезисе рассматриваются когнитивные и формальные особенности словообразовательных модулей современного русского языка. Основное внимание уделяется связи между морфемной структурой производного слова, его значением и мыслительной деятельностью человека. Анализируются основные способы словообразования и их роль в формировании новых понятий. Особое значение придаётся взаимодействию языковой формы и когнитивных процессов, благодаря которым человек осмысливает и обозначает окружающую действительность.*

Ключевые слова: *словообразование, когнитивная лингвистика, словообразовательный модуль, производное слово, морфема, семантика, языковая картина мира.*

Abstract. *This paper examines the cognitive and formal features of word-formation modules in modern Russian. Particular attention is paid to the relationship between the morphemic structure of derived words, their meanings, and human cognitive activity. The paper discusses the main methods of word formation and their role in the development of new concepts. Special emphasis is placed on the interaction between linguistic form and cognitive processes through which people understand and describe the surrounding world.*

Keywords: *word formation, cognitive linguistics, word-formation module, derived word, morpheme, semantics, linguistic worldview.*

Annotatsiya. *Ushbu tezisda zamonaviy rus tilidagi so‘z yasash modullarining kognitiv va formal xususiyatlari ko‘rib chiqiladi. Hosila so‘zlarning morfemik tuzilishi, ma’nosi va insonning bilish faoliyati o‘rtasidagi bog‘liqlikka alohida e’tibor qaratiladi. So‘z yasashning asosiy usullari hamda ularning yangi tushunchalarni shakllantirishdagi o‘rni tahlil qilinadi. Shuningdek, insonning atrof-muhitni anglash va ifodalash jarayonida til shakli hamda kognitiv jarayonlarning o‘zaro ta’siri yoritiladi.*

Kalit so‘zlar: *so‘z yasalishi, kognitiv lingvistika, so‘z yasash moduli, hosila so‘z, morfema, semantika, olamning lisoniy manzarasi.*

ВВЕДЕНИЕ

Словообразование занимает важное место в развитии языка, поскольку именно благодаря этому процессу появляются новые слова и способы выражения человеческих представлений об окружающем мире. При создании нового слова человек использует уже существующие языковые средства, но одновременно вкладывает в него определённое содержание. В современной лингвистике словообразование изучается не только с точки зрения морфемного строения, но и в связи с процессами мышления и познания. Особый интерес представляет то, каким образом структура слова помогает человеку воспринимать, классифицировать и называть различные явления действительности. Актуальность исследования обусловлена необходимостью более подробного изучения взаимосвязи между формальной организацией производного слова и его когнитивным содержанием.

Цель исследования — рассмотреть основные когнитивные и формальные параметры словообразовательных модулей и определить особенности их взаимодействия в современном русском языке.

2. МЕТОДЫ ИССЛЕДОВАНИЯ

В работе использованы описательный, структурно-морфемный и семантический методы анализа. Они позволяют рассмотреть производные слова с точки зрения их состава, способов образования и значения. Материалом исследования послужили примеры словообразовательных единиц современного русского языка. При их анализе учитывались производящая основа, словообразовательные элементы и значение, которое возникает в результате образования нового слова.

Теоретической основой исследования стали работы Е. С. Кубряковой, посвящённые когнитивным аспектам языка и семантике производного слова, а также труды Е. А. Земской по современному русскому словообразованию.

3. РЕЗУЛЬТАТЫ И ОБСУЖДЕНИЕ

Рассмотрение словообразования с когнитивной точки зрения показывает, что образование нового слова связано не только с изменением его внешней структуры. В этом процессе отражается определённый способ восприятия и осмысления действительности.

Например, слово «учитель» образовано от глагола «учить» с помощью суффикса -тель. В результате название действия преобразуется в название лица, которое это действие выполняет. Следовательно,

производное слово передаёт не только языковую форму, но и определённую связь между действием и его субъектом.

Подобную закономерность можно наблюдать в словах «лесник», «садовник», «школьник». Они обозначают человека через его отношение к определённому объекту или сфере деятельности. Такие примеры показывают, что словообразовательные средства помогают систематизировать знания и выражать их с помощью языка.

Важное значение для понимания этих процессов имеют исследования Е. С. Кубряковой. Учёная рассматривала словообразование в связи с человеческим познанием, подчёркивая взаимосвязь языковой формы и значения. Такой подход позволяет воспринимать производное слово не просто как сочетание морфем, а как средство формирования и передачи знаний.

Формальная сторона словообразования связана с морфемным составом слова и способами образования новых лексических единиц. В русском языке выделяются суффиксальный, приставочный, приставочно-суффиксальный, бессуффиксный способы и сложение основ.

Например:

суффиксальный способ: море — морской, багаж — багажник;

приставочный способ: рисовать — нарисовать, есть — съесть;

приставочно-суффиксальный способ: снег — подснежник, берег — побережье;

сложение основ: лесостепь, пароход.

Приведённые примеры показывают, что изменение морфемного состава слова сопровождается формированием нового значения. При этом каждый словообразовательный элемент выполняет определённую функцию и участвует в создании семантики производного слова.

Особенно наглядно взаимосвязь когнитивных и формальных параметров проявляется в слове «писатель». Оно образовано от глагола «писать» с помощью суффикса -тель. С формальной стороны происходит присоединение суффикса к производящей основе. С когнитивной стороны действие осмысливается через человека, который его выполняет. Таким образом, языковая форма помогает выразить определённое понятие и закрепить его в системе языка.

На основании рассмотренных примеров словообразовательный модуль можно определить как аналитическую единицу, включающую производящую основу, словообразовательные средства, структурную модель и формируемое значение. Такое понимание позволяет

одновременно учитывать строение слова и особенности его смыслового содержания.

Результаты анализа свидетельствуют о том, что когнитивные и формальные параметры не существуют независимо друг от друга. Формальная структура обеспечивает выражение нового понятия, а когнитивная сторона объясняет особенности его формирования и восприятия человеком.

4. ЗАКЛЮЧЕНИЕ

Проведённое рассмотрение показывает, что словообразование представляет собой сложный процесс, в котором взаимодействуют языковая структура и человеческое мышление. Формальные средства обеспечивают образование новых слов, а когнитивные механизмы связаны с формированием и осмыслением выражаемых ими понятий. Таким образом, изучение когнитивных и формальных параметров словообразовательных модулей позволяет глубже понять закономерности образования производных слов, особенности их семантики и роль в отражении окружающей действительности. Перспективным направлением дальнейшего исследования является более подробное изучение взаимодействия словообразовательных моделей и когнитивных механизмов в современном русском языке.

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ЯЗЫКОВАЯ РЕПРЕЗЕНТАЦИЯ ЦЕННОСТИ «ЗДОРОВЬЕ» В РУССКИХ МЕДИЦИНСКИХ АНЕКДОТАХ

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Аннотация. *Комическое осмысление действительности в языковом сознании народа всегда сопряжено с системой ценностных ориентиров, разделяемых лингвокультурным сообществом. Медицинский анекдот, будучи одним из наиболее продуктивных и устойчивых поджанров современного городского фольклора, представляет собой особый дискурсивный формат, в котором ценность «здоровье» реализуется не напрямую, декларативно, а опосредованно — через комическое остранение, нарушение сценарных ожиданий и языковую игру. Настоящий тезис посвящён выявлению и системному описанию лингвоаксиологических механизмов репрезентации ценности «здоровье» в корпусе русских медицинских анекдотов.*

Ключевые слова*: лингвокультурология, аксиология, концепт «здоровье», анекдот, медицинский дискурс, ирония.*

ВВЕДЕНИЕ

Здоровье относится к базовым витальным ценностям и закреплено в русской языковой картине мира в лексике, паремиях и фразеологии («здоровье дороже денег», «в здоровом теле здоровый дух»). В лингвокультурологии ценностный компонент рассматривается как ядро концепта наряду с понятийной и образной сторонами (Карасик, 2002). Ключевые слова культуры как носители ценностных доминант описаны А. Вежбицкой (2001), а русские культурные константы собраны в словаре Ю.С. Степанова (1997). Общая теория ценностей восходит к работам М. Рокича (Rokeach, 1973).

Анекдот как речевой жанр с устойчивой структурой изучен в работах Е. Курганова (1997), Т.В. Шмелёвой и А.Д. Шмелёва (2002), К.Ф. Седова (2004). Объяснение комического через несоответствие предложено в целом ряде теорий: у А. Бергсона (1900/1999), В.Я. Проппа (1976), в скриптовой теории юмора В. Раскина (Raskin, 1985) и С. Аттардо (Attardo, 1994). Роль

смеховой культуры в снятии официальной серьёзности показана М.М. Бахтиным (1965) и Д.С. Лихачёвым с А.М. Панченко (1976), социологические функции юмора рассмотрены А.В. Дмитриевым (1996; 2000). Медицинский дискурс относится к институциональному (статусно-ориентированному) дискурсу в классификации В.И. Карасика (2000), а поведение пациента описывается через «роль больного» Т. Парсонса (Parsons, 1951).

Медицинский анекдот находится на пересечении этих областей: он сталкивает профессиональный и обыденный дискурсы в минимальном диалоге, а ценность «здоровье» служит общей точкой отсчёта для обоих участников. Тем не менее способы её языковой репрезентации в анекдотическом материале описаны недостаточно: существующие работы чаще рассматривают анекдот в целом либо концепт «здоровье» на материале паремий и публицистики.

ОБСУЖДЕНИЕ

Главный результат исследования состоит в том, что ценность «здоровье» в русском медицинском анекдоте почти никогда не формулируется прямо. Её нельзя найти в тексте как тезис вроде «здоровье важно». Она реконструируется читателем по нарушению нормы: пациент здоров, но уверен в обратном; врач должен лечить, но думает о выгоде; рекомендация правильна, но невыполнима; научное знание конкурирует с бытовым. Это закономерно для жанра. В скриптовой теории юмора комический эффект возникает при частичном совпадении и одновременной оппозиции двух скриптов (Raskin, 1985), а в общей логической модели, предложенной Аттардо, он связан с разрешением несоответствия (Attardo, 1994). Для понимания шутки адресат должен знать, как «правильно»: что такое нормальный приём у врача, что такое здоровый человек, как врач обязан себя вести. Поэтому каждый анекдот неявно подтверждает ценностную норму, даже когда над ней смеётся.

Эта особенность согласуется с давней традицией, видящей в комическом обнаружение скрытого недостатка на фоне подразумеваемого образца (Пропп, 1976). Для темы здоровья важна и мысль А. Бергсона о том, что комичным оказывается механическое, «наложенное на живое» (Бергсон, 1999). Болезнь как сбой живого организма и медицинская процедура как стандартизированное, почти механическое вмешательство дают именно такое наложение. Кроме того, З. Фрейд связывал остроумие с обходом внутренних запретов и разрядкой напряжения вокруг тревожных тем (Фрейд, 1997). Болезнь, боль и смерть к таким темам относятся,

поэтому анекдот можно считать социально приемлемой формой проговаривания страхов, связанных с телесной уязвимостью.

С позиции лингвокультурологии выявленный механизм подтверждает, что ценностный компонент концепта не всегда лежит на поверхности и может быть выведен из «негативного» материала (Карасик, 2002). Для изучения концепта «здоровье» анекдот поэтому является не менее информативным источником, чем паремии и словарные дефиниции: паремия фиксирует официальную ценностную позицию, а анекдот показывает, как носители языка с этой позицией обращаются в реальной коммуникации.

Модель «мнимое здоровье»: гиперценность и «роль больного»

Первая модель демонстрирует, что здоровье может стать объектом избыточной, невротической заботы. Для интерпретации удобно обратиться к концепции Т. Парсонса, согласно которой болезнь является не только биологическим состоянием, но и социальной ролью с набором прав и обязанностей (Parsons, 1951). Больной освобождается от обычных обязательств, но обязан стремиться к выздоровлению и сотрудничать с врачом. Комизм первой модели возникает при нарушении баланса этой роли: пациент слишком охотно принимает роль больного или, напротив, упорно отвергает её при очевидных симптомах.

Важно, что финальная реплика врача («единственная ваша болезнь — ипохондрия») работает как смена скрипта. Здоровье при этом не обесценивается: подчёркивается, что подлинная ценность подменена её имитацией. Тревога о здоровье, лишённая реального основания, подаётся как патология. Так анекдот выполняет нормативную функцию и маркирует границу между разумной заботой о здоровье и её гипертрофией. Эта граница в русской культуре, по-видимому, проходит достаточно чётко: наряду с высокой декларативной ценностью здоровья («здоровье дороже денег») существует устойчивое неодобрение чрезмерной мнительности. Для проверки этого предположения необходим сопоставительный материал, который в данной работе не использовался.

Отметим и связь с проблематикой метафоризации болезни. С. Сонтаг показала, что болезнь в культуре обрастает символическими значениями и моральными оценками (Sontag, 1978). В анекдотах первой модели «мнимая болезнь» тоже несёт оценочное значение: она характеризует не тело, а характер персонажа.

Модель «врач как антипод целителя»: критика роли и сохранение института

Вторая модель связана с представлением о враче как носителе специфического социального статуса. В классификации В.И. Карасика медицинский дискурс относится к институциональным, то есть статусно-ролевым, видам общения, где участники выступают как представители социальных институтов, а не как частные лица (Карасик, 2000). Следовательно, анекдот о корыстном враче реализует конфликт между институциональной ролью (целитель, служащий общему благу) и личной мотивацией (выгода).

Наиболее значимым нам представляется то, что объектом иронии становится именно нарушение роли, а не сам институт медицины. Врач в анекдоте плох не потому, что медицина бессильна, а потому, что он не соответствует идеалу врача. Идеал при этом не отвергается, а, наоборот, сохраняется как подразумеваемая норма. Здоровье в этом контексте противопоставлено товарно-денежным отношениям, то есть воспринимается как благо, которое не должно быть предметом торга. Такая оппозиция имеет глубокие корни в русской культурной традиции, где отношение к деньгам часто сопровождается моральной рефлексией (на это указывают исследователи русских культурных констант; см.: Степанов, 1997).

Можно предположить, что рост числа текстов с лексикой «выгоды» (*касса, платная клиника, страховка*) связан с социально-экономическими изменениями в сфере здравоохранения. Для подтверждения нужен хронологический срез корпуса, о чём говорится в разделе об ограничениях. Здесь уместна и общая мысль М. Фуко о том, что медицина как институт обладает особой властью над телом и дискурсом о нём (Foucault, 1963). Анекдот снижает эту власть смехом: врач, который в обычной ситуации обладает знанием и авторитетом, оказывается комическим персонажем.

Модель «здоровье ценой абсурдных рекомендаций»: конфликт ценностей

Третья модель наиболее показательна с аксиологической точки зрения, поскольку именно в ней конфликт между витальной ценностью «здоровье» и гедонистическими ценностями (удовольствие, привычка, свобода выбора) вербализуется открыто. Реплика пациента фактически выстраивает его личную иерархию ценностей, в которой привычное удовольствие стоит выше долголетия. В терминах М. Рокича это столкновение терминальных ценностей и ценностей-средств, которые в реальном поведении редко совпадают с декларируемыми (Rokeach, 1973).

Социологи юмора отмечают, что одна из функций анекдота состоит в публичном признании расхождения между «должным» и «сущим» (Дмитриев, 2000). Человек знает, что курить и злоупотреблять алкоголем вредно, но не готов отказаться от этого. Анекдот снимает с него груз вины: слушатель смеётся над героем и одновременно узнаёт в нём себя. В этом проявляется особенность смеховой культуры, о которой писал М.М. Бахтин: смех временно освобождает от официальной серьёзности и правил, не отменяя их (Бахтин, 1965). Л.С. Лихачёв и А.М. Панченко, исследуя «смеховой мир» Древней Руси, показали, что смех в русской культуре издавна был способом дистанцироваться от нормативного порядка, оставаясь внутри него (Лихачёв, Панченко, 1976).

Парадоксальная реплика пациента («А стоит ли?») важна и в лингвистическом плане: она строится как обманутое ожидание, когда ожидаемая благодарность за обещание долголетия заменяется сомнением в самой ценности долгой жизни без привычных радостей. Тем самым комически переоценивается сама шкала приоритетов.

Модель «народная медицина против научной»: амбивалентность отношения к институтам

В четвёртой модели здоровье выступает общей целью двух знаниевых систем, конкурирующих за статус более эффективной. Принципиально, что спор идёт не о ценности, а о способе её достижения. Это показывает устойчивость ценности: она не подвергается сомнению ни носителем научного, ни носителем народного знания. Конфликтуют дискурсы, а не ценности.

Данный результат можно связать с наблюдением о том, что в русской лингвокультуре отношение к официальным институтам часто амбивалентно: признание их формального авторитета сочетается с доверием к неформальным, «проверенным» способам решения проблем. Анекдот не выбирает победителя, а использует столкновение для создания комического эффекта. Для описания такого столкновения полезно понятие языковой игры, разработанное в русской лингвистике: трансформация устойчивых выражений и пословиц позволяет «наивному» говорящему отвечать профессиональному дискурсу его же средствами (Санников, 2002). К тому же сам выбор паремий о здоровье показывает, что народная мудрость в тексте анекдота представлена как полноправный участник спора.

Следует отметить и более широкий контекст критики медицинского знания. И. Иллич писал об «ятрогенных» последствиях чрезмерной

медикализации жизни (Illich, 1975). Хотя анекдот не является формой теоретической критики, он нередко воспроизводит сходную интуицию: недоверие к всемогуществу врача и желание сохранить собственный контроль над здоровьем.

Распределение ролей: пациент как инициатор и врач как объект иронии

Преобладание пациента в роли инициатора комической ситуации (более 60 % текстов) требует осторожной интерпретации. Во-первых, анекдот построен как диалог, где реплика пациента (жалоба, вопрос, возражение) задаёт рамку, а реплика врача либо разрешает, либо обостряет несоответствие. Поэтому структурно пациент оказывается «запускающим» участником просто в силу сценария приёма: врач реагирует на жалобу. Это объяснение носит жанрово-композиционный характер и не требует привлечения культурологических аргументов.

Во-вторых, можно предположить дополнительную культурную мотивацию. Согласно В.И. Карасику, статусно маркированные роли в институциональном дискурсе предполагают определённую дистанцию и почтительность, а ирония в их адрес нередко носит амбивалентный, а не разрушительный характер (Карасик, 2000). Если эта гипотеза верна, врач как носитель статуса остаётся объектом иронии, но при этом сохраняет определённый пиетет перед институтом, а комическая инициатива передаётся «слабой» стороне диалога, то есть пациенту. Вместе с тем наши данные не позволяют разделить два объяснения (композиционное и культурное). Для этого необходимо сравнить распределение ролей в анекдотах других тематических групп (о начальнике и подчинённом, учителе и ученике) и в медицинских анекдотах других языков.

Сопоставление с работами по русскому анекдоту (Шмелёва, Шмелёв, 2002; Курганов, 1997) показывает, что распределение ролей в медицинских текстах соответствует общей тенденции жанра: анекдот строится на типовых персонажах-ролях, а не индивидуализированных героях, и именно роль (врач, пациент) становится носителем комического содержания. Это подтверждает высказанную К.Ф. Седовым мысль о том, что речевые жанры отражают устойчивые коммуникативные модели, значимые для данной культуры (Седов, 2004).

Языковые средства: связь с ценностной семантикой

Выделенные средства репрезентации не случайны, а функционально связаны с моделями. Лексика полноты состояния (*здоров, в порядке, как огурчик*) задаёт позитивный полюс, от которого отсчитывается комическое

отклонение. Примечательно, что эти выражения образны и принадлежат разговорному регистру: «нормальное» здоровье в русской языковой картине мира описывается через образы природной свежести и цветущего вида, а не через медицинские признаки. Это совпадает с наблюдением А. Вежбицкой о том, что ключевые слова культуры закрепляют её ценностные представления в обыденной, а не терминологической лексике (Вежбицкая, 2001).

Стилистическое снижение терминологии выполняет двойную функцию. С одной стороны, оно «одомашнивает» институциональный дискурс, делает его понятным обычному слушателю. С другой стороны, оно ослабляет авторитет медицинского знания, демонстрируя, что профессиональный язык можно подчинить бытовой логике. Диалогическая форма, в свою очередь, создаёт рамку приёма, знакомую любому носителю культуры, и позволяет достичь комического эффекта при минимальном объёме текста, не прибегая к пояснениям.

Результаты

Сюжетно-ценностные модели

Модель 1. «Мнимое здоровье / диагностическая ошибка». В основе лежит несоответствие между объективным медицинским скриптом и субъективной уверенностью персонажа в собственном здоровье или его отсутствии. Типовой сюжет: пациент жалуется на множество несуществующих болезней, а врач в финале констатирует единственный реальный диагноз — ипохондрию.

Модель 2. «Врач как антипод целителя». Профессиональная компетентность врача пародийно снижается, либо акцентируются его меркантильные интересы, противоречащие цели сохранения здоровья пациента. Маркеры: лексика с семой «выгода» (*гонорар, касса, частная клиника*) и глаголы речи, обнажающие цинизм врача.

Модель 3. «Здоровье ценой абсурдных рекомендаций». Врач даёт заведомо невыполнимую или парадоксальную рекомендацию (отказаться от вредных привычек, радикально изменить образ жизни). Пациент отвечает репликой, показывающей, что привычное удовольствие стоит выше здоровья в его субъективной шкале. Ценностный конфликт витальной и гедонистических ценностей выражен здесь эксплицитно.

Модель 4. «Народная медицина против научной». Институциональный медицинский дискурс сталкивается с обыденным, часто архаическим знахарским знанием. Здоровье выступает общей целью обеих систем, конкурирующих за статус более эффективного пути к ней.

Таблица 1.

Языковые средства репрезентации

ЗАКЛЮЧЕНИЕ

Группа средств	Пример	Что происходит в примере	Функция
1. Лексика полноты состояния	— Доктор, я здоров? — Здоровы, как огурчик. — А почему я тогда такой зелёный?	Устойчивое сравнение *как огурчик* буквализируется: образ нормы («свежесть») сталкивается с реальным симптомом (цвет лица)	Задаёт позитивный полюс нормы и тут же нарушает его
2. Ироническое переосмысление паремий	— Здоровье за деньги не купишь, — вздохнул пациент. — Купишь, — ответил врач, — только это не в нашей страховой.	Пословица «Здоровье за деньги не купишь» опровергается; врач говорит как торговец	Создаёт эффект обманутого ожидания, ставит под сомнение «внеденежный» статус здоровья
3.Стилистическое снижение терминологии	— Доктор, у меня склероз. — И давно? — Что давно?	Медицинский термин *склероз* из диагноза превращается в бытовое обозначение забывчивости, а симптом становится средством комического эффекта	Смешивает профессиональный и обыденный регистры на уровне слова
4.Диалогическая форма	— На что жалуетесь? — На отсутствие аппетита. — А ещё? — На отсутствие денег на аппетит.	Типовая реплика приёма («На что жалуетесь?») задаёт рамку, финальная реплика выводит разговор за пределы медицинского скрипта	Выявляет ценность через отклонение от скрипта приёма в минимальном

Проведённое исследование показало, что ценность «здоровье» в русском медицинском анекдоте репрезентируется не декларативно, а опосредованно: через нарушение нормы, столкновение скриптов и языковую игру. Адресат реконструирует ценностную установку по отклонению от образца (здоровый человек, добросовестный врач, разумная забота о себе), поэтому даже комическое снижение неявно подтверждает саму норму. Языковая репрезентация обеспечивается четырьмя группами средств: лексикой полноты состояния (*здоров, как огурчик, кровь с молоком*), ироническим переосмыслением фразеологизмов и паремий, стилистическим снижением медицинской терминологии и диалогической формой, воспроизводящей ситуацию врачебного приёма. Эти средства функционально связаны с моделями: они задают позитивный полюс нормы, создают эффект обманутого ожидания и позволяют столкнуть профессиональный и обыденный дискурсы в минимальном тексте.

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EVALUATING MACHINE TRANSLATION QUALITY FOR MORPHOLOGICALLY RICH LANGUAGES

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Annotation: *Morphologically rich languages such as Uzbek encode grammatical information in long chains of suffixes, which creates a large number of surface word forms. Widely used automatic metrics for machine translation, especially word-level BLEU, penalize every inflectional deviation*

as a complete mismatch, so they may misrepresent the real quality of machine translation output for such languages. This study examines how well automatic metrics reflect translation quality for English-to-Uzbek. Three systems: a commercial neural system, an open multilingual model, and a large language model translated a test set of 500 sentences from news, legal and conversational domains.

Keywords: *machine translation; morphologically rich languages; evaluation metrics; Uzbek language; agglutination.*

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Annotatsiya: *O‘zbek tili kabi morfologik jihatdan boy tillarda grammatik ma’no uzun qo‘shimchalar zanjiri orqali ifodalanadi, bu esa so‘z shakllarining juda ko‘p bo‘lishiga olib keladi. Mashina tarjimasini baholashda keng qo‘llaniladigan avtomatik metrikalar, ayniqsa so‘z darajasidagi BLEU, har qanday shakliy farqni to‘liq xato deb hisoblaydi, shu sababli bunday tillarda tarjima sifatini noto‘g‘ri aks ettirishi mumkin. Mazkur tadqiqotda inglizchadan o‘zbekchaga tarjima sifatini avtomatik metrikalar qanchalik to‘g‘ri baholashi o‘rganildi. Uch tizim (tijorat neyron tizimi, ochiq ko‘p tilli model va katta til modeli) yangiliklar, huquqiy va so‘zlashuv uslubidagi 500 ta gapni tarjima qildi.*

Kalit so‘zlar: *mashina tarjimasi; morfologik jihatdan boy tillar; baholash metrikalari; o‘zbek tili; agglyutinatsiya*

Introduction: Neural machine translation (NMT) has reached high quality for many high-resource language pairs, yet quality is uneven across languages. A persistent source of difficulty is morphological richness. In morphologically rich languages, a single lemma can appear in hundreds or thousands of surface forms because of inflection, derivation and agglutination (Tsarfaty et al., 2010). Uzbek, a Turkic language with more than 35 million speakers, is a typical agglutinative language. Case, number, possession, tense, aspect, mood and negation are expressed by suffixes attached in a fixed order. For example, the word *kitoblarimizdan* (“from our books”) contains the stem *kitob*, the plural *-lar*, the first-person plural possessive *-imiz* and the ablative case *-dan*.

Methods: Two professional translators with MQM training (Freitag et al., 2021) annotated all system outputs (1,500 segments in total), seeing the source sentence and the translation but not the system identity. Errors were classified by category (accuracy, fluency, terminology, style) and severity (minor, major, critical), and a morphology subtype was added within the fluency and accuracy categories (case, possessive, number, verbal inflection, suffix order, vowel harmony). Severity weights of 1 (minor), 5 (major) and 25 (critical) were used to calculate an MQM score per segment, expressed as penalty points per 100 words. Inter-annotator agreement on the error spans and severities was measured

with Cohen's kappa on a 20% overlapping subset. Metric validity was quantified in two ways. At the system level, Pearson correlation between metric scores and negated MQM penalties was computed across the three systems by domain (nine system–domain points). At the segment level, Kendall's tau-like agreement with human pairwise preferences was calculated. Confidence intervals were estimated using paired bootstrap resampling (1,000 samples). Differences between systems were tested with paired bootstrap significance testing at $p < 0.05$.

Results: The annotators identified 1,126 errors in total. Inter-annotator agreement was moderate to substantial (kappa = 0.67 for error severity). Morphological errors made up 38% of all errors and 46% of major errors. Their distribution by subtype is given below.

• Morphological error type	• Share of morphological errors (%)
• Case suffix (e.g., wrong choice between *-ga, -da, -dan*)	• 34
• Verbal inflection (tense, aspect, person)	• 27
• Possessive suffix	• 17
• Number and agreement	• 12
• Suffix order and vowel harmony	• 10

System A produced the highest density of morphological errors (6.1 per 100 words), followed by System B (4.4) and System C (2.6). Conversely, System C made more accuracy errors of the omission and addition type in the legal domain, which BLEU.

Discussion: The illustrative results are consistent with the expectation that word-level BLEU (Papineni et al., 2002; Post, 2018) is an unreliable instrument for an agglutinative target language. Since BLEU treats every inflected form as an atomic token, a morphologically wrong but lexically correct word and a completely wrong word receive the same penalty. As a result, BLEU compresses the differences between systems and can reverse rankings in domains such as legal text, where long words with many suffixes are frequent. This observation agrees with earlier findings that character-level metrics are better matched to human judgments for morphologically rich targets (Popović, 2015, 2017) and that neural metrics trained on human annotations perform best overall (Freitag et al., 2021; Kocmi et al., 2021; Rei et al., 2020).

Conclusion: Evaluating MT for morphologically rich languages requires methods that are sensitive to word-internal structure. In an English–Uzbek case study, word-level BLEU showed the weakest agreement with human evaluation, whereas COMET (Rei et al., 2020) and the proposed morphology-aware SAS agreed with it more closely, and morphological errors dominated the error profile of all systems. A combined protocol of a neural metric, a character-level or morphology-aware measure and a focused human error analysis is recommended for reliable assessment of MT quality in Uzbek and comparable languages.

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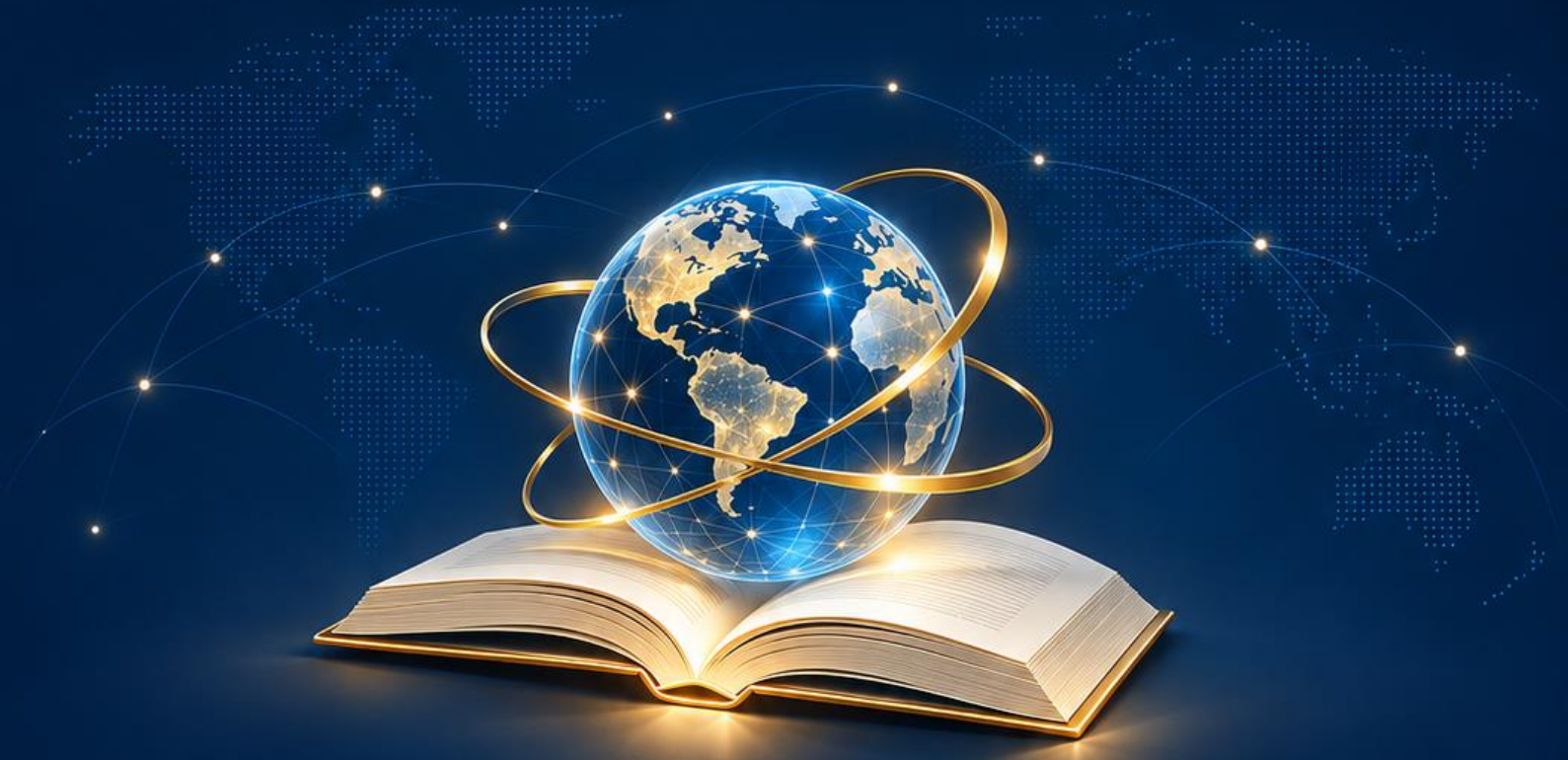

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