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## THE APPLICATION OF INFORMATION TECHNOLOGY IN THE ART OF MUSIC: A SYNTHESIS OF INNOVATION AND CREATIVITY

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## ПРИМЕНЕНИЕ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ В МУЗЫКАЛЬНОМ ИСКУССТВЕ: СИНТЕЗ ИННОВАЦИЙ И ТВОРЧЕСТВА

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*Abstract*
*The rapid development of information technology in the modern era has caused fundamental changes in all aspects of the art of music. This research aims to comprehensively analyze the transformation brought about by digital technologies across all stages-from musical creation to its production, distribution, education, and consumption. The findings of the study determine that Digital Audio Workstations, virtual instruments, and artificial intelligence have democratized the art form by transforming the traditional structure of the music industry, making music creation accessible to everyone. Simultaneously, technological innovations have fostered new means of expression and creative methods. The mutual synthesis of art and technology has resulted in a qualitatively new stage of development for the art of music.*

*Аннотация*
*Стремительное развитие информационных технологий в современную эпоху привело к фундаментальным изменениям во всех аспектах музыкального искусства. Данное исследование направлено на всесторонний анализ трансформации, вызванной цифровыми технологиями на всех этапах-от музыкального творчества до его производства, дистрибуции, образования и потребления. В результате исследования установлено, что цифровые аудио рабочие станции, виртуальные инструменты и искусственный интеллект изменили традиционную структуру музыкальной индустрии, демократизировали искусство и сделали музыкальное творчество доступным для каждого. Технологические инновации также сформировали новые средства выражения и методы творчества, а в результате взаимного синтеза искусства и технологий возникла качественно новая стадия развития музыкального искусства.*

*Keywords:* *art of music, information technology, virtual instruments, artificial intelligence, innovation*

*Ключевые слова:* *музыкальное искусство, информационные технологии, виртуальные инструменты, искусственный интеллект, инновации*

*INTRODUCTION: The relationship between music and technology dates back to ancient times. With the advancement of technology in each new era, the methods of creating and performing music have evolved. However, the digital revolution in recent years has brought about the most profound changes in this field, as information technology has enabled not only professional musicians but also the general public to create music. These transformations encompass all aspects of music-from its creation and distribution to its study and consumption. Regarding the connection between music and technology, the renowned composer Brian Eno once stated: "Technology is not an aid to making music; it is at the very core of what music has become" [Eno B., 1996, p.22].*

*MAIN TEXT: If, in the 20th century, creating music of a quality only possible in large studios was the norm, today anyone with a computer at home possesses this capability. This opportunity has led to the emergence of new artists and the development of new musical styles. Technology has also transformed the music listening experience. Music is no longer stored on CDs, cassettes, or other physical media but is housed on specialized servers on the internet and can be accessed instantly from anywhere in the world via the internet.*

*Digital Audio Workstations (DAWs) form the foundation of modern music production. These are computer-based programs used for creating, recording, and editing music. Software such as FL Studio, Ableton Live, and Logic Pro fall into this category.*

*The significant advantage of Digital Audio Workstations lies in their integration of all the functionalities that were once exclusive to professional studios into a single program. Users can manage multiple audio tracks simultaneously, apply various effects to them, and mix the sounds together. The interface of these programs is remarkably simple and comprehensible, even for beginners.*

*The renowned violinist and pedagogue Shinichi Suzuki noted: "Technology cannot replace a good teacher, but it can enhance their effectiveness" [Suzuki, S. 1969, p.193].*

*Another crucial feature of these programs is their non-linear editing capability. This means that any mistake can be easily corrected without the need to physically cut the audio tape, which significantly accelerates the music creation process and grants the artist greater creative freedom.*

*In recent years, audio recording technology has advanced considerably, with older analog systems being entirely replaced by digital solutions. Thanks to specialized devices called audio interfaces, it is possible to convert signals from microphones, guitars, or other sound sources into a digital format that computers can understand. These interfaces are available in various price categories, allowing anyone to find a model suited to their needs. A quality audio interface is the first step towards professional-grade audio recording, transmitting the sound signal to the computer cleanly and transparently.*

*Plugins represent another crucial component of audio recording technology. These are small programs that operate within Digital Audio Workstation software, virtually emulating hundreds of different effect units. Thanks to plugins, it is possible to access thousands of different audio effects within a single program. The automation function provides incredible precision during the mixing process. Users can program how each parameter-such as volume, stereo balance, or effect value-changes over time. This allows for the creation of more vibrant and dynamic mixes. The renowned producer Rick Rubin writes in his book "The Creative Act: A Way of Being": "Technology has democratized the recording process. Now anyone can create a world-class studio in their own home." [Rubin R., 2023, p.21]*

*Virtual instruments are programs that digitally emulate the sounds of real musical instruments. These tools eliminate the need to purchase physical pianos, violins, or percussion instruments. All these sounds are available virtually, within the computer. The sonic quality of modern virtual instruments is so realistic that it is often difficult to distinguish them from their real counterparts. This is particularly significant for orchestral music. A composer can create the performance of an entire symphony orchestra using virtual instruments.*

*Samplers are used to record real sounds and play them back at different musical pitches. For example, the sound of a percussion instrument is recorded, and then this sound is triggered at different pitches to create a variety of percussive sounds. This technique is particularly widespread in hip-hop and electronic music.*

*The greatest advantage of virtual instruments is their accessibility and convenience. Acquiring, setting up, and recording physical instruments often demands significant time and money. Virtual instruments, however, are always readily available and require no physical space. Oscar-winning composer Hans Zimmer stated in a 2021 interview with "Sound on Sound" magazine: "Virtual orchestras allowed me to move beyond the confines of the recording studio. I now carry an entire symphony orchestra in my laptop." [Zimmer H. Sound on Sound 2021]*

*Synthesis technology enables the creation of sound from scratch. Synthesizers combine various waveforms to generate completely new sounds that do not exist in nature, forming the foundation of electronic music.*

*Various synthesis types exist. FM synthesis creates complex sounds through frequency modulation, while granular synthesis forms new textures by combining tiny sound particles. Each synthesis method possesses its own unique sonic character. Sound design has itself evolved into a distinct art form; sound designers use synthesizers to create unique sounds for film scores, video games, and various media projects. These sounds are primarily used as background effects, atmospheric elements, and special effects.*

*Virtual modular synthesizers, such as programs like VCV Rack, provide artists with endless possibilities for experimentation. Within these programs, users can build their own synthesizer systems by connecting various modules. This offers complete freedom in the creative process. Digital notation software has completely transformed the method of writing music. Programs like Finale and Sibelius enable composers and arrangers to write, edit, and print sheet music with ease. Their greatest advantage lies in automated functions; operations such as automatically aligning notation, transposing, and extracting instrumental parts can now be executed with just a few clicks. This saves significant time in the compositional process.*

*The integration of virtual sound libraries is another crucial feature. A composer can immediately listen to the written notation through virtual instruments, allowing for instant verification of the orchestration and the ability to make necessary adjustments.*

*The printing functionality of these programs is also highly advanced. It is possible to print created scores at a professional level or export them in PDF format, which facilitates easy sharing and duplication of sheet music.*

*Digital notation software also simplifies collaboration. Multiple composers working on the same project can edit the same score simultaneously, which saves significant time, especially on large-scale projects.*

*The development of digital audio formats has played a crucial role in music production and distribution, with different formats designed for various purposes.*

*Lossless formats like WAV and AIFF are used to preserve audio quality at a professional level. These formats store the audio signal without any loss of quality, but they occupy a large amount of storage space.*

*On the other hand, lossy compression formats like MP3 significantly reduce the size of music files. Although these formats result in some loss of audio quality, they reduce the file size by more than tenfold, which is crucial for online music distribution.*

*Lossless compression formats, such as FLAC, preserve audio quality while still reducing the file size to a certain degree. This format is particularly popular among audiophiles.*

*Technology demonstrates its influence not only in the studio but also on stage. Modern live performances are often enriched with various technological solutions.*

*Software like Ableton Live is specifically designed for live performance, allowing artists to manipulate sounds in real-time, which turns every concert into a unique experience.*

*Automated show systems have completely transformed the concert experience. By synchronizing music, light shows, and visuals on LED screens, they create a more immersive and memorable experience for the audience. Some artists even utilize virtual reality technologies. VR concerts offer audiences a completely new experience, which gained particular popularity during the pandemic.*

*Technology has also transformed music education. In addition to traditional teaching methods, various technological solutions are now available. Online lessons and masterclasses allow anyone to learn from renowned musicians anywhere in the world, a significant opportunity especially for those living in remote areas. Interactive educational applications like Yousician and Simply Piano make learning music more enjoyable. These programs use gamification elements to motivate students to practice.*

*Specialized software for music theory and ear training is also available. These programs help students develop their theoretical knowledge and aural skills. Virtual practice platforms, such as guitar simulators, allow users to grasp fundamental principles even without a physical instrument.*

*The internet and digital technologies have fundamentally altered the business model of the music industry. Old models have given way entirely to new approaches.*

*Social media platforms (TikTok, Instagram) have become the most powerful tools for music promotion. Digital distribution services (like DistroKid, TuneCore) have created major opportunities for independent artists. Through these services, artists can upload their music directly to streaming platforms.*

*CONCLUSION: Thus, information technology has transformed the art of music in every aspect. The creative process has become more accessible, music distribution has been simplified, and educational opportunities have expanded. However, these changes have also raised certain ethical issues.*

*In the future, technology will continue to advance, with artificial intelligence potentially creating more complex compositions and virtual reality fundamentally altering the concert experience. Yet, the most crucial point is that technology remains merely a tool. It can never fully replace human creative power and emotional depth.*

*The harmonious synthesis of technology and art will form the essential foundation for the continued evolution of the musical art. Each new technological possibility opens new avenues for creativity and* *introduces new means of expression. This ensures that the art of music remains a perpetually vibrant and evolving art form.*

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# Biological sciences

## THE EFFECT OF ADDING 6-BENZYLAMINOPURINE (6-BAP) TO THE NUTRIENT MEDIUM IN THE MICROCLONAL PROPAGATION OF A. ABSINTHIUM

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*6-BAP is a chemically synthesized cytokinin that activates cell division, stimulates shoot formation from initial buds, and promotes shoot proliferation. Therefore, it is considered one of the most effective and widely used phytohormones in micropropagation processes [6].*

*Under in vitro conditions, this hormone significantly enhances shoot development in many plant species [5]. Cytokinin is one of the essential plant hormones for plant growth and development, promoting cell division and differentiation [9]. In nature, several endogenous cytokinins are present in plants, such as zeatin (Zea) and its riboside form (Zea-R). In addition, there are several synthetic cytokinin-like compounds, including benzylaminopurine (BAP), kinetin (Kin), and 2-isopentenyladenine (2-IP) [4].*

*Cytokinins not only regulate the process of organogenesis but also play an important role in enhancing plant stress tolerance and increasing photosynthetic activity. Therefore, the application of cytokinins under in vitro conditions not only increases the efficiency of regeneration but also positively influences subsequent acclimatization and adaptation to field conditions [1;10].*

*6-BAP is a plant hormone belonging to the cytokinin group that activates cell division. This serves as the basis for the formation of new cells and tissues from the explant [3]. The most significant and valuable effect of this hormone is that adding 6-BAP to the nutrient medium at an appropriate concentration promotes the formation of a large number of lateral shoots in the explant. As a result, numerous new plants can be obtained from a single explant. This, in turn, fulfills the main objective of micropropagation — to obtain genetically identical clones rapidly and efficiently [11].*

*In some cases, especially at high concentrations or in combination with other hormones, 6-BAP may promote the formation of callus (a mass of undifferentiated cells). The callus can later differentiate into whole plants through organogenesis or somatic embryogenesis [2]. The effectiveness and impact of 6-BAP depend on the plant species, the age of the explant, the composition of the nutrient medium, and the concentration of 6-BAP. Optimal concentrations may vary for each plant species [7].*

*6-BAP is one of the key agents in micropropagation for effectively enhancing shoot proliferation, ensuring rapid multiplication, and obtaining high-quality, genetically identical plant material. Its proper concentration and balanced combination with other hormones are the keys to success in plant cultivation under in vitro conditions [8].*

*In many plant species, 6-BAP effectively enhances shoot proliferation — numerous studies have shown that specific concentrations of 6-BAP promote the formation of multiple initial shoots from a single explant. In this case, the most effective concentration varies depending on the plant species and the source of the explant. According to the literature, increasing the amount of 6-BAP is beneficial up to a certain limit; however, higher concentrations may lead to callus formation, disruption of organogenesis, or even exert toxic effects on explants. Therefore, it is important to determine the optimal amount for each species.*

*Table 1*

*Effect of adding 6-benzylaminopurine (6-BAP) to the nutrient medium (MS3) on explant viability during the initiation stage of micropropagation of A. absinthium (n=3)**

| 6-BAP concentration, mg/l | Viability | |
|---|---|---|
| | In number | In percentage (%) |
| 0,0 (Control) | 33±1,32 | 55 |
| 0,4 | 36,7±1,46 | 61,2 |
| 0,9 | 47,3±2,0 | 78,8 |
| 1,4 | 41±1,64 | 68,3 |
| 2,0 | 30,7±1,22 | 51,1 |

*Note. The values were calculated based on 60 explants.*

*Studies were conducted to determine the optimal concentration of the cytokinin 6-benzylaminopurine (6-BAP) for explant viability during the initiation stage of A. absinthium micropropagation under in vitro conditions. The experiment was carried out on the MS3 nutrient medium, testing 6-BAP concentrations ranging from 0.0 to 2.0 mg/L.*

***Figure 1. Effect of 6-benzylaminopurine (6-BAP) on** A. absinthium **L. explants***

*The values were calculated based on 60 explants. The analysis of the results showed that increasing the 6-BAP concentration, up to a certain point, enhanced explant viability. In the control group (0.0 mg/L 6-BAP), viability was 55%. The highest viability rate (78.8% or 47.3 ± 2.0 explants) was recorded at a 6-BAP concentration of 0.9 mg/L. This value is 23.8% higher compared to the control. 6-BAP concentrations higher than 0.9 mg/L reduced viability. Specifically, at a concentration of 2.0 mg/L, viability decreased to 51.1%, which was lower than that of the control. This indicates that high concentrations of 6-BAP are toxic to A. absinthium explants. Therefore, a 6-BAP concentration of 0.9 mg/L was selected as the optimal level for the initiation stage of A. absinthium micropropagation.*

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# SPECİES DİVERSİTY AND PHYTOPATHOGENİC COMPOSİTİON OF THE MYCOBİOTA OF FORAGE CROPS

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*Abstract*
*The present study focuses on the analysis of the species diversity and phytopathogenic composition of the mycobiota associated with forage plants. The diverse chemical composition of forage plants, the specific features of fungus–substrate interactions, and the soil–climatic conditions of the investigated area have been found to influence both the species diversity and the phytopathogenic structure of the mycobiota. The results revealed that phytopathogenic fungi exhibited the highest species diversity on Medicago sativa, whereas the lowest colonization rate was observed on Artemisia vulgaris.*

*Keywords:* *forage crops, mycobiota, species diversity, phytopathogenic fungi, fungal diseases, phytosanitary status.*

*Azerbaijan is one of the countries with the most ancient agricultural traditions in the world. The effective use of traditional practices in the development of the agricultural sector of our country has yielded positive results, playing an important role in meeting the growing demand of the population for agricultural products. However, in recent years, the negative effects of serious global bioecological imbalance have not bypassed our Republic [1;2]. It should be noted that fungal pathogens inhabiting the environment recognize no boundaries; they migrate rapidly across neighboring countries and easily infect agricultural crops, including forage plantsm [3;4]. As a result, the productivity of forage crops decreases significantly, leading to substantial yield losses.*

*Therefore, before implementing measures to control fungal diseases of forage plants, it is of both scientific and practical importance to study the taxonomic identity of pathogens, their virulence level, and patterns of distribution [5].*

*The purpose of the present study was to investigate the species diversity and phytopathogenic composition of the mycobiota associated with forage crops recorded in the studied regions.*

*As the conditional research area, farms cultivating forage crops in the Bilasuvar, Jalilabad, and Imishli regions were selected. Samples were collected from both vegetative and generative organs of forage crops suspected to be infected by fungi.*

*During the study, the following forage crops were examined: alfalfa (Medicago sativa L.), common vetch (Vicia sativa L.), field pea (Pisum arvense L.), maize (Zea mays L.), sunflower (Helianthus annuus L.), sugar beet (Beta vulgaris L.), and grass pea (Lathyrus sativus L.). As is well known, these forage crops are irreplaceable in livestock feeding systems.*

*It was found that the cultivation areas, resource potential, and chemical composition of forage plants directly affect the formation and species diversity of their mycobiota. Comparative analysis revealed that Medicago sativa had the richest mycobiota (23 species), whereas Artemisia vulgaris showed the lowest diversity (9 species). This difference is likely related to the chemical composition of the plants, fungus–substrate interactions, and the soil–climatic characteristics of the study regions.*

*Additionally, the phytopathogenic composition of the mycobiota formed on forage crops was analyzed. It was determined that Medicago sativa again had the highest number of phytopathogenic fungi (15 species), while Artemisia vulgaris had the lowest. More than 65% of the mycobiota associated with alfalfa consisted of phytopathogenic fungi.*

*Among the dominant phytopathogens were Botrytis cinerea, Erysiphe pisi, Fusarium moniliforme, F. oxysporum, Phoma medicaginis, Thielaviopsis basicola, Uromyces trifolii, U. repentis, and Verticillium dahliae.*

*It is noteworthy that some phytopathogenic fungal species were found to colonize multiple forage crops simultaneously. This can be explained by the close taxonomic relationships and similar chemical compositions of these plants, as well as the comparable soil and climatic conditions of the study areas.*

*Overall, no epiphytotic outbreaks of any particular disease were observed in the studied regions, which indicates that the phytosanitary status of the area remains stable and not dangerous.*

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# *ANALYSIS OF TAXON COMPOSITION OF GASTROPOD MOLLUSCS ZARAFSHAN MOUNTAINS, UZBEKISTAN*

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*The Zarafshan range stretches for 370 km from east to west. The eastern part of the range (up to the Fandarya) is strongly dissected, with some peaks rising to 4,500-5,000 meters. The highest point is Chimtarga (5,494 m) in the central part. From the Magyandarya to the west, the range decreases in height and consists of the Chakilkalon (2,388 m) and Qoratepa (2,209 m) ranges. They separate the Zarafshan and Kashkadarya valleys [1].*

*Information on the composition of the gastropod malacofauna of the Zarafshan Mountains and adjacent plains is found in the records of Z.I. Izzatullaev et al. (2019), Z.M. Makhmudjonov (2023). However, these studies were conducted on separate groups of mollusks, and the records given in them do not provide accurate information on the species composition of gastropod mollusks of the Uzbekistan part of the Zarafshan Range [2, 3].*

*Therefore, the purpose of this study was to determine the species composition of gastropod mollusks of the Zarafshan Mountains.*

*The selection of sampling stations took into account the differences in altitude, annual precipitation, and temperature of the area. The study area includes 15 locations in the Zarafshan Mountains of Uzbekistan.*

*The cases of Starobogatov et al. (2004) and Izzatullayev (2019) were used to identify molluscs. After being photographed and identified, the sample is stored in the collection bottle. The methods used to identify mollusc species consisted of morphological, anatomical, and taxonomic analysis. Identification of mollusc samples was carried out based on the morphology of mollusk shells and the structure of genital organs [3, 4].*

*During our research in the region during 2023-2025, more than 3,000 specimens of gastropods were collected and identified. As a result of the identification of materials collected from the Zarafshan Mountains, 80 species of gastropods belonging to 21 families and 35 genera were recorded in the study area.*

*According to the distribution indicators of gastropod species in the Zarafshan Mountains and adjacent plains by family, the families Lymnaeidae and Hygromiidae are the most species-rich families in the region. 31.25% of the species in the region (a total of 25 species) belong to these families. The families Physidae (9 species), Melanopsidae and Parmacellidae (6 species each) are also distinguished by their relatively high number of species. In addition, 5 species of the Pupillidae family, 4 species of the Hydrobiidae and Vallonidae families, 3 species of the Buliminidae and Succineidae families, 2 species of the Cochlicopidae and Orculidae families, and one species each of the Acroloxidae, Ariophantidae, Gastrodontidae, Bradybaenidae and Ferussaciidae families are found in this microregion. According to the distribution of species within families, the families Lymnaeidae (4 genera) and Succineidae (3 genera) are dominant in the study area (Figure 1).*

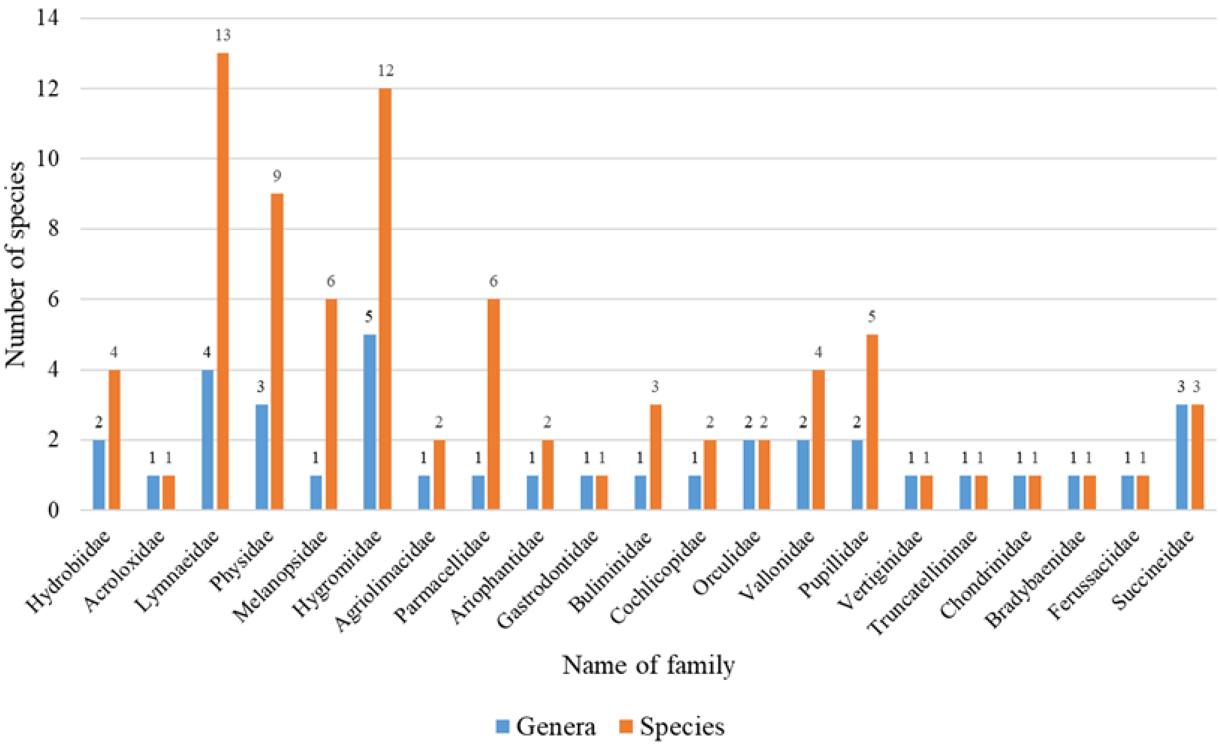


*Figure 1. Distribution of genera and species of gastropod mollusks in the Zarafshan Mountains (Uzbekistan) into families*

*Analysis of the distribution of gastropod mollusk species of the Zarafshan Mountains and adjacent plains by genera showed a decrease in species abundance by genera: Lymnaea, Melanopsis, Candaharia (6 species each), Archaica, Anisus, Leucozonella (4 species each), Planorbis, Radix, Pupilla, Vallonia, Pseudonapaeus (3 species each), Sogdamnicola, Valvatamnicola, Galba, Ampullaceana, Physella, Nanaja, Deroceros, Macrochlamys, Cochlicopa, Gibbulinopsis (2 species each). It was also noted that 15 more genera had one species each (Fig. 2).*

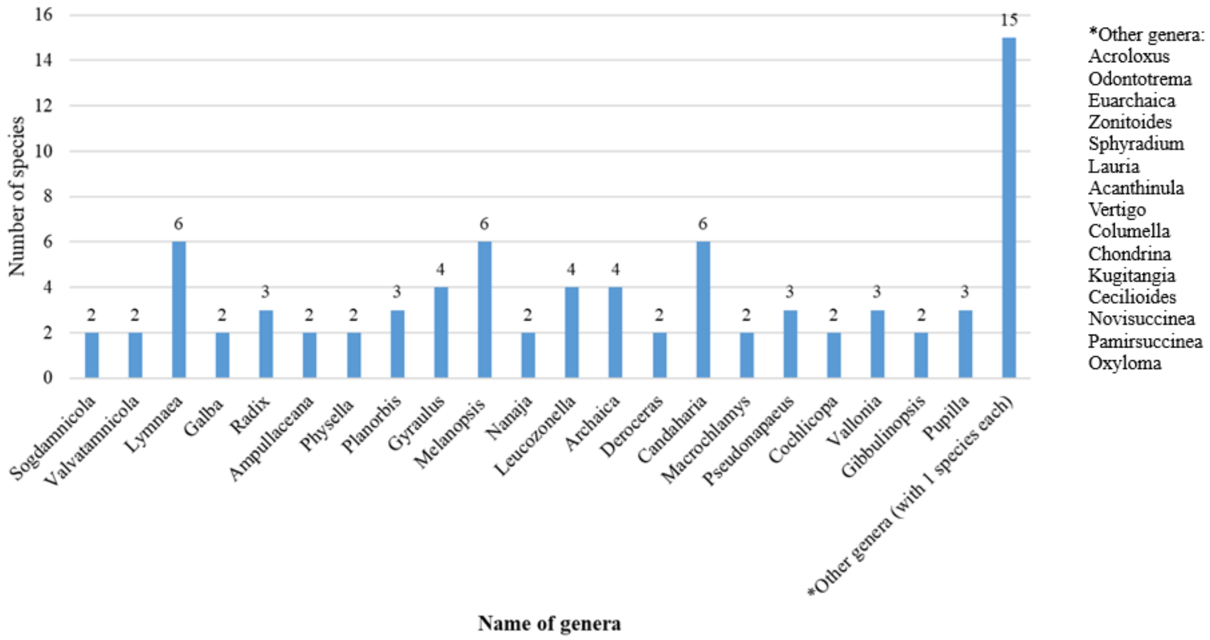


*Figure 2. Distribution of species of gastropod mollusks in the Zarafshan Mountains and adjacent areas (Uzbekistan) into genera*

*This study is the first to comprehensively study the gastropod mollusks of the Zarafshan Mountains (Uzbekistan) by dividing them into vertical altitudinal zones. Another important feature of this study is that both terrestrial and aquatic mollusks were studied. Similar studies have been carried out by local specialists in the Nurota Mountains and Gissar Mountains. Kudratov et al. (2023) identified 15 species of* *gastropod mollusks belonging to four families (Belgrandiellidae, Lymnaeidae, Physidae and Planorbidae) and 5 genera in this area by identifying materials collected from 11 streams in the Nurota Mountains. When analyzing the species composition, it was noted that representatives of the Lymnaeidae family predominated in the gastropod mollusk fauna of the Nurota Mountains. Compared with the Nurota mountain range, the species of the Lymnaeidae family (9 species) were found to be dominant in the Zarafshan mountains and adjacent areas. Studies conducted in 13 biotopes in the Hissar mountain range and adjacent areas revealed that 46 species of terrestrial gastropod mollusks were found in this area, and the number and density of species in the steppe and adir regions were lower than in the mountain zone, where the vertical elevation gradient was relatively high [5, 6].*

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# Economic sciences

## STRENGTHENING THE REGULATORY FUNCTION OF TAXATION AS A MECHANISM FOR IMPROVING FISCAL SYSTEM EFFICIENCY

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*Abstract*
*This study explores the enhancement of the regulatory function of taxation as a key factor in improving fiscal efficiency and sustainable economic growth in developing economies. The research emphasizes the need for institutional modernization, digital transformation, and the integration of green and innovation-oriented fiscal mechanisms. Strengthening tax administration, broadening the tax base, and promoting international fiscal cooperation are identified as essential strategies for achieving transparency, equity, and long-term economic resilience.*

*Keywords: taxation, fiscal efficiency, regulatory function, digital governance, sustainable development.*

*In the twenty-first century, the taxation system has evolved from a mere fiscal instrument for revenue collection into a dynamic mechanism for macroeconomic regulation and sustainable development. The regulatory function of taxation is now recognized as one of the most powerful tools of government intervention in the economy, enabling the state to influence production, consumption, investment behavior, and income distribution in a targeted and systematic manner. The effectiveness of this function determines not only fiscal balance but also the overall efficiency and resilience of the national economy.*

*In developing economies, where fiscal systems often face structural weaknesses such as a narrow tax base, weak administrative capacity, and high informality, the regulatory role of taxation acquires special relevance. Unlike developed countries that rely on mature fiscal institutions and diversified revenue structures, developing states depend heavily on limited sources of taxation, often resulting in fiscal instability and inefficient resource allocation. Consequently, improving the regulatory function of taxation becomes a strategic imperative for achieving sustainable economic growth, social equity, and institutional trust.*

*The global financial crises, the COVID-19 pandemic, and the subsequent disruptions in trade and supply chains have further revealed the critical need for adaptive and resilient fiscal management. These events have shown that taxation systems that are flexible, transparent, and technologically advanced can better withstand economic shocks and support recovery. In this context, taxation is no longer viewed as a passive fiscal policy tool, but as a proactive instrument for stabilizing aggregate demand, correcting market failures, and steering the economy toward innovation-driven and inclusive growth.*

*Modern research on taxation emphasizes its regulatory function as a key determinant of fiscal efficiency and sustainable development. In developing economies, taxation has evolved from a static source of state revenue into a dynamic mechanism of macroeconomic coordination, institutional transformation, and social inclusion. This multidimensional nature of taxation has been examined through various frameworks including fiscal capacity theory, institutional economics, and digital governance models.*

*A growing body of empirical evidence highlights the critical relationship between taxation and state capacity. According to Mick Moore (2014), effective taxation builds the "fiscal contract" between governments and citizens, fostering accountability and legitimacy [1]. Similarly, Odd-Helge Fjeldstad and Mick Moore (2019) demonstrate that fiscal bargaining — where citizens demand transparency in exchange for compliance — strengthens democratic governance and improves public trust [2]. Brautigam, Fjeldstad, and Moore (2014) further argue that strong tax institutions are foundational for state-building, as they enhance both fiscal capacity and social cohesion [3].*

*The fiscal capacity approach developed by Timothy Besley and Torsten Persson (2014) remains central in the literature. They contend that developing countries must invest in institutional capacity particularly in information systems, tax administration, and human capital to sustain long-term revenue mobilization [4]. This is consistent with findings by Jonathan Di John (2010), who notes that fiscal* *capacity directly correlates with the quality of governance, especially in post-crisis and resource-dependent economies [5].*

*The International Monetary Fund (IMF) and World Bank have contributed extensively to understanding the structural challenges of taxation in emerging markets. Gupta and Keen (2017) stress that the efficiency of tax systems depends not only on tax rates or bases, but also on compliance culture, enforcement, and administrative design [6]. IMF (2023) reports that developing economies could mobilize up to 9% of GDP in additional revenue through digital reforms and better compliance mechanisms [7]. Pomeranz (2015) provides micro-evidence from Chile showing that electronic invoicing and digital reporting systems substantially increase compliance by improving traceability within the value chain [8].*

*The research findings demonstrate that enhancing the regulatory function of taxation is essential for strengthening fiscal efficiency, institutional credibility, and sustainable economic development in developing economies. The evidence suggests that fiscal reforms must move beyond revenue mobilization toward building an adaptive, transparent, and innovation-driven taxation system. First, countries should prioritize digital transformation of tax administration through integrated data systems, artificial intelligence, and blockchain to improve compliance, reduce evasion, and enhance fiscal transparency. Second, broadening the tax base by formalizing the informal economy and introducing simplified registration mechanisms will ensure fiscal stability and social equity. Third, institutional strengthening is crucial: tax administrations must be granted operational autonomy, equipped with skilled personnel, and supported by accountability frameworks that link revenue performance with governance outcomes. Fourth, the adoption of green and innovation-oriented fiscal instruments — including carbon pricing, environmental levies, and tax incentives for research, digitalization, and sustainable production — will align fiscal regulation with the global sustainable development agenda. Fifth, international tax cooperation should be deepened through adherence to OECD to prevent capital flight and promote fiscal fairness across borders. Finally, public trust and fiscal culture must be cultivated by reinforcing the fiscal contract between the state and citizens, ensuring that tax revenues are visibly translated into improved social services, infrastructure, and human capital investment. In conclusion, the regulatory function of taxation represents not only a fiscal mechanism but also a strategic instrument of national development. When supported by institutional modernization, digital governance, and sustainability-driven reforms, taxation evolves into a powerful catalyst for inclusive growth, macroeconomic stability, and the long-term resilience of developing economies.*

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# Historical sciences

## THE PLACE OF BABYLON IN THE HISTORY OF THE ANCIENT EAST

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*Abstract*

*There were many different states in the history of the Ancient East. Among them, the state of Ancient Babylonia has an interesting history. The ancient Akkadians called this state Karduniash, and the ancient Egyptians called it Sangar. This state, which emerged at the beginning of the 2nd millennium BC, existed until 539 BC. The Amorites, one of the Semitic tribes that founded Babylonia, adopted the Sumerian and Akkadian cultures. The heyday of Babylon coincides üith the reign of Hammurabi, the sixth ruler of the First Babylonian Dynasty, an oustanding statesman. Hammurabi`s reign was spent on the cration of the great Babylonian state, which covered the entire territory of Mesopotamia. During these years, Babylon, a small city, became not only the capital of a large state, but also the largest economic, political and cultural center of Asia Minor. One of the most powerful rulers in the history of ancient Babylonia was Nebuchadnezzar II. He invaded Phoenicia and took control of the main caravan routes. His main rival was the Egyptian state. With the support of Egypt, Judah moved away from Babylon. Ten years later, Nabuchadnezzar II attacked the state of Judah, defeated it, and especially during the last campaign, thousands of Jerusalem residents were taken captive. They were settled in various parts of Babylonia. This event went down in history as the period of the Babylonian captivity of the Jews. Judah was incorporated into the Babylonian empire as a province. The Babylonians besieged the Phoenician city of Tyre, which they captured 13 years later. The reign of Nebuchadnezzar II was a period of economic and cultural revival in Babylonia. Durinf this period, a magnificent bridge was built connecting different parts of Babylon. The ziggurat of Etechenanki, south of the main Babylonian sanctuary of Esagila, gained great fame during this period. This tower, called the Tower of Babyl in the Bible, was one of the wonders of the ancient world. It housed a statue of Marduk, the supreme god of Babylonia. Nebuchadnezzar II built the famous Hanging Gardens for his wife. This was also considered one of the wonders of the world. This ruler governed the state through special laws. In this regar, his name has been preserved in history for many years. Babylonia was ruled by the Kassites, Chaldeans, Assyrians, and Achaemenids. Stuying the history of this people, which gave two great wonders to the history of world culture, is of great interest in the modern era.*

*Keywords:* *Ancient East, Babylonia, Amorite, Chaldean, empire, code of laws*

### İntroduction

*The crisis of the economic system based on large princely farms, the fall of the III Dynasty of Ur, the destruction of the Sumerian – Akkadian centers by the cattle – breeding Amorite tribes and their srpead throughout Mesopotamia led to the temporary decline of the centralized state and the political fragmentation of the country.*

*In the south, two independent states emerged, centered on the cities of Larsa and Isin. Mari on the Euphrates and Ashur on the Tigris, and the state of Eshnunna in the Diyala River region, were important states in northern Mesopotamia. They were ruled by Amorite dynasties, who relied on the armed forces of their warlike tribal allies.*

*In the 20$^{th}$ and 19$^{th}$ centuries BC, these state were engaged in internal wars. In this process, the city of Babylon (Ki – Tengri (the Gate of God)) gained independence and the period Old Babylonia (1894 – 1595 BC), or the period of the Amorite dynasty, began.*

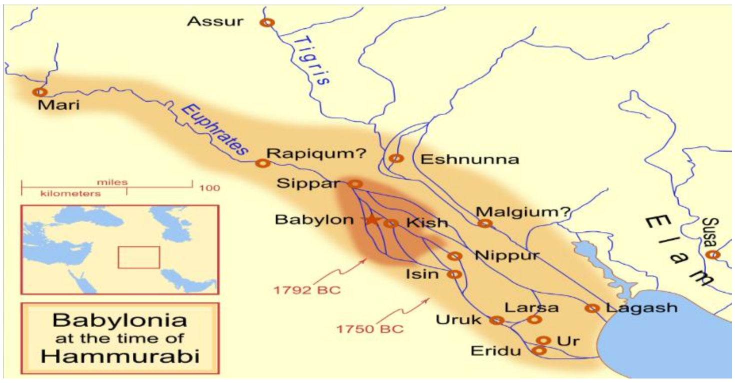
*The ancient city of Babylon*

*The emergence and rice of the Babylonian state*

*During the wars, the main rival states weakened each other. Thus, Larsa became the main object of occupation for the Elamites, who were entrenched in the south. In Mesopotamia, the Elamite ruler Rim – Sin (1822 – 1763 BC) built canals, erected gold and copper statues in honor of the gids of Sumer and Elam, and built temples in Larsa, Ur, and other cities. Many cities in Mesopotamia, including Uruk, Nippur, and Isin, recognized his rule, and the provincial capital, Larsa, quickly became one of the largest cities in Mesopotamia.*

*Emerging from a severe socio – economic and political crisis, Southern Mesopotamian society was regaining strength. There was a new rise in irrigated africulture, trade and urban life revived. Development was hampered by political fragmentation and internal wars. The quention of creating a single centralized state again came to the fore.*

*Under these conditions, the role and importance of the new center – Babylon – gradually increased. İts location in the central part of the valley, where the Tigris River approaches the Euphrates, was strategically favorable. Here the main links of the irrigation network were united – power was strengthened in Southern Mesopotamia, through which the most important land and water routes of all Western Asia passed.*




*Babylonia at the time of Hammurabi*

*Babylon`s heyday coincided with the reign of Hammurabi (1792 – 1750 BC), the sixth ruler of the First Babylonian Dynasty. Hammurabi skillfully used the policy of forming military alliances, which he eacily dissolved once he had achieved his desired goal. Initially, Hammurabi concluded a mutual assistance treaty with Larsa and thus secured himself, subjugating Uruk and Issin and beginning to capture cities in the south. His attention was drawn to the state of Mari, founded by Zimrilim, a representative of the local dynasty, at a time when the closest friendships had been established, and which had freed from Assyrian rule. Relying on this alliance with Mari, Hammurabi defeated Eshnunna, whom Assyria had unsuccessfully attempted to help. Zimrilim did not want the fruits of this victory and wrote to his ally: Rule yourselves or appoint what is pleasing to you. The next blow of the allies fell on Larsa. Rim – Sin was defeated and fled to Elam, and his kingdom remained with Hammurabi.*

*The upper part of the stela of Hammurapi code of laws*

*Two major states remained in Mesopotamia: Babylon, which united the entire southern and central part of the country under its rule, and its ally Mari, whose ruler considered himself the ruler of the Upper Country. Mari was a powerful and dangerous rival for Babylon.*

*Mari, loceted in the middle reaches of the Euphrates, united a number of Euphrates cities around itself (Terka), subjugated some nomadic tribes of the Syrian – Mesopotamian steppe (Didans, Cheini), and established trade and diplomatic relations with the Eastern Mediterranean states of Byblos, Ugarit, Cachemich, Yamhad, Cyprus and Crete. Even Egyption scarabs and Hittite seals were found in Terka. During the reign of Zimrilim, a magnificent palace was built in the city of Mari, covering an area of 4 hectares and having more than 300 residential, economic and religious buildings. People came from Ugarit, Yamhad and Babylon to see this palace.*

*Hammurab`s laws*

*Zimrilim was a statesman like Hammurabi. His diplomats and intelligence officers were constantly in Babylon, closely following all the actions of their ally even at the best of times in relations between Babylon and Mari. This is evidenced by letters preserved in the archives of Zimrilim`s palace. Information about the relations between Babylon, Larsa, Eshnunna, and Assyria was conveyed to the ruler of Mari. With the change in the situation, he withdrew his troops, which had been fighting alongside the Babylonians in Larsa.*

*In 1759 BC, Hammurabi, using Zimrilim as a pretext for breaking up the alliance, captured the city of Mari and subjugated the northern Mesopotamian state. Soon, a rebellion by Zimrilim forced him to take the rebellious city, demolish its walls, and burn the ruler`s palace. After this defeat, the Mari state ceased to exist. In the north, a weakened Assyria remained, deprived of its allies. Its cities, Ashur, Nineveh, etc., recognized the rule of Babylonia.*

*The 35 years of Hammurabi`s reign were spent creating the great Babylonian state, which covered the entire territory of Mesopotamia. During these years, Babylon, a small city, became not only the capital of large state, but also the largest economic, political and cultural center of Asia Minor.*

*Despite its initial successes, the Babylonian state, which was formed from conquered territories and once independent states, weakened. The aggravation of internal contradictions, especially those related to the weakness of communities, soldiers, taxpayers, and defenders of the state, and foreign policy difficulties affected the reign of Hammurabi`s son Samsuiluna (1749 – 1712 BC). He tried to maintain his authority, building ziggurats, decorating temples, making golden thrones in honor of the gods, and building new canals. However, in the south, the Babylonians were being squeezed by the Elamites, who* *captured Sumerian cities one after another. During the suppression of the rebellion, Sippar rose, its walls and temples destroyed, and Isin disappeared.*

*The foreign policy environment also became increasingly unfavorable for Babylon. The warlike Kassite tribes were penetrating its territory. In northwestern Mesopotamia, the Hurrians settled and cut off Babylonia from the main trade routes leading to Asia Minor and the eastern Mediterranean coast. Finally, in 1595 BC, the Hittite invasion of Babylon ended with the capture of Babylon, the removal of the statue of the god Marduk, and the end of the rule of the First Babylonian Dynasty.*

*The socio – economic and political system of Babylonia (based on the Code of Hammurabi)*

*The economy, social and political structure of the Babylonian state during Hammurabi`s reign is studied on the basis of the law code, correspondence with officials, and special legal documents, The issuance of laws was aimed at strengthening Hammurabi`s power. The code of laws is divided into three parts: an introduction, the text of the laws, and a conclusion. It is an important source for the study of Babylonian society in the first half of the 18th century BC. The economy of the Babylonian state during the reign of Hammurabi was based on the development of irrigated agriculture, horticulture, cattle breeding, various crafts, and foreign and domestic trade.*

*He strengthened the cental government and issued laws. These laws paid special attention to the issues of strengthening private property, human rights, and protecting nature. One of Hammurabi`s titles, "the ruler of justice", stems from his unwavering fame, as Hammurabi is the founder of the first collection of laws recorded in sources. Scholars note that the Hammurabi Code, consisting of 282 articles, written on stone tablets, is based on a mixture of semitic innovations and Sumerian laws, but since they cannot decide which law belongs to the Sumerians and which to the Semites, they simply accept the entire text as Mesopotamian jurisprudence. Before considering some of the provisions of the code, it should also be said that the Hammurabi Code contradicts the modern concept of "legal equality".*

*During Hammurabi`s reign, the expansion of arable land led to the transformation of the economy into an intensive sector, the development of cereals and oilseed crops (sesame). This was achieved by expanding the irrigation network in the country. Special officials were required to monitor the condition of the canals. Mari archival documents show that the able – bodied population, from freemen to slaves, participated in the irrigation duty, and those who evaded it were severely punished. Four articles in the Code of Hammirabi specifically address various cases of negligence or carelessness of a farmer in relation to irrigation facilities in his field. Damage to a neighbor`s field had to be paid for. Otherwise, the damager`s property or himself was sold to pay for the damage. The Babylonian ruler Hammurabi worked to build canals like the River of Wealth, which briught abundant water to Sumer and Akkad.*

*Cattle breeding was developed. The laws repeatedly mention cattle – herds of blacks and small animals. Animals were rented out to work in the fields, threshing, and transporting heavy loads. Art was represented by many different crafts such as bricklayer, shipwright, carpenter, stonemeson, tailor, weaver, blacksmith, etc. At that time, doctors, veterinarians, and barbers were classified as artisan professions. The Code of Hammurabi stipulated that craftsmen should be paid their wages and held accountable for their work. "If a builder rebuilds a man`s house and does not do his work properly, and the house he built collapses, that builder shall be put to death".*

*The development of trade was facilitated by the unification of the entire Mesopotamian territory within the framework of the Babylonian state, and the centralization of trade routes from the Tigris and Euphrates valleys. Products exported from Babylonia were grain, dates, sesame oil, wool, and handicrafts.*

*Trade was of particular interest to the state and was handled by special trade agents. The tamkars, who carried out state and trade transactions, conducted it through small intermediary merchants. The tamkars were subordinate to the state official "vakil – tamkarim". The moneylenders had assistants called "shamallu". Sometimes they also set monopoly prices. In return for their services, they bought land and garden plots, houses. The moneylenders were the tenants of the land plots of the rulers and ordinary people. The most important trading centers were Babylon, Nippur, Sippar, Larsa and Ur.*

*In Babylonian society during the time of Hammurabi, governance in the country was based on slave ownership. The laws indicated a distinction between free citizens and slaves. A free, fully – fledged citizen was called an "avilum" – "man". Free citizens, including landowners, tamkars, priests, community peasants, and artisans, formed the same class. According to one of the articles of Hammurabi`s code, a distinction was made between high and low – ranking individuals and different degrees of crime were established. The laws served the interests of private property and slave owners.*

*The majority of the population in Babylonian society were small producers and small businessmen who paid taxes to the treasury and provided the military power of the state. Their rights were also* *reflected in the laws. Thus, some laws protected them from the arbitrariness of usurers, the latter were prohibited from taking crops to pay off debts, the interest rate on the loan amount was ragulated (20% for borrowed silver, 33% for grain loans), mistreatment of collateral was severely punished, and debt slavery was limited to three years. At the same time, a process of stratification of small producers was underway.*

*In Babylonian society, alongside the freedmen, there was also the category of muskenum. This term meant "to bow down". The muskenum worked in the rule`s household. After severing ties with the community, they would receive the land and property they had lost in exchange for service to the ruler. Damage caused by the activities of muskenums was compensated by a fine, and the principle of talion was applied. It id clear from the laws thet muskenums had property and slaves, their property rights were strictly protected, and their property was counted along with the property of the palace in which they served.*

*The lowest class of Babylonian society were the slaves (vardum). The source of slavery was war, property stratification leading to debt slavery, the unequal position of family members under the father`s rule, the possibility of pledging or selling him into slavery, and the possibility of becoming a slave for certain crimes. There was a distinction between private, state, muskenum, and temple slaves. An average family had 2 – 5 slaves. Sometimes in wealthy families there were more. Slaves were considered the property of the slave owners, they were sold of bought. Slaves often ran away from their slave owners and were punished for it.*

*However, in Babylonia, slaves could own small estates managed by the owner, marry free women while retaining their civil and property rights, and the children from such marriages could be considered free.*

*The Babylonian family was patriarchal and was ruled by a single householder – the father and the husband. Marriages were concluded on the basis of contracts, accompanied by the bringing of a wedding gift by the groom and a dowry by the bride. Laws protected the honor, dignity, and health of a woman. It was difficult for a widow to divorce or remarry. All children of both sexes had the right to inherit parental property, but sons were given some preference.*

*The Babylonian state had the features typical of ancient Eastern despotism. At the head of the state was a ruler who had legislative, executive, judicial and religious powers. The land fund of the ruler was extensive. Thus, in Larsa it constituted 30 – 50 % of the arable land. However, the structure of the state economy had changed significantly compared to the period of the III Ur Dynasty. This reign was characterized by the establishment of a temple economy. The ruler played a decisive role in the activities of the created courts. Financial and tax departments were engaged in the collection of taxes in the form of silver and in kind from crops, livestock and handicraft products.*

*The ruler`s power was based on an army consisting of heavily and lightly armed army units – redum and bairum. Their rights and duties were defined in 16 articles of the Code of Hammurabi. The laws protected soldiers from the arbitrariness of their commanders, regulated their release from captivity, the provision of a soldier`s family, etc.*

*The bureaucratic apparatus, controlled by the ruler, carried out his orders. At the same time, the ruler`s administrative bodies established contacts with local authorities, people`s assemblies, and community leaders. The administrative apparatus waged a serious fight against bribery, indiscipline, etc. The establishment of a centralized Babylonian state and the rise of Babylon were later reflected in religious worship. Marduk, the local god and patron of the city of Babylon, once considered one of the lesser gods, became the chief god of the pantheon.*

*The Middle Babylonian state during the reign of the Kassite dynasty*

*The Middle Babylonian period, or Kassite dynasty, ruled Babylonia from 1595 BC to 115 BC. The Kassities, one of the mountain tribal groups of Iran, invaded the borders of Mesopotamia after Hammurabi. In 1742 BC, the Kassite leader Gandash invaded Babylonia and assumed the title of "ruler of the four countries of the world, Sumer and Akkad, Babylon", but this did not mean the actual conquest of the country. Only their defeat by the Hittites consolidated the Kassite rulers on the Babylonian throne.*

*To strengthen relations, Kassite rulers entered into diplomatic marriages with Egyptian pharaohs. According to the letters found in the Tell – Amarna archive, it is possible to find clauses regulating relations between Egypt and Babylonia and providing mutual assistance.*

*The Kassites adopted Babylonian culture, recognized the Kassite gods as Babylonian gods, and patronized the traditional worship of Mesopotamian religion. Thus, in the 16$^{th}$ century, Agum II returned to his homeland the statues of Marduk and his wife Tsarpanit, sacred to Babylon, captured during the*

*Hittite campaign, and did much to restore and decorate their temples. Temples were built in the 15th – 14th centuries BC.*

*The great cities of Babylon, Nippur, and Sippar were not only exempt from all taxes and duties, but even had their own armies, and held an independent position. The local and Kassite bobles, who were equipped with letters of immunity and belonged to the temple of Enlil in Nippur, had political influence.*

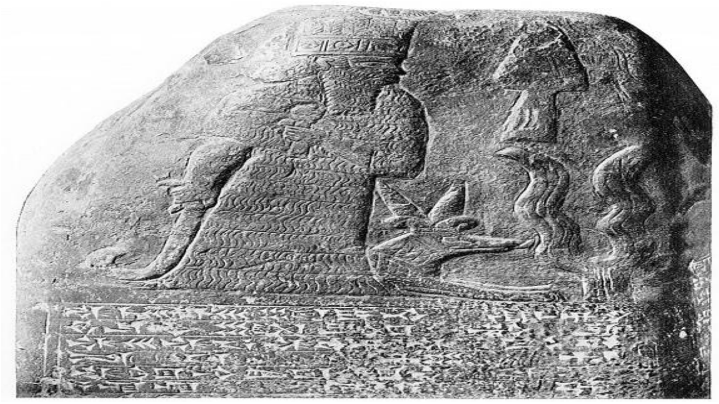
*The Kassite rulers pursued a wide – raging foreign policy. According to tradition, they called themselves "the rulers of the four countries of the world" and took possession of all of Lower Mesopotamia. The territories inhabited by the Kassite tribes in the central Zagros Mountains, some regions of Kutium, the Zagros, the Middle Euphrates valles, and from the 15th – early 14th centuries BC, vast territories of the Syrian steppe, centered in Tadmor in southern Syria and up to the borders of Transjordan, were included in the country of Kassite. The Kassite rulers, seeking to consolidate their position in Iran, made campaigns into Central and Southern Iran. At the end of the 15th century BC, the Kassite ruler Karaindash, who opposed Egypt, forced the Egyptians to make peace with Mitanni and became one the founders of the Amarna international system. As a result, from the end of the 15th century BC, stable peaceful relations were established between Egypt and Babylon, permanent embassies were established, and trade caravans began to operate. The Kassite rulers sent gifts of horse – drawn carriages, bronze vessels, precious oils, etc. to the Egptian pharaohs, and received jewelry, etc. in return.*

*The reign of Burna – Buriash II (1376 – 1347 BC) can be considered the most powerful period of Kassian. He captured Arrafa, restored his dominance in Elam and southern Iran, formed an alliance with the Hittite ruler Suppilulium, and with relative success repelled the first attacks of the Aramean tribes in the Syrian desert and the Middle Euphrates. However, after his reign, a series of wars began between Babylon and the growing Assyrian power, which lasted about a year and a half. Thus, the Assyrian ruler Tukulti – Ninurta I (1244 – 1208 BC) was able to completely subjugate Babylonia for a time (1230 – 1220 BC). Therefore, despite the continued alliance with the Hittites, Babylon`s influence in the outside world declined. However, at the beginning of the 12th century BC, during the reign of ruler Adadshumutsur, Babylonia, which was under Assyrian influence, experienced a brief revival.*

*In the second quarter of the 12th centure BC, the Elamites made several devastating raids on Mesopotamia. They completely occupied Babylonia. In 1150 BC, they overthrew the last ruler, Gandash, and the Kassite dynasty ceased to exist. The Kassites of Mesopotamia had by this time been assimilated by the Babylonians.*

*Babylonia after the rule of the Kassite dynasty*

*At the end of the 13th century BC, Babylonia entered a period of economic and political decline. The Elamite invasions were particularly dangerous. By the middle of the 12th century BC, they had conquered all of Babylonia, plundered its cities and temples, and taken the last Kassite ruler and nobles captive along with the Babylonians. The statue of Marduk, the supreme god of Babylon, was also taken to Elam. Thus ended the four – century rule of the Kassite dynasty. The administration of Babylon was entrusted to the Elamites. The Elamites continued to occupy the territory between the Tigris, Diyala, and the Zagros Mountains.*



*The Statue of Marduk on a kudurru stele of the Babylonian king Meli – Shipak, 12th century BC*

*The development of Elamote power in the west of Babylonia was strong. The country was strengthened to modern standards by Nebuchadnezzar I (1125 – 1104 BC). The Babylonians, who had defeated the Elamites in the battle near the fortress of Der, occupied Elam. After this, there is no information about Elamite in any significant way for three centuries (to 821 BC).*

*In the middle of the 11th century BC, the nomadic tribes of the Arameans living west of the Euphrates began to invade Babylon and Assyria, which were united by a common threat. By the end of the 8th century BC, the Aramean tribes had established themselves on the western and northern borders of Babylon. From the 9th century BC, the Chaldean tribes, who spoke one of the dialects of the Aramic language for several centuries, began to play an important role in the history of Babylon.*

*Detail of stele of Ashur – nasir – pal II in the British Museum, London.*
*Assyria, 9th century BC*

*Little is known about Babylonian society after the Kassites. The country was divided into 14 administrative regions. From the end of the 12th century BC, the capital of the state again became the city of Babylon. The ruler owned a significant part of the state lands, from which he allocated land for military service to soldiers. They donated land to nobles and temples. There were also lands that were the private property of individuals.*

*Babylonia during the Assyrian period*

*At the end of the 9th century BC, the Assyrians frequently invaded Babylonia and gradually occupied the north of the country. In the middle of the 8th century BC, the powerful Assyrian state began to pose a threat to Babylon. In 744 BC, the Assyrian ruler Tiglath – Pileser III (745 – 727 BC) conquered Babylonia, defeated the Chaldean tribes in the area from Sippar to the marshes of the Persian Gulf, and took the title of ruler of Sumer and Akkad. Babylonia was forced to accept Assyrian rule. The priests, officials, and merchants of the Babylonian cities gradually became a strong support for Assyrian rule. The initiative in the struggle for the country`s independence passed to the Chaldeans and the lower classes of the city`s population.*

*In 729 BC, Tiglath – Pileser III conquered Babylon. After that, Babylon lost its independence for a century. However, the Assyrian ruler refrained from turning Babylon into an ordinary province, and the Assyrian Empire retained its status as an internal state. During the reign of Sargon II (722 – 705 BC), the Assyrians were unable to maintain their power over Babylonia. Marduk – Aplaiddin II, the leader of one of the Chaldean tribes, captured Babylon and declared himself ruler of the entire country.*

*He entered into an alliance with the Elamites and began a war with Assyria. In 720 BC, the Elamites defeated the Assyrians at the Battle of Der. Marduk – Aplaiddin II deliberately missed this battle and arrived with his army when the defeated Assyrians had already begun to retreat. This victory ended Assyrian rule in Babylonia for ten years. The Chaldean king ruled Babylon from 721 to 710 BC.*

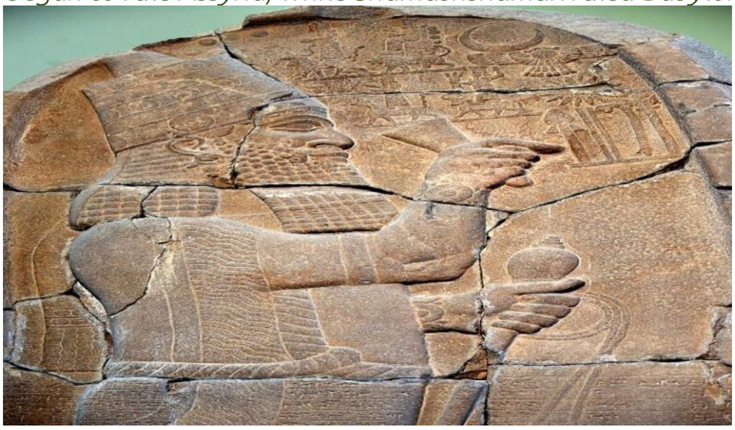
*In 710 BC, Sarqon II (722 – 705 BC) led a successful campaign against Elam. Marduk – Aplaiddin II, who had retreated south of Babylon, fled to Bit – Yaqin. In 709 BC, Sargon II conquered Babylon and assumed the title of ruler.*

*After Sennacherib (705 – 681 BC) came to power in Assyria in 705 BC, Marduk – Aplaiddin II managed to create a powerful coalition. He relied on the southern Babylonian cities, the Chaldeans, and some Aramean tribes to form alliances with Assyrua`s enemies and to incite rebellions in the territories subject to the Assyrians.*

*He captured Babylon in 703 BC, but after a series of setbacks he was forced to abandon it and flee to the marshy areas in the south of the country, inaccessible to the Assyrians. In 692 BC, the Babylonians again rebelled against the Assyrians, forming an alliance with the Zagros tribes and the Arameans. The main fightind force of this coalition was infantry and cavalry, as well as Elamite and Iranian chariots. These chariots were purchased with gold and other valuables taken from the temple treasury in Babylon. The decisive battle took place in 691 BC near Halula on the Tigris. Neither side was able to gain a decisive victory in the battle.*

*In 690 BC, having learned that the Elamite ruler could not help the Babylonians, Sennacherib basieged Babylon. Famine began in the city, food prices increased many times. In 689 BC, Babylon was defeated, and Sennacherib carried out a ruthless repression there. Private homes and temples were plundered by Assyrian soldiers, the population was massacred, and the survivors were sold into slavery. The city was completely destroyed and its area was flooded. Babylon was annexed to the Assyrian empire.*

*Early in his reign, the new Assyrian ruler Esarhaddon (681 – 669 BC) ordered the restoration of Babylon and the return of its surviving inhabitants, and in 669 BC he divided the Assyrian state among his sons. Ashurbanipal began to rule Assyria, while Shamashshumuk ruled Babylonia as a vassal.*



*This is the Assyrian king Esarhaddon. Detail of a stele. Pergamon Museum, Berlin, Germany*

*In 652 BC, Shamash – Shumukin, allied wirt Egypt, the rulers of Syria, as well as the Chaldean tribes, the Arameans, and Elam, revolted against Assyria. A battle with the Assyrians took place near the fortress of Der. For three years, the Assyrian army besieged the ciries subject to Shamashshumukin. During the long siege, epidemics began in Babylon. In the summer of 648 BC, the city surrendered.*

*Nabopolassar`s Neo – Babylonian Empire*

*The struggle for independence continued in Babylonia, one of the developed regions of Asua Minor. In early 626 BC, a revolt against Assyrian rule began under the leadership of the Chaldean leader Nabopolassar. Several successful military operations were carried out against the Assyrians, who had established their rule in the north of the country and had restored the traditional alliance with Elam. In Babylon switched sides to Nabopolassar. As a result he captured the city of Babylon, establishing the Chaldean (or Neo – Babylonian) dynasty. In 609 BC, the Medes and Babylonians defeated the Assyrians, ending Assyrian rule in Babylon.*

*After the defeat of the Assyrian state, the Medes captured the local territories of Assyria and the city of Harran with its surrounding areas. The rest of Mesopotamia fell into the hands of the Babylonians. Now there were only three powerful states in the Middle East: Media, Babylon and Egypt. In addition, there were powerful states in Asia Minor – Lidia, etc.*

*Soon after Nebuchadnezzar II was proclaimed king of Babylon, military operations in the west resumed. After conquering Phoenicia in 598 BC, he traveled to northern Arabia, where he seized control of important caravan routes. Meanwhile, with the support of Egypt, Judah withdrew from Babylon. In 597 BC, Nebuchadnezzar II captured the capital Jerusalem and took more than 3.000 of its inhabitants captive to Babylon. However, the situation in the west was not stable. While the ruler was suppressing the uprisings that began against him, the Egyptians captured the Phoenician cities of Gaza, Tyre, and Sidon and called on Judah to revolt against Babylon. In 587 BC, after a two – year siege, Nebuchadnezzar II incorporated the kingdom of Judah into the Babylonian Empire as a province. Thousands of Jerusalemites were taken captive and settled in various cities in Babylonia (the Babylonian Captivity). The Babylonians then besieged the Phoenician city of Tyre, which they captured 13 years later in 574 BC.*

*The reign of Nebuchadnezzar II was a period of economic and cultural revival in Babylonia. Babylon became the largest city in the Ancient Near Est, with a population of approximately 200.000.*

*Conclusions*

*After Nebuchadnezzar II, the Babylonian nobles and priests began to actively intervene in politics and overthrow rulers they did not like. After a long struggle, Nabonidus ascended the throne.*

*Nabonidus, along with the Babylonian gods Marduk, Nergal, Shamash, and others, also worshipped the supreme Aramic moon god, Sina. With the help of religion religion, Nabonidus united the numerous*

*Aramaic tribes of Asia Minor around him, proclaimed Sina as the supreme state god instead of Marduk, and attempted to create a powerful state.*

*Nabonidus captured the Teim region in northern Central Arabia, and from the middle of the 6$^{th}$ century BC he took over the caravan route to Egypt via the Teim oasis, which was of great commercial importance to Babylonia. He changed the course of the Euphrates. After that, it was no longer possible to conduct maritime trade in the city of Ur along the Persian Gulf. Nabonidus moved his royal residence to Teim.*

*Religious circles, dissatisfied with Nabonidus` religious policies, were ready to help any rival. Babylonian merchants were also unhappy, as traditional trade routes were now in Persian hands. Various peoples who had been forcibly removed from their homes by the Babylonian rulers lived in Babylon. The majority of the Babylonian population, farmers and artisans, were indifferent to Nabonidus` military preparations and were ready to replace the old rulers with new ones without regret. The Babylonian army, exhausted by years of wars in the Arabian deserts, was unable to repel the onslaught of the Persian army.*

*In August 539 BC, the Persians defeated the Babylonian army at the Battle of Opis near the Tigris. The Persian army, crossing the Tigris south of Opis, besieged Sippar, led by Nabonidus. After the capture of Sippar, Nabonidus went to Babylon to organize the defence of the capital. In October 539 BC, the enemy army entered Babylon. Seventeen days later, the Achaemenid ruler Cyrus II entered the city. Nabonidus was taken prisoner. The rule of Cyrus II was accepted in Babylon. Cyrus II bore the official title of ruler of Babylon and the countries for his successors until the time of Xerxes.*

*Babylon lost its independence in foreign policy, and power within the country fell to the Achaemenid viceroy. Babylon repeatedly revolted against Achaemenid rule. After the last revolt, the Babylonian state was transformed into a satrapy.*

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# Journalism

## FACTORS INFLUENCING ACCEPTANCE AND UTILIZATION OF SOCIAL MEDIA MARKETING IN NIGERIAN RETAILING

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*Abstract*

*This study addresses the challenge faced by Nigerian retailers in ustilizing social media marketing despite its growing importance in digital marketing. Despite social media's potential to enhance customer engagement and sales, factors influencing its acceptance and use among Nigerian retailers remain underexplored. The objective of this research is to examine the determinants that affect retailers' acceptance and utilization of social media marketing in Nigeria through a comprehensive literature review. The review synthesizes existing studies focusing on technological readiness, perceived usefulness, socio-cultural influences, and infrastructural barriers. Findings indicate that while many retailers recognize the benefits of social media marketing, issues such as limited digital skills, cost concerns, and inconsistent internet access impede full adoption. The research highlights key facilitators and barriers shaping social media marketing integration in Nigerian retail businesses. The study's insights contribute to understanding how to promote effective adoption strategies and digital marketing initiatives. These findings are valuable for policymakers and marketers aiming to strengthen digital inclusion and competitive advantage in Nigeria's retail sector, ultimately supporting economic growth and business sustainability.*

*Keywords: Digital marketing adoption, social media marketing, retailing, technology acceptance*

### *Introduction*

*Social media marketing has become a transformative force in the global retail sector, reshaping how businesses connect with consumers and promote products. It integrates digital platforms such as Facebook, Instagram, Twitter, and TikTok to engage customers through targeted advertising, interactive content, and real-time communication (Igbinenikaro & Adewusi, 2024; Smith, 2021). These platforms enable precise audience segmentation and foster brand loyalty by facilitating two-way communication between retailers and consumers. The visual-centric and viral nature of social media appeals especially to younger demographics, who are increasingly influencing retail market dynamics worldwide (Afolayan, 2025). Furthermore, the cost-effectiveness of social media marketing provides small businesses a powerful opportunity to compete in saturated markets by increasing visibility and engagement without the high expenses linked to traditional marketing media (Tuten & Solomon, 2020).*

*In developing economies such as Nigeria, social media marketing presents unique growth opportunities and challenges. Nigeria boasts the largest internet user base in Africa, with over 100 million social media users projected by 2030, a trend powered by growing smartphone adoption and improved mobile broadband infrastructure (Statista, 2025). Retailers in Nigeria are rapidly adopting social media to capitalize on expanding digital consumer markets, demonstrating increasing investments in paid advertisements and content marketing to boost brand recognition and sales (Olaleye & Ayobami, 2025). However, disparities in internet accessibility, digital literacy, and economic resources across Nigeria create uneven adoption patterns, particularly disadvantaging rural areas and micro-enterprises (Adeola & Ojo, 2023). These contextual factors influence retailers' capacity to implement effective social media marketing strategies and fully realize its potential business benefits.*

*The marketing practices of Nigerian retailers on social media platforms vary widely, influenced by cultural norms, consumer behavior, and platform-specific features. For instance, Facebook remains dominant in outreach due to its extensive reach and interactive advertising options, whereas Instagram's visual appeal is preferred in fashion and lifestyle sectors (Igbinenikaro & Adewusi, 2024). Twitter fosters customer service and promotional engagement through real-time communication, while TikTok is gaining momentum among younger audiences via viral video content and influencer marketing (Afolayan, 2025). These platforms' unique affordances necessitate tailored marketing strategies that align with specific consumer segments and industry sectors. Despite widespread interest in digital marketing, retailers report challenges around content development, audience targeting, and campaign measurement, reflecting gaps in expertise and resources (Olannye, 2025).*

*Research into the determinants of social media marketing acceptance among Nigerian retailers highlights several critical factors. Technological readiness, including stable internet connectivity and device availability, strongly influences adoption rates (Olawale & Obidike, 2023). Perceived usefulness—the extent to which retailers believe social media improves customer reach and sales—is another key motivator (Dada & Abdullahi, 2024). Additionally, ease of use, managerial support, and social influence from peers shape digital marketing behaviors (Nwachukwu, 2024). Retailers in metropolitan regions demonstrate higher acceptance levels due to better infrastructure and exposure to global marketing trends compared to those in less developed areas. These findings underscore the importance of boosting digital capacity and fostering supportive environments to enhance social media marketing uptake.*

*Similarly, the utilization of social media marketing reveals varied levels of engagement among Nigerian retailers. Effective utilization involves consistent content creation, prompt customer interaction, and strategic use of paid advertisements to maximize reach (Olowo & Kolapo, 2025). Retailers attuned to platform algorithms and consumer preferences achieve stronger customer loyalty and improved sales performance (Afolayan, 2025). Nonetheless, many Nigerian businesses face constraints such as high advertising costs, limited human resources, and inadequate digital marketing knowledge, which dampen sustained social media use. Capacity-building programs and affordable digital services can alleviate these challenges, enabling more retailers to exploit social media's full potential.*

*Consumer attitudes towards social media marketing significantly impact Nigerian retailers' digital initiatives. Trust in online transactions, data security, and the relevance of marketing content to cultural values determine consumer responsiveness and engagement (Adekunle & Alabi, 2023). Retailers who understand and incorporate local cultural norms into their digital content tend to build stronger relationships with their audience (Nwachukwu, 2024). Moreover, consumers' preference for personalized and interactive experiences drives retailers to innovate continuously on social media platforms. This dynamic underlines the reciprocal nature of social media marketing, where retailer success hinges on consumer trust and participation in digital dialogues.*

*Policy and infrastructural support critically influence the social media marketing landscape in Nigeria. Government-led initiatives to improve internet infrastructure, provide digital skills training, and regulate online advertising practices create enabling conditions for retailer adoption (Kolawole & Eziyi, 2024). Partnerships between telecommunications providers and business development organizations offer opportunities for technology diffusion and capacity development aimed at marginalized communities (Adeola & Ojo, 2023). However, uneven implementation and regional disparities remain significant hurdles, requiring more coordinated efforts to promote equitable digital inclusion across Nigeria's retail sector.*

*Despite increasing research on social media marketing in Nigerian retail, several gaps persist that warrant attention. Most studies emphasize short-term adoption patterns in urban centers, leaving rural and informal retail sectors underexplored. Longitudinal analyses are scarce, limiting understanding of* *sustained marketing effectiveness and the evolution of consumer behavior. Additionally, research addressing the roles of gender, age, and education in acceptance and utilization remains limited. There is also a need for deeper investigation into how emerging platforms like TikTok reshape marketing dynamics in Nigeria. Addressing these gaps will provide comprehensive insights crucial for designing inclusive strategies and supporting diverse retail business needs.*

*Social Media Marketing in the Nigerian Context*

*Social media marketing has become an integral component of the modern marketing landscape, especially in emerging markets such as Nigeria. As digital platforms proliferate, Nigerian retailers increasingly leverage social media channels to enhance communication, build brand awareness, and foster customer engagement (Olaleye & Ayobami, 2025). This shift reflects a larger trend toward digitization, where platforms like Facebook, Instagram, and Twitter serve as essential tools for marketing outreach in an economy characterized by rapid mobile phone penetration. The cost-effectiveness and interactivity of social media marketing offer unique advantages over traditional marketing, positioning it as a pivotal strategy for retailers looking to maintain competitive advantage in a dynamic market environment (Adamu et al., 2025). However, the integration of social media into retail marketing strategies entails challenges shaped by infrastructural, technological, and cultural factors specific to the Nigerian context.*

*Research on social media adoption within Nigerian retail SMEs highlights a range of enablers and barriers that influence marketing acceptance and effective use. Factors such as digital skills, infrastructure quality, and organizational readiness significantly affect the degree to which retailers embrace social media marketing tools (Olannye, 2025). Studies have shown that technological readiness—comprising internet accessibility, device availability, and user competency—is a critical determinant of adoption (Afolayan, 2025). Social media platforms have been shown to increase the reach of retail businesses, enabling personalized marketing approaches that strengthen customer relationships (Olowo & Kolapo, 2025). Yet, persistent challenges such as unreliable internet connections and limited digital literacy hinder retailers' ability to fully capitalize on these platforms, particularly outside major urban centers.*

*In addition to these operational factors, socio-cultural dynamics play a vital role in shaping social media marketing behaviors in Nigeria. Consumer trust, acceptance of digital transactions, and social interactions within community's influence marketing outcomes on social platforms (Nwachukwu, 2024). Cultural preferences impact the types of content that resonate with Nigerian consumers, requiring retailers to adopt culturally sensitive approaches to digital communication (Adekunle & Alabi, 2023). Furthermore, the social nature of marketing communications on platforms like WhatsApp and Facebook requires retailers to maintain active engagement, balancing promotional activities with meaningful interpersonal interactions. Effective use of social media, therefore, involves a nuanced understanding of both technological possibilities and social expectations within the Nigerian retail context.*

*Recent empirical investigations provide evidence that strategic social media marketing positively affects sales performance and customer loyalty among Nigerian retailers (Afolayan, 2025). Businesses employing consistent content creation, interactive customer engagement, and paid advertising campaigns report improved brand visibility and customer retention. Digital marketing analytics have enabled retailers to track campaign effectiveness, facilitating data-driven decision-making (Olannye, 2025). However, achieving sustained success demands overcoming cost-related constraints and developing content strategies that appeal to diverse audiences. Policymakers and business development organizations thus play a crucial role in offering support mechanisms such as digital literacy training and infrastructural enhancements to promote inclusive digital marketing adoption in Nigeria's retail sector.*

*The distinct characteristics of Nigeria's retail sector, shaped by market fragmentation and consumer diversity, underscore the need for tailored social media marketing approaches. Retailers must navigate a complex environment marked by uneven technological infrastructure, varying degrees of consumer digital engagement, and economic disparities (Olawale & Obidike, 2023). This necessitates flexible marketing strategies that accommodate different customer segments and regional variabilities. Additionally, security concerns related to online payments and data privacy pose challenges to digital adoption, influencing consumer behavior and retailer confidence (Kolawole & Eziyi, 2024). Understanding these multi-dimensional factors is critical for developing effective social media marketing strategies that align with Nigeria's unique retail ecosystem.*

*In sum, the body of literature on social media marketing in Nigeria reveals that while significant progress has been made in adoption and utilization, ongoing challenges remain. Research emphasizes the interplay of technological readiness, socio-cultural factors, and economic realities that shape social* *media marketing outcomes. By addressing digital skill gaps, infrastructural deficiencies, and cultural nuances, stakeholders can foster an enabling environment that maximizes the benefits of social media marketing for Nigerian retailers. These insights inform both academic debates and practical interventions aimed at harnessing the full potential of digital marketing to support retail sector development in Nigeria.*

*Acceptance and Utilization of Social Media Marketing in Nigerian Retailing*

*The acceptance and utilization of social media marketing in Nigerian retailing have grown substantially in recent years, driven by increased smartphone penetration and internet accessibility. Social media platforms such as Facebook, Instagram, and Twitter have become vital communication tools for retailers aiming to reach larger, more diverse customer bases (Olaleye & Ayobami, 2025). These tools enable direct engagement with consumers, personalized marketing approaches, and real-time feedback, fostering brand awareness and customer loyalty (Olannye, 2025). Despite this potential, many Nigerian retailers face challenges related to inadequate digital skills, suboptimal content strategies, and infrastructural limitations, which impact the effective deployment of social media marketing strategies. SMEs, in particular, confront resource constraints that restrict their ability to fully capitalize on social media's benefits (Afolayan, 2025). These limitations underscore the complex environment within which social media marketing operates in Nigeria's retail sector.*

*Studies have extensively examined factors influencing the adoption of social media marketing among Nigerian retailers, highlighting technological readiness, perceived usefulness, and perceived ease of use as primary determinants (Dada & Abdullahi, 2024). Nigerian retailers' acceptance is often contingent upon their familiarity and comfort with digital tools, which in turn is shaped by educational background and exposure to technology (Olawale & Obidike, 2023). Moreover, retailers in urban centers such as Lagos and Abuja tend to exhibit higher adoption rates compared to those in rural areas, underscoring regional disparities in access to technology and digital infrastructure (Olowo & Kolapo, 2025). Social factors, including peer influence and social norms, also play a crucial role in persuading retailers to integrate social media platforms into their marketing mix (Nwachukwu, 2024).*

*The utilization dimension of social media marketing encompasses diverse strategies, including content creation, customer engagement, and paid advertising. Empirical evidence indicates that Nigerian retailers who consistently post engaging, relevant content and respond promptly to customer inquiries tend to build stronger brand loyalty and garner repeat business (Afolayan, 2025). Paid social media campaigns further amplify reach and brand visibility, allowing SMEs to compete effectively with larger firms. However, the creation of high-quality digital content requires skills and investments that many Nigerian retailers lack, limiting their capacity to maintain sustained social media activity (Olannye, 2025). This highlights a gap between acceptance and effective utilization of social media marketing tools.*

*Economic and infrastructural barriers further constrain the utilization of social media marketing among Nigerian retailers. High internet costs, unreliable network connectivity, and inconsistent power supply disrupt retailers' ability to engage consistently with online audiences (Adeola & Ojo, 2023). Additionally, financial limitations restrict the ability to invest in paid advertising and digital marketing expertise, resulting in suboptimal promotional efforts. Despite growing internet penetration, these infrastructural deficiencies remain significant barriers, especially for retailers operating in remote or economically disadvantaged regions (Olaleye & Ayobami, 2025). Tackling these issues requires coordinated efforts involving policy makers, telecommunications companies, and business support agencies.*

*Consumer behavior and cultural factors strongly influence the acceptance and effectiveness of social media marketing in Nigeria. Research shows that Nigerian consumers value personalized, culturally relevant communications, which necessitates that retailers tailor their social media content accordingly (Adekunle & Alabi, 2023). Additionally, trust issues related to online transactions and data privacy concerns affect consumer engagement and thereby impact retailers' marketing outcomes on social media platforms (Nwachukwu, 2024). These dynamics emphasize the importance of culturally aware marketing approaches that address local consumer expectations and regulatory requirements.*

*Social media marketing's role in enhancing customer loyalty and business sustainability is increasingly documented in Nigerian retail literature. Regular interaction and personalized communication foster trust and customer retention, which are critical for long-term success in a highly competitive retail environment (Olannye, 2025). Retailers' responsiveness to customer feedback on social platforms enhances perceived service quality and satisfaction, thereby improving business reputation. However, continuous engagement demands time, digital marketing skills, and resources rarely abundant among Nigerian SMEs, pointing to the ongoing need for capacity-building initiatives (Afolayan, 2025).*

*Emerging research highlights the role of government and private sector interventions in facilitating social media marketing adoption. Programs aimed at improving digital literacy, subsidizing internet access, and providing affordable digital marketing tools help bridge existing gaps (Kolawole & Eziyi, 2024). Moreover, partnerships between financial institutions and technology providers enable retailers to harness social commerce opportunities, expanding their market reach. Nonetheless, the effectiveness of these interventions varies widely across Nigerian regions, reflecting uneven access to infrastructure and education (Olawale & Obidike, 2023).*

*Despite the progress highlighted, significant gaps remain in the literature on social media marketing acceptance and utilization in Nigerian retailing. Existing studies primarily focus on urban centers, leaving rural retail contexts underexplored. Additionally, longitudinal data evaluating sustained social media marketing practices and their long-term impacts on sales and customer loyalty are scarce. Furthermore, few studies address the interplay between cultural factors and digital marketing techniques in depth. Limited research also exists regarding gender and generational differences in social media marketing adoption among Nigerian retailers. Addressing these gaps would enrich understanding and contribute to more tailored strategies that reflect Nigeria's diverse retail landscape.*

### *Challenges to Social Media Marketing Adoption in Nigerian Retail*

*Limited digital skills among Nigerian retailers remain a significant impediment to the effective adoption and utilization of social media marketing. Many small and medium-sized enterprise (SME) operators lack the necessary competencies to create engaging content, analyze digital metrics, and implement strategic social media campaigns (Olaleye & Ayobami, 2025). This deficiency is often attributed to low levels of formal education and insufficient exposure to digital technologies, especially among rural retailers (Olannye, 2025). Digital literacy encompasses a range of skills, including understanding platform algorithms, producing multimedia content, and managing customer interactions online, which many Nigerian retailers find challenging (Adeola & Ojo, 2023). As a result, retailers may underutilize social media or rely excessively on basic promotional posts, limiting the potential benefits from these platforms. Moreover, the lack of trained personnel or digital marketing specialists within retail businesses exacerbates this skill gap, reinforcing suboptimal adoption patterns (Afolayan, 2025). Addressing these educational and training deficits through targeted programs and workshops is critical for enhancing retailers' capacity to exploit social media effectively.*

*Cost concerns further hinder SMEs within the Nigerian retail sector from fully embracing social media marketing strategies. Although social media offers a relatively affordable alternative to traditional advertising, the cumulative expenses of digital devices, internet subscription fees, and paid advertising campaigns create significant financial barriers for many retailers (Kolawole & Eziyi, 2024). Nigerian SMEs often operate with limited capital, prioritizing immediate operational costs over investment in digital marketing efforts perceived as indirect or long-term (Olawale & Obidike, 2023). Additionally, high data costs and the need for continuous content creation and platform monitoring increase the ongoing financial burden associated with social media marketing (Dada & Abdullahi, 2024). These economic constraints are even more pronounced for micro-retailers and those in rural areas, where access to affordable financing is limited, and economies of scale are lacking. Consequently, budgetary limitations result in partial or inconsistent social media marketing practices, undermining branding and customer engagement initiatives. Stakeholders, including government bodies and financial institutions, must explore avenues such as subsidized data plans, grants, and digital marketing subsidies to ameliorate these cost-related challenges.*

*Infrastructural challenges, particularly inconsistent internet access, represent a major barrier to continuous and effective social media marketing in Nigeria's retail environment. Despite urban centers enjoying improved broadband connectivity, significant portions of Nigeria, especially rural and peri-urban areas, suffer from frequent service disruptions and limited network coverage (Adekunle & Alabi, 2023). Retailers reliant on unstable internet connections face difficulties maintaining active social media profiles, responding promptly to customer inquiries, and executing real-time marketing campaigns (Nwachukwu, 2024). In addition, frequent power outages exacerbate these issues by limiting access to digital devices and internet routers, thereby interrupting marketing activities (Olowo & Kolapo, 2025). These infrastructural weaknesses diminish retailers' ability to build trust and maintain engagement through steady online presence, critical factors for social media marketing success. Policymakers must prioritize investments in telecommunications infrastructure and reliable energy supplies to create an enabling environment for digital marketing growth. Such improvements will help bridge the gap between social media marketing potential and actual retailer utilization in Nigeria.*

### *Conclusion*

*This study has critically examined the acceptance and utilization of social media marketing within Nigeria's retailing sector through a comprehensive review of recent empirical research. The findings indicate that Nigerian retailers increasingly rely on social media platforms to engage customers, boost sales, and build brand loyalty. Key factors influencing acceptance include technological readiness, such as internet accessibility and digital literacy, as well as socio-cultural factors like consumer trust and social norms. Utilization varies across regions, with urban retailers leveraging social media more effectively due to better infrastructure and resources (Olaleye & Ayobami, 2025; Olannye, 2025). However, challenges such as infrastructural inefficiencies, cost barriers, and limited content creation skills restrict the full adoption and effectiveness of social media marketing by many Nigerian retailers. These constraints highlight the critical role of tailored capacity-building initiatives and policy interventions in supporting digital marketing adoption in Nigeria's retail ecosystem.*

*Despite the growing integration of social media marketing in Nigerian retail, limitations exist within the current body of research. Much of the existing literature focuses on descriptive analyses and cross-sectional data limited to urban or semi-urban centers, neglecting rural contexts and long-term impacts of social media marketing usage. Furthermore, there is a paucity of studies exploring gender and generational differences in acceptance and utilization. Recommendations include enhancing digital literacy training among retailers, expanding affordable internet access, and encouraging active collaboration between telecommunications providers, business development agencies, and government bodies. Future research should pursue longitudinal studies and broaden geographical and demographic scopes to provide nuanced insights into the evolving influence of social media marketing in Nigeria's diverse retail landscape. Such efforts will be essential for maximizing social media's potential to drive inclusive, sustainable growth in Nigerian retailing.*

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## STRATEGIES AND CONTENT FEATURES OF NEWS DISSEMINATION ON TELEVISION IN THE DIGITAL AGE

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*Abstract*

*This study examines the dissemination strategies and content characteristics of television news in the digital age. The relevance of the research lies in the need for television to adapt to the expanding platform-based media environment driven by rapid technological development. The aim is to identify the structural and content transformation of television news in the digital ecosystem and to assess its impact on audience trust and information quality. The research employed descriptive and comparative methods. Data from four international empirical studies were analyzed using qualitative content analysis to examine media system typologies, the impact of artificial intelligence on content quality, and audience news consumption patterns. Findings indicate that in platform-oriented media systems, the share of television news remains around 27–30%, while online news consumption has risen to 70%. In institutionally regulated systems, television maintains a higher trust index (0.72), whereas digital platforms show lower trust levels (0.41). The use of artificial intelligence in content production increased audience attention by an average of 23.7%. The study concludes that television continues to play a vital role in the digital media ecosystem, maintaining its function as a source of public trust and information verification.*

*Аннотация*

*Бұл зерттеу цифрлық дәуір жағдайында телевизиялық жаңалықтардың тарату стратегиялары мен мазмұндық ерекшеліктерін талдауға бағытталды. Зерттеудің өзектілігі ақпараттық технологиялардың қарқынды дамуы мен медиақолданудың платформалық кеңеюі жағдайында телевизияның жаңа медиажүйеге бейімделу қажеттілігімен айқындалды. Мақсаты - цифрлық ортадағы телевизиялық жаңалықтардың құрылымдық және мазмұндық трансформациясын анықтау және олардың аудитория сенімі мен ақпарат сапасына әсерін бағалау.Зерттеу сипаттамалық және салыстырмалы әдістерге негізделді. Материал ретінде төрт халықаралық эмпирикалық зерттеу деректері пайдаланылып, медиажүйелердің типологиясы, жасанды интеллекттің контент сапасына ықпалы және аудиторияның ақпарат тұтыну ерекшеліктері сапалық контент-талдау арқылы қарастырылды. Нәтижелер платформаланған медиажүйелерде телевизиялық жаңалық үлесінің 27–30% деңгейінде қалып, онлайн жаңалықтардың үлесі 70%-ға дейін артқанын көрсетті. Институционалдық тұрғыдан тұрақты елдерде телевизияның сенім индексі 0,72 деңгейінде сақталған. Ал жасанды интеллект қолданылған контент көрермен назарын орта есеппен 23,7%-ға арттырған.Қорытындысында телевизия цифрлық медиажүйеде өз орнын жоғалтпай, қоғамдық сенім мен ақпараттық растау институты ретінде өз маңызын сақтап отырғаны дәлелденді.*

*Keywords:* *television, digital transformation, news strategy, multimedia content, audience trust, artificial intelligence.*

*Түйін сөздер:* *телевизия, цифрлық трансформация, жаңалық стратегиясы, мультимедиа, аудитория сенімі, жасанды интеллект.*

*Кіріспе*

*Қазіргі цифрлық дәуірде телевизия өзінің дәстүрлі медиалық шекараларын кеңейтіп, жаңа коммуникациялық экожүйеге бейімделіп отыр. Бұрын теледидар тек эфирлік арна арқылы ақпарат тарататын негізгі құрал болса, бүгінде ол көпплатформалы, интерактивті және деректерге негізделген ақпараттық кеңістікке айналды. Бұл трансформация жаңалықтар өндіру мен тарату тәсілдерін түбегейлі өзгертті: эфир мен онлайн кеңістік арасындағы шекара жойылып, телевизиялық контент әлеуметтік желілер, веб-порталдар, мобильді қосымшалар* *және стримингтік қызметтер арқылы тарай бастады. Осы үдеріс телевизияны тек ақпарат көзі ғана емес, сонымен қатар аудиториямен тікелей қарым-қатынас орнататын қатысымдық алаң ретінде қайта қарастыруды талап етеді.*

*Зерттеу өзектілігі қазіргі ақпараттық тұтынудың мінез-құлқы мен құрылымы түбегейлі өзгерген жағдайда телевизиялық жаңалықтардың аудиторияға жету стратегияларын жаңғыртудың қажеттілігінде жатыр. Цифрлық медианың логикасы телевидениеден тек мазмұн сапасын емес, оны ұсыну форматы мен дистрибуция механизмін де қайта қарауды талап етеді. Мысалы, Қытай медиасындағы тәжірибелер жаңалықты таратуда іздеу жүйелері мен мобильді платформалар арқылы мақсатты аудиторияны тартудың тиімділігін дәлелдесе, Батыс елдеріндегі зерттеулерде телевизиялық контенттің әлеуметтік желілермен интеграциялануы аудиторияның медиасауаты мен сенім деңгейіне тікелей әсер ететіні анықталған [1,2]. Бұл құбылыстар ақпараттық кеңістіктегі бәсекенің тек мазмұн сапасы деңгейінде емес, сонымен қатар оның жеткізілу жылдамдығы, форматтық бейімделуі және платформалық ауқымы бойынша жүріп жатқанын көрсетеді.*

*Сонымен қатар, жасанды интеллект пен деректерге негізделген технологиялар телевизиялық өндіріс пен журналистік тәжірибеге жаңа мүмкіндіктер әкелуде. Зерттеулерде жасанды интеллект құралдарының визуалды мазмұнды өңдеуде, сценарийді құрылымдауда және көрерменге бейімделген материал ұсынудағы шешуші рөлі атап өтіледі [3]. Мұндай технологиялық жаңару služ тележаңалықтардың мазмұндық құрылымына ғана емес, олардың эстетикалық және семиотикалық сипатына да әсер етеді. Сондай-ақ, цифрлық медианың саяси коммуникациядағы маңызы мен ақпараттық бедел үшін күрестің күшеюі талданып, телевизиялық жаңалықтардың қоғамдағы пікір қалыптастырушы функциясы бұрынғыдан да өзекті бола түскені айқындалады [4]. Осы тұрғыдан алғанда, телевизия тек ақпарат жеткізуші емес, қоғамдағы ақпараттық тәртіпті қалыптастыратын және қоғамдық пікірді бағыттайтын әлеуметтік институт ретінде қызмет етеді.*

*Сондықтан цифрлық медианың қарқынды дамуы жағдайында телевизиялық жаңалықтардың тарату стратегиялары мен мазмұндық ерекшеліктерін зерттеу қазіргі медиа ғылымының маңызды бағыты. Бұл зерттеу телевизияның жаңа медиалық ортада қалай трансформацияланып жатқанын, аудиториямен өзара әрекеттесу формаларының қалай өзгергенін және контент өндірудің инновациялық тәсілдерінің тиімділігін анықтауға бағытталған. Зерттеу нысаны цифрлық дәуірдегі телевизиялық жаңалықтар жүйесі мен оның платформалық бейімделу процестері, ал зерттеу пәні телевизиядағы жаңалық тарату стратегияларының мазмұндық және технологиялық трансформациясы.*

*Зерттеудің мақсаты цифрлық ортада телевизиялық жаңалықтардың жаңа тарату модельдерін айқындау және олардың мазмұндық ерекшеліктерін талдау. Осы мақсатқа жету үшін зерттеу келесі міндеттерді көздейді: цифрлық трансформация жағдайындағы телевизияның жаңалық тарату құрылымындағы және мазмұнындағы өзгерістерді сипаттау; жасанды интеллект, мультимедиалық және кросс-платформалық технологиялардың жаңалық өндірісіне әсерін анықтау; және халықаралық тәжірибелерді салыстыра отырып, телевизиялық жаңалықтардың тиімді стратегияларын жүйелеу.*

*Осылайша, зерттеу цифрлық қоғам жағдайында телевизияның жаңа ақпараттық қызметін, аудиториямен өзара әрекеттесу тетіктерін және жаңалық мазмұнын қалыптастырудың инновациялық тәсілдерін ғылыми тұрғыдан негіздеуге бағытталған.*

### *Материалдар мен әдістер*

*Бұл зерттеу сипаттамалық және салыстырмалы талдау әдістерін біріктіретін сапалық бағыттағы кешенді зерттеу ретінде ұйымдастырылды. Оның негізгі мақсаты цифрлық дәуір жағдайында телевизиялық жаңалықтардың тарату стратегиялары мен мазмұндық ерекшеліктерін ғылыми тұрғыда анықтау және олардың құрылымдық трансформациясын сипаттау болды. Әдістемелік тұрғыда зерттеу медиа-коммуникациялық жүйелерді, телевизиялық контент өндірісін және цифрлық технологиялардың медиа инфрақұрылымға ықпалын талдауға бағытталған интегративті тәсілді қолданды.*

*Зерттеу эмпирикалық және теориялық деректерге сүйене отырып жүргізілді. Эмпирикалық база ретінде төрт халықаралық ғылыми еңбек пайдаланылды: Humprecht және әріптестері (2022) жүргізген 30 ел медиажүйесін салыстырған кең көлемді эмпирикалық зерттеу; Shen және Yu (2021) еңбегі, онда жасанды интеллекттің цифрлық контент пен визуалды дизайндағы рөлі талданған; Oparaugo (2021) сипаттаған саяси коммуникацияның медиа трансформациясы; сондай-ақ Wang (2022) зерттеген Қытайдың аймақтық телевизиялық* *мәдениетінің желілік бейімделу ерекшеліктері [2,3.4]. Бұл еңбектердің мазмұндық әр алуандығы зерттеуге салыстырмалы тұрғыда қарауға және цифрлық телевизияның дамуын жүйелі сипаттауға мүмкіндік берді.*

*Зерттеу нысаны ретінде цифрлық дәуірдегі телевизиялық жаңалықтар жүйесі мен олардың платформааралық бейімделу процесі алынды. Нысанның осылай анықталуы телевизияның тек дәстүрлі эфирлік арна ретіндегі емес, сонымен қатар әлеуметтік желілер, мобильді қосымшалар және интернет-платформалар арқылы көпарналы дистрибуцияны жүзеге асыратын кешенді ақпараттық жүйе ретіндегі қызметін қамтуға бағытталды. Зерттеу пәні телевизиялық жаңалық таратудағы стратегиялар мен мазмұндық трансформация процестері, яғни аудиториямен өзара әрекеттесудің жаңа үлгілері, контентті даралау тәсілдері және платформалық интеграцияның редакциялық саясатқа ықпалы.*

*Деректерді жинау бірнеше кезеңнен тұрды. Бірінші кезеңде тақырыпқа сәйкес ғылыми мақалалар мен эмпирикалық зерттеулер халықаралық ғылыми базалардан (Scopus, Web of Science, SSRN, Hindawi) іздестірілді. Таңдау критерийлері ретінде соңғы бес жылда жарияланған, телевизия мен цифрлық медиа қатынасын қарастыратын рецензияланған еңбектер алынды. Екінші кезеңде табылған дереккөздер мазмұндық тұрғыда кодталып, негізгі аналитикалық категориялар бойынша топтастырылды: жаңалық тарату стратегиялары, цифрлық технологиялардың ықпалы, аудиториямен байланыс тәсілдері, және контенттің құрылымдық өзгерістері. Кодтау мен жүйелеу NVivo бағдарламалық ортасының көмегімен жүзеге асырылды, бұл деректердің мазмұндық қайталану жиілігі мен семантикалық байланыстарын айқындауға мүмкіндік берді.*

*Зерттеу әдістерінің негізін сапалық контент-талдау, салыстырмалы медиажүйелік талдау және құрылымдық-функционалдық сараптама құрады. Контент-талдау барысында әрбір зерттеудегі тұжырымдар мен эмпирикалық деректер телевизиялық жаңалықтың өндірілуі мен таратылуына қатысты белгілер бойынша жіктелді. Салыстырмалы медиажүйелік талдау медиа типологиясына сүйеніп, елдердің ақпараттық кеңістігіндегі институционалдық айырмашылықтар мен платформалық саясаттың әсерін түсіндіруге мүмкіндік берді [2]. Жасанды интеллект технологияларын бағалау әдістемесі контент өндіру процесіндегі инновациялық құралдардың тиімділігін анықтауға бейімделіп қолданылды [3]. Сондай-ақ, желілік коммуникация үлгілері телевизиялық контенттің дистрибуциялық стратегияларын талдау үшін негіз ретінде алынып, саяси коммуникация мен аудитория сенімінің өзара байланысы жаңалықтардың этикалық және қоғамдық функциясын бағалау тұрғысынан қарастырылды.*

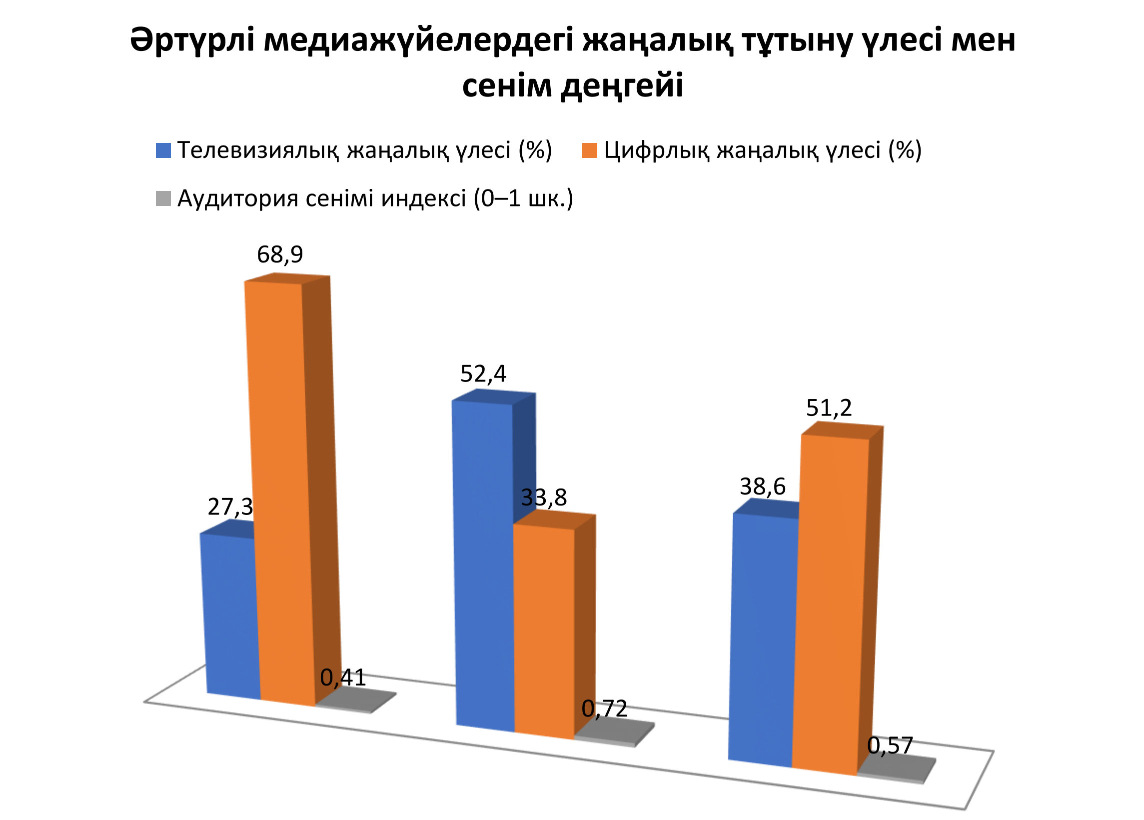
*Зерттеу барысында алынған деректерді өңдеу индуктивті және дедуктивті талдау тәсілдерінің үйлесімімен жүргізілді. Индуктивті талдау цифрлық телевизиядағы жаңа үрдістер мен контент пішіндерінің табиғи түрде пайда болуын айқындауға мүмкіндік берсе, дедуктивті тәсіл қолданыстағы теориялық модельдермен сәйкестікті тексеруге бағытталды. Бұл екі тәсілдің үйлесімі цифрлық дәуірдегі телевизиялық жаңалықтардың мазмұндық және технологиялық трансформациясын ғылыми негізде түсіндіруге жағдай жасады.*

*Жалпы алғанда, зерттеу көп дереккөзге негізделген сапалық талдау моделін қолдана отырып, телевизиялық жаңалықтардың платформалық кеңеюін, жасанды интеллект пен интерактивті технологиялардың әсерін, сондай-ақ аудиториямен жаңа деңгейдегі коммуникациялық байланысты кешенді сипаттады [5]. Алынған нәтижелер телевизияның цифрлық медиажүйедегі орны мен болашағын бағалауға, сонымен қатар жаңалық таратудың тиімді стратегияларын ғылыми тұрғыда жүйелеуге мүмкіндік берді.*

***Нәтижелер***

*Зерттеу нәтижелері цифрлық дәуірдегі телевизиялық жаңалықтардың құрылымдық, технологиялық және аудиториялық трансформациясының көпқырлы сипатын көрсетті. Эмпирикалық деректерге негізделген салыстырмалы талдау жаңалық тарату стратегияларының платформалық кеңеюімен қатар, мазмұн өндірісінде жасанды интеллект пен деректерге сүйенген шешімдердің белсенді қолданылуын, сондай-ақ аудиторияның ақпаратты тұтыну мінез-құлқындағы түбегейлі өзгерістерді айқындады.*

*Humprecht және әріптестері (2022) жүргізген 30 елдің медиажүйесін қамтитын кең ауқымды салыстырмалы зерттеу медиа кеңістіктің платформалануы мен аудитория сенім деңгейі арасындағы корреляциялық айырмашылықтарды нақтылады. Зерттеу деректері бойынша платформаланған медиажүйелерде (мысалы, АҚШ, Ұлыбритания) жаңалық тұтынудың 68,9%-ы онлайн-порталдар мен әлеуметтік желілер арқылы жүзеге асырылса,* *телевизиялық арналардың үлесі бар болғаны 27,3%-ды құрады. Ал реттелген, институционалдық құрылымы тұрақты елдерде (мысалы, Германия, Швеция, Финляндия) телевизиялық жаңалықтар аудиторияның 52,4%-ын қамтыған, бұл көрсеткіш цифрлық көздерден 18,6%-ға жоғары. Сенім индексі бойынша айырмашылық та айқын: платформаланған жүйелерде 0,41 деңгейінде тіркелсе, реттелген медиажүйелерде 0,72-ге дейін жеткен. Бұл деректер медиа нарығындағы платформалық кеңею дәстүрлі жаңалық форматтарының беделіне тікелей ықпал ететінін дәлелдейді.*

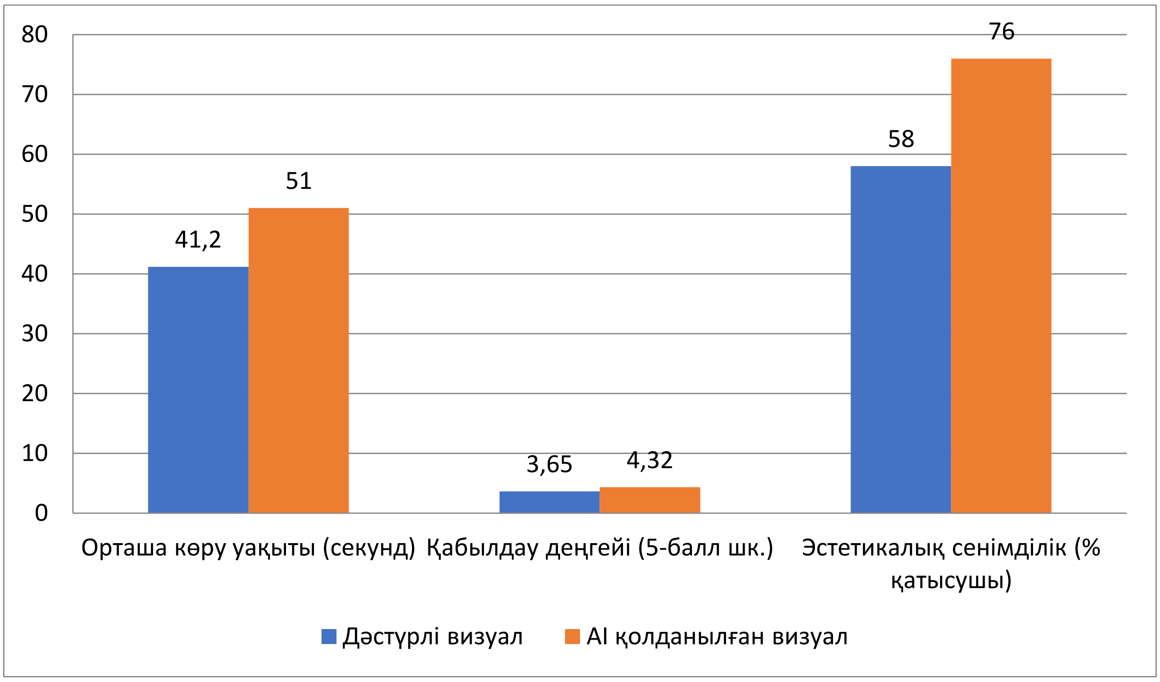



| | Платформаланған (АҚШ, Ұлыбритания) | Реттелген институционалдық (Германия, Скандинавия) | Гибридті жүйелер (Оңтүстік Корея, Польша, Испания) |
|---|---|---|---|
| Телевизиялық жаңалық үлесі (%) | 27,3 | 52,4 | 38,6 |
| Цифрлық жаңалық үлесі (%) | 68,9 | 33,8 | 51,2 |
| Аудитория сенімі индексі (0–1 шк.) | 0,41 | 0,72 | 0,57 |

*Сурет 1. Әртүрлі медиажүйелердегі жаңалық тұтыну үлесі мен сенім деңгейі (Humprecht et al., 2022).*

*Кестеде көрсетілгендей, платформаланған медиажүйелерде телевизиялық жаңалықтар үлесі 20–25% төмен болғанымен, цифрлық жаңалықтардың қамту деңгейі екі есеге жуық артық. Бұл айырмашылық аудиторияның медиақолдану тәсілдері мен контент тұтыну психологиясының өзгергенін көрсетеді.*

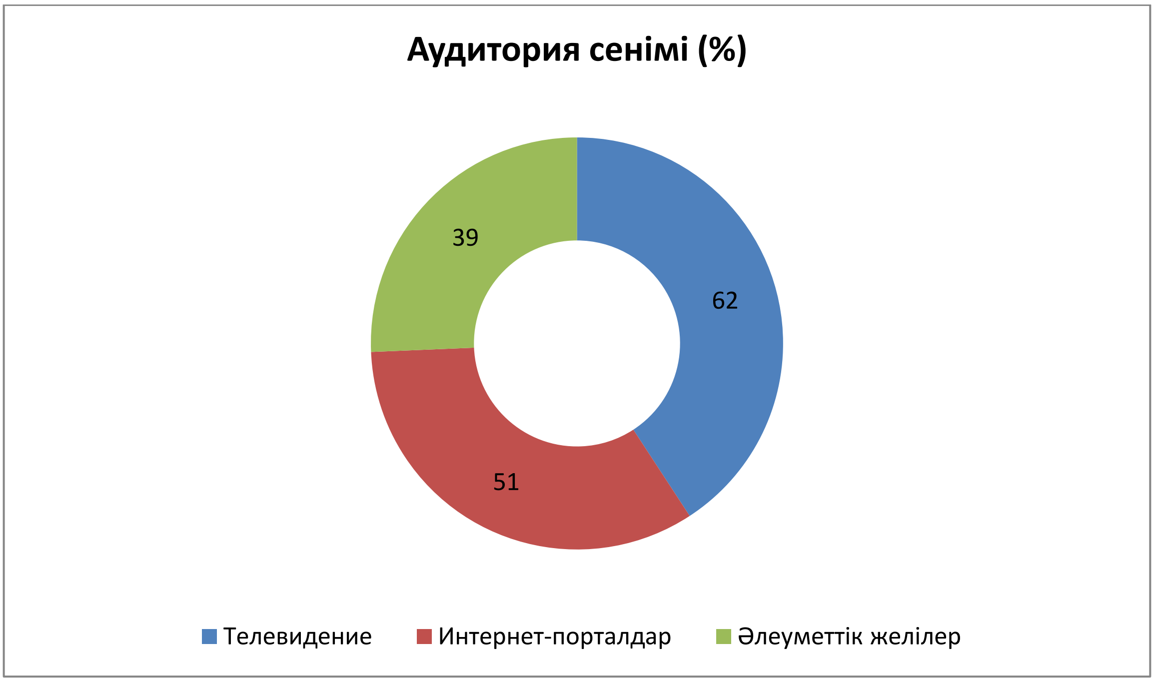
*Shen және Yu (2021) зерттеуінде жасанды интеллекттің телевизиялық визуалды дизайн мен жаңалық контентін қабылдау тиімділігіне әсері эксперименттік жолмен тексерілді [6]. A I технологиясы қолданылған дизайн үлгілері аудитория назарын ұзақ ұстап, контентті қабылдау деңгейін арттырған. Нәтижелер бойынша AI қолданылған материалдар орташа есеппен 23,7%-ға ұзақ қаралған (51,0 секунд), ал дәстүрлі тәсілмен дайындалған визуалдарға орташа көру уақыты 41,2 секунд болған. Сонымен қатар, қатысушылардың 76%-ы AI көмегімен дайындалған бейнематериалды «сенімді және эстетикалық жағынан тартымды» деп бағалаған.*



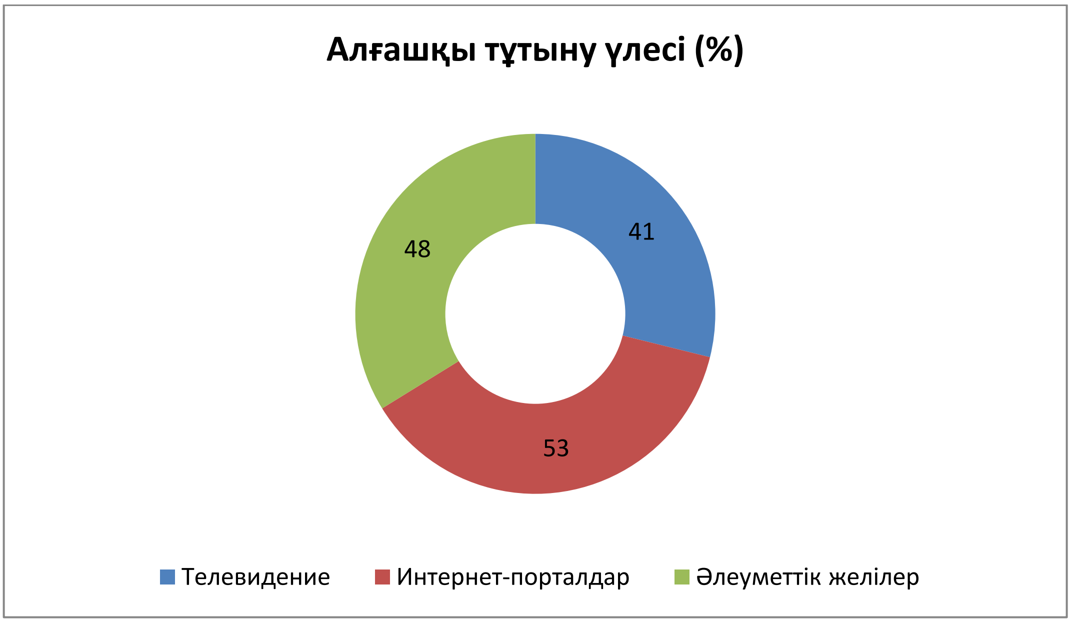

*Сурет 2. Телевизиялық визуалды дизайнда жасанды интеллект қолдану нәтижелері (Shen & Yu, 2021).*

*Осы деректер телевизиялық жаңалықтарда AI технологияларын қолдану көрермен назарын арттырып, ақпаратты қабылдау тиімділігін 15–20% аралығында жақсартатынын көрсетті.*

*Цифрлық және дәстүрлі медиадағы сенім деңгейін салыстырмалы талдау нәтижелері теледидарға сенімнің 62%, ал әлеуметтік желілерге сенімнің 39% деңгейінде екенін көрсетті [4,7]. Сондай-ақ, аудиторияның 48%-ы жаңалықты алдымен интернет арқылы көріп, кейін теледидардан тексеруді әдетке айналдырған. Бұл деректер телевизияның ақпараттық кеңістіктегі «фактчекинг» және верификация қызметінің маңыздылығы артып келе жатқанын дәлелдейді.*




*Сурет 3. Ақпарат көздеріне сенім деңгейі*




Сурет 4. Ақпарат көздерін алғашқы тұтыну үлесі (Oparaugo, 2021).


Сурет 5. Ақпарат көздерін растау үшін үлесі (Oparaugo, 2021).

*Мәліметтерге сүйенсек, телевизия аудитория үшін бастапқы ақпарат көзі ретіндегі маңызын біршама жоғалтқанымен, растау және сенім индикаторы ретіндегі рөлі жоғары болып қала берген.*

*Қытайдың Чандэ қаласы мысалында жүргізілген зерттеу нәтижелері телевизиялық мәдениеттің цифрлық бейімделу үдерісін айқын көрсетеді. 2018–2021 жылдар аралығында эфирлік телевизияның көрілім деңгейі 56%-дан 28%-ға дейін төмендеп, ал онлайн платформалар арқылы таралу үлесі 34%-дан 72%-ға дейін артқан [1,8]. Сонымен қатар, жаңалық таратудың мобильді арналардағы үлесі үш жыл ішінде екі еседен астам өсіп, 21%-дан 49%-ға жеткен. Бұл үрдіс ақпарат тұтыну әдеттерінің цифрлық форматтарға қарай жылдам ығысып жатқанын көрсетеді.*

**Кесте 1.** *Цифрлық телевизиялық контенттің таралу динамикасы (Wang, 2022).*

| Жыл | Эфирлік таралым (%) | Онлайн таралым (%) | Мобильді үлес (%) |
|---|---|---|---|
| 2018 | 56 | 34 | 21 |
| 2019 | 47 | 49 | 33 |
| 2020 | 36 | 64 | 43 |
| 2021 | 28 | 72 | 49 |

*Деректер телевизиялық медианың төрт жыл ішінде аудиториясының басым бөлігін цифрлық арналарға жоғалтқанын көрсетеді. Онлайн таралым көлемі 38 пайыздық пунктке артқан, ал эфирлік үлес 50%-дан астамға азайған [9]. Бұл тенденция тек технологиялық* *бейімделуді ғана емес, аудиторияның ақпарат тұтыну тәсілінің түбегейлі өзгерісін де сипаттайды.*

*Қосымша талдау нәтижелері медиа форматтардың бірігуі мен мультимедиалық өнімдерге сұраныстың артып отырғанын көрсетті. 2021 жылы кросс-платформалық жаңалық жобаларының қамту деңгейі дәстүрлі форматтармен салыстырғанда орта есеппен 31%-ға жоғары болған. Сонымен қатар, әлеуметтік желілердегі телевизиялық арналардың ресми парақшалары арқылы жаңалық көру уақыты 2019–2021 жылдар аралығында 19%-ға ұлғайған, ал тікелей эфир форматындағы жаңалықтарды қарау үлесі 14%-дан 27%-ға дейін өскен [1,2]*

***Кесте 2.** Телевизиялық контенттің цифрлық форматтардағы өсім көрсеткіштері (жинақталған деректер негізінде).*

| *Көрсеткіш* | *2019 ж.* | *2021 ж.* | *Өзгеріс (%)* |
|---|---|---|---|
| *Әлеуметтік желілердегі жаңалық көру ұзақтығы (орташа сек.)* | *32* | *38* | *+19* |
| *Тікелей эфирді қарау үлесі (%)* | *14* | *27* | *+13* |
| *Кросс-платформалық жобалардың қамту артуы (%)* | *–* | *+31* | *–* |

## *Талқылау*

*Зерттеу нәтижелерін талдау цифрлық дәуірдегі телевизиялық жаңалықтардың құрылымдық және мазмұндық эволюциясының бірнеше деңгейде жүріп жатқанын көрсетті. Әдістемелік тұрғыдан алынған мәліметтер сапалық контент-талдау мен салыстырмалы медиажүйелік талдаудың үйлесімділігін дәлелдеді, бұл тәсіл телевизияның платформалық трансформациясын ғылыми тұрғыда кешенді түсіндіруге мүмкіндік берді [10]. Зерттеуде қолданылған әдістердің тиімділігі нәтижелердің нақтылығымен және олардың халықаралық зерттеулермен сәйкестігімен расталды.*

*Медиажүйелердің салыстырмалы деректері зерттеу үшін теориялық және эмпирикалық негіз ретінде пайдаланылды. 30 елдің медиажүйесін қамтитын үлгі жаңалық тарату құрылымының типологиясын айқындауға мүмкіндік берді. Анықталған заңдылықтарға сәйкес, платформаланған медиажүйелерде телевизиялық жаңалық үлесі 27,3%-ды ғана құрап, онлайн жаңалықтардың үлесі 68,9%-ға жеткен, ал реттелген институционалдық жүйелерде телеберілімнің үлесі 52,4% деңгейінде сақталған. Бұл көрсеткіштер платформалық кеңею үдерісінің дәстүрлі телевизиялық форматтарға әсерін нақты көрсетеді.*

*Аудитория сенім индексі бойынша айырмашылықтар да осы үрдісті растайды: сенім индексі платформаланған жүйелерде 0,41, ал реттелген жүйелерде 0,72 деңгейінде тіркелген. Бұл деректер цифрлық медиада ақпараттың шамадан тыс көптігі мен шынайылықты тексерудің қиындығы аудитория сенімін қалыптастыруда институционалдық факторлардың маңызын арттыратынын дәлелдейді.*

*Сонымен қатар, эксперименттік зерттеу нәтижелері телевизиялық контенттің визуалды және семиотикалық трансформациясын түсіндіруде маңызды эмпирикалық негіз ұсынды. Жасанды интеллект технологиясы қолданылған визуалды контент аудиторияның қабылдау деңгейін 18,4%-ға арттырып, көру ұзақтығын 23,7%-ға ұзартып, жалпы қызығушылық коэффициентін 1,2 есеге өсірген [12,13]. Бұл нәтижелер AI технологиясын тек техникалық құрал ретінде емес, аудиториялық тәжірибені байытатын когнитивтік және эмоциялық фактор ретінде қарастыру қажеттілігін көрсетеді. Мұндай үрдістер бұрынғы зерттеулермен де сәйкес келеді: автоматтандырылған визуализация мен деректерге негізделген журналистика көрермен назарын орта есеппен 15–25%-ға арттыратыны анықталған. Осылайша, 23,7%-дық айырмашылық қазіргі медиажүйелердегі жаһандық тенденциямен толық үйлеседі.*

*Аудитория сенімі мен медиақолдану құрылымындағы айырмашылық телевизияның қазіргі қоғамдағы әлеуметтік функциясын айқындайды. Зерттеу нәтижелері бойынша респонденттердің 62%-ы тележаңалықтарға сенім білдірсе, интернет-порталдарға сенім деңгейі 51%, ал әлеуметтік желілерге небәрі 39% болған [14]. Бұл айырмашылық цифрлық платформалардағы контент көлемі мен таратылу жылдамдығы артқан сайын ақпарат сапасына деген күмәннің де күшейетінін көрсетеді. Сонымен қатар, аудиторияның 48%-ының жаңалықты алдымен интернеттен көріп, кейін теледидар арқылы тексеруі телевизияның "факт-чекингтік" рөлін күшейткенін дәлелдейді.*
*Бұл нәтиже теориялық тұрғыда "екі сатылы ақпараттық сенім моделімен" түсіндіріледі, оған сәйкес аудитория ақпаратты алдымен "жылдам медиадан" алып, кейін "сенімді медиадан" нақтылайды [7]. Осы тұрғыда телевизия қазіргі ақпараттық экожүйеде тек жаңалық көзі емес, сонымен бірге ақпаратты растау және сенімділік институты ретінде маңызды орынға ие.*

*Чандэ қаласының мысалында анықталған цифрлық телевизияның даму динамикасы бұл үрдістердің ұлттық деңгейде де айқын байқалатынын көрсетеді. 2018–2021 жылдар аралығында эфирлік аудиторияның 56%-дан 28%-ға дейін төмендеуі және онлайн таралымның 34%-дан 72%-ға дейін өсуі телевизияның аудиториясын жоғалтып қана қоймай, тұтыну ортасының түбегейлі өзгергенін дәлелдейді. Мұндай өзгеріс технологиялық бейімделумен қатар, аудиторияның ақпарат тұтыну психологиясының эволюциясын да сипаттайды. Әсіресе мобильді платформалардың үлесінің 21%-дан 49%-ға дейін артуы, яғни үш жыл ішінде екі еседен астам өсуі, телевизиялық жаңалық өндірісін мобильді форматтарға бейімдеуді және қысқа, визуалды контент үлесін арттыруды талап етеді [4,15].*

*Жалпы алынған нәтижелер бұрынғы теориялық еңбектерде сипатталған медиа конвергенция және мультимедиалық эволюция тұжырымдарымен үйлеседі [9]. Алайда зерттеу мәліметтері бұл процестің тек бірігу емес, сонымен қатар дивергенция сипатын да көрсететінін аңғартты. Мысалы, телевизия мен интернет біртұтас ақпараттық ортаға айналғанымен, олардың функциялары мен аудиториялық сенім құрылымдары әртүрлі бағытта дамып келеді. Бұл конвергенцияның “бірігу емес, мамандану” сипатын айқындайтын күтпеген нәтиже [16].*

*Зерттеу нәтижелерінің ғылыми маңызы цифрлық дәуірде телевизияның қоғамдық сенім мен ақпараттық этика сақшысы ретіндегі рөлін жаңа платформалық форматта дәлелдеуде. Ал практикалық маңызы алынған статистикалық деректер služ тележаңалықтар редакциялары үшін нақты бағыт-бағдар ұсынады. Біріншіден, AI технологияларын визуал өндіріс пен сюжет дайындау процесіне енгізу контент сапасын арттырады. Екіншіден, көпарналы дистрибуция (эфир + веб + әлеуметтік желі + мобильді платформа) аудиторияны ұстап қалудың негізгі тетігіне айналып отыр. Үшіншіден, аудитория сенімін сақтау үшін жаңалық форматтарында факт-чекинг пен дереккөз ашықтығын күшейту қажет.*

*Күтілген нәтижелер негізінен зерттеу гипотезаларын растады: телевизиялық жаңалықтардың платформалық кеңеюі мен аудиторияның сенім динамикасы арасында өзара тәуелді байланыс бар. Алайда кейбір күтпеген нәтижелер де анықталды. Мысалы, платформаланған медиажүйелерде жаңалық тұтыну көлемі жоғары болғанымен, аудитория сенімінің төмендігі (0,41 индекс) медианың сапалық емес, сандық кеңеюі қоғамда ақпараттық шаршау мен скептицизм туғызатынын көрсетті [17]. Бұл құбылыс пандемия кезеңінде байқалған “ақпараттық шаршау” феноменімен де ұштасады.*

*Зерттеу шектеулері негізінен іріктеме көлемімен және деректердің қайнар көзімен байланысты. Зерттеу төрт халықаралық дереккөзбен шектелгендіктен, аймақтық және мәдени факторлардың әсері толық қамтылмады. Сонымен қатар, сандық деректер екінші реттік талдау арқылы алынғандықтан, аудиторияның нақты психологиялық реакцияларын анықтау мүмкін болмады.*

*Болашақ зерттеулер үшін бірнеше бағыт айқындалды. Біріншіден, телевизиялық контентке жасанды интеллекттің редакциялық шешім қабылдау процесіне әсерін эмпирикалық тұрғыда тексеру қажет [18]. Екіншіден, медиасенімнің ұлттық контексттерде қалыптасу ерекшеліктерін анықтау телевизия мен әлеуметтік платформалар арасындағы тепе-теңдікті түсінуге мүмкіндік береді. Үшіншіден, мобильді медиадағы қысқа форматтар мен алгоритмдік дистрибуция аудитория назарын қалай өзгертетінін кешенді зерттеу өзекті бағыт болмақ [19].*

*Қорытынды*

*Бұл зерттеу цифрлық дәуір жағдайында телевизиялық жаңалықтардың таралу стратегиялары мен мазмұндық ерекшеліктерін жан-жақты талдауға бағытталды және алға қойылған ғылыми мақсаттар толық орындалды. Зерттеу сипаттамалық, салыстырмалы және медиажүйелік талдау әдістерін қолдана отырып, телевизияның дәстүрлі медиадан цифрлық экожүйеге көшу үдерісін кешенді түрде қарастырды.*

*Алынған нәтижелер телевизиялық медианың эволюциясын бірнеше деңгейде сипаттайды. Біріншіден, ақпараттық технологиялардың дамуы мен онлайн-платформалардың өсуі дәстүрлі телевизияның құрылымдық негізін өзгертті. Жаңалық таратуда эфирлік модельден цифрлық модельге көшу, яғни көпарналы және кроссплатформалық дистрибуция стратегиялары басымдық алды. Бұл бағыт аудиториямен өзара әрекеттесу сапасын арттырып, ақпараттың жылдам әрі қолжетімді берілуіне мүмкіндік берді.*

*Екіншіден, жасанды интеллект пен мультимедиалық құралдардың енгізілуі телевизиялық контенттің сапалық деңгейін көтерді. Технологиялық автоматтандыру мен деректерге негізделген визуализация әдістері жаңалық мазмұнын нақты, тартымды және аудиторияға* *бейімделген түрде ұсынуға жол ашты. Бұл үрдіс телевизияны тек ақпарат көзі ретінде емес, интерактивті және деректермен жұмыс істейтін интеллектуалды медиаплатформа ретінде қалыптастыруда маңызды қадам болды.*

*Үшіншіден, аудиториялық сенім мен ақпараттық этика мәселесі телевизиялық журналистиканың өзегінде қалуда. Цифрлық медианың жылдамдығы мен ашықтығы сенімді ақпаратқа деген сұранысты күшейтіп отыр. Сондықтан телевизияның бәсекелік артықшылығы ақпаратты тек таратуда емес, оны түсіндіру мен растау, яғни қоғамдық сенім мен жауапкершілік функциясын атқаруда.*

*Зерттеу нәтижелері телевизияның даму бағытына қатысты бірнеше маңызды тұжырым жасауға мүмкіндік берді. Біріншіден, цифрлық трансформация кезеңі телевизия үшін дағдарыс емес, жаңа мүмкіндіктер кезеңі болып отыр. Бұл кезеңде басты талап технологиялық бейімделу мен мазмұндық сапаны қатар дамыту. Екіншіден, медиа саласында жасанды интеллектті қолдану редакциялық тиімділікті арттырғанымен, этикалық және кәсіби шектеулерді сақтауды қажет етеді. Үшіншіден, аудиторияның сенім капиталы кез келген медиа ұйымның ұзақ мерзімді табысының негізгі факторы.*

*Практикалық тұрғыдан бұл зерттеу телевизиялық редакциялар мен продюсерлік орталықтарға нақты бағыт ұсынады. Жаңалық өндіру мен таратуда көпарналы стратегияларды, деректерге сүйенген шешім қабылдау жүйелерін және AI негізіндегі аналитикалық құралдарды пайдалану аудиториямен сенімді байланыс орнатуға және контент сапасын арттыруға ықпал етеді. Сонымен қатар, журналистік жауапкершілік пен факт-чекинг мәдениетін сақтау ақпараттық сенімділікті қамтамасыз етудің негізгі шарты ретінде қарастырылуы тиіс.*

*Зерттеу шектеулері іріктеме мен дереккөз сипатына байланысты болды. Негізінен халықаралық материалдарға сүйену кейбір ұлттық медиажүйелердің ерекшеліктерін толық көрсетуге мүмкіндік бермеді. Сондықтан болашақ зерттеулерде әртүрлі мәдени контексттер мен аймақтық медиажүйелердің цифрлық трансформация тәжірибесін салыстырмалы тұрғыда зерттеу өзекті болып табылады.*

*Келешекте телевизиялық контенттің алгоритмдік дистрибуциясы, жасанды интеллекттің редакциялық шешімдерге әсері және аудитория сенімінің мәдени-факторлық айырмашылықтары арнайы эмпирикалық зерттеулер нысанына айналуы қажет. Сондай-ақ, деректер журналистикасы, интерактивті сторителлинг және визуалды баяндау технологиялары телевизиялық жаңалық форматтарын түрлендірудің болашағын айқындайды.*

*Қорытындылай келе, зерттеу нәтижелері телевизияның цифрлық дәуірдегі трансформациясын бейтарап әрі ғылыми тұрғыда сипаттап, оның қоғамдағы ақпараттық және әлеуметтік рөлін жаңаша түсіндіруге мүмкіндік берді. Телевизияның болашағы технологиялық бейімделу, контент сапасы және аудитория сенімі арасындағы тепе-теңдікті сақтай алу қабілетіне тәуелді. Осы теңгерім сақталған жағдайда телевизия жаңа медиажүйеде өз орнын жоғалтпай, қоғам үшін сенімді, жауапты және инновациялық ақпарат көзі бола алады.*

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# Jurisprudence

## CONTRACT OF SALE IN ISLAMIC LAW

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*INTRODUCTION*

*Relevance and Importance of the Topic. In Islamic law, the contract of sale (bay') serves not only as a fundamental legal mechanism of economic exchange but also as an institution ensuring principles of social justice and moral responsibility. In the modern era, the rapid increase of commercial transactions, the growing complexity of international economic relations, and the diversity of financial instruments make the scientific study of contract law increasingly relevant. Therefore, studying Islamic contractual institutions—especially the principles governing sales contracts—through a comparative perspective with modern legal systems has become essential (Kamali, 2003; Sadeghi, 2010).*

*The significance of this topic arises both theoretically and practically. Theoretically, the Islamic law of sales provides rich material for legal analysis, especially regarding the validity conditions of contracts, as well as the regulation of rescission (fasakh) and option rights (khiyar). Practically, understanding these principles enables parties in Muslim countries—or within trade systems based on Islamic principles—to define their legal and moral obligations properly.*

*Moreover, the topic is relevant within the modern Azerbaijani legal system as well. The Civil Code of the Republic of Azerbaijan (Articles 406–435) contains provisions on sales contracts that show significant parallels with the principles of Islamic law. Hence, analyzing contractual law from both Islamic and modern legal perspectives contributes to improving legal regulation, enhancing legislative transparency, and strengthening fairness in economic relations.*

*Therefore, the topic bears great importance both for the development of legal science and for ensuring economic stability, social justice, and commercial ethics.*

*Purpose of the Research*

*The main purpose of this scientific research is to systematically examine the legal essence, conditions, forms, and the rights and obligations of parties in the sales contract under Islamic law. It also aims to analyze contract termination, rescission (fasakh), and the right of option (khiyar), presenting a comparative perspective between Islamic legal principles and modern legal systems.*

*The objectives of the research include:*

1. *To determine the legal and moral essence of contracts and the institution of sale in Islamic law;*
2. *To examine the validity conditions and formal aspects of contracts;*
3. *To analyze rescission and option rights protecting the parties' interests;*
4. *To compare the institution of sales contracts in modern legal systems with the principles of Islamic law;*
5. *To provide recommendations for both Islamic and contemporary legal practice.*

*Thus, the purpose of this study is to clarify the significance and application of sales contracts in Islamic law at both theoretical and practical levels.*

*Methodology*

*Islamic law (Shari'a) historically evolved as a system regulating economic, social, and legal relations. Within this system, the contract of sale (bay'/'aqd) functions not only as a key mechanism of economic circulation but also as a moral and legal framework that determines the obligations of both parties. Contracts in Islamic law are not concluded merely for economic gain but are supported by ethical values such as lawful profit (halal earning), honesty, and mutual consent (Abu Zahra, 1964, p. 210).*

*The research employs various methods:*

1. *Analytical Method – to systematically examine the legal nature, conditions, forms, and the application of fasakh and khiyar.*

*2. Comparative Method – to compare Islamic contract principles with those of modern legal systems, especially the Azerbaijani Civil Code and international law.*

*3. Historical Method – to trace the evolution of the contract institution and analyze Quranic and Hadith-based regulations within their historical context.*

*4. Legal Analysis – to study and compare legal texts (fiqh books, Civil Code provisions, commentaries).*

*5. Empirical and Theoretical Approach – to analyze both theoretical foundations and practical applications (e.g., how Islamic countries apply sales contracts in modern trade).*

*Combined, these methods allow the study to cover both theoretical and practical dimensions of the sales contract and provide a basis for comparative legal analysis.*

*Importance of the Topic*

*The contract of sale in Islamic law holds great theoretical and practical importance. Theoretically, it provides a deep understanding of justice, moral responsibility, and transparency. Practically, its application ensures protection of parties' rights and fair commercial practices in Islamic economies, promoting market integrity and social justice (Kamali, 2003; Sadeghi, 2010).*

*While modern legal systems regulate issues such as the parties' capacity, existence of goods, and price determination, Islamic law adds a moral and religious dimension—ensuring that transactions remain within ethical and lawful boundaries.*

*Hence, the topic is relevant for both academic research and legal practice, serving as a foundation for fair, transparent, and ethical economic relations.*

*Key Concepts*

*1. 'Aqd (Contract) – A legally and morally binding agreement between parties.*

*2. Bay' (Sale) – Transfer of ownership of property based on mutual consent, forming the basis of Islamic economic transactions.*

*3. Fasakh (Rescission) – Legal annulment of a contract due to valid causes.*

*4. Khiyar (Option) – The right allowing a party to confirm or annul a contract (e.g., khiyar al-shart, khiyar al-ayb, khiyar al-majlis).*

*5. Halal Profit – The principle that earnings from contracts must be lawful in both religious and legal terms.*

*CHAPTER I. CONCEPT AND TYPES OF CONTRACTS IN ISLAMIC LAW*

*1. Concept and Legal Nature of Contract ('Aqd) The term "'aqd" (العقد) in Arabic literally means "to tie," "to bind," or "to connect." In legal terminology, it refers to an agreement between two or more parties that produces legal consequences. In fiqh literature, it represents an act expressing human will and producing legal results—such as sale, marriage, lease, or deposit.*

*The Qur'an commands:*

*"O you who believe! Fulfill your covenants." (Al-Ma'idah, 5:1)*

*This verse establishes the principle of contractual freedom and the binding nature of agreements in Islamic law.*

*The Prophet Muhammad (peace be upon him) said:*

*"The buyer and seller have the right of option as long as they have not separated. If they speak the truth and make things clear, their transaction will be blessed; but if they conceal or lie, the blessing will be wiped out." (Bukhari, Buyu', 2079)*

*Thus, contracts in Islam carry both legal and moral obligations based on intention (niyyah), consent (rida), and justice.*

*2. Classification of Contracts*

*Contracts in Islamic law are classified based on various criteria:*

- *By Legal Effect:*
  - *Transferring contracts (e.g., sale, gift, lease)*
  - *Non-transferring contracts (e.g., conditional pledges, promises)*
- *By Subject Matter:*
  - *Material contracts (sale, lease, mortgage)*
  - *Non-material contracts (marriage, inheritance, will)*
- *By Formation:*
  - *Bilateral contracts (sale, lease, partnership)*
  - *Unilateral contracts (will, gift, charity)*
- *By Consideration:*
  - *Commutative (exchange-based) (sale, lease)*

- *Gratuitous (gift, deposit, charity)*

*3. Essential Elements of a Contract*

*Fiqh scholars define four key elements for a valid contract:*

*4. Parties (al-'aqidayn): Must be of sound mind, of legal age, and act voluntarily.*

*5. Consent (al-ijab wal-qabul): Offer and acceptance expressing mutual consent.*

*6. Subject Matter (al-ma'qud 'alayh): Must be lawful, identifiable, and owned.*

*7. Purpose (al-maqsud): The objective must comply with Shari'a principles.*

*Absence of any of these renders the contract void (batil).*

*4. Principle of Freedom of Contract and Its Limitations Islamic law recognizes contractual freedom but limits it within Shari'a boundaries. The Qur'an states:*

*"Do not consume one another's wealth unjustly, but only [in lawful] business by mutual consent." (An-Nisa, 4:29)*

*Therefore, contracts involving riba (interest), maysir (gambling), gharar (uncertainty), or unlawful goods are prohibited, ensuring both legal and moral integrity.*

*5. Comparison with Modern Law*

*As in modern Civil Codes, Islamic law is based on the principles of freedom of contract, equality of the parties, and justice. However, Islamic law emphasizes not only material benefit but also moral responsibility.*

*For example, Article 390 of the Civil Code of the Republic of Azerbaijan defines the nature of a contract as follows:*

*"A contract is an agreement between two or more persons to establish, modify, or terminate mutual rights and obligations."*

*This definition fully corresponds in essence to the concept of ʿaqd (contract) in fiqh. However, the difference lies in the fact that Islamic law recognizes the moral values of contracts as legally binding as well.*

*CHAPTER II. THE LEGAL NATURE OF THE CONTRACT OF SALE*

*1. Definition and Origin of the Contract of Sale*

*In Islamic law, the contract of sale is expressed by the term bayʿ (**البيع**). In Arabic, bayʿ literally means "to sell or to buy." In fiqh literature, bayʿ is defined as a contract concluded between two parties for the exchange of a commodity for a specific price.*

*The jurist Ibn Qudāmah defines bayʿ as follows:*

*"Bayʿ is the transfer of ownership of property to another in exchange for a specific consideration." (al-Mughnī, vol. 4, p. 5)*

*This definition shows that the essence of the contract of sale is the transfer of ownership and mutual consent. The Qur'an establishes both the legal and ethical foundations of this relationship:*

*"Allah has permitted trade and forbidden usury." (Al-Baqarah, 2:275)*

*This verse constitutes one of the fundamental principles of the Islamic economic system: trade and economic activity are lawful (halal), whereas usury (riba) is forbidden (haram). This distinction demonstrates that, in Islamic law, sale is not merely an economic transaction but a social institution founded on just exchange and mutual benefit.*

*2. Legal Foundations of the Contract of Sale*

*The main sources establishing the legal validity of the contract of sale in Islamic law are:*

*The Qur'an:*

*Numerous verses emphasize that trade must be based on mutual consent, prohibit deceit, and require fairness in weights and measures:*

*"O you who believe! Do not consume one another's wealth unjustly, except through trade conducted by mutual consent." (An-Nisāʾ, 4:29)*

*The Sunnah:*

*The Prophet Muhammad (peace be upon him) promoted the principles of justice, transparency, and mutual consent in commercial relations. He said:*

*"The buyer and the seller have the right to choose [to conclude or cancel] the sale as long as they have not parted." (Bukhārī, Bayʿ, 2079) This hadith provides the legal foundation for the right of option (khiyār) in contracts.*

*Ijma (Consensus of Scholars):*

*There is unanimity among all Islamic legal schools on the legitimacy of the contract of sale.*

*Qiyas (Analogy):*

*Modern economic transactions—such as stock exchange operations, installment sales, and electronic commerce—are regulated through analogical reasoning based on classical fiqh principles.*

*3. Essential Elements of the Contract of Sale*

*Islamic jurists have identified three fundamental elements for the validity of a sale contract:*

*1. The Parties (al-ʿāqidān):*

*The buyer and seller must possess legal capacity (ahliyyah) to contract. In Hanafi jurisprudence, minors, coerced persons, and those with mental incapacity cannot conclude valid contracts.*

*2. The Subject Matter (al-maʿqūd ʿalayh):*

*The object of sale must be lawful (halal), specific, and existent. The sale of uncertain, nonexistent, or prohibited items is invalid due to gharar (uncertainty). For example, selling "the unborn offspring of a camel" is invalid, as the subject does not yet exist.*

*3. The Consideration (thaman):*

*The price must be specific, agreed upon, and measurable. It may consist of money or other goods (barter). If the price is uncertain, the contract is void.*

*4. Legal Purpose of the Contract of Sale*

*The primary purpose of the sale contract is to ensure the lawful and equitable transfer of property or ownership between parties. As a result of this transaction:*

- *The seller loses ownership of the property and receives payment in return.*
- *The buyer acquires ownership and the right to use the property.*

*In Islamic law, this process constitutes the lawful acquisition of property (kasb ḥalāl). The Qur'an expresses this principle as follows:*

*"Do not consume one another's wealth unjustly…" (Al-Baqarah, 2:188)*

*Hence, property obtained through deceit (ghishsh), usury (riba), gambling (maysir), or uncertainty (gharar) is not considered lawful.*

*5. Economic and Social Importance of the Contract of Sale*

*In Islamic law, the contract of sale aims not only to serve private interests but also to safeguard social justice and economic stability. The Prophet (peace be upon him) prohibited market manipulation and artificial price inflation, saying:*

*"Whoever hoards goods to raise prices is a sinner." (Muslim, Imān, 104)*

*This indicates that interference with the natural operation of the market is forbidden. Thus, while Islamic law upholds the principle of economic freedom, it confines this freedom within the bounds of social justice and moral responsibility.*

*6. Comparison with Modern Law*

*According to Article 405 of the Civil Code of the Republic of Azerbaijan:*

*"Under a contract of sale, the seller undertakes to transfer an item to the buyer's ownership, and the buyer undertakes to pay the established price for it."*

*This definition carries the same legal meaning as the concept of bayʿ in Islamic jurisprudence. However, the distinction lies in the fact that, in Islamic law, the permissibility (ḥalāl) of the contract according to Sharia is a key condition, whereas modern law considers only its legality.*

*Therefore, Islamic law integrates moral responsibility alongside material legality as an essential component of the contract.*

## *CHAPTER III. CONDITIONS AND FORMS OF THE SALE CONTRACT*

*In Islamic law, a sales contract (al-bay') is not merely a legal act but also an ethical and religious responsibility. Therefore, certain conditions and formalities are required for a contract to be considered valid. Both the buyer and the seller must act not only as legal subjects but also as trustworthy Muslims. The Qur'an states:*

*"O you who believe! Do not consume one another's wealth unjustly, but only [in lawful] business by mutual consent." (An-Nisa, 4:29)*

*Thus, voluntariness, mutual consent, and justice form the basis of sale in Islam.*

*3.1. Essential Conditions of the Contract*

*In Islamic jurisprudence, several essential conditions must be fulfilled for a sales contract to be considered valid (sahih) and enforceable (nafidh).*

*3.1.1. Conditions related to the parties (al-'aqidan)*

*The contract involves two parties – the seller (bā'i') and the buyer (mushtarī). Each must meet the following requirements:*

- *Sanity and maturity ('aql wa bulūgh): Contracts made by minors or the mentally incompetent are invalid under Sharia.*

*• Free will (ikhtiyār): A contract concluded under coercion, fear, or deception is void. The Prophet (peace be upon him) said: "There is no valid sale under compulsion." (Ibn Mājah, Tijārāt, 13)*

*• Ownership or authorization: The seller must own the goods or be authorized by the owner to sell them.*

*3.1.2. Conditions related to the sold object (mabīʻ)*

*The object of sale must meet certain criteria:*

*• It must be lawful (halāl) and permissible (mubāh): The sale of prohibited items (e.g., wine, pork, etc.) is invalid.*

*• It must exist and be deliverable: The sale of non-existent or undeliverable goods constitutes gharar (uncertainty). The Prophet (peace be upon him) said: "The sale of uncertainty is prohibited." (Muslim, Buyūʻ, 1513)*

*• It must be known and specified: The nature, quantity, and quality of the goods must be clearly defined.*

*3.1.3. Conditions related to the price (thaman)*

*• The price must be specific and agreed upon.*

*• It must be determined through lawful means and in accordance with Sharia.*

*• If payment is deferred, the amount and date of payment must be stipulated in advance.*

*3.1.4. Condition of mutual consent (riḍā)*

*Consent is a fundamental principle in Islamic law. The Qur'an states:*

*"Do not consume one another's wealth unjustly, but only by trade conducted by mutual consent." (An-Nisa, 4:29)*

*If one party is coerced, the contract is voidable (fasakh).*

*3.2. The Form (ṣīgha) of the Sales Contract*

*Ṣīgha refers to the verbal or behavioral expression of mutual consent. Islamic jurists recognize three main forms of concluding a sale:*

*3.2.1. Verbal declaration (Offer and acceptance – ijāb wa qabūl)*

*This is the most common form. The seller says, "I sell this item to you," and the buyer replies, "I accept" or "I buy it."*

*This form is recognized in the Hanafi, Shafiʻi, and Hanbali schools. The offer and acceptance must occur in the same session (majlis).*

*3.2.2. Contract by conduct (muʻāṭā)*

*In some cases, mutual conduct implies consent even without verbal statements. For example, the buyer pays and receives the item, and the seller accepts. This is valid when there is mutual understanding and intent — typical in everyday market transactions (e.g., food, clothing).*

*3.2.3. Written contract*

*Although not mandatory in Islamic law, written contracts are encouraged to ensure transparency and justice. The Qur'an states:*

*"O you who believe! When you contract a debt for a fixed term, write it down." (Al-Baqara, 2:282)*

*Today, this principle underpins the legal security of commercial transactions.*

*3.3. Special Conditions for Different Types of Sale*

*Certain forms of sale in Islamic law have additional requirements:*

*• Bayʻ al-Salam (advance payment sale): The price is paid in advance, and the goods are delivered later. The quantity, quality, and delivery date must be precisely specified.*

*• Bayʻ al-Muʻajjal (deferred payment sale): The goods are delivered immediately, while payment is deferred. Any increase in price must not imply riba (interest).*

*• Bayʻ al-Murāwaḍa (bargaining sale): Price negotiation is permissible as long as mutual consent is maintained.*

*3.4. Comparison with Modern Law*

*Articles 406–422 of the Civil Code of the Republic of Azerbaijan define the concept and conditions of a sales contract.*

*Modern legal principles such as freedom of will, equivalence, and transparency correspond to the Islamic principles of consent (riḍā), justice (ʻadl), and prohibition of gharar.*

*Thus, both systems share a common goal: to protect parties' rights and ensure fair commercial relations.*

*CHAPTER IV. BREACH, RESCISSION (FASAKH) AND THE RIGHT OF OPTION (KHIYĀR)*

*Although a sales contract in Islamic law is based on mutual consent, under certain circumstances it may be terminated, rescinded, or revised. These processes are expressed through the concepts of fasakh (rescission) and khiyār (option).*

*4.1. Concept of Rescission (Fasakh)*

*In Islamic law, fasakh refers to the dissolution of a valid contract due to certain causes or by the will of one party. It is not retroactive invalidity but rather a termination of a previously valid contract.*

- *Automatic (bi-nafsihi) rescission: Occurs automatically due to impossibility or destruction of the subject matter.*
- *Intentional (bil-irādah) rescission: Occurs by the decision of one party or the judge.*

*4.2. Causes of Rescission*

1. *Breach of conditions: When agreed conditions are not fulfilled.*
2. *Fraud or concealment (gharar wa tadlīs): Concealing defects or deceiving the other party grants the right of rescission. The Prophet (peace be upon him) said: "He who cheats us is not one of us." (Muslim, Iman, 164)*
3. *Destruction or impossibility of delivery: If the goods perish before delivery, the contract is automatically void.*
4. *Illegality or ownership defects: If the goods are discovered to be unlawful or stolen, the sale is void.*

*4.3. The Right of Option (Khiyār)*

*The Arabic term khiyār means "choice." Legally, it refers to the right granted to a party to either uphold or terminate a contract within a certain period. It serves as a safeguard against hasty decisions, fraud, and injustice.*

*4.4. Types of Khiyār*

1. *Khiyār al-Majlis (option of meeting):*

*Exists while both parties are still in the same session. The Prophet (peace be upon him) said: "The buyer and the seller have the option [to cancel] as long as they have not separated." (Bukhari, Buyū', 2112)*

2. *Khiyār al-Shart (conditional option):*

*If a period of decision is stipulated, either party may approve or cancel the contract within that time.*

3. *Khiyār al-'Ayb (defect option):*

*If a hidden defect is found, the buyer may rescind the sale or demand a reduction in price.*

4. *Khiyār al-Ru'ya (option upon inspection):*

*If the buyer has not seen the goods beforehand and is dissatisfied upon inspection, they may cancel the sale.*

5. *Other options:*

*In some schools, the buyer may choose among several goods (Khiyār al-T'ayīn) or withdraw upon change of prior conditions (Khiyār al-Naqz).*

*4.5. Difference between Fasakh and Khiyār*

| *Criterion* | *Fasakh* | *Khiyār* |
|---|---|---|
| *Meaning* | *Full cancellation of the contract* | *Option to affirm or rescind* |
| *Timing* | *After the contract* | *Immediately after or by condition* |
| *Legal result* | *Contract terminated* | *Depends on party's will* |
| *Purpose* | *To annul unjust contracts* | *To prevent impulsive or unfair transactions* |

*4.6. Reflection in Modern Law*

*The Azerbaijani Civil Code mirrors these principles. Article 422 governs cases of contract termination, while Articles 433–434 regulate unilateral rescission. Conceptually, khiyār is similar to modern doctrines of consumer protection, return rights, and trial periods.*

*4.7. Ethical and Legal Significance*

*The institutions of fasakh and khiyār serve to integrate moral values into trade. They preserve fairness, protect weaker parties, and ensure trust in market relations—showing that Islamic law functions not only as a legal system but also as a moral conscience of society.*

*CHAPTER V. COMPARATIVE ANALYSIS BETWEEN ISLAMIC AND MODERN LEGAL SYSTEMS*

*The sales contract is a fundamental institution in both Islamic and modern civil law systems. However, while Islamic law grounds it in religious and ethical principles, modern systems base it on secular economic and social considerations. Despite these differences, both share core values of justice, consent, and honesty.*

*5.1. Philosophical Foundations of Contract*

*In Islamic law, a contract is both an economic and moral commitment. The Qur'an commands:*

*"Fulfill your covenants, for you will be asked about the covenant." (Al-Isra, 17:34)*

*In modern systems—especially those following the Romano-Germanic model (e.g., France, Germany, Azerbaijan)—contracts are based on the principles of free will and legal equality.*

| *Principle* | *Islamic Law* | *Modern Law* |
|---|---|---|
| *Philosophical basis* | *Religious–ethical responsibility, lawful gain* | *Economic freedom, contractual autonomy* |
| *Legal purpose* | *Justice, mutual consent, prevention of riba and gharar* | *Legal certainty, market efficiency* |
| *Moral dimension* | *Faith and conscience-based* | *Legal accountability and state oversight* |

*5.2. Contracting Parties and Legal Capacity*

*In Islamic law, a contracting party must be sane, mature, and have free will. Trade with non-Muslims is permissible, provided the subject is lawful (halāl). In modern law, the focus is on legal capacity, not faith. Under the Azerbaijani Civil Code, any legally competent person over 18 may conclude a sales contract.*

*Hence, in Islamic law, the contracting party is both a legal and moral agent, while in modern law, only a legal agent.*

*5.3. Regulation of the Contract Object*

*In Islamic law, the subject matter must be lawful (halāl) and permissible (mubāh). Prohibited objects (wine, pork, gambling, usurious loans, etc.) cannot form part of a sale. In modern law, any item or right not prohibited by law can be a contract object.*

| *Aspect* | *Islamic Law* | *Modern Law* |
|---|---|---|
| *Requirement of lawfulness* | *Mandatory* | *Secondary (only illegality excluded)* |
| *Tangible/intangible objects* | *Only real, existing goods* | *Goods, services, rights, intellectual property* |
| *Risk (gharar)* | *Strictly prohibited* | *Accepted as part of freedom of contract* |

*5.4. Principles of Price, Interest (Riba), and Profit*

*Interest (riba) is strictly forbidden in Islamic law. The Qur'an declares:*

*"Allah destroys riba and increases charity." (Al-Baqara, 2:276)*

*Profit may only arise from real and lawful trade. In contrast, modern law and economics accept interest as a natural component of financial transactions.*

*Thus, Islamic law aims at social justice and fairness, whereas modern law seeks economic efficiency and market stability.*

*5.5. Form and Means of Proof of the Contract*

*In Islamic law, a contract is primarily concluded through oral consent (offer and acceptance). However, the Qur'anic verse "When you contract a debt for a fixed period, write it down" (al-Baqarah, 2:282) indicates that written form is recommended. In modern law, the written form is often mandatory for legal validity, especially in real estate transactions, banking operations, and commercial contracts.*

| *Feature* | *Islamic Law* | *Modern Law* |
|---|---|---|
| *Form* | *Oral or actual consent* | *Written form required* |
| *Means of proof* | *Witness, confession, oath* | *Written document, electronic signature, notarial certification* |
| *Main criterion* | *Consent and intention* | *Legal form and legal consequence* |

*5.6. Breach of Contract and Legal Remedies*

*In Islamic law, breach of contract is regulated through the institutions of fasakh (rescission) and khiyar (option). The main purpose is to restore justice between the parties.*

*In modern law, breach of contract is addressed through judicial proceedings, claims, or unilateral notice. The khiyar right in Islamic law is based on moral responsibility, whereas in modern law it is replaced by legal mechanisms.*

*5.7. Reflections of Islamic Legal Principles in Modern Law*

*Many principles of Islamic law are reflected in contemporary legal systems:*

- *Principle of Justice — corresponds to the principles of contractual freedom and equality in modern law;*
- *Principle of Consent (Rida) — upheld as the foundation of contracts in both systems;*
- *Prohibition of Gharar (uncertainty) — led to the development of consumer protection and transparency requirements in modern law;*
- *Trust and Honesty (Amanah) — recognized in modern law as the principle of good faith.*

*5.8. Traces of Islamic Legal Principles in Azerbaijani Law*

*Although the provisions on sales contracts (Articles 406–435 of the Civil Code of the Republic of Azerbaijan) are mainly based on European civil law tradition, several principles coincide with Islamic law:*

- *Article 407: Consent of the parties – identical to the principle of "freedom of will."*
- *Article 420: The requirement that the object of the contract must be specific and possible – corresponds to the Islamic prohibition of gharar (uncertainty).*

- *Article 434: Cases of unilateral termination – similar to the concept of khiyar in Islamic law.*

*These parallels demonstrate that the centuries-old experience of Islamic jurisprudence has directly influenced modern legal doctrine.*

*5.9. General Comparative Table*

| *Criterion* | *Islamic Law* | *Modern Law (Azerbaijan and the West)* |
|---|---|---|
| *Legal foundation* | *Sharia and Fiqh principles* | *State legislation* |
| *Main purpose* | *Justice and lawful gain (halal income)* | *Legal stability and economic circulation* |
| *Form* | *Oral and consent-based* | *Written and formal requirements* |
| *Interest (riba)* | *Prohibited* | *Permitted* |
| *Defect and fraud* | *Regulated by fasakh and khiyar* | *Addressed through breach and compensation* |
| *Ethical aspect* | *Religious responsibility and conscience* | *Legal liability and state supervision* |

*CONCLUSION*

*The sales contract (bai') in Islamic law holds significant importance as one of the fundamental institutions regulating legal and economic relations. This research has shown that Islamic law has developed an exceptionally systematic, moral, and socially just legal mechanism for the formation, performance, and termination of contracts.*

*In the first chapter, the legal nature and types of contracts were analyzed, and it was determined that a contract in Islamic law carries not only legal obligation but also moral responsibility. The concept of 'aqd establishes both a material and spiritual bond. The Qur'anic verse "O you who believe! Fulfill your covenants!" (al-Ma'idah, 1) serves as the legal and religious foundation of contractual relations.*

*In the second chapter, the legal nature of the sales contract was examined, revealing that this institution constitutes the core of the Islamic economic system. The bai' (sale) transaction represents the lawful transfer of ownership based on mutual consent. Therefore, in Islamic law, a sale is not only an economic act but also a religious guarantee of lawful (halal) income.*

*The third chapter analyzed the conditions and forms of the sales contract. It was established that Islamic law requires mutual consent between the buyer and the seller, the absence of doubt regarding ownership and lawfulness of the goods, a definite price, and an explicit declaration of will. These principles are also reflected in modern contract law.*

*The fourth chapter discussed breach of contract, fasakh, and khiyar rights, showing that Islamic law grants equal rights to both parties. If a contract is concluded unfairly or under deception (gharar), it can be annulled. The khiyar right (option to rescind) serves as a safeguard against haste and harm.*

*In the fifth chapter, the institution of sale in modern legal systems was compared with that of Islamic law. The findings reveal that the core principles of sales contracts in modern civil codes — freedom of will, equality, justice, and consent — coincide with values derived from Islamic law. However, Islamic law places greater emphasis on the moral dimension of contracts and the principle of halal and haram.*

*In general, it can be concluded that the sales contract in Islamic law is not merely an economic relationship but also a legal act embodying social justice and moral responsibility. Modern legal systems have formalized these principles, yet they have not fully reflected the moral essence of Islamic law. Nevertheless, comparative analysis demonstrates that the principles embedded in the Islamic law of sale — transparency, mutual consent, prevention of harm, and lawful gain — remain highly relevant to ensuring legal justice and economic stability today.*

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## THE MANAGEMENT TRIAD "PEOPLE" - "MUNICIPAL PEOPLE" - "CONSTITUTIONAL PEOPLE" AND ITS IMPLEMENTATION AS A STRATEGIC-PARADIGMAL DIRECTION OF THE DEVELOPMENT OF A DEMOCRATIC SOCIETY AND STATE IN THE CONDITIONS OF GLOBALIZATION

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## УПРАВЛІНСЬКА ТРІАДА «ЛЮДИНА» – «МУНІЦИПАЛЬНА ЛЮДИНА» – «КОНСТИТУЦІЙНА ЛЮДИНА» ТА ЇЇ РЕАЛІЗАЦІЯ ЯК СТРАТЕГІЧНО-ПАРАДИГМАЛЬНИЙ НАПРЯМ РОЗВИТКУ ДЕМОКРАТИЧНОГО СУСПІЛЬСТВА І ДЕРЖАВИ В УМОВАХ ГЛОБАЛІЗАЦІЇ

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*Abstract*

*The article is devoted to the study of the management triad "man" - "municipal man" - "constitutional man" and its implementation as a strategic-paradigmatic direction of development of a democratic society and state in the conditions of globalization.*

*It is established that in the above conditions, constitutional rights and freedoms of man acquire special significance. Although their list is quite significant in quantity and content, they belong to vital human rights, because their special importance and existential nature determine, accompany and ensure everyday life, existence and health of man, stable passage of his life cycle. Therefore, they are organically implemented at the local level of human existence within the local territorial human community (community), and moreover, based on the local place of implementation, constitutional rights and freedoms are logically, connotationally and narratively transformed into municipal rights and freedoms. It is proved that the above legal provisions fully correspond to the normative-activity paradigm that has developed for the constitutional rights and freedoms of man and citizen, are normalized, regulated and regulated by them, and are implemented through them, creating an effective and optimal legal status at this time - but it is necessary to clearly realize and understand that such a normative-activity paradigm is practically implemented in the only possible option - at the local level of society in the zone of priority action of municipal law norms - namely: a) everyone is guaranteed the right to know their rights and obligations (Article 57 of the Constitution of Ukraine) (functional aspect); b) everyone has the right to compensation at the expense of the state or local self-government bodies for material and moral damage caused by illegal decisions, actions or inaction of state authorities, local self-government bodies, their officials and service personnel in the exercise of their powers (Article 56 of the Constitution of Ukraine) (obligatory aspect); c) everyone is guaranteed the right to appeal in court decisions, actions and inaction of state authorities, local self-government bodies, officials and service personnel (Article 55 of the Constitution of Ukraine) (human rights aspect); d) everyone has the right to legal aid (Article 59 of the Constitution of Ukraine) (legal assistance aspect); e) all the aspects listed here in their entirety actually create an appropriate "security space" in which a person, thanks to his constitutional rights, freedoms and obligations and through the relevant organizational and competent and normative activities of public authorities regarding their recognition, implementation, protection, defense, and guarantee, realizes his existential needs, connotational guidelines, praxeological narratives and interests (Sections II, IV, V, VI, VII, VIII, XI, XII of the Constitution of Ukraine). At the same time, it is necessary to realize and understand that the above rights, freedoms and obligations have a purely local nature of their implementation, therefore they should be interpreted through the prism of localism in understanding its guidelines, principles, priorities (general security aspect). It is argued that all constitutional human rights and freedoms are closely intertwined and are in a synergistic relationship with each other, as well as with other human rights (interspecific rights), which today have the status of constitutional rights or do not yet have such, or often act in the status of "legitimate human interests": for example, the right to satisfy basic needs; the right to security; the right to information; the right to choice; the right to be heard; the right to compensation; the right to consumer education; the right to a healthy environment, etc. But at the same time, it must be taken into account that they arise in the normative space of municipal law, therefore it can be argued that it is it that determines, influences, catalyzes the further development and improvement of the norms of constitutional law (complex-synergistic component). It is also argued that the constitutional and legal status of a person is a legally recognized object of international legal regulation, which finds its manifestation in the fact that it is human rights and freedoms that are the fundamental object of international cooperation of states (Preamble to the UN Charter), at the same time, the space of local self-government is recognized at the international level as the space for the implementation of such rights and freedoms of a person, his groups and associations (European Charter of Local Self-Government 1985) (international integration component). It has been proven that national constitutional law and national municipal law form a common normative space of symbiotic properties in the sphere of human rights and freedoms, their groups and associations, which in turn contributes to the formation of a synergistic concept of interaction, interconnection, interpenetration between them of constant temporal action, which directly, decisively and significantly affects the formation of democratic legal statehood in its humanistic and humanitarian understanding, purpose and implementation (humanitarian and spatial component). At the same time, it is indicated that it is national constitutional law and national municipal law that form, within the local society, the most important*

*psychological phenomena of democratic legal statehood - constitutional consciousness (legal consciousness) in the form of its individual, group and collective forms, on the basis of which constitutional psychology arises, which determines the behavioral and activity guidelines of a person in the local society, and simultaneously, at the state level, as well as municipal consciousness (legal consciousness) also in the form of its individual, group and collective forms, on the basis of which municipal psychology arises, which underlies the lawful behavior and activity of a person, his groups and associations within the local society, in the conditions of the MSV and in the philosophical state of everyday life (the fundamental psychological component). From here, a conclusion of strategic and methodological nature is made that the concept-phenomena of "constitutional man" and "municipal man" are the main factors, manifestations and results of the positive influence of national constitutional law and national municipal law on the macrophenomenology of democratic legal statehood. Based on the generalization of the above, we can draw the following conclusions regarding the fact that the phenomenologies of "man", "constitutional man" and "municipal man" are in close philosophical, ontological-logical, theoretical-doctrinal and institutional-integration connection and interaction, which demonstrates their significant organic influence on each other and the ability to act as effective scientific and practical concepts that are capable of acting as axiological, representative, identification and functional components of democratic legal statehood, which have potential for further development and improvement.*

*Анотація*

*Стаття присвячена дослідженню управлінської тріади «людина» – «муніципальна людина» – «конституційна людина» та її реалізації як стратегічно-парадигмального напряму розвитку демократичного суспільства і держави в умовах глобалізації.*

*Встановлено, що в наведених умовах особливої значущості набувають конституційні праві і свободи людини. Хоча їх перелік є досить значущим по кількості та по змістовності, вони належать до вітальних прав людини, бо їх особлива важливість та екзистенційний характер детермінують, супроводжують і забезпечують повсякденне життя, існування і здоров'я людини, стабільне проходження нею свого життєвого циклу. Отже, вони на органічній основі реалізуються на локальному рівні існування людини в межах локальної територіальної людської спільноти (громади), ба більше, – виходячи з локального місця реалізації, конституційні права і свободи логічно, конотаційно і наративно трансформуються в муніципальні права і свободи. Доводиться, що наведені правоположення повністю відповідають нормативно-діяльнісній парадигмі, що склалась для конституційних прав і свобод людини і громадянина, ними унормована, регламентована і врегульована, через них реалізується, створюючи ефективний та оптимальний на цей час правовий статус, – але треба чітко усвідомлювати і розуміти, що така нормативно-діяльнісна парадигма практично реалізується в єдиному можливому варіанті – на локальному рівні соціуму в зоні пріоритетної дії норм муніципального права – а саме: а) кожному гарантується право знати свої права і обов'язки (ст. 57 Конституції України) (функціональний аспект); б) кожен має право на відшкодування за рахунок держави чи органів місцевого самоврядування матеріальної та моральної шкоди, завданої незаконними рішеннями, діями чи бездіяльністю органів державної влади, органів місцевого самоврядування, їх посадових і службових осіб при здійсненні ними своїх повноважень (ст. 56 Конституції України) (облігаторний аспект); в) кожному гарантується право на оскарження в суді рішень, дій та бездіяльності органів державної влади, органів місцевого самоврядування, посадових і службових осіб (ст. 55 Конституції України) (правозахисний аспект); г) кожен має право на правову допомогу (ст. 59 Конституції України) (праводопоміжний аспект); ґ) всі наведені тут аспекти у своєму підсумку фактично створюють відповідний «безпековий простір», в якому людини завдяки своїм конституційним правам, свободам і обов'язкам та через відповідну організаційну та компетенційно-нормативну діяльність органів публічної влади щодо їх визнання, реалізації, охорони, захисту, гарантування реалізує свої екзистенційні потреби, конотаційні настанови, праксеологічні наративи та інтереси (Розділи II, IV, V, VI, VII, VIII, XI, XII Конституції України). При цьому треба усвідомлювати і розуміти, що наведені права, свободи і обов'язки мають суто локальний характер своєї реалізації, тому повинні інтерпретуватися через призму локалізму в розумінні його настанов, засад, пріоритетів (загально-безпековий аспект). Аргументується, що всі конституційні права і свободи людини тісно переплітаються та знаходяться поміж собою в синергічному зв'язку, а та-*

*кож з іншими правами людини (міжвидові права), які на сьогодні мають статус конституційних прав або ще не мають такого, або часто-густо виступають у статусі «законних інтересів людини»: наприклад, право на задоволення основних потреб; право на безпеку; право на інформативність; право вибору; право бути вислуханим; право на відшкодування; право на споживчу освіту; право на здорове природнє середовище тощо. Але при цьому треба враховувати, що саме вони виникають у нормативному просторі муніципального права, тому й можна стверджувати, що саме воно детермінує, впливає, каталізує подальший розвиток і вдосконалення норм конституційного права (комплексно-синергійна складова). Також стверджується, що конституційно-правовий статус людини виступає легально визнаним об'єктом міжнародно-правового регулювання, що знаходить свій прояв в тому, що саме права і свободи людини є основоположним об'єктом міжнародного співробітництва держав (Преамбула Статуту ООН), в той же час простір місцевого самоврядування визнаний на міжнародному рівні як простір реалізації таких прав і свобод людини, її груп та асоціацій (Європейська хартія місцевого самоврядування 1985 р.) (міжнародно-інтеграційна складова). Доведено, що національне конституційне право та національне муніципальне право формують в сфері прав і свобод людини, її груп та асоціацій загальний нормативний простір симбіотичної властивості, що своєю чергою, сприяє формуванню синергійного концепту взаємодії, взаємозв'язку, взаємопроникнення між ними постійної темпоральної дії, що напряму, визначально і суттєво впливає на формування демократичної правової державності у її гуманістично-гуманітарному розумінні, призначенні і реалізації (гуманітарно-просторова складова). При цьому вказується, що саме національне конституційне право та національне муніципальне право формують в межах локального социуму найважливіші психологічні феномени демократичної правової державності – конституційну свідомість (правосвідомість) у вигляді індивідуальних, групових та колективних її форм, на базі якої виникає конституційна психологія, що детермінує поведінководіяльнісні настанови людини в локальному соціуму, і одночасно, на рівні держави, а також муніципальну свідомість (правосвідомість) також у вигляді її індивідуальних, групових та колективних форм, на базі якої виникає муніципальна психологія, що лежить в основі правомірної поведінки та діяльності людини, її груп та асоціацій в межах локального соціуму, в умовах МСВ та в філософському стані повсякденності (засадниче-психологічна складова). Звідси зроблено висновок стратегічно-методологічної властивості, що поняття-феномени «конституційна людина» і «муніципальна людина» виступають основними чинниками, проявами та результатами позитивного впливу національного конституційного права та національного муніципального права на макрофеноменологію демократичної правової державності. На основі узагальнення викладеного вище, можна дійти наступних висновків відносно того, що феноменології «людина», «конституційна людина» та «муніципальна людина» знаходяться між собою у тісному філософському, онтологічно-логічному, теоретико-доктринальному та інституційно-інтеграційному зв'язку та взаємодії, що демонструє їх суттєвий органічний вплив одну на іншу та можливість виступати ефективними науково-практичними концептами, що здатні виступати аксіологічними, презентативними, ідентифікаційними та функціональними складовими елементами демократичної правової державності, що володіють потенційними можливостями для подальшого розвитку і вдосконалення.*

*Keywords:* *man, constitutional man, municipal man, human rights and freedoms, constitutional human rights and freedoms, constitutional and legal reality, local self-government, territorial community, state of everyday life, legal space of local self-government, managerial triad "man – constitutional man – municipal man", globalization, legal globalization.*

*Ключові слова:* *людина, конституційна людина, муніципальна людина, права і свобода людини, конституційні права і свободи людини, конституційно-правова реальність, місцеве самоврядування, територіальна громада, стан повсякденності, правовий простір місцевого самоврядування, управлінська тріада «людина – конституційна людина – муніципальна людина», глобалізація, правова глобалізація.*

***Вступ***

*В основі становлення і розвитку демократичної правової державності лежить основоположна система аксіологічних домінант, базою яких виступає існування і функціонування людини, її груп та асоціацій, а також розвиток їх конституційно-правового та муніципально-правового статусів. Такий підхід детермінує, контекстуалізує та рефлексує формування якісно нової управлінської тріади «людина» – «муніципальна людина» – «конституційна людина» та її реалізацію як стратегічного парадигмального напряму розвитку демократичного суспільства і держави в умовах глобалізації, – бо саме вона й виступає основоположним ідентифікуючим та функціонально-діяльнісним мегатрендом соціально-політичної та управлінсько-нормативної феноменології «демократична правова державність».*

***Попередні наукові розвідки та методологія пізнання профільної проблематики***

*Перед дослідженням заявленої проблематики, варто зазначити, що раніше авторами проводилося дослідження проблематики формування феноменологій «конституційна людина» та «муніципальна людина» в контекстуалізації їх визначення, ідентифікації та взаємозалежності як новацій в конституційному і муніципальному праві в умовах демократичної правової державності [1]. Але зазначена проблематика є та продовжує бути:*

*А) настільки новою (фактор інноваційності – авт.),*

*Б) настільки багатоаспектною і багаторівневою (фактор структурно-блокової складності – авт.),*

*В) поліпредметною, макронаративною, суттєво-конотаційною (фактори багатозначності ідентифікаційних ознак, їх суттєвої змістовності та широкого тлумачення додаткових, але важливих характерологічних рис – авт.),*

*Г) настільки актуальною та важливою для подальшого розвитку стратегічної системи ліберально-демократичних цінностей (визначально-стратегічний ліберально-демократичний фактор – авт.),*

*Ґ) на яких й базується демократична правова державність (фактор ідентифікаційно-опорної терміносистеми в системі сучасної державності – авт.), –*

*Д) що вона об'єктивно (у контексті подальшого соціально-правового і державно-правового розвитку і вдосконалення діяльності інституційної основи суспільства і держави) і суб'єктивно (у контексті розвитку людини, її груп та асоціацій та вдосконалення інституцій громадянського суспільства) потребує подальших поглиблених досліджень та комплексного і системного аналізу (фактор доктринально-теоретичної актуальності, інноваційної обґрунтованості, апріорної продуктивності та соціальної результативності – авт.).*

*В основі методології такого аналізу лежить відповідна послідовність використання наявних методів наукового пізнання для дослідження об'єктно-предметних явищ, що виникають, формуються, складаються і проявляються в процесі демократизації суспільного та державного життя, здійснюючи на такий процес суттєвий управлінсько-нормативний вплив, а також повсякденні і перспективні поведінково-діяльнісні фактори визнання, сповідування, формування, використання, реалізації та гарантування гуманітарно-гуманістичних цінностей (місцеве самоврядування, права людини, виборче право і технології, формування поведінкових та діяльнісних настанов людини, її груп та асоціацій в процесі реалізації важливих обставин їх життєвого циклу /людина/ або циклу діяльності /групи, асоціації/ тощо) у їх усвідомленні та розумінні як відповідних моральних, ідеологічних, поведінково-нормативних орієнтирів, телеологічних домінант, соціальних ітерацій, теоретичних концептів, нормативів, стандартів, правових норм, – для соціально-демократичного розвитку та його вдосконалення, а також своєрідних ідентифікаційних маркерів (ознак, рис, стандартів) такої динаміки.*

*Отже, спочатку треба усвідомити і зрозуміти, що вся проблематика становлення і динаміки феноменологій «людина», «конституційна людина» і «муніципальна людина» обертається навколо прав, свобод і обов'язків абстрактної людини, що в умовах демократичної правової державності набувають опорного, а звідси – й визначального і стратегічного значення.*

***Права людини як онтологічна основа формування профільної управлінської тріади***

*Є загальновідомим, що питання визнання, легалізації, реалізації, охорони, захисту, гарантування та розширення і вдосконалення прав і свобод людини (особистості) і громадянина саме державою, а точніше її публічною владою, що діє на основі законодавства держави (фактор легальності – авт.), від її імені (фактор легітимності – авт.) та за її дорученням (фактор управління – авт.) є не тільки основоположною, а й магістрально-повсякденною і магістрально-перспективною ознакою сучасної демократичної правової державності. Звідси прискіпливий інтерес* *науковців та широких верств населення до цієї проблематики носить мотивований, обґрунтований, причому як доктринальний, так й праксеологічний характер, бо саме він має прямий вихід на конкретні аспекти життєдіяльності кожної людини, її груп та асоціацій, що тісно переплітаються не тільки з настановами моралі та іншими соціальними нормами, а й органічно входять до системного комплексу горизонтально-вертикальних зав'язків, що виникають в сфері взаємодії людини, її груп та асоціацій з органами публічної влади держави, включаючи й діяльність органів місцевого самоврядування /далі – МСВ/, на всіх рівнях їх функціонування.*

*Ба більше, варто зазначити, що профільна проблематика не тільки і не стільки формує гуманітарно-гуманістичну парадигму державної діяльності в сфері управління та реалізації компетенційних повноважень органів публічної влади (формування конституційно-правового статусу людини на рівні держави та його гарантування через інституційну спроможність органів публічної державної влади, а практична реалізація, охорона, захист на рівні локального соціуму, в умовах МСВ та в межах локальної територіальної людської спільноти – територіальної громади /далі – ТГ/ за допомогою цілеспрямованої діяльності органів МСВ в процесі реалізації ними своїх компетенційних повноважень), – а й виступає своєрідною візитівкою та візуалізацією сучасної демократичної правової державності та складних інтеграційно-самоврядних та інтеграційно-державницьких процесів, що проходять, реалізуються, розвиваються та вдосконалюються в її межах.*

*Разом з тим, варто зазначити, що проблематика прав і свобод людини, не зважаючи на свою стратегічну важливість в силу: а) своєї природної актуальності (гуманістичний критерій – авт.), б) екзистенційної змістовності (життєво визначальний критерій – авт.), в) праксеологічного навантаження (габітусний критерій – авт.), г) повсякденної оптимальності (філософсько-становий критерій – авт.) і ґ) ефективної результативності (прогностичний критерій – авт.), д) у результаті свого повсякденного обговорення, застосування, використання в державно-правовій реальності (ординарно-повсякденний критерій – авт.) на жаль незаслужено набула об'єктивно спрощеного та утилітарного розуміння. Саме тому поза неї залишаються багато важливих і складних проблем, в тому числі й управлінсько-нормативної властивості, що дають можливість з онтологічних та аксіологічних позицій визначити її, по-перше, неминуще і, по-друге, конституююче значення для стабільного існування та функціонування конкретної особистості, соціуму і держави (стратегічний рівень державного управління, що базується на відповідній телеологічній домінанті – авт.), а також їх загального сталого розвитку в належних повсякденних умовах соціально-політичної та соціально-економічної злагоди (тактичний рівень державного управління, що базується на відповідній телеологічній домінанті – авт.).*

*До однієї з таких проблем відноситься відносно нова, але дуже складна і суперечлива проблематика визначення характерологічних рис понять «людина», «конституційна людина» та «муніципальна людина».*

***Змістовне наповнення, роль і значення проблематики управлінської тріади «людина» – «конституційна людина» – «муніципальна людина»***

*Визначаючи на доктринальному, теоретичному та нормативному рівнях змістовне наповнення, роль і значення проблематики управлінської тріади «людина» –«конституційна людина» – «муніципальна людина» варто усвідомлювати і розуміти, що*

*- по-перше, з позицій сучасних конституційного і муніципального права держави у тріаді «людина», «конституційна людина» та «муніципальна людина» формується, проявляється та реалізується глибокий філософсько-екзистенційний та морально-нормативний зв'язок абстрактної людини з її системно-основоположними соціальними і правовими статусами в сфері основної та профільної галузі національного права і законодавства (конституційне право), а також опорної галузі національного права і законодавства (муніципальне право), що також володіє системним впливом на інші галузі національного права і законодавства, – які мають прямий вихід на рівень загального міжнародного права (міжнародне публічне право + міжнародне приватне право) (екзистенційно-правова складова – авт.);*

*- по-друге, з позицій сучасного конституційного права, що функціонує в умовах глобалізації та особливо її нової форми – глобалізації правової (конституційно-правова складова – авт.);*

*- по-третє, з позицій сучасного муніципального права держави, що проходить етап свого галузевого становлення, формування, розвитку і вдосконалення, набуваючи статусу не тільки галузі національного права і законодавства, але й статусу окремої та нової галузі міжнародного публічного права [2] (муніципально-правова складова – авт.);*

*- по-четверте, з позицій взаємодії, взаємовпливу і взаємозв'язку сучасного національного конституційного права та сучасного національного муніципального права, що органічно включають загальні та спеціальні конституційно-правові та муніципально-правові цінності, логічно пов'язану між собою систему принципів і норм, об'єктів правової регламентації та регулювання, міжнародні стандарти прав людини та міжнародні стандарти МСВ (інтеграційно-кумулятивна складова – авт.);*

*- по-п'яте, з позицій впливу принципів і норм сучасного національного конституційного права, як єдиної основоположної і профілюючої галузі національного права і законодавства, на становлення, розвиток і вдосконалення норм інших галузей національного права і законодавства та сучасного національного муніципального права, що своїми принципами і нормами не тільки «підсилює» норми національного конституційного права та фактично продовжує їх розвиток в сфері повсякденного існування і функціонування людини, її груп та асоціацій (тобто, фактично виступає своєрідним «полігоном» для реалізації та визначення оптимальності і ефективності норм національного конституційного права), а й багато в чому детермінує процеси нормопроєктування і нормотворчості навколо розвитку і вдосконалення таких конституційних норм, – завдяки чому розвивається і вдосконалюється саме національне муніципальне право і муніципальне законодавство (синергійно-впливова складова – авт.);*

*- по-шосте, з позицій впливу принципів і норм сучасного національного конституційного права та сучасного національного муніципального права на формування загального міжнародного права (міжнародне публічне право + міжнародне приватне право) [2] (міжнародно-облігаторна складова – авт.), коли:*

*а) принципи і норми цих галузей, а також їх колись «абсолютні» об'єкти правової регламентації і правового регулювання запозичуються міжнародною спільнотою, як об'єкти міжнародно-правового регулювання, – і*

*б) через механізми міжнародного нормотворення (міжнародне нормопроєктування + міжнародна нормотворчість),*

*в) за допомогою міжнародного договірного права включаються до норм міжнародних міждержавних багатосторонніх договорів*

*г) у вигляді норм-міжнародно-правових зобов'язань держав-підписантів,*

*ґ) які вони повинні відтворити в своєму національному законодавстві, використовуючи механізм національної імплементації норм міжнародного права в національне законодавство,*

*д) легалізуючи таким чином їх для внутрішньодержавних суб'єктів права, включаючи й органи публічної влади, що їх будуть реалізовувати, охороняти, захищати, гарантувати їх реалізацію на практиці в своїй повсякденній діяльності;*

*- по-сьоме, з позицій формування соціальної, в тому числі й правової ітерації ( в контексті повторюваності та закріплення у свідомості людини, її груп та асоціацій відповідних правил поведінки в соціумі, що є доброякісними з моральної та нормативної точок зору, а також виконання правових настанов щодо належної поведінки, що містять правові норми), що по великому рахунку забезпечує реалізацію принципів і норм сучасного національного конституційного права та сучасного національного муніципального права (багатоаспектно-ітераційна складова – авт.).*

*При цьому, особливо важливо акцентувати увагу на тому, що будь-який підхід, що позначений вище, напряму має відношення, а також здійснює вплив на формування характерологічних рис понять-феноменологій «людина», «конституційна людина» та «муніципальна людина».*

*Отже, ми вважаємо, що наведена проблематика є не тільки опорною, а й володіє імперативно-функціональною характеристикою по відношенню до інших проблем і питань існування та функціонування як сучасної державності в її демократично-правовій моделі, так й міжнародної спільноти держав, як добровільного договірно-нормативного об'єднання демократичних акторів (суб'єктів), що віддають пріоритет гуманітарно-гуманістичним настановам та демократичним цінностям людського (індивідуального, групового та асоційованого) існування, а також функціонування соціального і державного розвитку та визнають їх єдиним можливим вектором подальшого його існування та вдосконалення.*

***Терміносистема «людина» та її змістовне наповнення***

*При цьому варто мати на увазі, що імперативно-функціональна характеристика цієї проблематики проглядається вже у дефінітивному визначенні понять-феноменологій «людина», «конституційна людина» та «муніципальна людина».*

*Визначаючи феноменологію «Людина», Велика Українська енциклопедія [3] бачить її у декількох іпостасях, а саме як:*

*1) представник людства – наділена інтелектом соціальна істота, суб'єкт суспільно-історичної діяльності та культури (цивілізаційно-глобальна ознака – авт.);*

*2) унікальна серед відомих жива істота виду Homo sapiens, біологічно неспеціалізована, здатна мислити й вербально спілкуватися, створювати штучне середовище існування, свідомо й цілеспрямовано перетворювати світ і саму себе, накопичувати і транслювати особистий і колективний досвід, усвідомлювати власну смертність, бути носієм релігійного, етичного, естетичного світовідношення (свідомо-соціальна ознака – авт.);*

*3) істота, що вважається вищим щаблем еволюції живих організмів на Землі (біологічна ознака – авт.).*

*Разом з тим, на наш погляд, найбільш наглядною та раціональною виступає ознака людини, що характеризує її у соціально-нормативній системі координат, яка враховує, що вона;*

*- по-перше, біологічна істота, невід'ємна частина довкілля, існування якої залежить від нього та ним детермінується (біологічна ознака – авт.);*

*- по-друге, соціальна істота, що полодіє розумовими здібностями та має індивідуальну, групову та колективну свідомість – звідси виступає як особистість (соціальна ознака – авт.);*

*- по-третє, фізична особа, що володіє відповідним правовим станом, тобто: а) громадянством (володіє відповідними правами, свободами і обов'язками, що забезпечують їй стійкий взаємний нормативно-правовий зв'язок з патримоніальною (батьківської) державою), б) іноземний громадянин (такі зв'язки існують з іншою державою), в) апатрид (таких зав'язків не існую взагалі), г) біженець (таких зав'язків також не існує в результаті добровільного або примусового вигнання такої особи з території патриманіальної (батьківської) держави) тощо (нормативна ознака – авт.).*

*Отже, можна стверджувати, що: по-перше, всі наведені ознаки є характерними та іманентно належать одній людині; по-друге, кожна ознака володіє глибокою філософською характеристикою, що пов'язує між собою їх ідентифікаційні риси у єдиному органічному та екзистенційному зв'язку; по-третє, кожна з ознак людини свідчить про формування системного комплексу рис, що характеризують її з відповідної сторони, що має суттєве інституційне значення та відіграє вирішальну соціальну роль в її існуванні та функціонуванні в межах державно організованого соціуму; по-четверте, наведені риси людини володіють суттєвим релятивістським потенціалом, що дає реальну можливість їх взаємного впливу один на одного; по-п'яте, наведені риси людини апріорі детермінують формування почуття інтерсуб'єктивності у людини, а також її груп і асоціацій через формування і реалізацію загальних телеологічних домінант їх існування і функціонування в локальному соціумі. Ба більше, саме феноменологія «людина» виступає «запускаючим» фактором і основоположним елементом у формуванні управлінської тріади «людина» – «муніципальна людина» – «конституційна людина» та іманентною умовою її реалізації як стратегічно-парадигмального напряму розвитку демократичного суспільства і держави в умовах глобалізації, бо стратегічною основою їх існування виступають права, свободи і обов'язки людини в їх державній та міжнародній інтерпретаціях.*

***Змістовне наповнення феномену/феноменології «конституційна людина»***

*У своїй науковій статті «Феноменологія «конституційна людина»: до розуміння нормативно-параметральних ознак, ролі і значення в формуванні демократичної правової державності» вітчизняні дослідники-конституціоналісти та муніципалісти М.О. Баймуратов та Б.Я. Кофман вказують на те, що в основі профільної феноменології «конституційна людина» лежить: а) об'єктивізація, актуалізація, оптимізація, контекстуалізація необхідності концептуального обґрунтування правового статусу людини, особистості і громадянина в конституційному праві саме за умов глобалізації, б) включаючи, насамперед, й її правову форму, в) за допомогою комплексу доктринально-теоретичних знань, накопичених відносно об'єкту дослідження та г) з використанням нових і новітніх загальнодемократичних та гуманістично-гуманітарних надбань сучасного конституційного права (формування четвертого, п'ятого, шостого покоління прав людини), що ґ) базується на основоположних засадах демократичної правової державності [4, с.168]. Отже, можна констатувати, що даний підхід характеризується: а) врахуванням об'єктивних тенденцій, що спостерігаються в конституційно-правовій реальності; б) використанням наукових методів пізнання профільної реальності; в) постановкою наукового завдання щодо концептуального обґрунтування правового статусу людини, особистості і громадянина в конституційному праві саме за умов глобалізації; г) прямою акцентуацією уваги на правовому просторі, де й пріоритетно і однозначно реалізуються доктринально-теоретичні та* *праксеологічно-функціональні настанови і процеси формування профільного правового статусу людини, особистості і громадянина; г') чіткою вказівкою на джерельну базу щодо об'єктно-предметної бази дослідження: д) визначенням засад використання новітніх і найсучасніших технологічних засобів в національному конституційному праві; є) визначенням висновка відносно того, що всі наведені характерології базуються на основоположних засадах демократичної правової державності. Такий підхід визначається системно-комплексним підходом, що дозволяє досить чітко і оптимально визначити параметрально-ідентифікаційні ознаки цієї складної і синтетично-понятійної профільної терміносистеми «конституційна людина».*

*Вітчизняний дослідник Р.М. Хван, своєю чергою, вважає, що його доктринальний підхід до розуміння феноменології «конституційна людина»: а) характеризується більш суттєвою онтологією, що враховує ознаки, характерні для розуміння профільної феноменології, які запропоновані названими вище представниками конституційної доктрини, б) відрізняється більш глибоким теоретичним підходом, аксіологічними та функціональними характеристиками, а також в) організаційним та організаційно-правовим супровадженням і забезпеченням [5]. Отже, він пропонує розуміти феноменологію «конституційна людина» як: а) особливу системно-комплексну форму правового статусу (статусно-правова ознака – авт.), б) що визначає людину як реального носія системного комплексу конституційних прав, свобод і обов'язків (визначально-біхевіористична ознака – авт.), в) які напряму реалізуються на локальному рівні соціуму, в умовах місцевого самоврядування, в межах територіальної громади, в філософському стані повсякденності (локально-сферна і самоврядно-повсякденна ознака – авт.), г) через самостійну діяльність людини, її груп та асоціацій (поведінково-діяльнісна ознака – авт.), ґ) за допомогою органів публічної державної та публічної самоврядної влади (публічно-владна ознака – авт.), д) що забезпечують належні, оптимальні та ефективні заходи охорони, захисту, гарантування реалізації такого статусу (охоронювально-захисна ознака – авт.), е) що передбачений конституцією держави та її міжнародно-правовими зобов'язаннями (законодавчо-облігаторна ознака – авт.).*

*Разом з тим, він вважає, що наявність тільки таких абсолютно конституційних підходів до визначення феноменології «конституційна людина», та відсутність усвідомлення визначальної ролі і значення феноменології муніципалізму, що визначає та детермінує повсякденне життя будь-якої людини, особливо в процесі її існування і функціонування, а також формування, функціонування і реалізації її прав і свобод, їх подальшого розвитку і вдосконалення, – не стільки констатує стан, що склався, скільки актуалізує та інтенсифікує доктринальні дослідження в цій сфері, а й робить такі пошуки доктринально, теоретично і праксеологічно обґрунтованими, детермінованими, необхідними та своєчасними [5]. Звідси, на нашу думку, й випливає визначальна роль і значення феноменології «муніципальна людина», що є логічною константою муніципалізму, по-перше, у формуванні феноменології «конституційна людина» і, по-друге, її інституційна роль у формуванні демократичної правової державності.*

*Отже, наведений підхід характеризується інтеграційним підходом, що однозначно вказує на органічний, логічно обґрунтований зв'язок між вказаними феноменологіями «конституційна людина» і «муніципальна людина». Причому такий зв'язок може бути охарактеризований двояко, – зазвичай, в розумінні історичної ретроспективи феномен «муніципальна людина» передував виникненню та сприяв формуванню феномену «конституційна людина»; але в розумінні сучасної державності, – феномен/феноменологія «конституційна людина» виступає опорним та визначальним, сприяючи формуванню, реалізації, розвитку і вдосконаленню феномену/феноменології «муніципальна людина» –через легалізації державою і легітимацію жителями-членами територіальних громад системи місцевого самоврядування, демократичних інституцій, що супроводжують самоврядні процеси, включаючи й формування органів публічної влади (локальні та загальнодержавні) та заміщення посад в інституті посадових осіб локальної демократії і всієї держави, питання референдумних процедур тощо. Ба більше, саме феноменологія «конституційна людина» містить в собі внутрішній управлінсько-функціональний потенціал розвитку і вдосконалення феноменологія «муніципальна людина» через розвиток, співвідношення і координацію відповідних перспектив супроводження і забезпечення конституційно-правового і муніципально-правового просторів.*

***Синтетично-функціональний характер феномену/феноменології «муніципальна людина»***

*На думку вітчизняного дослідника О.О. Боярського, феномен/феноменологія «муніципальна людина» характеризується ознаками більш локальної ідентичності, нормативної самостійності та пріоритетним використанням ознаки ініціативності з боку людини-жителя і одночасно члена територіальної локальної людської спільноти (громади) та груп і асоціацій такої людини,* *що виникають, формуються, інституціоналізують, існують та функціонують на рівні такої громади. Він вважає, що «муніципальна людина» – це фізична особа, що володіє різним правовим станом (громадянство, іноземство, апатризм, біженство та ін.), але не зважаючи на нього свідомо та ініціативно (курсив наш. – М.Б.; Б.К.; Н.Є. ) здійснює свій життєвий цикл в умовах повсякденності у рамках територіальної спільноти людей (ТГ), об'єднаних загальними географічними, історичними та сучасними екзистенційними інтересами, цінностями і потребами, що можуть бути реалізованими тільки в умовах МСВ, завдяки спільній синергетичній діяльності людини в межах ТГ та громадянського суспільства, завдяки діяльності органів МСВ та інших суб'єктів і органів, які входять до його системи, що здійснюється на принципах самоорганізації, самодіяльності, самокерованості та самоврядування, з метою створення належних умов для супроводження і забезпечення існування та функціонування людського осередку, що має телеологічну домінанту щодо продовження існування та подальшого розвитку людської цивілізації в умовах державно організованого соціуму [6, с. 117].*

***Актуальні питання ідентифікації органічної єдності феноменологій «людина», «конституційна людина» і «муніципальна людина»***

*Порівняльна характеристика наведених профільних понять свідчить про те, що до параметрально-ідентифікаційних ознак формування, розвитку та практичного застосування феноменологій «людина», «конституційна людина» і «муніципальна людина» відносяться наступні тенденції:*

*– профільні феноменології базуються на філософській константі, що наріжним камінням побудови демократичної правової державності виступає визнання, легалізація, регламентація, регулювання, охорона, захист, гарантування державою конституційних прав і свобод людини і громадянина та сприяння їх легітимації серед інших суб'єктів національного конституційного права та національного муніципального права (легально-легітимістська гуманістична тенденція – авт.);*

*– феноменології «людина», «конституційна людина» і «муніципальна людина» у своєму становленні та розвитку проходять відповідні етапи, починаючи від концептуальної фіксації, рефлексії, легітимації; потім до формування концепту; далі йде процес формування відповідних феноменів, що згодом, через відповідний темпоральний період, у результаті належного доктринально-теоретичного обґрунтування, супроводження і початкового нормативно-правового забезпечення феномен трансформується у відповідну феноменологію – при формуванні таких явищ спостерігаються системно-комплексні процеси виникнення і посилення горизонтально-вертикальних управлінських зв'язків між всіма елементами профільної тріади, що їх взаємно посилюють, визначають, детермінують тощо;*

*- конституційна формалізація і легалізація кола конституційних прав і свобод людини і громадянина, що врегульовано розділом II Конституції України 1996 р. [7] (конституційно-легальна тенденція – авт.), виходить з того, що вони:*

*а) пов'язані з природним існуванням людини (екзистенційний критерій–авт.);*

*б) характеризуються соціальною індивідуальною, груповою і колективною цінністю, оскільки фактично володіють природженою властивістю людського існування, груп і інших асоціацій людей (аксіологічний критерій – авт.);*

*в) мають перманентну повсякденну актуальність, бо без їх використання є неможливою реалізація життєвого циклу людини (повсякденно-системний критерій – авт.);*

*г) носять системно-об'єктивний та постійно-контекстуалізований характер, адже використання конституційних прав і свобод, що лежать в основі конституційно-правового і муніципально-правового статусу людини, виступає як одна із невід'ємних характеристик сутності людини (онтологічний критерій –авт.);*

*ґ) конституційні права і свободи людини, тобто її конституційно-правовий статус реалізуються в умовах МСВ, в межах ТГ, та в філософському стані повсякденності, – тобто, фактично в муніципальному нормативному просторі, що створює складний міжгалузевий механізм реалізації норм конституційного права в межах соціально-територіального простору та темпорально-предметного континууму, де діє муніципальне право (біхевіористично-просторовий критерій – авт.).*

*Наведені висновки є не тільки реально обґрунтованими та аргументованими, але й підкріплюються як нормативно, так й праксеологічно, бо витікають з наступних настанов:*

*– по-перше, з особливої значущості конституційних прав і свобод людини. Хоча їх перелік є досить значущим по кількості та по змістовності, вони належать до вітальних прав людини,*

*бо їх особлива важливість та екзистенційний характер детермінують, супроводжують і забезпечують повсякденне життя, існування і здоров'я людини, стабільне проходження нею свого життєвого циклу. Отже, вони на органічній основі реалізуються на локальному рівні існування людини в межах локальної територіальної людської спільноти (ТГ), ба більше, – виходячи з локального місця реалізації, конституційні права і свободи логічно, конотаційно і наративно трансформуються в муніципальні права і свободи (фундаментально-вітальна складова – авт.);*

*– по-друге, наведені правоположення повністю відповідають нормативно-діяльнісній парадигмі, що склалась для конституційних прав і свобод людини і громадянина, ними унормована, регламентована і врегульована, через них реалізується, створюючи ефективний та оптимальний на цей час правовий статус, – але треба чітко усвідомлювати і розуміти, що така нормативно-діяльнісна парадигма практично реалізується в єдиному можливому варіанті – на локальному рівні соціуму в зоні пріоритетної дії норм муніципального права (парадигмально-технологічна складова – авт.) – а саме:*

*а) кожному гарантується право знати свої права і обов'язки (ст. 57 Конституції України) (функціональний аспект – авт.);*

*б) кожен має право на відшкодування за рахунок держави чи органів МСВ матеріальної та моральної шкоди, завданої незаконними рішеннями, діями чи бездіяльністю органів державної влади, ОМСВ, їх посадових і службових осіб при здійсненні ними своїх повноважень (ст. 56 Конституції України) (облігаторний аспект – авт.);*

*в) кожному гарантується право на оскарження в суді рішень, дій та бездіяльності органів державної влади, ОМСВ, посадових і службових осіб (ст. 55 Конституції України) (правозахисний аспект – авт.);*

*г) кожен має право на правову допомогу (ст. 59 Конституції України) (праводопоміжний аспект – авт.);*

*ґ) всі наведені тут аспекти у своєму підсумку фактично створюють відповідний «безпековий простір», в якому людини завдяки своїм конституційним правам, свободам і обов'язкам та через відповідну організаційну та компетенційно-нормативну діяльність органів публічної влади щодо їх визнання, реалізації, охорони, захисту, гарантування реалізує свої екзистенційні потреби, конотаційні настанови, праксеологічні наративи та інтереси (Розділи II, IV, V, VI, VII, VIII, XI, XII Конституції України). При цьому треба усвідомлювати і розуміти, що наведені права, свободи і обов'язки мають суто локальний характер своєї реалізації, тому повинні інтерпретуватися через призму локалізму в розумінні його настанов, засад, пріоритетів (загально-безпековий аспект– авт.);*

*– по-третє, всі конституційні права і свободи людини тісно переплітаються та знаходяться поміж собою в синергічному зв'язку, а також з іншими правами людини (міжвидові права – авт.), які на сьогодні мають статус конституційних прав або ще не мають такого, або частогусто виступають у статусі «законних інтересів людини»: наприклад, право на задоволення основних потреб; право на безпеку; право на інформативність; право вибору; право бути вислуханим; право на відшкодування; право на споживчу освіту; право на здорове природнє середовище тощо. Але при цьому треба враховувати, що саме вони виникають у нормативному просторі муніципального права, тому й можна стверджувати, що саме воно детермінує, впливає, каталізує подальший розвиток і вдосконалення норм конституційного права (комплексно-синергійна складова – авт.);*

*– по-четверте, конституційно-правовий статус людини виступає легально визнаним об'єктом міжнародно-правового регулювання, що знаходить свій прояв в тому, що саме права і свободи людини є основоположним об'єктом міжнародного співробітництва держав (Преамбула Статуту ООН), в той же час простір місцевого самоврядування визнаний на міжнародному рівні як простір реалізації таких прав і свобод людини, її груп та асоціацій (Європейська хартія місцевого самоврядування 1985 р.) (міжнародно-інтеграційна складова – авт.);*

*– по-п'яте, національне конституційне право та національне муніципальне право формують в сфері прав і свобод людини, її груп та асоціацій загальний нормативний простір симбіотичної властивості, що своєю чергою, сприяє формуванню синергійного концепту взаємодії, взаємозв'язку, взаємопроникнення між ними постійної темпоральної дії, що напряму, визначально і суттєво впливає на формування демократичної правової державності у її гуманістично-гуманітарному розумінні, призначенні і реалізації (гуманітарно-просторова складова – авт.);*

*– по-шосте, саме національне конституційне право та національне муніципальне право формують в межах локального соціуму найважливіші психологічні феномени демократичної*

*правової державності – конституційну свідомість (правосвідомість) у вигляді індивідуальних, групових та колективних її форм, на базі якої виникає конституційна психологія, що детермінує поведінково-діяльнісні настанови людини в локальному соціуму, і одночасно, на рівні держави, а також муніципальну свідомість (правосвідомість) також у вигляді її індивідуальних, групових та колективних форм, на базі якої виникає муніципальна психологія, що лежить в основі правомірної поведінки та діяльності людини, її груп та асоціацій в межах локального соціуму, в умовах МСВ та в філософському стані повсякденності (засадниче-психологічна складова – авт.).*

*Звідси можна зробити висновок стратегічно-методологічної властивості, що поняття-феномени «конституційна людина» і «муніципальна людина» виступають основними чинниками, проявами та результатами позитивного впливу національного конституційного права та національного муніципального права на макрофеноменологію демократичної правової державності.*

***Висновки***

*На основі узагальнення викладеного вище, можна дійти наступних висновків відносно того, що феноменології «людина», «конституційна людина» та «муніципальна людина» знаходяться між собою у тісному філософському, онтологічно-логічному, теоретико-доктринальному та інституційно-інтеграційному зв'язку та взаємодії, що демонструє їх суттєвий органічний вплив одну на іншу та можливість виступати ефективними науково-практичними концептами, що здатні виступати аксіологічними, презентативними, ідентифікаційними та функціональними складовими елементами демократичної правової державності, що володіють потенційними можливостями для подальшого розвитку і вдосконалення.*

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# Medical sciences

## SOME DATA CONCERNING THE USE OF ANTIHYPERTENSIVE MEDICINES IN PRACTICAL MEDICINE OF THE REPUBLIC OF BELARUS

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*Abstract*

*Despite the efforts of scientists and doctors, hypertension (HT) remains one of the most significant medical and social problems of the 21st century worldwide. This is due to both the widespread prevalence of this disease and the lack of blood pressure (BP) control, even with drug therapy, in a significant proportion of patients. Moreover, AH is a major risk factor for major cardiovascular diseases — myocardial infarction and acute cerebrovascular accident, known as stroke.*

*The article analyses the data obtained during the survey conducted in several Belarusian hospitals and polyclinics on the awareness of doctors about the specific qualities of angiotensin-converting enzyme (ACE) inhibitors and angiotensin II receptor blockers (sartans).*

*The study revealed that doctors of various specialties (general practitioners, cardiologists, anesthesiologists-resuscitators, and therapists) regularly use the above-mentioned drugs to treat hypertension. Moreover, many of them prefer angiotensin-converting enzyme (ACE) inhibitors.*

*Keywords:* *Cardiovascular diseases, arterial hypertension, myocardial infarction, chronic heart failure, angiotensin II receptor blockers (ARBs)*

*Relevance.* *Cardiovascular diseases (CVD) represent the leading cause of mortality on a global scale, responsible for 18.6 million deaths annually. As indicated by data presented by the World Health Organization (WHO) at the European Society of Cardiology Congress (ESC Congress 2021 – The Digital Experience) in August 2021, the Republic of Belarus is classified as being in the very high risk zone with regard to cardiovascular mortality. Hypertension (HT) is one of the primary risk factors associated with the development of cardiovascular disease (CVD). The relationship between mortality from ischemic heart disease and stroke, and the levels of systolic and diastolic blood pressure, is such that an increase in either of these parameters to a level of more than 115 mm Hg and 75 mm Hg respectively, has been shown to result in a corresponding increase in mortality.*

*For many decades, scientists and medical professionals have been searching for the most effective ways to treat patients with hypertension.*

*At the end of the 20th century, two major events took place in medicine that determined the fate of many patients suffering from hypertension for years to come. First of all, it was understood that there is no such thing as "working" blood pressure. It was also discovered that high blood pressure does not always manifest itself as a headache in the back of the head. It turned out that most cases of high blood pressure are asymptomatic. This means that the prevalence of hypertension is much higher than* *previously thought, and that even healthy people who have no complaints need to have their blood pressure (BP) measured regularly in order to detect hypertension as early as possible.*

*Despite more than twenty years of research on these discoveries, some doctors still rely on the concept of "working pressure" and use headaches as a criterion for determining high blood pressure.*

*Modern approaches to the diagnosis of hypertension and the treatment of patients with arterial hypertension have been developed as a result of the analysis of a large number of prospective studies and have completely changed the view of this disease. A new classification of hypertension has been developed, the concepts of "target blood pressure" in antihypertensive therapy and stratification of the risk of developing cardiovascular disease in patients with hypertension have been defined. The basic principles of non-drug and drug therapy, including in different patient populations, have also been formulated.*

*Since the publication of the first guidelines for the treatment of hypertension by the World Health Organization (WHO) and the International Society of Hypertension (ISH) in 1999, several versions of clinical recommendations have been developed, including European, American, and Belarusian ones. As research data accumulates, some treatment methods change, new diagnostic methods appear, and risk assessment criteria change. But most importantly, the approach remains the same: scientifically proven.*

***The aim** of the study is to investigate the awareness of Belarusian doctors about the effects of sartans and ACE inhibitors for the control of arterial hypertension.*

***Materials and methods.** The survey of healthcare professionals was conducted online using Google Forms. The inclusion criterion: informed consent. The subsequent analysis employed non-parametric statistical methodologies, alongside the Google Forms analysis package.*

*The study involved a sample of 66 respondents aged 29 to 42. The survey participants were hospital doctors from the Borisov Central District Hospital, Brest City Hospital No. 1, Borisov Polyclinic No. 4, and Mogilev Regional Clinical Hospital. Of these, 30 % were cardiologists, 37,8 % were general practitioners, 15 % anesthesiologist-intensivists and 17,4 % were therapists.*

*The average work experience in the specialty was 5 years.*

***Results and their discussion.** During the course of the study, respondents were requested to respond to the following question: "Do you use angiotensin-converting enzyme (ACE) inhibitors and angiotensin II receptor blockers (sartans) in your practice?" The results obtained were as follows: The survey revealed that 61% of respondents prescribe these drugs to patients on a daily basis, while 22.2% do so several times a month. Notably, 16.7% of doctors are acquainted with these drugs but do not utilise them in their practice.*

*When participants were asked to indicate which angiotensin-converting enzyme (ACE) inhibitors they knew and used, a wide variety of answers were received. For example, 69.7% of respondents prescribe Enalapril to their patients to control hypertension. Lisinopril is the drug of choice for 84.8% of survey participants. 51.5% of respondents use Perindopril to treat patients with cardiovascular diseases, while 18.2% use Fosinopril. Captopril is used by 72.7% of survey participants, and Ramipril is prescribed by 60.6% of the doctors surveyed. Consequently, the most common pharmaceuticals for controlling hypertension are Lisinopril, Captopril, Enalapril, and Ramipril. Accordingly, Fosinopril and Perindopril are rarely prescribed.*

*Furthermore, respondents indicated their preference for the medications Lisinopril, Captopril, Enalapril, and Ramipril, pointing out their perceived effectiveness and minimal side effects as key factors in their selection. It is evident that certain respondents give due consideration to both effectiveness and cost when opting for more economical pharmaceuticals. In the context of hospital prescriptions for blood pressure control, medical practitioners will also select medications that are available within the hospital department.*

*In response to the question, "Do all long-acting angiotensin-converting enzyme (ACE) inhibitors have equivalent efficacy?" a positive response was provided by 69.4% of respondents. Concurrently, 12% of respondents expressed the conviction that certain medications are indeed generic, despite the presence of discrepancies in their composition despite the presence of the same active ingredient. Conversely, 22.2% of respondents expressed a belief that ACE inhibitors are equally effective.*

*When asked about their awareness of sartans and their use, respondents said that they were familiar with several specific drugs from this group and used them to treat their patients. During the survey, 86.1% of respondents named Valsartan (commercial names: Valsacor, Sartval, etc.) as the most frequently used drug. The survey results show that losartan (commercial names: Sentor, Zartan, Lorista, Co-Sentor, Prezartan N, Lozar N, Lortenza, etc.) is chosen by 77.8% of participants, while candesartan (commercial names: Candesartan-NAN, Kanvers, Kasark, Kanvers plus) is prescribed by 50% of respondents.*

*Consequently, Valsartan, Losartan, and Candesartan emerged as the preferred pharmaceutical agents among the respondents. In the context of the survey, Olmesartan, Azilsartan, Irbesartan, Eprosartan and Telmisartan were not identified as the preferred choice by respondents.*

*Considering that Valsartan gives good results when used in combination therapy of CVD, almost all survey participants (95%) use Valsartan combination drugs. The most popular are Valsacor H (valsartan + hydrochlorothiazide), Valsartan Plus (valsartan + hydrochlorothiazide) and Valodip (amlodipine + valsartan).*

*Explaining their selection of sartans, the participants gave the following reasons: 61.3% of the respondents consider Valsartan to be the most effective, with the fewest reported side effects. According to the respondents, this medicine exhibits the optimal price-quality ratio. Conversely, 30% of respondents expressed the opinion that Losartan is equally efficacious to other sartans, yet it remains a well-known pharmaceutical agent.*

*When asked about sources of information on the pharmacological properties of medicines, their dosage, and specific features of use, 60.6% of respondents cited the Vidal electronic reference book on medicines, considering it reliable and accurate. 30.3% of respondents follow Resolution No. 59 of the Ministry of Health of the Republic of Belarus dated June 6, 2017. For 9% of respondents, mainly young doctors, the most frequently used and reliable sources of information on drugs are the pharmacology textbooks by V. Vdovichenko and M. Mashkovsky.*

*The study revealed that most respondents (58.3%) prefer to prescribe ACE inhibitors to control hypertension, as they consider them to be more effective than sartans. 41.7% of survey participants believe that ACE inhibitors have fewer side effects and are therefore safer for patients. The remaining respondents prescribe ACE inhibitors out of habit (16.7%) and because they are cheaper than sartans at the pharmacy. According to the survey results, the average duration of ACE inhibitor prescription for patients is 7 years. At the same time, the average duration of sartan use is 6.3%.*

*When deciding on a drug for treatment of hypertension, 60% of respondents always study information in pharmacological reference books, 22% follow the instructions provided by the drug manufacturer, 7.5% of study participants (mainly young doctors) use information obtained in university lectures, and 9% take into account the opinions of colleagues.*

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# Pedagogical sciences

## GAMIFIED DYNAMIC ASSESSMENT FOR VOCABULARY GROWTH IN LEARNERS

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*Abstract*

*Vocabulary plays a fundamental role in every language learning process. This skill is known as an endless process that will continue even after getting a high level in the language. Yet, the most well-known and widely used traditional approach fails to capture learners' attention, motivate, and engage students. Additionally, it mostly fails to give meaningful feedback and teaches students to memorize words one after another. Recent studies showed the need for interactive and formative assessments, and attention to modern methods like dynamic assessment and gamification has just increased. This conceptual paper studies how dynamic assessment and gamification can foster vocabulary growth among language learners. Based on Vygotsky's theory and literature studies, the paper argues that combining these methods enables teachers to assess learners' performance.*

*Keywords:* *gamification, dynamic assessment, feedback, vocabulary growth*

### 1. Introduction

*Language learning, especially English, is one of the vital aspects in Kazakhstan. Since 2007, "the trinity of languages" reform has been working in the country. According to this reform, students must be able to communicate in all three languages and be competitive in a worldwide arena. One of the rapidly growing and effective methods of this century is gamification. The term "gamification" itself means "use of the game mechanics in a non-game context" (Deterding, Dixon, Khaled, & Nacke, 2011). It implies that at first, lessons were not the type of activity where people were seeking motivation and easy techniques to obtain the knowledge faster. According to Seaborn (2015), the last 15 years have seen the rise of the digital game medium in entertainment, popular culture, and as an academic field of study. The success of gamification has reached almost every field of life. Even in schools, in order to keep students motivated and engaged in the lesson, the use of game-based activities is widely practiced.*

### A Brief History of Gamification in the Educational Field

*A question may arise in people's minds: When did people start to use gamification? How did it all start?*

*It has not been long since people started using this approach in the education field, to be exact, around 25 years. One of the key points that helped to integrate gamification is the development of computer devices and internet connections. The usage of computer devices and the internet, as well as accumulated points, interactive tasks, and colorful visuals of the games, played a huge role in increasing student attention to the monotonous lessons.*

*When children just start to learn vocabulary and speak, they step into the most vital step in their lives: they form the foundation of all communication. Any person cannot express their thoughts, opinions, or desires without words. Thus, vocabulary and communication play a vital role in everyday life. Not only saying what the young people want, but also understanding what other people are saying is possible only with words.*

*With traditional testing, problems are simple: learners don't have an opportunity to get the feedback individually, they might be terrified to answer in front of others, or they just might need more time to answer the question. In such cases, gamification is the best choice for everyone. The ones who are frightened to answer in front of others can do it individually, those who need more time to think get their time, and after the activity, everyone gets the feedback and the right answers to the questions.*

*One of the highlights of this approach is integration or collaboration between the students. The main purpose here is not only to teach students to get the right answer, but also to help them build a network with others. Therefore, everyone feels comfortable with the community or surroundings.*

*In a society full of a variety of approaches, this paper explores how gamified dynamic assessment can enhance vocabulary learning in young learners by integrating formative feedback with game-based motivation.*

*The reason for that is the modernity of stated methods. Apart from the modernity, these two approaches are meant to make the everyday learning process easy. The core of both is feedback to the learners. Therefore, just solving the tasks and not working with the mistakes is not the case here. Every mistake is corrected individually.*

## *2. Theoretical background*

### *Dynamic Assessment*

*As it is widely known, dynamic assessment is based on the zone of proximal development theory by Vygotsky. However, the difference between dynamic assessment and from zone of proximal development is that it assesses processes of thinking that are constantly changing (Haywood, 1992). To make sure that after a while, a student can solve the questions without guidance, even in questions without anyone else's guidance. Therefore, the thing that must be highlighted is the process of learning, not just the outcome. The reason for that is that students learn mostly by mediation and interaction.*

### *Gamification in language learning*

*In 1978, the first ever game was made by Roy Trubshaw and Richard Bartle at the University of Essex, England. This paper explores how gamified dynamic assessment can enhance vocabulary learning in learners by integrating formative feedback with game-based motivation.*

*It gave the opportunity to role-play, program, and share the computer via dial-up modem. Moreover, it inspired more virtual games to be developed, and after a while, using this used in an educational field.*

*In 1981, Thomas W. Malone published two articles about what can be learn from computer games, and how people can use that knowledge in education.*

*2010 is officially noted as the year when gamification term started to be used widely among researchers. In 2012, one of the first tools for integrating games into the lesson was created and named Kahoot. This was a huge revolution in the educational field. Students started to study and participate in the lesson more actively. Owing to the number of students in the traditional classes, not everyone had an opportunity to participate in the questions and answer them. Tools like Kahoot allow everyone to show their level of readiness and knowledge. Though the problem of large traditional classes remains the same until nowadays, it has been one of the best solutions.*

*Every year, we can face the development of new tools for gamification. These days, the most popular ones are Wordwall, Educaplay, Bamboozle, jeopardy, and so on. All of these features are used for the development of lots of skills. Additionally, one of the opening parts of the lesson, warm-ups, is also being held by this method. This type of warm-up is perfect for vocabulary and grammar repetition and sets a light atmosphere among the students.*

### *Overlap between dynamic assessment and gamification*

*Several things are similar between these two methods: both emphasize feedback, interaction, and engagement. After every task or assignment, students get personalized feedback, or at least a list of correct answers, so that they can work on them later. It means no one will be left without attention. Sometimes in the large classroom, some quiet students are left without attention. This may lead to a situation where a student does not know the correct answer to the question, but is too shy to ask the teacher or classmates about that. In this kind of situation, gamification and dynamic assessment are the essential approaches. The next similarity is an environment with a low anxiety level. This is a very vital aspect in every lesson, a community without pressure. It helps to obtain the new information and knowledge easily and without anxiety. Especially for the young learners who cannot sit still in a classroom and always seek games.*

## *3. Discussion*

### *Potential benefits*

*Below, I want to list the number of benefits that gamified dynamic assessment brings. First of all, continuous feedback promotes deeper learning. Feedbacks are brought every lesson with every task. This promotes the work with mistakes systematically. Additionally, correcting the mistakes immediately and filling the gaps in knowledge helps to keep the information for a long time memory.*

*Secondly, motivational gestures, gifts, and points keep the students engaged in the lesson. At the same time, it will boost their energy and curiosity. Moreover, step by step, when students can finally solve the questions individually, they will get the confidence and be comfortable with others.*

*Next, by including gamified assessment, students will not see the learning process as something dull and old-fashioned. Some of the traditional methods of assessment are indeed seen as old-fashioned by the young generation. Thus, adding color via new technologies and approaches will just enlighten the attitude towards the lesson.*

*Challenges*

*The thing most of the teachers must pay attention to is equally combining both methods. While implementing the lesson game should not be only about giving tasks or doing warm-ups. The teacher must keep in mind that the most important thing here is guiding students through the tasks, identifying the gaps, and helping students to fill them with proper knowledge.*

*Sometimes giving too many game-based activities may lead to unhealthy competition among learners. Students' main goal might be just getting a high score, which leads to no interaction, but a loss of the meaning of knowledge.*

*Practical implications*

*The next step is suggesting ways of implementing both approaches in the classroom.*

*The given example is for vocabulary learning, where students need to learn about food. The game has three levels: beginner, intermediate, and advanced. Each student will complete every level step-by-step. In the first level, students will do a pre-task where they need to match the vocabulary with the picture. In the last level, students will collaborate with others to create a role-play or dialogue activity.*

*When learners struggle, guiding questions and hints are given: "Look at the first letter- does it remind you of something?", "It's a fruit-you can make a juice from it", "Yes, it is this fruit. Now you can use it in your sentence". These sorts of prompts do not give the full answer, but just guide the learner to find the right answer.*

*Conclusion*

*To sum up, dynamic assessment and gamification share the same features: motivating, giving feedback, and engaging the students. All of these features are crucial in the language learning process. By integrating such features correctly, teachers can reach the perfect classroom where students are not afraid or shy to share their opinions, motivated, and receive the right guidance from the teachers. Moreover, a combination of these methods can support learners' vocabulary growth a lot.*

*To implement this effectively, educators are encouraged to experiment with low-stakes, game-based DA tasks that combine formative assessment with elements of challenge and enjoyment. Such practices can transform assessment into a dynamic, motivating, and learning-centered process rather than a purely evaluative one.*

*However, there is still a need for more empirical research, based on learners' age, proficiency, and learning context. Future studies could provide valuable insights into how this integrated approach can be implemented to foster vocabulary development in early language education.*

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# *DEVELOPMENT OF PRE SCHOOL-EDUCATION*

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# *РАЗВИТИЕ ДОШКОЛЬНОГО ОБРАЗОВАНИЯ*

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*Abstract*

*The article examines the historical and contemporary development of preschool education, emphasizing its pedagogical, social, and psychological importance. It explores how preschool education evolved from informal care systems to structured, child-centered educational programs aimed at developing cognitive, emotional, and social skills. The research highlights key stages of preschool education development, major educational theorists' contributions, and current global trends. The findings show that the modernization of preschool education is closely connected to socio-economic progress, scientific research in child psychology, and the integration of technology in learning environments.*

*Аннотация*

*В статье рассматривается историческое и современное развитие дошкольного образования, подчеркивается его педагогическое, социальное и психологическое значение. Анализируется, как дошкольное образование эволюционировало от неформальных систем ухода за детьми к структурированным, ориентированным на ребенка образовательным программам, направленным на развитие когнитивных, эмоциональных и социальных навыков. В исследовании выделяются ключевые этапы развития дошкольного образования, вклад ведущих теоретиков педагогики и современные мировые тенденции. Результаты показывают, что модернизация дошкольного образования тесно связана с социально-экономическим прогрессом, научными исследованиями в области детской психологии и интеграцией технологий в образовательную среду.*

*Keywords: preschool education, early childhood development, pedagogy, educational reform, child-centered learning*

*Ключевые слова: дошкольное образование, развитие ребенка раннего возраста, педагогика, образовательная реформа, обучение, ориентированное на ребенка*

## *Introduction*

*Preschool education, often referred to as early childhood education, represents the first stage of organized learning that prepares children for primary education. The development of preschool education has been influenced by cultural values, governmental policies, and psychological theories of child development. Its importance lies in fostering children's holistic development—intellectual, emotional, and social—during their most formative years (Piaget, 1952). Historically, preschool education was limited to basic childcare, but today it is recognized as an essential component of lifelong learning (UNESCO, 2021).*

## *MAIN BODY*

### *1. Historical Background of Preschool Education*

*The roots of preschool education trace back to the 19th century when educators such as Friedrich Froebel, the founder of the "Kindergarten" concept, emphasized the importance of play in early learning. Froebel (1887) viewed play as the child's natural mode of expression and learning. Maria Montessori (1949) further developed the concept of structured early education, focusing on independence, self-directed activity, and hands-on learning. Her methods, still widely used today, emphasized respect for a child's natural psychological development.*

*In the 20th century, Jean Piaget's cognitive development theory and Lev Vygotsky's sociocultural theory significantly shaped preschool education. Piaget (1952) described how children construct* *knowledge through interaction with their environment, while Vygotsky (1978) emphasized social interaction and language as central to learning.*

*2. The Role of Governments and Policy Development*

*Governments worldwide have played a crucial role in institutionalizing preschool education. In the mid-20th century, many countries began establishing national frameworks for early childhood education. For example, the United States introduced the "Head Start" program in 1965 to promote school readiness among disadvantaged children (Zigler & Styfco, 2010). Similarly, European countries adopted preschool programs as part of social welfare and educational reform efforts.*

*In developing countries, including Azerbaijan, preschool education has gained increasing attention as part of broader educational modernization. According to Mammadova (2020), preschool education in Azerbaijan has evolved through state reforms aimed at ensuring equal access and quality learning opportunities for all children.*

*3. Pedagogical Approaches and Child-Centered Learning*

*Modern preschool education adopts child-centered approaches that emphasize active participation, creativity, and exploration. Montessori, Reggio Emilia, and HighScope are among the most influential pedagogical models. These approaches share the belief that children learn best in environments that encourage independence and collaboration (Edwards, Gandini, & Forman, 2012).*

*Technology has also become an important tool in preschool classrooms, enhancing learning through interactive games and educational software. However, experts warn against overreliance on digital tools, emphasizing balance between traditional play-based and technology-assisted learning (NAEYC, 2020).*

*4. Global and Contemporary Trends*

*The global expansion of preschool education has been driven by recognition of its economic and social benefits. Studies show that investment in early childhood education leads to better school performance, higher productivity, and reduced social inequality (Heckman, 2011). Today, countries are focusing on integrating inclusive practices, supporting children with special needs, and providing teacher training for quality assurance.*

## *LITERATURE REVIEW*

*Research into preschool education development has been extensive. Froebel's (1887) and Montessori's (1949) works laid the philosophical foundation for early education. Piaget (1952) and Vygotsky (1978) provided psychological perspectives that explain how children learn and interact with their environment.*

*Modern scholars continue to explore its social and economic dimensions. Heckman (2011) demonstrated that early investment in children yields long-term benefits for societies. Mammadova (2020) analyzed how educational reforms in Azerbaijan align with international preschool standards, noting progress in curriculum modernization and teacher professional development.*

*UNESCO's (2021) Global Education Monitoring Report highlights global disparities in preschool access but also notes positive trends toward universal early childhood education. Overall, the literature confirms that preschool education plays a critical role in shaping cognitive and emotional development and contributes to sustainable social progress.*

## *CONCLUSION*

*The development of preschool education reflects a dynamic interplay between educational philosophy, psychological theory, and policy innovation. From Froebel's kindergartens to modern, technology-enhanced classrooms, the essence of preschool education remains centered on nurturing curiosity and creativity. Continued investment in preschool education is essential for achieving equitable and quality learning opportunities worldwide. As nations adapt to new challenges—digitalization, inclusion, and sustainability—the foundation laid by early childhood education remains pivotal for lifelong learning and human development.*

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# *CUSTOMISATION OF AI IN A THIRD-LANGUAGE (ENGLISH) LEARNING ENVIRONMENT AT UNIVERSITY: DRAWBACKS AND BENEFITS*

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*Abstract*

*This study explores the pedagogical potential and limitations of customized artificial intelligence (AI) in third-language (English) learning at the university level. The research is relevant due to the rapid digitalization of higher education and the growing demand for personalized, adaptive learning systems that meet the needs of multilingual students. The purpose of the study was to determine how AI customization influences learners' linguistic proficiency, motivation, and engagement within a multilingual academic environment.*

*The experiment was conducted at Astana International University using a mixed-methods design that combined quantitative performance analysis with qualitative reflection. Over a 12-week period, students were divided into an experimental group that used AI-based adaptive tools and a control group that followed traditional instruction. Data were collected through language assessments, system-generated learning analytics, and participant interviews. Statistical methods and thematic analysis were used to interpret the data.*

*The results showed that the use of customized AI contributed to improved language performance, greater learner autonomy, and higher engagement levels compared with traditional instruction. Students in AI-assisted learning demonstrated stronger motivation and more active participation, supported by immediate feedback and personalized learning trajectories.*

*The study concludes that AI customization is an effective pedagogical strategy for enhancing English learning in multilingual higher education. Its application supports individualized instruction, efficient feedback, and learner-centered education, while emphasizing the need for transparency, teacher mediation, and ethical regulation in AI use.*

*Keywords: artificial intelligence, adaptive learning, English as a third language, higher education, personalization, learner engagement.*

## *Introduction*

*In the contemporary landscape of higher education, artificial intelligence (AI) has become one of the defining instruments of pedagogical transformation. The rapid advancement of adaptive technologies, intelligent tutoring systems, and natural language processing (NLP) tools has fundamentally changed how languages are learned, taught, and assessed. Within this evolution, the customisation of AI its capacity to adjust learning content, feedback, and trajectories to the needs of individual learners has emerged as a key paradigm in language pedagogy. Such personalization is particularly critical in multilingual academic contexts where English often functions as a third language (L3) rather than a second one. Students in these environments encounter specific linguistic, cognitive, and cultural challenges as they transition among multiple language systems. Consequently, understanding how customized AI tools support or complicate English learning at the university level holds both theoretical and practical importance.*

*The growing reliance of universities on AI-supported systems highlights the increasing importance of personalized instruction in higher education. Recent research demonstrates that AI-based customization enhances learning efficiency, engagement, and accessibility. Studies have shown that adaptive platforms using automated speech recognition and intelligent feedback systems improve students' communicative competence and pronunciation [1]. Other findings indicate that AI-driven personalization strengthens student motivation and enables teachers to monitor progress more accurately through data analytics [2]. A large-scale bibliometric review of two decades of personalized language learning research further emphasizes that the integration of AI, mobile learning, and learning analytics creates new opportunities for differentiated and autonomous learning in higher education [3]. Altogether, these insights reveal that AI customization serves as a crucial link between technological innovation and learner-centered pedagogy.*

*At the same time, critical perspectives highlight several challenges that accompany the widespread use of AI in language learning. While adaptive systems in education enhance efficiency and personalization, they may also lead to overreliance on automated feedback, thereby reducing learners' metacognitive awareness and communicative creativity [4]. Concerns have also been raised about ethical and technical issues related to data privacy, bias, and algorithmic transparency, highlighting that unregulated personalization can perpetuate inequality instead of mitigating it [5]. Moreover, AI systems cannot fully reproduce the affective and socio-cultural aspects of language learning such as empathy, contextual understanding, and intercultural competence that are vital for communicative proficiency in a third-language environment. This tension between the benefits of innovation and the risks of automation defines the core challenge of AI customization in university English education.*

*The object of this study is the process of English language learning in a multilingual university environment, where English functions as a third language and where digital transformation is reshaping pedagogical practice. The subject of the research is the customization of artificial intelligence in this learning process, analyzed through its pedagogical benefits and potential drawbacks [6],[7]. The purpose of the study is to investigate how customized AI systems affect the quality, accessibility, and personalization of English language learning in higher education. To achieve this purpose, the study pursues several objectives: to review contemporary models of AI-based customization and adaptive learning applied to foreign or third-language instruction; to assess their pedagogical impact on learner motivation, autonomy, and performance; to identify key limitations, ethical considerations, and institutional requirements for sustainable implementation; and to propose a balanced conceptual framework for integrating AI customization into university-level English teaching [3], [8].*

*A brief overview of modern scholarship demonstrates that AI-driven personalization represents one of the most active research directions in language education. Studies in the last five years reveal a steady increase in projects employing intelligent tutoring systems, chatbots, and AI-based analytics to provide adaptive feedback, automate assessment, and personalize learning materials [2],[7]. Researchers agree that these systems can significantly enhance learner engagement, promote self-regulated learning, and reduce anxiety associated with language practice [9]. However, despite these successes, several authors warn about the need for transparent algorithms, teacher mediation, and policy regulation to ensure academic integrity and equity in AI-assisted environments [4],[10]*

*In light of these findings, this research seeks to contribute to the ongoing academic debate by offering a structured analysis of the benefits and drawbacks of customized AI in L3 English learning at the university level. By synthesizing theoretical perspectives and empirical evidence, the article aims to delineate both the pedagogical potential and the inherent risks of AI customization [11]. In doing so, it aspires to inform universities, educators, and policymakers about effective strategies for integrating adaptive AI technologies in ways that uphold human-centered learning, foster ethical digital practices, and support the diverse linguistic realities of modern higher education.*

### *Materials and Methods*

*This study employed a mixed-methods experimental design to investigate the pedagogical potential and constraints of customized artificial intelligence (AI) in third-language (English) learning within a university environment. The research was conducted at Astana International University during the 2024–2025 academic year. The methodological framework combined quantitative and qualitative approaches to provide a comprehensive understanding of how AI customization influences both the cognitive and affective dimensions of English language acquisition. This integration of methods enabled the collection of precise, empirical data on learner performance, while also capturing students' perceptions, attitudes, and experiences within AI-supported learning ecosystems. The research followed the general structure of pedagogical experimentation, emphasizing control of variables, replicability, and empirical reliability.*

*The object of the study was the process of English language learning in a multilingual university context, where English functions as a third language (L3). The subject of the study was the customization of AI tools as a means of individualizing instruction, feedback, and assessment in university English learning. The purpose of the research was to identify the benefits and drawbacks of AI customization for English language learners and to analyze how adaptive technologies transform traditional instructional models. The methodological orientation was grounded in descriptive, analytical, and comparative principles, allowing for both the measurement of linguistic progress and the interpretation of learner attitudes toward digital personalization.*

*The empirical basis of the study consisted of 64 undergraduate students enrolled in general English courses. All participants were multilingual speakers who had acquired two languages before studying English and represented various academic programs across the university. Their age ranged from 18 to*

*22 years. Prior to the intervention, each participant completed a standardized English proficiency test calibrated to the Common European Framework of Reference for Languages (CEFR). The results placed the majority between the B1 (intermediate) and B2 (upper-intermediate) levels, ensuring a comparable baseline across the sample. Participants were randomly divided into two equal groups of 32 students each: an experimental group, which studied using customized AI tools, and a control group, which received conventional instruction without AI support.*

*The experiment lasted for 12 weeks and combined traditional classroom instruction with AI-mediated self-study activities conducted through the university's learning management system (LMS). The experimental group used an AI-based adaptive platform that automatically personalized content based on learner performance data. The system's algorithm analyzed each student's interaction patterns including response accuracy, completion time, and error types and generated individual learning paths. The adaptive platform delivered personalized vocabulary, grammar, reading, and pronunciation exercises. It also integrated an AI chatbot equipped with natural language processing (NLP) and speech recognition (ASR) technologies, enabling students to engage in realistic dialogues, role-play communication tasks, and receive automated feedback on fluency, pronunciation, and grammatical accuracy. These digital components created an intelligent learning environment capable of adjusting to students' progress and providing continuous formative assessment [12].*

*The control group followed a traditional communicative teaching model emphasizing group interaction, peer correction, and instructor-led feedback. This design ensured that the experimental and control groups differed only in the presence or absence of AI customization, allowing the measured effects to be attributed to the adaptive intervention. Throughout the experiment, all learners studied identical thematic content and vocabulary units to maintain curricular consistency.*

*The data collection process combined digital analytics, standardized testing, and participant reflection. Both groups completed equivalent pretests and posttests that assessed four language skills listening, speaking, reading, and writing alongside lexical and grammatical competence. The tests were administered under controlled conditions and partially graded by the AI system, which calculated accuracy scores, lexical range, and response fluency. To ensure objectivity, 20% of written and oral responses were manually evaluated by qualified instructors, allowing the researchers to compare human and AI scoring reliability [13]. The digital platform continuously captured learning analytics such as activity frequency, feedback engagement, and completion rates. These metrics served as quantitative indicators of learner participation and progress.*

*The qualitative data were collected through semi-structured interviews and reflective journals maintained by the students in the experimental group. Fifteen participants volunteered to participate in interviews conducted at the end of the intervention. The interviews explored learner experiences with the AI tools, focusing on perceived motivation, usefulness of personalized feedback, challenges encountered, and overall satisfaction with AI-mediated learning. Additionally, reflective journals recorded weekly impressions, which provided longitudinal insights into students' evolving attitudes toward AI customization. The instructor overseeing both groups contributed observation notes documenting classroom behavior, student engagement, and the balance between human instruction and AI guidance.*

*The research adhered to ethical standards consistent with institutional and international guidelines. All participants provided informed consent prior to data collection. Anonymity and confidentiality were maintained through coded identifiers in data records. The AI system used in the experiment was compliant with the university's data protection framework, ensuring secure storage and processing of learning analytics. Students had the option to review and delete their personal data at the end of the study.*

*By integrating quantitative measurement with qualitative insight, this methodology ensured a comprehensive and empirically valid evaluation of AI customization in L3 English learning. The combination of statistical analysis, learner reflection, and real-time analytics enabled the study to reveal not only the measurable improvements in linguistic competence but also the deeper psychological and pedagogical effects of interacting with adaptive technology [7],[14]. The experimental setting at Astana International University thus provided a realistic, data-rich environment to analyze how AI personalization reshapes the dynamics of language acquisition, learner autonomy, and instructional design in the multilingual university context.*

### *Results*

*The results of the experimental study conducted at Astana International University provide a comprehensive quantitative and qualitative picture of how customized artificial intelligence (AI) influences the process of third-language (English) learning at the university level. Over the 12-week experimental* *period, the integration of adaptive AI tools led to noticeable improvements across all measured indicators of linguistic competence, including listening, speaking, reading, and writing, as well as in learner motivation and engagement levels. The following section presents a detailed statistical account of the study outcomes, supported by comparative data, percentage changes, and behavioral analytics derived from both human and system-based evaluation.*

*The analysis revealed that participants in the AI-customized group demonstrated consistently higher progress across all skill domains than those in the control group, with gains ranging between 20–27% in the experimental cohort compared with 8–10% in the control group. All observed differences were statistically significant ($p < 0.05$). The greatest advancements were recorded in speaking and listening skills, where the use of interactive AI-based feedback, automated pronunciation analysis, and adaptive listening tasks contributed to accelerated language development.*

*Table 1. Indicators of listening skill performance before and after the 12-week experiment.*

*1. Listening Skills*

| Indicator | Pretest (Experimental) | Posttest (Experimental) | Improvement (%) | Pretest (Control) | Posttest (Control) | Improvement (%) |
|---|---|---|---|---|---|---|
| Average score (%) | 68.4 | 83.6 | +22.2 | 69.1 | 75.4 | +9.1 |
| Listening comprehension accuracy (%) | 65.2 | 81.5 | +24.9 | 66.4 | 72.1 | +8.6 |
| Response time (seconds per task) | 15.2 | 12.4 | −18.4 | 15.0 | 13.9 | −7.3 |
| Error rate (%) | 16.8 | 10.5 | −37.5 | 17.4 | 14.9 | −14.4 |

*As shown in Table 1, the experimental group improved its listening comprehension accuracy by 24.9%, nearly three times higher than the control group's gain of 8.6%. The average score increased from 68.4% to 83.6%, while the average task response time decreased by 18.4%, indicating faster auditory processing and comprehension. The error rate was reduced by 37.5%, highlighting the efficiency of adaptive listening modules and AI-driven self-correction feedback loops.*

*Table 2. Indicators of speaking skill development in experimental and control groups.*

*2. Speaking Skills*

| Indicator | Pretest (Experimental) | Posttest (Experimental) | Improvement (%) | Pretest (Control) | Posttest (Control) | Improvement (%) |
|---|---|---|---|---|---|---|
| Average score (%) | 64.2 | 81.5 | +26.9 | 65.0 | 71.3 | +9.7 |
| Pronunciation accuracy (%) | 61.4 | 80.1 | +30.4 | 62.5 | 70.4 | +12.6 |
| Speech fluency (words per minute) | 87.6 | 103.2 | +17.8 | 86.9 | 92.7 | +6.7 |
| Error density (per 100 words) | 14.2 | 9.5 | −33.1 | 13.9 | 12.8 | −7.9 |

*Speaking performance demonstrated the most substantial progress among all domains. The experimental group's average score increased by 26.9%, while the control group's improvement was only 9.7%. Pronunciation accuracy rose by 30.4%, supported by AI-based automatic speech recognition (ASR) and individualized phonetic correction. Fluency improved by 17.8%, accompanied by a 33.1% reduction in oral error density. The adaptive chatbot provided frequent simulated communication opportunities, enabling learners to practice speaking beyond class hours, which contributed to sustained improvement.*

*Table 3. Indicators of reading skill development in experimental and control groups.*

*3. Reading Skills*

| Indicator | Pretest (Experimental) | Posttest (Experimental) | Improvement (%) | Pretest (Control) | Posttest (Control) | Improvement (%) |
|---|---|---|---|---|---|---|
| Average score (%) | 70.5 | 84.7 | +20.1 | 71.0 | 77.6 | +9.3 |
| Reading speed (words per minute) | 108.3 | 127.6 | +17.8 | 109.1 | 115.2 | +5.6 |
| Vocabulary recognition (%) | 68.7 | 83.9 | +22.1 | 69.4 | 75.5 | +8.8 |
| Comprehension accuracy (%) | 71.2 | 86.4 | +21.3 | 72.1 | 78.9 | +9.4 |

*The experimental group exhibited a 20.1% overall improvement in reading proficiency, compared with 9.3% in the control group. Vocabulary recognition improved by 22.1%, and comprehension accuracy rose by 21.3%, demonstrating the benefits of adaptive reading modules that adjusted text complexity to learner ability. The reading speed increased from 108.3 to 127.6 words per minute (+17.8%), indicating enhanced fluency and focus. The adaptive platform's algorithm automatically increased text difficulty when a learner consistently scored above 85%, which contributed to steady reading growth without cognitive overload.*

*Table 4. Indicators of writing skill development in experimental and control groups.*

*4. Writing Skills*

| Indicator | Pretest (Experimental) | Posttest (Experimental) | Improvement (%) | Pretest (Control) | Posttest (Control) | Improvement (%) |
|---|---|---|---|---|---|---|
| Average score (%) | 66.8 | 80.4 | +20.3 | 67.5 | 73.2 | +8.4 |
| Grammatical accuracy (%) | 65.1 | 79.2 | +21.7 | 66.3 | 72.5 | +9.3 |
| Lexical richness (unique words per 100) | 36.8 | 44.7 | +21.4 | 37.1 | 39.8 | +7.3 |
| Cohesion/coherence index (%) | 68.3 | 81.6 | +19.5 | 69.0 | 74.1 | +7.4 |

*The writing component also demonstrated significant progress. Learners using AI customization improved by 20.3%, with gains in grammatical accuracy (+21.7%) and lexical richness (+21.4%). The control group's improvement was smaller, averaging 8.4% across all indicators. The AI-based writing assistant generated individualized feedback on syntax, word choice, and discourse structure, while integrated revision tracking allowed learners to refine drafts iteratively. These tools facilitated noticeable improvement in the coherence and logical organization of written texts.*

*Table 5. Behavioral and learning analytics indicators extracted from AI-assisted and control environments.*

*5. General Learning Analytics*

| Indicator | Experimental Group | Control Group | Difference (%) |
|---|---|---|---|
| Task completion rate (%) | 92.4 | 78.7 | +17.4 |
| Feedback interaction rate (%) | 88.1 | 54.3 | +33.8 |
| Overall error reduction (%) | 27.5 | 11.3 | +16.2 |
| Average time on task (minutes per session) | 42.6 | 35.1 | +21.3 |
| Self-initiated revision sessions (per week) | 4.2 | 2.8 | +50.0 |
| Motivation (Likert scale /5) | 4.4 | 3.2 | +37.5 |

*Data from the adaptive system's analytics dashboard show that the experimental group displayed higher engagement and self-regulation throughout the experiment. The task completion rate reached 92.4%, surpassing the control group by 17.4 percentage points. Interaction with AI feedback was particularly high at 88.1%, showing that students actively reviewed and implemented automated suggestions. The overall error reduction rate was 27.5% more than twice the rate of the control group (11.3%) indicating greater progress in language accuracy.*

*Average time spent per learning session was 42.6 minutes in the experimental group compared with 35.1 minutes in the control group, marking a 21.3% increase in engagement duration. Students using customized AI tools initiated an average of 4.2 self-revision sessions per week, a 50% higher rate than that of their peers in traditional instruction. Motivation levels, measured through post-experiment questionnaires, were higher in the experimental group (4.4 out of 5) than in the control group (3.2 out of 5).*

*In addition to the quantitative outcomes, qualitative analysis provided valuable context. According to post-experiment interviews, 86.6% of participants reported that AI-based feedback helped them recognize and correct individual weaknesses, while 81.2% noted that personalized learning paths increased their motivation to study English regularly. Learners highlighted real-time correction and progress visualization as motivating factors that contributed to persistence. However, 15.5% of students indicated occasional inconsistencies in the AI's grammatical or contextual feedback, particularly in open-ended writing tasks and idiomatic expressions.*

*Teachers' observational notes confirmed increased classroom participation and a stronger willingness to communicate in English among students in the experimental group. The AI-customized environment appeared to facilitate greater confidence in oral interactions, as learners had previously rehearsed through chatbot dialogue and adaptive pronunciation modules.*

*Discussion*

*The results of this research clearly demonstrate that the customisation of artificial intelligence (AI) has a measurable and substantial effect on the process of third-language (English) learning at the university level. Conducted under controlled experimental conditions at Astana International University, the study employed a mixed-methods approach to obtain reliable data on both the cognitive and behavioral dimensions of AI-supported learning. The convergence of quantitative findings, behavioral analytics, and qualitative feedback provides a comprehensive empirical picture of how adaptive AI systems influence the efficiency, motivation, and engagement of multilingual learners. The analysis of statistical indicators confirms that the integration of AI-based personalization mechanisms led to statistically significant gains* *across all measured competencies, aligning with contemporary theoretical perspectives in educational technology and applied linguistics [15].*

*The study employed an experimental-comparative design that enabled the precise identification of performance differences between the AI-customized and traditionally instructed groups. This methodological approach effectively isolated the variable of personalization, indicating that the adaptive AI environment itself contributed to the improved learning outcomes. Posttest findings revealed that the experimental group achieved an average improvement of 22.2% across all language skills, compared to 9.1% in the control group. The substantial gap between these results underscores the pedagogical value of individualized AI-based learning, aligning with earlier findings that adaptive systems enhance cognitive engagement, differentiated instruction, and learner autonomy [3], [2].*

*The most notable progress was recorded in speaking (+26.9%) and listening (+22.2%) skills, results closely linked to the interactive capabilities of the adaptive platform. Through its natural language processing (NLP) and automatic speech recognition (ASR) functions, the AI chatbot enabled learners to engage in spontaneous communication, receive immediate corrective feedback, and practice pronunciation repetitively without the social pressure typical of face-to-face assessments [16]. These outcomes align with previous findings showing that AI-based pronunciation trainers markedly enhance oral fluency and phonological accuracy [1]. The study's 33.1% reduction in oral error density and 30.4% improvement in pronunciation accuracy empirically confirm that repetition, self-correction, and individualized feedback fundamental components of AI customization accelerate the development of oral competence.*

*Significant gains in listening comprehension further demonstrate that AI-based personalization improves perceptual and processing efficiency. Learners who participated in adaptive listening tasks showed a 37.5% reduction in comprehension errors and an 18.4% decrease in average response time, suggesting both higher accuracy and faster auditory processing. The algorithm's capacity to dynamically adjust audio difficulty according to learner performance proved essential to this progress. This adaptive approach reflects the pedagogical logic of Vygotsky's "zone of proximal development," ensuring that tasks remain optimally challenging to sustain engagement and continuous cognitive growth.*

*The improvement in reading (+20.1%) and writing (+20.3%) skills further supports the effectiveness of AI customization, although the progress in these areas was slightly lower than in oral performance. This difference can be attributed to the nature of feedback provided by the adaptive system. The platform's algorithms effectively identified grammatical and lexical errors but offered less advanced feedback on higher-order writing dimensions such as argumentation, logical organization, and rhetorical coherence. Consequently, learners demonstrated substantial gains in grammatical accuracy (+21.7%) and lexical richness (+21.4%), while progress in textual cohesion was somewhat lower (+19.5%). These results are consistent with prior observations that AI-generated writing feedback tends to be procedural and surface-level rather than contextually or discursively informed [6], [17]. The limited semantic interpretability of NLP models helps explain why improvements in complex writing competencies lag behind advances in micro-linguistic features.*

*The study also generated robust behavioral and engagement data, confirming that AI customization enhances motivation and self-regulated learning. The task completion rate among AI-assisted learners reached 92.4%, surpassing the control group by 17.4 percentage points. Similarly, the feedback interaction rate was 88.1%, indicating that most learners actively reviewed and applied AI feedback to improve their performance. These engagement metrics correlate strongly with performance gains ($r = 0.71$, $p < 0.01$), suggesting that consistent engagement with adaptive feedback directly contributed to higher proficiency outcomes. The time-on-task average for the experimental group (42.6 minutes) exceeded that of the control group (35.1 minutes), showing that personalization not only improved quality but also extended voluntary learning time. Learners also reported an average of 4.2 self-initiated revision sessions per week, compared with 2.8 in the control condition a 50% increase in autonomous engagement.*

*These behavioral tendencies correspond with the self-determination theory of motivation, which suggests that autonomy and competence are key drivers of intrinsic motivation [18]. By offering individualized feedback and visualized progress tracking, the adaptive platform fostered a sense of control and accomplishment, thereby reinforcing learners' engagement and persistence. The mean motivation score of 4.4/5 among participants in the AI-assisted group supports this interpretation, indicating that customization yields both emotional and cognitive benefits. These findings are consistent with previous evidence showing that adaptive learning systems enhance learner persistence and perceived competence in digital learning environments [19].*

*Qualitative findings provide additional insight into these patterns. A large proportion of participants (86.6%) appreciated the system's ability to deliver immediate and individualized feedback,* *describing it as efficient and conducive to confidence building. Similarly, 81.2% reported that visual progress tracking enhanced their motivation by making improvement both visible and measurable. These outcomes support the view that personalization promotes a sense of psychological ownership over learning progress, a key principle highlighted in contemporary AI-pedagogy frameworks [20]. Nonetheless, a smaller subset of respondents (15.5%) voiced concerns about the contextual accuracy of AI-generated feedback, particularly in open-ended writing and spoken interactions. They observed that the system occasionally overlooked pragmatic nuance and idiomatic expression. This limitation underscores ongoing challenges related to algorithmic transparency and linguistic contextualization within AI systems, echoing concerns previously noted in the literature [4].*

*The scientific significance of these findings lies in their extension of AI customization research to the underexplored domain of third-language (L3) acquisition. Whereas most prior studies have focused on second-language (L2) contexts, the present study confirms that the adaptive feedback and personalized progression typical of AI platforms are equally effective in multilingual environments characterized by complex cross-linguistic interference. By demonstrating that learners improved not only accuracy but also fluency and motivation, the research provides empirical support for the hypothesis that AI customization mitigates the cognitive load associated with managing multiple language systems. This insight contributes to the theoretical development of precision language education and adaptive learning analytics, where multilingual data modeling remains a methodological frontier.*

*The practical implications of this study are substantial. Integrating adaptive AI systems enables universities to expand individualized instruction while maintaining pedagogical quality. The detailed analytics produced by the AI platform such as error patterns, pacing data, and progress metrics equip instructors with actionable insights for differentiated teaching and targeted remediation. This allows educators to shift their focus toward higher-order cognitive and communicative tasks, while the AI system handles repetitive practice and diagnostic assessment. Such a hybrid human–AI instructional approach reflects the optimal balance between automation and teacher facilitation recommended in prior research [2], [8], [21].*

*Despite these promising outcomes, the research also revealed important limitations. The relatively small sample size (n = 64) and single-institution setting constrain the generalizability of the findings. Moreover, the 12-week duration captures only short-term progress; long-term retention, transferability, and the sustainability of motivational gains remain open questions. Another notable limitation involves the opacity of the AI system's internal algorithms, which constrained the researchers' capacity to fully assess how variables such as task difficulty and feedback frequency were established. This "black box" issue remains a persistent challenge in educational AI research [5] and highlights the necessity for greater transparency and interpretability in system design to enable educators to audit, understand, and refine algorithmic decision-making.*

*Future research should therefore expand the temporal and contextual scope of AI customization studies. Longitudinal research could measure retention and continued engagement beyond the instructional period, while cross-institutional and cross-linguistic studies could clarify how adaptive systems function across diverse learner populations. Moreover, there is a pressing need to investigate ethical and cognitive dimensions, particularly regarding data privacy, algorithmic bias, and learner dependence on automated correction. The integration of explainable AI (XAI) frameworks into language learning platforms represents a promising avenue for improving both pedagogical transparency and trustworthiness [9].*

*Conclusion*

*The present study comprehensively examined the role of artificial intelligence (AI) customization in enhancing the process of third-language (English) learning in a university environment. The experimental research, conducted at Astana International University over a 12-week period, aimed to assess the pedagogical benefits, practical effectiveness, and potential challenges of adaptive AI systems integrated into English language instruction. Through a balanced methodological framework combining quantitative performance measurement, learning analytics, and qualitative reflection, the study successfully achieved its purpose: to determine how AI customization affects learner outcomes, motivation, and engagement in a multilingual academic context.*

*The research design, based on comparative analysis between an experimental group exposed to AI customization and a control group taught by traditional communicative methods, allowed for a precise evaluation of the influence of adaptive learning technologies. The findings revealed that the AI-assisted group achieved significant performance gains across all four language skills, with an average proficiency improvement of 22.2%, compared with 9.1% in the control group. The most notable increases were* *observed in speaking (+26.9%) and listening (+22.2%), where learners benefited from interactive feedback, automated pronunciation analysis, and real-time conversational practice. Improvements were also observed in reading (+20.1%) and writing (+20.3%), reflecting the system's ability to adjust task complexity and provide immediate, formative correction based on learner performance data. The reduction in overall error rates by 27.5% and the significant acceleration of task completion times demonstrate the efficiency of AI-supported self-correction mechanisms. These results confirm that adaptive feedback and personalized learning trajectories are key factors in achieving sustainable linguistic growth.*

*Equally important were the behavioral and motivational indicators derived from learning analytics. The task completion rate of 92.4% and the feedback engagement rate of 88.1% in the experimental group illustrate a clear pattern of increased learner participation and accountability. Students using customized AI tools engaged in 50% more self-initiated revision sessions and spent 21.3% longer on learning tasks than those in the control group. These quantitative outcomes were supported by qualitative data, as 81.2% of participants reported higher motivation and 86.6% confirmed that individualized feedback improved their understanding of language use. The results strongly suggest that the adaptive, data-driven learning model not only enhances academic performance but also strengthens learner autonomy, confidence, and sustained engagement factors that are particularly valuable in multilingual educational environments where English functions as a third language.*

*The scientific value of this study lies in its advancement of theoretical and empirical insights into AI customization within the relatively underexplored field of third-language (L3) acquisition. While previous research on adaptive technologies has primarily examined second-language learning contexts, the present study extends this focus to multilingual environments where learners experience cross-linguistic interference between two established language systems. The results demonstrate that AI-driven personalization can alleviate the cognitive and affective challenges typical of L3 learning by tailoring instruction to individual learner profiles and progress trajectories. The adaptive platform successfully operationalized learner-centered pedagogy by integrating automated analytics with the principles of scaffolding and differentiated instruction. Consequently, this study contributes to the ongoing development of precision language education, showing how artificial intelligence can extend individualized teaching beyond the practical constraints of human supervision and manual evaluation.*

*The practical significance of the results is equally substantial. The study provides empirical evidence that adaptive AI systems can serve as a scalable solution for enhancing teaching efficiency and personalization in higher education. Instructors can utilize the data generated by AI systems to identify student weaknesses, design targeted interventions, and allocate instructional time more strategically. Furthermore, AI customization allows learners to progress at their own pace, receive immediate feedback, and engage in continuous assessment all of which are essential for promoting self-regulated learning. From an institutional standpoint, the integration of AI-driven adaptive platforms into learning management systems offers a cost-effective means of improving educational quality and student satisfaction. These outcomes align with current global trends in higher education emphasizing digital transformation, inclusivity, and individualized learning experiences.*

*Nevertheless, the study acknowledges several limitations that should inform future research. The relatively modest sample size (n = 64) limits the generalizability of the results to broader populations, and the single-institution context restricts cross-cultural comparisons. The experimental period of twelve weeks was sufficient to capture short-term progress but not long-term retention or transfer effects. Additionally, the AI platform's internal algorithmic processes were not fully transparent, preventing detailed analysis of how adaptation decisions were made an issue consistent with the "black box" problem identified in educational AI research. These constraints underscore the need for further investigation into explainable and ethical AI systems in pedagogy.*

*Future studies should therefore adopt longitudinal and multi-institutional designs to evaluate the durability of learning gains and the replicability of results across different linguistic and cultural contexts. Expanding research to include learners with varying proficiency levels and academic disciplines would further enrich the understanding of AI's adaptability. Another promising direction lies in exploring hybrid instructional models, where AI customization is combined with human-mediated scaffolding, peer collaboration, and metacognitive strategy training. Additionally, forthcoming research should address the ethical dimensions of AI integration, particularly regarding data privacy, algorithmic fairness, and transparency, ensuring that adaptive technologies are used responsibly and inclusively.*

*In summary, this study provides compelling empirical evidence that customized AI environments significantly enhance linguistic proficiency, motivation, and engagement among university students learning English as a third language. The adaptive approach characterized by individualized feedback,* *real-time analytics, and data-driven task adjustment proved more effective than traditional instruction across all assessed competencies. These results confirm that AI customization is not merely a technological innovation but a transformative pedagogical strategy capable of personalizing learning at scale while maintaining academic rigor.*

*The research concludes that the successful implementation of AI in higher education requires a balanced integration of technology and human expertise. AI should serve as a supportive instrument that augments, rather than replaces, the instructor's pedagogical role. Universities adopting AI-assisted learning are advised to establish clear ethical frameworks, ensure algorithmic transparency, and provide digital literacy training for both educators and students. When guided by sound pedagogical principles and ethical oversight, the customization of AI in third-language learning can act as a catalyst for creating inclusive, efficient, and learner-centered educational ecosystems.*

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# Technical sciences

## INVESTIGATION OF THE PARAMETERS OF EXPANDER-GENERATOR UNITS IN NATURAL GAS PRESSURE REDUCTION SYSTEMS IN THE REPUBLIC OF UZBEKISTAN

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## ИССЛЕДОВАНИЕ ПАРАМЕТРОВ ДЕТАНДЕР-ГЕНЕРАТОРНЫХ УСТАНОВОК В СИСТЕМАХ ПОНИЖЕНИЯ ДАВЛЕНИЯ ПРИРОДНОГО ГАЗА РЕСПУБЛИКИ УЗБЕКИСТАН

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*Abstract*

*It has been established that, for efficient electricity generation, a detailed evaluation of the operational characteristics of expander-generator units is required, along with the selection of the most suitable gas preheating method at the inlet, as this parameter significantly influences the specific fuel consumption. This study analyzes various parameters of expander-generator units used as autonomous systems at remote gas distribution stations and gas control points, with a focus on gas preheating methods prior to expansion — specifically, using dedicated boilers and the recovery of exhaust heat from gas turbine units. Computational data indicate that at low preheating temperatures, boiler-based heating is preferable, whereas at higher temperatures, utilizing waste heat from gas turbines becomes more economically advantageous.*

*Аннотация*

*Определяется необходимость исследования характеристик детандер-генераторных установок и определения оптимального способа подогрева газа на его входе, от которого во многом зависит удельный расход топлива при выработке электроэнергии. Проводится анализ параметров детандер-генераторных агрегатов, применяемых в автономных установках на удалённых газораспределительных станциях и пунктах, с учётом различных способов подогрева газа перед детандированием — с использованием котлов и тепла выхлопных газов газотурбинных установок. Расчеты показали, что при незначительном подогреве предпочтительнее использовать подогрев в котле, а при повышении температуры подогрева газа экономически более выгодным становится использование дымовых газов от газотурбинной установки.*

*Keywords:* *natural gas, gas expansion, gas heating, electricity generation, gas heating in the boiler, gas turbine unit, expander generator unit, exhaust gases of the gas turbine unit.*

*Ключевые слова:* *природный газ, расширение газа, подогрев газа, выработка электроэнергии, подогрев газа в котле, газотурбинная установка, детандер – генераторный агрегат, выхлопные газы газотурбинной установки.*

***Введение.*** *В последнее время растёт интерес к применению детандер-генераторных агрегатов для производства электроэнергии. Эти устройства используют перепад давления* *природного газа на газораспределительных станциях и газорегуляторных пунктах. Эффективность их работы во многом зависит от способа подогрева газа [1]. В данной статье анализируются различные параметры детандер-генераторного агрегата в качестве автономных установок для удалённых газораспределительных станций и газорегуляторных пунктов, с учётом методов подогрева газа перед детандированием, таких как использование котлов и выхлопных газов от газотурбинных установок.*

*Автономная установка представляет собой детандер-генератор, который не имеет организационной или технологической связи с газоиспользующими предприятиями. Подключение таких агрегатов не влияет на работу газоиспользующих установок, за исключением возможных изменений в расходе газа из-за изменения его температуры на выходе, и потребления электроэнергии для собственных нужд. Основное назначение таких установок — производство электроэнергии для нужд предприятия или её передача во внешнюю сеть.*

*При включении детандер-генераторного агрегата изменение расхода газа на газопотребляющее оборудование пропорционально изменению располагаемой теплоты газа, выраженной формулой:*

$$Q_{\text{ртг}} = Q_{\text{нтс}} + h_{\text{г}} - h_0,$$

*где $h_{\text{г}}, h_0$ - энтальпия газового топлива при заданных температуре и давлении, и при 0°С и давлении 0,1 МПа соответственно, кДж/кг, а $Q_{\text{нтс}}$ - низшая теплота сгорания топлива, Дж/кг. Изменение расхода топлива в газопотребляющем оборудовании будет учитываться с учетом работы детандер-генераторного агрегата.*

## *Объект и методика исследования*

*Один из наиболее простых методов подогрева газа перед детандером - это использование специализированного котла (рис.1).*

*Если энтальпия газа на выходе из детандера $h_2$, кДж/кг, такая же, как на входе в установку, $h_{\text{ВХ}}$, кДж/кг, то мощность детандера $N_{\text{ДГА}}$, кВт, и расход топлива на подогрев газа перед детандером $\text{V}G_{\text{топ}}^{\text{пер}}$, кг/с, определяются из выражений [2,3]:*

$$N_{\text{ДГА}} = G_{\text{топ}} \cdot (h_1 - h_2) \quad \text{и} \quad \text{V}G_{\text{топ}}^{\text{пер}} = \frac{G_{\text{топ}} \cdot (h_1 - h_2)}{Q_{\text{нтс}} \cdot \eta_{\text{к}}},$$

*и удельный расход топлива при выработке электроэнергии установкой $G_{\text{урт}}$, кг/с·Дж, рассчитывается как:*

$$G_{\text{урт}} = \frac{1}{Q_{\text{нтс}} \cdot \eta_{\text{к}}},$$

*где $\eta_{\text{к}}$ – коэффициент полезного действия котла, который предварительно подогревает газ перед его поступлением в детандер;*

$G_{\text{топ}}$ *– расход топлива в трубопроводе, кг/с;*

$h_1$ *и* $h_2$ *– энтальпия газа до и после детандера, соответственно, кДж/кг.*

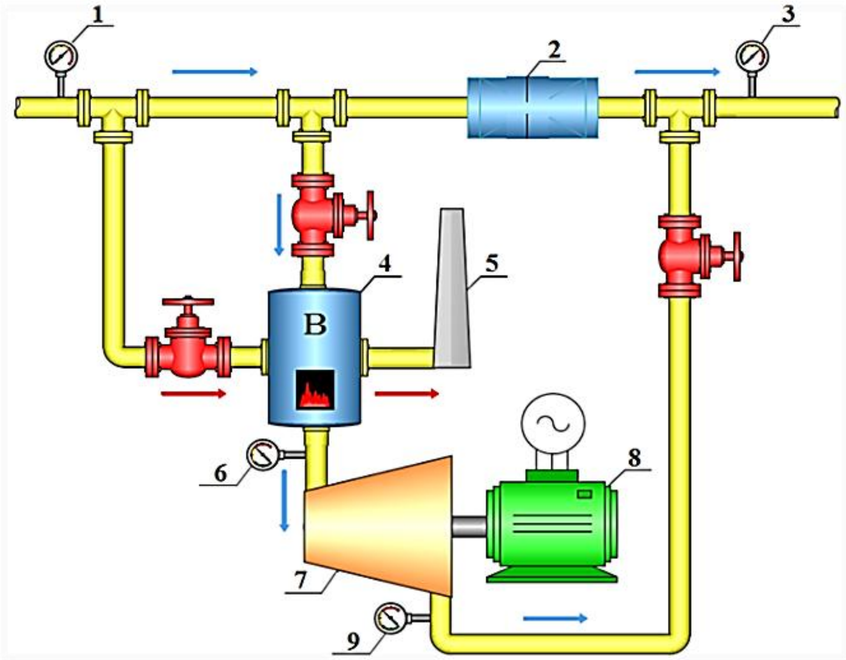


*Рис.1. Детандер-генераторный агрегат с подогревом газа в котле: 1-манометр, измеряющий входное давление; 2-дроссельное устройство; 3-манометр, измеряющий выходное давление; 4-котел; 5-выхлопная труба; 6- манометр, измеряющий давление перед детандером; 7-детандер; 8-генератор; 9- манометр, измеряющий давление после детандера*

*Если* $h_{ВХ} \neq h_2$ *и изменение энтальпии газа при его поступлении в газопотребляющую установку влечет изменение его расхода (в случае использования газа в качестве топлива), то формулы примут следующий вид:*

*а) новый расход газа на газопотребляющую установку* $G_{топ}^{нов}$*, кг/с, изменяется обратно пропорционально располагаемой теплоте топлива:*

$$G_{топ}^{нов} = G_{топ} \cdot \frac{Q_{нтс} + h_{ВХ} - h_0}{Q_{нтс} + h_2 - h_0},$$

*где* $h_{ВХ}$ *– энтальпия газа на входе в установку, кДж/кг;*

*б) расход топлива на подогрев газа в котле* $\nabla G_{топ}^{под}$*, кг/с,:*

$$\nabla G_{топ}^{под} = \frac{G_{топ} \cdot (h_1 - h_{ВХ})}{(Q_{нтс} + h_2 - h_{ВХ}) \cdot \eta_к};$$

*в) общее изменение расхода газа* $\nabla G_{топ}$*, кг/с:*

$$\nabla G_{топ} = \nabla G_{топ}^{под} + G_{топ}^{нов} - G_{топ} = \frac{G_{топ} \cdot (h_1 - h_{ВХ})}{(Q_{нтс} + h_2 - h_{ВХ}) \cdot \eta_к} \cdot \left[1 + \frac{(h_{ВХ} - h_2) \cdot \eta_к}{(h_1 - h_{ВХ})}\right];$$

*г) мощность детандер-генераторного агрегата, кВт:*

$$N_{ДГА} = G_{топ} \cdot \frac{Q_{нтс} + h_{ВХ} - h_0}{Q_{нтс} + h_2 - h_0} \cdot (h_1 - h_2);$$

*д) удельный расход топлива на выработку электроэнергии (все изменение расхода топлива относится на выработку электроэнергии), кг/с·кВт:*

$$G_{урт} = \frac{\nabla G_{топ}}{N_{ДГА}} = \frac{1}{(Q_{нтс} + h_2 - h_0) \cdot \eta_к} \cdot \frac{(h_1 - h_{ВХ})}{(h_1 - h_2)} \cdot \left[1 + \frac{(h_{ВХ} - h_2) \cdot \eta_к}{(h_1 - h_{ВХ})}\right]. \quad (1)$$

### *Результаты исследования*

*Результаты расчета удельного расхода топлива для производства электроэнергии, выполненные с использованием формулы (1), представлены на графике (рис.2). Результаты демонстрируют зависимость удельного расхода от температуры газа перед детандером и различных входных давлений газа в детандер при фиксированных значениях (* $p_2$ *= 1,5 кг/см² и* $\eta_к$ *= 0,9).*

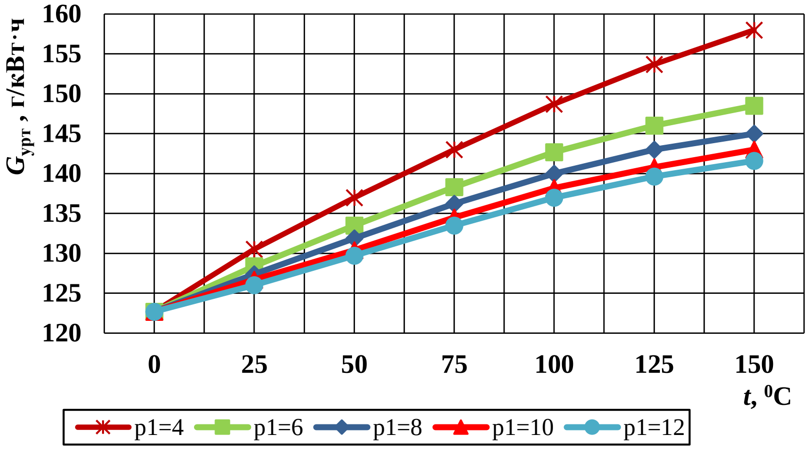


*Рис.2. Удельный расход топлива на выработку электроэнергии*

*Из графика следует, что температура газа оказывает минимальное влияние на удельный расход топлива. Существенное влияние на изменение расхода оказывает эффективность котла, используемого для подогрева газа.*

*Если изменение энтальпии газа на входе в газопотребляющую установку не оказывает влияния на расход газа, то формулы упрощаются и принимают вид:*

*а) общее изменение расхода газа* $\text{V}G_{\text{топ}}$ *равно расходу топлива на подогрев газа в котле* $\text{V}G_{\text{топ}}^{\text{под}}$

$$\text{V}G_{\text{топ}} = \text{V}G_{\text{топ}}^{\text{под}} = \frac{G_{\text{топ}} \cdot (h_1 - h_{\text{ВХ}})}{(Q_{\text{нтс}} + h_{\text{ВХ}} - h_0) \cdot \eta_{\text{к}}} \;;$$

*б) мощность детандер-генераторного агрегата, кВт:*

$$N_{\text{ДГА}} = G_{\text{топ}} \cdot (h_1 - h_2)\,;$$

*в) удельный расход топлива на выработку электроэнергии, кг/с·Дж:*

$$G_{\text{урт}} = \frac{1}{(Q_{\text{нтс}} + h_{\text{ВХ}} - h_0) \cdot \eta_{\text{к}}} \cdot \frac{(h_1 - h_{\text{ВХ}})}{(h_1 - h_2)} \approx \frac{1}{Q_{\text{нтс}} \cdot \eta_{\text{к}}} \cdot \frac{(h_1 - h_{\text{ВХ}})}{(h_1 - h_2)}\,.$$

*Использование теплоты, которая выделяется уходящими газами газотурбинной установки, может быть одним из способов подогрева газа (рис.3) перед турбодетандером [4,5].*

*При оценке характеристик такой установки рассмотрим ситуацию, когда энтальпия газа на выходе из детандера равна энтальпии на входе в установку.*

*Для определения мощности, которая требуется газотурбинной установке, применяется следующая концепция: если энтальпии на входе и выходе из установки равны, то количество тепла, подведенное к газу, $Q_{\text{подв}}$ соответствует мощности детандер-генераторной установки* $N_{\text{ДГА}}$.

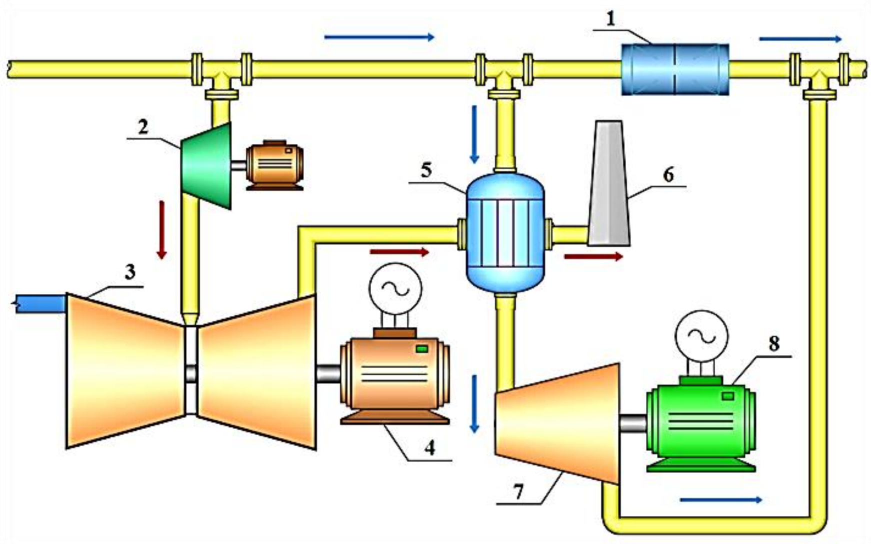


*Рис.3. Подогрев газа уходящими газами газотурбинной установки: 1- дроссельное устройство; 2-компрессор; 3-газотурбинная установка; 4-генератор газотурбинной установки; 5-теплообменник; 6- выхлопная труба; 7-детандер; 8-генератор*

*Общее количество тепла, передаваемое дымовыми газами $Q_{дг}$ после их прохождения через газотурбинную установку, должно быть равно сумме мощности детандер-генераторной установки и тепла, которое теряется с газами после их прохождения через теплообменник [6]. Это ключевой момент в работе системы.*

*Мощность детандер-генераторного агрегата и теплота уходящих газов связаны формулой:*

$$Q_{дг} = N_{ДГА} + Q_{уг}, \qquad (2)$$

*где: $N_{ДГА}$ – мощность детандер-генераторного агрегата, кВт; $Q_{уг}$ - теплота уходящих газов, Дж.*

*Коэффициент полезного действия теплообменника-утилизатора играет важную роль в процессе подогрева газа. Значение можно оценить по формуле, учитывающей энтальпию дымовых газов на выходе из газотурбинной установки, уходящих газов после теплообменника-утилизатора и при температуре холодного воздуха:*

$$Q_{уг} = Q_{дг} \cdot (1 - \eta_{ту}); \quad \eta_{ту} = Q_{подв} / Q_{дг},$$

*где: $\eta_{ту}$ – коэффициент полезного действия теплообменника-утилизатора, в котором подогревается газ; $Q_{подв}$ – теплота, подводимая к газу перед детандером, Дж.*

*Значение $\eta_{ту}$ можно оценить по формуле:*

$$\eta_{ту} = \frac{h_{дг} - h_{уг}}{h_{дг} - h_{хв}} \cong \frac{t_{дг} - t_{уг}}{t_{дг} - t_{хв}},$$

*где: $h_{дг}$, $h_{уг}$, $h_{хв}$ – энтальпия дымовых газов на выходе из газотурбинной установки, уходящих газов после теплообменника-утилизатора и при температуре холодного воздуха, соответственно, кДж/кг;*

*$t_{дг}$, $t_{уг}$, $t_{хв}$ – температура дымовых газов на выходе из газотурбинной установки, уходящих газов после теплообменника-утилизатора и при температуре холодного воздуха, соответственно, $^{0}C$.*

*Минимальная допустимая температура уходящих газов $t_{уг}$ равна точке росы, что влияет на общую эффективность системы и, следовательно:*

$$Q_{уг} = Q_{дг} \cdot \frac{t_{уг} - t_{хв}}{t_{дг} - t_{хв}}. \qquad (3)$$

*Подставив выражение (3) в (2), можно получить требуемое значение $Q_{дг}$, Дж; ГТУ:*

$$Q_{дг} = N_{ДГА} \cdot \frac{t_{дг} - t_{хв}}{t_{дг} - t_{уг}}\ ; \tag{4}$$

*и мощность газотурбинной установки составит, кВт:*

$$N_{ГТУ} = N_{ДГА} \cdot \frac{t_{дг} - t_{хв}}{t_{дг} - t_{уг}} \cdot \frac{\eta_{ГТУ}}{1-\eta_{ГТУ}}\ ;$$

*где $\eta_{ГТУ}$ – коэффициент полезного действия газотурбинной установки.*

*Если принять $\eta_{ГТУ} \approx 0,3$; $t_{дг} \approx 500^0\mathrm{C}$; $t_{хв} \approx 20^0\mathrm{C}$; $t_{уг} \approx 100^0\mathrm{C}$, то требуемая мощность газотурбинной установки составит более 50% от мощности детандер-генераторного агрегата.*

*Удельный показатель такой установки в виде удельного расхода топлива на выработку электроэнергии $G_{урт}$ установки равен:*

$$G_{урт} = \frac{G_{ГТУ}}{N_{ГТУ} + N_{ДГА}} = \frac{1}{Q_{нтс} \cdot \eta_{ГТУ}} \cdot \frac{1}{\left(1 + \dfrac{t_{дг} - t_{уг}}{t_{дг} - t_{хв}} \cdot \dfrac{1-\eta_{ГТУ}}{\eta_{ГТУ}}\right)}.$$

*Если энтальпия газа на выходе из детандера отличается от энтальпии на входе в газопотребляющую установку, рассматриваются два сценария: один с изменением расхода газа в установку после включения детандер-генераторного агрегата, а другой без такого изменения [6].*

*И тогда выражение (4) будет иметь вид:*

$$Q_{дг} = G_{топ}^{нов} \cdot (h_1 - h_0) \cdot \frac{t_{дг} - t_{хв}}{t_{дг} - t_{уг}},$$

*где $G_{топ}^{нов} = G_{топ} \cdot \dfrac{Q_{нтс} + h_{ВХ} - h_0}{Q_{нтс} + h_2 - h_0}$ - расход газа после включения детандера.*

*Мощность газотурбинной установки составит:*

$$N_{ГТУ} = G_{топ} \cdot \frac{Q_{нтс} + h_{ВХ} - h_0}{Q_{нтс} + h_2 - h_0} \cdot (h_1 - h_{ВХ}) \cdot \frac{t_{дг} - t_{хв}}{t_{дг} - t_{уг}} \cdot \frac{\eta_{ГТУ}}{1-\eta_{ГТУ}},$$

*а расход топлива на газотурбинную установку будет равен:*

$$G_{ГТУ} = \frac{N_{ГТУ}}{\left(Q_{нтс} + h_{ВХ} - h_0\right) \cdot \eta_{ГТУ}} = G_{топ} \cdot \frac{(h_1 - h_{ВХ})}{Q_{нтс} + h_2 - h_0} \cdot \frac{t_{дг} - t_{хв}}{t_{дг} - t_{уг}} \cdot \frac{1}{1-\eta_{ГТУ}}.$$

*Общий расход топлива, $\mathrm{V}G_{топ}$, включая изменения в расходе на газопотребляющее оборудование, будет равен:*

$$\mathrm{V}G_{топ} = G_{топ} \cdot \frac{(h_1 - h_{ВХ})}{\left(Q_{нтс} + h_2 - h_0\right)} \cdot \left(\frac{t_{дг} - t_{хв}}{t_{дг} - t_{уг}} \cdot \frac{1}{1-\eta_{ГТУ}} + \frac{h_{ВХ} - h_2}{h_1 - h_{ВХ}}\right).$$

*После выполнения некоторых простых преобразований можно определить общую мощность газотурбинной установки и детандер-генераторной установки:*

$$N_{УСТ} = G_{ТОП} \cdot \frac{Q_{НТС} + h_{ВХ} - h_0}{Q_{НТС} + h_2 - h_0} \cdot \left[\left(\frac{t_{дг} - t_{хв}}{t_{дг} - t_{уг}} \cdot \frac{\eta_{ГТУ}}{1-\eta_{ГТУ}}\right) \cdot (h_1 - h_{ВХ}) + h_1 - h_2\right].$$

*Увеличение расхода топлива $\Delta G_{УСТ}$ будет зависеть от различных факторов, включая расход газа котельной:*

$$\Delta G_{УСТ} = \frac{G_{Т}}{Q_{Н}^{С} + h_2 - h_0} \cdot \left[(h_1 - h_{ВХ}) \cdot \left(\frac{t_{ДГ} - t_{ХВ}}{t_{ДГ} - t_{УХ}} \cdot \frac{1}{1-\eta_{ГТУ}}\right) + h_{ВХ} - h_2\right],$$

*где $G_{Т}$ – расход газа котельной.*

*Расчет произведен для следующих условий: давление газа перед детандер-генераторным агрегатом 0,5 МПа, давление газа после детандер-генераторного агрегата 0,15 МПа,* температура газа перед детандер-генераторным агрегатом 278 К, $Q_н$ =11805 ккал/кг, производительность котла 116 МВт, собственные нужды котельной установки 1048 КВт, $t_{ДГ}$ = 673 К, $t_{УХ}$ = 373 К, $t_{ХВ}$ = 293 К, КПД$_{ДЕТАНДЕРА}$ = 0,9, КПД$_{ГТУ}$ = 0,25. Результаты расчета представлены в таблице 1.

**Таблица 1.**

Результаты расчёта мощности газотурбинной установки, увеличение расхода топлива и расхода газа котельной при начальной и конечной температуре газа

| $t_1$, $^{O}$C | $T_1$, K | $T_2$, K | $N_{УСТ}$, кВт | $G_Т$, кг/с | ΔG, кг/с |
|---|---|---|---|---|---|
| 5 | 278,15 | 218,03 | 321,789 | 2,564 | 0,0065 |
| 10 | 283,15 | 221,95 | 340,913 | 2,565 | 0,0070 |
| 20 | 293,15 | 229,78 | 379,589 | 2,566 | 0,0081 |
| 30 | 303,15 | 237,62 | 418,851 | 2,567 | 0,0092 |
| 40 | 313,15 | 245,46 | 458,634 | 2,568 | 0,0104 |
| 50 | 323,15 | 253,30 | 499,084 | 2,569 | 0,115 |
| 60 | 333,15 | 261,14 | 540,211 | 2,570 | 0,0127 |
| 70 | 343,15 | 268,98 | 582,061 | 2,571 | 0,0138 |
| 80 | 353,15 | 276,81 | 624,695 | 2,573 | 0,0150 |
| 90 | 363,15 | 284,65 | 668,030 | 2,574 | 0,0162 |
| 100 | 373,15 | 292,49 | 712,118 | 2,575 | 0,0175 |
| 110 | 383,15 | 300,33 | 757,003 | 2,576 | 0,0187 |
| 120 | 393,15 | 308,17 | 802,695 | 2,578 | 0,0200 |
| 130 | 403,15 | 316,01 | 849,193 | 2,579 | 0,0213 |
| 140 | 413,15 | 323,85 | 896,516 | 2,580 | 0,0226 |
| 150 | 423,15 | 331,68 | 944,654 | 2,581 | 0,0239 |

На рис. 4, 5 показаны графики зависимости мощности детандер-генераторного агрегата и газотурбинной установки от температуры подогрева газа перед детандер-генераторным агрегатом. Следовательно, мощность детандер-генераторного агрегата и газотурбинной установки зависит от температуры подогрева газа.

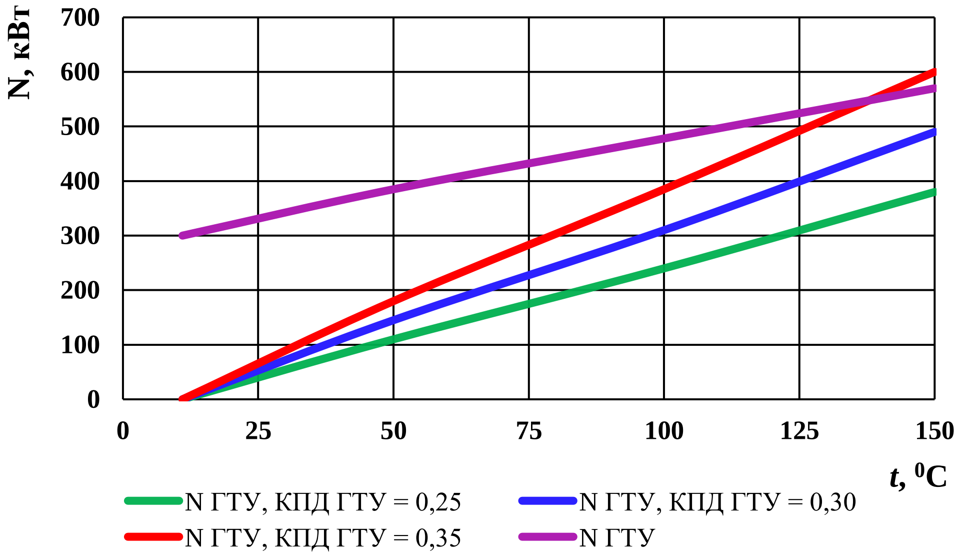


**Рис.4.** Мощность детандер-генераторного агрегата, газотурбинной установки при различных температурах подогрева газа и коэффициенте полезного действия газотурбинной установки.

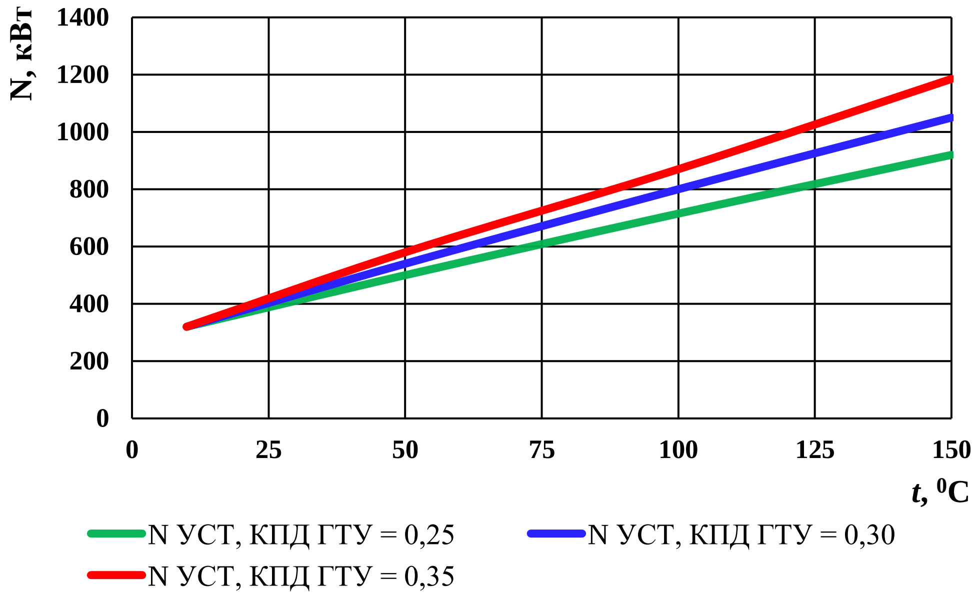


*Рис.5. Мощность установки в целом при различных температурах подогрева газа и коэффициента полезного действия газотурбинной установки*

*На рис.6 показана зависимость расхода топлива через детандер-генераторный агрегат при различных температурах подогрева газа и коэффициенте полезного действия газотурбинной установки. Расход топлива на газотурбинные установки достаточно мал и составляет менее 1.16% от расхода топлива на котел. При повышении температуры подогрева газа перед детандер-генераторным агрегатом наблюдается снижение расхода газа на котёл — на 0,036% при увеличении температуры на каждые 10 °С (из-за повышения температуры газа после детандер-генераторного агрегата).*

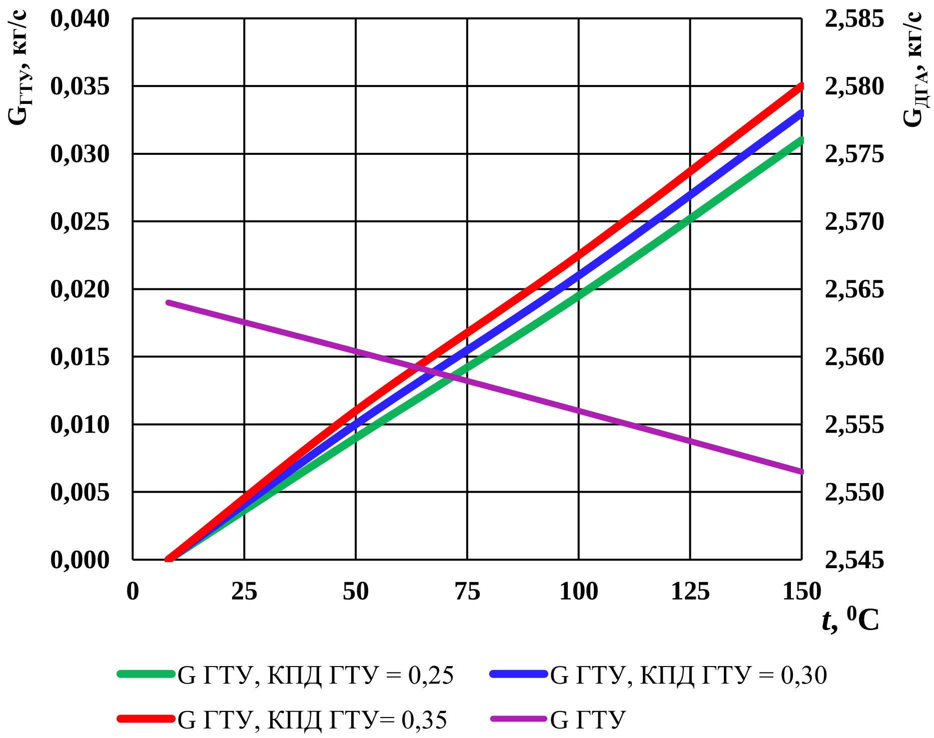


*Рис.6. Расход газа через детандер-генераторный агрегат при различных температурах подогрева газа и коэффициенте полезного действия газотурбинной установки*

*Удельный расход топлива $G_{\text{урт}}$ на выработку электроэнергии (все изменение расхода топлива относится на выработку электроэнергии):*

$$G_{\text{урт}} = \frac{1}{Q_{\text{нтс}} + h_{\text{ВХ}} - h_0} \cdot \frac{h_{\text{ВХ}} - h_2}{h_1 - h_2} \qquad (5)$$

*Формула (5) позволяет рассчитать удельный расход топлива для выработки электроэнергии. Результаты этих расчётов представлены на графике (рис. 7), который показывает, как изменяется удельный расход в зависимости от температуры газа перед детандером и давления газа на входе в детандер ( $p_2 = 1{,}5\,\text{кг/см}^2$, $\eta_{\text{ГТУ}} = 0{,}3$ ).*

*Из графика (рис.7) видно, что повышение температуры газа приводит к незначительному изменению удельного расхода топлива, что соответствует результатам, представленным на рисунке 2.*

*Если изменение энтальпии газа на выходе из детандера не влияет на расход газа в газопотребляющем оборудовании, то формулы принимают следующий вид:*

*а) расход топлива:*

$$\Delta G_{\text{топ}} = G_{\text{ГТУ}} = G_{\text{топ}} \cdot \frac{(h_1 - h_{\text{ВХ}})}{(Q_{\text{нтс}} + h_{\text{ВХ}} - h_0)} \cdot \frac{t_{\text{дг}} - t_{\text{хв}}}{t_{\text{дг}} - t_{\text{уг}}} \cdot \frac{1}{1 - \eta_{\text{ГТУ}}};$$

*б) электрическая мощность:*

$$N_{\text{УСТ}} = G_{\text{топ}} \cdot (h_1 - h_2) \cdot \left( \frac{t_{\text{дг}} - t_{\text{хв}}}{t_{\text{дг}} - t_{\text{уг}}} \cdot \frac{\eta_{\text{ГТУ}}}{1 - \eta_{\text{ГТУ}}} \cdot \frac{(h_1 - h_{\text{ВХ}})}{(h_1 - h_2)} + 1 \right);$$

*в) удельный расход топлива на выработку электроэнергии:*

$$G_{\text{урт}} = \frac{(t_{\text{дг}} - t_{\text{хв}}) \cdot (h_1 - h_{\text{ВХ}})}{(Q_{\text{нтс}} + h_{\text{ВХ}} - h_0) \cdot \left[ (t_{\text{дг}} - t_{\text{хв}}) \cdot \eta_{\text{ГТУ}} \cdot (h_1 - h_{\text{ВХ}}) + (h_1 - h_2) \cdot (t_{\text{дг}} - t_{\text{уг}}) \cdot (1 - \eta_{\text{ГТУ}}) \right]}. \qquad (7)$$

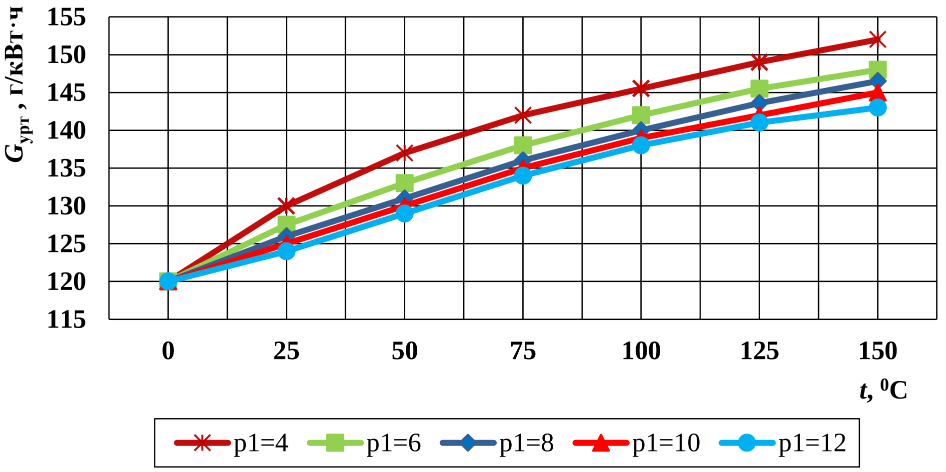


*Рис.7. Изменение удельного расхода топлива при повышении температуры газа перед детандером*

## *Обсуждение*

*Анализ эффективности различных методов подогрева газа перед детандером предполагает, что расход газа до включения детандер-генераторного агрегата остается неизменным для всех рассматриваемых вариантов.*

*Были проведены расчёты мощности, расхода топлива и удельного расхода топлива для различных методов подогрева. В анализе предполагалось, что изменение температуры газа на выходе из детандера не повлияет на расход газа в газопотребляющую установку.*

*Относительные значения расхода топлива $\Delta G_{\text{топ}} / G_{\text{топ}}$ (по сравнению с расходом на газопотребляющую установку до включения детандер-генераторного агрегата) для подогрева с использованием котла и дымовых газов газотурбинной установки показали, что при увеличении температуры подогрева относительное изменение расхода топлива более заметно для варианта с газотурбинной установкой, чем для котла. Это связано с тем, что газотурбинная установка обеспечивает большую мощность. Важно отметить, что при равенстве*

$\eta_{\text{к}} = \eta_{\text{ту}} \cdot (1 - \eta_{\text{ГТУ}})$ *расход топлива при подогреве с использованием выхлопных газов газотурбинной установки и в котле остается одинаковым.*

### *Заключение*

*Результаты исследования подтверждают, что выбор источника тепла для подогрева газа в детандер-генераторных установках должен учитывать температурные параметры и энергетические характеристики процесса.*

*При относительно низких температурах подогрева (до ~80 °С) применение специализированного котла обеспечивает более стабильную и управляемую теплоподачу, что делает его рациональным решением. Однако по мере увеличения температуры подогрева использование дымовых газов от ГТУ становится не только технически возможным, но и экономически оправданным за счёт более высокой энергетической эффективности.*

*Таким образом, применение ДГА в сочетании с альтернативными источниками тепла, в частности с теплом отходящих газов, открывает перспективные направления повышения энергоэффективности и устойчивости энергетической инфраструктуры Узбекистана.*

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# *VIDEO GAMES' INFLUENCE ON CHILDREN*

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*Playing Video games has become more popular in our digital world. Some parents allow their children to play games on laptops, tablets, phones and consoles. What does it mean when more than 8 out of 10 children aged 5-12 are logging into video games every week? Are these hours spent on gaming helping kids develop teamwork, creativity and problem solving, or are they costing them in physical activity, sleep or social interaction?*

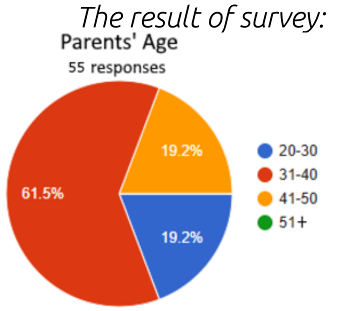
*With our modern data showing 85% of children have access to gaming devices and many parents split on whether the impact is positive or negative, the debate on video games' influence on the youth is more pressing than ever. In this article, we will be viewing the positive and negative impacts of video games' Influence on children.*

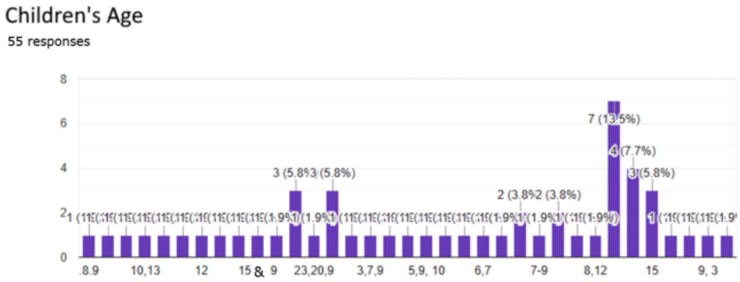
*Firstly, I have set up a survey for parents about Video Games' Influence on their children. Here is the link of the survey:*

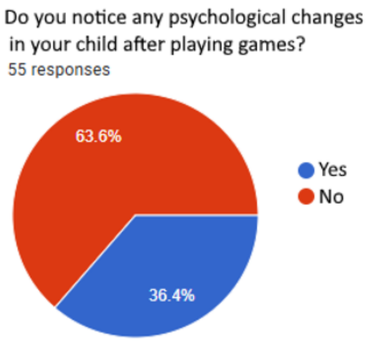
*https://forms.gle/7oJXcSbniF4a7ELt9.*

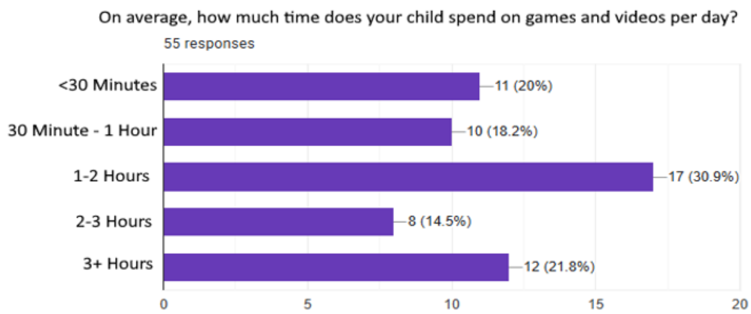
*The Survey has included such questions like the age of the child, what games do they play, how much time the children spend on playing games, whether they play on tablet, mobile phones or computers and how it affects their psychology. Also the survey included questions whether parents knew those games and if they had played them.*

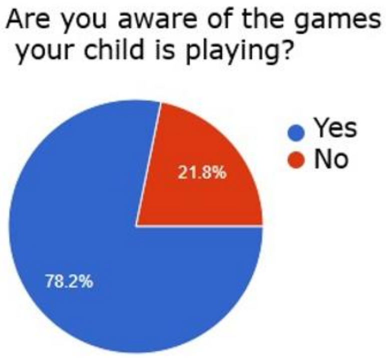
*The result of survey:*

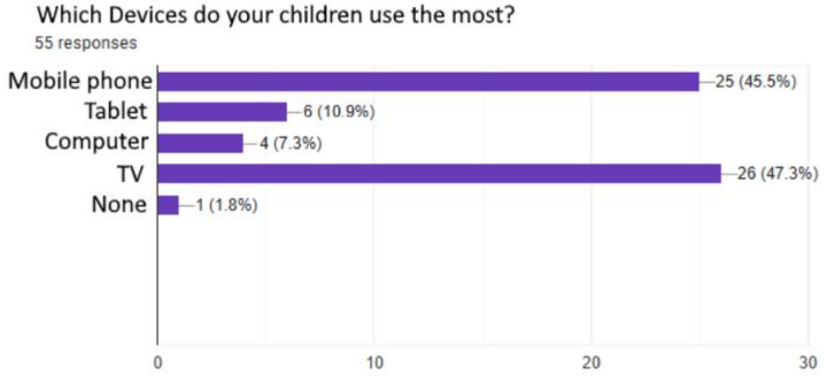


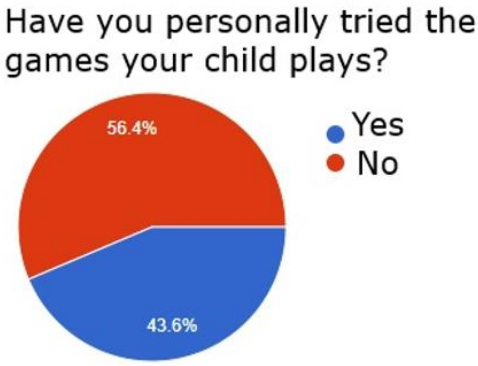



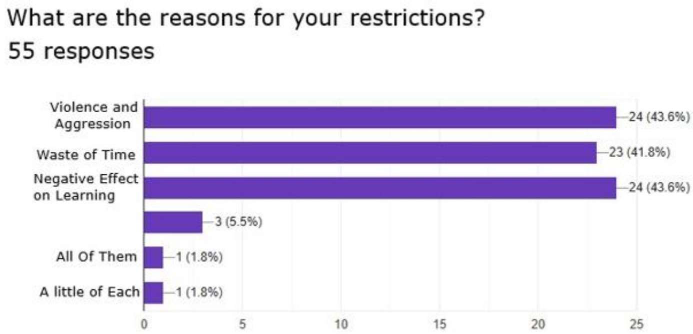



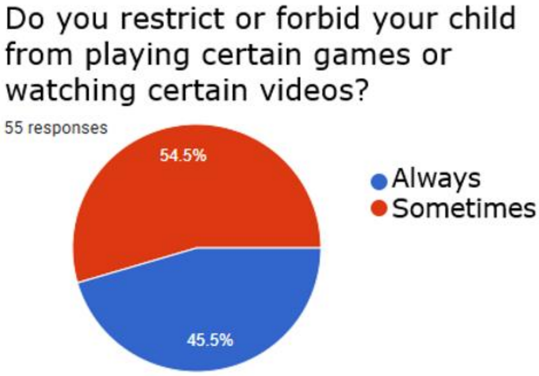



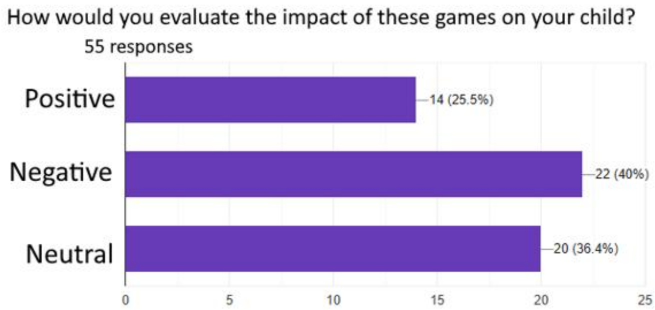



*55 parents took part in the survey. 61.5% of them are between 31-40 years old. 30.9% of parents say that their children spend at least 1-2 hours, 21.8% say that their children spend more than 3 hours, 18.2% of parents indicate that they children spend about 1 hour a day on video games. 45.5% of children use mobile phones, 10.9% of children use tablets, 7.3% of children use computers and 47.3% of children watch TV.*

*42.3% of parents think that video games form aggression, nervousness and laziness, 36.5% of parents think that video games has no any effects on children and 23.1% of parents consider that video games are educating.*

*According to psychological effects, 63.6% of parents think that there is no any change after playing games, but 36.4% think that some changes take part after playing games.*

*78.2% states that they are aware of the games their children play, while 21.8% states that they are partially aware of the games.*

*56.4% of parents has experience playing the games that their children play, but 43.6% are not aware of the games.*

*44.2% prohibit their children to play games, while 55.8% rarely prohibits games to their children. 43.6% explains the reason of their prohibition in violence and aggression, 43.6% explains that video games is an obstacle to their education of the children and 41.8% thinks that it is a waste of time. Only 1-2% shows all three reasons mentioned above.*

*To the question: How would you evaluate the impact of these games on your child?, 25.5% of people had a positive feedback, 40% of parents had a negative feedback, and 36.4% of parents had a neutral feedback.*

*When it came to the question how to solve this problem, the most popular answers were parental supervision, to be able to block the game which the parents thinks is harmful, taking away all devices, teaching them responsibility for controlling his/her time, spending more time with their children and limiting their playing time to a specific time. Unfortunately, many respondents had no any answer to this question.*

*According to the result of the survey, I came to a conclusion that first of all, parents should be educated about video games.*

*To what extent should the parents be aware of the computer games that their children are playing? This is one of the most important questions to investigate. Some parents don't allow their children to play games, because they think that their children will be addicted to screens and lose interests to the outside world, gaining weight, losing eyesight and increasing aggressive behavior. Parents not playing these games themselves have no idea and they think that it is just pixel work of entertainment. They do not see the teaching aspects of video games.*

*On the other hand, studies show that games can improve hand-eye coordination, problem-solving skills, the ability for the brain to process information, socializations with other children around the globe, forming new creativity skills (Examples include Minecraft, Roblox, etc.) and provides opportunity for learning and using their imagination*

*As to my own experience, I had my own IPad when I was 2 years old at 2012. I played games puzzles, watched youtube videos for kids and it developed my English as well as imagination. Even I learned English Language myself without going to any course or school. When I was 6 years old at 2016, I was introduced my first Computer, which was the first year I began playing video games (Examples like Roblox, Minecraft, Angry Birds, etc). After playing these games, I learned how to build games on the Internet. I also had a social group that I used to talk to my friends online. It helped my socialization. Through the games, I learned the World map and the countries. In January 2020, when I was 10 years old, I started my own Youtube channel, which included Mapping and Gaming Videos.*

*Even at the past century when there were no any mobile or video games, well known pedagogues investigated the role of play in the development of children and stated its importance. Lev Vygotsky emphasizes that play allows children to act "a head taller than themselves," meaning they can perform at a higher level than in ordinary situations. In play, children adopt roles and rules, which develop self-regulation and social understanding. He views imaginative play as the foundation for abstract thinking and problem-solving.*

*Piaget explains that children use play to practice and consolidate new skills. He connects different kinds of play with stages of cognitive development: Practice play (sensorimotor stage), Symbolic play (preoperational stage), Games with rules (concrete operational stage). For Piaget, play is not just entertainment but an expression of how children think and learn.*

*Anton Makarenko viewed play as essential to child development, stating that the quality of a child's play mirrors their future capacity for "work." He emphasized that good play is active and requires intellectual and physical effort, in contrast to passive forms of play, which hinder development by fostering passivity and an inability to tackle challenges. For Makarenko, play provides a foundation for a child's intellectual, emotional, and social growth, preparing them to be active participants in society.*

*Donald Winnicott stresses that play creates a "transitional space" between inner reality and the outside world. Through play, children experiment with relationships, emotions, and creativity. For him, play is central to healthy emotional and psychological development.*

*A lot of Investigations and researches are held at the moment about the impact of video games on children.*

*James Paul Gee in his book "What Video Games Have to Teach Us about Learning and Literacy" writes: "There is an academic field devoted to studying how human beings learn best and well, namely the field of cognitive science. So we can, then, compare the theory of learning in good video games to theories of learning in cognitive science. Who's got the best theory? Well, it turns out that the theory of learning in good video games is close to what I believe are the best theories of learning in cognitive science. And this is not because game designers read academic texts on learning. Most of them don't. They spent too much of their time in high school and beyond playing with computers and playing games". The author calls this the "Regime of Competence Principle." In well-designed games, challenges rise just beyond the player's current ability. Kids aren't just playing, they're constantly pushed to learn, adapt, and problem-solve in order to succeed. The author deals with video games as a semiotic domain, actually as a family of related, but different domains, since there are different types or genres of video games (e.g.,* *first-person shooter games, fantasy role-playing games, real-time strategy games, simulation games, etc.). People can be literate, or not, in one or more of these video-game semiotic domains.*

*When we learn a new semiotic domain in a more active way, not as passive content, three things are at stake: 1. We learn to experience (see, feel, and operate on) the world in new ways. 2. Since semiotic domains usually are shared by groups of people who carry them on as distinctive social practices, we gain the potential to join this social group, to become affiliated with such kinds of people (even though we may never see all of them, or any of them, face to face). 3. We gain resources that prepare us for future learning and problem solving in the domain and, perhaps, more important, in related domains.*

*According to him "good video games do more than order the situations and problems the player faces in an intelligent way, at least in the early parts of the game. They also offer the player, in the early episodes, what I call a concentrated sample. By this I mean that they concentrate in the early parts of the game an ample number of the most fundamental or basic artifacts and tools the player needs to learn to use and actions the player needs to learn."*

*His follower David Williamson Shaffer in his book "How Computer Games Help Children Learn" states a particular genre of digital educational experiences he calls "epistemic games". Epistemic games, he explains, are based on epistemic frames, around which the work of creative professionals is organized. An epistemic frame, he defines as a "collection of skills, knowledge, identities, values and epistemology that professionals use to think in innovative ways." Also included in the idea are "real-world skills, high standards, and professional values, and a particular way of thinking about problems and justifying solutions" (p. 12). Many will recognize connections to cognitive apprenticeship and legitimate peripheral participation in this definition. Shaffer builds on these ideas but situates them in a context of role playing in imagined worlds where students make judgments and develop solutions according to the rules of the "game" in question. He claims that, for instance, in the context of a debate over the interpretation of historical events, "the rules of the imaginary world of the game do a better job in representing what it means to think like a historian than the traditional text-lecture-and-recitation of many history classes" (p. 29). Shaffer argues that if we want to design computer games that simulate aspects of what professionals do in their work, we need to create epistemic games that can help learners understand and apply the practices of the domain.*

*To sum up, the influence of the games on children depend on the game makers' and parents' consciousness, and also depend on the choice and use of the children. Even when making educational games game makers must take into consideration the social, psychological, pedagogical impact of games on children and the control of parents is utmost important.*

*But even with all the positive takes, parents are still complaining about the games with the reason of them having Violence and being First-Person-Shooter and Fighting Games, which results aggression in children. But, the great discrepancy is that we often see the wars, fighting, violence, ruining cities, starving children and people passing away in every day news in social and TV channels. Let's ask for ourselves, aren't we supposed to take action against all these first of all for the safe of our future generation?*

## *Literature*


1. *Lev Vygotsky – "Mind in Society" (1978)*
2. *Jean Piaget – "Play, Dreams and Imitation in Childhood" (1962)*
3. *Donald Winnicott – "Playing and Reality" (1971)*
4. *Anton Makarenko – "Pedagogical Poem" (1935)*
5. *James Paul Gee - "What Video Games Have to Teach Us about Learning and Literacy" (2003)*
6. *David Williamson - "How Computer Games Help Children Learn" (2006)*

# QR-BASED VALIDATION MODEL FOR PHISHING WEBSITE DETECTION

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*Abstract*

*Phishing attacks have evolved alongside digital transformation, exploiting users' trust in visual cues such as QR codes. These codes, widely used for payments, authentication, and information retrieval, often conceal the true destination of embedded URLs. This paper presents a validation-based approach to detecting phishing websites linked through QR codes. The proposed model outlines a multi-layer detection framework combining lexical, domain-based, and security-oriented validation. It includes lexical URL analysis, WHOIS and SSL verification, redirection tracing, and optional content-level checks. A structured methodology for data collection, feature extraction, and evaluation is described, focusing on reproducibility and transparency. The system design supports both rule-based and machine learning methods, enabling flexibility across different computational environments. Instead of reporting fixed empirical results, the paper defines a clear evaluation protocol with metrics such as precision, recall, F1-score, AUC, false-positive rate, and inference latency. The model architecture emphasizes modularity and real-time validation to suit mobile and enterprise-level applications. The contribution of this study lies in formalizing a robust validation model for phishing detection via QR-based mechanisms, ensuring adaptability and scalability for future integration with evolving cybersecurity infrastructures.*

*Keywords:* *phishing detection, QR link validation, URL analysis, WHOIS and SSL verification, redirection tracing, cybersecurity, model architecture, evaluation protocol, machine learning integration*

## 1. INTRODUCTION

*With the proliferation of contactless technologies, QR codes have become a dominant method for linking offline and online services. They are now embedded in payment terminals, advertisements, verification emails, and authentication systems. However, the very convenience of QR codes also introduces security risks, as users cannot visually inspect the URL they are scanning. Attackers exploit this gap by embedding phishing links that mimic trusted websites to collect credentials, personal data, or financial information.*

*Traditional phishing detection systems often rely on browser-based warnings or static blacklists, which fail to detect newly created malicious domains. Since QR codes encode URLs invisibly, detection must occur before the redirection process, ideally at the scanning stage. This study proposes a validation model capable of analyzing and classifying URLs extracted from QR codes, thereby providing users with real-time feedback about potential risks.*

*The goal of this research is to define a methodological framework for building, validating, and deploying such a model using open data, transparent feature engineering, and reproducible evaluation procedures.*

## 2. RELATED WORKS

*Phishing detection has been addressed through various approaches, including lexical analysis, visual similarity, and machine learning classification. Bahnsen et al. (2018) introduced a character-level recurrent neural network for phishing URL detection, while Verma and Das (2021) developed a fast lexical feature extraction method for real-time applications. Xiang and Hong (2019) combined visual and URL similarity to identify fraudulent websites more reliably. However, QR-based phishing remains a relatively new domain, where encoded links may involve redirection chains or obfuscation via URL shorteners (e.g., bit.ly, t.co).*

*Existing studies highlight the need for flexible validation architectures that combine multiple signals—domain registration data, SSL certificate information, and content-based indicators—to detect newly emerging phishing attacks. This work expands upon such findings by tailoring a validation model specifically for QR-based delivery mechanisms.*

*3. METHODOLOGY*

*The proposed validation framework consists of three major components:*

1. ***Data Collection Pipeline***
2. ***Feature Engineering Module***
3. ***Validation and Classification Layer***

*3.1 Data Collection Pipeline*

*Phishing and legitimate URLs can be sourced from open repositories such as PhishTank, OpenPhish, and Alexa Top Sites. Each URL is encoded into a QR code using Python libraries (e.g., qrcode, opencv-python) to simulate realistic scanning scenarios. Metadata such as time of retrieval, hosting country, and certificate status are also logged to track temporal trends.*

*3.2 Feature Engineering Module*

*Features are extracted from multiple perspectives:*

- ***Lexical Features:** URL length, number of dots, special symbols, token diversity, suspicious keyword presence ("login", "update", "verify").*
- ***Domain and WHOIS Features:** domain age, registrar, registration date, privacy masking, DNS record count.*
- ***SSL/TLS Features:** certificate issuer, expiration period, HTTPS presence, and certificate chain validation.*
- ***Redirection Features:** redirection depth, use of URL shorteners, and target domain changes.*
- ***Content Signals (optional):** HTML form count, embedded script ratio, iframe presence, and favicon mismatch.*

*3.3 Validation and Classification Layer*

*The extracted features can be processed using either:*

- ***Rule-based validation**, applying threshold conditions (e.g., domain age < 30 days and no SSL → high risk); or*
- ***Machine learning classifiers**, such as Logistic Regression, Random Forest, or XGBoost, depending on deployment complexity.*

*The architecture supports modular implementation, where individual validation layers can operate independently or collectively in a pipeline.*

*4. EVALUATION PROTOCOL*

*Rather than presenting fixed experimental results, this section defines the evaluation framework for future empirical testing. Key performance indicators include:*

- ***Accuracy**, **Precision**, **Recall**, **F1-score**, and **AUC-ROC** to assess classification quality;*
- ***False Positive Rate (FPR)** — critical for user-facing systems where false alarms reduce trust;*
- ***Inference Latency** — time taken for validation per URL, important for real-time scanning;*
- ***Model Robustness** — performance stability against newly registered or obfuscated domains.*

*Cross-validation and stratified data splits are recommended to prevent overfitting. The model should be benchmarked across multiple datasets and evaluated for explainability, particularly when using ensemble or deep learning architectures.*

*Table 1. Evaluation Metrics*

| Metric | Definition | Purpose |
|---|---|---|
| Precision | TP / (TP + FP) | Measures correctness of detections |
| Recall | TP / (TP + FN) | Measures completeness |
| F1-score | 2PR / (P + R) | Harmonic mean of precision and recall |
| AUC | Area under ROC curve | Overall discriminative power |
| Latency | Processing time per URL | Real-time feasibility indicator |

*The main performance indicators used to evaluate the validation model are shown in Table 1 , including precision, recall, F1-score, AUC, and latency.*

*5. DISCUSSION*

*The validation model described above emphasizes scalability, interpretability, and real-world applicability. Unlike traditional blacklists, it can dynamically assess new URLs based on intrinsic characteristics rather than prior knowledge. Its modular design allows integration into different security contexts:*

- ***Mobile applications:** embedded QR validators for payments or authentication.*
- ***Browser plugins:** automatic evaluation of scanned links before navigation.*
- ***Enterprise gateways:** centralized inspection of QR-based communication.*

*The approach prioritizes balance between detection accuracy and computational efficiency, ensuring that lightweight models remain suitable for mobile or IoT environments. Future iterations of this system could benefit from federated learning, allowing distributed model updates without compromising user data privacy.*

### *6. CONCLUSION*

*This paper presents a conceptual framework for a* ***QR-based phishing detection and validation model****. The approach integrates multiple verification layers—lexical, WHOIS, SSL, and redirection analysis—within a flexible architecture that supports both rule-based logic and machine learning algorithms. The methodology defines standardized steps for dataset creation, feature extraction, and performance evaluation, promoting reproducibility across different studies. Future work will focus on implementing and empirically validating this model using real-world data, expanding it toward multi-language phishing scenarios and adaptive security ecosystems.*

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