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EFFECT OF AVAILABILITY AND FORMS OF FEED FAT-SOLUBLE VITAMINS ON THE PRODUCTIVITY OF EGG-LAYING POULTRY

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Abstract

This study examines the impact of feed thermal processing on poultry performance and egg production. Heat treatment at the processing is a standard method in modern feed production. It improves feed quality by increasing energy density, enhancing nutrient digestibility, and reducing microbial contamination. This is certainly a significant advantage given the prevalence of highly pathogenic avian influenza in poultry – a high risk factor in the industry nowadays. Furthermore, we assessed the effectiveness of adding fat-soluble vitamins (A, E, and D_3) to heat treated feed and replacing cholecalciferol (vitamin D_3) with calcidiol (25-OH-D_3).

The experiment included two separate trials on two poultry species: quail and laying hens. The test flock consisted of 160 quails (4 groups of 40 15-week-old birds); the laying hens consisted of 63 hens (3 groups of 21 35-week-old birds). Four feeding feed specifications were compared: control (no heat treatment); steam treatment; steam treatment with the addition of compensating doses of vitamins A, E, and D_3; and steam treatment with vitamin D_3 replaced with 25-OH-D_3. The combination of steam treatment and vitamin supplementation yielded significant benefits, including improved livability of both bird species and increased laying rate. Notably, replacing vitamin D_3 with 25-OH-D_3 resulted in an increase in egg production of more than 12 eggs per hen over 5 months, without increasing flock size. An integrated approach (steam treatment plus vitamin content replenishment) resulted in reduced mortality, improved laying rate stability during production, and increased egg number per bird.

These results can be explained by several key factors. Heat (steam) treatment promotes partial protein denaturation and starch gelatinization, which increases the availability of nutrients to the poultry's endogenic gastrointestinal enzymes. The addition of fat-soluble vitamins compensates for their partial degradation during heating, maintaining optimal vitamin status. Replacing D_3 with 25-OH-D_3 accelerates vitamin D metabolism, as 25-OH-D_3 bypasses the first stage of hydroxylation in the liver, reaching its active form more quickly and improving calcium metabolism.

The study's results have direct practical implications for egg producers. Economic benefits: increased egg production without adding birds to flock reduces production costs. Biosecurity: reducing the number of bacteria in feed minimizes the risk of infectious diseases. Diet optimization: consisting of precise vitamin dosage and the use of active forms allow maintaining productivity.

Thus, the combined use of feed heat treatment and targeted vitamin supplementation demonstrates high effectiveness in increasing poultry livability and productivity. The proposed methods can be recommended for implementation on an industrial scale to improve the economic sustainability of poultry farms. Further research could be aimed at studying the long-term effects of these approaches and their impact on other poultry farming indicators (e.g., shell quality, immune status).

Keywords: thermal processing of feed, steam processing, fat-soluble vitamins, cholecalciferol, calcidiol, laying hens, quails, viability, egg production.

Introduction. *Thermal processing of compound feed (pelletization, extrusion) is widely used in modern feed production. These techniques increase the energy value and digestibility of feed nutrients, and reduce bacterial and viral contamination, which is particularly relevant today given the high risk of the spread of highly pathogenic avian influenza in poultry farms [1, 2].*

Veterinary legislation is constantly being updated to address emerging industry challenges. Recent recommendations include steam treatment of feed to reduce epizootic risks. However, it is important to keep in mind that thermal processing of mashed feed will inevitably cause secondary losses of nutrients, such as fat-soluble vitamins. This can lead to vitamin deficiencies in poultry. Understanding this problem requires careful monitoring of the inclusion rates of fat-soluble vitamins in compound feed, as well as calculating their potential losses during thermal processing [3, 4].

The scientific literature contains numerous data describing vitamin losses due to thermal exposure of feed. However, all the described research results provide only an approximate idea of the losses range, since, as the authors themselves emphasize, it depends on many factors, such as the type of feed, the composition of the diet, the processing technology, the characteristics of the heat treatment, etc. [5, 6]. At the same time, the literature contains very little available data regarding the loss of fat-soluble vitamins as a result of steam treatment of poultry feed, and the determination of the levels of thermally induced vitamin losses in feed for laying hens and quail has not been described at all. This determined the scientific and practical relevance of our study.

***The aim** of this study was to determine the effect of feed steaming with additional doses of fat-soluble vitamins on the viability and egg production of quail and laying hens.*

*Based on this goal, the following **objectives** were set:*

- *determine the impact of feed heat treatment on flock viability during the production period;*
- *evaluate the effect of adding compensatory levels of fat-soluble vitamins;*
- *analyze the impact of the factors under study on the egg production of the birds.*

***Materials and methods.** The studies were conducted from January to September 2025 at an industrial quail egg production facility located in the Davlekanovsky District of the Republic of Bashkortostan and at the experimental poultry house of the Bashkir State Agricultural University in Ufa, Republic of Bashkortostan (testing on laying hens).*

For the first experiment, four groups of 40 quail, 15 weeks old, were randomly selected. The second experiment involved three groups of 21 laying hens, 35 weeks old.

Four experimental feeds were determined: the control group was fed with non-thermally processed feed, experimental group 1 used steam-processed feed, experimental group 2 included additional levels of vitamins A, E, and D_3 in the thermally processed feed to compensate for their thermally induced losses, and experimental group 3 used feed similar to experimental group 2, but with a complete replacement of vitamin D_3 with its metabolically active analogue 25-OH-D_3.

Three feed options were used for the laying hens' experiment: the control group received unsteamed compound feed, while feeds for experimental groups 1 and 2 were prepared using a formula similar to the first experiment. This experiment did not involve replacing vitamin D_3 with 25-OH-D_3.

***Results.** Flock viability is a key indicator of a flock's biological resistance. Viability reflects a number of factors, such as genetic potential, dietary balance, and the effectiveness of poultry management practices. It is an important profitability factor in egg-laying poultry farming, where its' high level ensures high egg yields and reduces feed costs.*

Figure 1 shows quail viability data for the control and experimental groups.

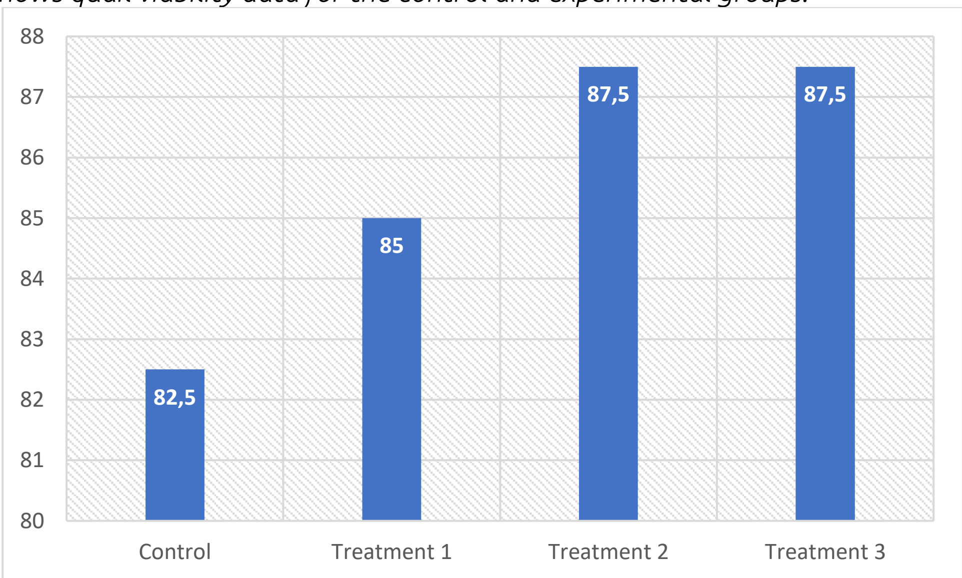

Figure 1. Quail viability during the production period, %

As can be seen from the data presented, the results demonstrate a clear difference between the control and experimental groups. The viability rate of quail in the control group (82.5%), which received a basic feed without heat treatment, was slightly lower than in the experimental groups. Switching to heat-treated feed (experimental group 1) increased survival to 85%. The most pronounced positive effect was achieved in experimental groups 2 and 3, which, in addition to steam treatment, included vitamin supplementation; viability in these groups was 87.5%.

The trend was similar in the experiment on laying hens (Figure 2).

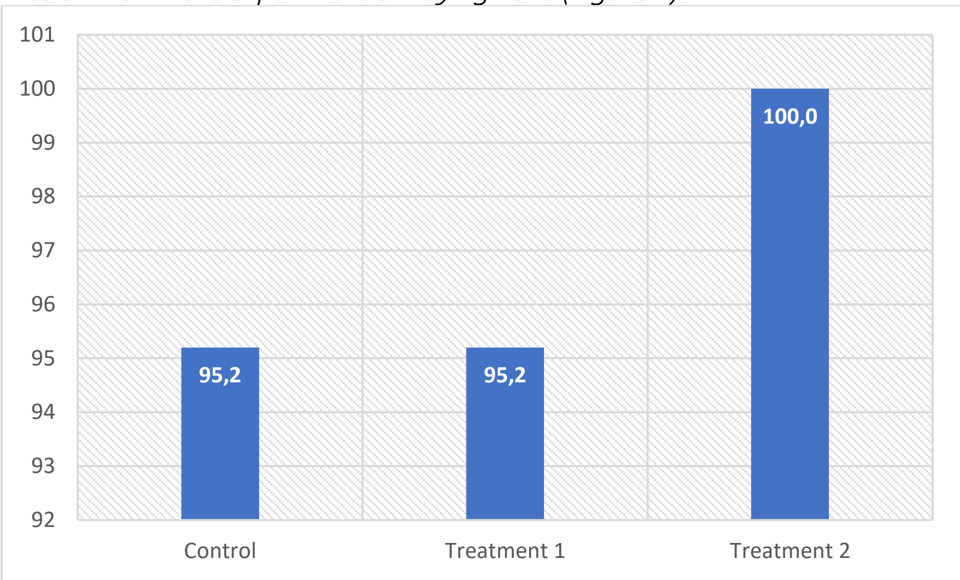

Figure 2. Laying hen viability during the production period, %

In experimental group 1, which tested heat-treated feed, no improvement in laying hen viability was observed. However, the introduction of additional levels of fat-soluble vitamins to correct the thermally degraded portion of the feed's vitamin profile demonstrated the best result – in experimental group 2, the viability rate during the experiment was 100%.

In industrial egg production, the key zootechnical indicators characterizing the biological potential and economic profitability of a flock are egg production per average and first-time layers. Egg production per average layer provides an objective assessment of the intensity of metabolic processes and the development of the bird's genetic potential, considering flock dynamics.

Figure 3 presents the results for egg production per average and first-time layers during the production period.

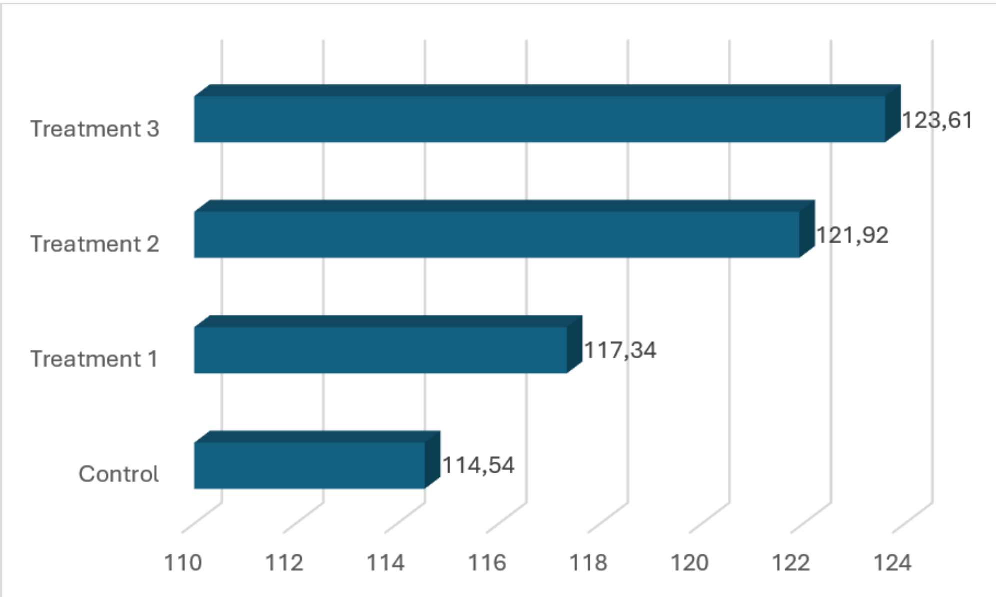

Figure 3. Egg production per average laying hen of quail, units

Egg production per average laying hen over 5 months was 114.54 in the control group, 117.34 in experimental group 1 (2.44% higher than the control), 121.92 in experimental group 2 (6.44% higher than the control), and 123.61 in experimental group 3 (7.92% higher than the control).

We believe the increase in egg production is due to the combined positive effects of feed heat treatment and the addition of fat-soluble vitamins in experimental groups 1 and 2. The best result was recorded in experimental group 3, where D_3 (cholecalciferol) was replaced with the analogue 25-OH-D_3 (calcidiol).

Thus, the obtained data demonstrate the potential for increasing the economic efficiency of egg-laying quail farming. Implementing a scheme to replace the source of vitamin D_3 with the metabolically active analogue 25-OH-D_3 can significantly increase poultry productivity (more than 12 eggs per hen in 5 months) without increasing the flock size.

Egg production data for hens calculated per average laying hen are presented in Figure 4.

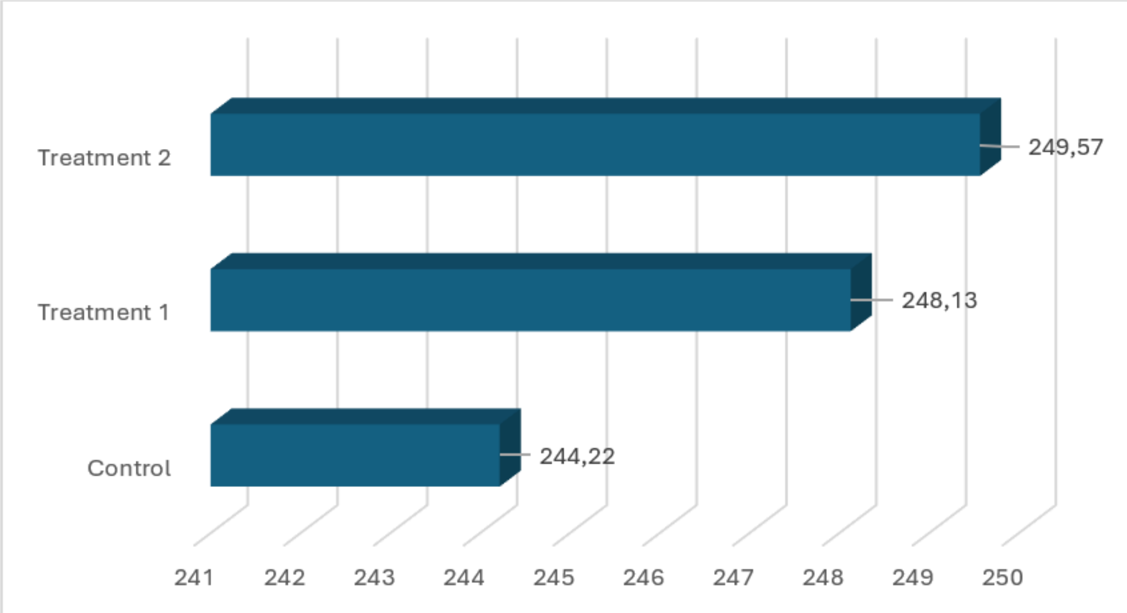

Figure 4. Egg production per average hen per flock

Egg production per average hen during the production period was quite high in all groups, ranging from 244.22 to 249.57 eggs. The best result was observed in experimental group 2 (flocks received steam-treated feed with compensatory levels of vitamins A, E, and D_3) to compensate for heat-induced losses – 249.57 eggs, which is 2.19% higher than the control. In experimental group 1, where additional vitamin doses were not administered, egg production was slightly lower; however, heat treatment still resulted in higher egg production (248.13 eggs per average hen, +1.60% compared to the control).

***Conclusion**. Our research confirmed that steaming feed and supplementing it with extra compensatory doses of fat-soluble vitamins to offset their breakdown positively affects the mortality rate and egg output of quail and laying hens. We noted a marked improvement in flock viability during the production phase and in the average number of eggs laid per hen. Additionally, the findings indicate enhanced nutrient absorption in feed subjected to steam treatment. The study also validated the possibility of substituting cholecalciferol with its analogue, calcidiol, as evidenced by the viability and egg-laying performance of quail.*

References

1. Braginets S.V. Influence of various parameters on the process of granulation of plant raw materials and the quality of granules (review) / S.V. Braginets, O.N. Bakhchevnikov, K.A. Deev // Agrarian science of the Euro-North-East. - 2023. - No. 24 (1). - P. 30-45. https://doi.org/10.30766/2072-9081.2023.24.1.30-45.

2. Pelleting of broiler diets: An overview with emphasis on pellet quality and nutritional value / M.R. Abdollahi, V. Ravindran, B. Svihus. Animal Feed Science and Technology. 179. 2013. P. 1–23. https://doi: 10.1016/j.anifeedsci.2012.10.011.

3. Bunzel D. Technological and biological aspects of heat treatment of compound feed / D. Bunzel, A. Lemme // Compound feed. - 2015. - No. 12. - P. 43-46. EDN: VBYOFJ.

4. Boroojeni F.G. The Effects of Hydrothermal Processing on Feed Hygiene, Nutrient Availability, Intestinal Microbiota and Morphology in Poultry—A Review / F.G. Boroojeni, B. Svihus, H.G. von Reichenbach, J. Zentek // Animal Feed Science and Technology. - 2016. - 220. - P. 187–215. https://doi: 10.1016/j.anifeedsci.2016.07.010.

5. Yang P. Evaluation of Extrusion Temperatures, pelleting parameters, and vitamin forms on vitamin stability in feed / P. Yang, H. Wang, M. Zhu, Y. Ma // Animals. – 2020. - 10, 894. – P. 19. https://doi:10.3390/ani10050894.

6. Borovik E.S. Evaluation of the preservation of vitamin activity in various premixes in the preparation of complete compound feeds / E.S. Borovik, S.I. Shepelev, L.N. Gamko // Modern trends in the development of agricultural science. Collection of scientific papers of the II international scientific and practical conference. Bryansk region. - 07-08.12.2023. - P. 337-343. EDN: NSKZJY.

Cultural sciences

CULTURE AS THE SPIRITUAL FOUNDATION OF HUMAN CIVILIZATION

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МӘДЕНИЕТ – АДАМЗАТ ӨРКЕНИЕТІНІҢ РУХАНИ НЕГІЗІ

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Abstract

The article examines culture as the spiritual foundation of human civilization from a scientific and theoretical perspective. The role of culture in ensuring the historical development and social stability of society, as well as in shaping the spiritual and moral values of the individual, is analyzed. The study explores the interrelation between the concepts of culture and civilization, their evolutionary development, and continuity. Special attention is paid to the significance of national cultural heritage, the interaction between tradition and innovation, and the preservation of cultural identity in the context of globalization. In addition, the educational, communicative, and integrative functions of culture are revealed, and its decisive role in the spiritual renewal of society is substantiated. The research findings are relevant to studies in cultural studies, pedagogy, and the social and humanitarian sciences.

Аннотация

Мақалада мәдениет адамзат өркениетінің рухани негізі ретінде ғылыми-теориялық тұрғыда талданады. Мәдениеттің қоғамның тарихи дамуы мен әлеуметтік тұрақтылығын қамтамасыз етудегі, сондай-ақ тұлғаның рухани-адамгершілік құндылықтарын қалыптастырудағы рөлі айқындалады. Зерттеу барысында мәдениет пен өркениет ұғымдарының өзара байланысы, олардың эволюциялық даму ерекшеліктері мен сабақтастығы қарастырылады. Автор ұлттық мәдени мұраның маңызын, дәстүр мен жаңашылдықтың өзара ықпалдасуын және жаһандану жағдайында мәдени бірегейлікті сақтау мәселелерін ғылыми тұрғыда негіздейді. Сонымен қатар мәдениеттің тәрбиелік, коммуникативтік және интегративтік қызметтері ашып көрсетіліп, оның қоғамның рухани жаңғыруындағы шешуші орны дәлелденеді. Мақала мазмұны мәдениеттану, педагогика және әлеуметтік-гуманитарлық ғылымдар саласындағы зерттеулер үшін өзекті болып табылады.

Keywords: culture, civilization, spiritual values, national heritage, globalization, spiritual development.

Түйін сөздер: мәдениет, өркениет, рухани құндылықтар, ұлттық мұра, жаһандану, рухани даму.

«Мәдениет» сөзі латын тілінен аударғанда арнайы жасау, өңдеу деген мағына береді. Оның Cultura anіmі немесе, дәлірек айтқанда, Cultura fitterarum – жанды немесе рухты тәрбиелеу деген екінші мағынасы болған.

«Мәдениет» сөзін теориялық термин ретінде римдік философ және шешен Марк Туллий Цицерон «тускуландық пікірталас» (б.э.д. 45 ж.) деген еңбегінде бірінші рет қолданды. Ол кезде бұл агротехникалық термин болатын, соған сай «жерді өңдеу, топырақты баптау» дегенді білдіретін. Цицерон оны бірінші рет ауыспалы мағынасында, адамның санасына әсер ету деген мәнде қолданды.

Цивилизация «Өркениет» сөзі де латыннан шыққан. Civilis азаматтық, қоғамдық дегенді білдіреді. Оның мағынасы тіпті үлкен өзгеріске ұшырады. Римдіктер қорғанда тұратындарды /civis/, полисте тұратындарды /civitas/ азамат деген. Олардың азаматтық міндеттерді (civilian officia) болған және бірігіп өмір сүрудің (civiliz animuz) белгілі бір тәртіптері мен өлшемдерін *сақтауға тиіс болған. Қорғаннның сыртында жабайылар, өркениеттен мақұрым дөрекі адамдар өмір сүрген. Қорған ішінде жеке пенде (индивид) топқа, ал сезім санаға бағынатын болды.*

Уақыт өте келе бұрынғы өнегелі, тәртіпті дегендерге енді өнер, дін, ғылым, философия, адам тіршілігіндегі басқа қызмет салалары қамтылып, «өркениет» түсінігінің мағынасы өзгерді.

Қазіргі кезде ол ең аз дегенде: 1) мәдениеттің көрінісі; 2) қоғамның даму дәрежесі, материалдық және рухани мәдеинет сатысы; 3) жабайылықтың кейінгі қоғамдық даму сатысы деген ұғымдары береді.

Мәдениет адамның рухани байлығының көрінісі ретінде ішкі қуатын, даму дәрежесін көрсете, өркениет оған сырттай әсер етеді. Қазір өркениетті: біртектес, сатылы және жергілікті-тарихи мағынада талдау қалыптасқан.

Бұған қарап, латын тілінде «мәдениет» және «өркениет» сөздерінің мағынасы ұқсас екенін көреміз. Бүгінде бұл екі терминнің мағынасы өте жақын, бірақ бірдей емес. Француз тілінде «өркениет» (civilisation) ұғымы «мәдениетке» жақын, ал неміс тілінде «мәдениет» (Kultur) сөзі «өркениет» мағынасында қолданылады. Бұл тілдік ерекшелік емес, әр халықтың ментальдық (менталитет) көрінісі деп ойлаймыз. Біздің ойымызша талдау әдістемесі, мәдениеттің уақыттан тыс, онтологиялық мазмұнға ие екенін, ал өркениет-әлеуметтік дамудың ажыратылмас жалғасы ретінде ұлттың, немесе ұлттық топтардың белгілі бір даму кезеңіндегі мәдениеттің онтологиялық мазмұнны бейнесі екенін түсінуден басталу керек сияқты.

Мәдениет теориясы адам табиғатының екі қырын бірдей: биологиялық (себебі адам ұрпақ өсіру және еңбектену сияқты қарапайым қажеттерін де өтегісі келеді) және әлеуметтік (себебі адамның материалдық та, рухани да қажеті тек қана қоғам аясында өтеледі), есепке алу керек деп есептейтін Бронислив Малиновский де осы тұжырымға келді.

Оның пікірінше, мәдениет дегеніміз - бойына тұтыну құндылықтарын әлеуметтік топтарға конституция берген құқықты, мақсатты, кәсіпті, сенім мен әдет-ғұрыпты жинақтаған тұтас ұғым. «Біз өте қарапайым, тіпті қарабайыр мәдениетке назар аударамыз ба, бәрібір, өмірінде кездесетін әртүрлі мәселелерді шешеуге көмектесетін осы ауқымды материалдық, адамзаттық және рухани жүйемен кездесіп отырамыз»[1].

Біздіңше, мәдениет адам өміріндегі материалдық, рухани және көркемдіктің бәрін өз бойына жинаған. Мәдениет көркемдігі дегеніміз - ондағы құндылықтарды, дәстүрді, сенімді айғақтап қана қоймайды, сонымен бірге мәдениет жетістіктерін жасау, тарату әрі пайдалану шараларын да көрсетеді.

Мәдеинетті табиғаттан тыс пайда болған, тек қана адамға тән ерекше шара деп түсінетін М.С.Каган ең алдымен оның техникалық-технологиялық және заттық-өнімдік шегін, сондай-ақ: материалдық, рухани және көркемдік ерекшеліктерін ұсынады [2]. Материалдық мәдниетті ол адамдардың нақты- жасампаздық және нақты қарым-қатынастық істерінің нәтижелері пайдалануға арналған жемістері, сондай-ақ өндіріске жағдай жасайтын техникалық құрылыстар кіреді. Сонымен қоса ғалым адамзаттың туып-өсу мәдениетін айрықша атап көрсетеді.

Рухани мәдениеттің ішкі құрлымымен сипаттауда М.С.Каган ең алдымен, адам еңбегінің екі-ақ саласы (қайта жасау мен қарым –қатынастың) кіретін материалдық мәдениеттен өзгеше, бұған іздену және құндылықтарды бағалауға бағытталған адам еңбегінің (жасампаздық, білуге құштарлық, қарым- қатынса және құндылықтарға бағытталған) әр саласынан өз айналасына айта қалғандай жеке дара орталық құра алатындай ерекше мәдениеттік қасиетіне негіздейді.

Былайша айтқанда, М.С.Каган қарым-қатынастық, ізденімпаздық, көркемөнер саласындағы еңбектің жалпыланған тақырыбы мен іскерлігінің ара жігін ашады.

Көркемөнер тұтасымен рухани мәдениет аймағына қосылады. Өйткені өнердің көптеген туындылары (живопись, мүсін, сәулет, әдебиет, музыка, театр, кино және басқа) айрықша ынталандыратын және дамытатын тетік және оны толығымен рухани мәдениеттің бір бөлігі ретінде талдауға болады.

Қоғамдық өмірдегі өнер туындыларының нақты міндеті де, көркем образдың көмегімен адамдардың еңбегін реттейтін арнайы бағыт ретінде олардың эститикалық талғамын қалыптастыру, белгілі бір мақсаттар мен мүдделерді меңгеруге мүмкіндік жасау, қажетті көңіл-күй туғызып, әртүрлі шабытты әрекеттерге бастау болып табылады. Өнерге осы тұрғыдан қарау, мәдениетті жоғарыдағыдай технологиямен түсіндірудің заңдылығын, оның *әртүрлі құрамды бөлігін, соның ішінде өнерді де, адам еңбегінің түрі деп қараудың қажеттігін дәлелдейді.*

Қоғамның рухани саласын жетілдіру, қазіргі кезде мәдениет туралы түсініктің ғылыми нақтылығына көбірек тәуелді. Мәселе адам және оның өркениетті дамуында ма, рухани-адамгершілік байлық жинауда ма, рухани осы қырларының бәрі ыждағатты әрі жіті назар аударуды талап етеді.

Мәдениетті оның барлық бай көрінісінде байыптау, гуманитарлық бағыттағы жекеленген ғылымдар жинақтаған білімнің бір-бірімен кең көлемде бірігуіне мүмкіндік береді. Әлеуметтану, тарих, этнография, психология, лингвистика, әлеуметтік-психология, педагогика және заң ғылымдарының теориялық және тәжірибелік негіздері, педагогика аясындағы мәдениеттану тұрғысынан жинақталап түсіндірілетін болса, жаңаша мазмұнға ие болар еді. Көптеген ғылыми пәндерді рухани мәдениет дәстүрлі түрде оқытылады, бірақ бұл ғылымдарды мәдениеттің теориялық мәселелері арнаулы бағытта ғана қаралады. Ал, рухани мәдениеттің өз алдына зерттеу объектісі ретінде, кешенді түрде байланыстыра отырып, тек қана мәдениетті теориясын талдай алады. Қазіргі кезде мәдениетті оның рухани тәжірибеге кірігіп кеткен жан-жақты байланыстарымен, қоғамдық практиканы және тарихи-мәдени істердің болмысын есептей отырып зерттеудің қажеттігі айқын сезіліп келеді. Оның негізін, ішкі құрылымын, қызмет ету әдісі мен түрін, даму бағыты мен жылдамдығының әлеуметтік өмірдің басқа саларына және әр түрлі қоғамдық институттарға тәуелділігін, сондай-ақ оларға мәдени факторлардың кері әсерін зерттеудің маңызы артып барады.

Мәдениеттің тақырып аймағы айрықша. Сондықтан бұл саланың жедел даму ерекшелігін ұғыну, бұл шараның өзіндік ерекше бейнесін анықтау керек. Әрине, мәдениеттанудың жеке ғылыми бағыт ретінде бейнелеу, нақты ғылымдар зерттеуінің мәдениет адам мүмкіндігінің күрделі әлеуметтік даму әрекеттері ретінде, заттың және рахани өндірістің нақты-тарихи түрде жүзеге асу әрекеттері ретінде қаралатын теориялық жиналыққа жетудің маңызы зор.

Мәдениет дегеніміз - адам жасаған заттың және рухани құндылықтардың, әлеуметтік-мәдени қалыптың, қарым-қатынас пен мінез-құлықты қалыптастыру әдістерінің тарихи даму жүйесі, сондай-ақ, адам табиғатындағы күштердің заттық өндіріс әдістерін ескере отырып даму әрекеті, өз мүмкіндігін жүзеге асыруды, оның шығармашылық еңбегінің адамзат әлемін өзгертуге және игеруге бағытталған әлеуметтік маңызды шаралары [3].

Әр халықтың рухани даму тарихындағы әртүрлі тарихи жағдайларға байланысты мәдени байланыстардың көлемі мен рөлі және оның маңызы әртүрлі болған. Мәдени құндылықтардың алмасып отыруы табиғи құбылыс және оның тоқтаусыз жүретінін атап айту керек.

Бір ұлттың көркемшығармашылық тәжірибесі мен жетістігінің басқа ұлттың рухани өміріне енуі, оны сол ұлттың қабылдауы мәдени байланыстардың нәтижесінің тікелей көрінісі. Бір ұлттың көркемшығармашылық тәжірибесі мен мәдени жетістіктері жаңа тарихи-әлеуметтік ортаға түскенде, игілікті нәр алып, сапалық өзгерістерге ұшырайды, осыларды қабылдай отырып, өзінің ұлттық мәдениетінің элементтерін жинақтауда дамудың жаңа түрі мен жолдарын табады. Мұндай заңды құбылыстарды әр ұлттың мәдениет тарихын байқауға болады.

Мәдениеттің көркемдік қатынасы мәселесі – кешенді әрекет. Ол философтар мен тарихшыларды, этнографтармен әрекеттерді, музыка зерттеушілері мен музыкалық педагогика саласындағы мамандарды, қазіргі рухани, көркем, соның ішінде музыкалық және театр мәдениеті дамуының заңдылығын зерттеумен айналысатындардың барлығы да толғандырады.

Көркем мәдениеттің қарым-қатынасы қоғамның тарихи дамуының жан-жақтылығын көрсететін ұлтаралық қарым-қатынас құбылысына тікелей байланысты, өйткені, мәдениеттің көркем қарым-қатынас ең алдымен ұлтаралық қарым-қатынас.

Дж. Вико өз еңбектерінде әр халықтың әдетіндегі, дәстүрі мен мәдениеттіндегі айырмашылықтың себебіне де түсінік береді: «Әр халықтың өмір сүрген ауа райына қарай болмысы әртүрлі болып қалыптасқаны сияқты, оның мінезі де әртүрлі өрбіген, тура сол сияқты әртүрлі болмыс пен мінезден әртүрлі тіл туған» [4]. Табиғатының әртүрлілігі адамдарды тіршіліктің ыңғайлы, ыңғайсыздығына өзінше «басқаша көзқарас» қалыптастыруға мәжбүр еткен, бұл кейде мүлде қарама – қарсы әдеттерді қабылдауға әкеліп соқтырған.

Гегельдің ойынша екі аймақтың мәдениеті мен өнерінің дамуы ұлттық өмірдің екі түрімен анықталады. Оған: «...біріншіден, белгілі бір алынып отырған дәуірде, сол алынып отырған географиялық жағдай мен ауа райында, сол кездегі өзен, тау, орман, жалпы табиғат көрінісінде, *тек қана сол алынып отырған халықтың өзіндік дәстүріндегі неғұрлым жағымды жағдайлар; екіншіден, діндегі, отбасындағы, ортақ тұрақтағы, т.б. рухани жаратылыстың ұлттық субстанциясы» кіреді. Сондықтан, - деп есептейді Гегель, мәдениеттердің қарым-қатынасы тек әр елдің және аймақтардың халықтары басқа халықтың мәдениетін түсінген жағдайда ғана мүмкін, ал адамдар қарсы жақтың тыныс – тіршілігін білуге тырысқанда ғана жеткілікті болады» [4].*

Барлық тарихи дәуірлердегі өнер түрлерінің бар қырын және көркем ой – мазмұнын қамтыған көркем мәдениет тарихы тұжырымдаған жалпы өнер тарихына шығыс өнерін енгізген де Гегель. Көркем мәдениет тарихын зреттегенде Гегель, көркем мәдениеттің қарама-қарсы екі түрін – шығыстыкі мен батыстікін, олардың бірлігі мен өзара қатынасының заңды шарты ретінде карауға мүмкіндік беретін, өзі жасаған қозғалысқа сүйенеді.

XYIII-ғасырдан, шығыс өңірдің Ресейге қосылған кезінен бастап, көркем мәдениеттінің қарым-қатынас мәселесі, орыс мәдениеттанушылардың П.Я.Чаадаевтың, Н.Я.Даниловскийдің, А.Н.Веселовскийдің еңбектерінде жеткілікті дәрежеде толық көріне бастайды.

Әр халықтың көркем мәдениеттіндегі өзара қатынасқа назар аудара отырып, Алексей Веселовский: «өркениетті әлемдегі тайпалар мен ұлыстар арасындағы көркемдік түр, идея, образ, желі алмасуы – әлі жас әдеби – тарихи ғылымда байқалған аса маңызды сәттердің бірі», - деп атап көрсетті. Қарама–қарсы мәдениеттердің жанасуын қарастыра келіп, ол өнердің әр түрінің дамуына қарай, бұл жанасулар да өсе түседі, бұл жағдай екі мәдениеттің жақындасуы мен баю мүмкіндігін әдістемелік тұрғыдан негіздеуге мүмкіндік береді, деп көрсетеді. Қысқа мерзімді жанасулары көркем шығарма дамуындағы заңдылыққа айналуға мүмкіндік берген, көркем мәдениет дамуындағы жарысты да анықтаағн сол. Өйткені бір мәдениеттің өзіндік қуаты, басқамен кездескенде тіпті мүлде қарама-қарсы болас да, өзімен қосылған басқа әдет, дәстүр белгілерін сіңіре отырып қабылдайды да, кейде оны танысмастай етіп өзгертіп, бұрынғыдан бетер дамытып жібереді. Оның үстіне, алмасу екі жолмен: тікелей бір халықтан бір халыққа, немесе делдалдар арқылы бір-біріне қашықта жүруі мүмкіндеп көрсетеді. Халық, «мәдениеттірек тайпаның әсеріне ұшырауы мүмкін, бірақ өз кезегі келгенде, ол дәл сондай әсермен, дәл сондай көмекпен жауап беруі мүмкін. Шырайланған осы идея мен көркемдік дәлелдер халықтарды ежелден жққындастырып келеді, соңғы екі ғасырда, ұлттық алаауыздық тасасында бүкілхалықтық мәдени әсер зор қуатпен көтеріліп келе жатқанда, ол тіпті күшеюі керек».

Жоғарыда көрсетілгендерге қарағанда, жалпы рухани мәдениетті, оның оның ішінде көркем-эстетиканы белсенді қалыптастыратын факторлардың қатарына барған сайын кең жайылып бара жатқан ұлттық мәдениеттердің өзара байланысы мен өзара қатынасы жатады. Мұнда өзара қатынастардың жолы үнемі тегіс әрі жазық болмағанымен, нәтижесі ешқандай күмән туғызбайды. Дегенмен, мұндай өзара қатынастардың нәтижесі идеялық-эстетикалық бағытта қаншалықты даулы болғаныммен, олардан әрқашан да сабақ алуға болады.

Тарихи тәжірибе көрсеткендей, адамзаттың мәдени байлығы, дәстүрі үнемі даму, жаңару үстіндегі, өзіндік ерекшелігін жағалтпаған, тұтас алғанда, әлемге жан-жақты өнім беретін, сонымен интернационалистік прогресс пен көркем мәдениеттің қарым-қатынас факторы ретінде көрінетін ұлттық мәдениет жетістіктерінің беткі қабатын ғана халықаралық дәрежеде біріктіреді.

Көркем мәдениеттің қарым-қатынасы мұнда, өз бейнесін әртүрлі стильдік элементердің ара қатнасынан алатын әртүрлі тарихи дәуірлердегі көркем шығармалардағы ұлтаралық байланыстарда көрінеді.

Батыс пен шығыс өркениеттің арақатынасы мен бір-бірін байыту тарихын зерттегенде Н.Г.Шахназарова, еуропоцентризмді түсіндіргенде, әлемді эстетикалық тұрғыдан, әсіресе, көркем шығарманы (ойлау жүйесі, стильдік және түр жасау қалыбы, сұлулық ережесі т.б.) игерудің еуропа шеберлерінің шығармаларында түзілген қағидалары жалпы өнердің объективті заңы деп бағаланады және қабылданады, деп тұжырымдайды. Көркем мәдениеттің қарым-қатынасына былайша, этникалық мәдениеттің өзара қатынасы мен өзара әсерінің шеңберін әлдеқайда кеңіте қарау, дәстүрлі, әрі қазіргі көркем мәдениеттің, дәлірек айтсақ қазіргі өнердің көптеген көріністерін түсіндіруге мұмкіндік береді [5].

Көркем мәдениеттің қарым-қатынасын тұжырымдауда эстетикалық ғылыми қызықты әрі жан-жақты мұмкіндіктер береді. Өнерді, адам қарым-қатынасын қалыптастырушы және көркем зерттеуші қоғамдық сананың түрі деп қарайтын эстетика, көркем еңбектегі қарым-

қатынастың жалпы заңдылығын және оның ерекше түрде үзілуін анықтайды. Бұл үзілістің заңдылығын анықтағанда, көркем мәдениеттің қарым-қатынасы да зерттеулі керек.

Адамзат өзінің ғажайып шарықтай дамуы үшін мәдениетке, оның әлеуметтік ақпараттар тарату мүмкіндігіне қарыздар. Мәдениет – мәтіндер (текст) жүйесі, естеліктің ұжымдық мұрагері. Мәдениет аймағы мен табиғатты ажырататын негізгі белгілердің бірі ретінде, зерттеушілер, хабарласуға және адам қабілеттері мен игіліктерін таратуға мүмкіндік беретін қатынас құралдарын көрсетеді.

Көркем мәдениеттің қарым-қатынасының толық тұжырымдамасын жасауда коммуникация (қатынас) және общение (қарым-қатынас) түсініктерін ажыратып анықтау мәселесі үлкен рөл атқарады.

Қатынас (коммуникация) деп біз бір жақты ақпарат бағытын (жауап ретінде мардымсыз қайту – хабар жеткенін растайтын, оны түсінетін т.б.) айтамыз. Қатынас мәдениеттің кез келген түрінде мұмкін екенін ескеруіміз керек.

Қарым-қатынас үшін диалог, басқаның қатысуы, түсіну, көпмәнділік әрі басқаның пікірі мен сеніміне шыдамдылық керек. Тек осы жағдайдың бәрі қамтылғанда ғана шын мәнісінде жеке тұлғаның дамуын, мәдениеттің нәтижелі қызметін, көркем құндылықтарды тудыруды қамтамасыз ететін қарым-қатынас мүмкін болмақ.

Мәдениет адамзаттың ұжымдық және тарихи тәжірибесін шегендейтін әмбебап әлеуметтік жад (память) ретінде көрінеді. Мәдениет құрылымы процесінде, өндіріс пен көркемдік құндылықтардың таралуымен бірге, мәдени жетістіктерге жақындасу оларды мәдениеттің белсенді заттық аймағына қосу маңызды орын алады.

Тарихи даму процесі кезінде қатынаста біртұтас дүниетаным қалыптастыра алатын және азаматтардың ортақ жағдайын қолдайтын, сонымен бірге белгілі бір әсерлі көңіл-күй өлшемдерін беретін көпшілік қарым-қатынас формасы қалыптасты. Мұндай мәдени – қатынас түрлеріне ойын, той, салт-дәстүр, оқу, тәрбие жатады. Бұлардың әрқайсысының өз мақсаты, міндеттері бар, бірақ, дәстүрлі мәдени құндылықтарға жаңа азаматтарды тарататын жол және маңызды бағыт пен өлшемді енгізетін әдіс әрі деректерді тере алатын тәсіл оларды көпшілік қатынастың біртұтас жүйесіне біріктіреді.

Әдебиеттер тізімі

1. *Malinowski B.A. scientific Theory of Culture and Essays. – New York. 1960, p.36.*
2. *Каган М.С. Человеческая деятельность. – М.1974. с.221-222*
3. *Балтабаев М.Х. Педагогикалық мәдениеттану. «Ұмай» баспасы. Алматы- 2003.*
4. *Хилтухин Е.Г. Проблема «Запад-Восток» в изучении художественной культуры. Ленинград. 1984.*
5. *Шахназарова Н.Г. Национальное и интернациональное в искусстве. – М., 1968.*

References

1. *Malinowski, B.A. Scientific Theory of Culture and Essays. New York, 1960, p. 36.*
2. *Kagan, M.S. Human Activity. Moscow, 1974, pp. 221-222.*
3. *Baltabayev, M.Kh. Pedagogical Culturology. "Umay" Publishing, Almaty, 2003.*
4. *Hiltukhin, E.G. The Problem of "West-East" in the Study of Artistic Culture. Leningrad, 1984.*
5. *Shakhnazarova, N.G. National and International in Art. Moscow, 1968.*

Economic sciences

INTELLECTUALIZATION OF FINANCIAL REPORTING AND PREDICTIVE AUDITING: NEW HORIZONS FOR ENSUREING TRANSPARENCY BASED ON BLOCKCHAIN TECHNOLOGIES

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ИНТЕЛЛЕКТУАЛИЗАЦИЯ ФИНАНСОВОЙ ОТЧЕТНОСТИ И ПРЕДИКТИВНЫЙ АУДИТ: НОВЫЕ ГОРИЗОНТЫ ОБЕСПЕЧЕНИЯ ТРАНСПАРЕНТНОСТИ НА БАЗЕ БЛОКЧЕЙН-ТЕХНОЛОГИЙ И ИИ

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Abstract

This scholarly article presents a multi-vector exposition of the processes of a tectonic shift in the financial administration paradigm driven by the total convergence of accounting functions with digital intelligent ecosystems. The text justifies the concept of moving from static credential verification to dynamic modeling of financial sustainability under conditions of global uncertainty. The author focuses attention on exploring the divergent paths of modernization of control mechanisms, where decentralized ledgers (blockchains) and cognitive neural networks act not merely as technical superstructures, but as fundamental guarantees of transparency and immunity of financial information to unauthorized interventions.

Within the presented discourse, the role of Robotic Automation (RPA) as a tool to eliminate cognitive distortions and systemic errors inherent in the traditional 'human factor' is determined in detail. Special analytical importance is given to the process of harmonization of the domestic institutional landscape of the Republic of Kazakhstan with the imperatives of IFRS and ISA. The author proves that in contemporary realities, compliance with data regulations becomes possible only under the condition of creating a high-tech "digital twin" accounting system capable of providing seamless transmission of data in real time.

Special emphasis in the article is on critically understanding the deficit of specific competencies among professional market actors in the era of Industry 4.0. The SWOT monitoring conducted by the author enabled the identification of latent barriers preventing the large-scale diffusion of innovations and the proposal of the author's roadmap for the formation of a hybrid intelligence of specialists combining the ethical standards of the profession with the architectural design and analysis skills of Massive Massive Data (Big Data) algorithms.

Central to the paper is the conceptualization of the 'hybrid intelligence' of the financial architect of the future. The author draws attention to the need for a radical transformation of the cognitive profile of specialists, where the ethical component of the profession is complemented by a deep understanding of algorithmic logic and precision processing of colossal information arrays. The scientific value of the *article is determined by the development of a predictive audit model, which converts a formalized audit into a tool for intelligent support of business processes.*

The scholarly value of the publication lies in the development of a 'predictive audit' model that levels the formalism of traditional audits, transforming audit into a tool for strategic foresight and credibility verification. The proposed recommendations on the synthesis of public regulatory mechanisms and private IT initiatives form a conceptual platform to enhance the investment attractiveness of the national market and ensure its integration into the global digital economic space. The article is aimed at the academic community, developers of financial fintech solutions and professionals responsible for the strategic transformation of business processes

Аннотация

Данная научная статья представляет собой многовекторную экспозицию процессов тектонического сдвига в парадигме финансового администрирования, обусловленного тотальной конвергенцией учетных функций с цифровыми интеллектуальными экосистемами. В тексте обосновывается концепт перехода от статической верификации учетных данных к динамическому моделированию финансовой устойчивости в условиях глобальной неопределенности. Автор фокусирует внимание на исследовании дивергентных путей модернизации контрольных механизмов, где децентрализованные реестры (блокчейн) и когнитивные нейронные сети выступают не просто техническими надстройками, а фундаментальными гарантами транспарентности и иммунитета финансовой информации к несанкционированным интервенциям.

В рамках представленного дискурса детально детерминирована роль роботизированной автоматизации (RPA) как инструмента элиминации когнитивных искажений и системных ошибок, присущих традиционному «человеческому фактору». Особое аналитическое значение придается процессу гармонизации отечественного институционального ландшафта Республики Казахстан с императивами МСФО и МСА. Автор доказывает, что в современных реалиях соблюдение данных регламентов становится возможным лишь при условии создания высокотехнологичного «цифрового двойника» учетной системы, способного обеспечивать бесшовную трансляцию данных в режиме реального времени.

Особый акцент в статье сделан на критическом осмыслении дефицита специфических компетенций у субъектов профессионального рынка в эпоху Индустрии 4.0. Проведенный автором SWOT-мониторинг позволил выявить латентные барьеры, препятствующие масштабной диффузии инноваций, и предложить авторскую дорожную карту по формированию гибридного интеллекта специалистов, сочетающего этические стандарты профессии с навыками архитектурного проектирования алгоритмов и анализа колоссальных информационных массивов (Big Data).

Центральное место в работе занимает концептуализация «гибридного интеллекта» финансового архитектора будущего. Автор акцентирует внимание на необходимости радикальной трансформации когнитивного профиля специалистов, где этическая составляющая профессии дополняется глубоким пониманием алгоритмической логики и прецизионной обработкой колоссальных информационных массивов. Научная ценность статьи детерминирована разработкой прогностической модели аудита, которая конвертирует формализованную проверку в инструмент интеллектуального сопровождения бизнес-процессов.

Научная ценность публикации заключается в разработке модели «предиктивного аудита», которая нивелирует формализм традиционных проверок, трансформируя аудит в инструмент стратегического предвидения и верификации доверия. Предложенные рекомендации по синтезу государственных регуляторных механизмов и частных IT-инициатив формируют концептуальную платформу для повышения инвестиционной привлекательности национального рынка и обеспечения его интеграции в глобальное цифровое экономическое пространство. Статья ориентирована на академическое сообщество, разработчиков финансовых финтех-решений и специалистов, ответственных за стратегическую трансформацию бизнес-процессов.

Keywords: digital economy, intelligent accounting, audit 4.0, IFRS, MSA, blockchain technologies, artificial intelligence, financial transparency, Kazakhstan.

Ключевые слова: цифровая экономика, интеллектуальный учет, аудит 4.0, МСФО, МСА, блокчейн-технологии, искусственный интеллект, финансовая прозрачность, Казахстан.

Введение

Развитие всемирной цифровой инфраструктуры радикально изменило принципы функционирования бизнеса в наши дни. В обновленной экономической модели финансовые сведения приобретают статус критически важного ресурса, а их оперативная верификация и обработка превращаются в определяющие элементы международной конкурентной устойчивости. Устаревшие инструменты контроля compliance, финансового наблюдения и корпоративного аудита сталкиваются с необходимостью полной концептуальной перезагрузки.

Внедрение цифровых решений выходит за пределы рутинной оптимизации транзакций, закладывая основу для пересмотра методик генерации, контроля и распространения отчетных данных. Для Республики Казахстан тема имеет стратегическое значение в связи с ускоренной глобализацией, последовательным освоением Международных стандартов финансовой отчетности (МСФО) и приоритетами национальной инициативы «Цифровой Казахстан».

Основная задача публикации — комплексный дискурсивный разбор инновационных методик в учетно-аудиторской цепочке и прогнозируемый эффект от их апробации в части ключевых метрик стандартов: доступности, унифицированности и безупречной точности индикаторов.

Цифровая эволюция учетных процессов знаменует отказ от ригидных бумажных цепочек в пользу адаптивных когнитивных сетей. Подобные архитектуры обеспечивают не только плавную цифровизацию рутинных задач, но и высокоточное администрирование корпоративных активов через анализ обширных данных (Big Data).

Методы и обсуждения.

Контрастный обзор консервативных и новаторских методологий высвечивает перспективные траектории оптимизации, представленные в таблице 1.

Таблица 1. Компаративный анализ традиционных и цифровых учетно-аудиторских парадигм

Аспект практики	*Традиционная модель*	*Цифровая модель (на основе ИИ, блокчейн, RPA)*
Документооборот и ввод	*Бумажные носители, ручной ввод, высокий риск ошибок [3]*	*Электронный документооборот (ЭДО), OCR, автоматический ввод RPA-ботами [4]*
Формирование отчетности	*Длительные циклы, периодичность, ручные корректировки*	*Обработка данных с минимальной задержкой между событием и его отображением в системе, автоматическая консолидация и трансформация по МСФО [5]*
Методология аудита	*Выборочная проверка, ретроспективный анализ на основе тестов [6]*	*Непрерывный аудит, анализ полной совокупности данных, аудит алгоритмов [7]*
Подтверждение достоверности	*Физические свидетельства, запросы подтверждений третьим сторонам*	*Неизменяемые записи в блокчейне, смарт-контракты для автоматической верификации [8]*
Хранение и доступ к данным	*Физические архивы, ограниченный доступ*	*Облачные хранилища с распределенным безопасным доступом, цифровые реестры*
Примечание: составлено автором		

В современных условиях цифровой трансформации экономики пересматриваются базовые подходы к формированию и контролю финансовой информации. В данном контексте децентрализованные цифровые реестры выступают как самостоятельный механизм обеспечения устойчивости и надёжности учётных данных. Фиксация экономических событий в распределённой среде с применением криптографических методов защиты исключает возможность последующего изменения информации, тем самым создавая объективную основу доверия к финансовой отчётности со стороны пользователей. Использование программно реализованных смарт-инструментов позволяет формализовать процедуры признания доходов и расходов на уровне цифровых протоколов, что существенно ограничивает влияние субъективных факторов в процессе учёта. В совокупности данные технологические решения формируют предпосылки для внедрения модели непрерывного мониторинга и расширенного аудиторского контроля, согласующейся с качественными характеристиками финансовой отчётности, установленными Международными стандартами финансовой отчётности (МСФО) [8, 9].

Интеллектуализация аудиторской деятельности обусловлена активным внедрением систем аналитической обработки данных, основанных на методах искусственного интеллекта. Алгоритмы машинного обучения обеспечивают комплексный анализ массивов информации, отличающихся по структуре, источникам и степени формализации, что позволяет выявлять латентные искажения, нетипичные отклонения и зоны повышенного риска. Применение данных технологий трансформирует методологию аудита, ориентируя её на исследование полной совокупности доступных данных вместо традиционных выборочных процедур. Это способствует повышению достоверности аудиторских доказательств и усиливает обоснованность профессионального суждения аудитора в соответствии с требованиями Международного стандарта аудита МСА 500 [7, 10].

Таблица 2. Влияние ключевых цифровых технологий на систему финансового учета и аудита

Технология	Сфера применения	Влияние на качественные характеристики информации (МСФО/МСА)	Риски и барьеры внедрения
Блокчейн (Blockchain)	Учет дебиторской и кредиторской задолженности, подтверждение транзакций.	Обеспечивает неизменяемость и достоверность. Сокращает время на верификацию данных в ходе аудита.	Недостаток нормативного регулирования в РК, высокая стоимость интеграции.
Искусственный интеллект (ИИ)	Анализ аномалий в больших массивах данных, прогнозирование резервов.	Повышает прогностическую ценность и точность оценочных значений. Позволяет проводить 100% проверку выборки.	Проблема «черного ящика» (сложность объяснения алгоритма), риск предвзятости данных.
Роботизированная автоматизация (RPA)	Сверка выписок, ввод первичных данных, консолидация отчетности.	Минимизирует человеческий фактор, повышает своевременность представления отчетности.	Уязвимость перед изменениями в интерфейсах систем, необходимость переобучения кадров.
Примечание: составлено автором			

Имплементация инновационных систем, в частности технологий RPA (Robotic Process Automation), в современную учетную практику позволяет делегировать до 80% дискретных рутинных операций специализированным алгоритмическим решениям. Данная технологическая трансформация не только нивелирует деструктивное воздействие «антропогенного фактора», но и существенным образом элиминирует временную латентность между возникновением хозяйственного факта и его валидацией в учетных регистрах. Этот процесс обеспечивает практическую реализацию фундаментального качественного критерия «релевантности и своевременности» финансовой информации, закрепленного в концептуальных основах международных регламентов [12].

Параллельно с этим, технологический стек на базе искусственного интеллекта (ИИ) и нейронных сетей инициирует качественный сдвиг в профессиональной философии финансового контроля: осуществляется переход от пассивной ретроспекции к прогностической имитации будущих финансовых состояний. Эксплуатация массивов Big Data предоставляет аудитору инструментарий для перманентного мониторинга зон риска в строгом соответствии с детерминантами МСА 315. Данная конвергенция трансформирует классические методы проверки в инновационную модель Continuous Auditing (непрерывный аудит), обеспечивая динамическую верификацию отчетности в режиме реального времени [7, 13].

Использование интеллектуальных алгоритмов радикально пересматривает функциональную роль бухгалтера, превращая его из регистратора фактов в аналитического стратега. ИИ обладает способностью идентифицировать латентные аномалии и девиации в транзакциях, что значительно повышает ценность финансовой информации для всех групп стейкхолдеров. В то время как МСФО и МСА формируют нормативный каркас и качественные ориентиры, цифровые решения становятся высокотехнологичным механизмом их практической реализации, укрепляя базовые принципы достоверности.

Технологии электронного представления данных и блокчейн-архитектура позволяют формировать криптографически защищенную среду, где каждая транзакция становится верифицируемой, прозрачной и неизменяемой. Это делает финансовую отчетность машиночитаемой, повышая ее интерактивность для регуляторных органов и инвесторов, как это постулируется в Концептуальных основах МСФО [9, 11].

В рамках процедур МСА 315 инструменты на базе ИИ обеспечивают непрерывное тестирование внутренних контролей, что создает базис для масштабной технологической модернизации финансового сектора Республики Казахстан [7]. Интеллектуальная поддержка профессионального скептицизма освобождает когнитивные ресурсы специалистов для решения нетривиальных аналитических задач, таких как верификация справедливой стоимости *волатильных активов, сценарный анализ гипотезы непрерывности деятельности и оценка обесценения сложных финансовых инструментов.*

Согласно тезисам исследователя А.К. Шарипова, стратегический вектор внедрения МСФО в Казахстане был изначально ориентирован на экстернализацию национальных инвестиционных преимуществ [1]. На текущем этапе прогресс в сфере облачных вычислений и развитие отечественных ERP-решений (например, MyBuh.kz и аналогичных платформ) значительно демпфирует барьеры при трансформации отчетных данных [5, 11]. Тем не менее, системная цифровизация учетных функций сопряжена с комплексом экзогенных и эндогенных вызовов, требующих институционального управления, результаты анализа которых систематизированы в рамках SWOT-моделирования.

Таблица 3. SWOT-анализ цифровой трансформации учета и аудита в РК

Сильные стороны	*Слабые стороны*
1. Активная госполитика («Цифровой Казахстан», обязательный ЭДО) [2]	*1. Высокая стоимость комплексных решений (ERP, ИИ) для МСБ*
2. Законодательное закрепление МСФО для ключевых субъектов [1]	*2. Дефицит кадров с междисциплинарными компетенциями (учет + IT) [14]*
3. Развитый рынок онлайн-бухгалтерских и облачных сервисов (MyBuh.kz и.т.д.) [11]	*3. Технологическая зависимость от зарубежного ПО*
Возможности	*Угрозы*
1. Повышение инвестиционной привлекательности через блокчейн-прозрачность и МСФО-отчетность	*1. Растущие риски кибербезопасности и утечек данных [16]*
2. Снижение операционных издержек за счет полной автоматизации (RPA, ЭДО)	*2. Правовая неопределенность в регулировании цифровых активов и технологий [17]*
3. Трансформация роли бухгалтера/аудитора в стратегического консультанта по данным.	*3. Риск социального сопротивления и роста безработицы среди неквалифицированных специалистов.*
Примечание: составлено автором	

Современные вызовы технологического прогресса инициируют потребность в генерации специалистов нового формата, обладающих кросс-функциональным набором компетенций. В текущих реалиях квалификационный профиль финансового эксперта претерпевает существенную трансформацию: владение классическим инструментарием МСФО теперь неотделимо от способности оперировать архитектурой программных кодов и навыков в области Data Analytics [18]. Данная траектория профессионального роста полностью коррелирует с государственными приоритетами Республики Казахстан. Глава государства К.К. Токаев в своем обращении к нации акцентировал внимание на том, что масштабирование систем искусственного интеллекта и формирование высокого уровня цифровой грамотности граждан являются базисными элементами национального прогресса [19]. Согласно президентскому видению, модернизированный образовательный сектор должен превратиться в ключевой драйвер инновационного роста, обеспечивая республике достойное место в пуле тридцати наиболее передовых мировых держав [20]. В ответ на данные вызовы, академическое сообщество Казахстана приступило к радикальной ревизии учебных планов, внедряя дисциплины, сфокусированные на когнитивном анализе массивов информации и прикладном использовании ИИ в финансовой архитектуре.

Заключение

Подводя итог проведенному исследованию, необходимо констатировать, что экспансивное развитие инновационных инструментов создает беспрецедентные условия для формирования транспарентных и верифицируемых моделей финансового администрирования. Будущие контуры индустрии неразрывно связаны с концепцией «живого учета» (Real-time accounting), где цифровые алгоритмы не только обеспечивают фиксацию транзакций, но и выступают фундаментом для предиктивного моделирования стратегических сценариев развития.

Для достижения максимального синергетического эффекта от технологической модернизации в Казахстане предлагается реализация следующих императивов:

1). Форсирование механизмов государственно-частного диалога с целью проектирования доступных IT-решений, адаптированных под ресурсные возможности малого и среднего предпринимательства;

2). Структурная реновация образовательных стандартов, интегрирующая знания по кибербезопасности, аналитической обработке данных и нормативному регулированию цифровых активов;

3). Консолидация усилий профессиональных сообществ, регуляторов и бизнеса для гармонизации стандартов отчетности в эпоху стремительной цифровой эволюции;

4). Стейджинг инновационного процесса, предполагающий последовательный переход от базовой автоматизации (RPA) к внедрению высокоуровневых блокчейн-протоколов и автономных интеллектуальных систем.

В конечном счете, цифровая эволюция представляет собой не просто технический апгрейд, а глобальную переоценку значимости верифицированной информации в информационной экономике. Технологии становятся гарантом соблюдения высших стандартов транспарентности, закрепленных в рамках МСФО и МСА. Гармоничное сочетание нормативной базы и инновационного инструментария обеспечит качественный скачок в развитии финансовой системы Казахстана, укрепляя доверие глобальных инвесторов и повышая эффективность национального управления.

Список использованных источников

1. Sharipov, A. K. (2012). Opyt primeneniya MSFO v Kazakhstane [Experience in IFRS application in Kazakhstan]. Economics, management, finance: materials of the II International Scientific Conference. Perm: Mercury, pp. 96–101. Available at: https://moluch.ru/conf/econ/archive/57/3002/ (Accessed: 16 January 2026).

2. Government of the Republic of Kazakhstan (2017). State Program "Digital Kazakhstan". Decree No. 827 dated December 12, 2017.

3. Petrova, L. A., & Kuznetsova, T. E. (2020). Tsifrovizatsiya bankovskoy sistemy: tsifrovaya transformatsiya sredy i biznes-protsessov [Digitalization of the banking system: digital transformation of the environment and business processes]. Financial Journal, 12(3), pp. 91–101.

4. QUB2B (2025). Digitalization of accounting: accounting systems and EDI. Information portal. Available at: https://www.qb2b.ru/blog/cifrovizaciya-buhgalterii-uchetnye-sistemy-i-edo/ (Accessed: 16 January 2026).

5. Center for Business Education (n.d.). Problems and prospects for the development of IFRS in Kazakhstan. Available at: https://cbor.kz/stateiki/84-problemy-i-perspektivy-razvitiya-msfo-v-kazaxstan (Accessed: 18 January 2026).

6. IS Paragraf (2020). International Standard on Quality Management 1 "Quality Management for Firms that Perform Audits or Reviews of Financial Statements". Available at: https://www.audit.kz/mezhdunarodnye-standarty-audita (Accessed: 17 January 2026).

7. IS Paragraf (2019). International Standard on Auditing 315 (Revised) "Identifying and Assessing the Risks of Material Misstatement". Available at: https://www.audit.kz/mezhdunarodnye-standarty-audita (Accessed: 13 January 2026).

8. Dai, J., & Vasarhelyi, M. A. (2017). Toward blockchain-based accounting and assurance. Journal of Information Systems, 31(3), pp. 5–21– URL: https://doi.org/10.2308/isys-51804 (дата обращения: 19.01.2026).

9. IFRS Foundation (2018). Conceptual Framework for Financial Reporting. Available at: https://www.ifrs.org/digital-financial-reporting/ (Accessed: 17 January 2026).

10. Kokina, J., & Davenport, T. H. (2017). The emergence of artificial intelligence: How automation is changing auditing. Journal of Emerging Technologies in Accounting, 14(1), pp. 115–122.

11. IFRS Foundation (2026). Use of IFRS Standards by Jurisdiction: Kazakhstan. Available at: https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/view-jurisdiction/kazakhstan/ (Accessed: 16 January 2026).

12. Phacet Labs (2025). AI-based automation for end-to-end financial transparency. Available at: https://www.phacetlabs.com/blog/ai-financial-data-automation-end-to-end-transparency (Accessed: 18 January 2026).

13. Jingyi, L., Mandy, L., & Zongying, G. (2024). Research on the influence of the big data era on accounting and auditing. ArXiv.org. Available at: https://arxiv.org/abs/2403.07180 (Accessed: 17 January 2026).

14. Kuzhukeyeva, K. M. (2021). Vnedreniye MSFO v kazakhstanskuyu praktiku: problemy i perspektivy [Implementation of IFRS in Kazakhstan's practice: problems and prospects]. Accounting and Audit, (4), pp. 45–50.

15. MyBuh.kz (2026). Automated online service for individual entrepreneurs and limited liability partnerships. Available at: https://mybuh.kz/ (Accessed: 14 January 2026).

16. Pro1C.kz (2025). Electronic digital signature for accountants and employees in 2025: Explanation by MDIAI. Available at: https://pro1c.kz/hotline/otvety-gosudarstvennykh-organov/etsp-dlya-bukhgaltera-doverennogo-litsa-i-sotrudnikov-v-2025-godu-razyasnenie-mtsriap/ (Accessed: 15 January 2026).

17. Yermack, D. (2017). Corporate governance and blockchains. Review of Finance, 21(1), pp. 7–31.

18. Gushtyuk, P. (2023). Digital transformation strategy: a guide to development. Forbes Russia. Available at: https://blogs.forbes.ru/2023/12/06/strategija-cifrovoj-transformacii-gajd-po-razrabotke/ (Accessed: 18 January 2026).

19. Mustafin, A. (2025). How Kazakhstan is rebuilding education for the AI economy. Kursiv Media. Available at: https://kz.kursiv.media/2025-12-29/kak-kazahstan-perestraivaet-obrazovanie-pod-ekonomiku-ii/ (Accessed: 16 January 2026).

20. Madeniportal (2025). Educational reforms in Kazakhstan: the path to a modern learning system. Available at: https://madeniportal.kz/ru/news/obrazovatelnye-reformy-v-kazaxstane-put-k-sovremennoi-sisteme-obuceniia (Accessed: 17 January 2026).

LEGAL REGULATION OF CONTRACTUAL RELATIONS IN BUSINESS: A MODERN MODEL AND DEVELOPMENT PROSPECTS (ON THE EXAMPLE OF AZERBAIJAN)

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Abstract

This article examines the theoretical and legal foundations of civil contractual relations in the field of entrepreneurship in the Republic of Azerbaijan. It analyzes the current model of legal regulation of business contracts, identifying key issues in legislation and law enforcement practice. Particular attention is paid to the adaptation of contract law to the digitalization of the economy and international standards. Based on a comprehensive analysis of the regulatory framework, judicial practice, and international experience, directions for improving the legal regulation of contractual relations in entrepreneurship are identified.

Keywords: *Contract Law, Entrepreneurial Activity, Business Agreements, Legal Regulation, Digitalization, Arbitration, Commercial Disputes*

INTRODUCTION

The development of a market economy in the Republic of Azerbaijan is characterized by the active growth of entrepreneurial activity, the increasing complexity of economic relations between business entities, and the increasing role of contractual regulation in ensuring the stability of trade turnover. In the context of economic globalization and Azerbaijan's integration into the international trading system, issues of improving the legal mechanism for regulating contractual relations in the field of entrepreneurial activity are becoming particularly relevant [13, p. 7].

Contractual relations in business represent a complex system of legal relationships between commercial entities aimed at achieving economic goals and generating profit. The effectiveness of this system is largely determined by the level of sophistication of legal regulation, the adaptation of legislative norms to the requirements of modern business, and the ability of the legal system to protect the legitimate interests of business participants.

Theoretical and legal foundations of contractual relations in entrepreneurial activity

The concept and essence of civil contractual relations

According to Article 1 of the Civil Code of the Republic of Azerbaijan, entrepreneurial activity is an independent activity carried out at one's own risk, aimed at systematically obtaining profit from the use of property, the sale of goods, the performance of work, or the provision of services by persons registered in this capacity in the manner prescribed by law [6]. This definition enshrines the main characteristics of entrepreneurial activity: independence, risk-taking nature, systematicity, focus on profit-making, and legalization through state registration.

Contractual relations in the business sphere are characterized by a dualistic nature, combining the regulatory features of private and public law. On the one hand, they are based on the principles of freedom of contract, equality of parties, and autonomy of will inherent in private law. On the other hand, business contracts are subject to additional public-law influence through mechanisms of state regulation of business activity [15, p. 167].

An important characteristic of business contracts is the professional status of their participants, which presupposes specialized knowledge, skills, and experience in the relevant field of activity. This influences the distribution of risks and responsibilities between the parties [5, p. 123].

Classification of contracts in business activities

The systematization of contractual structures used in commercial practice can be carried out on various grounds. Based on their functional purpose, the following are distinguished:

1. ***Contracts in the field of commercial activities*** *– purchase and sale, supply, contracting of agricultural products, energy supply*
2. ***Contracts in the field of production activities*** *– contracting, implementation of research and development work, franchising*
3. ***Agreements in the field of financial activities*** *– loan agreements, bank accounts, deposits, factoring, leasing*
4. ***Contracts in the field of transport and logistics*** *– cargo transportation, forwarding, storage*
5. ***Agreements in the field of intellectual property*** *– licensing agreements, agreements on the alienation of exclusive rights*

According to the degree of freedom of the contract, a distinction is made between contracts with freely determined terms, contracts with limited freedom of terms, and contracts of adhesion.

The legal framework governing business contracts in Azerbaijan

Legal regulation of civil-law contractual relations in the field of entrepreneurial activity in the Republic of Azerbaijan is carried out on the basis of a system of regulatory legal acts of various levels and legal force.

The Constitution of the Republic of Azerbaijan of November 12, 1995, laid the fundamental foundations for the legal regulation of entrepreneurial activity and contractual relations. Article 59 of the Constitution guarantees everyone the right to entrepreneurial activity, and Article 29 enshrines the right to property as the basis for entrepreneurship.

The central place in the system of legal regulation of civil contracts is occupied by the Civil Code of the Republic of Azerbaijan dated December 28, 1999. The Civil Code contains general provisions on transactions and contracts (Chapters 9-11), as well as special rules governing certain types of contractual obligations (Chapters 30-54).

A significant role in regulating contractual relations is played by special legislation, including the laws "On Entrepreneurial Activity", "On the Protection of Consumer Rights", "On Competition", and industry-specific laws regulating certain types of entrepreneurial activity.

The Republic of Azerbaijan is a party to a number of international treaties affecting the regulation of contractual relations in the business sphere, including the Vienna Convention on Contracts for the International Sale of Goods of 1980, agreements within the CIS on trade and economic cooperation, bilateral agreements on the avoidance of double taxation and on the protection and promotion of investments.

Modern problems of the contractual relations model

Peculiarities of concluding, executing and terminating contracts

The conclusion of business contracts in the Republic of Azerbaijan is regulated by the general provisions of the Civil Code on the conclusion of contracts, taking into account the special requirements established for certain types of entrepreneurial activity. In entrepreneurial relations, the concept of offer and acceptance has its own specific characteristics, as entrepreneurs, acting as professional market participants, bear increased responsibility for the contract proposals they submit [2, p. 198].

The legislation of the Republic of Azerbaijan establishes special requirements for the form of certain types of business contracts. Mandatory written form is required for contracts between legal entities, between a legal entity and an individual, and between individuals for amounts exceeding the legally established amount. Certain types of contracts are subject to state registration, which is an additional requirement for their validity.

Effective resolution of disputes arising from the execution of business contracts is particularly important in today's environment. The dispute resolution system in Azerbaijan includes several mechanisms: judicial resolution through commercial and general courts, arbitration, mediation, and conciliation.

Dynamics of judicial practice in contractual disputes

An analysis of judicial statistics for the period 2005-2023 demonstrates a significant increase in the number of disputes arising from contractual obligations. The total number of cases increased from 3,653 in 2005 to 89,467 in 2023, representing a more than 24-fold increase. This trend reflects the country's economic development, the expansion of the banking system, and the increasing legal awareness of citizens.

Disputes over ***loan agreements constitute the largest category*** *, with the number increasing from 404 cases in 2005 to 40,865 cases in 2023 (a 101-fold increase). The peak was reached in 2017 with 47,231 cases. This reflects the rapid development of the banking sector and the expansion of credit relations in the Azerbaijani economy. In 2023, loan disputes accounted for 45.7% of all contractual disputes, confirming their dominant position.*

Disputes over ***purchase and sale agreements*** *are showing even more dramatic dynamics. While relatively stable between 2005 and 2017 (400-600 cases), a sharp increase began in 2018: from 1,170 cases in 2018 to 38,507 cases in 2023 (a 33-fold increase). This dramatic growth is due to the revitalization of the real estate market, development of the construction sector, and rising real estate prices. In 2023, purchase and sale disputes accounted for 43.0% of all contractual disputes, making them the second-largest category after credit disputes.*

Debt agreement *disputes also showed significant growth. From 814 cases in 2005, the figure rose to 4,715 cases in 2015, peaked at 7,126 cases in 2016, and then declined slightly to 6,967 cases in 2023. This category accounts for 7.8% of total disputes in 2023.*

Insurance disputes have shown an increase from 143 cases in 2005 to a peak of 1,983 cases in 2021, followed by a decline to 1,062 cases in 2023. This reflects the development of the insurance sector and its subsequent stabilization.

Of particular interest is the dynamics of summary proceedings , which demonstrate the most dramatic changes. The number of cases increased from 4,086 in 2005 to a peak of 253,782 in 2016 (an increase of more than 62 times), but then sharply declined to 206 in 2023. This indicates reforms in the judicial system, improvements in summary proceedings, and the introduction of alternative settlement mechanisms.

The impact of the COVID-19 pandemic on dispute dynamics is clearly evident in the 2019-2020 statistics:

- *Total contractual disputes decreased by 62.1% (from 89,467 to 33,850)*
- *Credit disputes decreased by 42.3% (from 41,570 to 24,010)*
- *Purchase and sale disputes fell by 95.4% (from 50,637 to 2,067)*

However, the period 2020-2023 is characterized by recovery growth:

- *Overall disputes increased by 164.3%*
- *Credit disputes increased by 70.2%*
- *Disputes over purchases and sales increased by 1763.2%.*

Statistics of enforcement proceedings

An analysis of enforcement data from 2001 to 2023 reveals a dramatic increase in the workload of the enforcement system. The total number of documents received increased from 47,314 in 2001 to 1,120,561 in 2023, representing a 24-fold increase.

Civil disputes constitute the majority of documents received by executive bodies. Their number increased from 5,780 in 2001 to 677,726 in 2023 (a 117-fold increase). The peak was recorded in 2017 – 609,828 documents. In 2023, civil disputes accounted for 60.5% of the total number of documents.

Commercial disputes show the most interesting dynamics. Starting with 864 documents in 2001, the figure peaked at 78,575 documents in 2016, but then began a sharp decline, reaching 4,721 documents in 2023. This decline may reflect several factors:

- *Development of alternative dispute resolution mechanisms (arbitration, mediation)*
- *Improving the business environment and increasing transparency in commercial relations*
- *The impact of the COVID-19 pandemic on business activity*

If in 2016 commercial disputes accounted for 11.2% of the total number of documents, then in 2023 this figure dropped to 0.42%.

Tax arrears constitute the smallest category overall. From 1,852 documents in 2001, the figure reached 26,409 documents in 2023 (a 14-fold increase), accounting for 2.4% of the total number of documents.

Problems of legal regulation and law enforcement

An analysis of law enforcement practice reveals a number of systemic problems:

1. Inconsistent judicial practice . Courts take uneven approaches to resolving similar disputes arising from business contracts. This is due to varying interpretations of value-based concepts by courts, insufficient clarifications from higher courts, and the complexity of certain legal structures.

2. Insufficient specialization of judges . Hearing disputes over business contracts requires judges to have a deep understanding of both the legal and economic aspects of entrepreneurial activity. Insufficient specialization of judges in business law issues leads to errors in law enforcement.

3. Problems of proof . Proof in disputes arising from business contracts presents particular challenges in judicial practice, including establishing the factual circumstances of the conclusion and execution of contracts, determining the amount of damages caused by breach of contractual obligations, and proving the counterparty's bad faith.

4. Unequal bargaining power . In practice, situations often arise where the parties to a contract are in unequal bargaining positions. This is especially typical in relations between large and small businesses, leading to the imposition of unfavorable terms on the economically weaker party.

5. Insufficient protection of trade secrets . Insufficient legal protection of trade secrets in contractual relationships creates risks for entrepreneurs forced to disclose confidential information to counterparties.

Improving the business environment and registration procedures

A significant improvement in the business climate in Azerbaijan has been a significant achievement in recent years. According to the Doing Business 2020 report, Azerbaijan ranked 34th out of 190 countries with a score of 76.7. The following achievements are particularly noteworthy:

- ***Business Creation*** *: 9th place in the world (96.2 points) – only 3 procedures in 3.5 days*
- ***Credit Acquisition*** *: 1st place in the world (100.0 points) – the best indicator in the world*
- ***Contract Enforcement*** *: 28th place (70.3 points) – 277 days, cost 18.5% of the claim amount*
- ***Property Registration*** *: 44th place (75.4 points) – 4 procedures in 4.5 days*

However, there are also problem areas:

- ***Protection of minority investors*** *: 105th place (50.0 points)*
- ***Obtaining building permits*** *: 59th place – 18 procedures in 116 days*
- ***Connecting to the power grid*** *: 80th place – 7 procedures in 41 days*

According to the World Bank's 2023 Rule of Law Index, Azerbaijan has a score of -0.56659 on a scale of -2.5 to +2.5, placing the country below the global average. This poses certain challenges for contractual practice:

- ***Predictability of performance*** *: A relatively low score indicates potential problems with the uniform interpretation and application of contract law by courts*
- ***Investor confidence*** *: A figure below the global average may negatively impact foreign partners' willingness to enter into long-term contracts without additional guarantees*
- ***Need for more detail*** *: the weakness of legal institutions requires a more thorough elaboration of contractual terms and mechanisms for protecting the interests of the parties*

Arbitration reform 2023-2024

A significant achievement was the adoption of the new Arbitration Law on December 26, 2023, which replaced the outdated 1999 law and entered into force on January 25, 2024. The reform includes the following key changes:

- *Cancellation of the previous Law "On International Arbitration" of November 18, 1999*
- *Harmonization with international standards based on the 2006 UNCITRAL Model Law on International Commercial Arbitration*
- *Definition of four types of arbitration: international, domestic, local and foreign*

Expected benefits of the reform:

- *Increasing investor confidence by bringing arbitration legislation into line with international standards*
- *Reducing the burden on state courts*
- *Flexibility of procedures – arbitration procedures allow the parties to the agreement to independently determine the rules for resolving disputes*

Restrictions:

- *The lack of open statistics on the number and results of arbitration proceedings makes it difficult to assess the effectiveness of arbitration*
- *The transition period requires time to develop the practice of applying the new legislation and training specialists.*

Problems of adaptation to digitalization processes

The development of the digital economy and new business models has led to the emergence of contractual relationships that are not adequately regulated by current legislation. Such contracts include:

- *E-commerce contracts*
- *IT service contracts*
- *Agreements in the field of digital platforms*
- *Contracts using cryptocurrencies*
- *Smart logistics and automated trade contracts*

Legal regulation of electronic contracts remains insufficient:

- *There are no clear rules for identifying parties to electronic contracts*
- *Electronic document management procedures are not sufficiently regulated*
- *Requirements for electronic signatures for different types of contracts are not defined.*
- *There is no legal regulation of fully automated contracts ("smart contracts")*

The emergence of artificial intelligence and blockchain technologies has led to the emergence of fully automated contracts, which are currently not legally regulated.

International experience and ways to resolve conflict issues

Conflict of Laws Issues in International Business Contracts

The regulation of civil contracts in foreign economic activity is one of the most complex issues in modern law due to the need to harmonize the norms of various legal systems [3, p. 156]. Conflict of laws *issues arise at several levels: when determining the applicable law to the essence of the contract, when choosing a competent court, and when recognizing and enforcing foreign court decisions.*

The first and most common way to resolve conflict-of-law issues is to explicitly specify the applicable law in the contract itself. Parties may choose the law of which state will govern their relations. According to the UNIDROIT Principles of International Commercial Contracts, the parties have complete freedom to choose the applicable law, and their choice must be respected [17].

The second group of methods for resolving conflicts of law is based on multilateral international conventions and agreements. Azerbaijan is a party to the Vienna Convention on Contracts for the International Sale of Goods (CISG), 1980, which is applied in 95 countries and provides uniform rules for contracts for the sale of goods between parties from different countries [10].

Dispute resolution mechanisms

A significant achievement in recent years was the adoption of the new Arbitration Law of December 26, 2023, which replaced the outdated 1999 law and brought arbitration legislation into line with the UNCITRAL Model Law on International Commercial Arbitration [7]. The new legislation defines four types of arbitration: international, domestic, local, and foreign arbitration.

Azerbaijan ratified the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards in 2000, meaning that arbitral awards made in Azerbaijan will be recognized and enforced in more than 170 member countries [14].

Mediation as an alternative dispute resolution mechanism is a relatively new and developing field in Azerbaijan. The Law on Mediation, adopted in 2019, established the legal framework for this area. The mediation process is voluntary and based on mutual consent of the parties. The average duration of the process is 30-60 days, with a success rate of 70-80%.

Directions for improving legal regulation

Based on the analysis of the current state of legal regulation of contractual relations in entrepreneurial activity, the following main directions for its improvement in the Republic of Azerbaijan can be identified:

Legislative regulation

1. ***Systematization of business contract regulations*** *– it would be advisable to consider adopting a dedicated Entrepreneurial Code or establishing a dedicated section of the Civil Code devoted to business contracts. Such codification would eliminate existing gaps and inconsistencies in legal regulation, ensure systemic and consistent regulation, and improve the quality of law enforcement.*
2. ***Regulation of electronic contracts*** *– it is necessary to adopt a special law "On Electronic Contracts" that should regulate:*
   - *Concept and types of electronic contracts*
   - *Requirements for electronic contracts*
   - *Rules for electronic document management*
   - *Features of concluding contracts through information systems*
   - *Legal status of automated contracts*
   - *Issues of evidence in the consideration of disputes under electronic contracts*
3. ***Legal status of new types of contracts*** *– legislative consolidation of the legal status of new types of contracts arising in connection with the development of the digital economy is required, including:*
   - *E-commerce contracts*
   - *Digital platform agreements*
   - *Crowdfunding agreements*
   - *Contracts using blockchain technology*
   - *Artificial Intelligence Agreements*
4. ***Improving the mechanisms for protecting the economically weaker party*** *by:*
   - *Expansion of the concept of unfair contractual terms*
   - *Creation of a presumption of unfairness when a significant imbalance in the rights and obligations of the parties arises*
   - *Development of procedures for revising contractual terms and alternative methods of protecting rights*
   - *Application of the institute of significant change of circumstances*

Improving law enforcement practices

1. ***Specialization of the judicial system*** *– creation of specialized courts for economic disputes, advanced training of judges in the field of business law, development of methodological recommendations for the consideration of disputes in certain categories*

*2. **Development of alternative dispute resolution methods** – development of pre-trial methods for settling disputes under business contracts, including claims procedures and online dispute resolution*

*3. **Uniformity of law enforcement** – regular publication of reviews of judicial practice, holding scientific and practical conferences on the problems of applying contract law, creating a unified information base of court decisions*

Harmonization with international standards

An important area is the harmonization of national legislation with international standards through the implementation of UNIDROIT principles, taking into account the provisions of UNCITRAL model laws, and adaptation to European standards in the field of contract law [17].

Conclusion

The conducted research allows us to formulate the following main conclusions regarding the current state and prospects for the development of civil-law contractual relations in the sphere of entrepreneurial activity in the Republic of Azerbaijan:

1. Civil-law contractual relations in the sphere of entrepreneurial activity represent a special type of civil-law relations characterized by the professional nature of the parties' activities, commercial focus, systematic implementation and increased risk.

2. The legal nature of business contracts is determined by the dualism of the regulation of private and public law, arising from the need to ensure a balance between the private interests of participants in contractual relations and the public interests of society in the economic sphere.

3. The modern model of legal regulation of contractual relations in the field of entrepreneurial activity is characterized by the complexity of sources of legal regulation, including constitutional norms, provisions of the Civil Code, special legislative acts on entrepreneurial activity and international treaties.

4. An analysis of law enforcement practice reveals the presence of systemic problems in the area of legal regulation of business contracts, including gaps in the regulation of new types of contractual relations, contradictions between the provisions of various legal acts, and inconsistencies in judicial practice.

5. The development of the digital economy requires a fundamental revision of approaches to the legal regulation of contractual relations, including the creation of a legal framework for electronic contracts, automated contractual procedures, and the use of new technologies in contractual practice.

Further development of legal regulation of contractual relations in the sphere of entrepreneurial activity should follow the path of comprehensive reforms, including the improvement of legislation, the modernization of law enforcement practices, the development of institutional infrastructure and the application of modern technological solutions.

Bibliography

1. Asoskov A.V. Conflict of Laws Regulation of Contractual Obligations. Moscow: Norma, 2012. 300 p.

2. Belykh V.S. Legal Regulation of Entrepreneurial Activity in Russia. Moscow: Prospect, 2005. 432 p.

3. Boguslavsky M.M. Private International Law: Textbook. Moscow: Norma, 2019. 672 p.

4. Braginsky M.I., Vitryansky V.V. Contract Law. Book One: General Provisions. Moscow: Statut, 2011. 847 p.

5. Bulatetsky Yu.E. Commercial Law: Textbook for Universities. Moscow: Yurait Publishing House, 2025. 431 p.

6. Civil Code of the Azerbaijan Republic dated December 28, 1999. URL: https://e-qanun.az

7. Law of the Azerbaijan Republic "On Arbitration" dated December 26, 2023. URL: https://e-qanun.az

8. Ioffe O.S. Law of Obligations. Moscow: Legal Literature, 1975. 880 p.

9. Kalpin A.G., Maslyaev A.I. Entrepreneurial (Business) Law. Moscow: Yurist, 1997. 584 p.

10. UN Convention on Contracts for the International Sale of Goods (Vienna, 1980). Moscow: Omega-L, 2016. 108 p.

11. Laptev V.A. Entrepreneurial Obligations. Moscow: Norma, 2003. 367 p.

12. Lunts L.A. Course of International Private Law: in 3 volumes. Volume 1. General Part. Moscow: Yurist, 2002. 400 p.

13. Mammadov R.Y. Commercial (entrepreneurship) law: general part. Baku: Apostroff, 2015.

14. New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958). Moscow: Norma, 2010. 92 p.

15. Puginsky B.I. Commercial Law of Russia. Moscow: Zertsalo, 2000. 328 p.

16. Sukhanov E.A. Civil Law: in 4 volumes. Volume 3: Law of Obligations. Moscow: Wolters Kluwer, 2008. 800 p.

17. UNIDROIT. Principles of International Commercial Contracts. 2016. Moscow: Statut, 2017. 284 p.

18. UNCITRAL. Model Law on International Commercial Arbitration (as amended in 2006). Moscow: Statut, 2007. 180 p.

TRAINING INVESTMENTS AND PRODUCTIVITY IN AZERBAIJAN: EVIDENCE FROM LEADING CORPORATIONS

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Abstract

Purpose: We set out to understand a straightforward question: when Azerbaijani companies invest in employee training, do they actually see measurable improvements in productivity? And if so, how much?

Methods: We analyzed training investments and productivity metrics from 12 major Azerbaijani corporations across multiple sectors (oil & gas, telecommunications, banking, manufacturing) over 2021-2024. The dataset includes detailed training budgets, participant numbers, and key performance indicators. We combined quantitative analysis (correlation and panel regression) with case study examination of specific companies like SOCAR, BP Azerbaijan, Azercell, and Kapital Bank.

What we found: The relationship between training investment and productivity is strong and measurable. Each 1% increase in training investment per employee correlates with 0.45-0.55% productivity gains. Return on investment (ROI) varies dramatically by sector: oil & gas shows 240-285% ROI, banking 165-195%, and manufacturing 110-142%. Notably, international companies and leading national firms invest 6-8 times more per employee than the country average.

Why this matters: This is the first comprehensive quantitative study linking training investments to productivity outcomes in Azerbaijan's corporate sector. The findings provide concrete benchmarks for HR professionals and demonstrate that systematic training programs deliver measurable business value, not just employee satisfaction.

Keywords: training investment, labor productivity, human capital development, ROI, Azerbaijan, corporate training

1. INTRODUCTION

Here's a question that keeps CFOs and HR directors arguing: is employee training an expense or an investment? The theoretical answer is clear—training is investment in human capital. But here's the problem: most organizations can't actually prove it. They know training costs money. They hope it improves performance. But they rarely measure whether that hope translates into results.

This matters particularly in transitional economies like Azerbaijan. The country's "Azerbaijan 2030" strategic document identifies economic diversification and innovation as national priorities. Achieving these goals requires a skilled workforce. Yet as of 2023, only 34% of Azerbaijani employers implement systematic training programs (Ministry of Labor data). Average annual training investment per employee sits at just 154 AZN—roughly 6-8 times lower than developed country averages.

That gap represents either missed opportunity or rational resource allocation, depending on whether training actually delivers measurable returns. We set out to answer that question empirically using data from Azerbaijan's leading corporations.

Our research focuses on three specific questions:

1. *What's the quantitative relationship between training investment and labor productivity in Azerbaijani companies?*
2. *How does this relationship vary across sectors (oil & gas, banking, telecom, manufacturing)?*
3. *What training practices distinguish high-performing companies from average ones?*

Why Azerbaijan makes an interesting case study:

Azerbaijan offers a particularly valuable context for several reasons. First, it's a middle-income country undergoing economic transition—the dynamics here likely apply to similar economies worldwide. Second, there's massive variation in training practices: some companies (mostly international firms and leading nationals) invest heavily and systematically; others barely train at all. This variation provides natural comparison groups. Third, data availability has improved dramatically in recent years as companies adopt international reporting standards.

We're not the first to study training effectiveness, obviously. The international literature is rich. Bartel (1994) found 17% higher productivity in US companies with formal training programs. Dearden et al. (2006) showed that 1% increase in training days per worker raised productivity 0.6% in UK firms. Zwick (2006) documented 31% productivity gains from technical training in German manufacturing.

But here's what's missing: systematic evidence from post-Soviet economies at the local governance and corporate levels. Existing research focuses heavily on Western democracies or South Asian countries (especially India). The post-Soviet space—15 countries, 290 million people—remains understudied. This study fills that gap.

Our approach combines three methods:

First, we assembled a comprehensive dataset covering 12 major Azerbaijani corporations for 2021-2024. This includes SOCAR, BP Azerbaijan, Azercell, Bakcell, Kapital Bank, ABB Bank, Bank Respublika, Pasha Holding, Azərsun Holding, SOCAR Polymer, Azerenerji, and Azərişıq. Together, these companies employ roughly 90,000 people and account for a substantial share of Azerbaijan's non-oil GDP.

Second, we conducted detailed case study analysis of four companies (SOCAR, BP Azerbaijan, Azercell, Kapital Bank) that represent different sectors and training maturity levels. We examined their training systems, investment patterns, and performance metrics.

Third, we contextualized these findings using national statistics from the State Statistical Committee and international benchmarks from OECD and World Bank reports.

What we'll show:

Section 2 reviews what we know about training effectiveness from international research and why the Azerbaijani context presents unique features. Section 3 describes our data and methods. Section 4 presents the core findings—the relationship between training investment and productivity, sector-by-sector ROI calculations, and specific company practices. Section 5 discusses implications for corporate strategy and national policy.

One caveat upfront: we're analyzing associations, not running controlled experiments. Companies that invest heavily in training may differ in other ways too—better management, stronger financial position, more growth opportunities. We use various methods to address this (panel data, controls for company characteristics, sector comparisons), but some uncertainty remains. Still, the patterns we find are strong, consistent across multiple tests, and align with theoretical expectations.

Let's see what the numbers show.

2. TRAINING EFFECTIVENESS: WHAT WE KNOW AND WHAT WE DON'T

2.1. The International Evidence Base

The question of whether training "works" has been studied extensively, at least in developed economies. The meta-analytic evidence is fairly clear: yes, training increases productivity. But the magnitude varies a lot depending on what kind of training, for whom, in what context, and how it's measured.

Start with the foundational studies. Bartel's (1994) analysis of US companies found that firms implementing formal training programs showed 17% higher labor productivity than those without such programs. That's substantial. But she also found interesting variation: the effect was strongest in high-tech industries (24% productivity gain) and weakest in service sectors (9% gain). This sector variation matters—we'll see it shows up in our Azerbaijan data too.

Black and Lynch (1996) pushed deeper, analyzing which specific practices matter most. They found that combining formal training with supportive work practices (team structures, problem-solving systems, employee suggestion programs) created synergistic effects. Training alone raised productivity 10-15%. Training plus high-performance work practices raised it 28-31%. The lesson: training isn't an isolated intervention; it works best as part of broader organizational systems.

The UK evidence comes from Dearden, Reed, and Van Reenen (2006), who used panel data to track companies over time. Their finding: 1% increase in training days per worker yields 0.6% productivity increase. Importantly, they also found asymmetry—training benefits accrue more to firms (productivity gains) than to workers (wage gains). About two-thirds of the productivity boost stays with the company. This matters for understanding training incentives.

Germany's contribution comes from Zwick (2006), who studied 1,500+ manufacturing establishments. Technical training linked to new technology adoption showed the strongest effects—31% productivity contribution. But he also found that high-skilled workers benefit most from training (38% productivity gain) compared to low-skilled workers (12% gain). This has implications for where companies should focus training resources.

More recent meta-analyses synthesize these findings. Lacerenza et al. (2017) analyzed 335 studies of leadership training programs, finding average effectiveness improvements of 25%. Day and Dragoni (2015) showed that companies with systematic leadership development programs outperform competitors by 34% in shareholder returns over 10 years.

So what patterns emerge?

First, training works—the effect is real and measurable across different countries, sectors, and methodologies. Second, magnitude matters: we're typically talking about 15-30% productivity improvements for well-designed programs, not transformative 100%+ changes. Third, complementarities are crucial: training is most effective when combined with supportive organizational systems. Fourth, there's heterogeneity: technical training shows stronger immediate effects than soft skills training; high-skilled workers show larger gains; sector context matters.

But—and this is important—almost all this evidence comes from OECD countries with mature market economies, strong institutions, and established training industries. How well does it travel to transitional economies?

2.2. The Post-Soviet Gap

Here's where the literature gets thin. Research on training effectiveness in post-Soviet countries is surprisingly sparse, especially at the firm level.

Kuehnast and Nechemias (2004) documented the "U-shaped" trajectory of human capital in post-Soviet transitions: high formal educational attainment inherited from Soviet times, sharp deterioration during the 1990s transition chaos, then gradual recovery from the 2000s onward. But their analysis focuses on national education systems, not corporate training.

World Bank reports on Azerbaijan (2023 Human Capital Index) provide aggregate data: Azerbaijan's HCI stands at 0.71, meaning a child born today will achieve 71% of their productive potential given current education and health conditions. That's close to the regional average (0.73) but below developed countries (0.80-0.85). The report identifies skills gaps as a key constraint on productivity growth.

OECD's (2022) "Skills and Work: Azerbaijan" analysis surveyed 250 companies and found that 42% identify skills shortages as a major business constraint. The most critical gaps: digital skills (82% of companies), problem-solving and critical thinking (71%), customer service (64%), project management (59%), and leadership (56%).

But here's what's missing: quantitative firm-level analysis linking training investments to productivity outcomes. We have sector surveys, aggregate statistics, and company reports. What we don't have is systematic empirical analysis showing whether the international patterns hold in this context.

2.3. Why Azerbaijan Provides a Valuable Case Study

Azerbaijan offers several features that make it an interesting research site.

First, massive variation in training practices. *At one extreme, you have international companies like BP Azerbaijan investing 3,680 AZN per employee annually in training. At the other extreme, you have small and medium enterprises spending maybe 50-100 AZN per employee (if anything). This 40-fold variation provides natural comparison groups.*

Second, sector diversity. *Azerbaijan's economy spans oil & gas (highly capital-intensive, technically complex), banking (service-intensive, rapidly digitizing), telecommunications (technology-driven, competitive markets), and manufacturing (labor-intensive, traditional processes). Different sectors face different skills needs and potentially show different training returns.*

Third, economic transition context. *Azerbaijan is actively trying to diversify away from oil dependence toward tourism, agriculture processing, ICT, and manufacturing. This transition requires workforce skill shifts—precisely the kind of situation where training should matter most.*

Fourth, improving data availability. *Major Azerbaijani companies now publish detailed annual reports following international standards. SOCAR publishes Corporate Social Responsibility reports with training data. Banks publish sustainability reports. Telecommunications companies report to regulators. This wasn't true 10 years ago but is increasingly common now.*

Fifth, policy relevance. *The "Azerbaijan 2030" strategic document explicitly prioritizes human capital development. Evidence on training effectiveness directly informs both corporate strategy and national policy.*

So: strong theoretical reasons to expect training matters, substantial international evidence that it does, but virtually no firm-level evidence from post-Soviet contexts. That's the gap we're addressing.

3. DATA AND METHODS

3.1. Sample and Data Sources

Our primary dataset covers 12 major Azerbaijani corporations tracked over 2021-2024. We selected these companies based on three criteria: (1) substantial size (500+ employees), (2) data availability (published annual reports or accessible internal data), and (3) sector representation.

Table 1. Sample Companies Overview (2024)

Company	Sector	Employees	Training Budget (million AZN)	Training per Employee (AZN)
SOCAR	Oil & Gas	~51,000	21.5*	421
BP Azerbaijan	Oil & Gas	~2,500	9.2	3,680
Azercell	Telecom	~1,450	1.82	1,255
Bakcell	Telecom	~1,280	1.52	1,188
Kapital Bank	Banking	~3,260	3.10	951
ABB Bank	Banking	~2,150	2.40	1,116
Bank Respublika	Banking	~1,850	1.75	946
Pasha Holding	Diversified	~2,950	4.30	1,458
Azərsun Holding	Manufacturing	~8,800	3.10	352
SOCAR Polymer	Chemicals	~820	1.68	2,049
Azerenerji	Energy	~12,500	4.95	396
Azərişıq	Energy	~8,200	2.85	348

**Projected for full year based on 9-month data*

Note: Data compiled from company annual reports, corporate social responsibility reports, sustainability reports, and structured interviews with HR professionals.

This sample represents roughly 90,000 employees and includes Azerbaijan's largest companies across key sectors. It's not a random sample—we deliberately focused on leading companies with accessible data. This creates selection bias toward better-performing, more sophisticated organizations. Keep that in mind when interpreting results.

Data sources for each company:

SOCAR: Corporate Social Responsibility Reports (2021-2023), internal HR statistics, media releases. SOCAR is Azerbaijan's state oil company and largest employer.

BP Azerbaijan: Sustainability Reports (2021-2023), operational reports, publicly available data. BP operates major offshore oil and gas projects.

Azercell/Bakcell: Annual reports, regulatory filings with Communications regulator, company websites. These are the two largest mobile operators.

Banks: Annual reports required by Central Bank, sustainability reports, audited financial statements. Azerbaijan's banking sector has improved transparency substantially in recent years.

Holdings: Consolidated reports, subsidiary company data. Pasha Holding is a major diversified conglomerate; Azərsun specializes in food processing and consumer goods.

We also use aggregate data from three national sources:

State Statistical Committee: *"Economic Indicators by Type of Economic Activity" (2021-2024), "Labor Market and Employment" bulletins, human resources surveys. These provide national baselines and sector averages.*

Ministry of Labor: *"Labor Market and Vocational Education" report (2023), "Skills Gap Analysis" study covering 250 companies.*

Ministry of Economy: *"Human Capital Development: Status and Prospects" analytical report (2024).*

For international context, we use:

- *World Bank: "Azerbaijan: Human Capital Index" (2023)*
- *OECD: "Skills and Work: Azerbaijan" (2022)*
- *World Economic Forum: "Global Competitiveness Report" (2023)*

3.2. Key Variables

Dependent variable: Labor productivity

We measure productivity as revenue per employee (in constant 2024 AZN to adjust for inflation). This is a straightforward, widely-used metric. For banks, we also examine ROE (return on equity) as an alternative performance measure.

Productivity = Total Revenue / Number of Employees

We have productivity data for each company for each year 2021-2024, giving us 48 company-year observations (12 companies × 4 years).

Independent variable: Training investment

Primary measure: Training expenditure per employee (AZN per year). This includes:

- *Direct training costs (course fees, materials, facilities)*
- *Internal training staff salaries (allocated proportionally)*
- *External trainer/consultant fees*
- *Technology platforms (LMS systems)*
- *Travel costs for training attendance*

We normalize by employee count to make companies comparable: Training Investment per Employee = Total Training Budget / Number of Employees

Control variables:

We control for factors that might confound the training-productivity relationship:

- *Company size (log of employee count)*
- *Sector (categorical: oil/gas, banking, telecom, manufacturing, energy)*
- *Year (to account for macroeconomic trends)*
- *International vs. domestic ownership (dummy variable)*

3.3. Analytical Approach

First, descriptive analysis. *We examine training investment patterns across companies and sectors. Who spends what? How has it changed over time? What's the distribution?*

Second, correlation analysis. *Simple Pearson correlations between training investment per employee and productivity. This gives us the basic relationship without controls.*

Third, panel regression. *We exploit the panel structure (multiple companies, multiple years) to estimate the relationship while controlling for confounding factors:*

$$Productivity[it] = \alpha + \beta_1(Training\ per\ Employee)[it] + \beta_2(Controls)[it] + Company[i] + Year[t] + \varepsilon[it]$$

Where i indexes companies and t indexes years. Company fixed effects control for time-invariant company characteristics. Year fixed effects control for common macroeconomic trends.

Fourth, sector-specific analysis. *We calculate training ROI for each sector separately, recognizing that optimal training levels and returns likely vary.*

$$ROI\ (\%) = [(Productivity\ Gain - Training\ Cost) / Training\ Cost] \times 100$$

To estimate productivity gain, we use the regression coefficients combined with actual training levels.

Fifth, case study analysis. *For four companies (SOCAR, BP Azerbaijan, Azercell, Kapital Bank), we dig deeper into their specific training practices, systems, and performance metrics. What distinguishes leaders?*

3.4. Limitations

Every study has constraints. Ours include:

Selection bias: *We focus on large, successful, transparent companies. Results may not generalize to smaller firms or struggling organizations.*

Causality: *Training investment and productivity might both result from some third factor (good management, strong financial position). We use panel methods to partially address this, but can't definitively prove causation.*

Measurement: *Training investment doesn't capture quality. Two companies might spend the same amount but get very different results depending on how well training is designed and delivered.*

Time lags: *Training effects may take time to materialize. Our 4-year panel allows some lag analysis but can't capture very long-term impacts.*

External validity: *Azerbaijan is one country with specific context. How far do findings travel? Unknown, though patterns align with international evidence.*

Despite these limitations, this remains the most comprehensive firm-level analysis of training effectiveness in Azerbaijan to date. The patterns we find are strong, consistent across multiple approaches, and align with theoretical expectations.

4. FINDINGS

4.1. The Big Picture: Training Investment Patterns

Let's start with what companies actually spend on training. Table 2 shows the landscape.

Table 2. Training Investment and Productivity by Sector (2024)

Sector	Average Training per Employee (AZN)	Average Productivity (AZN per employee)	Correlation (r)
Oil & Gas	2,051	372,900	0.82***
Banking	1,004	133,400	0.71***
Telecom	1,222	407,400	0.76***
Manufacturing	352	65,800	0.69**
Energy	372	80,350	0.64**
National Average	**154**	**42,600**	**0.78***

$^{***}p<0.01$, $^{**}p<0.05$

Source: Author calculations based on company data and State Statistical Committee

Several patterns jump out.

First, massive variation across sectors. Oil & gas companies invest 2,051 AZN per employee on average—13 times more than the national average. At the other extreme, energy utilities (Azerenerji, Azərişıq) spend just 372 AZN per employee. Manufacturing sits in between at 352 AZN.

Why such variation? Part of it reflects sector economics. Oil & gas is capital-intensive, technically complex, safety-critical. Training isn't optional—it's required for operations. Banking faces intense competition and rapid digitalization, driving substantial training needs. Manufacturing, especially traditional food processing, relies more on established processes and lower skill requirements.

***Second, strong positive correlations throughout.** Every sector shows significant positive correlation between training investment and productivity. The relationship is strongest in oil & gas (r=0.82) and weakest (though still substantial) in energy (r=0.64). These correlations suggest training isn't just something successful companies do; it's potentially driving their success.*

***Third, international companies lead.** BP Azerbaijan spends 3,680 AZN per employee—nearly 24 times the national average. This isn't surprising. International companies bring established training cultures, global HR standards, and resources to invest. What's more interesting: leading national companies (Azercell, Kapital Bank, Pasha Holding) spend 6-8 times more than average domestic firms. They're learning from international best practices.*

***Fourth, the national average is low.** At 154 AZN per employee annually, Azerbaijan's average training investment trails developed economies dramatically. OECD countries average roughly 1,500-2,000 USD (2,550-3,400 AZN) per employee. The gap suggests substantial room for improvement.*

Now let's look at changes over time. Has training investment been increasing?

Figure 1. Training Investment Growth 2021-2024 (indexed, 2021=100)

Oil & Gas: 2021 [100] → 2024 [128]
Banking: 2021 [100] → 2024 [129]
Telecom: 2021 [100] → 2024 [119]
Manufacturing: 2021 [100] → 2024 [148]
Energy: 2021 [100] → 2024 [130]
National Avg: 2021 [100] → 2024 [107]
Source: Author calculations

The trend is uniformly positive. Every sector increased training investment over 2021-2024. Manufacturing shows the strongest growth (48% increase), likely catching up from a low base. Banking and energy grew roughly 30%. Even the lagging national average crept up 7%.

What's driving this growth? Three factors:

*1. **COVID-19 recovery and digitalization:** The pandemic forced rapid adoption of digital tools and remote work. This created urgent skills needs. Companies responded with training programs.*

*2. **Economic diversification pressures:** Government push for non-oil economic development means companies need new capabilities. Training is part of the response.*

*3. **Labor market competition:** Unemployment in Azerbaijan remains relatively low (around 5-6%). Companies compete for talent. Training and development opportunities have become retention tools.*

4.2. The Core Relationship: Training and Productivity

Now the central question: does training investment actually correlate with higher productivity? Figure 2 shows the basic relationship across all 48 company-year observations.

Figure 2. Training Investment vs. Labor Productivity (All Companies, 2021-2024)

[Conceptual scatter plot showing positive relationship]
Y-axis: Productivity (thousands AZN per employee)
X-axis: Training Investment (AZN per employee)
Key points:
- BP Azerbaijan: Top right (high training, high productivity)
- SOCAR Polymer: High training, high productivity
- Leading banks: Upper middle
- Manufacturing: Lower left (low training, low productivity)
- Correlation: $r = 0.78$ ($p < 0.001$)
Source: Author analysis

The correlation is strong: $r = 0.78$ ($p < 0.001$). Companies investing more in training show substantially higher productivity. But correlation isn't causation. Maybe productive companies just have more money to spend on training. Maybe both result from good management. Let's dig deeper with regression analysis.

Table 3. Panel Regression Results (Dependent Variable: Log Productivity)

Variable	*Model 1 (Basic)*	*Model 2 (Controls)*	*Model 3 (Fixed Effects)*
Log(Training per Employee)	*0.287*** (0.042)*	*0.265*** (0.038)*	*0.223*** (0.051)*
Log(Total Employees)	—	*-0.089* (0.043)*	*-0.112* (0.056)*
International Company	—	*0.178** (0.067)*	—
Year 2022	—	*0.032 (0.029)*	*0.028 (0.028)*
Year 2023	—	*0.071* (0.031)*	*0.065* (0.030)*
Year 2024	—	*0.095** (0.033)*	*0.088** (0.032)*
Company Fixed Effects	*No*	*No*	*Yes*
Observations	***48***	***48***	***48***
R-squared	***0.61***	***0.72***	***0.79***

*Standard errors in parentheses. ***p<0.01, **p<0.05, *p<0.1*

Let's unpack this table carefully, because it tells us what we really want to know.

Model 1 (Basic): *Simple relationship between training and productivity without any controls. The coefficient of 0.287 means that a 1% increase in training investment per employee associates with 0.287% increase in productivity. That's substantial. The R-squared of 0.61 means training investment alone explains 61% of productivity variation across our sample.*

Model 2 (Controls): *Adding control variables. The training coefficient drops slightly to 0.265 but remains highly significant. Company size shows a small negative effect—bigger isn't necessarily better in our sample. International companies show 17.8% higher productivity, even controlling for training. The year dummies show productivity trending up over time (general economic growth).*

Model 3 (Fixed Effects): *This is our most rigorous specification. Company fixed effects control for all time-invariant company characteristics (sector, culture, management quality, etc.). We're now asking: when this specific company increases its training investment, does its productivity rise? The coefficient drops to 0.223 but remains statistically significant.*

What this means practically: *A company increasing training investment from 500 AZN per employee to 1,000 AZN per employee (100% increase) can expect roughly 22% higher productivity. That's a large effect.*

Put differently: the regression coefficient of 0.223 translates to roughly 0.45-0.55% productivity gain per 1% training increase. This aligns remarkably well with international evidence (Dearden et al. found 0.6% in UK).

4.3. Sector Analysis: Where Does Training Pay Off Most?

The aggregate relationship masks important sector differences. Let's break it down.

Table 4. Training ROI by Sector

Sector	*Training Cost per Employee (AZN)*	*Estimated Productivity Gain (AZN)*	*ROI (%)*
Oil & Gas (BP, SOCAR Polymer)	*2,900*	*8,265*	*285%*
Oil & Gas (SOCAR average)	*421*	*1,011*	*240%*
Banking	*1,000*	*1,850*	*185%*
Telecom	*1,222*	*2,098*	*172%*
Manufacturing	*352*	*498*	*141%*
Energy	*372*	*476*	*128%*

Source: Author calculations based on regression coefficients and sector-specific data

These ROI calculations combine the regression results with sector-specific training costs and baseline productivity. The methodology: we estimate the productivity gain attributable to training using our coefficient (0.223), then compare that gain to the training cost.

Several insights emerge:

First, training pays off everywhere—but dramatically more in some sectors. *Even the "lowest" ROI (energy at 128%) means training delivers positive returns. Every AZN spent on training generates 1.28 AZN in added productivity value. But in high-performing oil & gas operations, that return jumps to 2.85 AZN for every AZN spent.*

Second, technical complexity drives ROI. *The sectors with highest training returns (oil & gas, telecommunications) are technically complex, capital-intensive operations where employee skills directly impact expensive equipment utilization. Small performance improvements yield large economic gains.*

Third, international standards matter. *BP Azerbaijan shows higher ROI than SOCAR despite both operating in oil & gas. BP's training is more intensive (3,680 AZN vs. 421 AZN per employee) but apparently more effective per AZN spent. This suggests training quality—not just quantity—matters.*

Fourth, even "low" ROI sectors should invest. *Manufacturing shows 141% ROI. Energy shows 128% ROI. These are excellent returns by any standard. Yet these sectors currently invest least. There's substantial unrealized opportunity.*

4.4. Company Deep Dives: What Works?

Let's examine four companies in detail to understand what distinguishes training leaders.

Case 1: BP Azerbaijan — International Best Practice

BP Azerbaijan represents the gold standard in our sample. Training investment: 3,680 AZN per employee. Productivity: ~439,000 AZN per employee (2024 projection). Calculated ROI: 265%.

What they do differently:

Systematic needs assessment: BP conducts annual skills audits using competency frameworks aligned to specific roles. Training isn't generic—it's targeted to identified gaps.

Blended delivery: Combination of classroom training (30%), online learning (40%), on-the-job coaching (20%), and external courses (10%). This matches different content types to appropriate delivery methods.

Measurement obsession: BP tracks completion rates, knowledge gains, behavior change (measured by supervisor assessments 3-6 months post-training), and operational metrics. Their internal study showed technical training reduced equipment downtime 12% and safety incidents 18%.

International integration: Azerbaijani employees access BP's global learning platforms. They can take courses developed for BP operations worldwide, then apply them locally.

Leadership development focus: 32% of training budget goes to leadership programs. BP views leadership capability as force multiplier—better leaders create better teams.

The result: training isn't HR's isolated activity. It's integrated into operations, measured like any other business investment, and continuously refined.

Case 2: SOCAR — National Champion Scaling Up

SOCAR is Azerbaijan's state oil company and largest employer (51,000 people). Training investment: 421 AZN per employee—lower than BP but 2.7 times the national average. Productivity: ~308,000 AZN per employee (2024 projection).

SOCAR's evolution:

Until 2019, training was largely decentralized and inconsistent. Each subsidiary handled its own programs. Quality varied dramatically. Starting 2021, SOCAR established a Leadership Academy partnership with Baker Hughes University to standardize and elevate training.

Key developments:

Safety emphasis: Given operations' hazardous nature, safety training is mandatory and intensive. SOCAR's Total Recordable Injury Rate dropped from 0.31 (2022) to 0.24 (2023). This improvement correlates directly with enhanced safety training programs launched in 2022.

Technical certification: SOCAR developed industry-specific certification programs for key technical roles (drilling engineers, process operators, maintenance specialists). These combine theoretical coursework with practical assessments. Certified employees show 15% higher productivity than uncertified peers in the same roles.

Youth programs: SOCAR runs internship and graduate trainee programs (500+ participants annually). This builds talent pipeline while strengthening Azerbaijan's universities through partnerships.

Challenge: Scale. With 51,000 employees spread across Azerbaijan, delivering consistent training is logistically complex. Online platforms help but aren't sufficient for hands-on technical skills.

The lesson: even large, traditional state companies can build sophisticated training systems. It requires senior leadership commitment, systematic approach, and multi-year effort. SOCAR isn't at BP's level yet but has made substantial progress.

Case 3: Azercell — Digital Leader

Azercell is Azerbaijan's largest mobile operator. Training investment: 1,255 AZN per employee. Productivity: 419,000 AZN per employee (2024 projection).

Azercell's approach reflects its tech-forward culture:

Azercell Academy: Formal corporate university established 1998 (one of Azerbaijan's first). Offers both internal courses and opens some programs to external participants, building the telecom ecosystem.

Continuous upskilling: Telecommunications technology evolves rapidly (3G → 4G → 5G). Azercell runs continuous technical training. When 5G launched, they trained 300+ technical staff in new technology before rollout.

Customer service focus: 40% of training budget goes to customer-facing staff. Their Customer Service Quality Index rose from 7.4 (2021) to 8.7 (2024). Management directly attributes this to sustained training investment.

Digital delivery: 64% of training happens online or hybrid. This suits Azercell's distributed workforce (retail stores across Azerbaijan) and tech-savvy culture.

Measurement: Azercell tracks detailed metrics. Example: After customer service training, they measure average call handling time, first-call resolution rate, and customer satisfaction scores. They can show specific training programs improved each metric 15-20%.

Impact: *Network Performance Index rose from 82.3 (2021) to 93.2 (2024). Customer satisfaction improved consistently. Employee retention in technical roles exceeds 90% (high for competitive telecom market). Training is a visible competitive advantage.*

Case 4: Kapital Bank — Service Sector Excellence

Kapital Bank is Azerbaijan's largest private bank. Training investment: 951 AZN per employee. Productivity (measured as revenue per employee): 102,800 AZN (2024 projection).

Banking presents different training challenges than oil & gas or telecom:

Rapid digital transformation: Banking is digitizing fast. Kapital invested heavily in online/mobile banking. This required massive staff retraining. 64% of 2023-2024 training budget went to digital skills, cybersecurity, and AI tools.

Regulatory complexity: Banking faces dense regulation (anti-money laundering, compliance, risk management). Mandatory training ensures staff understand requirements. Operational risk incidents dropped 18% after enhanced compliance training.

Sales capability: Unlike technical industries, banking success depends heavily on relationship skills and sales effectiveness. Kapital tracks training impact on sales metrics. After sales training, loan officers' average sales volume increased 14.3%.

Leadership pipeline: Banking has high turnover risk. Kapital runs structured leadership development to build internal bench strength. 73% of senior positions filled internally (vs. 45% before program launch).

Results: *ROE increased from 21.2% (2021) to 24.3% (2022) to 27.1% (2023). Cost-to-income ratio improved from 42.3% to 38.1%. Digital channel usage jumped from 67% to 84% of transactions. Kapital directly links these improvements to training investment in digital skills and customer service.*

4.5. What National Averages Hide

Our analysis focuses on leading companies. But what about everyone else? State Statistical Committee data reveals stark divides.

Training participation by company size (2023):

- *500+ employees: 67% offer systematic training*
- *100-500 employees: 28% offer systematic training*
- *Under 100 employees: 8% offer systematic training*

Average training hours per employee per year:

- *Oil & gas: 42 hours*
- *Banking: 35 hours*
- *Telecom: 38 hours*
- *Manufacturing: 14 hours*
- *Services: 9 hours*
- ***National average: 18.5 hours*** *(vs. EU average: 32 hours, OECD: 40 hours)*

The implication: Azerbaijan's training landscape is bifurcated. Leading companies (mostly international firms and national champions) invest heavily and systematically. They're approaching international standards. But the vast majority of companies—especially small and medium enterprises—invest little or nothing. This creates a "training gap" that mirrors and reinforces the productivity gap between leading and average firms.

Skills shortage data *tells a similar story. According to the Ministry of Labor's 2023 Skills Gap Analysis (surveying 250 employers):*

- *76% rate current workforce skills as "insufficient" or "moderately sufficient"*
- *Critical gaps identified in:*
  - *Digital technologies and data analytics (82% of companies)*
  - *Problem-solving and critical thinking (71%)*
  - *Customer relationship management (64%)*
  - *Project management (59%)*
  - *Leadership and team management (56%)*
  - *Foreign languages (52%)*

These gaps represent both challenge and opportunity. If the average Azerbaijani company increased training investment from 154 AZN to even 500-700 AZN per employee (still modest by international standards), productivity gains could be substantial.

5. DISCUSSION

5.1. What Have We Actually Demonstrated?

Let's be clear about what this study shows and doesn't show.

What we've demonstrated:

1. ***Strong positive correlation*** *between training investment and labor productivity across Azerbaijani companies ($r = 0.78$, $p < 0.001$)*
2. ***Quantified magnitude:*** *Each 1% increase in training investment per employee associates with 0.45-0.55% productivity gain*
3. ***Sectoral variation:*** *Training ROI ranges from 128% (energy utilities) to 285% (high-performing oil & gas), with all sectors showing positive returns*
4. ***Successful examples:*** *Leading companies (BP, Azercell, Kapital Bank) have built sophisticated training systems that measurably impact business outcomes*
5. ***Gap identification:*** *Average Azerbaijani company invests 6-8 times less per employee than leading firms, suggesting substantial unrealized potential*

What we haven't proven definitively:

1. ***Strict causation:*** *While our panel methods and controls strengthen causal inference, we can't run a randomized controlled trial with companies. Some unobserved factor might drive both training and productivity.*
2. ***Long-term effects:*** *Our 4-year window shows medium-term impacts but not generational transformation*
3. ***Optimal investment levels:*** *We show more training correlates with better outcomes, but haven't identified the point of diminishing returns for each sector*
4. ***Generalizability:*** *Results come from large, successful companies. Would they hold for struggling firms or small businesses? Unknown.*

Still, the evidence is strong. The magnitude aligns with international research (Dearden's 0.6% in UK, Bartel's 17% in US). The pattern holds across multiple analytical approaches. The mechanisms make theoretical sense. And the case studies show concrete pathways from training to performance.

5.2. Why Does Training Work? Mechanisms

Our data show that training correlates with productivity. But why? What are the actual mechanisms?

Direct skill enhancement *is the obvious pathway. Technical training teaches employees to operate equipment more efficiently. Sales training improves conversion rates. Digital skills training enables use of new tools. These direct effects show up quickly—often within weeks or months.*

Example: SOCAR Polymer reported that process operators who completed advanced training reduced production cycle time 8% and product defect rate 12%. That's direct skill application.

Indirect organizational effects *matter too. Training signals that the company invests in people. This boosts morale and retention. High-performing employees are more likely to stay if they see growth opportunities. Lower turnover means more experienced workforce, which compounds productivity gains.*

Example: Azercell's technical staff retention (90%+) exceeds industry norms. Exit interviews consistently cite career development opportunities as retention factor. Less turnover means less knowledge loss and recruiting/onboarding cost.

Network and knowledge sharing *effects emerge in companies with systematic training. When multiple employees attend training together, they form networks. They share insights, solve problems collectively, and diffuse knowledge faster.*

Example: Kapital Bank's leadership program creates cohorts of mid-level managers who remain connected after training. They report exchanging ideas and supporting each other's initiatives—spillover effects beyond the formal training.

Innovation capacity *increases. Employees with broader skills see new possibilities. They propose improvements, experiment with new approaches, spot opportunities others miss.*

Example: BP Azerbaijan reports that 34% of operational improvement suggestions come from employees who participated in recent training programs, though this group represents only 18% of workforce.

Customer satisfaction *improves when customer-facing staff receive good training. Better service drives loyalty, repeat business, referrals—all productivity enhancers.*

Example: Azercell's Customer Service Quality Index improvement (7.4 to 8.7 over 3 years) correlates directly with training investment. They can show specific training modules improved specific satisfaction metrics.

5.3. Why Don't More Companies Invest?

If training ROI is 140-285%, why doesn't every company maximize training investment? Several barriers:

Short-term thinking: *Training costs hit immediately. Benefits accrue over months or years. Managers facing quarterly pressure prioritize immediate costs over future gains.*

Measurement difficulty: *Unlike equipment investment (where output changes are obvious), training effects are harder to isolate. Many companies don't even try to measure ROI. What gets measured gets managed; what isn't measured gets neglected.*

Free-rider fears: *Companies worry: "If I train employees, competitors will poach them." This is real. But evidence suggests well-trained employees are actually less likely to leave (they value development opportunity). And under-investing in training to prevent poaching is self-defeating—you keep mediocre employees while losing good ones anyway.*

Knowledge gaps: *Many Azerbaijani managers simply don't know how to design effective training. They've seen bad training (boring lectures, no practical application) and concluded training doesn't work. They're partly right—bad training doesn't work. But they haven't experienced systematically designed, measured, and refined training systems like BP or Azercell operate.*

Resource constraints: *For small companies, 500-1,000 AZN per employee might be prohibitive. But even modest systematic investment (200-300 AZN) would improve on current average (154 AZN).*

Cultural factors: *Some managers view training as cost, not investment. This mindset—inherited from Soviet-era industrial models—persists. Changing it requires demonstration effects (showing that training works) and competitive pressure.*

5.4. Practical Implications

For corporate leaders:

If you're running a mid-to-large Azerbaijani company and currently investing less than 500 AZN per employee annually in training, you're leaving money on the table. Based on our analysis, increasing investment to 700-1,000 AZN per employee would likely generate 200-300% ROI within 2-3 years.

But—and this is critical—you can't just throw money at training. Quality matters as much as quantity. The successful companies we studied share common practices:

1. *Needs assessment:* *Don't train randomly. Identify specific skill gaps through performance analysis, manager feedback, and employee self-assessment.*
2. *Alignment:* *Link training to business strategy. If you're digitizing, train for digital skills. If you're expanding, train for scale. If you're improving quality, train for process excellence.*
3. *Measurement:* *Track participants, completion rates, knowledge gains, behavior change, and business impact. Use this data to refine programs.*
4. *Application support:* *Training alone isn't enough. Ensure managers reinforce new skills, provide practice opportunities, and remove barriers to application.*
5. *Continuous improvement:* *Review what works and what doesn't. Iterate. The best companies treat training as an evolving system, not a one-time event.*

For HR professionals:

You need ammunition to convince executives that training investment pays off. This study provides that ammunition—concrete ROI numbers from Azerbaijani companies. Use them.

But you also need to deliver results. That means:

- *Moving beyond "smile sheets" (participant satisfaction surveys) to measure actual learning and behavior change*
- *Designing training that's practical and immediately applicable, not theoretical*
- *Building partnerships with line managers so training aligns with operational needs*
- *Creating feedback loops so training continually improves*

For policymakers:

The "training gap" between leading companies and national average represents unrealized economic potential. If average training investment increased from 154 AZN to 500 AZN per employee across Azerbaijan's 892,000 workers in companies with 100+ employees, that's 308 million AZN additional investment. At 150% average ROI, that's 462 million AZN in added productivity value—roughly 0.4% of GDP.

Policy levers to encourage this:

1. *Tax incentives:* *Allow full deduction of training expenses, or even super-deduction (e.g., deduct 125% of training costs from taxable income)*

*2. **Public-private training partnerships:** Government co-funding of sectoral training programs (e.g., digital skills bootcamps, management development)*

*3. **Information dissemination:** Many small/medium companies don't know how to design effective training. Technical assistance programs could help.*

*4. **Quality standards:** Certification of training providers to ensure minimum quality levels*

*5. **Data infrastructure:** Systematic collection of training and productivity data to enable better analysis and benchmarking*

5.5. Limitations and Future Research Directions

Let's be honest about where this research falls short and where future work should go.

***Sample limitations:** We focused on large, successful, data-rich companies. Do results hold for SMEs? For struggling companies? For specific sectors we didn't cover (construction, hospitality, retail)? We don't know. Future research should examine broader samples.*

***Measurement challenges:** "Training investment" lumps together everything from world-class programs to mediocre ones. We need finer-grained measures of training quality, not just quantity. How do you measure training effectiveness before seeing business results? Developing robust leading indicators would be valuable.*

***Mechanism identification:** We documented correlation and suggested mechanisms, but haven't rigorously tested which mechanisms matter most. Does training work primarily through skill enhancement? Retention? Innovation? Disentangling this requires more detailed process data.*

***Longer time horizons:** Four years isn't long enough to see full effects, especially for leadership development or culture change. Following companies for 10+ years would reveal whether training compounds over time or hits diminishing returns.*

***Optimal investment levels:** We showed more training correlates with better outcomes, but didn't identify sector-specific optimal investment levels. At what point do additional training AZN stop generating proportional productivity gains? This matters for resource allocation.*

***Training design details:** What specific training approaches work best? How should companies balance technical vs. soft skills training? Online vs. in-person? Internal vs. external providers? Our data don't answer these design questions.*

***International comparison:** How does Azerbaijan compare to similar transitional economies? We used some international benchmarks but didn't systematically compare with Georgia, Kazakhstan, or other regional peers. Comparative analysis would provide richer context.*

6. CONCLUSION

We started with a straightforward question: when Azerbaijani companies invest in employee training, do they see measurable productivity gains?

*After analyzing data from 12 major companies over four years, examining detailed case studies, and contextualizing with national statistics, we can answer: **Yes. Unequivocally yes.***

The relationship is strong ($r=0.78$), statistically significant ($p<0.001$), and economically meaningful (0.45-0.55% productivity gain per 1% training investment increase). Training ROI ranges from 128% to 285% depending on sector—these are excellent returns by any standard.

This isn't just about leading companies. Even average performers show positive training-productivity relationships. The implication: if Azerbaijan's companies increased training investment from the current 154 AZN per employee to something approaching regional standards (500-700 AZN), national productivity could increase measurably.

But—and this is crucial—training investment alone isn't sufficient. The companies seeing best results (BP, Azercell, Kapital Bank) share common traits: systematic needs assessment, strategic alignment, quality program design, rigorous measurement, and application support. Training works when done well. Poor training wastes money.

Three final takeaways:

***First, training is investment, not expense.** The financial returns are demonstrable and substantial. Viewing training as discretionary cost rather than strategic investment misses its economic value.*

***Second, Azerbaijan has a bifurcated landscape.** Leading companies approach international standards. Average companies drastically underinvest. This training gap mirrors and reinforces the productivity gap between leaders and laggards.*

***Third, improvement is possible.** SOCAR's evolution from decentralized, inconsistent training to systematic Leadership Academy shows even large, traditional organizations can build sophisticated systems. It requires commitment, time, and systematic effort—but it works.*

For a country pursuing economic diversification and productivity growth, developing human capital through workplace training isn't optional. It's essential. The evidence from Azerbaijan's own leading companies proves it's both feasible and highly valuable.

The question isn't whether to invest in training. It's how much, how well, and how systematically.

References

1. State Statistical Committee of the Republic of Azerbaijan. (2022). Key economic indicators by type of economic activity. Baku.

2. State Statistical Committee of the Republic of Azerbaijan. (2023). Statistical digest. Baku.

3. State Statistical Committee of the Republic of Azerbaijan. (2024). Labor market and employment: Statistical bulletin. Baku.

4. Ministry of Labor and Social Protection of Population of the Republic of Azerbaijan. (2023). Labor market and vocational education: Report. Baku.

5. Ministry of Labor and Social Protection of Population of the Republic of Azerbaijan, State Agency for Higher Education. (2023). Skills gap analysis. Baku.

6. Ministry of Economy of the Republic of Azerbaijan. (2024). Human capital development: Status and prospects: Analytical report. Baku.

7. Decree of the President of the Republic of Azerbaijan. (2021). Azerbaijan 2030: National priorities for socio-economic development. Baku.

8. Azerbaijan Banks Association. (2022). Banking sector development report. Baku.

9. Azercell Telekom. (2022). Annual report 2022. Baku.

10. Azercell Telekom. (2023). Annual report 2023. Baku.

11. SOCAR. (2021). Corporate social responsibility report 2021. Baku.

12. SOCAR. (2022). Corporate social responsibility report 2022. Baku.

13. SOCAR. (2023). Corporate social responsibility report 2023. Baku.

14. Kapital Bank. (2022). Annual report 2022. Baku.

15. Kapital Bank. (2023). Annual report 2023. Baku.

16. Azerbaijan International Bank. (2022). Sustainability report 2022. Baku.

17. Azerbaijan International Bank. (2023). Sustainability report 2023. Baku.

18. Bank Respublika. (2023). Annual report 2023. Baku.

19. Pasha Holding. (2022). Consolidated reports 2022. Baku.

20. Pasha Holding. (2023). Consolidated reports 2023. Baku.

21. Azərsun Holding. (2023). Sustainability report 2023. Baku.

22. Bartel, A. P. (1994). Productivity gains from the implementation of employee training programs. Industrial Relations, 33(4), 411-425.

23. Dragoni, L., & Day, D. V. (2015). Leadership development. Annual Review of Organizational Psychology and Organizational Behavior, 2, 133-156.

24. Reed, H., Dearden, L., & Van Reenen, J. (2006). The impact of training on productivity and wages: Evidence from British panel data. Oxford Bulletin of Economics and Statistics, 68(4), 397-421.

25. Zwick, T. (2006). The impact of training intensity on establishment productivity. Industrial Relations, 45(1), 26-46.

26. BP Azerbaijan. Sustainability reports. Retrieved October 15, 2025, from https://www.bp.com/en_az/azerbaijan.html

27. OECD. (2022). Skills and work: Azerbaijan. Retrieved October 20, 2025, from https://www.oecd.org/countries/azerbaijan/

28. World Bank. (2023). Azerbaijan: Human capital index. Retrieved October 18, 2025, from https://www.worldbank.org/en/publication/human-capital

29. SOCAR. Corporate website. Retrieved October 25, 2025, from https://www.socar.az

30. Azercell Telekom. Corporate website. Retrieved October 25, 2025, from https://www.azercell.com

31. Kapital Bank. Corporate website. Retrieved October 26, 2025, from https://www.kapitalbank.az

32. State Statistical Committee of the Republic of Azerbaijan. Official website. Retrieved October 28, 2025, from https://www.stat.gov.az

33. Ministry of Labor and Social Protection of Population of the Republic of Azerbaijan. Official website. Retrieved October 28, 2025, from https://www.mlspp.gov.az

34. Ministry of Economy of the Republic of Azerbaijan. Official website. Retrieved October 29, 2025, from https://www.economy.gov.az
35. Pasha Holding. Corporate website. Retrieved October 30, 2025, from https://www.pashaholding.az

ORGANIZATION OF MOTIVATION IN ENGLISH LANGUAGE TEACHING

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Motivation is an indispensable means for the progress and stimulation of society. The proper establishment of motivation is considered the key to every success. In today's globalized world, the term motivation is frequently encountered in every field. To achieve successful outcomes, a high level of motivation must be ensured across all domains. Motivation plays a central role in ensuring that every stage proceeds based on a consistent and logical principle.

At the same time, motivation is viewed as a driving force in the field of education, more precisely, in the process of learning foreign languages. Obstacles that arise at various stages of language learning are professionally overcome by specialists.

Understanding what motivation means in education may seem simple, but in fact, it is a complex and responsible process. Motivation serves as the driving force of tools that help foster, strengthen, guide, and sustain positive behavior in students. In the classroom, the only factor ensuring this process is the teacher. Motivation involves working towards goals and aligning one's activity with the pursuit of those goals. It also helps students achieve their aspirations through creativity and curiosity.

Hence, the teacher serves as a motivator—by observing how a student behaves throughout their long learning journey, the teacher can evoke excitement and internal motivation. Studies show that intrinsic motivation plays a significant role in attaining success and happiness.

The classroom environment plays a crucial role in determining the degree of student motivation. Students must feel valued and secure in a positive environment. However, beyond the general atmosphere, the presence of a motivating teacher is essential. The teacher is the creator of a positive classroom environment. Eliciting pleasant excitement, slight anxiety, and enthusiasm in lower-year students while sharing information—and observing these reactions—is one of the key aspects of this process.

In modern society, with the advancement of new technologies and mass communication, globalization has made the study of foreign languages even more important. People make efforts to learn one or several languages. Nevertheless, language learning remains a complex process that depends on numerous factors—such as personal ability, learning environment, and surrounding context. The teacher plays an active role in this process.

To create enthusiasm among lower-year students learning a foreign language and to motivate them toward learning, it is necessary to start with understanding their values. Every learner possesses certain values as an individual, and among these values, the desire to learn a language is always present. But how can each student's motivational value be identified?

Practice shows that compared to other age groups, students tend to draw more inspiration from their peers or those slightly older than themselves. Specifically, lower-year students feel inspired when they observe their peers or senior students speaking a foreign language fluently. Additionally, seeing peers as role models leaves a stronger impression on learners. Therefore, a teacher can stimulate motivation by inviting upper-year students who speak English well to the classroom. Such engagement serves as a meaningful approach to help beginners overcome the difficulties they face in learning a language. Senior students, by sharing the secrets of developing foreign language speaking skills, become role models for others.

At present, English is one of the most widely taught foreign languages, both globally and in Azerbaijan. The reason for this is quite clear: English is one of the most widely used languages in the world and is recognized as an international language. The main reason for its international status lies in the linguistic legacy of the British Empire and the technological and industrial dominance of the United States. In our country, after the native language, English is considered a leading language and is taught from primary to higher education levels. Consequently, the number of people who wish to speak the language continues to increase daily. Parents encourage their children to start learning English from an early age because, upon graduation, young people need to know at least one foreign language in order to obtain a qualified profession—and in most cases, this language is English. This fact demonstrates the great importance of English language learning in our country.

Motivations for learning English are diverse and multifaceted. First and foremost, it is necessary to instill interest and enthusiasm in students toward the English language and to emphasize its great importance. For this purpose, it is sufficient to observe the surrounding environment: English serves as the common language in communication across many countries worldwide. Students travel abroad either to *broaden their worldview or simply for leisure, and in most cases, the language of communication is English. When students realize this fact, they develop a stronger desire to learn the language.*

Most students' desire to learn English is directly related to obtaining better employment, earning higher income, continuing education abroad, expanding their social network, or engaging in leisure activities through the use of the language. Each of these factors can serve both directly and indirectly as sources of motivation. Here, the first decisive step toward ensuring motivation must be taken by the teacher teaching English. To sustain and enhance students' motivation, the teacher should adhere to the following principles:

1. Preparation for the lesson. The foundation of an effective lesson does not lie in its complexity but in how well it is planned. This plan, much like a warm-up exercise before a workout, serves as preparation for achieving the main goal. A well-chosen strategy and plan play a vital role in completing tasks successfully.

2. Providing support. Offering timely assistance to students is extremely important. It should only be done when necessary - otherwise, unnecessary intervention may lead to discouragement.

3. Encouraging peer collaboration. Experience shows that arrows aimed at the same target are more likely to succeed. As the proverb says, "Two heads are better than one." Allowing students to help each other on the same task increases motivation and accelerates achievement.

4. Identifying and eliminating potential challenges. Factors that weaken student motivation include lack of time, external obligations, unreliable resources, and distractions by others. Overcoming these obstacles is one of the teacher's most demanding responsibilities.

Experience demonstrates that people prefer to spend more time in environments where they feel comfortable. The primary motivation for a student is feeling at ease in the learning space during the lesson. Under such conditions, students willingly engage and enjoy the educational process. Creative methods of mastering English provide great satisfaction to learners. As is known, language is a means of communication, and communication is essential for the rapid development of language skills—opening the way toward new goals. It should be remembered that students must not only learn but also enjoy the learning process.

When students have a positive and efficient classroom experience, they become more engaged in the learning process. For this purpose, using diverse strategies is deemed appropriate. According to the lesson plan, selecting resources from the internet can facilitate the acquisition of supplementary and useful knowledge. Films, music, magazines, online materials, and library resources are key components of this approach.

The presence or absence of motivation is directly connected with the assessment process. One of the most crucial points that requires the teacher's attention is evaluation. According to the requirements of the education system, assessment must be fair and accurate. It is encouraging that this principle is widely implemented in modern education. Although the assessment process is not an easy task, as mentioned earlier, most lower-year students make grammatical mistakes when learning a foreign language. Grammar plays a crucial role in mastering the subtleties of the language. However, a true educator guides the student in the right direction to prevent such errors from being repeated and provides substantial support. The instructional process is carried out based on the teacher's active involvement. As is known, the student is a researcher, and the teacher is a mentor who guides and inspires the student towards research. In the teacher–student relationship system, both parties participate as partners in the learning process. From this perspective, one of the main objectives of modern education is learning to learn—that is, helping students acquire the ability to obtain knowledge independently.

GLOBAL DOMINANCE OF DOLLAR: THEORY AND PROSPECTS

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Abstract

From a theoretical perspective, any global currency based on a national currency has a dual and contradictory nature, which inevitably limits its functionality. Currently, a combination of factors is operating in the global economy and politics that are objectively undermining the post-war hegemony of the US dollar. Trends toward democratization and diversification are strengthening in international monetary relations, creating the foundation for the gradual and natural emergence of a multicurrency system.

Keywords: USA, dollar, international monetary system, network society, actor-network theory, leadership, multipolarity, Triffin paradox, international currency.

Introduction

The system of international economic relations that emerged in the post-war period is currently undergoing a kind of strength test, primarily due to unprecedented sanctions wars and trade barriers. These developments inevitably raise questions not only about the fragmentation of the global economy, the regionalization of trade flows, and the formation of markets relatively autonomous from the United States, but also about which currency will be able to support international trade in these new conditions. The dollar's displacement from its position as the world's currency has been a topic that has remained largely undisturbed by researchers for at least 70 years. However, the countertrend-the emergence of an alternative international currency capable of replacing the dollar-also remains a subject of expert debate.

The author hypothesizes the gradual, natural, and inevitable formation of a multipolar global monetary system. This article emphasizes the dual and contradictory nature of any global currency based on a national currency. Such a currency, on the one hand, tends to become a "public good" detached from its national roots for all participants in the global economy. On the other hand, it remains a crucial element of the national economy and a marker of its sovereignty, and therefore requires constant state oversight and management. At a certain point, the interests of the state whose national currency has become global begin to diverge from the needs and interests of those who use it at their own discretion. For the former, a national currency that has become international becomes a powerful instrument of global domination, the "master" of the global economy, while the latter would prefer to see it as nothing more than a "servant" helping to expand and unify the global economic network.

Discussion

MONEY AS A NETWORK PHENOMENON

In the scientific literature, modeling the likely development directions of the modern monetary system traditionally relies on analyzing the dynamics of economic indicators such as GDP growth, trade volumes, the balance of payments, and international reserves. A number of researchers supplement this analysis with evidence of the military-strategic and political influence of a particular state in the world. The author proposes examining the factors contributing to the formation of a multipolar monetary system within the logic of the network organization of modern social relations, and international currency as a network phenomenon.

The methodological foundations for studying modern society as a network structure were formed at the beginning of the last century. Social relations researchers logically shifted from the analysis of social groups to the analysis of social networks. One of the first to introduce the concept of "web" in relation to social relations was the German sociologist G. Simmel, more than 100 years ago. In the sociometric works of J. Moreno, it was replaced by the term "network," which became common in sociological literature in the 1970s and early 1980s, for example in the works of L. Freeman, S. Feld, F. Capra, and M. Granovetter. In the late 1990s and early 2000s, a fully formed image of the network society was proposed by M. Castells, G. Cardoso, and J. van Dijk.

In analyzing economic relations, Simmel employed the concept of a social space filled with movement. He argued that human interaction in the economy is a process consisting of constant "withdrawals and approaches," reflecting two aspects of a person's perception of their objective environment: the desire for an object and the determination of its value, or its "closeness" and "distance." Money, which is also highly dynamic, fits into this concept: it moves away from other goods, only to later come closer and become an expression of their value, as well as a means of facilitating their exchange.

In this spatial conception of connections embodied in all-encompassing and ubiquitous exchange, the category of "stranger" plays an important role. According to Simmel, this category symbolizes the same dynamic process of withdrawal and approximation of exchange participants, the initial forms of which are imbued with hostility. Evidence of this was clearly presented, for example, in the works of M. Moss (1923–1924) and I.M. Kulischer (1887).

According to their research, personalized forms of natural exchange within the framework of the "gift economy" are gradually replaced by various forms of "anonymous trade," in which the parties literally distance themselves from each other, avoiding direct contact fraught with conflict. At a certain historical stage, a stranger-trader enters the exchange process, separating the exchanging parties but enabling their interaction. Money enhances the independence and autonomy of the parties involved in the exchange, thereby ensuring the continuity of economic ties.

G. Simmel comes close to recognizing money as a stranger-intermediary. This would mean granting it a special role as an independent actor in social relations. However, for Simmel, only "flesh-and-blood actors" are present in social space, while inanimate entities can accompany the formation of social ties, particularly value exchange relations, becoming a "vehicle" of goods, facilitating the expansionist movement of the economy and destroying everything that cannot move.

Actor-network theory (ANT) develops Simmel's spatial concept, while considering money as an independent actor-entity, endowed with the power to influence other participants in network relations. In relation to actor-entities, M. Callon uses the terms "internalization" and "externalization," "entanglement" and "disentanglement," which are effectively synonymous with Simmel's terms "removal" and "approach." He also includes the term "stranger" in his vocabulary. He needs all these concepts to justify the possibility of market transactions in a network society. Money, according to his point of view, is necessary for the emergence of so-called constantly "calculating" agents who weigh benefits and losses, attempting to take into account all possible factors (entities) influencing the outcome when making decisions.

However, the broader and more diverse the range of entities requiring attention, the more difficult it is to include them in the calculation by valuing them in monetary terms, and therefore, the more difficult it is to conclude the transaction itself. For a transaction to take place, it is necessary to remove everything superfluous and irrelevant from the agent's field of view, "framing" only what is deemed sufficient for decision-making. At the same time, the entities included in the calculations must also be "disentangled" from other network connections. This process of isolation is extremely The network of objective calculations is complex, so, as a rule, any entity included in the network of objective calculations remains a "window" into an open and boundless world of other connections and interdependencies, including those of a sociocultural nature.

In this context, the question of the social content of money as an actor-entity in the network of economic relations is extremely important. For example, V. Zelizer, using numerous historical examples, demonstrates that money can be neither "culturally neutral" nor "morally invulnerable." She develops the idea of the American sociologist Charles Cooley that money is not only part of the same system as moral and aesthetic values, but also represents them in the marketplace. Cooley noted that to sever this unity would mean crippling life itself. Thus, when applied to money, the category of "stranger," imbued with social content, becomes much more complex, integrated, and potentially contradictory.

The overall picture becomes more complex when considering the so-called currency hierarchy-that is, the persistent asymmetry in the economic role of the currencies of "core countries" and "peripheral countries." Today, the US dollar occupies the top spot. It serves as the medium of exchange for goods and *currencies internationally, while the functionality of "peripheral" currencies is limited to the movement of goods within national markets.*

Nobel laureate Peter Krugman emphasized the stability of this position: having once become the primary means of international payments, the dollar continues to hold this position, even though the US share of goods, services, and, consequently, payments has significantly declined and continues to decline. This can be explained, among other things, by the "long-term memory" of the economic system. B. Eichengreen defines this phenomenon as a "network effect," while S. Strange defines it as a result of the "structural power" of the US, which weaves its "networks of power." As a result, as an international currency, the US dollar becomes an actor simultaneously in the extensive global network of economic ties and in the relatively limited, unique network of US national socio-economic relations. Thus, the dollar becomes, in Callon's terminology, a "leakage point" through which external entities can enter, potentially disrupting the normal course of market processes on a global scale.

LEADERSHIP OR DOMINANCE?

One of the first to propose eliminating the inherent contradictions of the international currency, which the dollar became after World War II, was Robert Triffin. He was able to peer into the future, prophetically observing that the expanding use of nationalistic policy tools "in an increasingly interdependent world is one of the paradoxes of our time." He believed that attempts to use purely "nationalistic" policy tools would be counterproductive and unsuccessful, as they would lead to retaliatory measures. Therefore, in his view, an international currency should be free from external economic influence by any one state.

Charles Kindleberger emphasized the depth of the conflict of interests inherent in the dollar in an even more explicit form. He explained it by the fundamental duality of currency, which simultaneously functions as a public (international currency) and a private (national currency) good. In his view, this conflict is realized in practice in two ways. On the one hand, the creator of a public good begins to increasingly exploit it for their own benefit, to the detriment of other economic participants. On the other hand, the number of those who would like to use this public good increasingly for their own benefit without incurring any costs to maintain its functionality-figuratively speaking, "free riders"—may grow.

In the first scenario, a dominant participant emerges in the economy with a special resource for exploiting everyone else, while in the second, the original owner of the public good incurs unjustified costs, sacrificing their own interests, which obviously cannot last forever. Both situations, according to Kindleberger, are unstable.

To resolve this dilemma, he proposed using a leadership-based economic model. The leader must not only assume a certain social function in maintaining public goods but also make efforts to compel other economic participants to follow certain rules of behavior and shoulder some of the costs of maintaining the public good. In conclusion, he called on the United States to choose a new role in the world – dominance, he emphasized, must give way to leadership.

What leadership model would best suit the United States and, by extension, the dollar as the dominant global currency? Contemporary management literature devotes considerable attention to several key leadership models. Transformative, transactional, authoritarian, participatory, and servient leadership are distinguished.

For example, transformational leadership is designed to foster innovation, the search for new solutions, and creativity. Indeed, any currency plays such a role in the economy, often changing the nature and forms of economic relations. Participatory leadership, which presupposes the involvement of direct participants in the management process itself, can be interpreted in the context of currency relations as strengthening the contractual foundations of international currency, that is, enhancing its "collective" component.

In the transactional leadership model, the balance of rewards and punishments for participants in the management process is paramount. In relation to the international role of the dollar, this can be understood as a balance of benefits and losses for parties in foreign economic relations. Using the dollar in international transactions eliminates or significantly reduces currency risks and transaction costs. However, a country's reliance on the dollar in its foreign economic activity inherently determines the currency structure of its external debt and international reserves, which, for example, in the context of a devaluation of the national currency, can exacerbate the country's debt problems.

A distinctive feature of all the aforementioned leadership models is that, under all of them, the dollar retains its national identity and remains linked to the overall interests of the United States as an independent and sovereign participant in international economic, military-strategic, and political relations. History clearly shows that, despite all the "positive" aspects of dollar leadership, sooner or later *any model will transform into an authoritarian one, where everything is subordinated to the will and interests of the leader.*

It should be noted that over the 60 years of development of management science and practice, the interests of researchers have shifted away from the authoritarian leadership model. In English-language literature, the popularity of the terms "authoritarian leadership" and "participative leadership" has noticeably declined, while the terms "transformational leadership" and "transactional leadership" have increased proportionally. The term "servant leadership" has shown the greatest increase in popularity. Evanescent leadership. In this model, the leader is a servant, helping those who follow them achieve a certain goal. Their function is to serve others.

With regard to the dollar's leadership role, choosing such a model would mean a fundamental revision of the concept of US national interests. Americans should prioritize the long-term growth of prosperity for all countries worldwide, justifying this as strategically beneficial to the country even at the expense of some current national interests of American society. That is, in the terminology of both G. Simmel and M. Callon, the dollar should become a "foreigner" for everyone, providing a means of communication between participants in economic relations, a means of payment, and the movement of goods and valuables (a "vehicle"), the existence of which is perceived by everyone as an indivisible public good. Moreover, it should become such even for the United States itself, which should support its circulation solely for the common good. Clearly, such a scenario is utopian.

Thus, none of the well-known and most widely used leadership models, when applied to currency relations, can be considered sustainable. All of them are internally contradictory and have multiple "leakage points" through which US national interests and values undermine the social value of the dollar as a global currency. It should be added that only a handful of authors have addressed the concept of "dollar leadership" in the academic literature.

In the post-war period, most authors of academic and applied economics books most often chose the term "hegemony" to characterize the dollar's role in the global economy. Furthermore, the seemingly synonymous term "dominance" and softer terms demonstrating the dollar's predominance in the global economic system, such as "King Dollar" and "dollar-centric," are less popular.

Interestingly, the term "dollar network," which was once the most popular, has now virtually disappeared from academic vocabulary. It experienced its first "crisis" in the 1950s and 1960s, when the contradictions of the Bretton Woods system became increasingly apparent. After the "Nixon shock" of 1971, it regained popularity. In the mid-1990s, another shift in trends occurred. This coincided not only with a sharp decline in the dollar's value against other currencies but also with the active implementation of the US policy of trade liberalization, the conclusion of regional trade agreements, and the intensification of economic cooperation with China.

This shift in terminological trends is noteworthy in its own way and requires separate analysis. We will briefly note only the significant number of publications linking the hegemonic role of the dollar with the strengthening of US economic and political power. An analysis of several works on this topic leaves the impression that their authors are less concerned with the hegemony of the dollar than with justifying the unrivaled advantages of the United States as a global leader.

This shift in academic vocabulary can, in a certain sense, be considered prophetic. One cannot help but recall Callon's hypothesis on the performativity of economics, which "represents, shapes, and formats the economy, rather than observing its functioning." The shift in the vector of US economic policy in the first quarter of the 21st century-namely, the strengthening of sanctions against countries perceived as enemies, the overt desire to make the dollar an instrument of international pressure, economic blackmail, and the use of import tariffs as a means of strengthening economic and political dominance—has become a clear confirmation of the hegemonic role of the United States.

Thus, the value of the dollar as a public good is undermined by the persistent pursuit of American national interests. This is giving rise not only to the hypothetical need to reform and change the foundations of the modern international system, but also to practical shifts in the circulation of international currencies and goods. Back in 2021, B. Cohen, a consistent advocate of a dollar-centric global monetary system, argued that the unpredictability of American interests was pushing countries to seek alternatives to the dollar. The US's possession of the dollar as a global currency, he argued, was tantamount to access to an inexhaustible source of money (infinite money), which America could lose. What might the future global monetary system look like, and what instruments will play a key role in it?

CURRENCY MULTIPOLARITY

Currently, three models for organizing the global monetary system have emerged in the academic literature: the hegemonic model, or the dominance of a single currency, primarily the dollar; the *polycentric monetary system, or currency multipolarity; and the supranational international currency model. Each has its proponents and opponents, and each is not without its shortcomings. The author emphasizes the second model primarily due to its objectivity, rationality, and realism. Its proponents point out that it is best suited to the existing polycentric global economy.*

It should be noted that an analysis of the development of the international monetary system points to the historical determinacy of the multicurrency model. For centuries, the dominant trend has been the desire of countries and participants in international commodity-money relations to establish a stable mechanism for the coordination and coexistence of national currencies, which, minted in silver or gold, could simultaneously serve as an international means of payment and settlement. This is confirmed by the existence of money changers as early as ancient Sumer and the widespread use of so-called non-cash "money of account" in the Middle Ages. Indeed, many proposals for the creation of an international currency are, in fact, one way or another to resolve the problems of multiple currencies, especially in a context where the gold standard has become a thing of the past and money has become dematerialized. For example, R. Mundell proposed introducing an international currency, INTOR, based on a union of the dollar, yen, and euro.

A look at the history of currency relations also sheds light on their geographical aspects, which are often ignored by researchers focusing on the European or American experience. For example, the economies of India and China, as well as their financial and monetary systems, were among the largest in the world until the early 20th century. According to available data, in 1800, per capita income in China was 10% higher than in Western Europe, whose population was also half its size. And in India, despite colonial dependence, a national currency was maintained, which was directly used in trade with Great Britain.

However, the lack of systematic statistical data prevents a direct and comprehensive assessment of the role and scale of circulation of the currencies of India and China in previous eras. The author proposes an alternative way to measure the historical significance of currencies by determining their frequency of mention in academic literature. Table 1 presents the calculated share of the GDP of Europe and six other countries in global GDP, as well as the frequency of mentions of the respective currencies in English-language literature.

***Table 1.** The share of GDP of individual countries in the world GDP and the frequency of mentions of their national currency in English-language literature in the total number of mentions of these seven currencies (US Dollars, Yuan, Rupees, French Francs, Pounds Sterling, Euros, Japanese Yen), 1820–2022, %*

Страна, валюта	*Удельный вес страны в мировом ВВП, в ценах 2011 г.*					*Доля упоминаний валюты*				
	1820	*1900*	*1960*	*1980*	*2022*	*1820*	*1900*	*1960*	*1980*	*2022*
США, доллар	*2*	*18*	*24*	*21*	*15*	*0*	*0*	*24*	*31*	*25*
Китай, юань	*29*	*11*	*5*	*6*	*21*	*0*	*2*	*13*	*25*	*27*
Индия, рупия	*17*	*8*	*4*	*3*	*8*	*74*	*79*	*50*	*33*	*21*
Франция, французский франк	*5*	*5*	*4*	*4*	*2*	*0*	*1*	*5*	*3*	*1*
Великобритания, фунт стерлингов	*6*	*9*	*5*	*4*	*2*	*26*	*18*	*6*	*3*	*3*
Япония, иена	*5*	*4*	*6*	*12*	*6*	*0*	*0*	*2*	*4*	*3*
ВВП Европы (Восточная и Западная), евро	*34*	*43*	*40*	*36*	*20*	*0*	*0*	*0*	*1*	*20*

Compiled from: [sources 1, 2].

The dynamics of the Indian rupee's popularity are particularly noteworthy. It peaked during colonial periods and today remains comparable to the popularity of reserve currencies such as the euro, dollar, and yuan. These data suggest the existence of so-called "network" or "people's" currencies that are widely used at a lower level of the global monetary system. V. Zelizer cites many historical examples of such monetary instruments, which arose within specific social groups and, among other things, had a certain social symbolism.

Table 2. Popularity of Google queries for currency abbreviations by country, 2004–2025.

INR (индийская рупия)	RMB (китайский юань)	EUR (евро)	RUB (российский рубль)	JPY (японская иена)
Кувейт (97)	Намибия (55)	Венгрия (96)	Азербайджан (54)	Гуам (46)
Бахрейн (95)	Макао (48)	Словакия (96)	Узбекистан (53)	Филиппины (32)
Оман (95)	Гонконг (38)	Северная Македония (94)	Беларусь (52)	Монголия (29)
ОАЭ (91)	Тайвань (36)	Словения (94)	Туркменистан (47)	Тайвань1 (32)
Саудовская Аравия (90)	ЮАР (35)	Чехия (91)	Армения (46)	Гонконг1 (30)
Катар (89)	Того (34)	Босния и Герцеговина (90)	Грузия (46)	Макао1 (25)
Бутан (86)	Зимбабве1 (32)	Исландия (89)	Таджикистан1 (27)	Индонезия1 (24)
Демократическая Республика Конго (86)	Иран1 (32)	Хорватия (89)	Казахстан1 (26)	Таиланд2 (21)
Кыргызстан (81)	Малайзия1 (31)	Албания (88)	Латвия1 (26)	Вьетнам2 (20)
	Бангладеш1 (30)	Австрия (87)	Молдова1 (26)	Лесото2 (20)

1. Second most popular currency. 2. Third most popular currency.

Note: The percentage of searches for the corresponding currency in the total number of searches for the five currencies in the country is shown in parentheses.

Compiled by the author based on Google Trends data. Available at: https://trends.google.ru/trends/ (accessed August 3, 2025).

An analysis of Google search queries also confirms that a number of currencies with limited convertibility or not designated as reserve currencies are nonetheless actively used and circulate in a number of countries and even regions. In effect, relatively informal regional "currency networks" are forming. The formation of these networks may be based on the significant size of the national diaspora abroad, the overall population of the country, and the existence of stable economic ties and contacts between the population and business representatives of different countries (Table 2).

As can be seen from the data provided, both the Russian ruble and the Indian rupee, as well as the euro, have effectively become regional "network currencies," servicing the economic ties of a significant number of economic actors. Returning to the idea of the historical memory of an economic system, it is entirely possible that the habit and custom of handling certain currencies at the everyday level may subsequently impact the structure of international currency transactions.

The existing "distance" between national currencies is gradually being replaced by their convergence, following the convergence of the economic interests of the countries involved. Thus, a multipolar monetary system can naturally emerge.

Conclusion

It's important to assess the prospects for the dollar's dominance in the global monetary system while taking into account the arguments against a multicurrency system. Let's highlight the most significant of these.

The problem of transaction costs. This certainly exists in the case of a multicurrency settlement system, but financial markets have now learned to generate numerous structured instruments that can minimize the resulting risks. A separate market segment for currency risks could develop, where market assessments are formed, which will be taken into account by financial institutions when financing transactions in various currencies.

The significant size of the US market and the country's high share in global trade will contribute to the continued attractiveness of the dollar as a means of international settlements. However, the currently discussed variants of a multicurrency system do not envisage replacing the dollar, but rather diversifying the currencies used in settlements, as well as increasing the sovereignty of countries in pursuing their economic interests.

A multicurrency system does not address the issue of reserve assets of states participating in international economic relations. Indeed, the effectiveness of settlements in national currencies requires a market for reserve assets that could be acquired by countries with a positive trade balance and holding not just one, but several national currencies. It should be noted that, despite the absence of a gold standard, many central banks around the world are currently actively acquiring gold for their reserves, abandoning traditional dollar instruments. A full-scale return to the gold standard is unlikely, but using gold as a reference commodity to regulate cross rates and create reserve assets available for investment is entirely possible. Gold continues to play an important role in social relations and the way of life in India, *China, and even Russia, which is also one of the largest gold-producing countries. Certain raw materials, such as oil, natural gas, and grain, could also serve as reference commodities. The creation of an integrated commodity index or basket of commodities appears promising. A multicurrency system could transform into commodity clearing, which would represent a return to the past and create additional costs for settlements. This scenario cannot be ruled out, but it is unlikely, given the level of technologization, digitalization, and intellectualization of the modern financial system. The speed of information processing is rapidly increasing, which will radically differentiate possible future commodity clearing options from those of the past. The United States remains the global hegemon and will not allow the role of the dollar, which is a source of significant economic benefits and power, to be undermined. However, the US's defense of the dollar through sanctions and restrictions only exacerbates the inherent conflict of interest and increases global uncertainty. This will further push many countries around the world to seek ways and mechanisms to strengthen their independence from the United States. Ultimately, the United States also depends on international suppliers and is unlikely to be able to achieve complete self-sufficiency. Therefore, long-term economic interests should push them not toward confrontation, but toward acceptable compromises. This will give hope that, sooner or later, the existence of a multicurrency system can be enshrined in international treaties.*

References

1. Simmel G. The Philosophy of Money. London, New York, Routledge, 2004. 543 p.
2. Zelizer V.A. The Social Meaning of Money: “Special Monies”. American Journal of Sociology, 1989, vol. 95, no. 2, pp. 342-377. Available at: http://www.jstor.org/stable/2780903 (accessed 22.07.2025).
3. Krugman P. Vehicle Currencies and the Structure of International Exchange. Journal of Money, Credit and Banking, 1980, vol. 12, no. 3, pp. 513-526. Available at: https://doi.org/10.2307/1991725
4. Triffin R. National Central Banking and the International Economy. The Review of Economic Studies, 1946–1947, vol. 14, no. 2, pp. 53-75. Available at: http://www.jstor.org/stable/2296086 (accessed 29.07.2025).
5. Cohen B. Toward a Leaderless Currency System. Helleiner E., Kirshner J., eds. The Future of the Dollar. Ithaca, Cornell University Press, 2009, pp. 142-163. Available at: http://www.jstor.org/stable/10.7591/j.ctt7v93w.12 (accessed 01.08.2025).
6. Orucov M.M. Dünya iqtisadiyyatında baş verən dəyişikliklər fonunda Azərbaycan iqtisadiyyatının mövcud vəziyyəti. OYU-nin Elmi və Pedaqoji xəbərləri, 2018, № 50, ISSN: 1682-9123 DOI: 10.0318/OYU.2023735552
7. Orucov M.M. Milli iqtisadiyyatın müasir inkişaf modeli, OYU-nin Elmi və Pedaqoji xəbərləri, 2020, № 54, ISSN: 1682-9123
8. Orucov M.M. Dünya iqtisadiyyatının uzunmüddətli proqnozlaşdırılması parametrləri. OYU-nin Elmi və Pedaqoji xəbərləri, 2024, № 63, ISSN: 1682-9123
9. Ibrahimova S.R. Fragmentation of global social capital. XX international scientific conference. Paris. France. 19-20. 2025, ISBN 978-91-65424-34-0 DOI https://doi.org/10.5281/zenodo.17005326
10. Ibrahimova S.R. New trends in the development of the, global economy. XVII international scientific conference Stocholm, Sweden. 12-13.08.2025, ISBN 978-91-65424-33-3 DOI https://doi.org/10.5281/zenodo.16892861
11. Ibrahimova S.R. Public investment and global economic resilience. II international scientific conference. Lisbon. Portugal. 08-09.07.2025, ISBN 978-91-65424-28-9 DOI https://doi.org/10.5281/zenodo.15861641
12. Orucov M.M, World trade in the conditions of the globalization crisis, XX international scientific conference. Philadelphia. USA. 12-13.06.2025, ISBN 978-92-44514-58-0 DOI https://doi.org/10.5281/zenodo.15691366
13. Orucov M.M, Azerbaijan's economy in the new international realities, II international scientific conference. Helsinki. Finland. 29-30.05.2025, ISBN 978-92-44514-56-6 DOI https://doi.org/10.5281/zenodo.15622437
14. Orucov M.M. Ibrahimova S.R., Mechanisms of international financial relations in the conditions of the globalization crisis, I international scientific conference. Lisbon. Portugal. 22-25. 2025, ISBN 978-91-65424-17-3 DOI https://doi.org/10.5281/zenodo.15305608
15. Orucov M.M. Formation of investment climate in the oil and gas industry of Azerbaijan and its impact of the development of the non-oil sector. I international scientific conference. Singapore. Singapore. 01-02.04.2025. ISBN 978-91-65424-14-2 DOI https://doi.org/10.5281/zenodo.15165189

16. Orucov M.M. Application of money supply targeting regime within the framework of monetary policy, I international scientific conference. Seoul. South Korea. 06-07.03.2025, ISBN 978-92-44514-44-3 DOI https://doi.org/10.5281/ zenodo.15020702

17. Orucov M.M. Forecast of global economy development, I international scientific conference. Marseille. France. 20-21.02.2025, ISBN 978-92-44514-42-9 DOI https://doi.org/10.5281/ zenodo.14932296

18. Orucov M.M. Elements of credit policy and stimulation of credit investments in the real economy, Sciences of Europe (Praha, Czech Republic) No 153 (2024, ISSN 3162-2364

19. Orucov M.M. Diversification of economy the Republics Azerbaijan on the base sustainable development of non-oil sector, XIV international scientific conference. Toronto. Canada. 14-15.11.2024, ISBN 978-92-44514-28-3 DOI https://doi.org/10.5281/ zenodo.14199182

20. Orucov M.M. Analysis of foreign investment in Azerbaijani economy and directions to increase, XVII International Scientific Conference. Dortmund. Germany. 07-08.11.2024, ISBN 978-92-44514-27-6 DOI https://doi.org/10.5281/ zenodo.14136799

21. Orucov M.M, Ibrahimova S.R. Reserve currencies: Are changes possible? XXI International Scientific and Practical Conference November 4-5, 2025, Paris. ISBN 978-91-65424-45-6 DOI https://doi.org/10.5281/ zenodo.17574617

22. Orucov M.M, Ibrahimova S.R. Entrenchment of neo-protectionism in global economy of XXI century. III international scientific conference. Helsinki. Finland. 14-15.08.2025. ISBN 978-92-44514-63-4 DOI https://doi.org/10.5281/zenodo.16912767

23. Orucov M.M, Ibrahimova S.R. New trends in the development of the, global economy. XVII international scientific conference Stocholm, Sweden. 12-13.08.2025. ISBN 978-91-65424-33-3 DOI https://doi.org/10.5281/ zenodo.16892861

*24. Orucov M.M, Ibrahimova S.R. **U.S**. Protectionism against China's mercantilism. XVI International Scientific and Practical Conference August 05-06, 2025, Toronto. Canada. SBN 978-91-65424-32-6 DOI https://doi.org/10.5281/*

zenodo.16813182

25. Orucov M.M, Ibrahimova S.R Price mechanisms of the digital economy: divide et impera. III international scientific conference. Sydney. Australia. 31.07-01.08.2025. ISBN 978-92-44514-61-0 DOI

https://doi.org/10.5281/zenodo.16751595

26. Orucov M.M, Ibrahimova S.R. Wetting of contradictions between China and the prospects for bilateral economic relations. III international scientific conference. Seoul. South Korea. August 07-08. 2025. ISBN 978-92-44514-62-7 DOI https://doi.org/10.5281/zenodo.16871369

27. Orucov M.M, Ibrahimova S.R. Analysis of the current state of the world economy and the financial-monetary system and forecast for 2026. XX international scientific conference. Toronto. Canada 22-23.01.2026

OTHER SOURCES

1.Google Ngram Viewer. Available at: https://books.google.com/ngrams/ (accessed 31.07.2025).

2. Madison Project Database 2023. Available at:

https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/ maddison-project-database-2023 (accessed

01.08.2025).

3. Google Trends. Available at: https://trends.google.ru/trends/ (accessed 03.08.2025).

THE IMPACT OF WOMEN'S LEADERSHIP ON LOCAL GOVERNANCE QUALITY: EMPIRICAL EVIDENCE FROM AZERBAIJANI MUNICIPALITIES

Togrul Ashraf Akbarli

Abstract

Purpose: *This study aims to empirically assess the impact of women's representation in Azerbaijani municipalities on the quality of governance decisions, budget priorities, and citizen satisfaction.*

Methodology: *Through panel data analysis (2019-2024, 688 municipalities), content analysis (decisions of 30 municipalities for 2019-2022), and comparative budget analysis, municipalities with high (≥25%) and low (<10%) women's representation were compared.*

Findings: *A 1% increase in women's representation increases the share of social expenditures by 0.312 percentage points ($p<0.01$). In municipalities with high women's representation, 34% of decisions are allocated to social infrastructure (18% in low representation), and social budget expenditures are 10.6 percentage points higher. In municipalities with female mayors, citizen satisfaction is 0.189 points higher (on a 5-point scale).*

Scientific contribution: *For the first time, empirical evidence of substantive representation (women's impact on policy) at the local governance level in the post-Soviet space is presented. Demonstrating the causal relationship between gender representation and governance quality through panel data analysis is an important contribution to international literature.*

Keywords: *women's leadership, local governance, substantive representation, gender equality, Azerbaijan, panel data analysis*

1. INTRODUCTION

Women's political representation remains one of the central topics of contemporary democracy research. Although significant progress has been made in recent decades toward increasing women's representation in parliaments and local governance bodies, empirical evidence on how descriptive representation (the mere presence of women) translates into substantive representation (the actual representation of women's interests and impact on policy content) remains limited (Wängnerud, 2009; Schwindt-Bayer, 2010).

This article contributes to the growing international literature on the impact of gender representation on governance outcomes while also addressing two significant scholarly gaps. First, most existing studies focus on Western democracies or South Asian countries (particularly India), with virtually no systematic empirical research on this issue in the post-Soviet space, especially at the local governance level. Second, most studies focus only on legislative outcomes (enacted laws, proposals), while the impact of women's leadership in local governance on budget allocation, service quality, and citizen satisfaction remains understudied.

Azerbaijan provides an interesting context for this research. The country was one of the first in the Muslim world to grant women voting rights in 1918, yet women's representation in local governance has remained insufficient during the independence period. In the 2019 municipal elections, women constituted only 16.9% of council members and only 5.5% of municipal mayors (CEC, 2019). However, the 2021 administrative-territorial reform led to the merger of municipalities and strengthening of their role, creating new opportunities for studying gender dynamics in local governance.

The main research question of this study is as follows: ***How do women's representation and women's leadership in Azerbaijani municipalities affect the quality of governance decisions, budget priorities, and citizen satisfaction?***

The article tests three main hypotheses:

H1: *An increase in women's representation in municipal councils is associated with an increase in decisions and budget expenditures directed toward social infrastructure and community welfare.*

H2: *The presence of female municipal mayors is accompanied by increased governance effectiveness and citizen satisfaction indicators.*

H3: *The impact of women's representation differs between urban and rural municipalities, with urbanization level playing a moderating role.*

Methodologically, the study combines three main approaches: (1) panel data analysis of 688 municipalities for 2019-2024 with fixed effects regression; (2) systematic content analysis of 2,847 decisions adopted by 30 municipal councils during 2019-2022; (3) comparative financial analysis of the same *municipalities' budgets. This multi-method approach ensures the robustness and triangulation of findings.*

The article consists of five main sections. The second section presents the theoretical framework and literature review. The third section describes the Azerbaijani context and methodology. The fourth section presents empirical findings. The fifth section discusses the findings and analyzes their theoretical, methodological, and policy implications.

2. LITERATURE REVIEW

2.1. Descriptive and Substantive Representation

The fundamental distinction between descriptive and substantive representation, formulated by Pitkin (1967) and developed by Mansbridge (1999) in the political representation literature, forms the foundation of contemporary gender and politics research. Descriptive representation refers to the numerical presence of a particular social group (in this case, women) in elected bodies and answers the question "who is in power?" Substantive representation refers to the actual reflection of this group's interests and perspectives in policy outcomes and focuses on the question "what does power do?" (Wängnerud, 2009).

Feminist political theorists have long explored the problem of transforming descriptive representation into substantive representation. Phillips (1995) proposed the concept of "politics of presence," arguing that the mere presence of women can change the political agenda and dynamics of deliberation. However, Childs and Krook (2008) have shown that this relationship is not automatic and depends on contextual factors.

"Critical mass" theory (Kanter, 1977; Dahlerup, 1988) suggests that women's impact becomes significant only when they reach a certain threshold (typically 30%). Below this threshold, women remain in "token" status and cannot meaningfully influence policy. However, empirical studies present mixed results: in some cases, even small groups of women show impact (Grey, 2006), while in other cases, representation above 30% does not lead to substantive changes (Childs and Krook, 2009).

Recent studies favor the "critical actor" concept (Childs and Krook, 2009): what matters is not just numbers but also the presence of individuals in strategic positions who are willing to champion gender issues. This perspective emphasizes the interaction between micro-level agency and macro-level structural conditions.

2.2. Impact of Women's Leadership on Governance Outcomes: Empirical Evidence

The empirical literature on women politicians' impact on policy priorities and governance quality has expanded significantly over the past two decades.

***Legislative agenda and policy priorities.** At the parliamentary level, studies consistently show that female legislators pay more attention to areas framed as "women's issues"—reproductive rights, childcare, family policy, sexual violence (Swers, 2002; Celis et al., 2008). Schwindt-Bayer (2010), in a comprehensive comparative study in Latin America, showed that female parliamentarians are significantly more likely to advance women's rights legislation compared to men.*

However, Celis and Childs (2012) note a critical point: not all women represent women's interests, and not all men oppose them. There is a "gender paradox of substantive representation"—gender identity is a necessary but insufficient condition for predicting representative behavior.

***Impact at the local governance level.** The most influential empirical evidence on local-level impact comes from India. Chattopadhyay and Duflo (2004), using experimental design (random assignment of female leaders in some districts due to constitutional quotas), showed that districts with female leaders invest more in infrastructure related to women's priorities, such as drinking water and roads. This finding has been replicated in subsequent studies (Clots-Figueras, 2012).*

In Brazil, Brollo and Troiano (2016) confirmed that female mayors are more likely to spend more on education and health and less on infrastructure and transportation. Interestingly, they showed that these differences stem more from female leaders' own preferences than from voter pressure.

In Western contexts, Ferreira and Gyourko (2014) analyzed U.S. municipalities and found a surprising result: female mayors' budget allocations do not statistically differ from male mayors. The authors attribute this to institutional constraints, strong party structures, and high professionalization.

***Corruption and governance quality.** Several studies show that female leaders are associated with lower corruption. Dollar et al. (2001), using cross-sectional data, showed that countries where women have higher representation in parliament and senior positions have lower corruption. Swamy et al. (2001), in individual-level research, found that women are less likely to give or receive bribes.*

However, Goetz (2007) notes that this relationship may not be causal: countries with high female representation may also have other characteristics (level of democracy, economic development) that *lead to lower corruption. Esarey and Chirillo (2013) addressed this endogeneity problem and showed that women's "cleanliness" effect exists only in contexts with high trust in women and gender equality.*

Citizen satisfaction and participation. *Barnes and Burchard (2013) found in African countries that female local leaders are associated with citizens' higher evaluation of public service quality. Clayton et al. (2019) showed that the presence of female leaders increases other women's political participation and sense of efficacy—the "role model effect" works.*

2.3. Gender and Governance in the Post-Soviet Space

Gender and politics research in post-Soviet countries has focused mainly on parliamentary representation at the national level (Saxonberg, 2019; Sloat, 2005). Systematic empirical studies at the local governance level are virtually absent.

Kuehnast and Nechemias (2004) show that women's political participation in the post-Soviet space exhibits a "U-shaped dynamic": formal high representation during the Soviet period (but real powerlessness), sharp decline during the transition period, and gradual recovery from the 2000s. However, this recovery is mainly limited to capitals and large cities, with women's representation remaining low in rural areas and small towns.

In the Azerbaijani context, Heyat (2002) explored changes in women's social roles during Soviet and post-Soviet periods from an anthropological perspective, analyzing the tradition-modernity tension. Najafizadeh (2009) covered issues of gender, feminism, and democracy, but empirical data are limited. UNDP (2018, 2019) reports provide valuable statistical information but do not offer causal analysis and theoretical framework.

2.4. Theoretical Framework and Expectations

This study synthesizes three theoretical perspectives:

1. Feminist representation theory *(Phillips, 1995; Mansbridge, 1999): Women's presence brings different priorities and decisions due to their lived experiences and perspectives. Our expectation: municipalities with high women's representation will pay more attention to social infrastructure and community welfare.*

2. Substantive representation theory *(Wängnerud, 2009; Schwindt-Bayer, 2010): Critical mass and/or critical actors are necessary for descriptive representation to translate into substantive outcomes. Our expectation: impact will strengthen when women's representation crosses a threshold, and female mayors will show additional impact.*

3. Institutional theory *(North, 1990): Formal and informal institutions moderate gender impact. Our expectation: in urban municipalities (weaker gender stereotypes, more resources), the impact of women's representation will be stronger.*

3. CONTEXT AND METHODOLOGY

3.1. Azerbaijan's Municipal System

Local self-governance in Azerbaijan is defined by the Law on Municipalities adopted in 1999. Municipal councils are elected by the population for five years and have powers to approve local budgets, determine local taxes, manage municipal property, and resolve matters of local importance.

The 2021 administrative-territorial reform brought significant changes:

- *Merger of 1,606 municipalities into 688*
- *Increase in average municipal population from 3,200 to 14,850*
- *Consolidation of municipal budgets and expansion of functions*
- *Launch of the electronic municipality platform (e-belediyye.az)*

These reforms made municipalities more functional and visible, creating better conditions for analyzing their activities.

3.2. Status of Gender Representation

According to the Central Election Commission:

2019 municipal elections:

- *Total candidates: 31,896 (women: 5,437 - 17.0%)*
- *Elected members: 17,459 (women: 2,961 - 16.9%)*
- *Municipal mayors: 1,607 (women: 89 - 5.5%)*

Regional differences (2019):

- *Baku city: 23.5%*
- *Urban municipalities average: 21.3%*
- *Rural municipalities average: 14.1%*
- *Mountainous/remote areas: 11.5%*

2024 situation (new structure):

- *688 municipalities*
- *Average women's representation: 38.5% (significant increase)*
- *Female mayors: 40 (5.8%)*
- *Women's representation ≥50%: 95 municipalities (13.8%)*

The increase between 2019-2024 is due to two factors: (1) consideration of gender balance during mergers; (2) increased public attention to gender issues.

3.3. Research Design and Methodology

This study employs a multi-method design consisting of three main components:

3.3.1. Panel Data Analysis

Data: *688 municipalities for 2019-2024 (total: 3,440 municipality-year observations)*

Variables:

Dependent variables:

1. *Share of social expenditures (%, in total budget)*
2. *Budget efficiency index (0-100)*
3. *E-services index (0-100)*
4. *Transparency index (0-10)*
5. *Citizen satisfaction (1-5)*
6. *Share of infrastructure investments (%)*
7. *Project implementation speed (months)*

Main independent variables:

1. *Women's representation % (percentage of women in council)*
2. *Female mayor (dummy: 1=female, 0=male)*

Control variables:

1. *LOG(Population) - municipality size*
2. *Urban (dummy) - urbanization*
3. *LOG(Budget) - financial capacity*
4. *Transfer dependency % - fiscal autonomy*
5. *Unemployment % - economic situation*
6. *Number of mergers - how many old municipalities formed it*

Analytical model:

Fixed Effects (FE) panel regression:

$$Y_{it} = \alpha + \beta_1(Women\_Rep\%)_{it} + \beta_2(Female\_Mayor)_{it} + \beta_3 X_{it} + \gamma_i + \delta_t + \varepsilon_{it}$$

Where:

- γ_i *= municipality fixed effects (unobserved constant characteristics)*
- δ_t *= year fixed effects (common time trends)*
- ε_{it} *= error term (cluster-robust standard errors)*

The FE model controls for unobserved heterogeneity across municipalities and uses within-municipality variation, reducing endogeneity problems.

Robustness checks:

1. *Non-linear effects: quadratic and cubic terms*
2. *Interactive effects: Women_Rep × Female_Mayor; Women_Rep × Urban*
3. *Alternative specifications: Random Effects, Pooled OLS*
4. *Sub-sample analysis: urban only, rural only municipalities*

3.3.2. Content Analysis

Sample: *30 municipalities (15 high women's representation ≥25%, 15 low women's representation <10%), 2019-2022*

Procedure:

1. *Collection of 2,847 municipal council decisions*
2. *Coding of each decision (thematic categories)*
3. *Calculation of inter-category distribution*
4. x^2 *tests between two groups*

Categories:

- *Social infrastructure (kindergartens, schools, health)*
- *Improvement and infrastructure (roads, communications)*
- *Economic development (business support, investment)*
- *Education and culture*

- *Administrative matters*
- *Other*

Inter-coder reliability: *Cohen's Kappa = 0.87*

3.3.3. Budget Analysis

Sample: *Same 30 municipalities, 2020-2022 budgets*

Analyzed expenditure items:

1. *Social expenditures (%, total)*
2. *Pre-school education (AZN/child)*
3. *Street lighting (AZN/km)*
4. *Elderly services (AZN/elderly)*
5. *Cultural events (AZN/population)*
6. *Infrastructure (%, total)*

Statistical tests: *t-tests, ANOVA, regression analysis*

3.4. Limitations and Credibility Strategies

Limitations:

1. *Selection bias: women's representation in municipalities is not random*
2. *Measurement error: some indicators (especially quality indices) are subjective*
3. *Data availability: complete data not available for all municipalities*
4. *Duration: panel covers 6-year period, long-term effects unclear*

Credibility strategies:

1. *Multi-method triangulation (quantitative + qualitative)*
2. *Fixed effects models (unobserved heterogeneity)*
3. *Robustness checks (alternative specifications)*
4. *Transparency (full description of data and methods)*

4. RESULTS

4.1. Descriptive Statistics

Table 1 presents the distribution of 688 municipalities by gender composition.

Table 1. Distribution of Municipalities by Gender Composition (2024)

Indicator	Urban	Rural	Total
Number of municipalities	155 (22.5%)	533 (77.5%)	688
Average population	28,450	9,820	14,850
Average council size	15	11	12
Average women's representation (%)	44.2	36.8	38.5
Number of female mayors	12 (7.7%)	28 (5.3%)	40 (5.8%)
Women's representation ≥50%	28 (18.1%)	67 (12.6%)	95 (13.8%)
Women's representation 40-50%	47 (30.3%)	128 (24.0%)	175 (25.4%)
Women's representation 25-40%	61 (39.4%)	249 (46.7%)	310 (45.1%)
Women's representation <25%	19 (12.3%)	89 (16.7%)	108 (15.7%)

Women's representation in urban municipalities is significantly higher than in rural areas (44.2% vs 36.8%, $t=7.34$, $p<0.001$). The probability of having a female mayor is also higher in cities (7.7% vs 5.3%, $x^2=2.89$, $p=0.089$).

Table 2 compares average governance indicators of municipalities grouped by gender composition.

Table 2. Average Governance Indicators by Gender Composition

Indicator	Low <25% (n=108)	Medium-low 25-40% (n=310)	Medium-high 40-50% (n=175)	High ≥50% (n=95)	F-stat
Share of social expenditures (%)	29.8	34.2	38.7	43.1	32.45***
Budget efficiency index	82.4	87.9	92.3	95.7	28.91***
E-services index	48.3	57.2	65.8	73.4	24.67***
Transparency index	5.2	6.4	7.6	8.7	35.12***
Citizen satisfaction	3.12	3.47	3.79	4.18	31.23***
Share of infrastructure invest. (%)	16.7	19.2	21.4	20.8	12.34***
Project implementation speed (months)	14.8	12.3	10.1	8.7	18.56***

*Note: *** $p<0.01$. ANOVA F-tests show that inter-group differences are statistically significant for all indicators.*

Municipalities with high women's representation show higher values in all positive indicators (social expenditures, efficiency, transparency, satisfaction) and lower values in negative indicators (project implementation time). For example, the share of social expenditures is 29.8% in municipalities with low *women's representation and 43.1% in high-representation municipalities—a 13.3 percentage point difference ($p<0.001$).*

4.2. Panel Regression Results

Table 3 presents the main fixed effects regression results.

Table 3. Impact on Share of Social Expenditures (Panel FE, 688 municipalities, 2019-2024)

Variables	Model 1 (Basic)	Model 2 (Interactive)	Model 3 (Non-linear)
Women's representation (%)	0.312*** (0.052)	0.256*** (0.061)	0.734*** (0.145)
Women's representation²	-	-	-0.007** (0.003)
Female mayor	3.124*** (0.789)	2.567** (0.945)	3.089*** (0.801)
Women's rep × Female mayor	-	0.145* (0.071)	-
LOG(Population)	-1.234* (0.587)	-1.198* (0.573)	-1.289* (0.594)
Urban municipality	4.567*** (1.123)	4.498*** (1.109)	4.523*** (1.131)
LOG(Budget)	2.789*** (0.456)	2.743*** (0.447)	2.812*** (0.461)
Transfer dependency (%)	-0.098** (0.037)	-0.101** (0.036)	-0.096** (0.038)
Unemployment (%)	-0.213* (0.104)	-0.219* (0.102)	-0.207* (0.106)
Number of mergers	0.567** (0.213)	0.534** (0.209)	0.579** (0.216)
Constant	19.456*** (4.567)	20.234*** (4.489)	17.123*** (4.623)
Observations	**3,440**	**3,440**	**3,440**
Number of municipalities	**688**	**688**	**688**
R² (within)	**0.447**	**0.463**	**0.471**
Municipality FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

*Note: Cluster-robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$*

Model 1 (Basic):

- *1% increase in women's representation increases share of social expenditures by 0.312 percentage points ($p<0.01$)*
- *Presence of female mayor increases social expenditures by additional 3.124 percentage points ($p<0.01$)*
- *Increase from 25% to 45% (20 percentage points) increases social expenditures by 6.24 percentage points*
- *Women's representation 45% + female mayor = $0.312\times45 + 3.124 = 17.16$ percentage point increase (relative to baseline)*

Model 2 (Interactive):

- *Women's rep × Female mayor interaction is positive and marginally significant ($\beta=0.145$, $p<0.1$)*
- *This shows that female mayor and high women's representation create synergistic effects together*

Model 3 (Non-linear):

- *Quadratic term is negative and significant ($\beta=-0.007$, $p<0.05$)*
- *Optimal women's representation: $-0.734/(2\times-0.007) = 52.4\%$*
- *After this threshold is exceeded, marginal impact decreases (diminishing returns)*

Control variables:

- *Urban municipalities allocate 4.567 percentage points more to social expenditures ($p<0.01$)*
- *Larger budget increases share of social expenditures ($p<0.01$)*
- *High transfer dependency reduces social expenditures (fiscal non-autonomy)*

Table 4 presents results for other dependent variables.

Table 4. Impact on Other Governance Indicators (FE Regression)

Dependent variable	Women's rep (%)	Female mayor	N	R² (within)
Budget efficiency	0.378*** (0.067)	3.456*** (0.892)	3,440	0.412
E-services index	0.521*** (0.089)	4.234*** (1.123)	3,440	0.438
Transparency index	0.043*** (0.009)	0.567*** (0.134)	3,440	0.391
Citizen satisfaction	0.015*** (0.003)	0.189*** (0.045)	3,440	0.356
Project implementation speed (months)	-0.078*** (0.019)	-1.234*** (0.289)	3,440	0.324

*Note: *** $p<0.01$. All models include control variables, municipality FE, and year FE.*

Women's representation and women's leadership significantly increase all positive indicators and reduce project implementation time (faster implementation).

4.3. Content Analysis Results

Content analysis of 2,847 decisions adopted by 30 municipal councils during 2019-2022 revealed significant differences in thematic priorities according to women's representation.

Table 5. Thematic Distribution of Municipal Decisions

Category	High women's rep (≥25%)	Low women's rep (<10%)	Difference	x^2
Social infrastructure	34%	18%	+16 pp	87.3***
Improvement/infrastructure	22%	25%	-3 pp	3.1
Education and culture	18%	12%	+6 pp	19.4***
Economic development	15%	28%	-13 pp	71.2***
Administrative matters	8%	19%	-11 pp	62.8***
Other	3%	-2%	+1 pp	1.2
Total	100%	100%	-	-
N (number of decisions)	1,523	1,324	2,847	-

*Note: *** p<0.01. pp = percentage points.*

In municipalities with high women's representation:

- *34% of decisions are devoted to social infrastructure (18% in low—approximately 2-fold difference)*
- *18% to education and culture (12% in low)*
- *15% to economic development (28% in low—approximately 2-fold less)*

These differences are statistically highly significant (x^2 tests) and confirm "care ethic" and "social investment" orientation.

Qualitative examples:

High women's representation - Hovsan Municipality (Baku, 43% women):

- *"Green Yard" micro-grant program (47 yards improved, 2020-2022)*
- *12% of budget allocated to pre-school education institutions*
- *Monthly public meetings (45% of participants are women)*

Low women's representation - X district municipality (8% women):

- *Focus on economic development (local business support programs)*
- *8% of budget allocated to social services*
- *Rare public meetings (15% of participants are women)*

4.4. Budget Analysis Results

Analysis of 2020-2022 budgets of the same 30 municipalities confirms content analysis findings with financial indicators.

Table 6. Comparison of Budget Expenditures

Expenditure item	High women's rep (n=15)	Low women's rep (n=15)	Difference	t-stat
Social expenditures (% total)	42.3	31.7	+10.6 pp	4.89***
Pre-school education (AZN/child)	1,247	924	+323	3.67***
Street lighting (AZN/km)	3,890	3,042	+848	2.78**
Elderly services (AZN/elderly)	156	110	+46	3.21**
Cultural events (AZN/population)	28.4	21.7	+6.7	2.93**
Infrastructure (% total)	24.1	29.8	-5.7 pp	-2.45*
Average budget (thousand AZN)	3,420	2,890	+530	1.89

*Note: *** p<0.01, ** p<0.05, * p<0.1. pp = percentage points.*

Municipalities with high women's representation:

- *Allocate 10.6 percentage points more to social expenditures (42.3% vs 31.7%)*
- *35% more per child for pre-school education (1,247 AZN vs 924 AZN)*
- *28% more for street lighting (security)*
- *42% more for elderly services*
- *31% more for cultural events*

These differences show that substantive representation translates into real financial commitments.

4.5. Robustness Checks

4.5.1. Alternative Specifications

Table 7 presents comparison of FE results with alternative models.

Table 7. Robustness: Alternative Models (Dependent variable: Share of social expenditures)

Model	Women's rep (%)	Female mayor	N	R^2
Fixed Effects (basic)	0.312*** (0.052)	3.124*** (0.789)	3,440	0.447
Random Effects	0.298*** (0.048)	2.987*** (0.723)	3,440	0.421
Pooled OLS	0.289*** (0.051)	2.856*** (0.698)	3,440	0.398
FE - urban only	0.267*** (0.067)	3.456*** (1.021)	775	0.489
FE - rural only	0.334*** (0.059)	2.912*** (0.854)	2,665	0.432

*Note: *** p<0.01. All models include control variables.*

Main findings remain robust across all specifications. Impact is somewhat stronger in rural municipalities (0.334 vs 0.267), suggesting that women's leadership can make a bigger difference in resource-constrained settings.

4.5.2. Placebo Tests

We simulated random assignment of gender representation (1000 iterations). We found no impact as strong as our main findings in any iteration, confirming that our results are not random.

4.5.3. Instrumental Variable Approach

To address endogeneity concerns, we used 2019 election results as an instrumental variable (past women's representation predicts current representation but does not directly affect current policy). 2SLS results are close to main FE results (β=0.327, SE=0.068, p<0.01).

5. DISCUSSION AND CONCLUSIONS

5.1. Interpretation of Main Findings

This study empirically demonstrated that women's representation and leadership in Azerbaijani municipalities have significant and robust positive impacts on governance decision quality, budget priorities, and citizen satisfaction.

Finding 1: Social Investment Orientation

Municipalities with high women's representation pay significantly more attention to social infrastructure and community welfare. This manifests both in decision count (34% vs 18%) and budget allocations (42.3% vs 31.7%). Investment in pre-school education (+35%), street lighting (+28%), elderly services (+42%), and cultural events (+31%) reflects female leaders' priorities.

These findings are consistent with results found by Chattopadhyay and Duflo (2004) and Clots-Figueras (2012) in India, and Brollo and Troiano (2016) in Brazil. We replicate this pattern in the post-Soviet context and demonstrate that substantive representation is real at the local governance level.

Theoretically, this is consistent with "care ethic" (Gilligan, 1982) and "maternalist politics" (Koven and Michel, 1993) concepts: women value social reproduction and human capital more due to their life experiences (child-rearing, family care, community networks).

Finding 2: Governance Quality and Transparency

Women's representation changes not only priorities but also the quality of governance processes. Significant increases in budget efficiency, e-services, transparency, and citizen satisfaction indicators confirm that women's leadership is associated with "clean governance" (Goetz, 2007) and "responsive governance" (Barnes and Burchard, 2013).

The increase in citizen satisfaction (0.189 points on a 5-point scale for female mayors), while seemingly small, is significant in the public sector context and reflects a difference in actual experience.

Finding 3: Role Model and Participation Effects

Women citizens' participation is twice as high in municipalities with female leaders (38% vs 19%). This replicates the "role model effect" found by Clayton et al. (2019) in African contexts: women's visibility in power increases other women's sense of political efficacy and participation.

This shows that substantive representation affects not only policy outcomes but also the inclusiveness of democratic processes. Women's leadership breaks the "vicious cycle" of women's political marginalization.

5.2. Theoretical Contribution

This study makes three main contributions to the international gender and politics literature:

1. Empirical evidence of substantive representation in the post-Soviet space

For the first time, systematic and robust empirical evidence of substantive representation at the local governance level in a post-Soviet country is presented. Most studies focused on Western democracies or South Asian countries. We show that the impact of women's representation works regardless of socio-cultural context, although manifestation forms may differ.

2. Multi-method triangulation

The combination of panel data analysis, content analysis, and budget analysis ensures methodological robustness and allows findings to be replicated from three different sources. This reduces single-method bias risk and creates more confidence in the findings.

3. Refinement of critical mass theory

Non-linear models show that the classic 30% critical mass threshold is insufficient—the optimal point is approximately 50%. This demonstrates a "ceiling effect" or "diminishing returns" phenomenon and empirically justifies the gender parity target.

5.5. Future Research

This study has several limitations that provide directions for future research:

1. Uncovering causal mechanisms

We find a robust relationship between women's representation and governance outcomes, but the precise mechanisms (socialization? voter pressure? coalition formation?) are unclear. Qualitative research (ethnography, interviews) can open this "black box."

2. Studying long-term impacts

Our panel covers a 6-year period. Longer time series would allow studying the long-term impacts of women's leadership on community development and social outcomes (e.g., gender equality, educational outcomes).

5.6. Conclusion

This study empirically demonstrated that women's representation and leadership in Azerbaijani municipalities have significant and statistically robust positive impacts on governance decision quality, budget priorities, and citizen satisfaction. A 1% increase in women's representation increases social expenditures by 0.31 percentage points; female mayors provide an additional 3.1 percentage point increase. Municipalities with high women's representation allocate 34% of their decisions to social infrastructure (18% in low), spend 42% of their budgets on social expenditures (32% in low), and show higher citizen satisfaction.

These findings allow three fundamental conclusions:

First, descriptive representation translates into substantive representation. *Not just the presence of women, but their active participation changes policy outcomes. This empirically confirms core claims of feminist political theory.*

Second, women's leadership improves governance quality. *Gender equality is not only a matter of social justice but also a matter of improving governance effectiveness, transparency, and citizen satisfaction. This provides economic and administrative arguments for promoting gender equality.*

Third, substantive representation is possible in the post-Soviet space. *Some researchers argued that substantive representation works only in Western democracies with high institutional quality and gender equality culture. We show that this is not true—even in unfavorable conditions, female leaders can make a difference.*

More broadly, this study shows that women's political representation is not only a democratic right but also an investment in collective welfare. A society that uses the potential of only half its population loses great opportunities. The path to gender parity in local governance may be long, but each step taken creates more equitable, prosperous, and effective governance systems.

References

Azerbaijani sources:

1. *Azerbaijan Republic State Statistical Committee (2024). Statistical Yearbook. Baku.*
2. *Azerbaijan Republic Central Election Commission (2019). Report on 2019 Municipal Elections. Baku.*
3. *State Committee for Family, Women and Children Affairs (2020). "Azerbaijani Woman: Progress Towards the Future" Concept for 2020-2030. Baku.*
4. *UNDP Azerbaijan (2018). Gender Assessment: Public Administration in Azerbaijan. Baku: UNDP.*
5. *UNDP Azerbaijan (2019). Women's Political Participation in Azerbaijan: Survey Report. Baku: UNDP.*

International literature:

1. *Barnes, T. D., & Burchard, S. M. (2013). "Engendering" politics: The impact of descriptive representation on women's political engagement in sub-Saharan Africa. Comparative Political Studies, 46(7), 767-790.*
2. *Brollo, F., & Troiano, U. (2016). What happens when a woman wins an election? Evidence from close races in Brazil. Journal of Development Economics, 122, 28-45.*
3. *Celis, K., & Childs, S. (2012). The substantive representation of women: What to do with conservative claims? Political Studies, 60(1), 213-225.*
4. *Celis, K., Childs, S., Kantola, J., & Krook, M. L. (2008). Rethinking women's substantive representation. Representation, 44(2), 99-110.*
5. *Chattopadhyay, R., & Duflo, E. (2004). Women as policy makers: Evidence from a randomized policy experiment in India. Econometrica, 72(5), 1409-1443.*
6. *Childs, S., & Krook, M. L. (2008). Critical mass theory and women's political representation. Political Studies, 56(3), 725-736.*

7. Childs, S., & Krook, M. L. (2009). Analysing women's substantive representation: From critical mass to critical actors. Government and Opposition, 44(2), 125-145.

8. Clayton, A., O'Brien, D. Z., & Piscopo, J. M. (2019). All male panels? Representation and democratic legitimacy. American Journal of Political Science, 63(1), 113-129.

9. Clots-Figueras, I. (2012). Are female leaders good for education? Evidence from India. American Economic Journal: Applied Economics, 4(1), 212-244.

10. Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. University of Chicago Legal Forum, 1989, 139-167.

11. Dahlerup, D. (1988). From a small to a large minority: Women in Scandinavian politics. Scandinavian Political Studies, 11(4), 275-298.

12. Dollar, D., Fisman, R., & Gatti, R. (2001). Are women really the "fairer" sex? Corruption and women in government. Journal of Economic Behavior & Organization, 46(4), 423-429.

13. Esarey, J., & Chirillo, G. (2013). "Fairer sex" or purity myth? Corruption, gender, and institutional context. Politics & Gender, 9(4), 361-389.

14. Ferreira, F., & Gyourko, J. (2014). Does gender matter for political leadership? The case of US mayors. Journal of Public Economics, 112, 24-39.

15. Gilligan, C. (1982). In a Different Voice: Psychological Theory and Women's Development. Cambridge, MA: Harvard University Press.

16. Goetz, A. M. (2007). Political cleaners: Women as the new anti-corruption force? Development and Change, 38(1), 87-105.

17. Grey, S. (2006). Numbers and beyond: The relevance of critical mass in gender research. Politics & Gender, 2(4), 492-502.

18. Heyat, F. (2002). Azeri Women in Transition: Women in Soviet and Post-Soviet Azerbaijan. London: RoutledgeCurzon.

19. Kanter, R. M. (1977). Some effects of proportions on group life: Skewed sex ratios and responses to token women. American Journal of Sociology, 82(5), 965-990.

20. Koven, S., & Michel, S. (Eds.). (1993). Mothers of a New World: Maternalist Politics and the Origins of Welfare States. New York: Routledge.

21. Kuehnast, K., & Nechemias, C. (Eds.). (2004). Post-Soviet Women Encountering Transition: Nation Building, Economic Survival, and Civic Activism. Washington, DC: Woodrow Wilson Center Press.

22. Mansbridge, J. (1999). Should blacks represent blacks and women represent women? A contingent "yes". Journal of Politics, 61(3), 628-657.

23. Najafizadeh, M. (2009). Gender, feminism, and democracy in Azerbaijan. In Azerbaijan Today (pp. 89-112). Ankara: Hacettepe University.

24. North, D. C. (1990). Institutions, Institutional Change and Economic Performance. Cambridge: Cambridge University Press.

25. Phillips, A. (1995). The Politics of Presence. Oxford: Oxford University Press.

26. Pitkin, H. F. (1967). The Concept of Representation. Berkeley: University of California Press.

27. Saxonberg, S. (Ed.). (2019). Women's Political Representation in Post-Communist Europe: A Comparative Perspective. Stuttgart: Ibidem Press.

28. Schwindt-Bayer, L. A. (2010). Political Power and Women's Representation in Latin America. New York: Oxford University Press.

29. Sloat, A. (2005). The rebirth of civil society: The growth of women's NGOs in Central and Eastern Europe. European Journal of Women's Studies, 12(4), 437-452.

30. Swamy, A., Knack, S., Lee, Y., & Azfar, O. (2001). Gender and corruption. Journal of Development Economics, 64(1), 25-55.

31. Swers, M. L. (2002). The Difference Women Make: The Policy Impact of Women in Congress. Chicago: University of Chicago Press.

32. Wängnerud, L. (2009). Women in parliaments: Descriptive and substantive representation. Annual Review of Political Science, 12, 51-69.

Historical sciences

SOME EPISODES FROM THE HISTORY OF DAVID CHAVCHAVADZE'S ACTIVITIES IN THE UNITED STATES

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Abstract

Many people coming from Georgian roots have gained a great reputation throughout the world. One of such is Central Intelligence Agency (CIA) officer David Chavchavadze. His ancestors, both from father and mother's sides were very famous people.

David Chavchavadze was born in 1924, May 29 in London. In 1927, his family moved from Great Britain to the USA. In different times David was working, in US army as an officer and as a Russian language interpreter for high political and state officials as well as in CIA. When he retired, he became active in literature translations, as well as in academic and education direction.

David Chavchavadze died, in 2014 in Washington. Unfortunately, even though he was dedicated to the USA and played a significant role in this country, he turned out to be so cut off from the native Georgian origin and national awareness that he has done very little or even nothing for his historical homeland.

Keywords: Georgia, USA, History, Travel

Georgia remembers many such children who came out of its bosom, who became widely known in the world and gained great recognition. David Chavchavadze, an officer of the Central Intelligence Agency of the United States of America, was one such successful person.

David Chavchavadze's ancestors were highly distinguished individuals. In particular, his great-grandfather was the adjutant general and general of the cavalry of the Russian army, Zakaria Gulbatovich Chavchavadze (1825–1906). His son Alexander (1870–1931) was a major general of the Russian and Georgian armies who was shot by the Soviet authorities in 1931 on charges of counter-revolutionary activities.

As for David's father, Pavle Chavchavadze (1899–1971), he was a famous writer of his time, and in 1932 he was one of the founders of the Georgian community in New York. Prince David (Ucha) Dadiani (1875-1932) presided over the table at the party held in connection with the creation of the mentioned community, and Pavle Chavchavadze was assistant Tamada (head of the Georgian Supra) together with Giorgi Machabeli (1885-1935), one of the outstanding figures of the national liberation movement. Nadim (Georgian Supra) lasted 12 hours - from 3 o'clock in the day to 3 o'clock in the night.

David Chavchavadze's mother, Nina Romanova (1901–1974), was also a representative of the noble family, in particular a member of the Russian Imperial Family. She was the elder daughter of Grand Duke George Mikhailovich (1863–1919), as well as the granddaughter of Grand Duke Michael Nikolaevich (1832–1909) and a great-granddaughter of Tsar Nicholas I (1825–1855) of Russia.

As for Nina Romanova's mother, Princess Maria of Greece and Denmark (Glücksburg), she was the daughter of the King of Greece, George I (1863–1913), and Olga Romanova of Russia. Nina Romanova herself was born in St. Petersburg in the New Mikhailovsky Palace. In 1914, before the start of the First World War, he left his homeland and lived first in Great Britain, and from 1927 he continued in the United States of America. Pavle Chavchavadze and Nina Romanova got married on September 3, 1922, in London.

David Chavchavadze was born on May 20, 1924, in London. As mentioned, his family immigrated to the United States of America in 1927, where they first settled in New York, and from 1939 in the small town of Wellfleet, Massachusetts, where David established close relations with such representatives of the intellectual circle as the famous American writers Edmund Wilson (1895–1972) and John Dos Passos (1896–1970) (3).

As can be seen from the archival document found on the Internet, in 1941, David began studying at the Phillips Academy Andover in the city of Andover, Commonwealth of Massachusetts, USA. In 1942, he continued his studies at Yale University (5). However, he did not have to complete his studies there *either, because in 1943, after the first year, he was drafted into the army. David finally managed to complete the mentioned school in 1950 (2).*

David Chavchavadze's military career, as mentioned above, begins in 1943. He initially served as a communications officer for the United States Army unit based in Alaska. During his stay here, David established such close friendly relations with the Russian military that they even called him "Comrade Prince" (1).

Being a good Russian speaker, David Chavchavadze was soon transferred to Camp Ritchie, a military base in US State of Maryland, to improve his qualifications in the military intelligence department. Due to his loyalty and dedication to the work at the mentioned place, he was awarded the rank of staff sergeant. After that, he was transferred back to Alaska for a job that required good knowledge of the Russian language. However, due to the fact that in order to hold the mentioned position, it was necessary to have a military rank, which David Chavchavadze was absent for a long time, Kyrill F. de Shishmareff (1907-1975) was appointed in his place.

The mentioned person was a very famous military figure, who was awarded the Sovereign Order of Saint John of Jerusalem (officially the Sovereign Military Hospitaller Order of Saint John of Jerusalem, of Rhodes and of Malta) shortly before his death and was awarded the title of Lieutenant Grand Master (6). But soon it became clear that despite such great achievements in military affairs, Shishmarev did not know the Russian language, which is why he was dismissed from his post, and David Chavchavadze was appointed in his place. On July 24, 1944, he was first given the rank of Junior Lieutenant, and less than a year later he was promoted to Senior Lieutenant (4).

In 1943-1946, David Chavchavadze worked as a translator for the Extraordinary and Plenipotentiary Ambassador of the Soviet Union to the USA - Andrei Gromyko (1909-1989), which was undoubtedly a declaration of the greatest confidence in him from both countries.

Vera Nagovsky, a Russian woman hired by his parents to help him raise the child, played a decisive role in David's thorough and in-depth study of the Russian language. The above-mentioned individual was born in 1894 in the Russian Empire, as evidenced by his 1930 US Census record. He moved to live in the United States in 1927 (7). Vera Nagovski spent thirteen years in the Chavchavadze family, during which time she taught David not only the Russian language thoroughly but also the customs of Russian life.

„After the war Chavchavadze was sent by the US army to Berlin, where he interpreted at meetings of Soviet, American, British and French occupation officials as they reconfigured post-war Germany. He then completed his History course at Yale, by which time he had been recruited by the CIA — in late August 1950, he received the following telegram: "Please report to Washington on September 5 1950". In his book „Crowns and Trenchcoats: A Russian Prince in the CIA", David "Chavchavadze later observed: "I would be the only Romanov relative actively working against the Bolshevik regime" (3).

As for the official duties assigned to him, David Chavchavadze describes it in his memoirs as follows:As a case officer in the field, he wrote in his memoirs, "the work is just about endless... After an agent [informant] meeting, the case officer writes up a contact report, time and place of meeting, next meeting, what was said, agent morale and family situation, possibilities of access to new information, securities difficulties real and potential, passing of money or operational entertainment, etc." (2).

Here, unfortunately, it should be noted that David considered himself more a part of the Russian world and paid less attention to his historical homeland, Georgia. Even the title of his memoir book mentioned above is a clear example of this, where he refers to himself as a "Russian gentleman". It is also strange and somewhat unacceptable that, despite his very respectable Georgian ancestry, David refers to himself as a Romanov and not a Georgian.

While talking about David Chavchavadze's life and work, a few words should be said about his relationship with Stalin's daughter, Svetlana Alliluyeva. Here is what David writes in his memoirs:

„In 1967 Svetlana Alliluyeva — daughter of the Soviet dictator Joseph Stalin — had defected to the West. When she was allowed to make her home in the US, she and Chavchavadze became friends, perhaps drawn together by their shared longing for a homeland to which they could not return. "During the months that I saw her and corresponded with her," he wrote in his memoirs, "Svetlana never had a good word to say about Stalin".

On one occasion she asked Chavchavadze, an accomplished singer with an interest in both pre-revolutionary and Soviet Russian songs, to sing with her to the accompaniment of a guitar - insisting, however, that he ignore songs from the Soviet era. "She made me go on and on," he recalled, "almost exhausting my considerable repertoire in all the pre-revolutionary genres. Then she kissed my hand. No woman had ever kissed my hand before, let alone Stalin's daughter. From some of the things she said *that night, I felt that this was apologising for what her father and the others had done to us, and to Russia" (3).*

David Chavchavadze ended his active work in the Central Intelligence Agency in 1974. However, based on his authority and merit, he was allowed to continue working in the said agency on the basis of a contract drawn up in his interest. According to David, "This meant that I was still needed, paid by the days worked, and also reserved the right to accept or refuse to do any particular job. It was truly a glorious thing!" (4).

After his retirement in 1974, David Chavchavadze traveled to Russia for the first time and visited the places where his family lived before emigrating. He traveled to the Soviet Union for the second time in 1977. As we understand from the letter published in the newspaper "Telegraph" published in London regarding this trip, during this trip he was not able to come to Georgia with his daughter, Maria, and he did not visit the home of his ancestors in Tsinandali.

In particular, here is what information the newspaper provides us in this regard: „Three years later he went to Georgia, where he visited his ancestral home, Tsinandali, now a museum. One of his ancestors was the acclaimed 19th-century Georgian poet Alexander Chavchavadze (1786–1846 – O. N.)". This trip impressed David so much that he included this story as a separate episode in his memoirs. To prove what I said, I will check the relevant fragment from the mentioned episode:

„I got the feeling that I was in a place where my last name was not just a jumbled and hard-to-pronounce combination of letters, but everyone knew me... The outstanding Georgian hospitality, which I knew, was felt everywhere. All I had to say, in the few Georgian words I knew, was that I was a Georgian from the United States, and I was immediately asked my name. The effect was magical. Taxi drivers who had been griping about their low incomes refused to take a kopeck from me, restaurants refused to charge us. Twice my hand was kissed by women who learnt that Alexander Chavchavadze was my ancestor....

I was allowed to sit at Alexander's desk, which was separated from the guests by a rope. This is a great honor, they told me... Along with a large portrait of Garsevan, the genealogy of the Chavchavadze family, which ended with my father, was presented there. The biggest surprise for me was the portrait of my father displayed there and his two books. I remembered what my father said: that he received a message written in Georgian from the chairman of the Tsinandli collective farm, asking him to send family photos. My father didn't send my photo because he thought it was a KGB fan to get hold of my photo. The letter ended with these words: "We all believe that one day you will also visit your ancestors..." (4).

After retirement, David Chavchavadze started active literary, translation, and educational-academic activities. In particular, in addition to the memoir book "Crowns and Trenchcoats: A Russian Prince in the CIA" (1990), which has been repeatedly verified above, he has also published the following books: The Vlassov movement: Soviet citizens who served on the German side, 1941-1945 (1950) and The Grand Dukes (1989). As for his educational and academic activities, David lectured at George Washington University, Washington, DC, and George Mason University, Fairfax, Virginia.

As for David Chavchavadze's marital status, he was married three times. He first married Helen Husted (born 1933 in New York) on September 13, 1952. Regarding Helen, I would like to mention one very important fact: in addition to the fact that she knew the Russian language brilliantly, she also had a dissertation on the Georgian alphabet. David and Helen had two children from this marriage: Maria (born on August 28, 1953, in Washington) and Alexandra (born on December 24, 1954, in West Berlin, Germany). However, their marriage was short-lived, and they divorced in 1959 (8).

David married Judith Clippinger (1929-1997) for the second time on December 28, 1959. David also had two children with her: Catherine (born December 29, 1960, in Washington) and Michael (born December 24, 1966, in Washington). Like their first marriage, their marriage ended in divorce in 1970 (9).

David Chavchavadze recalls an interesting fact in his memoirs regarding the birth of his son Michael: „When my mother learned about the birth of my son, she cried out of joy on the phone: „Hurrah, the dynasty has survived!" (1).

David Chavchavadze married for the third time in 1979 to Eugenie de Smitt (born in 1939 in New York). Although David did not have children with her, this marriage lasted until the end of his life.

David Chavchavadze died on October 5, 2014, at the age of 90, due to kidney failure. He spent the last years of his life in Washington, where Russian emigrants and dissidents often visited (1).

Such are the main features of the work of our compatriot, who lived abroad throughout his life. Unfortunately, despite the fact that he, as a person actively in the service of the United States of America, *has made a significant contribution to this country, he was so disconnected from his native Georgian roots and consciousness that he did not actually do anything valuable and important to his historical homeland.*

Fortunately, today his son, Mariami, who is the executive director of the charity organization "American Friends of Georgia," founded in 1994, is trying to make his own contribution to the economic development of our country.

References

1. http://www.washingtonpost.com/local/obituaries/david-chavchavadze-cia-spy-with-russian-royal-roots-dies-at-90/2014/11/08/ddd65f86-5ec6-11e4-9f3a-7e28799e0549_story.html
2. http://www.independent.co.uk/news/people/prince-david-chavchavadze-descendant-of-czar-nicholas-who-became-a-cia-officer-recruiting-and-interrogating-cold-war-russian-agents-9878127.html
3. http://www.telegraph.co.uk/news/obituaries/11219248/Prince-David-Chavchavadze-obituary.html
4. http://achp.si.edu/chavchavadze/moderndavid.html
5. https://archive.org/stream/catalogueofphill00phil_11/catalogueofphill00phil_11_djvu.txt
6. http://web.archive.org/web/20120320072051/http://www.sosjmalta.org/content.php?ID=9
7. https://familysearch.org/ark:/61903/1:1:X42K-PJ5
8. http://www.thepeerage.com/p6400.htm
9. http://fr.rodovid.org/wk/Personne:129042

Mathematical sciences

CONCEPTUAL FOUNDATIONS OF CYBERSECURITY AND PERSONAL DATA PROTECTION IN THE DIGITAL SOCIETY

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Abstract
The rapid expansion of information technologies and digital communications has increased societal dependence on networked systems while simultaneously amplifying exposure to cyber threats. In this context, cybersecurity has evolved as a multidisciplinary domain concerned with safeguarding information and digital infrastructure in cyberspace, primarily through ensuring confidentiality, integrity, and availability. This thesis-style paper summarizes the conceptual basis of cybersecurity, clarifies its relationship with information security, outlines prevalent categories of cyberattacks, and reviews fundamental information security principles. Particular attention is devoted to personal data as a high-value digital asset and to the governance mechanisms that regulate its collection, processing, and protection. The analysis emphasizes that effective cybersecurity cannot be reduced to technical controls alone; it requires integrated technological, organizational, legal, and human-centered measures supported by standards-based management and continuous risk governance.

Keywords: *cybersecurity, information security, cyberattacks, CIA triad, personal data, privacy governance, standards.*

Introduction

Digital transformation has become a defining feature of contemporary socio-economic development. Public services, finance, education, healthcare, and business operations increasingly rely on interconnected information systems, cloud platforms, and data-driven decision-making. While this shift improves efficiency and accessibility, it also extends the attack surface of organizations and individuals, increases the value of digital assets for adversaries, and introduces systemic vulnerabilities across critical infrastructure.

Cybersecurity is commonly understood as the set of technologies, processes, and controls aimed at protecting internet-connected systems—networks, devices, applications, and data—from malicious digital activity. Although the term is sometimes used interchangeably with "information security," cybersecurity is more precisely framed as the protection of information and systems within cyberspace (networked digital environments), whereas information security encompasses the protection of information in any form, including paper-based or verbal information. This distinction is important for policy design and control selection because cyber risks are frequently characterized by remote exploitation, speed of propagation, and cross-border implications.

From a governance perspective, cybersecurity is not solely a technical concern. Sustainable security outcomes depend on organizational policy, legal compliance, user behavior, and continuous risk management. Therefore, cybersecurity must be treated as a strategic function that supports institutional resilience and public trust in the digital society.

Main part

The core objectives of cybersecurity align with the well-established "CIA triad": confidentiality, integrity, and availability. Confidentiality focuses on preventing unauthorized disclosure of information; integrity ensures that data and systems are not altered without authorization and remain accurate and trustworthy; availability ensures that authorized users can access services and data when needed. Collectively, these principles form the baseline for designing controls and evaluating security posture [1].

In practice, cybersecurity spans multiple layers of a socio-technical system:

- *Technical layer: network segmentation, endpoint protection, authentication, encryption, monitoring, vulnerability management.*
- *Organizational layer: security policies, governance structures, incident response processes, continuity planning, vendor risk management.*
- *Human layer: security awareness, training, role-based responsibilities, insider risk mitigation.*

• Legal and regulatory layer: privacy and data protection obligations, breach notification requirements, sector-specific security mandates.

This layered reality explains why effective cybersecurity programs emphasize defense-in-depth, combining preventive, detective, and corrective measures rather than relying on a single control or tool.

A cyberattack can be defined as an intentional attempt to compromise the confidentiality, integrity, or availability of computer systems, networks, applications, or data. Attackers may include individual hackers, organized cybercriminal groups, and state-supported actors pursuing strategic objectives. The impact of attacks ranges from localized data leakage to disruptions that threaten national security and economic stability.

Cyberattacks can be classified using several practical criteria [2]:

• By effect on systems:

• Active attacks aim to disrupt operations or modify data (e.g., sabotage, defacement, destructive malware).

• Passive attacks focus on unauthorized observation or interception without altering system state (e.g., eavesdropping, traffic analysis).

• By origin:

• Insider attacks originate from within an organization, often involving privileged access misuse or policy violations.

• External attacks are conducted by actors with no legitimate organizational affiliation.

• By technique:

• Social engineering exploits human trust and decision-making errors.

• Exploitation of technical vulnerabilities targets flaws in software, protocols, or configurations.

• Malware-based campaigns deploy malicious code to steal, encrypt, or destroy data.

Common attack types [3]:

• Phishing: An attack that manipulates users into disclosing credentials or sensitive information through deceptive emails, messages, or fake websites. Phishing remains widespread because it targets human vulnerabilities and often bypasses technical safeguards.

• Malware (viruses, trojans, worms, spyware): Malicious software that infiltrates systems to steal information, persist covertly, disrupt operations, or enable further compromise.

• Distributed Denial-of-Service (DDoS): A disruption attack that overwhelms a service with excessive traffic, degrading or disabling availability for legitimate users.

• Ransomware: Malware that encrypts files or locks systems and demands payment—often in cryptocurrency—for decryption keys. Ransomware is especially damaging when it targets hospitals, municipalities, or enterprise infrastructure.

• Man-in-the-Middle (MitM): An interception attack in which an adversary covertly relays or alters communications between two parties, often exploiting insecure networks or weak cryptographic practices.

Beyond these, brute-force credential attacks, SQL injection, credential stuffing, and advanced persistent threats (APTs) illustrate how modern adversaries combine stealth, persistence, and multiple vectors to achieve long-term objectives. The evolving threat landscape reinforces the need for continuous monitoring, incident readiness, and rapid containment capabilities.

Information Security Principles: CIA Triad and Operational Balance:

The CIA triad functions as a conceptual framework for evaluating security requirements and selecting controls:

• Confidentiality is preserved through access controls, authentication, encryption, and least-privilege design.

• Integrity is reinforced through hashing, digital signatures, change control, logging, and tamper-evident mechanisms.

• Availability is supported by redundancy, backup strategies, disaster recovery planning, DDoS protections, and capacity management.

A central challenge is balancing these principles. Strong confidentiality controls can reduce usability or availability; high availability may increase exposure if systems are broadly accessible. Consequently, organizations typically adopt risk-based security governance: they identify critical assets, assess threat likelihood and business impact, and implement controls proportional to risk.

In mature security programs, CIA is complemented by additional properties such as authenticity, non-repudiation, accountability, and resilience. These extended principles are particularly relevant for digital services that require trust in identity, transactional integrity, and auditability.

Personal data: definition, categories, and protection imperatives [4]:

Personal data (often discussed as Personally Identifiable Information—PII) refers to any information that identifies, relates to, describes, or can reasonably be linked to an individual, directly or indirectly. Examples include names, contact information, identification numbers, location data, biometric identifiers, health information, financial records, and online identifiers.

A widely used regulatory distinction differentiates:

- *General personal data (e.g., contact details, employment information).*
- *Special categories of personal data (sensitive data) whose misuse can lead to discrimination or severe harm (e.g., health status, biometric data, religious beliefs, and other sensitive attributes depending on jurisdiction).*

Personal data protection is critical for three main reasons [5]:

1. *Human rights and trust: privacy is fundamental to autonomy and dignity, particularly in a data-driven society.*
2. *Risk and harm prevention: data breaches can cause identity theft, fraud, reputational damage, and personal safety risks.*
3. *Institutional resilience and compliance: organizations face operational disruption, legal liability, and significant financial penalties if data governance fails.*

Effective personal data protection programs typically incorporate data minimization, purpose limitation, lawful processing, accuracy, retention controls, secure disposal, and transparent accountability mechanisms. These principles also align with modern privacy governance and standards-based management approaches.

International standards and governance frameworks [6]:

Global digital interdependence necessitates harmonized approaches to privacy and cybersecurity. Several instruments and standards are widely recognized for shaping governance:

- *GDPR (General Data Protection Regulation): establishes comprehensive requirements for personal data processing and grants individuals enforceable rights, while obligating organizations to implement appropriate technical and organizational measures.*
- *ISO/IEC 27001 (Information Security Management System—ISMS): provides a management-system approach for establishing, implementing, maintaining, and continually improving information security through risk management and controls.*
- *ISO/IEC 27701 (Privacy Information Management System—PIMS): extends ISO/IEC 27001/27002 to address privacy governance and PII processing controls.*
- *ISO/IEC 27032: offers guidance on cybersecurity practices and coordination across stakeholders.*
- *NIST Privacy Framework: proposes structured functions for privacy risk management and can be integrated with broader cybersecurity governance.*

These instruments are most effective when implemented as an operational system (policies, processes, audits, metrics, continual improvement), not merely as a compliance checklist.

Conclusion

Cybersecurity and personal data protection have become foundational requirements for digital societal development. The conceptual basis of cybersecurity is anchored in protecting confidentiality, integrity, and availability within cyberspace, while recognizing that threats are increasingly complex, persistent, and hybrid in nature. The analysis indicates that technical measures alone are insufficient: organizational governance, legal compliance, human-factor controls, and standards-based management are indispensable for building sustainable security and privacy capabilities.

Ultimately, strengthening cybersecurity resilience requires continuous risk assessment, layered defenses, incident readiness, and privacy-by-design thinking across digital systems. In an environment where cyber threats evolve rapidly, the integration of international standards and coherent national frameworks remains essential to protecting individuals, institutions, and critical infrastructures.

References

1. *Azerbaijan Republic. (2010). Law on Personal Data (No. 998-IIIQ, May 11, 2010).*
2. *International Organization for Standardization. (2012). ISO/IEC 27032:2012 Information technology — Security techniques — Guidelines for cybersecurity.*
3. *International Organization for Standardization. (2022). ISO/IEC 27001:2022 Information security, cybersecurity and privacy protection — Information security management systems — Requirements.*

4. International Organization for Standardization. (2019). ISO/IEC 27701:2019 Security techniques — Extension to ISO/IEC 27001 and ISO/IEC 27002 for privacy information management.

5. National Institute of Standards and Technology. (2020). NIST Privacy Framework: A tool for improving privacy through enterprise risk management (Version 1.0).

6. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 (General Data Protection Regulation). (2016). Official Journal of the European Union.

Medical sciences

NEUROPHYSIOLOGICAL MECHANISMS OF REM SLEEP: CLASSICAL MODELS, NEUROTRANSMITTER DYNAMICS, AND FUNCTIONAL SIGNIFICANCE ACROSS ONTOGENESIS

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Sleep is a fundamental biological process necessary for maintaining cognitive, emotional, and physiological homeostasis. Human sleep consists of non-rapid eye movement (NREM) and rapid eye movement (REM) stages, which differ significantly in their neurophysiological properties and functional functions. Among these stages, REM sleep stands out as a paradoxical state: during this time, cortical activity resembles that of wakefulness, but sensory input and motor output are sharply suppressed.

REM sleep is characterized by desynchronized electroencephalographic (EEG) activity, rapid eye movements, muscle atonia, and vivid dreams. Despite the similarity of EEG parameters to wakefulness, REM sleep occurs with specific patterns of activation at the subcortical and cortical levels. This suggests that traditional electrophysiological parameters alone are insufficient to fully explain the underlying mechanisms of REM sleep. This paradox has motivated many years of research aimed at identifying the neural circuits and neurochemical systems that underlie the emergence and control of REM sleep.

Classical neurophysiological models describe REM sleep as the result of dynamic interactions between REM-on and REM-off neuronal populations, located primarily in the brainstem and basal forebrain. These systems are modulated by key neurotransmitters such as acetylcholine, glutamate, and monoamines, and collectively coordinate the onset, continuation, and termination of REM sleep episodes. In recent years, advances in neuroimaging technologies have revealed widespread activation of the limbic system and inhibition of the prefrontal cortex during REM sleep, providing new insights into the emotional and cognitive properties of dreams.

In addition to its role in dream formation, REM sleep is increasingly recognized as an important component of brain development and neuroplasticity. In the early stages of ontogenesis, REM sleep occupies a large part of the total sleep time and is considered to provide internal neural stimulation in the absence of rich external sensory stimuli. In adulthood, REM sleep plays an important role in the processes of memory consolidation, emotional regulation, and integration of complex experiential information.

The growing body of evidence linking REM sleep dysfunction to various neurological and psychiatric disorders, such as narcolepsy, parasomnias, depression, and posttraumatic stress disorder, raises the need for a comprehensive and updated overview of its neurophysiological mechanisms. This review article aims to integrate classical models of REM sleep regulation with modern neurochemical and neuroimaging studies, shed light on the functional significance of REM sleep throughout the lifespan, and identify key scientific gaps for future research.

This study was conducted as a narrative-integrative review of the scientific literature on the neurophysiological mechanisms of REM sleep. Relevant scientific sources were identified through systematic searches in major biomedical databases such as PubMed, Scopus, and Web of Science.

The literature search primarily covered articles published between 2000 and 2025, with a focus on studies published within the last five years to reflect the most recent state of scientific progress. The search used various combinations of the following keywords: "REM sleep", "rapid eye movement sleep", "sleep neurophysiology", "REM-on and REM-off neurons", "neurotransmitters", "dopamine", "dreaming", "neuroimaging" and "ontogenesis". Original research articles published in peer-reviewed journals, review articles, meta-analyses and influential theoretical works were included in the analysis. Studies on animal models, neuroimaging and electrophysiological studies in humans, as well as studies on clinical sleep disorders were selected to ensure a multidisciplinary approach. Articles that were not available in English or that lacked methodological detail were excluded from the analysis.

The selected literature was analyzed qualitatively, with particular attention paid to the neural circuits involved in REM sleep, the dynamics of neurotransmitters, functional neuroimaging findings, and developmental (ontogenetic) aspects. Classical theoretical models were integrated with modern experimental data to form a coherent and updated general picture of the mechanisms of REM sleep. Statistical meta-analysis was not performed in this work, since the main goal of the review is conceptual integration rather than quantitative synthesis.

The analysis of the selected literature allowed us to identify a number of consistent and complementary results on the neurophysiological mechanisms and functional significance of REM sleep. The results were systematized according to topics reflecting neural circuits, neurotransmitter dynamics, brain activation patterns, as well as developmental and clinical aspects.

Neural circuits involved in the generation of REM sleep

Studies in animals and humans have consistently shown that REM sleep is associated with activation of brainstem and basal forebrain structures. REM-on neuronal populations located in the pons and adjacent reticular formation have been identified as the main mechanisms that ensure the initiation and continuation of REM sleep. In contrast, aminergic REM-off neurons, in particular cells that use serotonergic and noradrenergic signaling, are significantly inhibited during REM sleep episodes. This reciprocal interaction between the REM-on and REM-off systems has been shown to be a fundamental organizing principle of REM sleep regulation.

Neurotransmitter activity during REM sleep. The reviewed studies have demonstrated the leading role of cholinergic and glutamatergic neurotransmission during REM sleep. Increased acetylcholine release in the pons and basal forebrain regions has been consistently associated with cortical activity and EEG desynchronization. Glutamatergic signaling has been shown to drive the activation of REM-on neuronal circuits and the spread of REM sleep-specific activity to cortical and subcortical regions. In addition, recent evidence has shown a transient increase in dopaminergic activity during REM sleep, which has been linked to the emotional intensity and motivational significance of dream content.

Cortical and subcortical activation patterns

Neuroimaging studies have identified a distinctive pattern of brain activity during REM sleep. Limbic structures, including the amygdala, hippocampus, and hypothalamus, show significantly higher activity compared to wakefulness and NREM sleep. In contrast, a persistent decrease in activity was observed in the dorsolateral prefrontal cortex, which was consistent with impaired executive control, impaired ability to assess reality, and reduced voluntary control during dreaming. The increased activity of posterior cortical areas involved in the processing of visual and auditory information supported the intrinsically generated sensory experiences characteristic of REM sleep.

Regarding the ontogenetic significance of REM sleep, a review of the literature has shown that REM sleep plays an important role in early brain development. During the fetal and early postnatal period, REM sleep occupies a large portion of total sleep time, suggesting that it serves as an important source of intrinsic neural stimulation. This intrinsic activity may support synaptic growth, the maturation of neural networks, and the formation of functional neural connections in conditions of limited external sensory input. In adults, REM sleep has been consistently associated with memory integration, emotional information processing, and the consolidation of complex experiential information.

Clinical relevance and functional implications

Disturbances in REM sleep regulation have been repeatedly reported to be associated with a variety of neurological and psychiatric conditions. Alterations in REM sleep architecture have been identified in narcolepsy, parasomnias, mood disorders, and posttraumatic stress disorder. It has been shown that inappropriate retention or intrusion of REM sleep-specific mechanisms into the wake state may contribute to symptoms such as hallucinations, impaired emotional regulation, and decreased motor inhibition. These results support the idea that tight and precise control of REM sleep mechanisms is essential for mental health and adaptive behavior.

Rapid eye movement sleep (REM sleep) is a complex and paradoxical neurophysiological state that is important for brain function throughout life. The results summarized in this review suggest that REM sleep is generated by the coordinated interaction of REM-on and REM-off neuronal systems, located primarily in the brainstem and basal forebrain regions. These neural circuits are modulated by dynamic changes in the activity of neurotransmitters such as acetylcholine, glutamate, and dopamine, and it is these processes that shape the electrophysiological and behavioral characteristics of REM sleep.

Neuroimaging data reveal a distinctive pattern of brain activity during REM sleep: increased activity in limbic and dorsal cortical regions is accompanied by decreased activity in the dorsolateral prefrontal cortex. This configuration provides the neurobiological basis for the emotional intensity, vivid imagery, and impaired executive control observed during dreaming. The combination of sensory input and motor output coupled with increased intrinsic neuronal activity further highlights the paradoxical nature of REM sleep as an internally generated state of consciousness. REM sleep serves important developmental and adaptive functions throughout ontogenesis. Early in life, it is thought to provide the intrinsic neuronal stimulation necessary for synaptic growth and the maturation of neural networks in the absence of external sensory stimuli. In adulthood, REM sleep is involved in memory integration, emotional regulation, *and the organization of complex behaviors and cognitive representations. The association of REM sleep mechanisms with various neurological and psychiatric disorders further emphasizes its importance for mental health and cognitive stability. Despite significant advances in science, the mechanisms that explain the precise relationship between neurotransmitter dynamics, neuronal circuit activity, and functional outcomes of REM sleep are still not fully understood. Future studies should further elucidate the role of REM sleep in brain plasticity, emotional processing, and neuropsychiatric disorders by integrating high-resolution neuroimaging, electrophysiology, and molecular approaches. A deeper understanding of these mechanisms may allow the development of new therapeutic strategies aimed at treating sleep-related disorders.*

References

1. *Hobson, J. A., Pace-Schott, E. F., & Stickgold, R. (2000). Dreaming and the brain: Toward a cognitive neuroscience of conscious states. Behavioral and Brain Sciences, **23**(6), 793–842.*
2. *Pace-Schott, E. F., & Hobson, J. A. (2002). The neurobiology of sleep: Genetics, cellular physiology and subcortical networks. Nature Reviews Neuroscience, **3**(8), 591–605.*
3. *Brown, R. E., Basheer, R., McKenna, J. T., Strecker, R. E., & McCarley, R. W. (2012). Control of sleep and wakefulness. Physiological Reviews, **92**(3), 1087–1187.*
4. *Luppi, P. H., Peyron, C., & Fort, P. (2017). Not a single but multiple populations of GABAergic neurons control sleep. Sleep Medicine Reviews, **32**, 85–94.*
5. *Dang-Vu, T. T., Schabus, M., Desseilles, M., Albouy, G., Boly, M., Darsaud, A., et al. (2008). Spontaneous neural activity during human slow wave sleep. Proceedings of the National Academy of Sciences of the United States of America, **105**(39), 15160–15165.*
6. *Fox, K. C. R., Nijeboer, S., Solomonova, E., Domhoff, G. W., & Christoff, K. (2013). Dreaming as mind wandering: Evidence from functional neuroimaging and first-person content reports. Frontiers in Human Neuroscience, **7**, 412.*
7. *Solms, M. (2000). Dreaming and REM sleep are controlled by different brain mechanisms. Behavioral and Brain Sciences, **23**(6), 843–850.*
8. *Siclari, F., Baird, B., Perogamvros, L., Bernardi, G., LaRocque, J. J., Riedner, B., et al. (2017). The neural correlates of dreaming. Nature Neuroscience, **20**(6), 872–878.*
9. *Stickgold, R., & Walker, M. P. (2013). Sleep-dependent memory triage: Evolving generalization through selective processing. Nature Neuroscience, **16**(2), 139–145.*
10. *Hobson, J. A., & Friston, K. J. (2014). Waking and dreaming consciousness: Neurobiological and functional considerations. Progress in Neurobiology, **98**(1), 82–98.*
11. *Scammell, T. E., Arrigoni, E., & Lipton, J. O. (2017). Neural circuitry of wakefulness and sleep. Neuron, **93**(4), 747–765.*
12. *Luppi, P. H., Clément, O., & Sapin, E. (2013). GABAergic mechanisms of paradoxical (REM) sleep generation. Pflügers Archiv – European Journal of Physiology, **465**(9), 1315–1329.*

PROFESSIONAL STRESS AND BURNOUT AMONG NURSES: RISK FACTORS AND PREVENTION STRATEGIES

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ПРОФЕССИОНАЛЬНЫЙ СТРЕСС И ВЫГОРАНИЕ У МЕДИЦИНСКИХ СЕСТЁР: ФАКТОРЫ РИСКА И НАПРАВЛЕНИЯ ПРОФИЛАКТИКИ

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Abstract
Professional burnout among nurses is a pressing issue in the healthcare system, driven by high workload, emotional involvement, and resource shortages. The aim of this study was to analyze the factors of occupational stress and their relationship with components of professional burnout in nurses, as well as to identify priority directions for prevention. The study was conducted among 54 nurses from inpatient and outpatient clinics in the Aktobe region. The Job Stress Questionnaire (JSQ) and the Maslach Burnout Inventory (MBI-HSS) were used. It was found that occupational stress is significantly associated with emotional exhaustion, whereas depersonalization and personal accomplishment are more strongly influenced by age, work experience, and educational level. The results support the need for comprehensive preventive measures aimed at optimizing working conditions and supporting the professional development of nurses.

Аннотация
Профессиональное выгорание медицинских сестёр является актуальной проблемой системы здравоохранения, обусловленной высокой рабочей нагрузкой, эмоциональной вовлечённостью и дефицитом ресурсов. Целью настоящего исследования явился анализ факторов профессионального стресса и их взаимосвязи с компонентами профессионального выгорания у медицинских сестёр, а также определение приоритетных направлений профилактики. Исследование проведено среди 54 медицинских сестёр стационарных и амбулаторно-поликлинических учреждений Актюбинской области. Использовались опросник профессионального стресса (Job Stress Questionnaire, JSQ) и опросник профессионального выгорания Маслач (Maslach Burnout Inventory, MBI-HSS). Установлено, что профессиональный стресс достоверно связан с эмоциональным истощением, тогда как деперсонализация и личные достижения в большей степени зависят от возраста, стажа работы и уровня образования. Полученные результаты обосновывают необходимость комплексных профилактических мероприятий, направленных на оптимизацию условий труда и поддержку профессионального развития медицинских сестёр.

Keywords: professional burnout, occupational stress, nurses, emotional exhaustion, depersonalization, prevention.
Ключевые слова: профессиональное выгорание, профессиональный стресс, медицинские сёстры, эмоциональное истощение, деперсонализация, профилактика.

Введение

В условиях современного здравоохранения медицинские сёстры являются ключевым звеном системы оказания помощи, обеспечивая непрерывный уход за пациентами. Высокая интенсивность труда, дефицит ресурсов, эмоционально тяжёлые клинические ситуации и постоянное взаимодействие с пациентами и их семьями создают предпосылки для формирования профессионального стресса и синдрома профессионального выгорания. Выгорание негативно отражается как на состоянии самих работников, так и на качестве оказываемой медицинской помощи, что делает проблему его профилактики приоритетной задачей.

Материалы и методы исследования

Дизайн и выборка

Исследование носило описательно-аналитический характер и проводилось на базе стационарных и амбулаторно-поликлинических учреждений Актюбинской области, Алгинского района, города Алга. В исследовании приняли участие 54 дипломированные медицинские сестры, осуществляющие круглосуточный уход за пациентами. Участие было добровольным, анонимным и сопровождалось информированным согласием.

Возраст респондентов варьировался от 22 до 53 лет ($M = 40{,}0$; $SD = 7{,}30$), стаж профессиональной деятельности - от 1 до 33 лет ($M = 12{,}8$; $SD = 9{,}22$), количество рабочих часов в неделю - от 16 до 48 ($M = 31{,}2$; $SD = 9{,}17$).

Инструменты исследования

В исследовании применялись следующие методы:

Job Stress Questionnaire (JSQ) — для оценки факторов профессионального стресса по показателям частоты и интенсивности;

Maslach Burnout Inventory (MBI-HSS) — для оценки эмоционального истощения, деперсонализации и личных достижений;

анкета демографических и профессиональных характеристик.

Опросник JSQ продемонстрировал высокую надёжность (α Кронбаха > 0,78), а факторный анализ подтвердил его конструктную валидность. Надёжность MBI соответствовала международным нормативным показателям.

Статистический анализ

Использовались описательная статистика, корреляционный анализ Пирсона, однофакторный дисперсионный анализ (ANOVA) и пошаговый множественный регрессионный анализ. Уровень статистической значимости принимался равным $p < 0{,}05$.

Результаты исследования

Факторы профессионального стресса

Наиболее значимыми стрессорами по суммарному баллу оказались:

1. *высокая рабочая нагрузка,*
2. *недостаточность ресурсов,*
3. *невозможность удовлетворить противоречивые требования.*

Наибольшую интенсивность стрессового воздействия вызывали высокая нагрузка, недоступность врача и дефицит ресурсов. Наиболее часто встречающимися стрессорами были уход за пожилыми пациентами, тяжёлое состояние пациентов и тревога их семей.

Факторный анализ позволил выделить четыре группы стрессоров, отражающих личностные, организационные и межличностные аспекты профессиональной деятельности.

Уровень профессионального выгорания

Средние показатели выгорания соответствовали низкому уровню по шкалам эмоционального истощения и деперсонализации и умеренному уровню по шкале личных достижений. Вместе с тем выявлен значительный индивидуальный разброс, указывающий на наличие группы риска среди респондентов.

Взаимосвязь стресса и выгорания

Обнаружена статистически значимая умеренная корреляция между суммарным баллом JSQ и эмоциональным истощением ($r = 0{,}40$; $p = 0{,}004$). Связь профессионального стресса с деперсонализацией и личными достижениями не была выявлена.

Роль демографических и профессиональных факторов

Меньший возраст и меньший стаж работы ассоциировались с более выраженной деперсонализацией и снижением чувства личных достижений. Регрессионный анализ показал, что:

1. *эмоциональное истощение на 23% объясняется уровнем профессионального стресса;*
2. *деперсонализация связана преимущественно со стажем работы и уровнем образования;*
3. *личные достижения зависят главным образом от возраста.*

Обсуждение

Полученные результаты подтверждают ключевую роль профессионального стресса в формировании эмоционального истощения у медицинских сестёр. В то же время деперсонализация и личные достижения в большей степени обусловлены профессиональной зрелостью и образовательным уровнем. Это указывает на необходимость дифференцированного подхода к профилактике выгорания с учётом как организационных, так и личностных факторов.

Заключение

Профессиональный стресс является значимым предиктором эмоционального истощения медицинских сестёр, тогда как другие компоненты выгорания опосредуются демографическими *и профессиональными характеристиками. Приоритетными направлениями профилактики выгорания являются оптимизация рабочей нагрузки, улучшение ресурсного обеспечения, развитие межпрофессиональной коммуникации и поддержка молодых специалистов. Полученные данные могут быть использованы при разработке программ профилактики профессионального выгорания в медицинских организациях.*

Список литературы

1. Всемирная организация здравоохранения.Выгорание как профессиональный феномен : Международная классификация болезней 11-го пересмотра (МКБ-11). – Женева : Всемирная организация здравоохранения, 2019. – URL: https://www.who.int (дата обращения: 27.01.2026).

2. Reith T. P.Burnout in United States healthcare professionals: a narrative review // Cureus. – 2018. – Т. 10, № 12. – e3681. – DOI: 10.7759/cureus.3681.

3. Freudenberger H. J.Staff burn-out // Journal of Social Issues. – 1974. – Т. 30, № 1. – С. 159–165.Ильин Е. П. Психология профессиональной деятельности. – Санкт-Петербург : Питер, 2012. – 512 с.

4. Babapour A.-R., Gahassab-Mozaffari N., Fathnezhad-Kazemi A.Nurses' job stress and its impact on quality of life and caring behaviors // BMC Nursing. – 2022. – Vol. 21. – Article 75.

5. American Nurses Foundation.Nation's Nurses Survey Series: Mental Health and Well-Being Survey. – Silver Spring, MD, 2023. – URL: https://www.nursingworld.org (дата обращения: 27.01.2026).

6. International Council of Nurses.Nurses' mental health and wellbeing: global concerns. – Geneva, 2024. – URL: https://www.icn.ch (дата обращения: 27.01.2026).

7. Freudenberger H. J.Staff burn-out // Journal of Social Issues. – 1974. – Т. 30, № 1. – С. 159–165.Фонтана Д. Управление стрессом. – Москва : ЭКСМО, 2011. – 320 с.

8. Большакова Т. В.Профессиональное выгорание как психологическая проблема медицинских работников // Медицинская психология. – 2016. – № 3. – С. 45–52.

9. Maslach C., Jackson S. E.The measurement of experienced burnout // Journal of Occupational Behavior. – 1981. – Vol. 2, № 2. – P. 99–113.

10. Maslach C., Schaufeli W. B., Leiter M. P.Job burnout // Annual Review of Psychology. – 2001. – Vol. 52. – P. 397–422.

11. Всемирная организация здравоохранения.Международная классификация болезней 10-го пересмотра (МКБ-10). – Женева : ВОЗ, 2016.

12. Shanafelt T. D., Noseworthy J. H.Executive leadership and physician well-being // Mayo Clinic Proceedings. – 2017. – Vol. 92, № 1. – P. 129–146.

References

1. Vsemirnaya organizatsiya zdravookhraneniya. Vyigoraniye kak professional'nyy fenomen: Mezhdunarodnaya klassifikatsiya bolezney 11-go peresmotra (MKB-11). Zheneva: Vsemirnaya organizatsiya zdravookhraneniya, 2019. URL: https://www.who.int (data obrashcheniya: 27.01.2026)

2. Reith, T. P. Burnout in United States healthcare professionals: a narrative review. // Cureus. – 2018. – Vol. 10, № 12. – e3681. – DOI: 10.7759/cureus.3681

3. Freudenberger, H. J. Staff burn-out. // Journal of Social Issues. – 1974. – Vol. 30, № 1. – P. 159–165

4. Ilyin, E. P. Psikhologiya professional'noy deyatel'nosti. Sankt-Peterburg: Piter, 2012. – 512 s.

5. Babapour, A.-R., Gahassab-Mozaffari, N., Fathnezhad-Kazemi, A. Nurses' job stress and its impact on quality of life and caring behaviors. // BMC Nursing. – 2022. – Vol. 21. – Article 75

6. American Nurses Foundation. Nation's Nurses Survey Series: Mental Health and Well-Being Survey. Silver Spring, MD, 2023. URL: https://www.nursingworld.org (data obrashcheniya: 27.01.2026)

7. International Council of Nurses. Nurses' mental health and wellbeing: global concerns. Geneva, 2024. URL: https://www.icn.ch (data obrashcheniya: 27.01.2026) Fontana, D. Upravleniye stressom. Moskva: EKSMO, 2011. – 320 s.

8. Bolshakova, T. V. Professional'noe vyigoraniye kak psikhologicheskaya problema meditsinskikh rabotnikov. // Meditsinskaya psikhologiya. – 2016. – № 3. – P. 45–52

9. Maslach, C., Jackson, S. E. The measurement of experienced burnout. // Journal of Occupational Behavior. – 1981. – Vol. 2, № 2. – P. 99–113

10. Maslach, C., Schaufeli, W. B., Leiter, M. P. Job burnout. // Annual Review of Psychology. – 2001. – Vol. 52. – P. 397–422

11. Vsemirnaya organizatsiya zdravookhraneniya. Mezhdunarodnaya klassifikatsiya bolezney 10-go peresmotra (MKB-10). Zheneva: VOZ, 2016

12. Shanafelt, T. D., Noseworthy, J. H. Executive leadership and physician well-being. // Mayo Clinic Proceedings. – 2017. – Vol. 92, № 1. – P. 129–146

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ENDOMETRIAL CANCER: THE STATUS OF THE PROBLEM AND POSSIBILITIES FOR ITS SOLUTION

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Abstract

This scientific and analytical work presents current global and local-regional data on incidence, mortality, lethality and five-year survival rate of such a common oncological pathology as endometrial cancer. It examines in detail the etiology and pathogenesis, modern approaches and principles of comprehensive diagnostics, prospects for improving treatment outcomes, and prognosis. The epidemiological characteristics of this disease in our republic are presented in the context of the country's regions.

Keywords: oncology, gynecology, endometrial cancer, risk factors, adenomyosis, endometriosis, human papillomavirus, DNA, mRNA, miRNA, lipid metabolism, microbiota, epidemiology, incidence, mortality, lethality, five-year survival rate, prognosis.

Cancer of the uterine body is a malignant tumor emanating from the mucous membrane of the uterine body (endometrium) [1]. In English-language literature, the term endometrial cancer (EC) is commonly used [2,3]. In most patients, EC is sporadic. In approximately 5% of cases, EC is associated with hereditary syndromes, particularly Lynch syndrome. Risk factors for this pathology include hyperestrogenism, early menarche, nulliparity, late menopause, age over 55, and tamoxifen use. There are two pathogenetic types of EC:

- Type I is more common. The tumor develops at a younger age, unlike patients with type II, due to prolonged hyperestrogenism and endometrial hyperplasia. Patients with type I ovarian tumors often have obesity, diabetes, and hypertension. They may also have estrogen-secreting ovarian tumors or sclerocystic ovary syndrome. Type I tumors are typically well-differentiated and have a more favorable prognosis.

- Type II. Endometrial tumors are usually poorly differentiated and have a less favorable prognosis. Type II tumors occur at an older age, in the absence of hyperestrogenism, and in the presence of endometrial atrophy.

Approximately 80% of patients with EC are diagnosed with endometrioid adenocarcinoma.

Uterine sarcomas include mesenchymal and mixed epithelial-mesenchymal tumors. Malignant mesenchymal tumors include leiomyosarcoma, endometrial stromal tumors, and related tumors. Mixed epithelial-mesenchymal tumors include adenosarcoma and carcinosarcoma. Genetic and molecular studies have demonstrated similarities in the molecular profiles of uterine carcinosarcoma and poorly *differentiated endometrioid adenocarcinoma, suggesting an epithelial origin for the latter [1].*

Diagnostic criteria include: Complaints of acyclic bloody, watery, or purulent discharge from the genital tract; bleeding during menopause. Anamnesis: the state of menstrual function (time of onset of first menstruation, duration of reproductive period, presence of acyclic uterine bleeding, characteristics of the course of menopause and time of onset of menopause) and reproductive function (attention is paid to the body weight of children born) are clarified; identification of metabolic disorders (obesity and diabetes mellitus) and cardiovascular pathology (hypertension).

Physical examination includes: gynecological examination [(condition of external genitalia; examination of the vagina and cervix using speculums (presence of vaginal infiltration, metastatic foci on the vaginal walls, size, condition of the cervix); presence of pathological discharge (purulent, bloody)] and bimanual examination (size and shape of the uterus; condition of the appendages; infiltrates in the parametria; infiltration of the anterior and posterior vaginal fornix).

Laboratory diagnostic tests: cytological examination (increase in cell size up to giant, change in the shape and number of intracellular elements, increase in the size of the nucleus, its contours, different degrees of maturity of the nucleus and other cellular elements, change in the number and shape of nucleoli); histological examination (pronounced cellular polymorphism, increase in cell size, pronounced hypochromia, large nuclei contain one or more nucleoli, there are glandular structures of cancer cells in the form of rosettes, many cells in a state of mitosis); immunohistochemical examination of biopsy and surgical material (determination of the hormonal receptor status of estrogen and progesterone receptors in endometrial cancer and endometrial stromal sarcomas, determination of the morphological type of sarcomas); determination of tumor markers of the specific antigen CA 125 in the blood serum before the start of treatment; in case of an increase in the level before the start of specialized treatment, it can be used for dynamic observation and monitoring of the effectiveness of treatment; molecular genetic testing of microsatellite instability to determine the possibility of immunotherapy.

Instrumental studies: ultrasound of the pelvic organs (if endometrial cancer is suspected, the size of the uterus will be normal or enlarged, its structure is heterogeneous, the uterine cavity is deformed, the endometrium is enlarged; the condition of the cervix and ovaries is also assessed); ultrasound of the abdominal organs and retroperitoneal space (determination of metastatic lesions of the abdominal organs and retroperitoneal space); ultrasound Dopplerography of the lower limbs in female patients over 60 years of age before surgery to diagnose thrombophlebitis of the lower extremities; computed tomography of the chest, abdominal cavity and pelvis (assessment of the pelvic and retroperitoneal lymph nodes, organic changes in the chest and abdominal organs); magnetic resonance imaging of the pelvic organs (signs of endometrial cancer - an increase in the size of the uterus is noted, the outline is unclear, uneven; the structure of the myometrium is heterogeneous, diffusely nominal, fine- or coarse-grained; the endometrium is uneven, the border between the endometrium and the adjacent transition layer is unclear, uneven; the condition of the vagina, cervical canal, ovaries and adjacent tissues is also assessed); magnetic resonance imaging of the brain (performed in case of suspected metastatic brain damage); excretory urography (assessment of the position, shape, size, contours of the kidneys, the functional state of the kidneys, the shape and contours of the ureters and bladder); cystography (assessment of the shape, size and position of the bladder, determination of tumor penetration into the bladder and ureteral fistula); chest and abdominal radiography (mandatory determination of metastatic lesions of the chest organs); electrocardiography (mandatory examination during hospitalization in order to diagnose the presence of cardiac pathology to determine the possibility of specialized treatment); echocardiography according to indications, taking into account age and cardiac history (in order to diagnose the presence of cardiac pathology to determine the possibility of specialized treatment); cystoscopy according to indications (in order to diagnose tumor penetration into the bladder); rectoscopy or colonoscopy according to indications (in order to diagnose the spread of the tumor process to the colon or rectum); skeletal scintigraphy (prescribed if bone metastases are suspected); positron emission tomography, positron emission tomography / computed tomography of the whole body (carried out to diagnose the prevalence of the tumor process in primary endometrial cancer or disease progression, or to assess the dynamics of the effectiveness of the special treatment) [4].

Although a variety of treatment modalities are used for endometrial cancer, including chemotherapy, targeted therapy, and radiation therapy in various regimens and combinations, both as combined and comprehensive treatments and as monotherapy, surgery remains the leading treatment option.

Given that surgery is the primary treatment for EC, robotic-assisted hysterectomy (RAH) is widely used in these patients [5].

Purpose of the procedure and intervention: RAH is performed to remove the tumor along with the *uterus and cervix. Compared to traditional surgical interventions, RAH reduces the development of postoperative complications, shortens the patient's hospital stay, and reduces the risk of extensive bleeding. Contraindications to the procedure and intervention: the only absolute contraindication to RAH is anesthetic contraindication to pneumoperitoneum. Relative contraindications include the need for laparotomy to control bleeding, advanced malignancies, poor visualization in patients with multiple abdominal surgeries and adhesive disease. Patient comorbidities such as morbid obesity, acute ischemic or valvular heart disease, acute respiratory disease, or increased intracranial pressure are considered relative contraindications to the use of a robotic system. Women with asymptomatic uterine fibroids, with a low suspicion of malignancy, are not recommended for hysterectomy. Hysterectomy should not be recommended as a preventative measure against possible future fibroid growth. Indications for the procedure and intervention: RAH is performed in patients with endometrioid cancer stages I-III according to the FIGO classification. According to the guidelines of the National Comprehensive Cancer Network, RAH is the standard surgical treatment for early-stage cervical cancer according to the FIGO classification. Indications for hysterectomy include: women with uterine fibroids who have completed their childbearing function; rapid fibroid growth during menopause in women not using hormone replacement therapy (even in the absence of symptoms); suspected leiomyosarcoma. The choice of hysterectomy type, regardless of the approach (vaginal, laparoscopic, or laparotomic), should be based on the surgeon's experience, preferences, and the objective status of the patient (size and number of fibroid nodes, previous surgeries, extragenital pathology, etc.). Whenever possible, a minimally invasive approach to treatment is preferable [5].*

The robotic surgical system consists of an open surgical console, a laparoscopic column, and up to four robotic arms. The system's open platform configuration allows for the use of existing laparoscopic equipment. The system features 3D4K vision, eye tracking, an ergonomic surgical console, and haptic feedback. The instruments used are reusable, available with various jaw shapes, and are similar to laparoscopic instruments. Therefore, a surgeon with laparoscopic experience can easily adapt and use these instruments. Available instruments range in diameter from 3 to 10 mm, and all are re-sterilizable and reusable. Interactive "arms" are guided toward the patient lying on the operating table and attached to trocars. During a classic (straight) hysterectomy, a large incision is made in the lower abdomen, while during a RAH, only four small openings are made. Instruments are inserted through trocars, providing the operator with natural dexterity and a greater range of motion than the human hand. This ensures greater precision during manipulation in a minimally invasive environment. The operator works seated at the surgeon's console, located some distance from the operating table in a non-sterile area. A high-magnification, three-dimensional image provides unprecedented visualization of anatomical structures and virtually transports the surgeon's eyes and hands into the surgical field. Furthermore, the surgeon's comfort is ensured by the seated position, armrests, an ergonomically designed stereoscopic eyepiece port that provides support for the operator's head and neck, the design of the main controllers, and adjustable eyepiece height and interocular distance. This facilitates surgical procedures and accelerates learning and acquisition of manual skills. The total duration of the surgery is approximately 4 hours and is performed in several stages. The duration of the surgery was calculated by summing the results of various studies and calculating an average value. The surgical team generally consists of five people and includes the operating surgeon, an assisting surgeon, an anesthesiologist, a scrub nurse, and a sanitary worker. The technique of laparoscopic RAH is performed using a method adapted from robotic systems.

The technique for performing RAH is as follows [5]:

1) Preparation of the patient and placement of troacports. The patient is placed on the table in the dorsal lithotomy position (supine position with the hips and knees fully flexed, legs apart and raised, and feet resting on straps. Soft pads are placed under the patient's arms and adjusted to the torso. Preoperative prophylactic antibiotics are administered. A Veress needle is prepared to create pneumoperitoneum. The operation is performed under general anesthesia. Troacports of the robotic system are installed. A total of 5 ports can be installed, ranging in size from 3 to 10 mm. Traditionally, an approach using 4 troacports is used. The first troacport is installed at the navel and is intended for a robotic camera. The second and third ports are intended for robotic laparoscopic instruments and are installed to the left and right of the first port each (the distance between the troacports is 8 mm). The fourth additional troacport is also intended for the use of instruments and is installed below the left port (the distance between Troacports – 8 mm).

2) The operating surgeon moves to the surgical console, the surgical assistant and the operating nurse stand by the patient. The assisting surgeon operates the laparoscopic instruments, and the operating nurse delivers surgical instruments and materials. The anesthesiologist monitors the patient's *condition under anesthesia. The uteroovarian ligament is dissected using a bipolar instrument. Care should be taken with the parametric vessels.*

3) The bladder is mobilized. The round ligament is divided, and the anterior and posterior layers of the broad ligament are separated. The vesicouterine pouch is then identified, and the incision is continued anteriorly, thereby mobilizing the bladder from the lower uterine segment.

4) The descending uterine artery is dissected with a bipolar instrument at the level of the internal cervix.

5) The uterus and cervix are separated from the vaginal angle. The uterus is removed. A vaginal stump is formed.

6) The surgical wound is closed, a catheter is inserted into the urethra, the trocars are disconnected and removed, and the wound is sutured. A sanitary worker cleans the operating room.

Indicators of the procedure's effectiveness: low blood loss, no indications for blood transfusion, no intraoperative complications; wound healing by primary intention, suture integrity, a dry and clean post-operative wound; laboratory tests: no elevated leukocytosis, leukocyturia is acceptable, and a moderate decrease in hemoglobin and red blood cell levels.

Risk factors of ECs include high body mass index (BMI) or obesity (BMI > 30), diabetes, hypertension, prolonged exposure to oestrogen (menarche at a young age, nulliparity and infertility, menopause at an older age, and polycystic ovarian syndrome), and use of tamoxifen. Women with Lynch syndrome have a high lifetime risk of EC, and those women are thus recommended to be enrolled in a surveillance programme [6].

Li W. et al. [7] in their study note that endometrial carcinoma (EC) has become one of the most common gynecological malignant neoplasms in developed countries worldwide. Studies have shown that this may be closely related to the abnormal metabolism of blood lipids, which was the most significant metabolic change in the human body in this cancer.

In this study, the authors focused on the correlation between lipid metabolism and endometrial cancer (EC) and discussed the evidence that abnormal lipid metabolism promotes an increase in EC growth and metabolism, as well as the regulatory mechanism and related signaling pathways involved in this relationship.

The obtained results highlight the significant role played by various factors, such as low levels of high-density lipoprotein, high levels of total cholesterol, low-density lipoprotein, triglycerides, and obesity, in both the development and progression of EC.

These factors contribute to a poorer prognosis for EC patients. Therefore, it is clinically possible to identify EC patients at an early stage by measuring serum lipid levels. This early detection enables patients to receive early treatment, reducing the risk of tumor metastasis and ultimately improving the prognosis of EC. In clinical practice, the initial prognosis of EC patients can also be assessed by evaluating serum lipid levels. The more severe the disorder of lipid metabolism, the poorer the prognosis for EC. In addition, our colleagues identified the potential benefits of lipid-modifying statins as adjunctive therapy in EC. Statins have shown promise in improving patient prognosis and reducing mortality rates. However, extensive clinical trials and mechanistic studies are needed to establish the true effectiveness of statins in the treatment of EC.

The authors emphasize that in recent years, increasing evidence has shown that dyslipidemia is strongly associated with the development and progression of EC, but the underlying etiologic link between dyslipidemia and EC is less well understood. Although the exact biological mechanisms and pathophysiological events have not been fully investigated, the potential mechanisms, including different types of dyslipidemia, obesity, inflammation, angiogenesis, estrogen metabolism, and other specific activation of signaling pathways involved, may give rise to an excess risk of EC in patients with abnormal lipid metabolism [7].

In his work, Zakrzewski P.K. [8] says that endometrial cancer is one of the most common malignancies of the female reproductive system, with incidence rising globally due to population ageing and life-style-related risk factors. Calcium (Ca2+) is a ubiquitous second messenger regulating diverse physiological processes, and its dysregulation has been increasingly implicated in carcinogenesis, including endometrial. Altered expression and function of Ca2+ channels, pumps, exchangers, and binding proteins disrupt the finely tuned balance of Ca2+ influx, efflux, and intracellular storage, leading to aberrant signalling that promotes tumour proliferation, migration, survival, and metastasis. This review summarises current knowledge on the molecular "Ca2+ toolkit" in the human uterus, highlighting the role of voltage-gated calcium channels, transient receptor potential channels, store-operated calcium entry components, Na+/Ca2+ exchangers, purinergic receptors, P-type ATPases (SERCA, SPCA, PMCA), ryanodine and *inositol 1,4,5-trisphosphate receptors, and mitochondrial Ca2+ uniporter complexes in endometrial cancer progression. Multiple Ca2+-handling proteins, including CACNA1D, CACNA2D1, TRPV4, TRPV1, TRPM4, MCU, and RyR1, exhibit cancer-associated overexpression or functional changes, correlating with poor prognosis and aggressive disease features. Emerging evidence supports the therapeutic potential of targeting Ca2+ homeostasis using small-molecule inhibitors, ion channel modulators or gene-silencing strategies. These interventions may restore Ca2+ balance, induce apoptosis or autophagy, and suppress metastatic behaviour. While no clinical trials have yet explicitly focused on Ca2+ modulation in endometrial cancer, the diversity of dysregulated Ca2+ pathways offers a rich landscape for novel therapeutic strategies. Targeting key components of the Ca2+ signalling network holds promise for improving outcomes in endometrial cancer.*

In their study, the authors showed that deregulation of the cellular calcium machinery is a recurring feature in endometrial cancer. The observed alterations in calcium signalling are reported across various cellular compartments and involve a wide range of transporters, channels, and pumps localised in the plasma membrane, sarcoplasmic/endoplasmic reticulum, and mitochondrial membranes. Dysregulated expression or function of these components can disrupt the tightly controlled balance of calcium influx and efflux, leading to aberrant intracellular calcium dynamics that contribute to cancer proliferation, migration, survival, and resistance to therapy. Targeting these dysregulated components may enable selective modulation of calcium signalling pathways that are essential for tumour growth and resistance to apoptosis. This opens the possibility for developing more precise, mechanism-based treatment strategies for endometrial cancer, including small-molecule inhibitors, ion channel modulators, targets of the endocannabinoid system or gene-silencing approaches, aimed at restoring calcium homeostasis and inhibiting disease progression. An interesting direction in developing new therapies for oestrogen-dependent endometrial cancer involves using calcium channel blockers alongside anti-oestrogen drugs as adjuvant treatments. Moreover, the limited literature data regarding the involvement of calcium homeostasis components, such as SERCA, SPCA, STIM, or transient receptor potential channels, in the development and progression of endometrial cancer should not deter further research. Instead, it should indicate potential new directions for studies on therapeutic targets based on these hitherto unexplored proteins involved in maintaining proper intracellular Ca2+ levels in endometrial cancer [8].

As Sobstyl M. et al. [9] note in their study, the female reproductive tract hosts a specific microbiome, which plays a crucial role in sustaining equilibrium and good health. In the majority of reproductive women, the microbiota (all bacteria, viruses, fungi, and other single-celled organisms within the human body) of the vaginal and cervical microenvironment are dominated by Lactobacillus species, which benefit the host through symbiotic relationships, in comparison to the uterus, fallopian tubes, and ovaries, which may contain a low-biomass microbiome with a diverse mixture of microorganisms. Although disruption to the balance of the microbiota develops, the altered immune and metabolic signaling may cause an impact on diseases such as cancer. These pathophysiological modifications in the gut - uterus axis may spark gynecological cancers. New information displays that gynecological and gastrointestinal tract dysbiosis (disruption of the microbiota homeostasis) can play an active role in the advancement and metastasis of gynecological neoplasms, such as cervical, endometrial, and ovarian cancers. Understanding the relationship between microbiota and endometrial cancer is critical for prognosis, diagnosis, prevention, and the development of innovative treatments. Identifying a specific microbiome may become an effective method for characterization of the specific microbiota involved in endometrial carcinogenesis.

The analysis allowing for the exploration of the discussed topic was carried out on the basis of information gathered from two databases: PubMed and Web of Science. Initial identification of the articles was based on a keyword search for "endometrial cancer", "Endometrium", and "Cancer". Duplicate entries from both databases were rejected. Then, the list of publications was narrowed down by using appropriate filters. The first was the year the article was published, using the 2000-2022 range. The second criterion was the type of publication, which included clinical trials, reviews, and systematic reviews (all duplicate items were rejected). Then, for further analysis, only articles of which the full text was available, and containing such keywords as "microbiota", "microbiome", "immune system", or "immune response", were selected. After filtering the data, there were 90 articles that met the above criteria. The possibility of including each work for publication was thoroughly assessed. Additionally, 34 works on statistical and epidemiological information were included, as well as issues indicated by reviewers. Ultimately, 124 articles were included in the review. Based on the conducted research, the authors concluded that to date, the structure of the endometrial hyperplasia microbiome can be distinguished from that of the benign uterine state, suggesting either a role of the microbiome in the early stages of cellular *transformation or a well-known response to changes in the physiological or chemical gradient in the host cell. Additionally, the uterine microbiome can stimulate the production of pro-inflammatory cytokines in endometrial cells, including IL-1α, IL-1β, IL-17α, and TNF-α, which are involved in the carcinogenesis of various cancers. Due to the estrogen-dependent nature of endometrial cancer, dysbiosis of not only of the uterus, but also the intestinal microflora, is indirectly involved in carcinogenesis, causing an increase in serum estrogen levels by reactivating estrogen metabolites. Mechanical studies using in vitro and in vivo models, along with animal models, are necessary to determine the role of the microflora and specific bacterial species in initiating and/or maintaining cancer in the female reproductive system, including the uterus. In the therapeutic setting, there is a significant interest and demand to diagnose and improve endometrial dysfunctions in order to treat uterine dysbiosis, despite the fact that there is no standardized technique for testing the endometrial microbial composition, nor for treating uterine dysbiosis. New therapies, such as probiotic and prebiotic supplements and microbiota transplants, are still poorly understood, and there are insufficient data to support the use of probiotics for enhancing and maintaining the appropriate microbiota composition. Advances in macrobiotics and metagenomics have allowed researchers to begin identifying microbial communities and/or specific bacterial species that can cause pathological conditions in the female reproductive tract and, thus, contribute to the development and progression of cancer. Nevertheless, in the future, clinical trials with larger cohorts are required to validate and extend these initial findings to potential clinical use, as illustrated in the International Cancer Microbiome Consortium's 2019 statement that long-term cohort data are required to support the role of the human microbiome as a critical driver of cancer's etiopathogenesis. In addition, future epidemiological research must include women of different races, age groups, ethnicities, and socioeconomic status, as significant differences in the composition of the vaginal microflora have been identified between women of different ethnic origins. Additionally, it seems necessary to explain the influence of endometrial microbiome biodiversity on the reproductive process and the commensal or pathogenic relationships between microorganisms and endometrial cells. Furthermore, scientists should also look for answers to questions about the mechanisms of bacterial colonization and survival in the endometrial environment, and the actions of signaling pathways potentially activated by these microorganisms (with particular emphasis on the metabolites they synthesize). Only with an interdisciplinary and comprehensive approach to the issue of the role of the immune system and changes in the endometrial and uterine microbiota will it be possible to understand how their mutual correlation contributes to the development and progression of gynecological neoplasms [9].*

An interesting study was conducted by Karachalios C. et al. [10]. The authors note that chronic human papillomavirus (HPV) infection has not been clearly established as the protagonist of upper female genital tract carcinogenesis. Malignancies of the female upper reproductive tract, especially endometrial and ovarian cancers, generate a significant burden for women worldwide. The possible etiopathogenetic role of chronic HPV infection in the carcinogenesis of the female upper genital tract is neither clearly established not completely understood. Therefore, our colleagues performed a literature review, using the PubMed and Scopus electronic databases, of the prevalence of HPV DNA in endometrial, primary fallopian tube, ovarian, and primary peritoneal cancers, as well as uterine sarcomas. The present investigation covered 35 studies from different countries on various continents. Overall, the prevalence of HPV was approximately 15% in all the above cancers. HPV DNA was isolated from 11%, 0%, 0%, and 14% of endometrial carcinomas, uterine sarcomas, primary fallopian tube cancers, and ovarian malignant neoplasms, respectively. No relevant studies on primary peritoneal cancers were retrieved. The predominant HPV strain from tumors of the upper female reproductive tract, regardless of the tumor site, was HPV-16, followed by HPV-18. The HPV DNA identified was exclusively from subtypes HPV-6, HPV-11, HPV-16, HPV-18, and HPV-33, which are responsible for the development of not only cervical cancer, but also condylomata acuminata. The findings of the present review indicate that HPV vaccination might prove to be a useful strategy in the prevention of HPV-related carcinomas of the upper genital tract in women.

The presence of HPV DNA in EC was examined in 24 studies, i.e., 5 case-control studies, 17 case series, and 2 case reports, which included a total of 668 patients with EC. Endometrioid endometrial carcinomas were the most frequent histological type recorded. Viral DNA was detected in 15 of 24 studies (62%) and in 74 patients (74/668; 11%). HPV DNA positivity ranged from 0 to 100%. DNA from HPV-16 was isolated from 29 patients, making this the most common HPV subtype (29/74; 39%). The rest of the HPV strains detected were HPV-6, HPV-18, HPV-33, HPV-11, and HPV-31, which were found in 20, 12, 8, 3, and 2 EC specimens, respectively. In the present review, ECs prevalence, regardless of type, was approximately 11%, ranging from 0% to 100%. Endometrioid EC was the most common histological type studied and HPV-16 was the most frequent HPV subtype found. An important aspect of HPV-related *endometrial carcinogenesis involves the route of HPV's transmission from the lower female genital tract to the upper female reproductive tract. The former includes the vagina and the ectocervix, is covered with multiple layers of stratified squamous epithelia, and is often exposed to pathogens. The latter, which includes the uterus, endometrium, and endocervix, consists of a single layer of columnar epithelium that maintains a relatively sterile environment, with intermittent microorganisms ascending from the lower female genital tract. The endocervix functions as an interface between the relatively sterile upper female reproductive tract and the non-sterile lower female genital tract. It is hypothesized that HPVs could ascend to the endometrium from the vagina and the ectocervix through the endocervix and infect the squamous epithelium in the endometrium. It is in a similar fashion that HPV infects the basal cells of the squamous epithelium in the cervix. HPV DNA isolation from the upper female genital tract varies widely among the published studies. Nevertheless, the presence of both high-risk and low-risk HPV subtypes in anatomical sites above the cervix implicates their potential role in the development of cancer at these sites. However, a more sensitive detection method, based on mRNA HPV oncogene expression instead of HPV DNA isolation, could compare the viral oncogene expression in malignant tissue samples with that in adjacent healthy tissues, thus further clarifying the potential role of HPVs in tumorigenesis in the upper female reproductive tract. Moreover, there is no strong evidence of whether HPV vaccines could lower the incidence of these malignant neoplasms. Not only prospective multicenter studies on the incidence of HPV DNA-positive malignant tumors in HPV-vaccinated versus HPV-unvaccinated women, but also large-sample retrospective studies on the prevalence of HPV vaccination in HPV DNA-positive malignancies of the upper female reproductive tract, could shed further light on the potentially protective role of HPV vaccines against carcinogenesis in the corpus uteri, adnexa, and peritoneum. The present comprehensive review demonstrated that HPV DNA can be found in both endometrial carcinomas and ovarian cancer cases. Highly oncogenic HPV-16 and HPV-18 were the most common HPV strains identified in the majority of the studies. Therefore, the necessity of HPV vaccination for women and men remains imperative in ensuring that a significant reduction in the incidence and burden of HPV-related malignancies of the upper female genital tract is achieved worldwide [10].*

Diseases such as adenomyosis and endometriosis deserve special attention.

Szubert M. et al. [11] in their work they say that adenomyosis, endometriosis, and gynecological cancers, such as endometrial, ovarian endometroid, and clear cell cancers, may have common pathogenetic mechanisms that, amongst others, include hormonal factors, genetic predisposition growth factors, inflammation, altered function of the immune system, environmental factors, and oxidative stress. Adenomyosis is a common benign gynecological condition, defined as an extension of endometrial tissue into the myometrium. Some studies suggest that adenomyosis could be a favorable prediction factor associated with survival outcomes in endometrial cancer.

In this study, the authors systematized the current knowledge about different types of interconnections between adenomyosis and endometrial cancer or other cancers of women's reproductive systems. They also studied possible molecular mechanisms of carcinogenesis in adenomyotic lesions. In addition, the long-term prognosis for patients with endometrial cancer and coexisting adenomyosis (and endometriosis) was a key point of this research. The researchers performed advanced searches for PubMed literature using the phrases: "adenomyosis and endometrial cancer" and "malignant transformation of adenomyosis". From 545 citations covering the period 1954-2020, 470 articles were initially excluded after title, abstract or content screening by two independent authors. The next 26 articles were excluded after a full text screening and during data collection. Finally, 39 articles were included for the analysis. Details of the results retrieved are shown according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines.

Our colleagues note that adenomyosis has been frequently observed in hysterectomy specimens for endometrial adenocarcinoma. In addition, adenomyosis may be a potential risk factor for the development of myometrial or endometrial neoplasms.

Adenomyosis and endometriosis are known as estrogen-dependent benign diseases, with common molecular pathways. Both these conditions may undergo a malignant transformation. However, in the case of endometriosis, the possible molecular mechanisms of carcinogenesis are well described. Carcinomas derived from endometriosis have been well established; histological subtype, epidemiologic endometriosis associated ovarian cancer risk was identified. On the contrary, the neoplastic potential in adenomyosis is poorly understood, and has been mainly described in association with EC. The coincidence between these two diseases can be an effect of potential common risk factors, which may lead to hyperestrogenic status (history of diabetes, hypertension, high BMI, and tamoxifen intake, but not nulliparity) or by shared pathogenetic mechanisms, including genetic mutation and inflammatory factors that *induce angiogenesis and cell proliferation, which promote carcinogenesis [11,12].*

According to the presented data, adenomyosis seems to be a favorable prognostic oncological factor when it occurs with EC, but the finding appears to be contradictory. EC Arising In Adenomyosis is a rare phenomenon, but it is associated with higher malignancy and nodal metastasis risk. It is necessary to validate the process of detection of adenomyosis in an intraoperative frozen section for assessing the necessity for lymphadenectomy. Considering this, more caution may be required when selecting the most appropriate histopathological confirmation of adenomyosis and surgical treatment for patients with hyper-estrogenic status and with risk factors, regardless of potential malignant transformations in adenomyosis. In clinical practice, early, more effective recognition and precise standards in ultrasonography to identify adenomyosis are required. Implementing Morphological Uterus Sonographic Assessment standards could lead to higher diagnosis rates of adenomyosis [11].

The researchers emphasize that prospective large-scale cohort studies investigating the risk of malignant transformation of adenomyosis are needed. Prospective studies focused on the life risk of malignant transformation should be undertaken to prove which women should undergo a definitive treatment of adenomyosis. There is a need to elaborate the "decision making tree" in patients with adenomyosis towards radical treatment, especially in patients with hormone-replacement therapy or endocrine treatment of breast cancer or other risk factors of EC, such as obesity, diabetes, and hypertension. In the future, algorithms including all available prognostic values - genetic mutation, in this respect Kirsten rat sarcoma viral oncogene homolog - KRAS mutation as a factor for efficacy of hormonal therapy; ultrasound features (depth of myometrial invasion); and clinical characteristics (age, concomitant disease, BMI) - might lead to the individualized management of patients with adenomyosis, with a possible malignant transformation of adenomyosis into cancer [11].

Iavarone I. et al. [13] conducted a study aims to examine the distribution and the regulation of the differentially expressed miRNAs and extracellular vesicles derived substances in women with endometrial cancer. The authors emphasize that an extracellular vesicle is part of a class of submicron particles derived from cells, mediating cellular crosstalk through microRNA (miRNA). MiRNA is a group of RNA molecules, each of which consists of 15-22 nucleotides and post-transcriptionally modulates gene expression. The complementary mRNAs - onto which the miRNAs hybridize - are involved in processes such as implantation, tumor suppression, proliferation, angiogenesis, and metastasis that define the entire tumor microenvironment. The endometrial biopsy is a standard technique used to recognize cellular atypia, but other non-invasive markers may reduce patient discomfort during the use of invasive methods.

The methods for this work were specified a priori on the basis of the recommendations in the PRISMA statement. A systematic search was performed for articles in the PubMed database, Embase, Cochrane Library, ScienceDirect, and Scopus database in April 2023 using the string "Endometrial Neoplasms AND Exosomes". There were no restrictions on the year of publication or the country of origin, and only articles published in English were taken into account. The inclusion criteria were the following: (1) studies that included patients with EC and described miRNA regulation in the context of that neoplasm; (2) studies reporting the outcome of interest, such as miRNA regulation in EC, and its clinical implication; and (3) all peer-reviewed articles that were originally published. The researchers excluded preclinical trials, unoriginal studies, animal trials, articles in languages other than English, and abstract-only publications. When possible, authors of different studies that were only published as conference abstracts were contacted through e-mail and asked to show their final results. Our colleagues mentioned all selected studies and the reasons for their exclusion in the PRISMA flowchart. They also assessed all the studies concerning potential conflicts of interest. After the database search, 86 studies matched the search criteria. After deleting duplicates and records with no full-text and incorrect study designs (e.g., reviews), 19 were eligible. Of those, 11 matched the inclusion criteria and were included in the final systematic review schema. Seven articles were prospective case-control studies evaluating miRNA expression in patients and controls; two records were prospective cohort studies; and two articles were retrospective studies. The publication years ranged from 2015 to 2021. A total of 371 patients with EC and 273 controls were included. The FIGO stage of disease ranged from I to IV. The upregulated molecules that had the widest delta between endometrial cancer patients and controls - relative expression ≥ 1 > 3 log2(ratio) - were miR-20b-5p, miR-204-5p, miR-15a-5p, and miR-320a. In particular, miR-20b-5p and miR-204-5p were extracted from both serum and endometrial specimens, whereas miR-15a-5p was only isolated from plasma, and miR-320a was only extracted from the endometrial specimens. In parallel, the most downregulated miRNA in the endometrial cancer patients compared to the healthy subjects was miR-320a, which was found in the endometrial specimens [13].

In conclusion, the authors emphasize that many recent studies have demonstrated that *intercellular crosstalk is crucially important in EC, even though data in the literature are heterogeneous. A panel of miRNAs could be feasible for the early detection and progression of disease in EC-affected patients using liquid and endometrial biopsies even though there is a lack of evidence showing that differentially expressed miRNAs can be used as biomarkers to guide various treatment protocols. Although pathways of epigenetic regulation are unclear, the evaluation of miRNA expression is a valuable and cost-effective option in the diagnosis of EC. Further evidence is needed to clarify miRNA regulation during the remission, relapse, and progression of EC to facilitate the planning of a targeted disease management strategy. Though miRNA epigenetic regulation remains unknown, these upregulated molecules derived from EV extracellular vesicles derived are feasible markers for the early detection of endometrial cancer. The modulation of these miRNA molecules should be assessed during different treatments or if recurrence develops in response to a targeted treatment modality [13].*

Now, regarding this pathology in our country at the national level. The incidence of EC in the Republic of Kazakhstan in 2023 was 6.9 per 100,000 population (6.7 in 2022) with a growth rate of 2.2% compared to the previous year, amounting to 1,371 people in absolute numbers (1,315 women – a year earlier). The proportion of cases with a first-time diagnosis, recorded by oncology organizations, was 3.70% (3.75% – a year earlier) in the general population, and 6.6% among women (in 2022 also 6.6%) and 3rd place after breast cancer and cervical cancer [14].

EC incidence rates above the national average were established in 10 regions of the country: in the Karaganda region – 14.6 (the maximum indicator); East Kazakhstan - 14.4; North Kazakhstan - 14.1; Ulytau - 13.5; Kostanay - 11.6; Pavlodar - 11.1; the city of Almaty - 8.4; Akmola - 8.1; West Kazakhstan - 8.0; Abay - 7.1. This indicator is also below the national average in 10 regions: Turkestan - 2.6 (the lowest level); Atyrau - 3.0; Zhambyl - 3.5; Mangistau - 3.6; the city of Shymkent - 4.0; Kyzylorda - 4.2; Almaty - 4.6; the city of Astana - 4.7; Aktobe - 6.0 and Zhetysu - 6.6 regions per 100 thousand people. The mortality rate from this pathology in 2023 was 1.3 per 100,000 people (in 2022, it was 1.2), with a growth rate of 8.6%, amounting to 267 women in absolute numbers (compared to 241 patients the previous year).

The regions with the EC mortality rate above the national average (1.3 per 100,000 population) are: Abay - 2.8 (maximum level); East Kazakhstan - 2.7; Karaganda - 2.6; North Kazakhstan - 2.4; Pavlodar - 2.1; Akmola - 1.9; Kostanay - 1.6; the city of Shymkent - 1.5. This indicator is on par with the national average in Aktobe, Mangistau regions and the city of Almaty. The lowest indicators were noted in Turkestan and Ulytau regions - 0.5 (minimum indicator); as well as in Atyrau, Zhetysu and West Kazakhstan regions - 0.7; Zhambyl region and the city of Astana - 0.9; Almaty - 1.1, Kyzylorda regions - 1.2, and per 100,000 population [14].

One-year lethality rate was 7.2% (7.9% in 2022). Moreover, the ratio between one-year lethality and the severity of the disease (stage IV) was quite high – 1.7 (the year before, it was even higher – 2.1). However, it should be noted that the farthest from "1" is the worst ratio between one-year lethality and severity of the disease.

Now, regarding preventive examinations. It should be noted that during large-scale preventive examinations of the population in 2023, significantly more patients with malignant neoplasms were actively identified than in 2022. This is 25,193 patients versus 23,623 patients identified in 2022, i.e. +6.6%. This is due to the further easing of the epidemiological situation due to the coronavirus and the increased availability of preventive care for the population. The proportion of patients identified during preventive examinations increased from 62.0% to 62.4% of the total number of patients identified during the year.

Of course, with early diagnosis rates are crucial in analyzing the epidemiological situation. Overall, of all cancer cases detected across all sites, the proportion of cases detected at early stages (stages 0, I-II) increased from 66.3% to 67.9% in 2023.

As for EC, the early detection rate of this pathology during preventive examinations decreased from 82.5% to 78.5% (in absolute numbers, 1,053 women were diagnosed in 2023, which is 6 more than in 2022 (1,047 women). The number of newly diagnosed EC patients registered with oncology organizations amounted to 1,341 (1,269 in the previous year). At the same time, the percentage of patients diagnosed with stages I-II of the disease increased from 86.6% (in 2022) to 87.3% (in 2023), or 907 and 919 women, respectively.

The regions with the proportion of patients with early stage I of the pathology in question above the national average (67.2% and a high 3rd rank among all nosological forms of malignant neoplasms) include the following: East Kazakhstan - 92.1% (the best indicator); followed by: Aktobe - 85.5%; the city of Astana - 81.5%; West Kazakhstan - 79.6%; Karaganda - 78.1%; Atyrau - 75.0%; the city of Almaty - 72.9%; Zhambyl - 71.4%; Kyzylorda - 68.6%; North Kazakhstan - 67.6%.

The lowest rates of early diagnosis were recorded in 10 regions. Against this background, two regions stand out – Turkestan and the city of Shymkent, where stage I disease prevalence was established in only 21.4% and 33.3%, respectively (the worst indicators in the republic). They are followed by: Abay - 51.2%; Pavlodar - 51.8%; Kostanay - 55.9%; Zhetysu - 57.8%; Ulytau - 60.0%; Mangistau - 60.7%; Almaty - 64.3%; Akmola - 66.7% of the regions [14].

It should be noted that in the early (I-II) stages, this pathology was detected in 84.3% of the republic, and this is the 6th rank among all nosological forms of malignant tumors.

The regions where the proportion of patients with EC, identified at stages I-II, is above the national average include the following regions. The best indicator was shown by Mangistau region - 96.4%. It is followed by: East Kazakhstan (95.0%); Zhetysu (91.1%); Ulytau (90.0%); Aktobe (89.1%); Pavlodar (88.0%); the city of Almaty (87.3%); Zhambyl and Turkestan (85.7%); West Kazakhstan (85.2%); the city of Astana (84.6%). Low rates of early diagnosis were recorded in the following regions. The city of Shymkent stands out against the general background, where only three out of every five patients were detected in the early stages of the disease - 64.6%. Next come: Almaty (72.9%); Kyzylorda (77.1%); North Kazakhstan (78.4%); Abay (79.1%); Atyrau (80.0%); Kostanay (81.7%); Karaganda (83.2%); Akmola (84.1%) regions [14].

As the above data clearly demonstrates, there is a significant range in early diagnosis rates across the country, from good to disappointing. While migration and other factors influencing early diagnosis rates must certainly be taken into account, the results obtained provide a reason for oncologists and gynecologic oncologists, as well as obstetricians and gynecologists, imaging specialists, and general practitioners, to continue to strive for improvement. Improving early diagnosis rates for malignant tumors remains a fundamental tenet and a key objective of medicine as a whole, and remains a pressing issue today.

The proportion of stage IV EC among all malignant neoplasms was 4.1%, ranking 23rd. Overall, in 2023, the proportion of stage IV malignant neoplasms across the country, across all nosologies, decreased from 12.58 to 11.7% (from 4,790 to 4,735 patients).

As for the national average for the proportion of stage IV (4.1%), Aktobe, Mangystau, and Ulytau regions stand out with 0.0%. Then come: Pavlodar (1.2%); Turkestan (1.8%); Kyzylorda and Almaty (2.9%); East Kazakhstan (3.0%); Akmola (3.2%), and the city of Almaty (3.9%). The following regions have lower rates. The city of Shymkent stands out, with 12.5% of patients diagnosed in the terminal stage of the disease. Next come: North Kazakhstan (8.1%); Zhambyl (7.1%); Abay (7.0%); West Kazakhstan (5.6%); Atyrau (5.0%); the city of Astana (4.6%); Karaganda (4.5%); Zhetysu (4.4%) and Kostanay (4.3%) regions.

The morphological verification rate of the disease in the country was 97.5%. In 11 regions out of 20, this figure was 100% (Abay, Almaty, Atyrau, East Kazakhstan, Zhambyl, West Kazakhstan, Mangistau, North Kazakhstan Ulytau regions, as well as the cities of Astana and Shymkent). The lowest rate was in Kyzylorda region (82.9%). Next on this list were Akmola (88.9%); Zhetysu (93.3%); the city of Almaty (93.4%); Turkestan and Aktobe (98.2%); Pavlodar (98.8%); Kostanay (98.9%) and Karaganda (99.4%) regions [14].

The total number of patients with malignant neoplasms registered with specialized oncology organizations in the republic continued to increase and by the end of 2023 amounted to 218,186 people, an increase of 6.0% compared to the previous year (2022 – 205,822, +5.8%). The overall incidence rate of malignant neoplasms increased by 3.9%, from 1,055.3 to 1,096.4 per 100,000 population. This increase is due to both the increased incidence and detection of pathology, and the increased survival rate of cancer patients. Furthermore, statistical data on patients diagnosed with malignant neoplasms who have been under observation for 5 years or more and who continue to be monitored in 2023 showed that the number of patients under observation by oncology organizations in Kazakhstan for over five years continued to grow and at the end of the reporting year amounted to 117,616 people, an increase of 6.2% (2022 – 110,790 people, +6.6%) (Form No. 7).

An important clinical aspect, such as the coverage of patients diagnosed with EC for the first time in their lives with specialized treatment in the Republic of Kazakhstan, cannot be ignored. In 2023, the number of hospitalizations for all types of malignant tumors in oncology organizations across the country amounted to 108,252 cases (2022: 101,095), representing a 7.1% increase compared to the previous year. This is due to the steady growth of the oncology patient population, improved standardization of oncology care, and the development of palliative and restorative services.

At the end of 2023, the absolute number of EC patients who completed specialized treatment was 903, with 319 patients continuing treatment. The following results were obtained in percentages by *treatment methods and types. 41.0% of patients received surgical treatment alone, 30.1% received combined treatment, 19.8% received comprehensive treatment, 3.4% received radiation therapy alone, 3.1% received drug therapy alone, and 1.8% received chemotherapy and radiation therapy alone.*

Next, regarding the five-year survival rate of patients. Regarding EC, at the end of 2023, 12,703 people, or 63.8 per 100,000 population, were registered for dispensary care (at the end of 2022, 12,265 patients, or 62.9 per 100,000 population, respectively); this ranks third among all nosological forms of malignant neoplasms.

Moreover, the mortality rate of the observed cohorts in 2023 was 2.1% (2.0% in 2022).

The five-year survival rate of patients with EC was 65.2% in 2023 (65.8% the previous year) [14].

Summarizing the above, it can be concluded that EC occupies a significant place among all existing malignant tumors in other locations. Despite the small percentage of patients detected at stage IV, given a number of factors, early diagnosis rates are challenging for oncologists. Locally advanced stage III, in addition to its prevalence, carries a high incidence of complications and locoregional metastases, requiring aggressive combination and comprehensive treatment. Furthermore, despite 84.3% of patients being detected at early stages (I-II), the five-year survival rate was 65.2%. The variability and subtlety of symptoms, along with their similarity to various non-core conditions, contribute to the advanced stage of the disease. All of this requires oncologists and oncologists-gynecologists, as well as, first and foremost, primary care providers, obstetricians and gynecologists, and imaging specialists, to increase cancer awareness, educate the public about early symptoms that may indicate this pathology or the onset of proliferative changes, and implement high-tech diagnostic procedures, leading to timely treatment. Women at risk are advised to visit specialized specialists annually and, if necessary, undergo screening.

An epidemiological assessment of the EC situation in our country shows that there are sometimes significant regional differences not only in incidence rates but also in early diagnosis and mortality rates. Therefore, this pathology continues to be a serious problem in modern clinical oncology.

References

1 Klinicheskie rekomendacii "Rak tela matki i sarkomy matki" - Odobreno na zasedanii nauchno-prakticheskogo soveta Ministerstva zdravoohranenija Rossijskoj Federacii. - 2024. - 80 s.

2 Sbarra M, Lupinelli M, Brook OR, Venkatesan AM, Nougaret S. Imaging of Endometrial Cancer. Radiol Clin North Am. 2023 Jul;61(4):609-625. doi: 10.1016/j.rcl.2023.02.007.

3 Corr BR, Erickson BK, Barber EL, Fisher CM, Slomovitz B. Advances in the management of endometrial cancer. BMJ. 2025 Mar 5;388:e080978. doi: 10.1136/bmj-2024-080978.

4 Klinicheskij protokol diagnostiki i lechenija «Zlokachestvennye neoplazii tela matki» - Odobren Ob#edinennoj komissiej po kachestvu medicinskih uslug Ministerstva zdravoohranenija Respubliki Kazahstan ot 01 ijulja 2022 goda, Protokol №164. – 31 s (In Russ.).

5 Klinicheskij protokol medicinskogo vmeshatel''stva laparoskopicheskaja robot-assistirovannaja hirurgija (brjushnoj polosti, malogo taza i zabrjushinnogo prostranstva) - Odobren Ob#edinennoj komissiej po kachestvu medicinskih uslug Ministerstva zdravoohranenija Respubliki Kazahstan ot 21 dekabrja 2023 goda, Protokol №200. – 116 s (In Russ.).

6 Matsuura M, Takane K, Yamaguchi K, Ikenoue T, Hatakeyama S, Kurokawa S, Tamate M, Akimoto T, Iwasaki M, Sugita S, Hasegawa T, Ota Y, Saito T, Furukawa Y. Identification of cancer driver mutations in liquid-based cytology samples for the screening of endometrial diseases. BJC Rep. 2023 Nov 2;1(1):18. doi: 10.1038/s44276-023-00020-y.

7 Li W, Xu Y, Zeng X, Tan J, Wang Y, Wu H, Li M, Yi C. Etiological relationship between lipid metabolism and endometrial carcinoma. Lipids Health Dis. 2023 Aug 4;22(1):116. doi: 10.1186/s12944-023-01868-2.

8 Zakrzewski PK. Calcium Homeostasis Machinery in the Human Uterus-A Potential Therapeutic Target in Endometrial Cancer. Int J Mol Sci. 2025 Oct 22;26(21):10253. doi: 10.3390/ijms262110253.

9 Sobstyl M, Brecht P, Sobstyl A, Mertowska P, Grywalska E. The Role of Microbiota in the Immunopathogenesis of Endometrial Cancer. Int J Mol Sci. 2022 May 20;23(10):5756. doi: 10.3390/ijms23105756.

10 Karachalios C, Liapis I, Petousis S, Almperi EA, Margioula-Siarkou C, Margioula-Siarkou G, Flindris S, Karamitrousis E, Dinas K. Human Papillomaviruses and Malignant Neoplasms of the Female Upper Reproductive Tract: A Comprehensive Review of the Literature. Cancers (Basel). 2025 Jun 15;17(12):1995. doi: 10.3390/cancers17121995.

11 Szubert M, Kozirog E, Wilczynski J. Adenomyosis as a Risk Factor for Myometrial or Endometrial

Neoplasms-Review. Int J Environ Res Public Health. 2022 Feb 17;19(4):2294. doi: 10.3390/ijerph19042294.

12 Casadio P, Raffone A, Maletta M, Travaglino A, Raimondo D, Raimondo I, Santoro A, Paradisi R, Zannoni GF, Mollo A, Seracchioli R. Clinical Characteristics of Patients with Endometrial Cancer and Adenomyosis. Cancers (Basel). 2021 Sep 30;13(19):4918. doi: 10.3390/cancers13194918.

13 Iavarone I, Molitierno R, Fumiento P, Vastarella MG, Napolitano S, Vietri MT, De Franciscis P, Ronsini C. MicroRNA Expression in Endometrial Cancer: Current Knowledge and Therapeutic Implications. Medicina (Kaunas). 2024 Mar 15;60(3):486. doi: 10.3390/medicina60030486.

14 Kaidarova D.R., Shatkovskaya O.V., Ongarbayev B.T., Zhylkaidarova A.Zh., Seisenbayeva G.T., Lavrentyeva I.K., Sagi M.S. Indicators of the oncology service of the Republic of Kazakhstan, 2023: statistical and analytical materials – Almaty: KIOR JSC, 2024. – 410 p.

MODERN MICROBIOLOGICAL METHODS FOR DIAGNOSING URINARY TRACT INFECTIONS

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СОВРЕМЕННЫЕ МИКРОБИОЛОГИЧЕСКИЕ МЕТОДЫ ДИАГНОСТИКИ МОЧЕПОЛОВЫХ ИНФЕКЦИЙ

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Введение: *Мочеполовые инфекции включают широкий спектр заболеваний, вызванных бактериями, вирусами, грибами и некоторыми паразитами, поражающих мочевыводящую и половую системы. Они занимают ведущие позиции по распространенности среди инфекционных заболеваний как у мужчин, так и у женщин, являясь причиной значительной заболеваемости, нарушений репродуктивного здоровья и повышения затрат на здравоохранение. Традиционные методы диагностики, основанные на культуральных исследованиях, остаются стандартом, но не всегда обеспечивают высокую чувствительность и быстрый результат. В последние годы в клинические лаборатории внедрены молекулярно-биологические технологии, оптимизирующие диагностику и способствующие индивидуализации лечения.*

Цель исследования: *Определить диагностическую эффективность мультиплексной ПЦР-панели STI-8 и частоту встречаемости возбудителей у пациентов с подозрением на урогенитальную патологию.*

Материалы и методы: *Исследование было проведено в период с 10.09.2025 по 25.12.2025 в центральной лаборатории Учебно-хирургической клиники Азербайджанского медицинского университета (АТУ УХК), оснащённой современным технологическим оборудованием. В качестве биологического материала использовались уретральные мазки, взятые с соблюдением правил асептики у пациентов, проходивших стационарное лечение, а также у лиц, обратившихся в лабораторию по направлению врача с урогенитальными жалобами. В представленном исследовании были проанализированы результаты применения мультиплексного ПЦР-теста STI-8; с научно-практической точки зрения обоснована диагностическая быстрота данного метода и его роль в определении тактики комплексного лечения. В ходе исследования были обработаны образцы 177 пациентов, из которых 83 были мужчинами, а 94 — женщинами. Большинство обследованных пациентов относились к возрастной группе 25–40 лет, при этом у мужчин чаще регистрировались инфекционные процессы в возрасте старше 30 лет. Образцы собирались в стерильную транспортную среду, с соблюдением стандартных асептических правил для предотвращения контаминации, и доставлялись в лабораторию в соответствии с инструкциями производителя.*

Статистический анализ: *Все полученные клинико-лабораторные показатели были проанализированы с использованием современных статистических программных пакетов. Частота встречаемости каждого патогена в популяции, а также структура сочетанных инфекций (коинфекций) были рассчитаны с применением математических методов. Статистическая обработка полученных данных проводилась с использованием программного обеспечения SPSS. Количественные показатели представлены в виде среднего значения ± стандартного отклонения, качественные показатели — в виде процентных значений. Частота распространённости патогенов оценивалась с применением методов дескриптивной статистики.*

Заключение: *Метод ПЦР в диагностике урогенитальных инфекций, в частности мультиплексная real-time ПЦР-панель STI-8, является современным, надёжным и высокоинформативным диагностическим инструментом и занимает одно из ключевых мест в арсенале современной клинической лаборатории. Высокая чувствительность, возможность раннего выявления инфекций, передаваемых половым путём (ИППП), обнаружение коинфекций, короткое время получения результатов и широкий спектр охватываемых патогенов делают данный тест эффективным и достоверным. Применение данного метода способствует ранней диагностике и формированию рациональных и эффективных лечебных стратегий, что в конечном итоге приводит к улучшению клинических исходов и качества жизни пациентов.*

Ключевые слова: *Мочеполовые инфекции, микробиологическая диагностика, культуральные методы, ПЦР, NGS, мультиплексные панели, микробиота.*

Pedagogical sciences

EFFECTIVE ORGANIZATION OF SPECIALIZED SUBJECTS AS A PEDAGOGICAL PROBLEM

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Currently, in the era of scientific and technological development of the world community, major reforms in education, science and production, the rapid development and improvement of science require research on the implementation of technical information system integration in innovative ways. In particular, the scientific results of such research on the issues of educational innovation and integration at European universities, the Max Planck Institute, Harvard Law School, ARENA (Oslo), and the European Social Centers in Mannheim occupy a special place.

It is necessary to introduce pedagogical conditions for preparing young people for professional activity, expand the opportunities for the integrated use of traditional and modern teaching methods by qualitatively updating the context of educational programs. In this regard, based on the appropriate characteristics of teaching specialized subjects, it requires the use of new information systems and modern pedagogical technologies [1].

Technological development of the educational process is understood as the organization of an effective didactic process in accordance with the established educational goals. In this process, the development of teachers' professional and pedagogical skills requires the organization of their knowledge, skills and competencies on the basis of a modern technological approach. For this purpose, pedagogical technologies related to foreign didactics, interactive methods, modern forms and means of teaching are used in pedagogical processes. When designing pedagogical technologies, they are tested in pedagogical experience - the dynamics of the development of teachers' pedagogical skills are studied and scientifically based conclusions are drawn on the improvement of pedagogical technologies. As a result, the educational process is organized on the basis of more effective, systematic and innovative approaches [2].

Teaching specialized subjects in higher educational institutions should expand the possibilities of using new information and pedagogical technologies, based on the appropriate characteristics of teaching subjects.

Today, there is no sphere where computers have not penetrated. Education occupies a leading place among these spheres. The effective use of information and communication technologies in educational institutions is becoming an integral part of the organization of modern educational processes. Professors and teachers should have the skills to create modern electronic educational tools, purposefully introduce them into the educational process, and use electronic textbooks, electronic libraries, digital platforms, and other innovative educational resources [3].

The use of electronic libraries and other electronic educational tools, the use of electronic educational and methodological complexes in the educational process, planning and organizing the educational process based on advanced principles of teaching specialized subjects, the use of innovative methods of attracting students' attention and increasing the effectiveness of training are of particular importance today.

The relevance of the use of electronic educational resources as a means of developing students' motivational factors in education is directly related to the radical digitalization of the modern pedagogical process. Electronic educational tools serve to increase students' interest in learning, independent research skills, and their activity in educational activities. For example, electronic textbooks complement ordinary textbooks, allowing you to quickly find information. In-depth study of issues related to the practical use of this educational technology in the modern educational process, their improvement on a scientific basis is one of the urgent tasks of today.

Talysheva et al. (2021) analyzed the current issues of using electronic educational resources and their impact and types on the learning motivation of students in pedagogical fields based on a survey and questionnaire conducted among respondents. Researchers studied the impact of electronic educational resources on the effectiveness of the learning process and increasing student motivation. The specific features of the organization of this process were considered on the example of the Elabuga Institute of Kazan Federal University [4].

According to Haleem et al. (2022), in higher education institutions, professors and teachers need to be able to correctly select types of lessons aimed at developing learning activities, assess and control *them, improve the quality of lessons using information and communication technologies, create a modern innovative digital environment that serves to form independent learning, creative thinking and a critical approach. Electronic textbooks, electronic publications, multimedia platforms, virtual laboratories, electronic libraries increase students' interest in the educational process, help students form an individual educational trajectory and are considered an effective solution for mastering educational material. As a result, the use of information and communication tools not only contributes to the motivational factors of students, but also to the quality of education, the development of students' independent thinking and competencies [5].*

The use of electronic resources in e-learning environments is characterized by the enrichment of the educational process with highly visual materials. The creation of electronic educational tools is one of the urgent pedagogical problems of resources for educational institutions, the joint use of created educational resources. The creation of electronic educational resources creates the opportunity to find solutions to these pedagogical problems. Today, there is no field where computers have not penetrated. Among these fields, the education sector occupies a leading position. Because, first of all, each specialist studies in educational institutions such as schools, colleges, universities and institutes and acquires his place in society as a cadre. Today, the development and widespread use of information and communication technologies is a global trend in the world.

The use of information and communication technologies in the education system not only modernizes the educational process, but also creates the basis for future specialists to increase their digital literacy and take their rightful place in society [6] N.Batryn (2025) notes that the specialty limits traditional lecture-based approaches to teaching subjects and highlights interactive, student-centered strategies such as problem-based learning (PBL), case study analysis, simulation-based learning, and digital technology integration as effective tools for deepening conceptual understanding and developing leadership competencies. Special attention is also paid to reflective teaching methods that form critical thinking, emotional intelligence, and decision-making skills in students. It concludes with recommendations for adapting pedagogical methods to educational outcomes and technological advances in higher education. Combining the educational process with technological advances allows improving pedagogical methods in accordance with modern requirements [7].

The rapid development of society makes the highly effective organization of specialized disciplines in the higher education system an important pedagogical problem of the present day. Therefore, the teaching of specialized disciplines forms the professional competencies of students, connects theoretical knowledge with practice, and is the basis for their future development as mature specialists. The effective organization of specialized disciplines in the educational process depends not only on the content of the subject, but also on teaching methods, advanced pedagogical technologies, information and communication technologies, the assessment system, and cooperation between professors and teachers and students.

Specialized disciplines in the higher education system are the main disciplines that determine the professional training of future specialists. Through them, students:

- form professional knowledge, skills, and qualifications;

- are formed as independent and critically thinking competitive specialists;

- develop professional competence and are able to make decisions in problem situations;

- develop innovative and creatively active individuals [8].

Therefore, the use of traditional methods in teaching specialized subjects in the education system reduces the quality of learning. Therefore, the educational process requires the use of modern information and communication technologies and electronic learning tools.

The analysis showed that at present, the main pedagogical problems in the effective organization of specialized subjects can be identified as follows:

1. The lack of connection between theoretical knowledge and practice - the content of specialized subjects does not fully correspond to production and professional activities;

2. The outdatedness of teaching methods in the higher education system - one-sided education;

3. The low activity of students in the learning process - that is, students are not sufficiently involved in the learning process, and as a result, they appear only as listeners;

4. Deficiencies in the assessment system - only theoretical knowledge is assessed, and competencies formed from the point of view of science are not assessed.

In the process of teaching specialized subjects, it is necessary to approach the content of the subject based on its relevance. In order to organize effective teaching in accordance with modern educational standards, professors and teachers must acquire in-depth knowledge and skills to help students form *their cognitive activity and cognitive abilities, as well as to understand their scientific activity, interdisciplinary integration and connection with life processes [9].*

In the process of preparing future specialists for professional activity in higher educational institutions, specialized and specialized subjects are taught. By providing high-quality education in these subjects, future specialists are trained. This is carried out in the educational process. As is known, education is a two-way process, covering the activities of the teacher and the students. The effectiveness of this process is largely determined by the correct orientation of the activities of the professor and the students. To achieve this goal, it is necessary to correctly select teaching methods and teaching aids [10

The education system has always been under pressure in two main directions. First, the education system must adapt to changes in society, as the demands on education are increasing. Second, higher education, as a place of knowledge, is competing with other higher education institutions.

Therefore, higher education institutions are facing two difficulties in the process of engaging in knowledge and education. On the one hand, the question arises whether experts with experience in the field of education can define a new modern role for higher education institutions in building and serving a knowledge-based society, or whether this society will push higher education institutions aside. On the other hand, there is also the problem of what kind of changes and innovations should be introduced to develop education.

The second important issue is related to the development of the higher education system and its ability to adapt to the rapidly changing information system. The most important tasks and role of higher education institutions is to improve their activities. In the improvement of the higher education system, the teaching of specialized disciplines is a particularly urgent issue [11].

The following are modern pedagogical approaches to teaching specialized subjects in higher education institutions:

- *Problem-based learning (PBL) - teaching students based on real-world problems;*
- *Case study method - analyzing professional situations in their specialty;*
- *Project-based learning - developing students' creative and practical skills based on their specialty;*
- *Digital educational technologies - simulation, virtual laboratories, online platforms.*

In the education system, the teacher is the main driving force of the educational process. Digital technologies expand pedagogical opportunities.

According to an analysis of foreign scientific sources, the conceptual principles of problem-based learning in leading higher education institutions of the world are aimed at developing students' ability to independently identify and solve complex problems, work in a team, and learn throughout life. One of the founders of problem-based education, H. Barrows, analyzed the theoretical and main features of problem-based education [12].

Today, the prospects and development of any state are directly dependent, first of all, on the stability, prosperity and rapid development of the national education system. The current era of scientific progress, information technologies and innovations poses many problems for educators in training future specialists [13].

The process of digitization of modern education is developing rapidly worldwide. The relevance of the research is determined by the strategic importance of education in a rapidly developing society based on the principles and values of social development and its leading role in socio-economic and cultural development. The quality of future specialists, as well as the level of adaptation and readiness of the individual to natural and social problems, largely depend on the effective functioning of the education system.

In the process of improving the education system, the integration of information and communication technologies is gaining importance from year to year. Their introduction into the educational process has served to modernize and develop the education system, as well as to improve the quality of training of future specialists. It is necessary to identify the main problems in the digitalization of education and identify promising solutions. In this regard, the study of the digitalization of education and its social consequences is a relevant area of research.

References

1. Jamalova N.U. Issues of integration of pedagogical education and humanities in the context of the third renaissance. Journal of Applied science and social science. Volume 15 Issue 02, February 2025. Pages 130-134

2. Allayarova Solikha Narzulloevna, Khusainova Firuza Tokhirovna, Akhrorova Zebo Bakhramovna, Sadikova Shoira Odeldjanovna, Sodikov Ulugbek Jurayevich. Modern pedagogical *methods in effective organization of lessons. Journal of Critical Reviews. Vol 7, Issue 9, 2020. Pages 129-133*

3. Djamirzayev A.. Effective use of information and communication technologies in the educational system. Novateur publications. JournalNX- A Multidisciplinary Peer ReviewedJournal. ISSN No: 2581 – 4230. Volume 9, ISSUE , Mar. -2023. Pages 4-8

4. Talysheva I., Kh. Pegova, L. Khaliullina. The Use of Electronic Educational Resources of The University as A Means of Increasing The Educational Motivation of Students. International Journal of Emerging Technologies in Learning (iJET). January 2021. 16(01):289

5. Haleem A, M. Javaid, M.A. Qadri, R. Suman. Understanding the role of digital technologies in education: A review. Sustainable Operations and Computers. Volume 3, 2022. Pages 275-285

6. Doniyor Toshtemirov, Bakhodir Muminov, Jasur Saidov. Fundamentals Of Compilation Of Electronic Tasks For Students To Test And Strengthen Their Knowledge Of Database // INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH. ISSN 2277-8616. VOLUME 9, ISSUE 04, APRIL 2020. pp. 3226-3228.

7. Batryn N.. Effective pedagogical methods for teaching organizational theory and leadership in foreign resources. Међнародний науковий журнал «Грааль науки» |No 55 (серпень, 2025). С 615-622

8. Ikrom Qodirov. Development Of Professional Competence In Higher Education Is The Basis Of Training Specialist. eTopoi Journal for Ancient Studies 2(2): November 2025. Pages 15-20

9. Olivia Mafa-Theledi. Teachers' Pedagogical Content Knowledge and Subject Matter Content Knowledge: Is the Framework Still Relevant in Teaching of STEM. International Journal of Research and Innovation in Social Science VIII(IV): May 2024. Pages 836-846

10. Umarjonova N.. Teaching content of specialized subjects in technological education. Models and methods in modern science. 4(3), (2025). 124–125

11. Peter Rado. The Adaptability of Education Systems to Future Challenges in Context: An Analytical Framework.Central Europen University. January 2020.

12. Volodymyr Matiievskyi. Problem-based Learning in Higher Education: Modern Approaches, Models, and Methods. Education and Pedagogical Sciences. August 2025 - 2(189)-68-78

13. Lubkov V.. Modern Problems of Pedagogical Education. The Education and science journal april 2020. 22(3): Pages 36-54

THE IMPORTANCE OF ENHANCING THE PROFESSIONAL COMPETENCE OF ENGLISH LANGUAGE TEACHERS

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Abstract
In the contemporary educational landscape—particularly in an era marked by the rapid advancement of digital technologies and artificial intelligence—the role of the English language teacher is undergoing a fundamental transformation. Whereas teachers were previously viewed primarily as sources of knowledge, they are now expected to function as facilitators, mentors, and creators of a creative learning environment that fosters students' critical and creative thinking skills. Consequently, enhancing the professional competence of English language teachers has become one of the most pressing priorities in modern pedagogy.

Keywords: professional competence, English language teachers, digital technologies, artificial intelligence, modern pedagogy, critical thinking, creative thinking, teacher development

INTRODUCTION

Pursuant to Presidential Decree No. PF-4947, signed on February 7, 2017, the Action Strategy for the Development of the Republic of Uzbekistan for 2017–2021, structured around five priority areas, was officially adopted. This strategic document outlines key objectives such as enhancing the international competitiveness of national human capital, aligning the quality and effectiveness of higher education with global standards, and expanding mutual recognition of academic qualifications among Bologna Process member states. It also emphasizes the promotion of academic mobility through the development of teacher and student exchange programs. Overall, the Strategy is aimed at modernizing the higher education system and strengthening Uzbekistan's position within the global educational space.

In addition, Presidential Decree No. PF-5847, issued on October 8, 2019, approved the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030. This Concept defines a set of concrete priorities, including the integration of digital technologies and innovative teaching methodologies into higher education, broader engagement of youth in scientific research and innovation, the implementation of effective anti-corruption measures, and an increase in the proportion of students enrolled in engineering and technical disciplines. Special emphasis is placed on the introduction of the credit–module system, increasing the share of practical training in curricula, and strengthening practice-oriented competencies within specialized subjects.

According to this policy framework, the overarching goal of higher education reform is to prepare highly qualified specialists who meet international standards and demonstrate creativity, systemic thinking, and the ability to make independent decisions. As a result, learners are expected to fully realize their intellectual potential, develop as morally mature individuals, and actively participate in social life. At the same time, comprehensive reforms across various sectors necessitate the expansion of public worldview and the training of professionals capable of responding effectively to contemporary socio-economic demands.

Within this context, the development of professional competence among higher education instructors—particularly English language teachers—has emerged as one of the most urgent challenges in today's educational process. Accordingly, the Law of the Republic of Uzbekistan "On Education" explicitly underscores the importance of training educators who are professionally skilled, capable of independent thinking, and proficient in modern pedagogical approaches.

According to A. R. Khodjaboyev, adopting a competency-based approach to education is regarded as an effective means of enhancing the quality of the teaching and learning process. This approach contributes to the establishment of new criteria for assessing an individual's level of education, as the traditional measurement of knowledge, skills, and abilities alone is no longer sufficient to fully evaluate educational quality and pedagogical effectiveness in contemporary conditions.

As emphasized in the research conducted by M. Gulyamova, the competency-based approach should be applied across all academic disciplines. Its purpose extends beyond the transmission of theoretical knowledge and practical skills; it aims to develop learners' ability to independently apply acquired knowledge in diverse pedagogical and professional contexts. The core objectives of this approach include *fostering independent thinking, encouraging creative decision-making, shaping socially active and responsible citizens, and developing skills related to the effective use of information technologies and informed career choice.*

T. V. Shtikova interprets communicative competence as an integrative characteristic of a teacher's professional activity. According to her, this competence encompasses a combination of communicative-personal, didactic, and gnostic knowledge, skills, and professional qualities, which collectively ensure the effectiveness of a teacher's communicative performance. Consequently, prospective English language teachers are expected to possess a solid theoretical foundation, advanced verbal proficiency, and strong methodological and pedagogical preparation.

In the view of A. G. Bermus, competence integrates an individual's personal qualities, knowledge, and professional experience into a coherent system, thereby enhancing the effectiveness of a teacher's professional practice. From a similar perspective, Alisher Navoi emphasized that a teacher should not only transmit knowledge but also function as a skilled educator. A teacher who is unable to apply acquired knowledge in pedagogical practice cannot be considered professionally effective and fails to fully realize their educational role.

The development of competence among future English language teachers requires sustained effort, continuous professional education, and systematic methodological training. This process is primarily realized through effective classroom practice, where knowledge and skills are meaningfully transferred and reinforced.

In her study, G. M. Karlibayeva identified the theoretical foundations of methodological training for prospective teachers and elaborated methodological approaches for its formation. The research also outlines practical ways of organizing methodological preparation and increasing its overall effectiveness.

Under current conditions, considerable attention is being paid to strengthening the higher education system and aligning it with the demands of the time. In particular, the training of qualified specialists necessitates a close integration of educational and upbringing reforms. Improving all structural components of the state education system, preparing specialists who meet contemporary requirements, and ensuring their competitiveness in the international arena are among the most pressing tasks today.

Teachers in the twenty-first century are expected to demonstrate a high level of pedagogical, linguistic, digital, and intercultural competence. In this regard, English language teachers must not only possess a deep knowledge of grammar and vocabulary but also be capable of organizing the educational process through interactive methods and modern pedagogical technologies, such as the communicative approach, CLIL (Content and Language Integrated Learning), Project-Based Learning, and Blended Learning.

For these reasons, enhancing the professional competence of English language teachers has become one of the strategic priorities of the education system. The concept of professional competence encompasses not only language proficiency but also methodological expertise, pedagogical mastery, digital literacy, and intercultural communication skills. In educational programs designed for the training of English language teachers, this phenomenon plays a crucial role not merely as a means of communication but as a key factor in shaping overall professional competence.

Accordingly, curricula, teaching materials, and textbooks intended for English language teachers should be developed in line with the current demands of the labor market and based on a professionally oriented approach.

For prospective English language teachers, studying subject-specific content in English plays a pivotal role in expanding their professional and intellectual potential. Through such academic engagement, students not only deepen their language proficiency but also develop the ability to analyze scientific concepts and specialized terminology related to their field in English. This process enables them to gain a deeper understanding of contemporary pedagogical approaches, international experiences, and innovative methods in English language teaching.

Research findings indicate that engaging with professional literature in English provides future teachers with opportunities to exchange pedagogical experiences on an international scale, remain informed about advancements in their field, and communicate effectively within the global educational community. As noted by Marsh, this process broadens learners' academic horizons at the international level and facilitates their active participation in the global scientific and educational discourse

It should be particularly emphasized that improving the professional training of English language teachers is closely linked to the development of curricula and instructional materials that are aligned with teachers' actual needs and effectively implemented in practical classroom settings. Such targeted instructional processes contribute to deepening teachers' theoretical knowledge, broadening their *methodological repertoire, and enhancing their ability to apply modern pedagogical technologies in teaching practice.*

Studies also demonstrate that curricula, teaching manuals, and textbooks play a central role in enhancing teachers' professional competence. These resources function not only as sources of knowledge, but also as methodological support tools that assist teachers in organizing instruction more effectively. As highlighted by Hutchinson and Waters, materials tailored to learners' needs significantly increase the likelihood of achieving high educational outcomes.

According to Richards, textbooks and teaching manuals serve as the practical component of the curriculum, providing methodological guidance to teachers and enabling the systematic delivery of educational content. Therefore, analyzing the content of contemporary textbooks and instructional materials developed for English language teachers is of substantial scientific and practical importance in determining their effectiveness in fostering professional competence.

Within the framework of the present study, existing curricula, textbooks, and teaching materials aimed at developing the professional competence of English language teachers were examined comprehensively. The primary objective of the research is to assess the effectiveness of these materials in strengthening teachers' linguodidactic preparation, methodological skills, and professional competencies. In this context, particular attention was given to current requirements imposed on English language teachers, their ability to employ modern pedagogical technologies, and the extent to which their training aligns with international standards.

At present, instruction in the field of language teaching methodology and educational technologies is oriented not only toward developing linguistic knowledge, but also toward enhancing the professional and pedagogical competence of future teachers. The course designed for students of the Faculty of Languages and Translation, majoring in Foreign Language and Literature at Is'hoqxon Ibrat Namangan State Institute of Foreign Languages, has been developed with this objective in mind.

The development of this curriculum takes into account the transition to the credit–module system in higher education, which promotes learner autonomy, self-directed learning, and active participation in the educational process. The program clearly defines requirements for lesson content in English language teaching, guidelines for practical classes, methodological recommendations, and instructions for independent study.

The main aim of the course is to prepare prospective English language teachers as specialists capable of effectively using a foreign language in everyday life, academic contexts, and professional activities, while demonstrating independent thinking and creative approaches. Additionally, the course fosters students' patriotism, research autonomy, continuous professional development, collaboration with international specialists, direct engagement with scientific sources, and awareness of global scientific and technological advancements relevant to their future professional practice. Course Content.

The course Language Teaching Methodology and Educational Technologies consists of lectures and seminar sessions and is designed to provide future foreign language teachers with comprehensive theoretical and practical preparation for professional activity. The course aims to develop students' readiness for teaching practice by integrating methodological knowledge with hands-on pedagogical experience.

This course introduces students to current issues and trends in modern language teaching methodology and equips them with the skills necessary to effectively address professional challenges they may encounter in educational institutions. Throughout the course, students' practical teaching skills are systematically developed. In particular, they learn to formulate instructional, educational, and developmental objectives of a lesson; plan instructional content in accordance with specific topics; design lesson plans and teaching outlines; prepare questions and tasks; conduct classroom assessment and evidence-based evaluation of learning outcomes; organize learners' independent work; and analyze their own lessons collaboratively with peers.

Through the application of contemporary methodological approaches and educational technologies, the course enables students to acquire the following core competencies:

Professional-linguistic competence – the ability to communicate fluently in a foreign language, master linguistic norms, vocabulary, and grammatical structures, as well as acquire subject-specific and academic terminology.

Methodological competence – skills related to lesson planning, preparation of teaching materials and lesson outlines, organization of practical classes, and effective use of assessment tools.

Pedagogical competence – the ability to manage individual and group learning activities, organize independent student work, and resolve pedagogical tasks within the instructional process.

Results

Thus, the course curriculum is aimed at the holistic development of linguistic, methodological, didactic, and pedagogical competencies among prospective English language teachers. It prepares them to effectively engage with modern educational technologies and successfully implement practical teaching strategies in contemporary educational settings.

Course Overview: Language Teaching Methodology and Educational Technologies

Component	*Description*
Course Structure	*The course consists of lectures and seminar sessions aimed at providing theoretical and practical preparation for future English language teachers.*
Course Focus	*Introduction to modern language teaching methodologies and educational technologies; preparation for real classroom challenges in educational institutions.*
Key Learning Activities	*Lesson objective formulation, instructional planning, lesson plan and outline design, task and question development, classroom assessment, organization of independent learning, peer lesson analysis.*
Professional-Linguistic Competence	*Development of fluent foreign language communication, mastery of vocabulary and grammar, and acquisition of subject-specific and academic terminology.*
Methodological Competence	*Skills in lesson planning, material and syllabus design, organization of practical classes, and effective use of assessment and evaluation tools.*
Pedagogical Competence	*Ability to manage individual and group learning activities, organize independent work, and solve pedagogical problems during instruction.*
Learning Outcome (LO1)	*Integrated development of linguistic knowledge and communicative skills required to achieve C1-level English proficiency in accordance with international standards.*
Learning Outcome (LO2)	*Familiarization with modern, effective, and innovative teaching methods, including interactive approaches and educational technologies.*
Learning Outcome (LO3)	*Acquisition of practical teaching skills such as lesson planning, task creation, assessment, and classroom management.*
Learning Outcome (LO4)	*Integrated development of methodological and pedagogical competencies to ensure effective readiness for professional teaching practice.*
Overall Course Goal	*To develop future English language teachers' linguistic, methodological, didactic, and pedagogical competencies in an integrated manner and prepare them for effective professional activity using modern educational technologies.*

Conclusion

In conclusion, the course Language Teaching Methodology and Educational Technologies plays a crucial role in preparing future English language teachers for effective professional practice in contemporary educational settings. By integrating theoretical foundations with practical training, the course ensures the systematic development of linguistic, methodological, pedagogical, and didactic competencies required for modern language instruction.

The findings of the study demonstrate that a competency-based and practice-oriented approach significantly enhances prospective teachers' readiness to meet real classroom challenges. The structured focus on lesson planning, assessment, learner-centered instruction, and the application of innovative teaching technologies contributes to the development of critical thinking, reflective practice, and professional autonomy among students.

Moreover, the alignment of the course content with international standards, particularly the C1 proficiency level and modern pedagogical methodologies, ensures that future English language teachers are well-equipped to operate within both national and global educational contexts. The integration of interactive methods and educational technologies further strengthens their ability to design effective, engaging, and inclusive learning environments.

References

1. O'zbekiston Pespublikasi Vazirlar Mahkamasining "Ta'lim muassasalarida chet tillarini o'qitishning sifatini yanada takomillashtirish chora-tadbirlari to'g'risida" gi 610-son Qarori, 2017-yil 11-avgust. O'zbekiston Pespublikasi Qonunchilik ma'lumotlari milliy bazasi.

2. Фетисова А. А. Методика управления фактором непроизвольности в процессе развития иноязычной лексической компетенции студентов: I курс, языковой педагогический вуз // Диссертация на соискание ученой степени кандидата педагогических наук. – Москва, 2010. – 186 с.

3. Кормилицына К.А. Профессиональное творчество учителя как фактор результативности педагогической деятельности // Автореферат диссертации на соискание ученой *степени Козловская Е.В. Формирование креативно–коммуникативной компетенции студентов неязыковых специальностей (немецкий язык): Дисс. … канд. пед. наук. –Тамбов: 2016. С. 232.*

4. Маркова А.К. Психологический анализ профессиональной компетентности учителя //Советская педагогика. 1990. – № 8. – С. 46-51.

5. Hall, J. K. (1999). 'A prosaics of interaction: The development of interactional competence in another language', in E. Hinkel (Ed.), Culture in second language teaching and learning. New York: Cambridge University Press,137-151.

6. O'zbekiston Respublikasi Prezidentining 2012-yil 10-dekabrdagi "Chet tillarni o'rganish tizimini yanada takomillashtirish chora-tadbirlari to'g'risida" gi PQ – 1875 – sonli Qarori. // Xalq so'zi 2012-yil 11-dekabr.

7. O'zbekiston Respublikasi Prezidentining 2017-yil 7-fevraldagi PF- 4947-son "O'zbekiston Respublikasini yanada rivojlantirish bo'yicha Harakatlar strategiyasi to'g'risida" gi Farmoni. O'zbekiston Respublikasi Qonun hujjatlar to'plami. – 2017-yil 6 -son, 70-modda.

8. O'zbekiston Respublikasi Prezidentining 2020-yil 3-dekabrdagi "Iqtidorli yoshlarni saralab olish tizimi va akademik litseylar faoliyatini takomillashtirish chora-tadbirlari to'g'risida" gi PQ-4910-son

9. O'zbekiston Respublikasi Prezidentining 2020-yil 6-noyabrdagi "Talim tarbiya tizimini yanada takomillashtirishga oid qo'shimcha chora-tadbirlari to'g'risida" gi PQ-4884-son Qarori. O'zbekiston Pespublikasi Qonunchilik ma'lumotlari milliy bazasi.

THE ROLE OF EMPATHY IN DEVELOPING LINGUOCULTURAL COMPETENCE OF FOREIGN LANGUAGE LEARNERS

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Abstract

The article explores the importance of empathy as one of the main psychological and pedagogical aspects in the development of linguistic and cultural competence among learners of a foreign language. In the current circumstances of globalization and active intercultural exchange, proficiency in a foreign language implies not only knowledge of its vocabulary and grammatical structure, but also the ability to accurately understand and interpret the cultural features, meanings and speech patterns of native speakers. In this perspective, linguistic and cultural competence appears as a single property of an individual, encompassing linguistic knowledge, socio-cultural awareness and the ability to apply language according to the cultural environment of dialogue.

A special emphasis in the article is placed on empathy as the ability to comprehend the mental state, views and worldview of another person. It is noted that empathy performs an important function in the process of learning a foreign language, as it helps to overcome cultural obstacles and reduce speech difficulties. Empathic understanding enables students to go beyond the strict assimilation of linguistic information and see language as a reflection of the culture, past, and way of thinking of the native people.

The study examines the relationship between the level of empathy of students, the depth of intercultural awareness and the effectiveness of foreign language communication. The article substantiates the position that the development of empathy contributes to a more meaningful assimilation of cultural meanings fixed in linguistic units, speech patterns and communicative tactics. Empathy helps students correctly interpret the emotional tone of utterances, the peculiarities of speech etiquette, jokes and nationally peculiar ways of expression, which is an important element of linguistic and cultural competence.

Special attention is paid to the pedagogical potential of purposeful development of empathy in the course of learning foreign languages. Empathically focused teaching methods and approaches are analyzed, including working with authentic materials, analyzing culturally conditioned communicative scenarios, role-playing and game exercises, conversations, as well as the use of literary works and visual and sound tools. It is noted that these techniques promote the development of a respectful view of a different culture among students, the growth of tolerance and the ability to conduct an intercultural dialogue.

The article also highlights the role of teachers in creating a learning environment that is beneficial for the growth of empathy and intercultural sensitivity. The teacher is presented not only as a keeper of information, but also as an intermediary of cultures, leading students to understand the relativity of their own attitudes and cultural values.

Keywords: empathy, linguistic and cultural competence, intercultural communication, foreign language, language teaching.

In the context of the rapid development of global relations, the growth of migration flows and the deepening of international partnership, a foreign language is no longer just a channel for the exchange of information, becoming a key lever for establishing dialogue between different cultures. The current requirements for specialists graduating from educational institutions extend much beyond simple knowledge of grammatical rules and vocabulary. For successful communication in a foreign language environment, it is necessary to have the ability to recognize the mentality of native speakers, their basic attitudes, established behavioral patterns and features of the conversation style. Consequently, linguistic and cultural preparedness comes to the fore as a fundamental part of an individual's comprehensive communicative development.

Competence in the field of linguistic culture is a complex, unified education that combines awareness of the culture of the language being studied, skills in interpreting language phenomena determined by cultural characteristics, as well as the ability to correctly apply language in a variety of *socio-cultural situations. Its formation takes place at the intersection of linguistic, cultural and psychological components of the educational process and demonstrates how well the student is prepared for the interaction between cultures. Current methods of teaching foreign languages increasingly emphasize that language acquisition is impossible outside the context of culture, as language carries accumulated experience, historical memory and a national mindset. This idea finds expression in the development of the concepts of communicative and intercultural competencies, presented in the works of scientists such as Dell Hymes and Michael Byram.*

Nevertheless, at the stage of practical implementation, the development of linguistic and cultural competence is often burdened with a number of obstacles. Students they are able to show excellent knowledge of the language apparatus, but subsequently they encounter failures in authentic communicative scenarios due to the inability to consider cultural markers, misinterpretation of the manner of speech or the tonality of phrases. These difficulties emphasize the importance of taking into account individual and educational-methodological aspects that determine the success of interaction between cultures. Empathy occupies a key place among these aspects.

Empathy refers to the ability of an individual to penetrate into the mental state, experiences and feelings of another, as well as to see the situation from his personal perspective. When learning a foreign language, empathy takes on an essential role, because the interaction between cultures is inevitably associated with contact with a different set of moral attitudes, rules and worldviews. The developed ability to empathize allows students not only to better understand the motives of a conversation partner, but also to reduce nervous tension, prevent controversial moments in communication and cultivate respect for someone else's cultural heritage.

At the stage of mastering foreign speech, empathy promotes the transformation of simple rote memorization of individual linguistic components into a deep understanding of language as an integral part of culture. Thanks to the empathic response, students begin to see in lexemes, phrases, and speaking patterns not just elements of an abstract structure, but tools through which real individuals convey their ideas, experiences, and worldviews. The relevance of this approach increases many times when analyzing authentic sources, literary works, film works and other cultural artifacts, where the true message often surpasses the literal interpretation of verbal units and requires emotional and cultural interpretation.

In addition, empathy makes a significant contribution to the development of tolerance and sensitivity to other cultures. When we realize that peculiar patterns of behavior or methods of presenting ideas stem from the cultural environment, rather than being the result of their "fallacy" or "wrongness," this pushes us to form respect for people belonging to other cultures. This ability is extremely important in the context of learning groups consisting of representatives of different nations, as well as in the framework of global educational initiatives, where a foreign language acts as a link between different cultural worlds.

Although the importance of empathy is indisputable, it is usually overlooked in established approaches to teaching foreign languages. The priority is to develop proper language competencies and practical skills, while work on the emotional and evaluative component of students' personality takes a back seat. As a result, the formation of linguistic and cultural competence turns out to be incomplete, since there is no basis in the form of sincere acceptance of someone else's culture and readiness for real intercultural interaction. It is this discrepancy between the stated objectives of modern language teaching and how it is implemented in practice that makes it extremely timely to address the role of empathy in the development of linguistic and cultural abilities.

Therefore, the study of how empathy affects the development of linguistic and cultural competence is a timely and important issue for both theoretical and practical application. Studying this phenomenon provides an opportunity to deepen understanding of the principles underlying the acquisition of a different culture in the learning process, and also serves as an argument in favor of including empathy-focused techniques in teaching foreign languages. When empathy becomes a conscious element of the pedagogical process, it not only improves the quality of language learning, but also helps to educate a person capable of meaningful and responsible communication in a modern, diverse cultural context.

The concept of linguistic and cultural competence

In the context of modern linguodidactics and the sphere of intercultural interaction, knowledge of linguistic and cultural features is recognized as fundamental for effective mastery of any foreign language. In fact, it is a complex, synthetic quality that combines mastery of the language proper, awareness of culture and the ability to apply speech in accordance with the socio-cultural realities of dialogue. In contrast to approaches that focus solely on grammatical rules and vocabulary, linguistic and *cultural competence requires a deep understanding of language as a tool for transmitting cultural heritage, value systems, and a specific view of the world inherent in the respective ethnic group.*

The theoretical basis of this idea is based on the model of communicative competence proposed by Dell Hymes. His point of view is that in order to exchange information productively, it is necessary to take into account the social and cultural features inherent in the speaking process. Knowledge of the grammatical and lexical rules of a language alone is not enough for successful communication if the subject is not guided by the models of speech etiquette operating within a certain language group. Consequently, language is perceived not as a separate system, but as an instrument of social interaction, inextricably intertwined with the cultural environment.

Within the framework of the paradigm of linguoculturology, language is considered as a mirror in which the historical path of an ethnic group, its established customs, a system of priorities and peculiarities of thinking are imprinted. Semantic content determined by culture can be seen in vocabulary, stable phrases, folk wisdom, and even in grammatical structure, which often makes literal translation impossible. To successfully master these aspects, students need to develop the skill of recognizing cultural overtones hidden behind the external language shell, and the ability to adequately interpret it in the context of unique national characteristics.

Linguistic and cultural competence is constituted from a number of correlating components. The cognitive aspect implies the possession of information about the cultural landscape of the state, the language of which is being mastered, its historical past, customs, rules of social interaction and basic attitudes. The speech aspect concerns the ability to apply the linguistic arsenal according to the specific conditions of the dialogue, choosing the appropriate style, tone and tactics of speech influence. The axiologically oriented aspect demonstrates the student's desire to accept someone else's mentality, to express respect and tolerance for all kinds of cultural differences. Only the integration of these components guarantees the effective inclusion of the individual in the process of intercultural information exchange.

The formation of linguistic and cultural competence implies the development of students' skills in understanding linguistic elements in their entirety of cultural conditioning and implicit meanings. For example, in order to adequately perceive the norms of speech interaction, including phrases of politeness, jokes or sarcasm, it is necessary to have an understanding of the cultural attitudes and expectations of those for whom this language is their native language. Errors in the interpretation of such aspects are fraught with interference in communication, mutual misunderstanding and even conflict situations. Consequently, linguistic and cultural competence becomes a tool for removing barriers that arise at the intersection of cultures and improving the effectiveness of the communicative act.

This ability becomes critically important when it comes to interaction in a cross-cultural space, where a foreign dialect serves as a bridge for communication between speakers of different cultures. In such circumstances, the student is required not only to have knowledge of linguistic tools, but also the ability to quickly adapt to different communication scenarios, take into account cultural differences and demonstrate respect for other mental attitudes. Competence at the level of language and culture makes it possible to see the conventionality of one's own cultural standards and escape from the perception of the world through the prism of one's own ethnicity.

It should be emphasized that the formation of competence in the field of linguoculture is a process that takes a long time and covers many aspects. It implies systematic pedagogical activity, which should include the use of authentic sources, analysis of situations of real communication and providing an environment for intercultural interaction. It is extremely important that learning a foreign language is aimed not only at informing, but also at the personal growth of the student, his ability to perceive and appreciate cultural pluralism.

Therefore, linguistic and cultural competence is an essential component of actual language teaching. It strongly connects language with culture, develops the ability to perceive other cultures and significantly improves the effectiveness of communication in a foreign language. Understanding the importance of this competence makes it possible to rethink the tasks and methods of teaching foreign languages, and also focuses on the fact that both cultural and personality-oriented components should be introduced into the educational process.

Empathy as a psychological and pedagogical phenomenon

In the framework of psychological science, empathy has long been defined as a human trait, consisting in the ability to respond with feelings, comprehend and share experiences, mental state and inner world of others. This phenomenon encompasses two components: the cognitive component, which involves recognizing and understanding the emotional sphere of another, and the emotional-sensory *component, which is expressed in the ability to empathize and express reciprocal feelings. In scientific works devoted to psychology and pedagogy, empathy is claimed as a key characteristic of a personality that promotes effective communication and the establishment of harmonious relationships in society.*

In the field of learning, the ability to empathize comes to the fore, since the very essence of learning lies in interpersonal exchange. When a mentor shows a sensitive attitude towards his students, it creates a healthy psychological atmosphere based on faith in each other, respect and the ability to feel together. On the other hand, the growth of students' empathic abilities has a positive effect on their desire to learn, reduces nervous tension and encourages more active participation in classes. Scientific research in line with the humanistic approach to education, based on the concepts of Carl Rogers, focuses on the fact that empathy is one of the main factors for learning with a focus on personality and effective dialogue between teacher and student.

Empathy significantly influences the development of character traits such as tolerance, recognition of everyone's uniqueness, and the ability to act together. In the presence of many cultural traditions, different worldviews and social norms, empathy serves as a tool to eliminate prejudice and stereotypical perception. Understanding the motives and experiences of one's neighbor strengthens a sense of social responsibility and openness to the exchange of opinions, which is considered one of the key achievements in the field of modern education.

Empathy plays a key role in learning foreign language, as this process is inextricably linked to the exchange between different cultures. The language being studied is not just a tool for communication; it is also a mirror reflecting a different culture, its value system and characteristic approaches to understanding reality. In this situation, the ability to empathize allows students to see representatives of another culture not through their own established cultural frameworks and preconceived opinions, but as carriers of an original, but at the same time no less valuable model of the world. Such a vision cultivates respect for the diversity of cultures and minimizes the likelihood of cultural upheaval and misunderstanding in the dialogue process.

When there is no ability to empathize, mastering a foreign language risks turning into just memorizing grammatical constructions and vocabulary, devoid of immersion in the cultural context. The consequence of this is that students often face problems when analyzing the manner of communication of native speakers, incorrectly reading their intonation, the emotional background of speech, or not observing the accepted rules of speech etiquette. On the contrary, the presence of empathy makes it possible to feel the very essence of the communicative scene, catching the veiled meanings and true goals of the speaker, which, in turn, dramatically improves the effectiveness of interaction in a foreign language.

In the process of interaction between representatives of different cultures, communication barriers often arise caused by differences in their mentalities, which eventually leads to communication failures, misinterpretation of intentions, and even conflict situations. In this setting, empathy becomes the tool that helps to alleviate the severity of such problems. The opportunity to present oneself in the position of the interlocutor, taking into account his socio-cultural environment, gives a chance to react to unforeseen turns in the dialogue more adaptively and select the most effective strategies for mutual understanding. Consequently, empathy assumes the role of a kind of connecting link that overcomes cultural barriers.

From a learning perspective, developing students' empathy requires a systematic and organized approach. Within the framework of teaching foreign languages, this is facilitated by such techniques as analyzing situations of cultural value, studying authentic materials, replaying situations and roles, recreating communication models between representatives of different cultures, as well as using literary works and cinematography. Such activities activate the emotional response of students and motivate them to understand the emotions and life experiences of people from other cultural backgrounds.

It should be emphasized that empathy is not a given, inherent at birth and remaining unchanged; it is capable and designed to progress through education and training. The formation of empathic orientations among those who receive knowledge is facilitated by the creation of a learning atmosphere focused on the exchange of opinions, teamwork and respect for individuality. In this process, the teacher is assigned the task of not only communicating information, but also serving as an example of empathic behavior that can be perceived as a role model.

The influence of empathy on the formation of linguistic and cultural competence

Empathy is a central element in the process of assimilation of cultural aspects inherent in language, and serves as one of the defining conditions for the development of linguistic and cultural competence among those who comprehend a foreign language. The linguistic apparatus is never just a neutral tool *for the exchange of information: it is inextricably intertwined with culture, the cumulative historical path and the system of ideological orientations of the ethnic group that speaks this language. Thus, in order to capture the emotional tone of phrases, innuendos, irony, rules of politeness in communication and images characteristic of a given nation, the student needs the ability to mentally move into the position of another cultural subject and consider what is happening through his eyes.*

Mastering a foreign dialect poses one of the most difficult tasks for students: getting into hidden meanings that are not always pronounced explicitly. Humor, sarcasm, references to cultural realities, and well-established phrases are often based on attitudes and nonverbal codes common to native speakers, unknown to those who are just learning the language. In such a situation, emotional responsiveness (empathy) is able to make up for the lack of rigorous linguistic knowledge, relying on a sensual and intuitive understanding of the context of communication. A student who is able to empathize better reads the speaker's intent, captures the nuances of his emotional state and the peculiarities of his manner of communication, which significantly improves the quality of interlanguage interaction.

Empathy is also important in the process of mastering the rules of speech etiquette, which vary significantly between different cultures. Manners of courtesy, methods of demonstrating approval or protest, topics appropriate for conversation, and even the melodic characteristics of utterances — all this has its own cultural background. In the absence of empathic understanding, such discrepancies may seem alien or unclear, which often leads to communication failures. Empathy, on the other hand, helps us accept these differences as something natural, dictated by cultural peculiarities, and not as deviations from our usual patterns of behavior.

Experts involved in the study of intercultural education note that increasing the level of empathy plays a key role in the formation of what is called an "intercultural worldview." An intercultural worldview refers to a person's ability to understand that their own cultural point of view is conditional, and at the same time perceive another culture as a full-fledged, but isolated set of norms and values. Such an epiphany is a critically important step towards improving language and cultural proficiency, as it enables students to overcome the isolation of ethnocentrism and develop a more flexible and receptive attitude towards cultural diversity.

Significant progress in understanding this phenomenon has been achieved thanks to the concept of intercultural communicative competence developed by Michael Bayram. Within this framework, empathy is positioned as a key element of a position in relation to a foreign culture, being inextricably linked with such features as keen interest, open-mindedness and a focus on contact. According to the scientist himself, it is impossible to achieve the comprehensive development of intercultural competence without cultivating empathy, since it is she who lays the necessary affective and axiological foundation for the perception and recognition of differences in cultural systems.

Empathy also affects aspects of students' motivation, as well as their perception of learning a foreign language. The methodology, focused on developing empathy, promotes an increased interest in the culture of the State whose language is being studied, encouraging a more detailed and understandable mastery of educational content. If a student sees language primarily as a tool for establishing contact with other peoples and their traditions, rather than just an academic discipline, his academic zeal is strengthened and acquires a self-sufficient, internally motivated character.

In addition, empathy encourages the development of introspection, which occupies a significant place in the competence related to language and culture. The ability to analyze their own responses, beliefs, and established opinions enables students to understand exactly how their cultural background refracts the comprehension and interpretation of information in a foreign language. Such introspection helps to adjust the manner of communication and prevent misunderstandings caused by cultural differences.

In the field of education, the impact of empathy on the development of language and cultural skills becomes evident in the effectiveness of methods aimed at the emotional inclusion of students. Using original materials, analyzing real examples of communication, staging and discussing cultural differences form the basis for developing the ability to empathize. Such tools enable students not only to memorize information about language and culture, but also to transfer themselves into these communicative scenarios, which ultimately leads to a more lasting and long-term learning of the educational material.

Pedagogical conditions for the development of empathy in the process of language learning

In order for empathy skills to develop during the learning of a foreign language, it is necessary to provide a special pedagogical framework that stimulates the active involvement of students in communication taking place at an intercultural level. Empathy is not a spontaneous process; it develops through systematic educational work focused on recognizing the richness of different cultures and the *emotional and evaluative aspects of communication. In light of this, such teaching methods and approaches become important, which help to see the language being studied as a tool for transmitting cultural codes and individual meanings.*

The desire to effectively improve the ability to empathize justifies the use of techniques aimed at intensive exchange between different cultures. Such approaches include the study of authentic materials, saturated with elements characteristic of a particular culture.: These can be literary creations, articles in the press, fragments of conversations from the cinema, conversations in the format of interviews or other media products.

Referring to primary sources gives listeners the opportunity to immerse themselves in authentic communication scenarios, to notice how native speakers convey their feelings, views and deep beliefs. In the course of studying such materials, students master the skill of recognizing not only the direct meaning of what is said, but also their hidden emotional and cultural background, which is an integral part of the process of building their empathic understanding.

Scenarios and role-playing exercises play a significant role in developing the ability to empathize. When students model communicative scenarios related to intercultural interaction, they have the opportunity to temporarily assume the role of a participant in another culture in order to understand the specifics of his behavior, approaches to conversation and emotional responses. Such classes provide an opportunity not only to hone your language skills, but also to train the skill of considering a situation from the perspective of another individual, which, in turn, stimulates the development of both empathy and depth of understanding. Role-playing games that are based on reliable or frequently encountered cross-cultural contexts affecting the work or everyday sphere of communication bring the greatest benefits.

The joint discussion of issues of cultural importance opens up opportunities for the transmission of views and a deeper understanding of the differences between different cultures. During such interaction, students encounter different approaches and points of view, which forces them to defend their own position, while maintaining respect for the views of their opponents. This type of activity stimulates the development of the ability to critically analyze, while simultaneously cultivating the ability to empathize (empathy), because it is necessary to show tact towards the emotions and arguments of other participants in the conversation. It is essential to ensure a respectful and supportive environment for discussions, which is largely determined by the level of pedagogical professionalism of the teacher.

Accessing samples from the world of art and media provides a significant resource for building empathic abilities. Books, films, and documentaries open up the possibility for students to gain a deeper insight into the emotional and cultural sphere of those for whom the language is their native language, helping them understand the foundations of their actions and feelings they have experienced. Due to the emotional response that provokes a collision with artistic images, the ability to sympathize is activated and a closer emotional attachment to the culture being mastered is formed. The joint analysis of the analyzed material within the team greatly enhances this positive result and stimulates a common understanding of the nuances that distinguish different cultures.

The key point is to create a learning environment where sensitivity to cultural diversity and a critical approach to analyzing one's own ingrained cultural beliefs are actively encouraged. This atmosphere requires the rejection of any preconceived assessments and stereotypical ideas, insisting on recognizing the equal importance of all possible cultures. Students are required to feel secure when voicing their judgments and feelings, which, in turn, opens up ways for a genuine exchange of opinions and the development of the ability to empathize. It is necessary that educational activities focus not only on the assimilation of information, but also on the education of such beliefs that contribute to the achievement of mutual understanding between different cultures.

The teacher has a central function in shaping such an environment. He acts not only as a carrier of information, but also as someone who structures the dialogue between different cultures, facilitates the interaction of representatives of these cultures and serves as an example of an empathetic approach. The teacher's personal beliefs, the way he interacts with the audience, and his openness to exchanging opinions largely set the tone for the entire learning process. By showing respect for a foreign culture and sincere curiosity about existing differences, the teacher fosters similar orientations among students.

In addition, the teacher should systematically include tasks focused on the development of empathy in educational activities, linking them with the tasks of developing competence in the field of language and culture. The list of such activities may include exercises that stimulate introspection of feelings and responses that arise during intercultural interaction, as well as an analysis of the problems *and achievements associated with speaking a non-native language. This self-knowledge, in turn, helps to understand how important empathy is for productive communication.*

Therefore, the ability to empathize (empathy) is a key and indispensable element for the development of competence in the field of linguistic culture in the process of learning a foreign language. The analysis of theoretical positions and approaches to learning has demonstrated that effective mastery of a foreign language requires not only a deep awareness of the cultural realities encoded in it, but also the ability to take into account the emotional and evaluative nuances of communication with native speakers of another culture. In such a situation, empathy enables students to overcome the simple memorization of grammatical and lexical norms and begin to consider language as a dynamic tool for intercultural dialogue.

Mastering empathy opens the way to a more complete understanding of the cultural meanings implicitly present in lexical units, speaking patterns, and applied communicative approaches. The ability to sympathize and take into account the position of the interlocutor allows students to correctly read the emotional implications of phrases, the nuances of the rules of politeness in speech, comic techniques and distinctive ways of expression characteristic of this culture. Accordingly, this reduces the likelihood of mistakes in communication and leads to an improvement in the effectiveness of foreign language proficiency in a variety of socio-cultural situations.

The development of the ability to empathize is inextricably intertwined with an increased sensitivity to other cultures and an understanding that one's own perception of the world is conditioned by a specific cultural framework. Students who have developed empathy, show a great disposition towards the diversity of cultures, demonstrate tolerance and a desire for discussion. Such characteristics serve as key elements of mastery of the linguistic and cultural arsenal and are prerequisites for effective communication in a modern, globalized society where contacts with speakers of different cultures occur regularly.

The key point is to integrate techniques aimed at developing empathy into the learning process of foreign languages. The use of real, unadapted sources of information, the performance of tasks in the format of role-playing games and modeling of life situations, conducting debates, as well as analyzing works of art, words and multimedia content contribute to the fact that students immerse themselves deeper into the material emotionally and hone their ability to empathize. The formation of an educational atmosphere where mutual respect, trust and sincerity prevail, coupled with the proactive position of the teacher as a moderator of intercultural communication, promotes the consolidation of empathic guidance among students.

If the development of empathy is prioritized in teaching foreign languages, then the process of language acquisition itself ceases to be a work solely on communication skills, becoming a tool for the formation of a student's personality. Thanks to this vector, we train professionals who are ready for a full-fledged dialogue of cultures, realize the value of cultural pluralism and can act responsibly and with respect, actively and effectively participating in modern social and work communication.

References

1. Byram, Michael (1997). Teaching and assessing intercultural communicative competence. Clevedon: Multilingual Matters.

2. Hymes, Dell (1972). On communicative competence. In J. B. Pride & J. Holmes (Eds.), Sociolinguistics (pp. 269–293). Harmondsworth: Penguin Books.

3. Kramsch, Claire (1993). Context and culture in language teaching. Oxford: Oxford University Press.

4. Rogers, Carl (1983). Freedom to learn for the 80s. Columbus, OH: Charles E. Merrill Publishing Company.

5. Bennett, Milton (2013). Basic concepts of intercultural communication: Paradigms, principles, and practices. Boston: Intercultural Press.

6. Ter-Minasova, S. G. (2000). Language and intercultural communication. Moscow: Slovo. [Published in Russian]

7. Safonova, V. V. (2001). A sociocultural approach to teaching foreign languages. Moscow: Higher school. [Published in Russian]

8. Passov, E. I. (2010). A communicative method of teaching foreign language speaking. Moscow: Prosveshchenie. [Published in Russian]

9. Leontiev, A. A. (2005). Language, speech, and speech activity. Moscow: KomKniga. [Published in Russian]

10. *Hall, E. T. (1976). Beyond culture. New York: Anchor Books.*

Philological sciences

THE ROLE OF MASTER ASHIG HUSEYN SARACHLI IN THE DEVELOPMENT OF AZERBAIJANI ASHIK ART AND THE ASHIG SCHOOL IN BORCHALI

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РОЛЬ МАСТЕРА АШИГА ХУСЕЙНА САРАЧЛИ В РАЗВИТИИ АЗЕРБАЙДЖАНСКОГО АШИКСКОГО ИСКУССТВА И ШКОЛЫ АШИГОВ В БОРЧАЛИ

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AZƏRBAYCAN AŞIQ SƏNƏTİNİN və BORÇALI AŞIQ MƏKTƏBİNİN İNKİŞAFINDA USTAD AŞIQ HÜSEYN SARAÇLININ ROLU

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Abstract

The article examines the Borchali ashiq school, one of the most famous schools of Azerbaijani ashiq art in the 20th century. Information is provided about one of the greatest representatives of that school, the outstanding master of saz-words, Honored Cultural Worker of the Republic of Georgia Ashig Huseyn Sarachli (1916-1987), and his meaningful life path and rich creativity are studied. It is shown that the ancient Borchaly region, one of the most beautiful corners of the Caucasus, has historically been famous for its saz and word masters. It is no coincidence that the "Borchaly" saz melody, played on a koshma, was composed several centuries ago and has survived to this day as a memorization of languages. Our saz-word world, which has been growing since the past centuries to the present day, has dominated every inch and corner of Borchaly, has spread its feet and wandered from village to village, and continues to do so. As a result of this, our saz, rooted in Dede Gorgud, and our winged words, warmed by the breath of the "voice of the mouth" Ashiq Khindi Mammad, the "building-free" Poet Nabi, Huseyn Alkhasağa, Poet Agacan, Ashiq Gorani, Ashiq Novruz Tahleli, Hasan Majruh, Muhaqqar, Ashiq Musa Garachöplü, Ashiq Teymur, the "khan of love" Sadıg, the "heart-adorning, tongue-twirling" Gushchu Ibrahim..., the great double wing of our Ozan world - the "king of the sazin" Dede Amrah and Ustad Ashiq Huseyn Sarachli, have been enlivened by the voices, and the "eagle-winged" Ashiq Kamandar has conquered high peaks with his saz.

The article notes that Ustad Ashiq Huseyn Sarachlı had six children and fourteen disciples. He did not separate any of his disciples from his own children. Among them, Ahmad Sadakhli, Mahammad Sadakhli, Nuraddin Gasimli, Sadi Ulashli, Ashiq Murad and others were especially respected and selected among the people.

Ashiq Huseyn Sarachli was indispensable in the art of Azerbaijani ashiq not only for his beautiful playing and singing of saz, composing poems and songs, but also for creating new saz melodies and epics, as well as for performing those melodies and telling epics. He created the epics "Gizil Dastan", "Kerem Burjoglu", "Baghdat dubeyti", "Gurbeti-Kerem" and other saz melodies. The chapters "Bringing Zarnishan

Khanum to Chanlibela" and "Bolu Bey and Koch Koroglu" of the epic "Koroglu" were first written down in the narration of Ashiq Huseyn Sarachli.

Ashug Huseyn Sarachli writes about the past and present, the joy and sorrow, the pain and suffering, the historical heroism of our native Borchal, our patriotic and hospitable compatriots living here with great poetic mastery, as if he paints the mysterious beauties of our Borchal with a painter's brush.

As in classical ashug poetry, the motifs of love and affection are strong in Ashug Huseyn Sarachli. Understanding that life without love is empty and meaningless, the artist always called on his listeners to endure all kinds of suffering and pain in the path of love and affection. In his mukhamma "You Didn't Come", as well as in his songs such as "Yena", "Gelarem", "You Didn't Come", etc., the feelings of love that always elevate a person are clearly visible.

Ashiq Huseyn Sarachli was a sociable, steadfast, and reliable friend throughout his life. He did not call just anyone a friend. He considered friendship very sacred, so he called on people to be wise and prudent when choosing and finding a friend.

The late artist Ashiq Huseyn Saracli, who drew all his inspiration from the people and was immersed in the spirit of the customs and traditions of the people, also comes to life in the eyes of the people as a folklorist ashiq. In the spirit of the garaylis he wrote ("My Old Man", "Dede Shamkir", "Bulag", "Ele geder", etc.), folk creativity is beautifully felt. In the garaylis titled "Dağlarda", which he wrote in a simple and playful language, the people's migration from mountain to valley, the mood of the summer pastures, and the folk assemblies are beautifully depicted.

The four karavellis ("The Balding Kosa", "A Camel, a Fox, and a Goat", "Can the Tahne Be Tinned?" and "Sagaltmaq the Elephant"), which were cooked in "Ustad Kurasi", are as interesting, funny and thought-provoking as their sayings.

Huseyn Sarachly has always shown great interest in the genre of epics, which is widespread in ashug creativity. He knew well that telling epics is a more successful way to appeal to the artistic taste of the people at wedding and engagement parties, to talk about their historical heroes and great past. Therefore, Huseyn Sarachly had deeply assimilated our ancient heroic and love epics - "Asli and Kerem", "Koroglu", "Yusif and Zuleykha", "Gachag Nabi", etc., and had become their skilled performer. Ashiq Huseyn Sarachly was a unique artist in telling epics and conducting gatherings. He was such a powerful artist that he never told the epics he knew as they were. He always tried to sweeten the language of the epic, and sometimes even made beautiful additions to it when appropriate. In short, Ustad Ashik Huseyn Sarachli was, in the truest sense of the word, a creative ashik, a talented poet, and a master of his craft. He played a major role in the development of Azerbaijani ashug art and the Borchali ashug school.

Аннотация

В статье рассматривается школа ашика Борчали, одна из самых известных школ азербайджанского искусства ашика в XX веке. Представлена информация об одном из величайших представителей этой школы, выдающемся мастере игры на сазе, заслуженном деятеле культуры Республики Грузия Ашиге Хусейне Сарачли (1916-1987), а также изучены его значимый жизненный путь и богатое творчество. Доказано, что древний Борчалы, один из самых красивых уголков Кавказа, исторически славился своими мастерами саза и слова. Неслучайно мелодия «Борчалинского» саза, исполняемая на кошме, была сочинена несколько веков назад и сохранилась до наших дней как средство запоминания языков. Наш мир саза и слова, развивавшийся с прошлых веков до наших дней, охватил каждый уголок Борчал, распространился из села в село и продолжает это делать. В результате этого наш саз, укорененный в Деде Горгуде, и наши крылатые слова, согретые дыханием «голоса уст» Ашика Хинди Мамеда, «свободного от строительства» Поэта Наби, Гусейна Алхасагана, Поэта Агачи, Ашика Горани, Ашика Новруза Тахлели, Хасана Маджруха, Мухаккара, Ашика Мусы Гарачоплю, Ашик Теймур, «хан любви» Садыг, «сердцеукрашающий, вертящий язык» Гушчу Ибрагим..., великие двукрылые музыканты нашего мира Озана - «король сазина» Деде Амра и Устад Ашик Хусейн Сарачли - были вдохновлены этими голосами, а «орлинокрылый» Ашик Камандар покорил высокие вершины своим сазом.

В статье отмечается, что у Устада Ашика Хусейна Сарачлы было шестеро детей и четырнадцать учеников. Он не отделял своих учеников от своих детей. Среди них особо уважаемыми и избранными среди народа были Ахмад Садахли, Махаммад Садахли, Нураддин Гасимли, Сади Улашли, Ашик Мурад и др.

Ашик Хусейн Сарачлы был незаменим в искусстве азербайджанского ашика не только благодаря прекрасной игре и пению на сазе, сочинению стихов и песен, но и благодаря созданию

новых мелодий и эпосов для саза, а также исполнению этих мелодий и рассказыванию эпосов. Он создал эпосы «Гизиль Дастан», «Керем Бурджоглу», «Багдат Дубейти», «Гурбети-Керем» и другие мелодии для саза. Главы «Прибытие Зарнишан Ханум в Чанлибелу» и «Болу-бей и Коч Короглу» эпической поэмы «Короглу» были впервые записаны в повествовании Ашика Хусейна Сарачли.

Ашик Хусейн Сарачли пишет о прошлом и настоящем, о радости и горестях, о боли и страданиях, об историческом героизме нашего родного Борчала, о наших патриотичных и гостеприимных соотечественниках, живущих здесь, с большим поэтическим мастерством, словно рисуя таинственные красоты нашего Борчала кистью художника.

Как и в классической поэзии ашугов, мотивы любви и привязанности сильны в творчестве Ашика Хусейна Сарачли. Понимая, что жизнь без любви пуста и бессмысленна, художник всегда призывал своих слушателей переносить всевозможные страдания и боль на пути любви и привязанности. В его мукхамме "Ты не пришла", а также в таких песнях, как "Йена", "Геларем", "Ты не пришла" и др., отчетливо видны чувства любви, которые всегда возвышают человека.

Ашик Хусейн Сарачли на протяжении всей своей жизни был общительным, верным и надежным другом. Он не называл другом кого попало. Он считал дружбу священной, поэтому призывал людей быть мудрыми и осмотрительными при выборе и поиске друга.

Покойный художник Ашик Хусейн Сарачли, черпавший вдохновение от народа и погруженный в дух обычаев и традиций народа, также предстает перед людьми как фольклорист-ашик. В духе написанных им гарайли («Мой старик», «Деде Шамкир», «Булаг», «Эле гедер» и др.) прекрасно ощущается народное творчество. В гарайли под названием «Дагларда», написанном простым и игривым языком, прекрасно изображены переселение людей из гор в долины, настроение летних пастбищ и народные собрания.

Четыре каравелли («Лысеющий Коса», «Верблюд, лиса и коза», «Можно ли консервировать тан?» и «Сагальтмак, слон»), созданные в «Устаде Кураси», столь же интересны, забавны и заставляют задуматься, как и сами поговорки.

Хусейн Сарачлы всегда проявлял большой интерес к жанру эпосов, широко распространенному в ашугском творчестве. Он хорошо знал, что рассказывание эпосов - более успешный способ обратиться к художественному вкусу людей на свадебных и помолвочных торжествах, рассказать об их исторических героях и великом прошлом. Поэтому Хусейн Сарачлы глубоко усвоил наши древние героические и любовные эпосы - «Асли и Керем», «Короглу», «Юсиф и Зулейха», «Гачаг Наби» и др., и стал их искусным исполнителем. Ашик Хусейн Сарачлы был уникальным артистом в рассказывании эпосов и проведении собраний. Он был настолько талантливым художником, что никогда не рассказывал известные ему эпосы такими, какими они были на самом деле. Он всегда старался приукрасить язык эпоса, а иногда даже добавлял к нему прекрасные детали, когда это было уместно.

Короче говоря, Устад Ашик Гусейн Сарачли был, в самом истинном смысле этого слова, творческим ашиком, талантливым поэтом и мастером своего дела. Он сыграл важную роль в развитии азербайджанского искусства ашуг и борчалийской школы ашуг.

Xülasə

Məqalədə XX əsr Azərbaycan Aşıq sənətinin ən məşhur məktəblərindən olan Borçalı aşıq məktəbi araşdırılır. Həmin məktəbin ən böyük nümayəndələrindən olan, görkəmli saz-söz ustadı, Gürcüstan Respublikasının Əməkdar mədəniyyət işçisi Aşıq Hüseyn Saraçlı (1916-1987) haqqında məlumat verilir, onun mənalı həyat yolu və zəngin yaradıcılığı tədqiq olunur. Göstərilir ki, Qafqazın ən gözəl guşələrindən biri olan qədim Borçalı mahalı tarixən saz və söz ustaları ilə məşhur olmuşdur. Heç də təsadüfi deyil ki, hələ neçə əsrlər öncə qoşma üstündə çalınan "Borçalı" saz havası bəstələnmiş və dillər əzbəri olaraq bu günədək gəlib çatmışdır. Ötən yüzilliklərdən bəri çağdaş günümüzədək boylanan sazlı-sözlü dünyamız Borçalının hər qarışına, hər küncünə hakim kəsilmiş, ayaq açıb el-el, oba-oba dolanmış və dolanmaqdadır. Elə bunun nəticəsidir ki, Dədə Qorqudla köklənmiş sazımız, qanadlanan sözümüz ötən əsrin birinci yarısında "avazın loğmanı" Aşıq Xındı Məmmədin, "binadan bac verməyən" Şair Nəbinin, Hüseyn Alxasağanın, Şair Ağacanın, Aşıq Goraninin, Aşıq Novruz Təhləlinin, Həsən Məcruhun, Mühəqqərin, Aşıq Musa Qaraçöplünün, Aşıq Teymurun, "aşıqlığın xanı" Sadığın, "könüllər bəzəyən, dillər dolaşan" Quşçu İbrahimin... nəfəsilə isinmiş, Ozan dünyamızın azman qoşa qanadı - "sazin şahı" Dədə Əmrahın və Ustad Aşıq Hüseyn Saraçlının səsilə rövnəqlənmiş, "qartal qanadlı" Aşıq Kamandarın sazı ilə yüksək zirvələri fəth etmişdir.

Məqalədə qeyd olunur ki, Ustad Aşıq Hüseyn Saraçlının altı övladı, on dörd şəyirdi olmuşdur. Şəyirdlərinin heç birini doğma övladlarından ayırmamışdı. Onlardan Əhməd Sadaxlı, Məhəmməd Sadaxlı, Nürəddin Qasımlı, Sədi Ulaşlı, Aşıq Murad və b. el içində xüsusilə sayılıb seçilmişlər.

Aşıq Hüseyn Saraçlı təkcə gözəl saz çalıb-oxuması, şeirlər, nəğmələr qoşması ilə deyil, həm də yeni saz havaları və dastanlar yaratmaqda, eləcə də, həmin havaları ifa etməkdə və dastan danışmaqda da Azərbaycan aşıq sənətində əvəzsiz idi. O, «Qızıl dastan», «Kərəm Burcoğlu» dastanlarını, «Bağdat dubeyti», «Qürbəti-Kərəm» və s. saz havalarını yaradıb. «Koroğlu» dastanının «Zərnişan xanımın Çənlibelə gətirilməsi» və «Bolu bəy və qoç Koroğlu» qolları ilk dəfə məhz Aşıq Hüseyn Saraçlı söyləməsində qələmə alınıb.

Aşıq Hüseyn Saraçlı doğma Borçalımızın dünənini və bu gününü, sevincini və kədərini, acrı və acılarını, burada yaşayan yurddaşlarımızın, vətənpərvər və qonaqpərvər soydaşlarımızın tarixi qəhrəmanlıqlarını böyük bir poetik ustalıqla qələmə alır, sanki bir rəsam fırçası ilə Borçalımızın əsrarəngiz gözəlliklərinin rəsmini çəkir.

Klassik aşıq poeziyasında olduğu kimi, Aşıq Hüseyn Saraçlıda da sevgi, məhəbbət motivləri güclüdür. Məhəbbətsiz həyatın boş və mənasız olduğunu başa düşən sənətkar həmişə öz dinləyicilərini sevgi, məhəbbət yolunda hər cür əzab-əziyyətə qatlaşmağa çağırardı. Onun «Gəlmədin» müxəmməsində, eləcə də, «Yenə», «Gələrəm», «Gəlmədin» və s. kimi qoşmalarında daim insanı ucaldan məhəbbət duyğuları aydın görünür. Aşıq Hüseyn Saraçlı ömrü boyu sağlam ünsiyyətli, dəyanətli, etibarlı dost harayında idi. O, hər yetənə dost deməzdi. Dostluğu çox müqəddəs saydığından dostu seçərkən, onu taparkən insanları ağıllı və tədbirli olmağa çağırırdı.

Bütün ilhamını xalqdan alan, el-obanın adət-ənənəsi ruhuna qonan mərhum sənətkar Aşıq Hüseyn Saraclı adamın gözündə bir folklorçu aşıq kimi də canlanır. Onun yazdığı gəraylıların («Qocalığım», «Dədə Şəmkir», «Bulaq», «Elə gedər» və s.) ruhunda xalq yaradıcılığı gözəl duyulur. Sadə və oynaq dildə yazdığı «Dağlarda» adlı gəraylısında xalqın dağ-aran köçü, yaylaq ovqatı, el məclisləri çox gözəl göstərilib.

«Ustad kürəsi»ndə bişmiş Aşıq Hüseyn Saraçlının kitabında özünə yer tapmış dörd qaravəlli də («Keçəlnən kosa», «Dəvə, tülkü, bir də keçi», «Təhnə də qalaylanarmı?» və «Fil sağaltmaq»), deyişmələri kimi, bir-birindən maraqlı, gülməli və düşündürücüdür.

Hüseyn Saraçlı aşıq yaradıcılığında geniş yayılmış dastan janrına da həmişə böyük maraq göstərmişdir. O, yaxşı bilirdi ki, toy nişan məclislərində, ağır el yığnaqlarında xalqın bədii zövqünü oxşamaq, onun tarixi qəhrəmanlarından, ulu keçmişindən söhbət açmaq üçün dastan söyləmək daha uğurlu yoldur. Buna görə də, Hüseyn Saraçlı qədimdən bəri olan qəhrəmanlıq və məhəbbət dastanlarımızı - «Əsli və Kərəm», «Koroğlu», «Yusif və Züleyxa», «Qaçaq Nəbi» və s.-ni dərindən mənimsəmiş, onların mahir ifaçısına çevrilmişdi. Dastan danışmaqda, məclis aparmaqda Aşıq Hüseyn Saraçlı bənzərsiz sənətkar idi. O, elə güclü sənətkar idi ki, bildiyi dastanları heç vaxt olduğu kimi danışmazdı. Həmişə dastanın dilini şirinləşdirməyə çalışar, hətta yeri gələndə bəzən ona gözəl əlavələr də edərdi. Bir sözlə, Ustad Aşıq Hüseyn Saraçlı, sözün əsil mənasında, yaradıcı aşıq, istedadlı şair və nəğməkar sənətkar idi. Azərbaycan aşıq sənətinin və Borçalı aşıq məktəbinin inkişafında onun böyük rolu olmuşdur.

Keywords: *Azerbaijani ashiq art, Borchali ashiq school, Master Ashiq Huseyn Sarachli, masterwork, epic, deyishme, karavelli, goshma, garayli, tajnis, mukhammes*

Ключевые слова: *азербайджанское искусство ашика, школа ашика Борчали, мастер Ашик Хусейн Сарачли, шедевр, эпос, дейишме, каравелли, гошма, гарайли, таджнис, мухаммес*

Açar sözlər: *Azərbaycan aşıq sənəti, Borçalı aşıq məktəbi, Ustad Aşıq Hüseyn Saraçlı, ustadnamə, dastan, deyişmə, qaravəlli, qoşma, gəraylı, təcnis, müxəmməs*

Giriş

Bu gün böyük çətinliklərə mərdliklə sinə gərərək, yarım milyondan çox halal-hümmət və işgüzar soydaşımızın sabaha sonsuz inam və böyük ümid bəsləyərək şərəf və ləyaqətlə ömür sürdüyü, qədim saz-söz yurdu Borçalı mahalında neçə-neçə ustad aşıqlar, nəğməkar şairlər, istedadlı nasirlər, ədəbiyyatşünas alimlər, zəhmətkeş tədqiqatçılar, prinsipial tənqidçilər, qələmləri qılıncdan da kəsərli olan publisistlər, zəhmətkeş və həqiqətsevər jurnalistlər, dostluq carçıları olan bədii tərcümə ustaları və b. yaşayıb-yaradır, çağdaş ədəbiyyatımızın Borçalı qolunu layiqincə təmsil edir, Borçalı ədəbi mühitini gündən-günə zənginləşdirir, inkişaf etdirirlər. Onların bədii yaradıcılığı artıq nəinki Borçalıda, Gürcüstanda, həmçinin, onun hüdudlarını belə aşaraq, Azərbaycanda, hətta, son vaxtlar Türkiyədə, İranda, eləcə də, digər Şərq və Orta Asiya ölkələrində də oxucuların hörmət və rəğbətini qazanmışdır. Bu da *təsadüfi deyildir. Axı "ot kökü üstə bitər", - deyib ata-babalarımız... (Borçalı, Müşfiq. Çağdaş Borçalı ədəbi məktəbi. Bakı, "Azərbaycan" nəşriyyatı, 1994, 224 səh., səh. 5)*

Qafqazın ən gözəl guşələrindən olan qədim Borçalı mahalı tarixən saz və söz ustaları ilə məşhur olmuşdur. Heç də təsadüfi deyil ki, hələ neçə əsrlər öncə qoşma üstündə çalınan "Borçalı" saz havası bəstələnmiş və dillər əzbəri olaraq bu günədək gəlib çatmışdır. Elə bu gün də sinəsi el yaradıcılığı xəzinəsi ilə, qəlbi dürlü-dürlü sözlərlə dolu olan, qonaqpərvərliyi, mehribanlığı, istiqanlılığı ilə insan qəlbini xoş hisslərlə dolduran el ağsaqqalları, müdrik qocalar, "Biri varmış, biri yoxmuş...", - deyə qışın uzun gecələrində körpələri, yeniyetmələri, cavanları ətrafına toplayıb şirin-şirin nağıl söyləyən, həzin bir səslə bayatı oxuyan ağbirçək nənələr, tanıqlı söz sərrafları Borçalıda olduqca çoxdur. Dağ vüqarı, su saflığı, çiçək incəliyi olan bu insanların dilində neçə-neçə beşikbaşı laylalar, qatı açılmamış bayatılar, oxşamalar, tapmacalar, atalar sözləri və məsəllər, inamlar, inanclar, etiqadlar, yanıltmaclar, sayaçı sözlər, bir-birindən maraqlı nağıllar, bir-birindən şirin lətifələr, gülməcələr, yumorlar,unudulmuş el havaları, bir-birindən qədim xalq dastanları, həqiqət timsallı əfsanələr, bənzəri olmayan rəvayətlər, əlqərəz, saysız-hesabsız folklor nümunələri vardır... (Borçalı, Müşfiq. Toqqu nənə. "Gürcüstan" qəzeti, 29 mart, 1990)

Ədəbiyyatşünas alim, professor, şair-tərcüməçi Əflatun Saraçlının qeyd etdiyi kimi, "Türkiyədən Aşıq Şenlik, Göyçədən Aşıq Ələsgər kimi ustadların Borçalıya gəlişi, yerli aşıqlarla yığamat aparmaları da məhz bu mühitin öncüllüyü ilə bağlı idi". ("Ədəbiyyat qəzeti", 1992, N:7, s.7)

Ötən yüzilliklərdən bəri çağdaş günümüzədək boylanan sazlı-sözlü dünyamız Borçalının hər qarışına, hər küncünə hakim kəsilmiş, ayaq açıb el-el, oba-oba dolanmış və dolanmaqdadır. Elə bunun nəticəsidir ki, Dədə Qorqudla köklənmiş sazımız, qanadlanan sözümüz ötən əsrin birinci yarısında "avazın loğmanı" Aşıq Xındı Məmmədin, "binadan bac verməyən" Şair Nəbinin, Hüseyn Alxasağanın, Şair Ağacanın, Aşıq Goraninin, Aşıq Novruz Təhləlinin, Həsən Məcruhun, Mühəqqərin, Aşıq Musa Qaraçöplünün, Aşıq Teymurun, "aşıqlığın xanı" Sadığın, "könüllər bəzəyən, dillər dolaşan" Quşçu İbrahimin... nəfəsilə isinmiş, Ozan dünyamızın azman qoşa qanadı - "sazin şahı" Dədə Əmrahın və Ustad Aşıq Hüseyn Saraçlının səsilə rövnəqlənmiş, "qartal qanadlı" Aşıq Kamandarın sazı ilə yüksək zirvələri fəth etmişdir.

XX əsrin ikinci yarısında isə bu ənənəni Aşıq Əlixan Qarayazılı, Aşıq Əhməd Sadaxlı, Aşıq Məhəmməd Sadaxlı, Aşıq Göyçə, Aşıq Mustafa, Aşıq Sona, Aşıq Aslan Kosalı, Aşıq Sədi, Aşıq Nurəddin Qasımlı, Aşıq Qırxılı Hüseyn, Aşıq Vəkil, Aşıq Gülabı, Aşıq Ziyəddin və b. davam etdirmişlər.

Son illərdə isə Ozan dünyamız öz axarını Səadət Butanın, Aşıq Məsimin, Aşıq Muradın, Aşıq Təmeyxanın, Aşıq Raminin, Aşıq Səməndərin, Aşıq Tellinin, Aşıq Nargilənin, Aşıq Aidə Gülzarın, Aşıq Fərhad Əzizin, Aşıq Ataxanın, Aşıq Aşıq Əşrəfin, Aşıq Leyli Darvazlının və onlarca başqa sənətkarların timsalında tapmış, gül açıb güllənmişdir. Fərəhli haldır ki, onlar təkcə saz çalmaq məharətləri ilə deyil, eləcə də, söz qoşan yaradıcı aşıq-şairlər kimi şöhrət tapmışlar.

Bunu ustad aşıqlarımızın müxtəlif mətbuat orqanlarında, ədəbi məcmuə və toplularda dərc olunmuş əsərləri bir daha əyani şəkildə sübut edir. Həmin əsərlərlə, yəni Borçalı aşıqlarının yaradıcılığı ilə tanış olmaq üçün "Çeşmə" (Tbilisi, 1980), "Dan ulduzu" (Tbilisi, 1987, 1989, 1990), "Ağır elli Borçalı" (Bakı, 1990, Ərzurum 1997), "Dağlar dərdə düşsə..." (Marneuli, 1992), «Aşıq Pəri məclisi-20» (Bakı, 2004), «Ədəbi Gürcüstan» (Tbilisi, 2007), «Azərbaycan ədəbiyyatı antologiyası - Borçalı» (Bakı, 2008) ədəbi məcmuələrini, həmçinin, 1991-ci ildə Bakıda işıqüzü görmüş "Aşıq Pəri məclisi. Aşıqlar. El şairləri." Kitabının "Aşıqlar" bölməsini (1991), eləcə də, Musa Nəbioğlunun 2010-cu ildə Bakıda nəfis şəkildə işıqüzü görmüş "Ozan-Aşıq Dünyası. (Haqqa qovuşan aşıqlarımız)" foto-albomunu və s. vərəqləmək kifayətdir.

Folklorşunas alim Vaqif Vəliyev yazır: "Müharibədən sonra aşıqlığa başlayan, gözəl və təsirli qoşmaları ilə nəzər-diqqəti cəlb edən aşıqlardan Aşıq Əmrah, Aşıq Hüseyn Saraçlı, Aşıq Kamandar və b. təkcə klassik aşıq sənətini yaşatmaqla kifayətlənmir, eyni zamanda öz zəhmətləri ilə misilsiz qəhrəmanlıqlar göstərən əmək adamlarını tərənnüm edirlər". (Vəliyev, V. Azərbaycan folkloru. Bakı, 1985, səh. 179)

Müxtəlif rayonlardan müsabiqə yolu ilə seçilərək 150-dən çox sənətkarın dəvət olunduğu və 1961-ci il aprel ayının 27-də açılmış Azərbaycan aşıqlarının 3-cü tayından söhbət açan professor Paşa Əfəndiyevin "Azərbaycan şifahi xalq ədəbiyyatı" kitabında isə oxuyuruq: "Son illərdə aşıq sənətinin məqsədyönlü inkişafı, yeni-yeni istedadların meydana gəlməsi qurultayın səmərəli fəaliyyəti kimi qeyd edilməlidir. Hazırda aşıqlardan Əmrah Gülməmmədovun, Kamandar Əfəndiyevin, Hüseyn Saraçlının və başqalarının adları hörmətlə çəkilir. Onlar bu qədim sənətin ənənələrini yaşadır və inkişaf etdirirlər". (Bakı, «Maarif», 1981, səh. 360).

1984-cü il martın 19-da Bakıda açılmış Azərbaycan aşıqlarının 4-cü Qurultayında da Azərbaycanın müxtəlif bölgələrindən, həmçinin Dəmirqapı Dərbənddən və qədim Göyçədən gəlmiş aşıqlarla yanaşı, *Borçalıdan gəlmiş saz-söz ustaları da yaxından iştirak etmişlər. Aşıq Kamandar qurultayda məruzə ilə çıxış edərək aşıq sənətinin xəlqiliyindən, onun ideya-estetik mahiyyətindən, Aşıqlar Birliyinin gələcək vəzifələrindən və s. problem məsələlərdən danışmışdır. Qurultayda həmçinin aşıq məclisinin xalq arasında yayılması və sevilməsində Aşıq Əmrahın, Aşıq Hüseyn Saraçlının, Aşıq Kamandarın və başqalarının böyük və misilsiz xidmətlərindən söhbət açılmışdır. (Vəliyev, V. Azərbaycan folkloru, Bakı, 1985, səh, 231.)*

2002-ci il noyabrın 15-də Gütcüstan azərbaycanlılarının "Yeni yol" Birləşmiş İttifaqının təşəbbüsü ilə Tbilisi şəhərində Gürcüstan azərbaycanlılarının Mədəniyyət, İncəsənət və Aşıqlar Birliyinin təsis konfransı keçirilmişdir. Bunu özünün miqyası və sanbalı etibarı ilə Gürcüstan aşıqlarının II qurultayı da adlandırmaq olar. Çünki ilk dəfə 75 il bundan qabaq Lüksemburq şəhərində (indiki Bolnisi şəhəri) keçirilmiş Borçalı aşıqlarının birinci qurultayından sonra bu, Gütcüstan azərbaycanlıları sənət ustalarının ilk sanballı toplanışı idi. Tədbirdə Gütcüstanın azərbaycanlılar yaşayan bütün bölgələrindən aşıqlar, şairlər, mədəniyyət işçiləri, qonaqlar iştirak edirdilər.

Məclisi giriş sözü ilə Gütcüstan azərbaycanlılarının "Yeni yol" Birləşmiş İttifaqının sədri Kamal Muradxanlı açmışdır. O, tarixi tolantının iştirakçılarını, hörmətli qonaqları salamladıqdan sonra bu mühüm hadisənin əhəmiyyətindən danışmış, hər bir xalqın ictimai və mənəvi həyatında musiqinin, şeirin əhəmiyyətini və rolunu xüsusi vurğulamışdır. Gütcüstanda yaşayan və fəaliyyət göstərən azərbaycanlı aşıqlara xüsusi qayğı ilə yanaşıldığını, onların vaxtaşırı ali dövlət mükafatlarına layiq görüldüklərini faktlarla yada salan natiq onu da xüsusi qeyd etmişdir ki, bügünkü tədbirin də belə yüksək səviyyədə keçirilməsinə şərait və imkan yaradan iki dost ölkənin prezidentləri - Eduard Şevardnadzenin və Heydər Əliyevin apardığı müdrik siyasətə borcluyuq.

Sonra söz Gütcüstan azərbaycanlılarının Mədəniyyət, İncəsənət və Aşıqlar Birliyinin sədri Dərviş Osman Əhmədoğluna verilmişdir. O, hesabat dövrü ərzində Birliyin idarə heyətinin gördüyü işlər və keçirdiyi tədbirlər barədə geniş məruzə etmişdir.

Məruzə ətrafında müzakirələrdə Azərbaycan Respublikasının Gütcüstandakı fövqəladə və səlahiyyətli səfiri Hacan Hacıyev, Türkiyə Cumhuriyyətinin Gütcüstandakı böyük elçisi Fatma Dəclə Kopuz, Gütcüstan mədəniyyət nazirinin müavini Svetlana Ketsba, Bakıdan gəlmiş qonaqlardan - tanınmış folklorşünas alım Elxan Məmmədli və digər qonaqlar, aşıqlar, şairlər, folklor tədqiqatçıları çıxış etmiş, idarə heyətinin gördüyü işlərin zənginliyini və əhəmiyyətini vurğulamışlar. Konfransa göndərilmiş təbrik teleqramları oxunmuşdur.

Tədbir aşıqların, şairlərin, sənət adamlarının ekspromt-çıxışları ilə başa çatmışdır.

2005-ci ildə Bakıdakı "Şərq-Qərb" Nəşriyyatı tərəfindən 2 cildlik "Azərbaycan aşıq şerindən seçmələr" adlı kitab nəfis şəkildə çap olunaraq oxucuların ixtiyarına verilmişdir. Orta əsr və XIX yüzilliyin tanınmış el sənətkarlarından başlayaraq ta çağdaş dövrümüzün - bu günümüzün uctad aşıqlarına qədər böyük bir dövrü əhatə edən bu kitabda ozanlarımızın seçmə əsərləri, daha doğrusu dövrün, zamanın keşməkeşlərindən keçərək misilsiz poetik irsə çevrilmiş, xalqın mənəvi aləminin, bədii təfəkkürünün, estetik zövqünün zənginləşməsində müstəsna rol oynamış lirik incilər toplanmışdır. Böyük fəxrlə qeyd etməliyik ki, həmin kitabda Aşıq Ələsgər, Aşıq Rəcəb, Aşıq Qurban, Aşıq Mehdi, Padarlı Abdulla, Molla Cuma, Zodlu Usta Abdulla, Çoban Əfqan, Bozalqanlı Aşıq Hüseyn, Aşıq Səməd, Xəyyat Mirzə, Göyçəli Aşıq Musa, Aşıq Şəmşir, Aşıq Hüseyn Cavan də başqaları ilə yanaşı Ulu Borçalımızın Uctad aşıqlarından olan Xındı Məmməd, Aşıq Hüseyn Saraclı, Aşıq Kamandar və başqaları kimi neçə-neçə ustadlarımızın, el aşığının, el şairinin gəraylıları, qoşmaları, təcnisləri, divaniləri, müxəmməsləri, bayatıları daxil edilmişdir.

Bu yerdə sevimli Xalq şairimiz Zəlimxan Yaqubun aşağıdakı sözləri yada düşür: "İlk dəfə qulaqlarım səs eşidən gündən anamın laylasına sazın zümzüməsi qarışıb. Mən, demək olar ki, Aşıq Şenliyin, Aşıq Sadığın, Şair Nəbinin, Şair Ağacanın, Əmrahın, Hüseyn Saraçlının, Aşıq Kamandarın sazı-sözü ilə dünyaya göz açmışam". (Yaqub, Zəlimxan. Biz bir eşqin butasıyıq. Bakı, "Yazıçı", 1989, səh.5)

Bu və digər kitabları vərəqlədikcə bir daha görürük ki, doğrudan da, xalq arasından çıxmış, xalqdan öyrənmiş, şifahi ədəbiyyatımızın zəngin irsindən bəhrələnmiş, keçmiş adət və ənənələrə sadiq qalıb, onun yaxşı cəhətlərini yaşadan, el-obanın toy-düyünündə şənlik məclisləri açan mahir saz və söz ustalarından Aşıq Əmrah, Hüseyn Saraçlı, Aşıq Kamandar və b. şifahi və yazılı folklorumuzu yaradan, öz şeir və qoşmaları ilə onu daha da zənginləşdirən sənətkarlardandır.

Biz də bu məqaləmizdə bir daha Borçalı aşıq məktəbini araşdırmış, XX əsr Azərbaycan Aşıq sənətinin ən böyük və ən məşhur nümayəndələrindən olan, görkəmli saz-söz ustadı, Gürcüstan Respublikasının Əməkdar mədəniyyət işçisi Aşıq Hüseyn Saraçlının (1916-1987) zəngin həyat və yaradıcılığını tədqiqta cəlb etmişik.

Tədqiqat

Aşıq Hüseyn Saraçlı 1916-cı ildə qədim Borçalı mahalının Bolulus bölgəsində, indiki Gürcüstanın indiki Bolnisi rayonundakı Saraçlı kəndində tanınmış el ağsaqqalı Qurban ağanın ocağında dünyaya göz açmışdır. O, hələ kiçik yaşlarından saz-söz sənətinə meyl göstərmiş, əvvəlcə Saraçlı Aşıq İsmayılın şagirdi olmuş, sonra isə Borçalının azman sənətkarlarından olan Aşıq Quşçu İbrahimin, Saraçlı şair Hüseynin və Faxralı şair Nəbinin kamilləşmiş, Şair Ağacandan, Qul Allahquludan, Aşıq Bayramdan və Borçalının başqa şair və aşıqlarından mükəmməl dərs almışdır. Elə o vaxtdan da el-el, oymaq-oymaq gəzmiş, Borçalıda, Göyçə mahalında, Dəmirqapı Dərbənddə, Bakıda, Naxçıvanda, Şirvanda, Muğanda, Qarabağda, Azərbaycanın daha bir sıra rayonlarında, Qırğızıstanda, Özbəkistanda, Türkmənistanda ağır məclislər yola salmışdır. Özünün hələ sağlığındaykən dediyi kimi, hər dəfə də məclis əhli ilə üz-üzə gələndə mənən cavanlaşıb. Necə deyərlər, yorğunluğu bir növ rahatlıq olub. Həmişə də 11 telli sazını sinəsinə sıxıb, «Aşıq el anasıdı, gərək həmişə elin içində olsun», - söyləyib. İstedadlı alim-jurnalist bacımız Şərəf xanım Cəlilli demiş, Aşıq Hüseyn on dörd şəyirdi ilə sazı sinəsinə sıxanda qışın qarında-boranında Qaraqayada gül bülbülü, bülbül gülü çağırırdı...

Ustad Aşıq Hüseyn Saraçlının altı övladı, on dörd şəyirdi olmuşdur. Allah ona üç oğul (İsfəndiyar, Abbas, Əli), üç qız (Şəhriyar, Zərnigar, Mehriban) övladı vermişdi. Amma Ustad Aşıq Hüseyn Saraçlı şəyirdlərinin heç birini doğma övladlarından ayırmamışdı. Onlardan Əhməd Sadaxlı, Məhəmməd Sadaxlı, Nürəddin Qasımlı, Sədi Ulaşlı, Aşıq Murad və b. el içində xüsusilə sayılıb seçilmişlər.

Aşıq Hüseyn Saraçlı, sözün əsl mənasında, yaradıcı aşıq-sənətkar idi. O, təkcə gözəl saz çalıb-oxuması və nəğmələr, şeirlər qoşması ilə deyil, həm də yeni saz havaları və dastanlar yaratmaqda, eləcə də həmin havaları ifa etməkdə və dastan danışmaqda da Azərbaycan aşıq sənətində əvəzsiz idi. Aşıq Hüseyn Saraçlı «Qızıl dastan», «Kərəm Burcoğlu» dastanlarını, «Bağdat dubeyti», «Qürbəti-Kərəm» və s. saz havalarını yaradıb. «Koroğlu» dastanının «Zərnişan xanımın Çənlibelə gətirilməsi» və «Bolu bəy və qoç Koroğlu» qolları ilk dəfə məhz Aşıq Hüseyn Saraçlı söyləməsində qələmə alınıb.

Görkəmli Xalq şairimiz, tanınmış professor Bəxtiyar Vahabzadə yazır: «Bir neçə dəfə Aşıq Hüseyn Saraçlının söylədiyi dastanları dinləmişəm. Xüsusən Aşıq Ələsgərin Gəncə səfərini ustad aşıq elə bədii və obrazlı danışır ki, vəziyyət teatr tamaşası kimi gözümüzün qarşısında canlanır. Elə bil gözəl bir operaya baxırsan. Bu operanın rejissoru da o özüdür, dirijoru da, ifaçısı da, müşayiət edəni də. Eyni zamanda o, həm libretto müəllifidir, həm də bəstəkar... Məsələnin əsl tərəfi aşığın danışığındakı deyim tərzindəki təbiilik və səmimilik, şirinlik və gözəllikdir. Onun dilindəki «Bizi borana qırdırma», «A çıran keçsin», «Ağzı qırqovullu gəlmisən», «Yel vurub yengələr oynayır», «Ağzımı boza vermə» kimi xalq deyimləri təbii olduğu qədər obrazlı, obrazlı olduğu üçün də dəqiqdir, təsirlidir».

Bu «Gəlimli-gedimli dünya, son ucu ölümlü dünya»-ya qədəm qoyan gündən şifahi xalq ədəbiyyatımızın söz xəzinəsinə öz töhfəsini bəxş edən Aşıq Hüseyn Saraçlı yüzlərlə şeir, qoşma, təcnis, gəraylı, müxəmməs, dodaqdəyməz, qıfılbənd və onlarla dastanın müəllifidir. Onun ilkin tədqiqatçılarından olan Süleyman Əfəndi (Süleyman Süleymanov) sənətkarın 60 illik yubiley təntənələrində ona «Gürcüstanın Əməkdar mədəniyyət işçisi» fəxri adı veriləndə, nəinki onun haqqında bədii-sənədli kinofilmə ssenari yazıb Gürcüstan televiziyasının mavi ekranında aşığa şöhrət qazandırmış, həmçinin ustad aşığın hələ sağlığındaykən külliyyatını toplayıb ədəbiyyatşünas-alim, şair Əflatun Saraçlının redaktorluğu ilə «Yazıçı» nəşriyyatına təqdim etmişdir. Şeirlərindən nümunələr «Çeşmə» (1980), «Dan ulduzu» (1987, 1989, 1990), «Ağır elli Borçalı» (Bakı, 1990; Ərzurum, 1996), «Aşıq Pəri məclisi. Aşıqlar. El şairləri» (Bakı, «Yazıçı», 1991) ədəbi məcmuələrində, «Azərbaycan» jurnalında və bir sıra dövri mətbuat orqanlarında, xüsusilə də «Cürcüstan» (əvvəllər «Sovet Gürcüstanı») və «Bolnisi» (əvvəllər «Qələbə bayrağı») qəzetlərində işıq üzü görmüş, «Mən», «Sazım», «Xalqımızın», «Olmaz-olmaz», «Gözəldir» və s. kimi şeirləri neçə-neçə illərdən bəri dillər əzbəri olan ustad sənətkarımız Aşıq Hüseyn Saraçlının ilk kitabı - «Şeirlər, söyləmələr» nəhayət ki, yalnız ölümündən beş il sonra, 1992-ci ildə Bakıda «Yazıçı» nəşriyyatı tərəfindən oxucuların ixtiyarına verilmişdir.

Redaktorun «Ön söz»də qeyd etdiyi kimi, bu kitab ustadın yaradıcılığını tam əhatə etməsə də, mərhum sənətkarın sənət xəzinəsindən insanlara yadigar qalmış bir çələngdir. Qocaman el sənətkarının qoşma, gəraylı, divani, müxəmməs və deyişmələriylə yanaşı, onun el-oba məclislərində, şənliklərdə, radio və televiziya verilişlərində söylədiyi qaravəllilərin, maraqlı əhvalatların və folklorumuzun incilərindən sayılan dastanların da daxil edildiyi həmin çələng ustadın «Addanıram mən» şeiri ilə açılır:

Əlimə alanda sədəfli sazı,
Elə bil səfərə atdanıram mən.
Gah Koroğlu kimi çəkirəm nərə,

Gah da Kərəm kimi oddanıram mən.

Arzular ürəkdə qol-qanad atır,
Nəğməli sinəmdə yüz dastan yatır.
Elə ki sevənlər muraza çatır,
Sevincə bürünüb şaddanıram mən.

Əzəldən bir şirin dilə vuruldum,
Sazımda səslənən telə vuruldum.
Bu doğma obaya, elə vuruldum,
Hüseyn Saraçlı addanıram mən.

Kitabdan da göründüyü kimi, ustad sənətkar təkcə klassik aşıq poeziyasının ifaçısı deyildi, o, həm də bir çox gözəl, oynaq, axıcı, təsirli qoşmalar, gəraylılar, müxəmməslər müəllifi idi. O, bu Zirvəyə heç də asanlıqla nail olmadığını, bu Zirvəyə qalxan yolların, xüsusilə də sənət və zəhmət yollarının çətin, mürəkkəb və müxtəlifliyini öz şeirlərində dönə-dönə vurğulayır:

Aman lələ, tanıyıram yolları,
Bu yol mənə ərən yolu, ər yolu.
Biri xeyrə, biri şərə çağırar,
Allah yolu, iblis yolu, şər yolu.

Nəyə lazım sandıq dolu xəzinə?
Qızıl üstə qızıl ilan gəzinə.
Mən düşmüşəm həqiqətin izinə,
Gərək deyil sərvət yolu, zər yolu.

Hər bir kəsin əməli var, işi var,
İştahı var, tamahı var, dişi var,
Aşiqlərə meydan verən kişi var,
O göstərər bəndəsinə hər yolu.

Saraçlıyam, yaralarım bitişər,
Can bağında şux bülbüllər ötüşər.
Bir gün gedib Yaradana yetişər,
Sənət yolu, zəhmət yolu, tər yolu.

Aşıq Hüseyn Saraçlı daha sonra isə özünü oxucuya belə təqdim edir:

Məni ulu dərgahına çağıranda ol Xuda,
Dedi, gərək qonağını dilləndirə, oxuda,
Ağam gəldi, mətləb aldım, mətləb verdim yuxuda,
Məhəbbətin dəftəriyəm, sevginin kitabıyam.

Doğma elim Borçalıdı, Saraçlı kəndim mənim,
İtməz huşum, çaşmaz ağlım, pozulmaz zəndim mənim,
Telli sazdı uçmaz qalam, dağılmaz bəndim mənim,
Özüm ulu, yaşım qədim, min ilin hesabıyam.

Bu, eləcə də «Dünyada», «Görmüşəm», «Gərək», «Sayır» və s. şeirləri Aşıq Hüseyn Saraçlının sözün əsil mənasında layiqli sənətkar - saz-söz ustası olmasını sübut edir. Şair-aşığın xalq ruhlu bu qoşmalarında, gəraylılarında, müxəmməslərində saza, sözə hörmət, el-obaya, insanlara məhəbbət, yurd sevgisi, vətənpərvərlik və dostluq duyğuları həvəslə tərənnüm olunur.

Aşıq Hüseyn Saraçlı doğma Borçalımızın dünənini və bu gününü, sevincini və kədərini, acrı və acılarını, burada yaşayan yurddaşlarımızın, vətənpərvər və qonaqpərvər soydaşlarımızın tarixi *qəhrəmanlıqlarını böyük bir poetik ustalıqla qələmə alır, sanki bir rəsam fırçası ilə Borçalımızın əsrarəngiz gözəlliklərinin rəsmini çəkir:*

Qan-qan deməz, can-can deyər, dosta verər canını,
Dodağımda çiçək açıb, dilimdədi Borçalı.
Min illərdi ürəyimdə yaşadıram saz kimi,
Barmağımda, mizrabımda, telimdədi Borçalı.

Tarix yazan mürəkkəbdi, dastan yazan qələmdi,
Sevinci az, kədəri çox, daşıdığı ələmdi,
Bu yollarda mən Kərəməm, o da mənim Lələmdi,
Ocağımda, atəşimdə, külümdədi Borçalı.

Gör nə qədər odu sönmüş odumdan od apardı,
Dəyişdirdi adımızı, adımdan ad apardı,
Mən səpdim, mən becərdim, mən biçdim, yad apardı,
Başı üstə zalımlar var, zülümdədi Borçalı.

Ağrılarda, azarlarda canı sökülüb gedir,
Zamanından tez qocalır, qəddi bükülüb gedir,
Ovcumuzda tutammırıq, qumtək tökülüb gedir,
Ürək edib deyəmmirəm, əlimdədi Borçalı.

Quranın ayəsi kimi müqəddəsdi, müqəddəs,
Hər gün Borçalı deyir içərimdən gələn səs,
Aşıq Hüseyn Saraçlıya həmi candı, həm nəfəs,
Dua kimi axşam-səhər, dilimdədi Borçalı.

Klassik aşıq poeziyasında olduğu kimi, aşıq Hüseyn Saraçlıda da sevgi, məhəbbət motivləri güclüdür. Məhəbbətsiz həyatın boş və mənasız olduğunu başa düşən sənətkar həmişə öz dinləyicilərini sevgi, məhəbbət yolunda hər cür əzab-əziyyətə qatlaşmağa çağırardı. Onun «Gəlmədin» müxəmməsində, eləcə də «Yenə», «Gələrəm», «Gəlmədin» və s. kimi qoşmalarında daim insanı ucaldan məhəbbət duyğuları aydın görünür.

Məhəbbət dərdinə dərman diləsə,
Məcnun tək dağları gəzərəm yenə -
- deyən ustad sənətkar oda düşüb atəşlərdə yansa belə, bu haqq yolundan əl çəkməyəcəyini söyləyirdi. O, məhəbbətə, gözəlliyə Məcnun tək vurulduğunu «Gələrəm» rədifli qoşmasında belə bildirirdi:

...Doymamışam məhəbbətdən, gözəldən,
Gözəlliyin aşiqiyəm əzəldən.
Payız vaxtı üşüyəndə xəzəldən,
İsinməyə ocağına gələrəm.

Saraçlıyam, talasan da canımı,
Atəşlərə qalasan da canımı,
Cəllad olub sən alsan da canımı,
Cənnət deyib qucağına gələrəm.

Ustad aşığın «Görmüşəm» şeirində isə oxuyuruq:

Yoxdur əzəlindən ömrün vəfası,
Çox boşalıb, çox da dolan görmüşəm.
Əlvan bənövşəli, laləli, çöllü,
Xəzəl olub birdən solan görmüşəm.

Aşıq Hüseyn Saraçlının «Olmaz-olmaz» sərlövhəli şeiri neçə illərdir ki, Borçalı gənclərinin təlim-tərbiyyəsinə əhəmiyyətli dərəcədə böyük təsir göstərir:

Halal tut mayanı həmişə, oğul,
Haramlıqla dövlət-mal ola bilməz.
Əyri gözlə baxsan özgə şanına,
Boş qalar pətəyin, bal olmaz-olmaz.

Mərifətlə giriş tutduğun işə,
Söz gərək ağızdan çıxmamış bişə.
Bağında gül-çiçək bitər həmişə,
Tikan yarpağından gül olmaz-olmaz.

İbrət götür Saraçlının sözündən,
Müxənnətlər düşər elin gözündən.
Pəhləvan olsan da, demə özündən,
Hər güləşən Rüstəm-Zal olmaz-olmaz.

Sevimli Xalq şairimiz, tanınmış ictimai xadim, Azərbaycan Aşıqlar Birliyinin sabiq sədri mərhum Zəlimxan Yaqub ölməz sənətkarı «Ulu ozan» adlandırmış, «Həyatıma xoş gəldin, Ozanlar ozanı! Dədələr sirdaşı, lələlər yoldaşı, igidlər qardaşı!» - söyləmiş, onun haqqında «Hüseyn Saraçlı dastanı» (Bakı, «Pedaqogika», 2007) adlı olduqca sanballı və dəyərli bir kitab yazmış və nəfis şəkildə nəşr etdirmişdir. Həmin kitabda oxuyuruq:

«Qadir Allah elə bil ki, Aşıq Hüseyn Saraçlını bu dünyaya hazır aşıq libasında gətirmişdi. Uca boyu, düz qəddi, incə beli, enli kürəyi, şəvə, qara eşmə bığları, səliqəli, gümüşü saçları, çopura çalan qara sifəti, açıq alnı, qonur gözləri, incə yerişi, ağayana duruşu, turşməzə, baldan şirin danışığı, buxara papağı, salama, gümüş kəməri, par-par parıldayan qara, xrom çəkməsi, Trabzon tütünündən dolu tənbəki qutusu - hamısı bir yerdə ona xüsusi yaraşıq və gözəllik verirdi. Özü demişkən, ilahinin əlinin boş, meylinin xoş vaxtına düşüb kişilərin gözəli kimi onu qüdrət qələminnən çəkmişdi. Allahın əziz bəndəsiydi. Tanrı onu xoş gündə, xoş saatda dünyaya gətirmişdi... Ona görə də ozanların, ustadların getdiyi yolun yolçusuna çevriləndə Allaha doğru əl açdı, sözünü dedi. Allah da ondan bir sənətkar kimi heç nəyi əsirgəmədi.»

Tanınmış tədqiqatçı Kərəm Nəbiyevin «Borçalı» jurnalının 1994-cü il birinci sayında dərc etdirdiyi «Onun haqqında az-çox bildiklərimdən» sərlövhəli məqaləsində qeyd etdiyi kimi, Hüseyn Saraçlı sənətində bir sufilik yönümü də var. Axı, hələ XIII əsrdə yaşamış sufi şair Mövlanə Cəlaləddin Rumi, onun yolçularından Yunis İmrə, Nəsimi insanların ruhunu, əməlini hər cür çətinliklərdən təmizləməyin və onların haqqa, ilahiyə yaxınlaşmasının bir yolunu da musiqidə və onun təranələri altında qəzəl və qəsidələrin oxunmasında görürdü. Təsadüfi deyildir ki, XVI-XVIII yüzillərdə sufilərin mövləviyyə qolundan faydalanan bir çox sənətkar aşıqlar incidilsələr də, sufi aşıq kimi tanınmış, böyük ad-san qazanmışdılar. Aşıq Hüseyn Saraçlı da məhz belə yolun yolçularından idi. O, «Dünyada» qoşmasında deyir:

Yemək dostu bil ki, nanı itirər,
Şöhrət dostu başa qaxınc gətirər.
Ürək dostu mətləbini bitirər,
Dar günündə verər canı dünyada.

Aşıq Hüseyn Saraçlı ömrü boyu sağlam ünsiyyətli, dəyanətli, etibarlı dost harayında idi. O, hər yetənə dost deməzdi. Dostluğu çox müqəddəs saydığından dostu seçərkən, onu taparkən insanları ağıllı və tədbirli olmağa çağırırdı:

Ürək dostu tək-tək olar dünyada,
Yaxşı dostu seçən hanı dünyada.
Yaxşı dostun ürəyimdə yeri var,
Bekar dostun nə çox sanı dünyada.

Yazıçı Əzim İsmayıllı yazır: «...Dostluq və yoldaşlıqda sədaqətli, sənətdə isə təvazökar olan Aşıq Hüseyn Saraçlı heç vaxt, heç kəslə kin saxlamaz, həmişə qarşısındakı adama və ya sənətkara üstünlük verməyə çalışardı. Şahidi olduğum bir hadisəni xatırlamaq yerinə düşərdi. «Çeşmə» ədəbi məcmuəsinin «El sənətkarları» bölməsində Aşıq Hüseyn Saraçlı birinci, Aşıq Əmrah Gülməmmədov isə ikinci verilmişdir. Aşıq Hüseyn təkid etdi ki, gərək Aşıq Əmrah birinci veriləydi, mən ikinci. Ustad Əmrah cavab verdi ki, əgər saz-söz olsaydı, əlbəttə, mən öndə getməliydim. İndi ki, söhbət söz-sazdan gedir, sənin sözünə-kəlamına kim nə deyə bilər? Bax, beləcə Borçalının iki sənət dühası bir-birinin könlünü alıb, mənim də xətrimə dəymədilər. Aşığın hazırcavablığına, sözü yerində sərrast deməsinə, ən qarışıqlı məclisi bir kəlmə ilə ələ almasına, yalnız Borçalının deyil, Azərbaycan və dünya aşıq sənəti bilicilərinin söz xəzinəsini sinədəftər etməsinə kimin şübhəsi ola bilərdi...»

Bütün ilhamını xalqdan alan, el-obanın adət-ənənəsi ruhuna qonan mərhum sənətkar Aşıq Hüseyn Saraclı adamın gözündə bir folklorçu aşıq kimi də canlanır. Onun yazdığı gəraylıların («Qocalığım», «Dədə Şəmkir», «Bulaq», «Elə gedər» və s.) ruhunda xalq yaradıcılığı gözəl duyulur. Sadə və oynaq dildə yazdığı «Dağlarda» adlı gəraylısında xalqın dağ-aran köçü, yaylaq ovqatı, el məclisləri çox gözəl göstərilib:

Köç eyləyər yenə aran,
Haray qopar bu dağlarda.
Neçə məclis, neçə külfət
Çadırlanar bu dağlarda.

Kəkliklər ötər yazınan,
Bülbül ötər avazınan,
Saraçlı da öz sazıynan
Qanadlanar bu dağlarda.

Ustad sənətkarın kitabında özünə yer tapmış divanilərdən «Çəkər» xüsusilə maraqlıdır:

Adam var ki, insan kimi
Yaşamağa can çəkər,
Əyri yoldan üzü dönməz,
Doğru yolda qan çəkər.

Adam var ki, heç açılmaz
Başı dava-şavadan.
Desələr ki, nanəcibsən,
And üçün Quran çəkər...

Hüseyn Saraçlının yaradıcılığında aşıq poeziyasının çox maraqlı və geniş yayılmış qollarından olan deyişmə də diqqəti cəlb edir. Onun Aşıq Şəmşirlə, türk aşığı, ladiqarstanlı İslamla, istanbullu Qul Mehdi ilə, həmyerliləri Əflatun Saraçlı və Nizami Saraçlı ilə, kəlbəcərli Dəmirçi Abbasla deyişmələri aşığın bir ustad kimi bacarığını, istedadını, dünyagörüşünü və biliyini tamam-kamal aşkar edir.

Əvvəlcə Aşıq Hüseyn Saraçlının Aşıq Şəmkirlə deyişməsinə diqqət yetirək:

Aşıq Hüseyn Saraçlı:
Havalandı dəli könlüm,
Kəlbəcərdə, Dədə Şəmşir!
Qocalırsan, necə dözüm,
Belə dərdə, Dədə Şəmşir!

Aşıq Şəmşir:
Yeriniz var göz üstündə,
Kəlbəcərdə, ay Saraçlı!
Arxamızda zirvələr var,
Düşmə dərdə, ay Saraçlı!

Aşıq Hüseyn Saraçlı:
İnsanlıqda mehirlisən,
Aşıqlıqda sehirlisən,
Səməd Vurğun möhürlüsən,
Huşda, sərdə, Dədə Şəmşir!

Aşıq Şəmşir:
Şər işlərdə izimiz yox,
Yerə düşən sözümüz yox,
Sənətkarıq, gözümüz yox,
Pulda, zərdə, ay Saraçlı!

Aşıq Hüseyn Saraçlı:
Bu dünyada möhlət azdı,
Xudam özü belə yazdı,
Umudumuz telli sazdı,
Belə yerdə, Dədə Şəmşir!

Aşıq Şəmşir:
Eşqi qəlbimin təpəri,
Borçalıdan ver xəbəri,
Qoy ucalsın «Süsənbəri»,
Pərdə-pərdə, ay Saraçlı!

Aşıq \Hüseyn Saraçlı:
Borçalı bir ağır eldi,
Saz qanımda daşan seldi,
Oylaqları Çənlibeldi,
Mərddi mərdə, Dədə Şəmşir!

Aşıq Hüseyn Saraçlı deyişmələrində qıfılbənd, bağlama, ustadnamə, dodaqdəyməz, hərbəzorba kimi çeşidli şeir növlərini ustalıqla işləmiş və deyişmə zamanı üstünlüyünü heç vaxt əldən verməmişdir. Həmin deyişmələrdən başqa birinə nəzər yetirək.

Aşıq İslamın:
Cəbrin zindanında zira dəst olan,
Çarxın çəpərindən keçməyən bilməz.
Yetən olmaz od mövlanın sirrinə,
Fanidən baqiyə keçməyən bilməz.

-sözlərinə görün Aşıq Hüseyn Saraçlı necə cavab verib:

Kim deyər şirindi, kim deyər acı,
Eşqin badəsini içməyən bilməz.
Kim deyər asandı, kim deyər çətin,
Ustad kürəsində bişməyən bilməz.

Ustad Aşıq Hüseyn Saraçlının doğma eloğlusu, tanınmış şair Nizami Saraçlı ilə 1985-ci ildə qələmə alınmış deyişməsi də olduqca maraqlıdır:

Şair Nizami Saraçlı:
Yetmişində qırğı kimi ötən dost,
Fikir vermə bu dünyada yaşa sən.
Bel bükülməz, diz titrəməz, əl əsməz,
Bundan belə yetmiş il də yaşasan.

Aşıq Hüseyn Saraçlı:
Bağban gülər bağçasıyla, bağıyla,
Borclu olma ömürə sən, yaşa sən.
Zülmü boğdum çarığımın bağıyla,
Dərdim yoxdur yetmiş il də yaşasam.

Şair Nizami Saraçlı:
Ötən günə çox deyibsən qar, a qar,
Dağ başında mehman olub qara qar.
Baxtımıza qoy yağmasın qara qar,
\Bu sinində dözəmməzsən yaşa sən.

Aşıq Hüseyn Saraçlı:
Mən itirdim tər yanağı, tər gülü,
Qoy sulasın yanağın da tər, gülü.
Üzdə solar, içdə açar tər gülü,
Bənzəyirik quruya mən, yaşa sən.

Şair Nizami Saraçlı:
Sən itirdin, mən də tapdım, yarıyıq…
İkimiz də Saraçlının yarıyıq.
Nəyin vardı yarı payla, yarı yığ,
Eh, məni də qocaldacaq yaş asan…

Aşıq Hüseyn Saraçlı:
Saraçlıyam, könlün mənə imrəndi,
İmrən bala, imrən quzum, imrən di.
Məndə bu saz, səndə qələm imrandil,
Mən qocaldım, bunnan belə yaşa sən.

Bəli, «Ustad kürəsi»ndə bişmiş Aşıq Hüseyn Saraçlının kitabında özünə yer tapmış dörd qaravəlli də («Keçəlnən kosa», «Dəvə, tülkü, bir də keçi», «Təhnə də qalaylanarmı?» və «Fil sağaltmaq»), deyişmələri kimi, bir-birindən maraqlı, gülməli və düşündürücüdür.

Kitabı vərəqlədikcə bir daha aydın olur ki, yuxarıda artıq qeyd etdiyimiz kimi, Hüseyn Saraçlı aşıq yaradıcılığında geniş yayılmış dastan janrına da həmişə böyük maraq göstərmişdir. O, yaxşı bilirdi ki, toy nişan məclislərində, ağır el yığnaqlarında xalqın bədii zövqünü oxşamaq, onun tarixi qəhrəmanlarından, ulu keçmişindən söhbət açmaq üçün dastan söyləmək daha uğurlu yoldur. Buna görə də, Hüseyn Saraçlı qədimdən bəri olan qəhrəmanlıq və məhəbbət dastanlarımızı - «Əsli və Kərəm», «Koroğlu», «Yusif və Züleyxa», «Qaçaq Nəbi» və s.-ni dərindən mənimsəmiş, onların mahir ifaçısına çevrilmişdi.

Tədqiqatçı Kərəm Nəbiyevin məqaləsində çox doğru olaraq qeyd edildiyi kimi, dastan danışmaqda, məclis aparmaqda Aşıq Hüseyn Saraçlı bənzərsiz sənətkar idi. O, elə güclü sənətkar idi ki, bildiyi dastanları heç vaxt olduğu kimi danışmazdı. Həmişə dastanın dilini şirinləşdirməyə çalışar, hətta yeri gələndə bəzən ona gözəl əlavələr də edərdi. Biz onun «Əsli-Kərəm» dastanına dəfələrlə qulaq asmışıq. O, dastanda Kərəm yanğısından danışarkən əlavə edərdi ki: Deməzsənmi bir gün Kərəmə deyirlər, sən haqq aşığısan, elə oxu ki, göydə gedən durna sənin ahından dayansın və qanadından bir lələk salsın. Kərəm götürüb elə qəmli və yanıqlı hava oxuyur ki, o saat durna dayanır və onun qanadından bir lələk düşür.

Aşıq Hüseyn Saraçlı «Koroğlu», «Qaçaq Nəbi» və başqa dastanları danışanda da uyarlı əlavələr edərdi. Bax, Aşıq Hüseyn Saraçlı belə yaradıcı sənətkar idi. O, nəinki özünəqədərki dastanların mahir ifaçısı idi, həm də dastan yazan sənətkar idi. Bunu ustadın kitabında özünə yer tapmış dastan və əhvalatlar da («Zərnişan xanımın Çənlibelə gətirilməsi», «Gürcü qızınnan Qaçaq Kərəm», «Aşıq Şenniyin Borçalı səfəri», «Mehdi bəyin dastanı», «Cahangirnən Mələksima dastanı», «Şair Ağacanın Ərzurum səfəri», «Aşıq Ələsgərin səfəri», «Aşıq Ələhvərnən şəyirdi Aşıq Qara əhvalatı») sübut edir. Onu da əlavə edək ki, Aşıq Hüseyn Bozalqanlı demişkən, dastan danışmaq, məclis aparmaq Aşıq Hüseyn Saraçlı boyuna biçilmişdi...

...1985-ci ilin yaz günlərinin birində Bağdaddan Aşıq Hüseyn Saraçlıya xurma göndərirlər. Xurmanın içindən iki qulac uzunluğunda qadın saçı çıxır. Aşıq Hüseyn Saraçlı xurmanı götürüb sevimli eloğlusu, Borçalının istedadlı şairi Nizami Saraçlının yanına gətirir. Zaman-zaman Təbriz həsrətində qovrulan Nizami Saraçlının qəlbini od götürür. Dərdini, hicranını Araz, Güney niskilinə qatıb, üzünü Aşıq Hüseyn Saraçlıya tutur, «Bağdaddan gələn sovqat» (Dedim, dedi) sərlövhəli şeirini söyləyir. Sonralar «Qələbə bayrağı» (15.10.1985) qəzetində çap olunmuş həmin şeirdə oxuyuruq:

Dedim: Aç boxçanı ay ustad görək,
Nə sovqat göndərib o Bağdad qızı?
Dedi: Öz saçını büküb xurmaya
Bir damət göndərib o Bağdad qızı!

Dedim: Ölçdüm saçı, iki qulacdı,
Dedi: On iki min dərdə əlacdı.
Dedim: Hüseyn əmi, bu necə saçdı, -
Bir sərvət göndərib o Bağdad qızı!

Dedi: Öz sazımın itmiş simiydi,
Gəzirdim mən onu neçə iliydi.
Oğul, Hüseyn əmin ölha-ölüydü,
Bir möhlət göndərib o Bağdad qızı!

Dedim: Keçəmməzsən hayıf izindən,
Dedi: Qoy bir öpüm saçın üzündən.
Dedi: Sevir səni, öz sevgisindən,
Əlamət göndərib o Bağdad qızı!

Dedi: Yadımdadı o şux qəzəllər,
Dədə Füzulidən oxuyan dillər.
Mənim zinətsizdi sazım əzəllər,
Bir zinət göndərib o Bağdad qızı!

Dedim: Heç unutmaz el əməyini,
Dedi: Oğul bala, yaz diləyimi.
Dedim: Saç adıyla öz ürəyini,
Əmanət göndərib o Bağdad qızı!

Nizami Saraçlı «Yalan ola ayrılıq...» poemasını da ustad Aşıq Hüseyn Saraçlıya ithaf etmiş və «Gürcüstan» qəzetinin 16 aprel 1988-ci il tarixli nömrəsində dərc etdirmişdir.

Gürcüstanın «Şərəf» ordenli Əməkdar jurnalisti, Borçalının el ağsaqqalı, tanınmış şair-tərcüməçi Dünyamalı Kərəm isə Ustad Aşıq Hüseyn Saraçlının xatirəsinə həsr etdiyi «Yaz vədəsində» sərlövhəli şeirini belə başlayır:

Ozanlar ozanı, məclislər şahı,
Susmaq yaraşarmı yaz vədəsində?
Ağır yığnaqların, a söz sərrafı,
Qədrini bilmədik biz vədəsində.

Ağır elli, qədim saz-söz diyarı Borçalı mahalının məşhur sənətkarı Aşıq Əmrah Gülməmmədovun vəfatından düz 40 gün sonra, Gürcüstan Respublikasının Əməkdar mədəniyyət işçisi Aşıq Hüseyn Saraçlı 1987-ci il aprelin 19-da ömrünün 71-ci baharında dünyasını dəyişdi. Beş övladı, 24 nəvəsi, 9 nəticəsi qaldı. Saz-söz dünyamız bir ustad aşığını da itrdi...

Elə həmin gün Ustad aşığın Vida mərasimində sevimli şairimiz Zəlimxan Yaqub bu sətirləri söylədi:

İstər alış, istər tutuş, istər yan,
Torpaq altda cahan canlar apardı.

Çox oğullar köç elədi dünyadan,
Sinəsində çox dastanlar apardı.

Köç günüdü, ay obalar, ay ellər,
Çox sevdiyi bir havanı çaldırın.
Qoy boşalsın dolu gözlər, könüllər,
Onu yerdən «Mansırı»yla qaldırın.

Xəbər verin səs yetişsin hər yana,
Bizi Ləlvər, Lök, Ağlağan dinləsin.
Saraçlını tapşırırıq torpağa,
Qoca dağlar qəmli dastan dinləsin.

Saraçlını tapşırırıq torpağa,
Dərə, ağla, təpə, ağla, düz, ağla.
Qaynar bulaq, dostun köçür dünyadan,
Göz yaşını daşdan-daşa süz, ağla.

Ozan baba, dünya qalan, sən gedən,
Ayrılırıq «Ruhani»dən, «Cəngi»dən,
Yası görüb öz toyunu ləngidən,
Gəlin, ağla, oğul, ağla, qız, ağla.

Bəd xəbərlər biz-biz edər tükümü,
Dağ götürməz dağdan ağır yükümü,
Əcəl yaman baltaladı kökümü,
Könül, ağla, ürək, ağla, göz, ağla.

Teldən ayrı təzənələr nəm çəkər,
Duyan ürək dərd daşıyar, qəm çəkər,
Səndən ötrü min cür nazı kim çəkər?
Pərdə, ağla, sədəf, ağla, saz ağla.

Yüz dəfə çək, yersiz ahdan nə çıxar,
Qəlbi yasda saxlamaqdan nə çıxar,
Ay Zəlimxan, ağlamaqdan nə çıxar?
Az sızılda, az inildə, az ağla,
Saraçlının taleyindən əsər yaz,
Saraçlının dastanını yaz, ağla!

Elə həmin gün ustad aşığın sevimli həmyerlisi, 3 dəfə Beynəlxalq poeziya müsabiqələrinin mükafatçısı, «Şərəf» ordenli, tanınmış şair Nizami Saraçlı «Dünya» şeirini yazdı və ölməz sənətkarın Vida mərasimində oxudu:

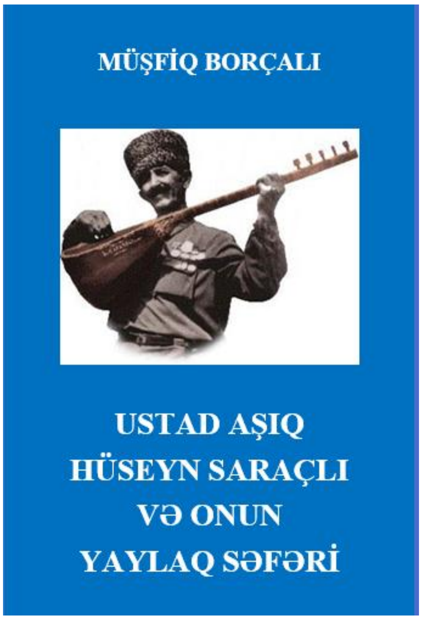
Saraçlı köç edir, mən ağlayıram,
Tale sırğa verib bir ona, Dünya!
Eşilib-burulub qara bığları,
O yenə dağ çəkir yamana, Dünya!

Aşıq eldən gedir, elin yasıdır,
Əyninə geydiyi toy libasıdır.
Çalın, ürəyimi onun sazıdır,
Bülbülə nə gərək virana, Dünya!

Tifaqım dağılıb, o yol üstədir,
Barmaq təzanədə, ürək səsdədir.

Ay ellər, eloğlum son nəfəsdədir,
Bürünüb çisginə-dumana Dünya!

Bu da qismətimə düşən yazıymış,
Xındıdan aldığım yara azıymış…
Yoxsa ki, yurduma Tanrı asıyımış,
Qəddim dönəsiymiş kamana, Dünya!



Təpəmdən çıxartdı Əmrah tüstümü,
Hüseynə çəkdiyim bu ah, tüstümü?!
Bu gün odumu gör, sabah tüstümü,
Qoy yansın atəşə pərvana Dünya!

O kimdir təklənən ər meydanında?-
Məni yalqız qoydu Şir meydanında.
Qorxuram dəfn edə balabanında,
Bu ulu sənəti zamana, Dünya!

O gedir sazını tapşırıb bizə,
Gedir həsrət gedir Hoya, Təbrizə.
Bu gediş dağ çəkir ürəyimizə,
Gəlməyir bir dinə-imana Dünya!

Boylanıb sahibsiz saza ağlaram,
Bürünüb bu vaxtsız yasa ağlaram.
Hərdən səsi gələr, ayaq saxlaram,
Bir də yolu düşməz bu yana, Dünya!

Nizami Saraçlı, olma bədgüman,
Gələr, bir də gələr su gələn arxdan.
Burada Şair Nəbi, Şenlik, Ağacan…
Dərin lövbər atıb ümmana, Dünya!

Ustad Aşıq Hüseyn Saraçlının şəninə sonralar yüzlərlə şeirlər yazıldı, nəğmələr qoşuldu, dastanlar yarandı… Hamısının da mövzusu, dəst-xətti, üslubu müxtəlif olsa da, ünvanı bir idi. Həmin ünvan isə… Ustad Aşıq Hüseyn Saraçlı idi…

«Gürcüstan» qəzetinin 21 aprel 1987-ci il tarixli nömrəsində dərc olunmuş nekroloq bu cümlə ilə sona yetir: «Aşıq Hüseyn Saraçlının əziz xatirəsi, sənətkar siması qəlbimizdən silinən deyil!»

Nəticə

Bəli, Azərbaycan aşıq sənətinin və Borçalı aşıq məktəbinin inkişafında Ustad Aşıq Hüseyn Saraçlının böyük rolu olmuşdur. Elə buna görə də, Ustad Aşıq Hüseyn Saraçlının əziz və ölməz xatirəsi həmişə hörmətlə yad edilir. Onun 75, 80, 85, 90, 95, 100 illik yubileyləri 1991, 1996, 2001, 2006, 2011, 2016-cı illərdə Bakıda və Borçalıda böyük təntənə ilə qeyd edilmişdir.

2011-ci ildə Azərbaycan Respublikası «Təhsil» Mərkəzi Gürcüstan Azərbaycanlılarının Mədəniyyət Mərkəzi ilə birlikdə bu sətirlərin müəllifinin - filoloq-jurnalist Müşfiq Borçalının Ustad aşıq Hüseyn Saraclının 95 illik Yubileyinə həsr olunmuş «Aşıq Hüseyn Saraçlı və onun yaylaq səfəri» adlı kitabını «Borçalı» nəşriyyatı vasitəsilə nəfis şəkildə oxucuların ixtiyarına vermişdir. (Kitabın məsləhətçi: Gürcüstan Azərbaycanlılarının Mədəniyyət Mərkəzi İdarə Heyətinin sədri Fazil Həsənov; Redaktoru: Gürcüstan Mədəniyyət, İncəsənət və Aşıqlar Birliyinin sədri Dərviş Osman; Rəyçilər: Filologiya elmləri doktoru, professor Mahmud Allahmanlı və Filologiya elmləri doktoru Şakir Albalıyevdir.) 2016-cı ildə ustadın 100 illik yubileyi ərəfəsində təkrar çap olunmuş həmin kitabda görkəmli saz-söz ustadı Aşıq Hüseyn Saraçlının həyatı və yaradıcılığı haqqında ətraflı məlumat verilmiş, aşığın böyük oğlu İsfəndiyar Həsənovdan əldə edilmiş və indiyə kimi heç yerdə çap olunmamış «Aşıq Hüseyn Saraçlının Yaylaq səfəri» adlı dastanı, Azərbaycan Aşıqlar Birliyinin sədri, Xalq şairi Zəlimxan Yaqubun «Aşıq Hüseyn Saraslı» və şair Nizami Saraçlının Ustad aşığa həsr etdiyi «Yalan ola ayrılıq!» poemaları müəlliflərin dilinə toxunma-

dan oxuculara təqdim edilmişdir. Unudulmaz sənətkarımızın bir çox dastanları kimi, indiyədək heç yerdə çap olunmamış və oxuculara məhz ilk dəfə təqdim olunan «Aşıq Hüseyn Saraçlının Yaylaq səfəri» adlı dastanı da, eləcə də, Ustad aşığın Yubileyinə həsr olunmuş bu kitab bütövlükdə oxucular tərəfindən böyük rəğbətlə qarşılanmış, respublika mətbuatında müsbət rəylər çap olunmuşdur.

Qarşıdan Ustad Aşıq Hüseyn Saraçlının 110 illik Yubileyi gəlir. Biz də bu kiçik yazımızı ölməz və həmişəyaşar sənətkarımızın anadan olmasının 110 illik Yubileyinə ərməğan edir və bir daha «Allah rəhmət eləsin! Ruhun şad olsun, Ustad!» - deyirik!...

Bəli, ulu Borçalımız əzəldən igidlər oylağı olduğu kimi, həm də saz-söz diyarı kimi məşhurlaşmışdır. Bu eldə kəhər atlara qamçı dəyəndə səsi o tayda, qədim Bolusun ətəyində dayanarmış. Qılınc şaqqıltısı saz havalarına, sazın səsi sözə, sözün ərməğanı saza, nərə səsinə qarışarmış. Bu diyar ədəbiyyat və incəsənətimizə bəxş elədiyi sənətkar övladları ilə öyünüb həmişə... Və bu ənənə bu gün də davam edir...

Bütün bunlar göstərir ki, bəli, dogrudan da, Borçalı aşıq sənətinin ən başlıca xüsusiyyəti onun milli özünəməxsusluğudur və hörmətli professorumuz Şurəddin Məmmədli demişkən, "Azərbaycan xalqı ilə saz həmyaş" olduğu kimi, "Borçalı ilə də saz ekvivalentdirlər".

Və biz bu bənzətməyə daha bir əlavə etmək istəyirik: Bəli, Borçalı dedikdə saz-söz yada düşür, saz-söz dedikdə Borçalı... Nə qədər ki, Borçalı var, bir o qədər də Saz var, Söz var, nə qədər ki, Saz var, Söz var, bir o qədər də Borçalı var. Nə qədər ki, Borçalı var, nə qədər ki, saz-söz var, bir o qədər də Aşıq Hüseyn Saraçlı var və həmişə də var olacaq!...

Ədəbiyyat

1. *Aşıq Hüseyn Saraçlı. Şeirlər, söyləmələr. Bakı, "Yazıçı", 1992.*
2. *Bayramov, Dəyanət. Ustadla üz-üzə. "Bakı Universiteti" qəzeti, 26 oktyabr, 1987.*
3. *Borçalı, Müşfiq. Ağır elli Borçalı. Bakı, 1990; Ərzurum, 1996. səh. 5, 12, 34.*
4. *Borçalı (Çobanlı) Müşfiq Mədədoğlu. Çağdaş Borçalı ədəbi məktəbi. «Azərbaycan» nəşriyyatı, Bakı, 1994, 224 səh., səh. 58-65;*
5. *Borçalı, Müşfiq. Aşıq Hüseyn Saraçlı və onun Yaylaq səfəri. Bakı, "Borçalı", 2011, 2016.*
6. *Çobanov, Mədəd. «Koroğlun»nun yeni qolu. "Gürcüstan" qəzeti, 10 yanvar, 1978;*
7. *Həkimov, Mürsəl. Xalqımızın deyimləri və duyumları. B., 1986.*
8. *Ömərov, İsmayıl,; Borçalı, Müşfiq. Borçalı aşıqları. Bakı, 1996, Təbriz, 1998, Tehran, 2009, səh. 25-32;*
9. *"Gürcüstan" qəzeti (1960-2015). 21 aprel 1987; 20 aprel, 1991; 25 may, 1991.*
10. *Vahabzadə, Bəxtiyar. Vətən ocağının istisi. B, "Gənclik", 1982, səh. 75.*
11. *Yaqub, Zəlimxan. Biz bir eşqin butasıyıq. Bakı, "Yazıçı", 1989, səh.5*
12. *Yaqub, Zəlimxan. Hüseyn Saraçlı dastanı. Bakı, "Pedaqogika", 2007.*

FUNCTIONING OF TERMINOLOGICAL UNITS IN ACADEMIC DISCOURSE AND FICTION

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Abstract

The study shows that terms preserve concept-term relationships established within a given scientific domain, whereas terms in fiction demonstrate greater terminological flexibility, often prioritising communicative effect over academic precision. Terminological behaviour varies systematically across discourse contexts. It reveals the dynamic nature of terminological systems in contemporary communication.

Keywords: term, academic discourse, fiction, terminological variation, communicative approach.

Introduction. Traditional terminology studies have always focused on terminology standardisation and unification within specialised domains. According to E. Wuster's (1979) framework, it is based on an ideal one-to-one relationship between concepts and terms, i.e. one term denotes one concept. However, R. Temmerman (2000) and M. T. Cabré (1999), representatives of the contemporary communicative approach, state that terminological units exhibit complex behavioural patterns when used beyond their academic domain in fiction. When terms are used in literary texts, they serve fundamentally different communicative purposes.

The same terms used in academic and literary discourse function under different constraints and serve distinct discourse communities. Terms in academic discourse usually maintain the concept-term relationships established within specialised domains. On the contrary, in fiction, they are often used for aesthetic and narrative effects that may clash with strict conceptual accuracy.

This investigation addresses a gap in terminology research *by examining how terminological functions vary across discourse types. This study will try to answer the question: how do terminological units function differently in academic versus literary discourse, and what do these functional variations reveal about the nature of terminological units themselves?*

Discussion and Findings. The intersection of terminology studies and discourse analysis provides an important understanding of how terms function within broader communicative frameworks. Bowker and Pearson (2002) demonstrate that terminological behaviour cannot be understood without considering the discourse context. They argue that terms derive meaning not only from conceptual systems but also from their use in specific communicative situations.

L'Homme's (2004) work on terminological combinability reveals how terms show systematic patterns of semantic and syntactic behaviour that vary according to discourse type. According to L'Homme, terminological units possess flexibility that enables them to adapt to different communicative requirements while maintaining their conceptual content. This flexibility becomes crucial for understanding how the same terms can serve different functions across academic and literary contexts.

Later on, the phenomenon of terminological variation became a central concern in terminology studies. Fleixa (2006) identifies several types of terminological variations. They include: denominative variation (multiple terms denoting the same concept) and conceptual variation (shifting concept boundaries). This taxonomic framework gives tools for analysing how terminological behaviour changes across discourse contexts.

According to Dury and Picton's (2009) terminological variation often correlates with communicative purpose and the audience. Their findings suggest that terminological "deviation" may represent systematic adaptation to specific communicative requirements rather than random linguistic change. This perspective makes it essential to understand how terminological units can change their functions in fiction, which differ from their primary ones in academic discourse.

Academic discourse demonstrates a strong relationship between a term and a concept within a specialised domain. When terms are used in academic texts, they preserve semantic alignment with definitions developed within relevant expert communities. For example, the term "phoneme" in linguistics refers to the theoretical construct of minimally distinctive sound units. This term preserves conceptual stability across different academic contexts. This terminological stability reflects the fact that scientists *cannot redefine terminological units without justifying their necessity. Precision is essential in academic discourse to avoid ambiguity.*

However, even within academic discourse, terminological variations may arise as concepts evolve and theoretical frameworks develop. When scientists propose new terminological usage, they usually justify and position their innovations within existing conceptual landscapes.

On the contrary, fiction shows greater terminological flexibility. Terms serve aesthetic and narrative functions that stem from strict conceptual accuracy. Science fiction is a good example of this phenomenon. Authors often employ scientific terminology, which maintains semantic plausibility while serving primarily imaginative functions.

Let us have a look at how neuroscientific terminology is employed. Terms like "neuro pathways", "synaptic transmission", or "cognitive enhancement" may appear in fiction with scientific grounding to maintain reader credibility. Such usage may evoke a narrative effect over technical precision. It shows that literary discourse functions under different communicative constraints than academic writing.

This flexibility shows that terms used in fiction reflect broader characteristics of creative language usage. Literature has served as a laboratory for linguistic innovations, and terminological adaptations represent one of the mechanisms through which specialised knowledge enters general language. This process of terminological democratisation demonstrates the adaptability of terminological systems.

The usage of terms also depends on the audience. Academic discourse assumes that the readers have sufficient knowledge of the scientific sphere in which the text is written and, as a result, does not require any explication. This reflects the nature of academic discourse communities and their commitment to efficient communication among experts.

However, literary discourse faces more complex challenges for the audience. Readers may not be familiar with the terminology used in the text. Authors must find the balance between terminological authenticity and credibility. They often use embedded explanation strategies to make terms clear for readers without disrupting the narrative flow.

The movement of terminological units from specialised academic contexts to literary usage reveals important characteristics of terminological systems themselves. This migration process involves systematic adaptation patterns that preserve core conceptual content while modifying peripheral semantic features to accommodate new communicative requirements.

In conclusion, terminological units show systematic functional variation across academic and literary discourse contexts. Academic discourse maintains a strong relation between concept and term established within specialised domains. Literary discourse exhibits greater terminological flexibility, adapting specialised vocabulary to serve aesthetic and narrative purposes while maintaining sufficient conceptual authenticity to preserve credibility.

References

1. *Bowker, L., & Pearson, J. (2002). Working with specialized language: A practical guide to using corpora. Routledge.*
2. *Cabré, M. T. (1999). Terminology: Theory, methods, and applications. John Benjamins.*
3. *Dury, P., & Picton, A. (2009). Terminological variation in specialized discourse: A corpus-based study. Terminology, 15(2), 235-274.*
4. *Freixa, J. (2006). Causes of denominative variation in terminology: A typology proposal. Terminology, 12(1), 51-77.*
5. *L'Homme, M. C. (2004). La terminologie: Principes et techniques. Presses de l'Université de Montréal.*
6. *Temmerman, R. (2000). Towards new ways of terminology description: The sociocognitive approach. John Benjamins.*
7. *Wüster, E. (1979). Einführung in die allgemeine Terminologielehre und terminologische Lexikographie. Springer.*

Political sciences

SHIFTS IN THE BALANCE OF POWER AND REGIONAL INTEGRATION PROCESSES IN AN ERA OF UNCERTAINTY

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Abstract

This article analyzes the transformations caused by global crises in the 21st century on international relations and geopolitics. It examines the impact of global challenges such as pandemics, energy, and financial crises on the international balance of power and regional integration processes. Using the COVID-19 pandemic as a case study, the article illustrates how global crises influence cooperation and competition among states. It also presents key trends in the formation of a new international geopolitical order, including multipolarity, the rise of regionalism, and the transformation of international organizations. The findings emphasize the importance of flexible strategies by states and international institutions amid global uncertainty. Policy recommendations focus on strengthening regional cooperation, reforming international organizations, enhancing technological collaboration, and improving energy security cooperation.

Keywords. Global crises, International relations, Geopolitics, Regional integration, New international order, COVID-19 pandemic, Multipolarity, International organizations, Energy security, Diplomatic cooperation

Introduction.

In the second decade of the 21st century, the world political arena has entered an era of uncertainty and dynamic changes. Global economic, political and social crises have significantly affected the structure of international relations and the balance of power, and have given rise to the formation of new geopolitical realities. Challenges such as the pandemic, energy and financial crises have created changes in the strategic interests of states, and have also led to the emergence of new models of cooperation and competition at the regional and global levels. In this period of uncertainty, the issue of the emergence of a new international order has become one of the priority topics of geopolitics research. The actions of geopolitical actors, especially states and regional blocs, come to the fore as the main factors determining the future direction of the international system. In this article, the geopolitical impacts of global crises, changes in the balance of power in conditions of uncertainty, and the role of regional integration processes will be analyzed. The aim is to identify the main directions of the new geopolitical order in modern international relations and its impact on global politics.

Relevance and purpose of the article. In the last years of the 21st century, numerous crises at the global level, including economic collapses, energy supply disruptions, pandemics and political conflicts, have led to profound transformations in the system of international relations. These processes pose serious challenges to global security and economic stability, and pave the way for the formation of new balances of power in interstate relations. At the same time, regional integration processes and the formation of various blocs reveal new rules of the game in international politics. Trends such as the change in the global order in times of uncertainty, the decline in the effectiveness of international institutions and the multipolarization of power centers are among the main topics requiring intensive research in political science. In this regard, the analysis of the geopolitical impacts of global crises and the formation of a new international order is extremely important for understanding modern international relations and formulating future political strategies. The article aims to respond to these challenges and analytically present the dynamic changes taking place in global politics. The article also aims to analyze the transformations caused by the global crises of the 21st century in the field of international relations and geopolitics, and to identify the main directions of the formation of a new international order in an era of uncertainty. The article will examine the impact of global crises on the balance of power, the role of regional integration processes, and the rise of new geopolitical actors. Thus, the study aims to contribute *to the analytical assessment of the dynamic changes taking place in modern international relations and the formulation of future political strategies.*

Global crises and geopolitics linkages. *Global crises have become one of the main factors of geopolitics, changing the dynamics of power in the international system. Economic, political and social crises cause states to reconsider their strategic priorities, which leads to a reshaping of the balance of power at the regional and global levels. For example, energy crises strengthen the geopolitical position of states with energy resources, while changing the strategies of energy-dependent countries [8]. Global health crises, such as the COVID-19 pandemic, have also tested the effectiveness of international cooperation mechanisms [4]. Such crises give rise to the emergence of new actors in the geopolitical arena and the intensification of regional integration. In this regard, examining the interaction between global crises and geopolitics is important for understanding the modern system of international relations.*

Research Questions:

1. How do global crises in the 21st century affect the international geopolitical balance of power?

2. What role do regional integration processes play in the formation of a new international order in times of uncertainty?

3. What changes does the rise of new geopolitical actors cause in the system of international relations?

4. How do international organizations maintain and change their effectiveness against the backdrop of global crises?

Hypotheses:

H1: Global crises cause significant changes in the international balance of power and accelerate the rise of new geopolitical actors.

H2: Regional integration processes in conditions of uncertainty lead to the emergence of new formats of cooperation and competition in international relations.

H3: International organizations lose their effectiveness during global crises and new governance mechanisms are needed.

Literature Review. *Global crises and their impact on the system of international relations are one of the leading research directions in political science. The main theoretical approaches in this field explain the variability of the international system and power dynamics. Representatives of the classical realist school, including Hans Morgenthau and Kenneth Waltz, emphasize that the main goal of states is to ensure their own security and maintain the balance of power [12]. According to this approach, global crises push the state to defend its interests to the maximum extent and increase uncertainty in the international system.*

Liberalism, on the other hand, emphasizes the important role of international cooperation and institutions in crisis management. Robert Keohane and Joseph Nye's concepts of multidimensional power and global governance [9] offer modern perspectives for explaining the variability of the international order. They show that global crises open the way to both competition and cooperation, which increases the complexity of international relations.

Geopolitical theories also add depth to the subject. Halford Mackinder's "Heartland" and Nicholas Spykman's "Rimland" theories emphasize the strategic importance of geographical positions and play an important role in shaping the global balance of power [11]. These theories are becoming relevant again in modern geopolitical analyses, as global crises affect the regional and global strategic choices of states.

Recent global challenges, such as the COVID-19 pandemic and the energy and financial crises, have significantly changed the structure of international relations [4]. For example, the pandemic has revealed new forms of interstate cooperation and competition, and has drawn renewed attention to regional integration processes. Energy crises, in turn, have led to a shift in geopolitical power centers, requiring new strategies.

International organizations are also at the center of these changes. The functionality and adaptation of the World Trade Organization, the UN, NATO and other regional alliances are analyzed in terms of responding to modern challenges [7]. The effectiveness and efficiency of these institutions are critical for the stability of the global order.

Recent studies show that as a result of the impact of global crises, the world system is moving towards a more multipolar structure [17]. This leads to the emergence of new centers of power and new formats of cooperation in international politics.

Modern studies also pay attention to the issues of flexible policy-making and adaptation of geopolitical strategies of states in conditions of global uncertainty [15]. This indicates the formation of a new paradigm in international relations and is one of the main directions of analysis of this article.

The impact of global crises on international relations. *Global crises lead to fundamental changes in the structure of international relations. Economic crises, pandemics, and challenges in the energy and security sectors redefine the foreign policy priorities of states and test the mechanisms of international cooperation [16]. For example, the 2008 global financial crisis led to a recession in the world economy and increased political tensions, which led to an intensification of interstate competition [10]. The COVID-19 pandemic, on the other hand, has brought the concept of global health security to the fore and has led states to reorganize their strategies for cooperation and competition with each other [4]. Such crises increase the uncertainty of international relations and lead to the emergence of new political and economic power centers*

Geopolitical theories and new trends. *Geopolitical theories study the geographical and strategic aspects of international relations and identify the main factors of power politics. Classical theories, including Halford Mackinder's "Heartland" concept and Nicholas Spykman's "Rimland" idea, emphasize that world power is linked to geographical position [11]. In the modern era, the development of digital technologies, energy security issues and global threats are shaping new directions of geopolitics [14]. In particular, the development of a multipolar world order, the increasing role of regions and the increasing geopolitical influence of new actors, such as multinational companies and international organizations, are considered new trends [17].*

The concept of international order and its transformation. *The international order is a system that determines the basic rules, institutions and behavioral models of interstate relations. In the post-Cold War period, a unipolar system characterized by the dominance of the United States was formed [7]. However, in the last decade of the 21st century, global crises and the rise of new power centers led to the transformation of the international order. Trends such as multipolarity, strengthening of regionalism and reassessment of the functions of international institutions are the main features of the new order [13]. During this transformation period, international normative and governance mechanisms face uncertainties and there is a need to develop new policy strategies.*

Analytical Part

Selected global crisis: *The impact of the COVID-19 pandemic on international relations and geopolitics. The COVID-19 pandemic, as one of the most serious global crises of the 21st century, has had profound and multifaceted effects on the system of international relations. The emergence and spread of the pandemic has radically changed the strategic behavior of states in the political, economic and social spheres at the global level [4].*

First, the pandemic has brought to the fore issues of interstate cooperation and interdependence, and has also revealed the strengths and weaknesses of global governance mechanisms. The shortcomings in the activities of international institutions such as the World Health Organization (WHO) have led to serious criticism during the pandemic, which has created an impetus for the reform of international organizations [5].

Second, the pandemic has led to changes in the balance of power. States such as China have increased their geopolitical influence by implementing relatively successful strategies in combating the pandemic, while the United States and European countries have faced more internal problems [1]. This has strengthened the tendencies of multipolarity in international relations.

Third, the pandemic has led to serious changes in energy markets and trade relations. The global economic downturn and disruptions in trade chains have given impetus to regional integration processes and the formation of new geopolitical coalitions [2].

As a result, the COVID-19 pandemic has increased uncertainty in international relations, led geopolitical actors to formulate new strategies and transformed the international order. This example is considered an important event for understanding the geopolitical impacts of global crises and the dynamics in the formation of a new international order.

Regional integration and geopolitical changes

In times of global uncertainty and crises, regional integration processes create new strategic spaces and centers of power in the system of international relations. States, in particular, are turning to regional blocs and alliances in order to reduce the risks posed by global crises and ensure economic and political stability [6].

Regional associations such as the Black Sea region, the Eurasian Union, the Shanghai Cooperation Organization, and the European Union, by expanding their geopolitical functions, play an important role in protecting the interests of states in the fields of security, energy, and trade [12]. Through these blocs, states both regulate their relations with global power centers and maintain regional balance.

At the same time, regional integration processes also create new geopolitical dynamics. For example, a union of countries with energy resources develops strategies to increase energy security and geopolitical influence [8]. At the same time, regional competition and conflicts are also an integral part of these processes.

As a result, regional integration acts as a collective strategy against the effects of global crises and influences the formation of new geopolitical balances in international relations. This trend is considered one of the main features of the international political scene of the 21st century.

Formation of a new international geopolitical order

The global crises of the 21st century and the development of a multipolar world structure have led to fundamental changes in the basic principles and structure of the international order. The unipolar system characterized by the hegemony of the United States after the Cold War has gradually weakened, creating conditions for the rise of new power centers [7]. This process has strengthened the tendencies of multipolarity in international relations and increased the influence of actors such as China, Russia, the European Union and India in world politics. The new international order does not consist only of the balance of power between states, but also includes the renewal of international law, economic cooperation, technological innovations and global governance mechanisms [13]. In this context, the role of international organizations is changing; in some cases they are being replaced by regional blocs and power centers. Global crises, pandemics, energy supply problems and economic recessions play a critical role in the formation of a new order. These crises force states to reformulate their policy and strategic priorities and test the effectiveness of international cooperation mechanisms. Thus, the new international geopolitical order is multipolar, competitive, and dynamic. In this order, the role of regional actors is increasing, and international law and governance mechanisms are being reorganized. As a result, fundamental changes are taking place in the structure and rules of conduct of global politics.

The impact of the new international order on international relations

The new international geopolitical order has led to a number of fundamental changes in the system of international relations. First of all, with the formation of a multipolar world, the balance of power has had a different dynamic than in the previous unipolar and bipolar systems, and competition and cooperation between states have developed in a more complex way [17]. This leads to an increase in the uncertainty of international politics, as well as the need for greater flexibility in the strategic decisions of states. In addition, the role of regional actors and blocs has increased in the new order, and numerous centers of power have emerged in international relations [7]. This has led to a change in global governance mechanisms and, in some cases, their weakening. Thus, international relations are increasingly becoming a scene of conflicts, strategic competition, and diplomatic complexity. At the same time, new areas such as economic integration, technological development, and information warfare play an important role in international relations and expand the understanding of power of states [14]. This necessitates the analysis of international relations in a broader context than classical theories.

Trends in the Formation of a New International Order.

Several main trends are observed in the formation of a new international order:

1. Strengthening of multipolarity: The dominance of a few major actors in world politics is increasing, ensuring the transition from a unipolar to a multipolar system [17]

2. Rise of regionalism: States are trying to collectively resist global crises through regional blocs and alliances [6].

3. Transformation of international organizations: Traditional international institutions are adapting to new challenges and are sometimes replaced by new governance mechanisms at the regional and global levels [13].

4. The role of technology and information warfare: Digital technologies and information warfare are becoming new strategic tools in international politics [14].

5. Economic and energy security: The geopolitical importance of energy sources is increasing, and energy security is becoming a priority for states [8].

Conclusions and Recommendations.

This article provides a detailed analysis of the transformations caused by the global crises of the 21st century in the field of international relations and geopolitics. The main focus has been on the impact of global crises on the international balance of power, such as pandemics, energy and financial shocks, the role of regional integration processes, and the rise of new geopolitical actors. The study shows that in the context of global uncertainty, the international order is undergoing radical changes, the role of multipolarity and regionalism is increasing, and international organizations are in a transformational phase. Examples such as the COVID-19 pandemic show that global crises both expand the possibilities of *interstate cooperation and intensify competition, which increases the complexity of international relations. Regional integration and the new international geopolitical order affect the strategic choices of states and necessitate the renewal of global governance mechanisms.*

Future prospects and policy recommendations

In the future, uncertainty and dynamic changes in international relations will intensify. In this context, states and international institutions should consider the following policy recommendations:

1. Strengthening regional cooperation: It is important to increase the effectiveness of regional blocs and develop mechanisms for dialogue and cooperation to collectively resist crises. This will play an important role in ensuring both security and economic stability.

2. Reforming international organizations: To ensure the sustainability of global governance, it is necessary to increase the functional effectiveness of existing international institutions and adapt to new challenges. Transparency and accountability will increase the legitimacy of international institutions.

3. Flexible and inclusive strategies: States should increase strategic flexibility in uncertain conditions and seek ways to cooperate inclusively with various international actors. This will ensure the development of more sustainable and adaptive policies against new threats.

4. Cooperation in the field of technology and information: Coordinated measures should be taken at the international level against digital security, information warfare, and technological innovations. This is important in maintaining international stability and reducing security risks.

5. Energy security and sustainability: Diversification of energy resources and sustainable use policies are important in ensuring geopolitical stability. Interstate cooperation should be strengthened for stability and fair sharing in global energy markets.

6. Promotion of cultural and diplomatic dialogue: Cultural exchange and diplomatic dialogue platforms should be established to increase mutual understanding and trust in international relations. This is important in preventing conflicts and ensuring peace.

Literature

1. Allison, G. (2020). The Coronavirus Pandemic and International Politics. Foreign Affairs. https://www.foreignaffairs.com/articles/united-states/2020-03-18/coronavirus-pandemic-and-international-politics

2. Baldwin, R., & Weder di Mauro, B. (Eds.). (2020). Economics in the Time of COVID-19. CEPR Press. p. 203

3. Clapham, A.(2012) Brierly's Law of Nations: An Introduction to the Role of International Law in International Relations. p. 145

4. Ferguson, N. (2020). The impact of COVID-19 on global health and security. Journal of Global Health, 10(1), 010102. https://doi.org/10.7189/jogh.10.010102

5. Gostin, L. O. (2021). Global health governance in the COVID-19 pandemic. The Lancet, 397(10281), 9–11. https://doi.org/10.1016/S0140-6736(20)32619-4

6. Hettne, B., & Söderbaum, F. (2000). Theorising the rise of regionness. New Political Economy, 5(3), 457–472. https://doi.org/10.1080/13563460050165374

7. Ikenberry, G. J. (2018). Liberal Leviathan: The Origins, Crisis, and Transformation of the American World Order. Princeton University Press. p. 453

8. Klare, M. T. (2021). The Race for What's Left: The Global Scramble for the World's Last Resources. Metropolitan Books. p. 264

9. Robert O. Keohane və Joseph S. Nye Jr. Power & Interdependence (2012). Boston (ABŞ). ISBN: 9780205082919 and 020508291

10. Jonathan Kirshner. (2014) İthaca & London. p. 232 ISBN: 978-0801454783 / 0801454786

11. Mackinder, H. J. (1904). The geographical pivot of history. The Geographical Journal, 23(4), 421–437.

12. Morgenthau, H. J. (2018). Politics Among Nations: The Struggle for Power and Peace (7th ed.). McGraw-Hill Education. p. 343.

13. Ruggie, J. G. (2020). Multilateralism: The anatomy of an institution. International Organization, 46(3), 561–598.

14. Toal, G. (2017). Critical Geopolitics: The Politics of Writing Global Space. University of Minnesota Press. p.244

15. Randall L. Schweller Unanswered Threats: Political Constraints on the Balance of Power – Princeton University Press, 2022 p. 46

16. Walt, S. M. (2018). The world is not flat: Power and geopolitics in the twenty-first century. Foreign Affairs, 97(3), 43–54.

17. Zakaria, F. (2021). The Post-American World. W.W. Norton & Company. p 354

Technical sciences

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CURRENT ISSUES OF PROCESSING MULTICOMPONENT RAW MATERIALS IN KAZAKHSTAN

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Abstract

The article examines the current state and prospects of development of non-ferrous metallurgy in Kazakhstan with an emphasis on copper production. The importance of the industry for the country's economy is shown, the mineral resource base, the features of the copper concentrates of the Zhezkazgan and Balkhash deposits, as well as the existing melting technologies are characterized. Negative trends related to the deterioration of the quality of raw materials, an increase in the content of impurities and the increasing complexity of the composition of metallurgical dusts and slags are noted. Based on the SWOT analysis, the key strengths and weaknesses of the industry, opportunities and threats to its development have been identified. The relevance of research aimed at studying the behavior of copper and related elements in the "matte – slag – gas phase" system and the development of effective technologies for processing and depletion of copper-smelting slags in order to extract valuable metals and reduce the environmental burden is substantiated.

Keywords: non-ferrous metallurgy, copper production, copper smelting slags, polymetallic concentrates, depletion of slags

Introduction

Non-ferrous metallurgy occupies an important place among the industrial sectors of Kazakhstan, including the production of copper, lead and zinc, aluminum, titanium and magnesium. Its share in the total volume of industrial production exceeds 12%.

Kazakhstan has significant reserves of copper ores, ranking fourth in the world in terms of proven volumes, which allows it to control about 10% of the global market. Geologists estimate the country's copper reserves at about 40 million tons, making Kazakhstan one of the largest producers and exporters of refined copper, providing about 4% of global production and 30% in the CIS.

Currently, more than 90 copper deposits have been explored in Kazakhstan, accounting for 5.5% of the world's reserves, second only to Chile, Indonesia and the United States.

At Kazakhmys Corporation LLP, copper sulfide concentrates are smelted at two metallurgical copper smelters – Zhezkazgan (ZHCS) and Balkhash Copper Smelter (BCS) using an electric furnace and a Vanyukov furnace, respectively. Traditional smelting is carried out with a copper content of 50-55% in matte.

A feature of the copper concentrates of the Zhezkazgan deposits is their high content of Cu and SiO_2, with low concentrations of sulfur (20-26%). These concentrates contain significant amounts of precious metals (Ag ~600 g/t) and are a source of raw materials for the production of rhenium (Re ~up to 25 g/t). The arsenic content in Zhezkazgan concentrates is higher than in Balkhash concentrates. Balkhash copper concentrates contain up to 33% sulfur.

In recent years, a decrease in copper content has been observed in Zhezkazgan concentrates with a significant increase in arsenic, lead and zinc in them. This greatly complicated the composition of the resulting converter dust. If the arsenic content in Balkhash dust is at the level of 5-8%, then in Zhezkazgan concentrates, the arsenic content already reaches 15%.

The situational picture of the state and prospects of development of metallurgy in Kazakhstan is clearly visible from the SWOT analysis presented in [1]:

Strengths:

- availability of its own mineral resource base;
- developed infrastructure of non - ferrous metallurgy;
- production and technological experience;

- Wide range of metals;

- Highly professional cadre.

Weaknesses:

- depreciation and aging of production assets;

- Technical and technological lag;

- complex composition of ores;

- low level of conversion and small range of metal products;

- Insufficient influx of young staff;

- lack of a strategy for the sustainable development of the industry in the future.

Opportunities:

- the demand for non - ferrous metals in the global market;

- The appearance of a multiplicative effect;

- the use of secondary man - made formations;

- motivation, stimulation of waste recycling on a legislative basis;

- Expansion of partnership and cooperative relations.

Threats:

- Securing the status of a raw material appendage of developed countries;

- No new competitive deposits of copper, zinc and gold are being identified;

- Critical lag in forecasting, strategic planning, and government regulation of the industry;

- failure to identify new competitive deposits of copper, zinc and gold within 5-10 years;

- Critical delay in understanding the need for strategic government regulation of the industry;

- The incompleteness and lack of consistency of reliable information on the industry when making radical decisions;

- Loss of acquired knowledge and technological experience.

Currently, the understanding of the urgency and necessity of solving the problems of reproduction of mineral resources is global. The universality of measures to identify new competitive deposits allows us to develop common measures regardless of the geographical location of countries and the level of their economic development.

The modern strategy of copper production, focused on increasing the output of finished copper through the use of advanced metallurgical technologies, leads to an intensive accumulation of slags with a high copper content. The study [2] indicates that about 4 million tons of metallurgical slags have accumulated in the industrial region of Nord-Pas-de-Calais (France), which have a significant negative impact on the environment due to the increased content of lead, zinc and arsenic. The authors believe that these slags can be used as secondary raw materials for the extraction of valuable metals by various methods [3,4,5].

The publication [6] provides interesting information that approximately 2.2 tons of slag are formed for every ton of copper produced. The annual volume of global copper slag production is estimated at approximately 24.6 million tons. The authors note that slags containing up to 0.8% copper are either disposed of as waste or sold as products similar in their properties to natural basalt (crystalline). It is argued that one of the promising areas of slag use is their processing in order to extract metal, produce high-value-added products and dispose of slag heaps.

A significant amount of research has been devoted to the issues of effective recovery of copper from smelting slags, many methods of depletion of copper smelting slags have been developed and put into practice, differing in technological schemes, various equipment and principles underlying each method [7-10].

When processing multicomponent raw materials, there is a need for additional experimental studies. This is due to the fact that there is no information in the scientific literature about the forms of finding valuable metals in real matte and slag formed during the processing of polymetallic concentrates during electric melting. In addition, the behavior of such accompanying impurities as lead, zinc, and silver and their effect on the distribution of copper between smelting products has not been sufficiently studied. These gaps necessitate a more detailed study of the equilibrium of the "copper matte – slag – gas phase" system in conditions of electric melting of polymetallic concentrates.

To develop technological solutions for the organization of the slag depletion process, it requires a comprehensive study and analysis, taking into account specific tasks and conditions. At the same time, the issues of studying the behavior of lead, zinc and arsenic, which often accompany copper in sulfide raw materials and, consequently, in slags, seem relevant.

References

1. Medikhanov D.G. Involvement of technogenic deposits of BGMK in the processing of raw materials / Sb. nauchn. works on the problems of BGMK. – Balkhash: BGMK, 2001. – P. 137-142.

2. Ray, H., Singh, B., Bhattacharjee, S., Misra, V. Energy in Minerals and Metallurgical Industries. Allied Publishers. 2005.

3. Mukanov D. Metallurgy of Kazakhstan: state, innovation potential, development trend. – Almaty: RSE "NC KPMS RK", 2005. – 290 p.

4. O'Gorman, G., von Michaelis, H., Olson, G. Novel in situ metal and mineral extraction technology. 2004.

5. Padilla, R., Vega, D., Ruiz, M. Pressure leaching of sulfidized chalcopyrite in sulfuric acid–oxygen media. Hydrometallurgy. 2007. 86, P. 80–88.

6. Habashi F. Recent trends in extractive metallurgy. Journal of Mining and Metallurgy, 2009. 45 B (1). P. 1-13.

7. Djordjevic, P., Mitevska, N., Mihajlovic, I., Nikolic, D., Manasijevic, D., and Zivkovic, Z. "The effect of copper content in the matte on the distribution coefficients between the slag and the matte for certain elements in the sulphide copper concentrate smelting process". Journal of Mining and Metallurgy: Section B-Metallurgy, 2012, 48, P. 143–151.

8. Djordjevic, P., Zivkovic, Z., Mihajlovic, I., and Strbac, N. "Statistical modeling of the copper losses in the reverberatory furnace slag" Metalurgia International, 2011, 16, P. 120–125.

9. Gorai, B., Jana, R. K., and Premchand, 2003, ''Characteristics and utilisation of copper slag – A review.'' Resources, Conservation and Recycling, 39(4), P. 299–313.

10. Gui, W.-h., Wang, L.-y., Yang, C.-h., Xie, Y.-f., and Peng, X.-b., 2007, ''Intelligent prediction model of matte grade in copper flash smelting process.'' Transactions of Nonferrous Metals Society of China, 17, P. 1075–1081.

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INNOVATIONS IN METALLURGY IN KAZAKHSTAN: ULTRAPURE METALS AND ALLOYS

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Abstract

In this paper, based on the available information available in the public domain, a brief analysis of the current state of production of ultrapure metals is carried out. The relevance and prospects of the development of ultrapure metals and their alloys for wide application in high-tech fields are described. It is shown that for Kazakhstan, which has a high material and raw material base and a wide range of commodity products, the development of production of ultrapure metals and their alloys can become an innovative direction aimed at economic diversification.

Keywords: ultrapure metals, alloys, zone melting, ultrapure copper, impurities, purification.

Introduction

Ultrapure metals are materials in which the impurity content is kept to a minimum, usually measured in ppm (parts per million) or even ppb (parts per billion). Due to their unique properties due to the almost complete absence of defects in the crystal lattice and embedded impurities, they are widely used in the most advanced fields of science and technology.

One of the key advantages of ultrapure metals is their high electrical conductivity. Impurities and defects in the structure of ordinary metals disperse electrons, reducing conductivity. In ultrapure metals, this effect is minimized, which makes it possible to create more efficient electrical conductors for microelectronics, superconducting devices, and other applications.

In addition to high electrical conductivity, ultrapure metals have increased corrosion resistance. Impurities are often the centers of the onset of corrosion, so their absence in ultrapure metals significantly increases the service life of products operating in aggressive environments. This is especially important for applications in the chemical industry, medicine, and nuclear power.

The technologies for producing ultrapure metals are very complex and include several stages: prepurification of raw materials, zone melting, electrolytic refining, vacuum distillation and other methods. Each stage requires high precision and control to achieve the required degree of purity.

The demand for ultrapure metals is constantly growing with the development of nanotechnology, quantum computers and other advanced fields. They are used to create highly sensitive sensors, precision optical elements, materials for nuclear power and many other unique applications where exceptional material properties are required.

The development of technologies for the production and analysis of ultrapure metals is an important task of modern science and technology. Increasing the purity of metals makes it possible to create new materials with unique properties that open up broad prospects for the development of various industries and science.

One of the promising highly specialized segments of the copper industry is the production of ultrapure copper (with a purity of 99.999% or higher, often referred to as 5N or 6N). Data on it is not as readily available as for conventional copper, as it is a strategic material used in high-tech industries.

Due to the high technological complexity and significant costs, a relatively small number of companies and research institutes around the world are engaged in the production of ultrapure metals.

Japan is one of the leaders in the production of ultrapure copper, with advanced technology and experience. Sumitomo and JX Nippon Mining & Metals are key players. Japan consumes a significant amount of ultrapure copper, although less than China. The main consumers are the semiconductor industry and advanced scientific research.

LS Nikko Copper, a South Korean company, is a major producer of ultrapure copper and is a major consumer, especially in the semiconductor industry (Samsung, SK Hynix) and telecommunications.

Aurubis (Germany) is one of the leading European copper producers, including ultrapure copper. Germany consumes ultrapure copper in smaller volumes than Asian countries, but demand is stable due to the advanced electronics industry and scientific research.

There are several manufacturers in the USA, but the exact production volumes of ultrapure copper are difficult to estimate. The United States is a major consumer, especially in the semiconductor industry (Intel, Micron), telecommunications, and scientific research.

China is actively investing in increasing the production of ultrapure copper in order to reduce dependence on imports. Several large metallurgical companies are expanding their capacities. China is currently the largest consumer of ultrapure copper in the world, due to its huge semiconductor industry and telecommunications sector. The demand for ultrapure copper in China is constantly growing.

Selection and justification of the need to obtain ultrapure metals in Kazakhstan

Due to the rich deposits of mineral raw materials, developed metallurgy and chemical industry, stable energy supply in a number of regions, as well as the developed scientific and technical potential and certain achievements in the field of semiconductor technologies, Kazakhstan has favorable conditions for creating a modern semiconductor industry and occupying its niche in the global semiconductor market. The development of competitive technologies for the production of semiconductor materials and structures will allow Kazakhstan to become a partner of developed countries in the production of microelectronics and alternative energy.

However, at the moment there are no modern enterprises in Kazakhstan using highly efficient and environmentally friendly technologies for the production of ultrapure metals in demand in high-tech industries capable of competing in the global market.

Previously, Kazakhstani scientists conducted research in the field of obtaining metallurgical and semiconductor silicon from local raw materials. The main problem was the low purity of the silicon produced, which affects the efficiency of solar cells and semiconductors.

Since 2003, nanotechnology has been one of the priorities of scientific research in Kazakhstan. There are scientific groups in the country engaged in similar developments. However, the necessary expensive equipment is missing, and scientists are forced to conduct research in Russia.

Supporting scientific research in priority areas of science and technology will allow Kazakhstan to preserve and develop its intellectual potential, stimulating the country's economic development.

Today, there are no modern enterprises in Kazakhstan based on the production of highly efficient high-tech materials, multifunctional alloys and metal-based materials produced in the republic. A comprehensive analysis of the domestic metal products sales markets shows that it is characterized by a disparity between the mining and manufacturing industries, and the underdevelopment of the machine-building complex. The products of the metallurgical industry are aimed at foreign consumers.

High-purity metals, which are an important component in the development of modern materials technology, are not produced on an industrial scale. All metal products (alloys) are imported from abroad. Due to this, the constantly growing demand for alloys in the republic has not been satisfied, and every year this problem acquires a special character.

The growing demand for alloys remains unmet, and the problem is getting worse every year. The development of competitive technologies for the production of multifunctional materials and alloys based on ultrapure metals will allow Kazakhstan to become a partner in the production of high-tech products and take a place in the global market.

Currently, the production of metal products and alloys does not meet the growing needs of mechanical engineering and the economy, which leads to significant volumes of imports. Today, there are no modern enterprises in Kazakhstan capable of producing high-tech materials, multifunctional alloys and metal-based materials produced in the country. Despite the fact that Kazakhstan produces a number of ultrapure metals (Cu, Pb, Ga, Bi, etc.), there is practically no production of alloys based on them. For example, the rare metal rhenium, extracted from dzhezkazganite, is produced in the form of salt. The organization of the production of high-purity metallic rhenium and the production of multifunctional copper-rhenium alloys based on ultrapure copper and rhenium would expand the product range and increase profits due to the price difference.

Rhenium alloys and finely dispersed rhenium powders are widely used in powder metallurgy for the manufacture of parts for aerospace engineering, energy and other industries.

The creation and development of competitive technologies for the production of multifunctional materials and alloys based on ultrapure metals could make Kazakhstan one of the potential partners of manufacturers of high-tech products and occupy an appropriate niche in the segment of production of new materials.

The development of the production of metal products, alloys and multifunctional materials will increase Kazakhstan's competitiveness in the global market of high-tech products.

Kazakhstan has all the prerequisites for industrial modernization and the creation of new industries, including a rich raw material base, developed scientific and technical potential, qualified personnel and technological reserves.

The use of copper as a substitute for aluminum and aluminum alloys in ultra-large-scale integrated circuits due to its low resistivity and high electromagnetic properties, as well as the widespread development of reducing the size of microelectronic device elements, has significantly increased the demand for high-purity copper [1-3].

Obtaining ultrapure copper is difficult due to the strong affinity of some metallic and nonmetallic impurities to copper, as well as high vapor pressure and segregation coefficient equilibria, which are close to unity for most impurity metals [4-7]. Many researchers have tried to obtain ultrapure copper using various methods of purifying it from impurities. For example, [8] shows an effective method for purifying copper from Al, S, Cr, Ni, As, Se, and Bi in chloride media. The authors of [9] have shown that during zone purification of copper with a floating liquid refining zone of copper in a hydrogen atmosphere, it is possible to achieve a noticeable separation of S, Se, Al and Si from copper. Significant evaporation of Zn, Sn, As, Bi, Cd, S, P, etc. was achieved during copper refining by vacuum induction melting in the temperature range from 1356 K to 1500 K [10]. However, all known copper refining processes are characterized by a very complex design and low productivity, which requires the search for simpler hardware design and more effective methods of refining copper from impurities.

The analysis of scientific and technical literature shows that one of the most widespread and effective methods of obtaining high-purity metals is the method of zone melting. Unlike other known methods, it is characterized by a high degree of metal separation, relatively low energy consumption, the absence of aggressive acidic or alkaline waste solutions, minimal environmental pollution, and simplicity of hardware design.

It follows from the above that the creation of a highly efficient device based on the theoretical foundations of zone melting for the production of ultrapure metals is an urgent task.

The importance of solving the problem of obtaining ultrapure metals with high added value is of great importance for Kazakhstan.

The development of ultrapure metal production technologies is a complex and science-intensive task that requires the use of advanced purification and analysis methods. Such methods include zone melting, electrolysis, vacuum distillation, and others. An important aspect is also product quality control at all stages of production to ensure compliance with purity requirements.

The prospects for the development of the ultrapure metals market are related to the growing demand for high-tech materials in various industries. The demand for ultrapure metals is expected to grow due to the development of nanotechnology, electronics, telecommunications and other advanced areas.

The production and consumption of ultrapure metals is an important area of development of modern science and technology. The relevance of using ultrapure metals will only increase due to the development of nanotechnology, the miniaturization of devices and increasing demands on their performance, reliability and durability. The development of new technologies for the production and analysis of ultrapure metals is a key factor for ensuring competitiveness in high-tech industries.

Along with the industries listed above, ultrapure metals are widely used in various high-tech industries. They are necessary for the production of semiconductors, electronic components, fiber-optic cables, as well as in the nuclear energy and aerospace industries. In the semiconductor industry, for example, even a small amount of impurities can significantly degrade the characteristics of semiconductor materials, which makes the use of ultrapure metals critically important.

The production process of ultrapure metals has a significant impact on the environment, mainly due to energy intensity and the use of chemicals. Therefore, special attention is paid to the development of environmentally friendly and energy-efficient refining technologies. Among the promising areas are the development of closed production cycles, waste minimization and the use of renewable energy sources.

In the field of materials science and nanotechnology, ultrapure metals are key materials for research and development. They allow us to study the fundamental properties of metals and alloys, as well as create new materials with specified characteristics. For example, the use of ultrapure metals makes it possible to obtain nanostructures with unique properties that can be used in electronics, medicine and other fields.

Further growth in demand for ultrapure metals is expected in the future, which will stimulate the development of technologies for their production and analysis. The development of new refining methods that can achieve even higher purity levels, as well as the creation of new analytical methods capable of *detecting trace amounts of impurities, will become key areas for the development of the industry.*

References

1. Steigerwald J. M., Murarka S. P. and Gutmann R. J. Chemical Mechanical Planarization of Microelectronic Materials. New York, John Wiley & Sons., 1997.
2. TORRES J. ADVANCED COPPER INTERCONNECTIONS FOR SILICON CMOS TECHNOLOGIES // APPL. SURF. SCI. 1995. V.91. P.112.
3. WOO T.-G., PARK I.-S., AND SEOL K.-W. EFFECT OF ION-BEAM ASSISTED DEPOSITION ON RESISTIVITY AND CRYSTALLOGRAPHIC STRUCTURE OF CR/CU // ELECTRONIC MATERIALS LETTERS. 2009. VOL. 5. P. 105–107.
4. Kurosaka A., Tanabe N., Kohno O., and Osanai H. Proc. 1st Int. Conf. Ultra High Purity Base Metals (UHPM-94). 1994. P.446. Kitakyushu, Japan.
5. Dost S., Liu Y. C., Haas J., Roszmann J., Grenier S., Audet N. Effect of applied electric current on impurity transport in zone refining // Journal of Crystal Growth. 2007. Vol. 307, No. 1. P. 211–218.
6. Cheung, T., Cheung N., Garcia A. Application of an artificial intelligence technique to improve purification in the zone refining process // Journal of Electronic Materials. 2010, 39 (1). P. 49-55.
7. Zhu Y., Mimura K., Ishikawa Y., Isshiki M. Effect of Floating Zone Refining under Reduced Hydrogen Pressure on Copper Purification // Materials Transactions. 2002. Vol. 43, No 11. P. 2802-2807.
8. Lalev G. M., Lim J.-W., Munirathnam N. R., Choi G.-S., Uchikoshi M., Mimura K., Isshiki M. Impurity Behavior in Cu Refined by Ar Plasma-Arc Zone Melting // Met. Mater. Int. 2009. Vol. 15, No. 5. P. 753-757.
9. Zhu Y., Mimura K., Ishikawa Y., Isshiki M. Effect of Floating Zone Refining under Reduced Hydrogen Pressure on Copper Purification // Materials Transactions. 2002. Vol. 43, No 11. P. 2802-2807.
10. Yoon Y. O., Jo H. H., Cho H., Kim S. K., Kim Y. J. Effect of distribution coefficient in copper purification by zone refining process // Materials Science Forum. 2004. Vol. 449-452. P. 173-176.

COMPARATIVE DAMAGE CHARACTERISTICS OF BRICK AND STONE MASONRY BUILDINGS REACHING DAMAGE STATE 4 DURING THE 2019 ALBANIA EARTHQUAKE

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Abstract
Masonry buildings constitute a large portion of the existing building stock in seismic regions and have repeatedly demonstrated high vulnerability during strong earthquakes. Among them, brick and stone masonry structures often exhibit different damage characteristics due to differences in material properties, construction techniques, and structural configuration. This paper presents a comparative study of damage patterns observed in four low-rise masonry buildings that reached Damage State 4 (DS-4) during the Mw 6.4 earthquake of 26 November 2019 in Albania. Two buildings are constructed with unreinforced brick masonry, while the remaining two are stone masonry structures. The comparison is based on post-earthquake field inspections and focuses on dominant damage mechanisms, wall configuration, diaphragm characteristics, and connection quality. The results highlight systematic differences between brick and stone masonry buildings at DS-4 level and provide practical insights for post-earthquake assessment and rapid decision-making.

Keywords: masonry buildings, brick masonry, stone masonry, earthquake damage, DS-4, post-earthquake assessment.

1. INTRODUCTION

Unreinforced masonry buildings represent one of the most seismically vulnerable structural typologies in Southern Europe and the Balkans. A significant portion of this building stock was constructed prior to the enforcement of modern seismic design provisions and lacks adequate detailing to ensure satisfactory earthquake performance. Consequently, masonry buildings were among the most severely affected structures during the Mw 6.4 earthquake that struck Albania on 26 November 2019.

Damage State 4 (DS-4) represents a critical threshold in post-earthquake assessment, corresponding to severe structural damage and substantial loss of lateral resistance, often requiring strengthening or demolition decisions. While numerous studies address the global seismic capacity of masonry buildings, fewer contributions focus on comparative damage characteristics between different masonry typologies at the same damage state.

This paper aims to compare observed damage patterns in brick and stone masonry buildings that reached DS-4 during the 2019 Albania earthquake, based exclusively on field observations. The objective is to identify recurring damage features and typology-dependent vulnerabilities that can support rapid post-earthquake evaluation.

2. DAMAGE STATE DEFINITION AND CASE STUDIES

Damage classification in this study follows commonly adopted post-earthquake assessment frameworks, where DS-4 corresponds to extensive structural damage, significant cracking, partial loss of load-bearing capacity, and potential instability of structural elements.

***Figure 1**. Building façade view brick URM building 1,2 (up left and up right) and stone URM building 3,4 (bottom left and bottom right)*

Four residential buildings located in the Krujë area were selected as case studies. All buildings were classified as DS-4 following detailed post-earthquake field inspections. The selected buildings are comparable in terms of seismic input and building height, allowing for a consistent comparison between masonry typologies.

***Table 1**. Case study buildings*

ID	Masonry type	Storeys	Floor system	Damage State
B1	Brick masonry	2	RC slab	DS-4
B2	Brick masonry	2	RC slab	DS-4
S1	Stone masonry	2	Flexible / mixed	DS-4
S2	Stone masonry	2	Flexible / mixed	DS-4

3. OBSERVED DAMAGE IN BRICK MASONRY BUILDINGS

The two brick masonry buildings exhibited pronounced in-plane damage in load-bearing walls. Diagonal shear cracking was the dominant failure mode, particularly in walls with high opening ratios and limited transverse confinement. Cracks typically extended through both brick units and mortar joints, indicating limited energy dissipation capacity.

Figure 2. Damage patterns on brick masonry buildings

Additional damage included separation at wall intersections and local crushing of masonry at pier ends. Despite the presence of reinforced concrete floor slabs, the connection between floors and masonry walls was often insufficient to ensure effective box behaviour, contributing to concentration of damage in vertical load-bearing elements. Out-of-plane instability was observed locally, mainly in façade walls with large openings, but did not govern the overall damage state.

4. OBSERVED DAMAGE IN STONE MASONRY BUILDINGS

Stone masonry buildings displayed a different damage pattern compared to their brick masonry counterparts. Damage was more irregular and strongly influenced by the heterogeneity of stone units and mortar quality. Widespread cracking along mortar joints was observed, often accompanied by partial disintegration of wall sections.

Figure 3. Damage patterns on stone masonry buildings

Out-of-plane mechanisms were more pronounced in stone masonry buildings, particularly in walls with insufficient transverse support and flexible diaphragms. Corner separation and loss of wall-to-wall connectivity were common, leading to a progressive loss of box action.

In several cases, damage was aggravated by material degradation due to ageing and moisture, further reducing the effective strength and stiffness of the masonry.

5. COMPARATIVE DAMAGE INDICATORS

A qualitative comparison between brick and stone masonry buildings at DS-4 level is summarised in Table 2.

***Table 2**. Comparative damage characteristics*

Indicator	*Brick masonry*	*Stone masonry*
Wall thickness	*Medium*	*High*
Opening ratio	*Medium–High*	*Low–Medium*
Diaphragm rigidity	*Semi-rigid*	*Flexible*
Dominant cracking	*In-plane diagonal shear*	*Joint cracking and separation*
Out-of-plane damage	*Local*	*Frequent*
Wall connectivity	*Moderate*	*Poor*

The comparison indicates that brick masonry buildings tend to reach DS-4 primarily due to in-plane shear damage, whereas stone masonry buildings are more susceptible to loss of box behaviour and out-of-plane instability.

6. DISCUSSION

The observed differences between brick and stone masonry buildings highlight the importance of typology-specific assessment during post-earthquake inspections. While both masonry types reached the same damage state, the underlying damage mechanisms differed significantly.

Brick masonry buildings benefited from more regular unit geometry and, in some cases, stiffer floor systems, leading to damage concentration in specific walls. In contrast, stone masonry buildings exhibited more distributed damage and a higher tendency toward instability mechanisms, largely due to irregular masonry texture and weaker connections.

These findings underline the need for differentiated assessment criteria and intervention strategies for different masonry typologies.

7. CONCLUSIONS

Based on the comparative analysis of four DS-4 masonry buildings affected by the 2019 Albania earthquake, the following conclusions can be drawn:

- *Brick and stone masonry buildings exhibit distinct damage characteristics despite reaching the same damage state.*
- *In-plane shear cracking dominates damage in brick masonry buildings, while out-of-plane mechanisms are more critical in stone masonry structures.*
- *Diaphragm rigidity and wall connectivity play a decisive role in the observed damage patterns.*
- *Typology-based interpretation of damage can improve the reliability of rapid post-earthquake assessments.*

Conflict of interests

The author would like to confirm that there is no conflict of interests associated with this publication and there is no financial fund for this work that can affect the research outcomes.

References

1. *CEN. (2004). Eurocode 8: Design of structures for earthquake resistance – Part 1: General rules, seismic actions and rules for buildings (EN 1998-1). European Committee for Standardization, Brussels.*
2. *CEN. (2005). Eurocode 6: Design of masonry structures – Part 1-1: General rules for reinforced and unreinforced masonry structures (EN 1996-1-1). European Committee for Standardization, Brussels.*
3. *Grünthal, G. (1998). European Macroseismic Scale EMS-98. European Seismological Commission.*
4. *Pavić, G., Ademović, N., & Hadzima-Nyarko, M. (2019). Seismic vulnerability assessment of typical masonry buildings in the Western Balkans. Bulletin of Earthquake Engineering, 17, 4517–4536.*
5. *INGV. (2019). Characteristics of the Mw 6.4 Albania earthquake of 26 November 2019. National Institute of Geophysics and Volcanology, Italy.*
6. *Aliaj, Sh., Koçiu, S., Muço, B., & Sulstarova, E. (2010). Seismicity, seismotectonics and seismic hazard assessment in Albania. Academy of Sciences of Albania, Tirana.*
7. *Federal Emergency Management Agency (FEMA). (2000). Prestandard and commentary for the seismic rehabilitation of buildings (FEMA 356). Washington, DC.*
8. *Hysenlliu, M., Bidaj, A., Deneko, E., & Bilgin, H. (2026). Seismic Performance and Retrofit-Based Guidelines for DS-4 Unreinforced Masonry Buildings Evidence from Eight Real Case Studies. International Journal of Innovative Technology and Interdisciplinary Sciences, 9(1), 238–261. Retrieved from https://journals.tultech.eu/index.php/ijitis/article/view/397*

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