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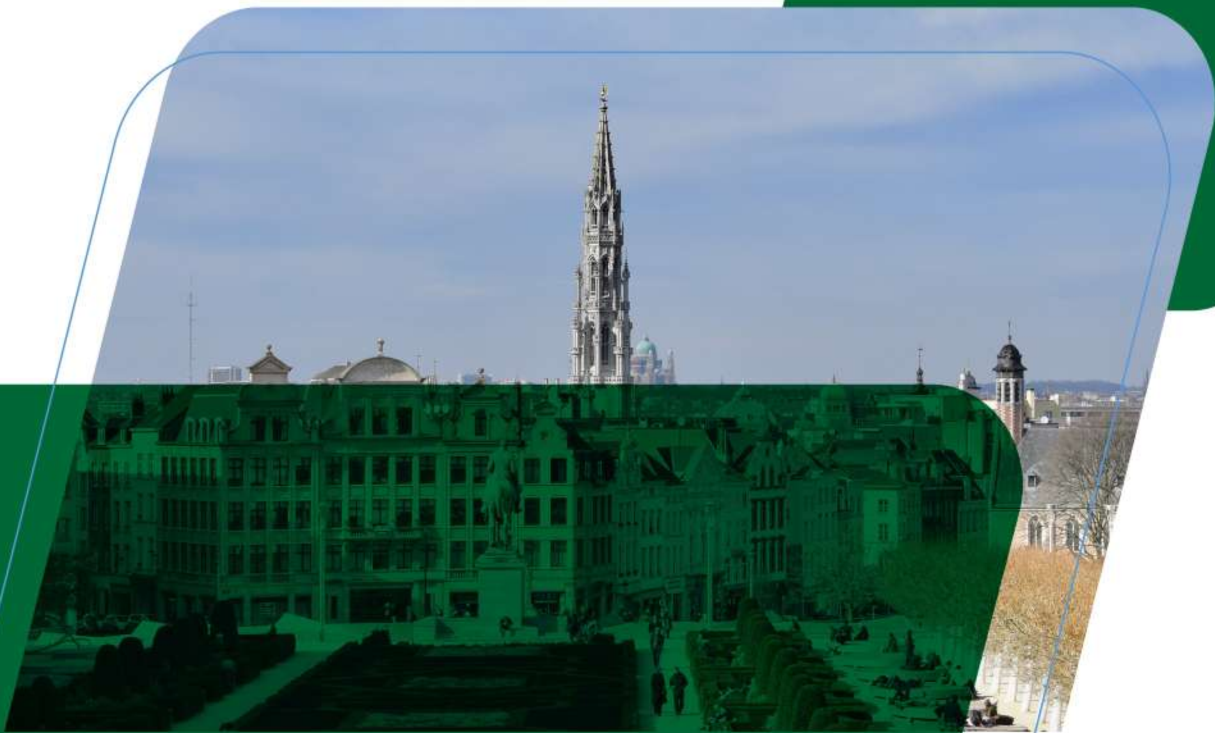

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Content

Agricultural sciences

INVESTIGATION OF THE PRODUCTIVITY INDICATORS OF NEW ANIMAL TYPES OBTAINED THROUGH ARTIFICIAL INSEMINATION

M. Aliyev
M. Gurbanova
L. Alakbarova

Abstract

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Keywords—About four key words or phrases in alphabetical order, separated by commas.

INTRODUCTION

CURRENTLY, in most agriculturally developed countries around the world, artificial insemination is widely used in the creation of cattle breeds, ensuring animal health, increasing livestock production, improving the breed composition of animals, and developing new animal breeds. The purpose of performing artificial insemination is to improve the breeding qualities of animals in a short time by maximizing the use of the most valuable progenitors, to eliminate infertility, to increase productivity, and to prevent diseases that can be transmitted through natural mating [7].

Since 1950, artificial insemination of large cattle has been applied in Azerbaijan. In that year, the first artificial insemination laboratories were established in the farms of the Neftchala district. In 1954, the Kur-Araz Experimental Livestock Station was established, and in 1956.

Meanwhile, an artificial insemination laboratory was opened at the "Absheron Livestock Experimental Station," which operates within the Azerbaijan Scientific Research Institute of Animal Husbandry. During this period, the main goal was to increase animal productivity and improve breed composition. As a result of purposeful work carried out in the laboratory, the breed composition of large cattle in the republic was significantly improved [5],[6].

After 2000, the Azerbaijani government once again began to focus on the development of this field. For the first time, the "Artificial Insemination Center" was established in Azerbaijan. Farmers were supported through adopted State Programs. Efforts began to improve local livestock using semen from productive foreign breeds such as Simmental, Holstein-Friesian, and Swiss, among others. Modern necessary equipment for performing artificial insemination was provided to experienced technicians [1],[2].

Methodology

The scientific research was carried out in accordance with the methodology outlined by M.V. Nazarov, E.A. Gorpinchenko, and B.V. Gavrilov (2018) in "Artificial Insemination of Agricultural Animals" (diagram) [17].

The aim of the research is to increase the productivity of low-yielding local breeds on our farm and to improve their breed composition.

The objectives of the research are the creation of new animal types, the increase of herd size, and the evaluation of the offspring obtained.

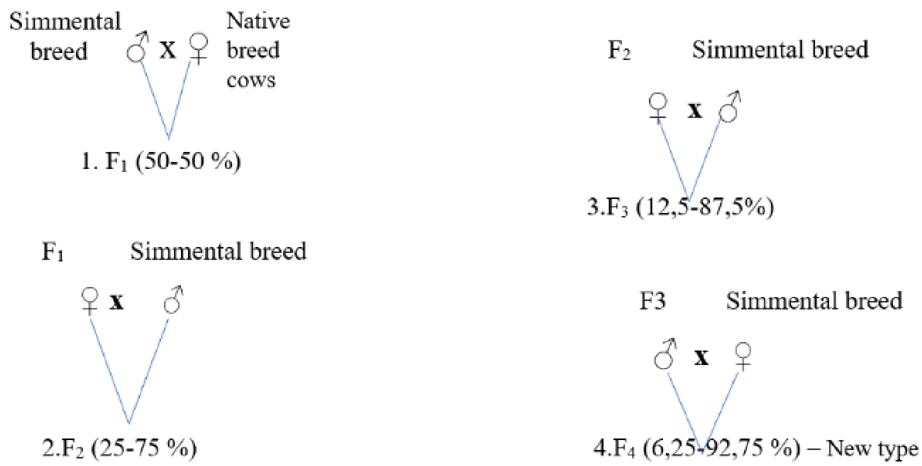

Diagram 1. Crossbreeding scheme of local cattle breeds with Simmental

Experimental research

Since 2016, 20 local cows raised on a peasant farm located in the village of Mollacalilli, Goygol district, have been artificially inseminated with the semen of Simmental bulls, producing F1, F2 and F3 offspring (Figure 1; Figure 2; Table 1).

Fig. 1. Artificial insemination of local cattle

Fig. 2. F_1 generation dam (mother) cattle

TABLE I

BODY MEASUREMENTS OF LOCAL AND F_1 GENERATION COWS

Body measurements	Native cattle	F1 generation mother cattle
Withers height	115	130
Chest girth	167	175
Chest width	40	43
Oblique body length	130	133
Straight body length	105	107
Forehead width	23	22
Forehead height	45	47
Hindquarter circumference	17	19
Rump width	43	46
Rump height	121	134

In the first generation (F1), the trait ratio was 50%-50%; in the second generation (F2), it was 75%-25%; and in the third generation (F3), it reached 87.5%-12.5%. The characteristics of the Simmental breed are almost fully expressed by the third generation.

The first-generation cows obtained have large heads, broad foreheads, deep chests, and wide loin areas, with well-developed muscle structure. F2 generation cows have the capacity to produce 20-25 liters of milk per day, which is 2 to 2.5 times more compared to local cows (see Table 3). It can be concluded that as the proportion of the improved breed's blood increases, the effectiveness of crossbreeding improves. The productivity indicators of the offspring surpass those of the parent forms significantly (see Figures 3 and 4) [3],[4].

Regular monitoring was conducted over the feeding and maintenance of the animals. The cows on the farm were fed according to the following ration (see Table 2).

TABLE II

DAILY FEED RATION OF COWS PER DAY

Feed name	Quantity, kg	Value, man.
Barley groats	2	1.0
Wheat bran	3	1.14
Cottonseed meal	2	0.88
Corn grits	0,5	0.25
Alfalfa hay	5	1.50
Green fodder	18	1.80
Total	30,5	6.57

TABLE III

ECONOMIC EFFICIENCY OF MILK YIELDED PER MONTH

Indicators	for local livestock, for 2 heads	For F_2 generation livestock, for 2 heads	difference
Feed consumed in 1 month, kg	2160	2160	-
Milk yield in 1 month, liters	422,2	1494,6	1072,4
Feed cost, manat	395,28	395,28	-
Selling price of 1 liter of milk, manat	0,55	0,55	-
Income from milk sales in 1 month, manat	232,21	822,0	589,79

Fig.3. Local livestock

Fig. 4. F_2 generation female livestock

Compared to local animals, 1,072.4 liters more milk was obtained from crossbred animals in one month, resulting in an additional income of 589.79 manats (see Diagram 2) [9],[11],[12].

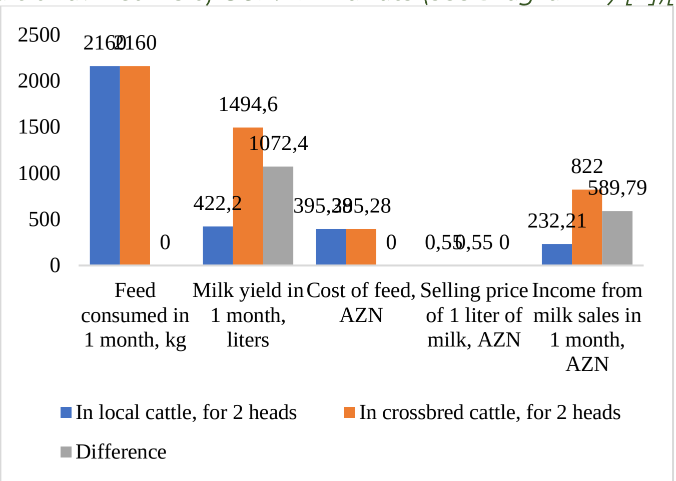

Diagram 2. Comparison diagram of milk productivity

During the study, F3 male calves were put on a fattening regimen. At 18 months of age, these calves reached a live weight of 600–650 kg and were slaughtered, yielding 330–357 kg of meat, which corresponds to 55% of the carcass's net weight (see Figures 6 and 7). In contrast, local calves reached a live weight of 300–330 kg at 18 months, and upon slaughter, yielded 150–165 kg of meat, or 50% of the net carcass weight (see Table 4) [13],[14],[15].

TABLE IV

COMPARATIVE INDICATORS OF THE ECONOMIC EFFICIENCY OF THE RESULTS OBTAINED, N = 1

Indicators	Local livestock	Crossbred livestock	Difference
Feed consumed in 6 months, kg	2340	2340	-
Live weight of male calves, kg	330	650	320
Meat yield, kg	165	357	192
Meat yield (% percentage)	50	55	-
Feed cost, manat	748,8	748,8	-
Selling price of 1 kg of meat, manat	12	12	-
Income from meat sales, manat	1980	4284	2304
Economic profit, manat	1231,2	3533,2	2302

FIG. 5. 18-MONTH-OLD LOCAL AND F2 GENERATION CALVES

Fig. 6. 18-month-old local and F3 generation calves

Compared to local male calves, an additional income of 2,302 manats was obtained from the cross-bred calves (see Table 5).

TABLE V

COMPARATIVE INDICATORS OF THE ECONOMIC EFFICIENCY OF THE RESULTS OBTAINED, N = 1

Feed name	Quantity, kg	Value, manat
Cracked barley	2	0,96
Wheat bran	2	0,72
Cottonseed meal	2	0.88
Corn grits	0,5	0.25
Alfalfa (hay)	5	1.50
Imishli fattening feed	2	0,88
Total	14,5	5,9

Since January 2025, a total of 8 calves from F2 and F3 generations have been born on the farm. The calves are healthy, with birth weights ranging from 34 to 38 kg. The calves conform fully to the color markings of the Simmental breed (see Figures 7, 8, and 9). Body measurements of the calves and F3 generation heifers were taken and evaluated (see Table 6) [8],[10],[11].

Fig. 7. Newborn F3 generation calves and 16-month-old inseminated heifers

Fig. 8. Measurement of body parts of a newborn calf

Fig. 9. Newborn local calf

TABLE VI

BODY MEASUREMENTS OF THE OBTAINED F3 GENERATION CALVES, N=8

S.s	Body measurements	Body measurements (cm) of calves born from local cattle		Body measurements (cm) of F_3 generation calves	
		Male	Fermale	Male	Fermale
1	Forehead width	12	10	15	13
2	Forehead length	22	19	26	24
3	Straight body length	55	53	60	57
4	Diagonal body length	77	74	82	79
5	Chest girth	83	79	88	87
6	Chest width	17	14	20	18
7	Withers height	74	71	77	74
8	Rump heigh	78	75	82	79
9	Shank girth	12	10	15	13

As shown in the table, the body measurements of the F3 generation calves are significantly superior to those of the local calves, which provides a basis for their more intensive development in subsequent periods (see Figure 10) [16].

Fig. 10. F1, F2, and F3 generation new-type animals

Preventive measures against blackleg, foot-and-mouth disease, smallpox, enzootic abortion, and rabies have been carried out on the farm on a monthly basis. Four F3 generation heifers were inseminated with Simmental bull semen, and the birth of F4 generation calves is expected in January and February of 2026.

Results

1. The newly obtained animal type has straight leg structure and normal gait. Its body is long, with a broad back and chest. The head is large and heavy, with a hairy forehead. Generally, the animals have horns (sometimes polled). During evaluation, based on the coarse constitution of the local breed and the loose constitution of the Simmental breed, the newly obtained animals are classified as having a medium-coarse constitution. They are dual-purpose, suited for both meat and milk production. Their color is reddish-brown. The body is covered with clean and shiny hair. The loin, thigh, and back areas are well developed. The bones are thick, and the body structure is large. With proper feeding, they develop faster and have the ability to deposit meat evenly.

2. Compared to the local breed, the F3 crossbred heifers had a withers height of 130 cm (115 cm in locals), a rump height of 138 cm (121 cm in locals), and a chest girth of 175 cm (167 cm in locals). As shown in the table, there is a significant difference in body measurements between the crossbreds and the local cattle. The crossbreds grow faster and utilize feed more efficiently.

3. Compared to local breed calves, F3 generation calves develop faster and utilize feed more efficiently. The body length of F3 calves is 60 cm, while it is 55 cm in local calves. Chest girth measures 87 cm in F3 crossbreds and 83 cm in local calves.

4. Compared to the local breed, F3 crossbred heifers exhibited significantly improved body measurements: withers height was 130 cm in crossbreds and 115 cm in local cattle; rump height was 138 cm in crossbreds versus 121 cm in locals; chest girth was 175 cm in crossbreds and 167 cm in local cattle. The crossbreds showed a clear advantage in body conformation compared to local animals. They grow more rapidly and make more efficient use of feed.

5. The obtained crossbreds adapt well to Azerbaijan's hot climate conditions (with temperatures of 30-40 degrees Celsius during summer) just like the local cattle. They utilize feed efficiently and show good resistance to diseases.

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Arts

CHARACTERISTICS OF SERGEI RACHMANINOFF'S PIANO WORK

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SERGEY RAHMANİNOV'UN PİYANO YARATICILIĞINA ÖZGÜ ÖZELLİKLER

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Abstract

Sergei Rachmaninoff, as one of the greatest piano virtuosos in history, composed works for the piano that are masterpieces which push the boundaries of the instrument, being both technically demanding and rich in expression. His piano compositions possess a unique style and character. In his piano works, long, breath-like, and profoundly lyrical melodies—a hallmark of his signature style-take precedence. The composer frequently employs chromatic progressions, sharp dissonances, and characteristic chordal movements, particularly what is known as the "Rachmaninoff chord." These harmonies lend his music both a sense of gloom (melancholy) and passion. In Rachmaninoff's works, the bass part not only lays the harmonic foundation but also carries independent melodic significance. Heavy, rich, and powerful bass tones are an integral part of his piano texture. Rachmaninoff's piano creativity is a unique blend of power, lyricism, and technical mastery. He regarded the piano not merely as an instrument for producing sound, but as an "organ" capable of expressing the deepest emotions of the human heart—from sorrow to love, from anger to delicate lyricism. His works continue to stand as some of the brightest pages in piano literature, captivating both performers and listeners with their power and emotional depth.

ÖZET

Sergey Rahmaninov, tarihin en büyük piyano virtüözlerinden biri olarak, piyano için yazdığı eserler de bu enstrümanın olanaklarını zirveye taşıyan, hem teknik açıdan zor, hem de ifade zenginliğine sahip şaheserlerdir. Onun piyano yaratıcılığı kendine özgü bir stil ve karakter taşır.

Piyano eserlerinde de onun başlıca imzası olan uzun, nefesli ve son derece lirik melodiler ağırlık taşır. Besteci sıklıkla kromatik ilerleyişler, keskin dissonanslar ve özellikle "Rahmaninov akordu" olarak bilinen karakteristik akor gezinmelerinden yararlanır. Bu armoniler onun müziğine hem kasvet (hüzün) hem de tutku verir. Rahmaninov'un eserlerinde bas partisi sadece armoninin temelini atmakla kalmaz, aynı zamanda bağımsız melodik önem taşır. Ağır, zengin ve güçlü bas sesleri onun piyano dokusunun ayrılmaz bir parçasıdır. Rahmaninov'un piyano yaratıcılığı, güç, lirizm ve teknik nüfuzun eşsiz bir birleşimidir. O, piyanoyu sadece ses çıkaran bir enstrüman değil, aynı zamanda insan kalbinin en derin duygularını -kederden aşka, öfkeden narin lirizme kadar ifade edebilen bir "org" gibi değerlendiriyordu. Onun eserleri, piyano edebiyatının en parlak sayfalarından biri olarak kalmaya ve hem icracıları hem de dinleyicileri kudreti ve duygusal derinliği ile büyülemeye devam etmektedir.

Keywords: *Rachmaninoff, piano, sonata, preludes, performance characteristics, lyrical character, piano literature, musical culture.*

Anahtar kelimeler: *Rahmaninov, piyano, sonat, prelüdler, icracılık özellikleri, lirik karakter, piyano edebiyatı, müzik kültürü.*

GİRİŞ: *Sergey Rahmaninov'un piyano yaratıcılığı, dünya müzik kültürünün en parlak sayfalarından biri olmuş ve onun bu alandaki mirası, piyano edebiyatının oluşumunda ve gelişiminde belirleyici bir rol oynamıştır.*

Güçlü, parlak ve mükemmel bir yeteneğe sahip olan Rahmaninov, çağdaşları arasında eşsiz bir dâhi piyanist olarak tanınmıştır. Seçkin müzikolog B. Asafyev şöyle yazmıştır: "Bestecinin doğası öyleydi ki, *onun eserleri aynı zamanda hem bir düşünce hem de aktif bir sanatsal ifade olarak tek bir kişide oluşurdu; bu sırada yazıya alınmış malzeme, icracı-heykeltıraş için sadece bir malzemeye dönüşürdü." [2]*

Şunu doğrulamak gerekir ki, Rahmaninov, gücü ve özgünlüğüyle hayret verici bir piyanistlik yeteneğine sahip olmasaydı, piyano edebiyatının gelişimine bu kadar zengin ve parlak bir katkı sunmazdı.

S.Rahmaninov'un piyano yaratıcılığının temel özelliklerinden birini karakterize ederek D.V. Jitomirski şöyle yazmıştır: "Rahmaninov'un yaratıcılığında piyano eserleri önemli bir yer tutar. Bu eserlerin her biri dünya müziğinin zengin hazinesidir." [3, s. 11-15]

ANA METİN: Bestecinin on yedi-on sekiz yaşlarında (1890-1891) konservatuvarı bitirmeden önce yazdığı Birinci Konçert oldukça ünlü bir eserdir. Bu eserde hem Rus müzisyenlerinin (Çaykovski, Rubinstein), hem de Batı romantiklerinin (Chopin, Schumann) etkisi hissedilir.

Konsertin tamamlanmasından sonraki birkaç yıl içinde Rahmaninov tarafından bir dizi piyano eseri yazılmıştır: "Fantezi Parçaları" op. 3 (1892) ve "Salon Parçaları" op. 10 (1894). Bu parçaların her biri parlak bireysel özgünlük özellikleri taşır ve özellikle do diyez minör prelüdü öne çıkar. Burada sesin dolgunluğu ve zenginliği, etkileyici ve kontrastlı register, gürültülü "çan" basları bu kısa süreli parçaya anıtsal özellikler kazandırır. Ağır şekilde inen ostinato bas figürü ile sürekli eşit, ölçülü ritmik hareket ve üst registırda seslenen hüzünlü cevap cümlelerinde öfkeli alttan seslenen temalar duyulur. Orta bölüm hızla sonlanır ve ilk yapı dinamikleştirilmiş ve yoğunlaştırılmış ifadeyle tekrarlanarak devasa bir ses gücüne ulaşır. Karanlık bir cenaze çanını andıran kısa final yapısı, adeta insanın kader karşısındaki çaresizliğini haber verir. Müziğe özgü dekoratiflik unsuruna rağmen, bu parça on dokuz yaşındaki genç bestekar için fikrin özgünlüğü ve piyano sesi olanaklarına hâkimiyet derecesi açısından dikkate değer bir durumdur.

"Melodi" adlı prelüd, kendi aydınlık ve berrak lirizmi ile dikkati çeker. Pyotr Çaykovski bu prelüdleri dünya klasik müziğinin en iyi eserleri olarak not etmiştir: "Düzgün ve sakin şekilde geniş dalgalarla açılan melodik ses, orta "viyolonsel" timbresinde üçlü akor eşliği fonunda etkileyici bir şekilde seslenir. Ana melodinin üstte değil, orta veya altta yer alması, ona özel bir dolgunluk kazandırır. Bu, Rahmaninov'un bir dizi sonraki eseri için de karakteristik olan bir özelliktir. "Elegi" parçası ise hüzünlü, yürek burkan patetiği ile öne çıksa da, aynı zamanda cesur bir karakter taşır. Onun zayıf, ince melodik cümleleri aktif nida tonlamaları ve fırtınalı öfkeli çıkışlarla, parlak dinamik ses yükselişiyle eşlik edilerek birleşir." [4, s.153]

S.Rahmaninov'un 1901'de tamamladığı İkinci Piyano Konçertini, onun bir önceki büyük piyano eseri olan op. 16 "Altı Müzik Anı"ndan beş yıl ayırır. Izdıraplı şüphe, ümitsizlik ve kendi yolu hakkında düşüncelerle dolu zorlu bir beş yıldan sonra besteci, bu yeni eserinde kendini parlak bir şekilde ifade edilmiş bireysel fizyonomisi ve işlenmiş yazım tarzı olan olgun, biçimlenmiş bir usta olarak gösterir. Sahibine hak ettiği başarıyı getiren konçert, haklı olarak Çaykovski'nin si bemol minör konçertinden sonra en iyi Rus piyano konçerti olarak tanındı. Ancak, Çaykovski ve diğer XIX. yüzyıl Rus ve yabancı bestekarlardan farklı olarak, Rahmaninov'un konçerti hem kendi imgesel yapısında ve müzikal ifade araçlarında, hem de türün kendi yorumlanmasında çok yeni üslupları içerir. Bu eseri orkestra ve piyano için ilham dolu lirik-patetik bir poem olarak adlandırmak mümkündür. Poematik özellikler, bütünlük ve sürekli bir gelişim eğiliminde kendini gösterir.

Konçertin monolog karakteri, esas olarak müzikal yapısının lirik doğasıyla belirlenir; bu ne sert bir dramaturjiyi ne de ciddi, görkemli epik niteliği dışlar. Rahmaninov'un lirizmi burada, sakin düşünsel rahatlıktan veya hüzünden, cesur bir protesto pathosuna ve coşkulu, neşeli bir özgüvene kadar tüm zenginliği ve çok yönlülüğü ile kendini gösterir. Konçertin ana temalarının melodik güzelliği ve anlatım gücü hayranlık uyandırıcıdır. Temalar besteci tarafından geniş bir şekilde işlenir ve farklı aydınlatmalarda, çeşitli metro-ritmik varyasyonlarda ve tınısal-registersal çeşitlilik içinde kendini gösterir. Rahmaninov'un melodik dehasının dikkate değer örnekleri arasında, hakkında çokça konuşulan ve yazılan birinci bölümün ana tema grubu teması yer alır. N.K. Medtner onu "Rusya'nın en parlak temalarından biri" olarak adlandırır: "İlk çan vuruşundan itibaren Rusya'nın tüm heybetiyle ayağa kalktığını hissedersiniz." [5]

Rahmaninov, eserlerinde Rus halk şarkı melodilerinin bazı özelliklerinin özgür tezahürü temelinde, büyük bir genelleme gücüne sahip imgeler yaratır. Başlangıçta sert tınlayan tema, gelişim sürecinde daha yumuşak lirik bir renk kazanır; bu da daha önce eşlikçi bir rol oynayarak melodiyi gürültülü, dolgun pasajlarla örten bir yapıdadır. Böylece, ikincil temaya geçiş hazırlanır ve onun temasını piyano canlı bir şekilde ifade eder. Bu aydınlık, düşsel tema, yukarıda tasvir edilen Rahmaninov'un lirik melodi tiplerinden birinin en karakteristik örneklerinden biridir. Konçertin orta bölümünü V.A. Tsukerman haklı olarak "Rus lirizminin incisi" olarak adlandırmıştır. [6, s. 137]

Güzel ve şiirsel müziğiyle cezbeden bu Adagio, oldukça büyük hacmine rağmen, tamamen tek bir tema üzerine kuruludur. Piyanoda eşit aralıklarla akan figürasyonlar eşliğinde ifade edilen ana tema, *görünmez hafif bir dalgalanma izlenimi yaratır. Sadece ana destek sesinden hafifçe sapar ve tekrar ona döner. Ancak görünen dış hareketsizliğin arkasında titreşimli bir iç hayat hissedilir.*

İkinci Konçert'in Adagio'su gibi, bu bölüm de tek bir temaya dayanır ve onun son ifadesinin orta bölümde defalarca tekrarı, şarkımsı ve tutkulu bir çağrı gibi tınlar.

Süitin son bölümü olan Tarantella, dinamik baskısı ve ritmik enerjisi ile dikkat çeker. İtalyan halk melodisinden yararlanan Rahmaninov, onu melodik olarak adeta "soyar", sadece ritmik destek noktalarını korur, bu da ona özellikle kararlı ve vurgulu bir karakter verir. Gelişim sürecinde sadece ara sıra onun tam melodi deseni görünür. Aynı melodinin varyasyon değişikliği yoluyla, kısaltılmış bir reprise sahip sonat formunda yazılmış Tarantella'nın ikinci teması ortaya çıkar. İfade tarzı açısından bu yeni tema, Balakirev'in "İslamey" eserinde işlenen "Kafkas dansı" melodilerini anımsatır.

Müziksel imgeler ve duygu durumu dairesi açısından, 1900'lü yılların başında yazılan "On Prelüd" (op. 23) dizisi de İkinci Konçert'le sınır komşusudur. Bestecinin kendi sözlerine göre, on prelüdün tamamı 1903'te yazılmıştır, ancak bir kısmının 1901-1902 yıllarında yaratıldığını düşündüren veriler de vardır [5].

Bu dizinin en lirik eserlerinden biri olan Mi bemol majör prelüdü, konçertin birinci bölümündeki yardımcı tema alanıyla doğrudan çağrışımlar yaratır.

XIX. yüzyıl sonu ve XX. yüzyıl başında birçok bestecinin favori türü olan prelüd türü, Rahmaninov'un yaratıcılığında özel bir yoruma kavuşur. Skryabin'in lirik izlenimlerinin bir anını yansıtan kısa prelüdlerinden farklı olarak, o, ifade edilen duyguyu dinamizm ve gelişim içinde aktarır, ayrıca bazı durumlarda zıt imgeleri yan yana geliştirir. Bu nedenle onun prelüdleri boyut olarak nispeten geniştir ve müzikleri sıklıkla canlı imgesel çağrışımlar uyandırır.

Dizinin tek tek eserleri hem ifade yapısı hem de piyano ifade yöntemleri açısından çeşitlilik gösterir. Daha önce bahsedilen Mi bemol majör prelüdünün ana melodisinin figürasyonu incelik ve zarafetle öne çıkar. Bazen bu eşlik eden seste, temanın tek tek melodik dönüşlerini taklit eden kısa bölümler ortaya çıkar, bu da faktürün her iki elementinin ayrılmaz birliğini daha da vurgular. Aynı derecede sakin lirik olan Re majör prelüdü ise, öncelikle dolgun ve zengin melodizmiyle dikkat çeker. Geniş harmonik figürasyonlar zemininde orta registırda ifade edilen melodi, uzatılmış bir temadır; tekrarlanan ifade sırasında onun ilk ikili entonasyonundan doğan pürüzsüz bir ikinci sesle eşlik edilir. Prelüdün formunu genel olarak ikili bölümlülük ile varyasyon prensibinin birleşimi olarak tanımlamak mümkündür. Birinci bölümün ikinci yapısında kısa ama parlak bir doruk noktasına çıkaran yoğun bir artıştan sonra, tema yeniden değiştirilmiş ve daha net bir registırda geçer. Böylece, burada da tüm faktür elementleri sıkı bir şekilde birbirine bağlıdır ve melodik başlangıcın üstünlüğüne tabi olur.

En ünlü prelüdlerden biri olan sol minör prelüdü, yapısının çelişkiliği ile diğerlerinden ayrılır. Dizide aynı zamanda bravura ve cenkçi cesareti taşıyan Si bemol majör prelüdü de yer alır.

1902-1903 yıllarında Rahmaninov, Chopin'e bir saygı duruşu olarak, onun do minör prelüdüne Varyasyonlar bestelemiştir. Bu eser dengesiz ve piyano ifadesi açısından aşırı derecede yüksek icra tekniği gerektirir.

S.Rahmaninov'un yaratıcılığında önemli bir aşama, 1909 yılında Üçüncü Piyano Konçertî'nin yaratılması oldu. Bu eser, 1900'lü yılların sonu 1910'lu yılların başında onun eserleri arasında önemli bir yere sahiptir. Melodik zenginlik ve güzellik açısından öne çıkan Üçüncü Konçert, kısa sürede popüler oldu. B.Asafyev şöyle düşünüyordu: "İşte Üçüncü Konçert'ten başlayarak 'Rahmaninov'un titanik piyano stilinin' nihai oluşumu gerçekleşir ve bestecinin erken eserlerine özgü olan 'basit romantik faktür' özellikleri tamamen ortadan kalkar." [2]

Eserde senfonik gelişim daha geniş bir nefes alır, form bölümleri arasındaki bağlantılar daha sağlam olur, anıtsal piyano faktürü hafifliği ve şeffaflığının yanı sıra devasa bir ses gücüne ulaşır.

Konçert, orkestranın iki giriş ölçüsünden hemen sonra, solist tarafından ana temanın sunulmasıyla başlar. Genelleme gücü ve ifade derinliği açısından İkinci Konçert'in ilk temasından hiç de geri kalmaz, ancak ondan farklı olarak sakin ve mütevazı, içe dönük düşünceli bir hüzün duygusuyla seslenir. Şarkımsı yapıdaki melodi sınırlı bir aralıkta, ana dayanak noktasına sürekli dönerek gelişir. Onun eski Rus kilise şarkılarının yapısına yakınlığı defalarca belirtilmiş, hatta bu tür yakınlığın somut örnekleri gösterilmiştir. Bununla birlikte, bu analoji yalnız ana temanın ilk yapısı için geçerli olabilir; ikinci yapıda kromatikleşmeye ve sekans gelişimine maruz kalır ki bu da ona daha ekspresif, keskin öznel bir renk katar. Orkestra eşliğinin net, aktif ritmi de önemli bir rol oynar ve bu daha sonra tüm döngü içinde kalıcı birleştirici elementlerden birinin önemini kazanır. Aynı ritmik figür, daha lirik ve coşkulu yardımcı bölümün ilk ifadelerinde de duyulur ki bu, kendi sırasında, söz konusu temanın kendisinden önce gelen orkestra varyasyonu ile vurgulanır. Kendi gelişiminde tema parlak ifadeli bir doruk noktasına ulaşır.

Ana temanın tek tek motiflerinin kademeli gelişimi ve ayrıştırılması yoluyla elde edilen daha yüksek ve sürekli ikinci doruk noktası, işleme bölümünün merkezini oluşturur (Allegro, ff, molto marcato) ve hızla *aşağı inen martellato (çekiç benzeri vuruşlu) pasajla sona erer, ardından hem solist partisinde hem de orkestrada ısrarla tekrarlanan hüzünlü küçük ikili entonasyonlarla uzun süreli bir gerilim düşüşü başlar. Üçüncü büyük yükseliş dalgası, işleme bölümünün son kısmını reprizın başlangıcı ile birleştiren geniş bir kadans (virtüözce solo pasaj) ile son bulur.*

Konçert'in ikinci bölümü olan İntermezzo da kendi yapısı itibarıyla özgündür ve orkestrada ifade edilen basit bir şarkı teması üzerine yazılmış serbest varyasyonlar şeklindedir. Bu sırada onun ilk ifadesinin ve solist tarafından icra edilen varyasyonların tonaliteleri ile farklılık gösterir (La majör, Re bemol majör).

Konçert'in finali, Rahmaninov'un tipik sağlam, keskin vurgulanmış ilerleyen ritmiyle, güvenli gücü ve enerjisiyle doludur. Yukarıda belirtilen ritmik figür bir nevi tüm eserin leitmotifidir (anahtar motif). Finalin ana teması hızla yükselen çağrı entonasyonlarına dayanır. Aynı silinmez irade enerjisi baskısı, değişmez senkoplaştırılmış ritmin sert çerçevesi içinde korunur ve dolgun sesli akorlarla ifade edilen yardımcı temada da duyulur. Yalnız final bölümünde daha pürüzsüz, akıcı bir melodi ortaya çıkar, onun deseni kendinden önceki temanın ana hatlarıyla örtüşür.

Müzik karakteri beklenmedik bir şekilde işleme bölümünde değişir ki bu da sonat allegrosu içinde bağımsız bir epizodu temsil eder: tempo, ses rengi, ifade tipi keskin bir şekilde değişir; ritmik desen tuhaf ve kaprisli (oynak) seslenir. Ancak tüm kontrasta rağmen, ana tematik materyalle, çok ince bir şekilde örtülü olsa da, bağlantı korunur. Finalin ana bölümünün savaş çağrıları bir nevi gizemli fantastik çağrılara dönüşür: birinci bölümün yardımcı temasının tek tek motiflerinin hatları da belirsiz bir şekilde su yüzüne çıkar. Böylece, final bir dereceye kadar sonuçlandırıcı, sentetik bir önem kazanır.

Kısa bir reprizdan sonra Üçüncü Konçert, İkincisi gibi, finalin değiştirilmiş yardımcı bölüm temasına dayanan, parlak ışıklı ama daha kararlı tınlayan, piyano ve orkestranın güçlü unisonlarında (tek sesli pasajlar) güçlü bir koda (bitiş bölümü) ile zafer izlenimi vererek sona erer. Üçüncü Konçert'in tamamlanmasını takip eden en yakın yıllarda yaratılan daha küçük boyutlu bir dizi piyano eserinde, Rahmaninov'un anıtsal piyanizm stilinin karakteristik özellikleri daha da geliştirilir ve aynı zamanda yeni icra yöntemleri ortaya çıkar. Bestecinin görünümü bu eserlerde daha sert ve keskinleşir, yumuşak düşünceli lirizm giderek daha sık olarak karanlık ve huzursuz, sıklıkla trajik duygu durumlarına yol açar. Bazı eleştirmenler bu değişiklikleri olumsuz değerlendirmiş ve onlarda, eğer bir çöküş değilse, belirli bir kriz ve kendi özgün yüzünü kaybetme belirtileri görmüşlerdir. G.Hubov, birkaç etüdün icrası ile ilgili olarak şöyle yazmıştı: "Etütlerde yazarın tipik fizyonomisi (kişiliği) kendini nispeten zayıf gösterir ve onun elegik (hüzünlü) lirizmi, genel olarak onun yaratıcılığını Çaykovski ile akraba kılan ve genellikle onu bu bestecinin yanına koymaya zorlayan özellikler gözlemlenmez." [4, s.82]

Aslında ise Rahmaninov'un yaratıcı gücü hiç de tükenmiyordu, aynı şekilde onun Çaykovski ve önceki dönemin diğer büyük Rus ustaları ile olan manevi bağı da kopmuyordu. Ancak, hassas, hakikati arayan bir sanatçı olarak Rahmaninov zamanın nabzını hissederek, döneminin olaylarını kendi yaratıcılığında yansıtıyordu. Bu değişiklikler, yeni prelüd dizisini daha önce yazılmış On Prelüd (op. 23) ile karşılaştırırken açıkça görülür. Her iki dizi, erken do diyez minör prelüdü ile birlikte, tüm majör ve minör tonlarını kapsar. Ancak, farklı zamanlarda yazılmış ve stilistik açıdan eşit olmayan bu eserler, tek bir tutarlı seri oluşturmazlar. Lekesiz, berrak renkleri ve pastoral (kırsal) tonları ile Sol majör prelüdü öne çıkar. Ancak op. 23'ten olan Re majör prelüdünün veya sol minör prelüdünün orta bölümünün ses dolgunluğu, grafik netlik ve ekonomikliği ile değiştirilmiştir ki bu da lirik duygunun ifadesine özel bir saflık kazandırır. Aynı incelik, yazım şeffaflığı ile Fa majör prelüdü de öne çıkar. Bu prelüdde 1910'lu yıllarda Rahmaninov yaratıcılığının evrimini karakterize eden özellikler daha belirgindir.

Rahmaninov'un yaratıcılığında tipik Rus şarkı melodizminin mükemmel örneklerinden biri, meşhur sol diyez minör prelüdü olabilir. Ancak burada da bir ruh huzursuzluğunun notları duyulur. Özellikle orta, gelişen bölümde parlak dinamik artış ve ritmik hareketin kesikliği ile güçlenir.

Ağır, karanlık bir melankoli ile işlenmiş sol minör prelüdünde, duygunun ifadesi trajik bir pathos (coşkulu acı) derecesine ulaşır. Bestecinin noktalı triol (üçleme) figürüne olan eğilimi dikkat çeker; onun ısrarlı tekrarı bazı durumlarda ezici bir izlenim yaratır. Bu ritmik ostinato (inatçı tekrar) dizilimi, scherzo (şaka) elementlerini gizli dramatiklikle birleştiren sol minör prelüdünde tutarlı bir şekilde korunur. Aynı ikili ifade yapısı, sürekli yanıp sönen "dövülen" ritmik figürasyonu ile öne çıkan la minör prelüdüne de özgüdür.

Mi majör ve mi minör prelüdleri anıtsal epik karakterli imgelerle ilişkilidir. Her iki prelüdde de Rahmaninov'a özgü dinamik patlamalar, müziğin genel sert renk yelpazesinde yansıtılır. Diziyi, görkemli ve büyük bir yürüyüş karakterine sahip Re majör prelüdü tamamlar.

Etütlerde Rahmaninov, virtüöz-piyanistik planın görevlerini şiirsel imgesellikle birleştirerek, Liszt'in "yüksek icra becerisi etütleri" geleneğini sürdürür. Ancak, Liszt'ten farklı olarak, kendi etütlerine program başlıkları vermez ve onları bestekârın fikrini somutlaştıran herhangi bir talimatla desteklemez.

1911'de bestelenen Birinci Etüt dizisi (op. 33) piyano icrasının gelişiminde önemli bir rol oynar.

1917'de bestelediği Etüt-Resim (op. 39) dizisi, Rahmaninov'un son Rusya dönemi eseri oldu. Bu diziye dahil olan dokuz eser, imgesel içeriğinin zenginliği, piyano yazımının karakter ve biçimlerinin çeşitliliği ile ayırt edilir. Diziyi, dışa dönük etkileyici ama malzemesi açısından çok parlak olmayan, bestecinin ifadesiyle "bir doğu marşını andıran" Re majör etüdü tamamlar.

Rahmaninov'un piyano eserleri arasında iki sonat biraz özel bir yer tutar. Çağdaşları Skryabin ve Medtner'den farklı olarak, bu tür bestekâr için pek karakteristik değildir. Bestekâr, sonat türünü daha çok konser tipi büyük formlarda kendini daha özgür hissetmiştir. Sonatların virtüöz genişliğini ve geniş dinleyici kitlesi üzerinde doğrudan fethedici bir etki yapabilen geniş dekoratif yazı stilinin seçildiğini gözlemliyoruz. Bu anlamda, onun sonatlarına özgü konser ögelerinden bahsedebiliriz. Onlarda ifadenin dış parlaklığına eğilim, bazen düşüncenin derinliği, yoğunlaşması ile çelişkiye düşer.

1907'de bestelenen Birinci Sonat, henüz Üçüncü Konçert'in bestelenmesinden önceki yıllarda yazılmıştı. Sonatın müziğinde, bestekârı bu dönemde heyecanlandıran gergin manevi arayışlar, düşünceler ve şüpheler yansıtılmıştı. Rahmaninov'un sonatın programatik karakteri hakkındaki açıklamaları bilinmektedir. Bestekârın ilk icracısı K.N.Igumnov'un verdiği bilgiye göre, bestekâr üç bölümünde Goethe'nin "Faust"unun üç ana karakterini yansıtmak istemişti. Açıktır ki, bu fikir Liszt'in "Faust Senfonisi"nin programını andırıyor. Romantik programlılığın etkisi de dizinin monotematik (tek temalı) yapısında kendini gösterir.

Rahmaninov'un kendisinin de fark ettiği uzunluklara ve formun bir dereceye kadar serbestliğine rağmen, sonat içerik olarak önemli bir eserdir ve bestekârın yaratıcı gelişiminde önemli bir rol oynamıştır.

1913'te yazılan ve 1931'de yeniden gözden geçirilen İkinci Sonat, stilistik olarak (op. 32) prelüdlerinin ikinci serisine ve etüt-resim eserlerine yakındır. Romantik heyecan tonuna sahip olan bu eser, birincisinden daha derli toplu ve tamamdır. Onun üç bölümü sadece entonasyon-tematik açıdan değil, aynı zamanda sürekli bir gelişim kesintisizliği ile de bağlantılıdır. Aynı zamanda, onda konser özellikleri daha güçlü ifade edilir ve bazen (özellikle finalde) faktürün virtüöz karmaşıklığı aşırı görünür.

Etüt-Resimlerin (op. 39) dizisi ve Birinci Piyano Konçertî'nin yeni düzenlemesinden sonra Rahmaninov tarafından sadece üç orijinal eser yaratılmıştır. Neredeyse bir on yılı kapsayan uzun süreli bir yaratıcı sessizlik döneminden çıkışın başlangıcını işaret eden şey, Dördüncü Konçert'in tamamlanmasıydı. Dördüncü Konçert, bestekârının gelişiminde bir "geçiş" döneminin izlerini taşır. Bu konçert bazı yönleriyle önceki iki konçerte yakındır ve aynı zamanda onda, kristalleşmesi zaten etüt-resimlerde ve İkinci Sonat'ta başlayan yeni özellikler açıkça kendini gösterir.

Birinci bölümün ana tema grubunun konusu, orkestranın birkaç giriş ölçüsünden sonra solist tarafından ifade edilir. Rahmaninov'un orta dönem melodilerinin tiplerinden biri için karakteristik olan bir prensibe göre inşa edilmiştir: zirveye hızlı, amaçlı bir yükseliş, ondan sonra ise uzun süreli kademeli bir iniş, melodik enerjinin "sönüşü" özelliklerini görürüz. Rahmanov konçertlerinin ikinci bölümleri için ciddi ölçülmüş, düzgün koral hareketi ve sadece kısa bir melodik cümlenin biraz değiştirilmiş tekrarı karakteristiktir. Üç bölümlü formanın orta kısmındaki beklenmedik dramatik patlama, bu değişmez sakinliği ve içe kapanık rahatlık durumunu kısa süreliğine bozar. Sürekli bir tamamlanma almadan, konçertin ikinci bölümü doğrudan keskin, hatta aşırı cesur kontrastlarla inşa edilmiş finale geçer.

Tüm final, yapısal olarak genişçe işlenmiş üç bölümlü bir formu temsil eder. Onun kenar bölümleri sert bir tema üzerine kuruludur; karanlık bir scherzo çaları olan bu tema serbest varyasyona tabi tutulur. Ona daha parlak ve çekici çan sesleri, çağrı fanfaralarının sesleriyle dolu olan orta bölüm karşı konulur. Orkestrada aniden ürkütücü akorlar, ardından piyanoda uzatılmış harmonik bir zemin üzerinde hüzünlü ve biraz gizemli tınlayan kromatik şekilde inen tersiyeler (üçlü aralıklar) zinciri, ilk temanın geri dönüşüne ve onun sonraki gelişimine yol açar. Zaten sona yakın, son bir kez olarak, harmonik açıdan karmaşıklaştırılmış formda birinci bölümün ana tema grubunun ilk teması geçip gider.

Rahmaninov'un Dördüncü Konçert'i, melodik buluş tazeliği, senfonik gelişimin genişliği ve gerilimi açısından önceki ikisinden geri kalır. Aynı zamanda, onda bestekârın son, yurtdışı dönem yaratıcılığını karakterize eden bir dizi özellik kendini gösterir: ifadenin ciddi sınırlılığına, bazen sertliğe, müzik yazımının grafiksel (çizgisel) niteliğine, karanlık, ürkütücü tonların güçlenmesine, bazen de başarısız renk almasına (ifade kaybına) bir eğilim hissedilir.

Sonuç. *Böylece, Sergey Rahmaninov sadece kendi döneminin değil, tüm dünya müzik tarihinin en büyük bestekârlarından ve piyano icracılarından biri olarak tarihe geçmiştir. Onun yaratıcılığı, Rus müzik gelenekleri ile romantizmin tutkulu duygusal derinliğinin benzersiz bir sentezidir.*

Rahmaninov piyano için yazdığı her eserle: ifadeli prelüdlerden ve teknik açıdan karmaşık etüt-resimlerden tutun, büyük ölçekli sonatlara ve anıtsal konçertlere kadar - sadece piyanonun olanaklarını ortaya koymamış, aynı zamanda insanın içsel dünyasını, vatan özlemini ve ezeli hümanist idealleri *hakkında derin felsefi düşünceleri ifade etmiştir. Onun mirası bugün de hem dinleyiciler hem de icracılar için bir sanatçı ruhunun en derin sırlarına götüren bir rehber olarak kalmaktadır. Eserleri dünyanın her yerinde sevilerek, insanlara derin duygusal deneyim ve estetik zevk sunar.*

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THE TYPOLOGICAL REPRESENTATION OF CHANCE AND PSYCHOLOGICAL SITUATIONS IN THE NOVEL GENRE: A COMPARATIVE STUDY OF ERICH MARIA REMARQUE AND SHUHRAT

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Abstract

The present paper is concerned with the typological functions of chance and psychological situations in the novel genre, comparing and contrasting the works of European literature's representative, Erich Maria Remarque, and Uzbek notable novelist Shuhrat (G'ulom Alimov). Through the study of how random events and fortunate coincidences shape the destinies of characters, the study refers to psychological analysis as a process of narrative creation and character construction. The comparison also suggests that whereas Remarque applies chance towards highlighting existential weakness and war-horrific results, Shuhrat juxtaposes chance in an environment of national virtues and ethical growth.

Introduction The novel as a genre possesses a unique capacity to hold the richness of human life and fate, encompassing both the external course of events and the inner workings of consciousness. Unlike other literary forms, the novel can combine broad historical canvases with intimate psychological detail, situating the individual within the flux of history, society, and chance. Among its narrative devices, the setting of accident or chance emerges as a force so powerful that it reshapes destinies, redirects the storyline, and deepens the psychological portrayal of characters. Random encounters and unforeseen circumstances often act not only as structural mechanisms of plot development but also as instruments of psychological revelation, exposing the fragility, resilience, or transformation of human beings.

In Erich Maria Remarque's novels, chance is organically connected with the uncertainty of life and the traumatic experience imposed by war. His protagonists are placed in arbitrary and unpredictable circumstances that illustrate human susceptibility to forces beyond their control. For instance, meetings, separations, and losses appear not as carefully designed choices but as products of randomness, which, in turn, reflect the existential precariousness of the modern condition. The motif of chance thereby heightens the tragic undertone of his works, presenting human life as simultaneously meaningful and fragile.

By contrast, in Shuhrat's works, chance is firmly grounded in the cultural and moral context of Uzbek society. Random events, while still unpredictable, tend to acquire a pedagogical and ethical dimension. Rather than reducing human life to absurdity, they guide the heroes toward self-realization, civic duty, and the reaffirmation of collective values. In this sense, chance functions not as an existential void but as a meaningful path to maturity, responsibility, and moral clarity.

This comparative study, therefore, seeks to explore how the function of chance operates within psychological scenarios in the works of the two authors. By situating Remarque within the European existential tradition and Shuhrat within the Uzbek cultural-moral framework, the analysis unveils the typological features of chance as a literary phenomenon. The study aims to demonstrate that, while chance serves as a universal narrative mechanism in the novel, its interpretation and psychological implications vary considerably across literary traditions, reflecting divergent historical, social, and cultural horizons.

Methodology. The research applies a comparative literary criticism, employing Remarque's Three Comrades and Arch of Triumph and Shuhrat's Oltin Zanglamas and Shinelli Yillar. The criticism is based on two prime factors:

The place of random events in shaping narrative progression.

The psychological modeling of characters as they respond to these random events.

Narratology, typological literary studies, and psychological poetics form the basis for the theory.

Results. 1. The Chance Environment in the Structure of the Novel

Remarque: Accidental meetings—such as Robert's meeting with Patricia—are catalysts for temporary joy and world tragedy in Three Comrades. These meetings illustrate the precariousness of life in post-war Germany, where randomness dictates the boundaries of hope and despair

Shuhrat: In Oltin Zanglamas, run-ins by chance are depicted chiefly as critical junctures that express the values of the country and collective wisdom. Rather than contributing to despair about life, these run-ins bring about personal growth in the protagonist and solidify the moral ideals of Uzbek society.

2. Typological Presentation of Psychological Situations. Remarque: His characterizations in terms of psychology are constructed upon existential crisis—characters grapple with isolation, trauma, and existence. Arbitrary events compound such crises, unearthing the emotional vulnerability of human beings traumatized by history. Shuhrat: His psychological critique is focused upon social and moral responsibility. The inner conflict of the characters, engineered by arbitrary events, is solved through reference to common experience, moral leadership, and cultural heritage.

***Discussion**. A typological comparison between Erich Maria Remarque and Shuhrat reveals both striking parallels and fundamental divergences in the literary function of chance.*

Common ground lies in the fact that both writers employ chance not merely as a mechanical device to propel the plot forward, but rather as a powerful means of investigating the human psyche. Random encounters, unexpected losses, and unforeseen meetings in their novels act as mirrors, reflecting inward fears, suppressed desires, and the paradoxical tensions within the human condition. In this respect, chance operates as a form of psychological catalyst: it exposes what is hidden, destabilizes what appears stable, and thereby forces characters into moments of self-revelation.

Divergences, however, underscore the cultural and historical horizons that shape the writers' respective traditions. Remarque views chance primarily as a destructive and typically tragic force, emphasizing the helplessness of man against the chaos of history. His characters, scarred by war and displacement, experience random events as disruptions that deepen their existential alienation and despair. Chance becomes synonymous with the absurdity of existence, with the impossibility of controlling one's fate. By contrast, Shuhrat depicts chance as an educational and moral phenomenon, capable of leading characters toward personal maturity and cultural rejuvenation. Arbitrary events in his novels acquire ethical significance: they confront the individual with challenges that demand responsibility, moral choice, and ultimately, integration into the collective values of Uzbek society.

Thus, the psychological nature of chance is culturally conditioned. In European modernist literature, as exemplified by Remarque, chance underscores existential estrangement and the precariousness of human life. In Uzbek literature, as reflected in Shuhrat's works, psychological crises are more closely tied to national traditions and moral values, with chance serving as a pathway to ethical growth and communal affirmation. This typological contrast demonstrates how a universal narrative motif can be reinterpreted according to differing cultural logics, producing distinct literary and psychological outcomes.

***Conclusion**. The analysis demonstrates that chance and psychological conditions in the novel genre are typological constants in different literatures but their artistic interpretation relies on cultural and historical specificity. In Remarque, chance captures the uncertainty of human existence and is a vehicle for existential tragedy. In Shuhrat, chance holds potential for personal and ethical growth and reflects the pedagogic purpose of Uzbek prose. By contrasting these two writers, we can see how the common problem of chance is localized and redefined from various culture points of view and how the novel genre is adaptable to express the complexity of human existence.*

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PEDAGOGICAL SPEECH AND THE DEVELOPMENT OF COMMUNICATIVE COMPETENCE IN EDUCATION: THE CASE OF UZBEKISTAN

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Abstract

This paper explores the role of pedagogical speech in fostering communicative competence in Uzbekistan's foreign language education system. Following recent governmental reforms that require internationally recognized proficiency certificates for both teachers and students, there has been a significant pedagogical shift from grammar-translation practices toward communicative, learner-centered instruction. Through qualitative research at Karshi State University, the study investigates how pedagogical speech functions as a tool for scaffolding, motivating, and activating students' participation in learner-centered classrooms. The findings suggest that reforms emphasizing communicative skills are most effective when supported by intentional teacher discourse that balances instructional clarity with opportunities for student expression.

Keywords: pedagogical speech, communicative competence, learner-centered approach, Uzbekistan, language teaching

Introduction. Language teaching is inseparable from speech. In every classroom, the teacher's language use—whether through explanations, instructions, feedback, or encouragement—constitutes the foundation for learning. This "pedagogical speech" does more than deliver content; it models the target language, regulates classroom interaction, and shapes the development of communicative competence. In Uzbekistan, recent reforms in education have redefined expectations for teachers and learners. Presidential Decree №5117 (2021) and Cabinet of Ministers Resolution №395 (2019) require both teachers and students to demonstrate international standards of foreign language proficiency, often at the B2 or C1 CEFR levels. These reforms have redirected classroom priorities from rote memorization to the mastery of "mega-skills" (listening, speaking, reading, and writing). As a result, the way teachers speak in the classroom—their pedagogical discourse—has gained renewed importance. This paper examines how pedagogical speech functions within the broader shift toward communicative, learner-centered foreign language education in Uzbekistan.

Literature Review. Pedagogical speech encompasses instructional talk (explaining rules, giving directions), interactional talk (asking questions, prompting dialogue), and affective talk (encouraging, motivating, and scaffolding learning). Studies suggest that in teacher-centered classrooms, speech tends to be monologic, dominated by grammar explanations and error correction (Frei, 2018). In contrast, learner-centered instruction emphasizes dialogic interaction, where teachers facilitate negotiation of meaning and provide opportunities for authentic communication (Anton, 1999; Littlewood, 2014). Comparative cases illustrate similar challenges. In Pakistan, English is crucial for government and business, yet classrooms often emphasize grammatical instruction rather than communication (Rahman, 2020). In Colombia, the Colombia Bilingüe initiative sought to make English widespread, but insufficient prioritization of communicative practice hindered results (Usma Wilches, 2009). These cases show how reforms falter when classroom speech practices do not align with communicative goals. In Uzbekistan, students often spend years memorizing vocabulary and grammar but rarely engage in sustained conversation. When university classes require debates or oral tasks, students experience anxiety due to lack of communicative practice (Busa & Chung, 2019). This gap underscores the importance of pedagogical speech that actively scaffolds speaking and interaction.

Methodology. A qualitative research design was used to investigate the impact of pedagogical speech in learner-centered classrooms.

Participants: The participants were 15 second-year students from Karshi State University, a government-funded institution in southern Uzbekistan. They were selected on the basis of willingness and ambition, identified through a preliminary questionnaire.

Instruments. Two research instruments were employed:

1. Classroom observations – lessons were recorded and analyzed for patterns of teacher discourse.

2. Semi-structured interviews – Students provided feedback on how teacher speech influenced their participation and confidence.

Procedure: Before the intervention, lessons were conducted in a teacher-centered manner, emphasizing grammar explanation. For three months, lessons were redesigned into a learner-centered format. The teacher modified speech practices to include open-ended questions, scaffolding prompts, and supportive feedback.

***Results.** Analysis revealed three major shifts in pedagogical speech: From explanation to facilitation. Teachers used concise explanations followed by open-ended prompts, which increased student speech time. From correction to scaffolding. Errors were addressed through reformulation or prompting rather than direct interruption. Students reported feeling encouraged to take risks. From monologue to dialogue. Teacher talk moved from IRF (Initiation–Response–Feedback) sequences to more dialogic exchanges. Students engaged in peer discussions and described the experience as "real conversation." By the end of the semester, exam results showed improved oral fluency and increased self-confidence. Interviews highlighted that students valued being "spoken with, not spoken at," reinforcing the importance of pedagogical discourse in shaping classroom atmosphere.*

***Discussion.** The findings confirm that pedagogical speech is central to communicative skill development. While reforms establish external requirements (e.g., CEFR certification), classroom outcomes depend on how teachers use language to engage learners. The shift to learner-centeredness requires teachers to:*

- ✓ *reduce monologic explanation,*
- ✓ *use speech that invites student participation,*
- ✓ *balance scaffolding with autonomy,*
- ✓ *and encourage authentic communication.*

This aligns with Anton's (1999) claim that opportunities for negotiation of meaning arise primarily through teacher discourse choices. However, in exam-oriented systems, teachers may still feel pressure to revert to directive speech, limiting communicative opportunities. Addressing this requires blended approaches that combine test preparation with interactive speaking tasks.

***Conclusion and Recommendations.** The study concludes that pedagogical speech plays a decisive role in Uzbekistan's foreign language education reforms. Communicative competence cannot be achieved solely through policy requirements; it depends on how teachers' speech practices create space for interaction.*

Recommendations: Teacher training should emphasize pedagogical speech strategies for scaffolding and interaction. Lesson evaluations should analyze not only content but also teacher-student communication. Exam preparation should be balanced with communicative activities, ensuring students practice speech as well as structure. Reflective practice (e.g., recording lessons) should be encouraged for teachers to assess and refine their discourse patterns. By transforming pedagogical speech into a dynamic, learner-centered tool, Uzbekistan can meet its ambitious goals for foreign language proficiency and prepare students for effective global communication.

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Biological sciences

LENGTH-WEIGHT RELATIONSHIP AND CONDITION FACTOR OF CARASSIUS GIBELIO IN LAKE DENGIZKUL, UZBEKISTAN

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Abstract

We analyzed crucian carp (Carassius gibelio) from commercial gill-net catches in Dengizkul Lake (March, April, August 2025). The sample (n = 63) covered TL 7.5–29.2 cm, SL 5.5–24.0 cm, and W 6–410 g. Standard and total lengths were tightly related (SL = −0.340 + 0.822·TL; R^2 = 0.989). The length–weight relationship was W = 0.0130·TL^3.0659 (R^2 = 0.9887), with b = 3.0659 (95% CI: 2.982–3.150), indicating growth close to isometric with a slight positive allometry. Fulton's condition factor K ranged 0.96–2.37 (mean ± SE: 1.57 ± 0.03). Relative condition factor Kn ranged 0.59–1.59 (mean ± SE: 1.01 ± 0.02), approximating 1 and reflecting good physiological status. A bimodal size structure (juveniles ~8–11 cm and commercial fish 21–29 cm) suggests regular recruitment under ongoing exploitation. These metrics, obtained in a saline, low-exchange irrigation-drainage reservoir, provide a baseline for inter-lake comparisons and support size-based fishery management aimed at sustaining recruitment and condition.

Keywords: Carassius gibelio; length–weight relationship; Fulton's condition factor; relative condition factor (Kn); positive allometry; Dengizkul Lake (Uzbekistan); irrigation-drainage reservoir.

Introduction. Crucian carp (Carassius gibelio Bloch, 1782) is a widely distributed member of the family Cyprinidae, distinguished by high ecological plasticity and the ability to adapt to diverse hydrological conditions. The species thrives in silted and low-flow water bodies, tolerates oxygen deficiency and elevated mineralization, which makes it a characteristic component of fish assemblages in the drainage-accumulation systems of Central Asia.

Dengizkul Lake formed in a low-lying saline depression in the central Kyzylkum, in the Alat District of Bukhara Region, Uzbekistan. The lake is endorheic and is fed mainly by discharge from the collector–drainage network; during the flood period it can connect to the Zeravshan River via the Taikyr channel. The waterbody covers up to 267 km², with a mean depth of about 1.5 m; water mineralization is relatively high and is considered to have therapeutic properties (Fig. 1).

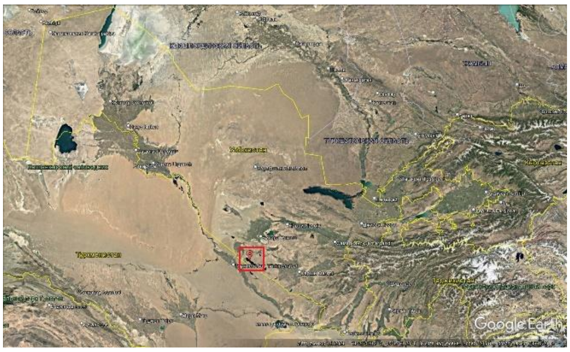

Figure 1. Dengizkul Lake, Bukhara Region, Uzbekistan.

In our 2025 control catches from Dengizkul Lake, crucian carp (Carassius gibelio) were taken in large numbers; at present it is regarded as the principal target of the commercial fishery. The biological features of crucian carp in this waterbody have been little studied. In a number of waterbodies across Uzbekistan and neighboring republics, the species' growth has been examined, indicating high adaptability and plasticity [2, 3]. The aim of this study was to evaluate the main biological characteristics of crucian carp in Dengizkul Lake.

For the rational management of commercial fish stocks, studies of the length–weight relationship and condition indices are of key importance, as they enable assessment of the physiological state of individuals and comparison of parameters among different waterbodies. It is assumed that, at the same body length, a heavier fish is in better trophic condition. These metrics are widely used to derive a suite of population characteristics of exploited stocks [5, 7, 8, 9, 10]. The aim of the present study was to determine the relationship between body length and body mass of crucian carp (Carassius gibelio) in the commercial populations of Dengizkul Lake.

Materials and Methods. *In the study waterbody, crucian carp (Carassius gibelio) were sampled from the catches of commercial fishing crews in March, April, and August 2025. Fishing was conducted with set (gill) nets with a mesh size of 10–50 mm. Species identification followed [1]. For randomly selected specimens, total length (TL, cm) and standard length (SL, cm; to the posterior margin of the scale cover) were measured to the nearest 0.1 cm, and total body mass (W, g) to the nearest 0.1 g. In the subsequent analysis, the length–weight relationship was modeled with a power function* $W=a\cdot TL^b$*; for linearization, the transformation* $\log W=\log a+b\log TL$ *was used.*

Results. *In the sample of crucian carp (Carassius gibelio) from Dengizkul Lake, total length (TL) was 7.5–29.2 cm, standard length (SL) 5.5–24.0 cm, and body mass (W) 6–410 g (n = 63).*

In the study population, standard and total lengths were very strongly and linearly related, as expressed by the linear regression: SL = 0.8216·TL − 0.3405 (r = 0.995); the coefficient of determination was $R^2 \approx 0.989$.

The length–weight relationship was described by the power regression: W = 0.0130·TL^3.0659 (r = 0.994) (Fig. 2; Table 1). The exponent b slightly exceeded 3, indicating positive allometric growth of crucian carp under the conditions of Dengizkul Lake.

Table 1.

Estimated parameters of the length–weight relationship of crucian carp (Carassius gibelio) from Dengizkul Lake

Parameter	Value
Sample size (n)	63
Coefficient a	0,01304
95% confidence interval for a	0,01083 – 0,01569
Exponent b	3,0659
95% confidence interval for b	2,9822 – 3,1497
Coefficient of determination (R^2)	0,9887
Pearson correlation (r)	0,994

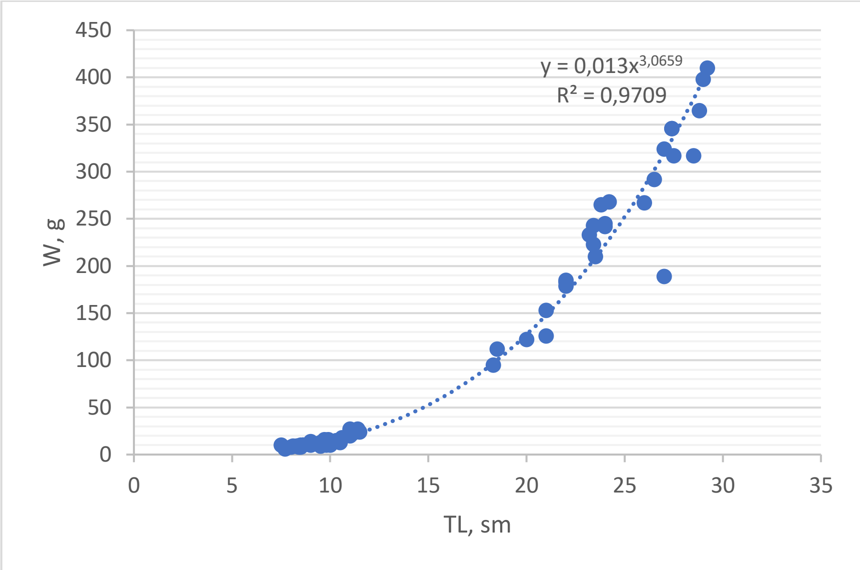

Figure 2. Relationship between total body mass (W) and total length (TL) of crucian carp from Dengizkul Lake

Since length–weight relationships are often reported in the literature after logarithmic transformation, we performed the corresponding calculations. Log-transforming total length and body mass of crucian carp and running the regression yielded the following significant equation: Lg(W) = 3.0659 Lg(TL) − 1.8846 ($R^2 = 0.9887$; $r = 0.994$; $p < 0.0001$). The exponent b = 3.0659 is slightly greater than 3, indicating positive allometric growth under the conditions of Dengizkul Lake (a trend close to isometry).

Fulton's condition factor (K) ranged from 0.96 to 2.37, averaging 1.57 ± 0.03 (SE). The relative condition factor (Kn) ranged from 0.59 to 1.59, with a mean of 1.01 ± 0.02 (SE), i.e., close to 1, which indicates a favorable population status in the waterbody.

Discussion. *The examined sample of crucian carp (Carassius gibelio) from Dengizkul Lake (n = 63; TL 7.5–29.2 cm; SL 5.5–24.0 cm; W 6–410 g) simultaneously reflects the presence of juveniles (~8–11 cm) and commercial-size individuals (~21–29 cm), indicating regular recruitment alongside stock exploitation. The very tight linear relationship between standard and total length (SL = −0.340 + 0.822·TL; $R^2 = 0.989$; $r = 0.995$; 95% CI for slope 0.800–0.844) points to stable body proportions across the entire size range; the ratio SL/TL ≈ 0.82 is typical for crucian carp and indicates no pronounced morphometric shifts within the population.*

The length–weight relationship is described by the power model W = 0.0130·TL^3.0659 (linearized: Lg W = 3.0659·Lg TL − 1.8846; $R^2 = 0.9887$; $r = 0.994$; $p < 0.0001$). The exponent b = 3.0659 (95% CI: 2.982–3.150) slightly exceeds 3, which is interpreted as growth close to isometric with a slight tendency toward positive allometry. For a eurytopic species like crucian carp in drainage-accumulation waterbodies with elevated mineralization, such a growth profile is typical and is usually associated with satisfactory food availability and moderate stock density.

Fulton's condition factor (K) ranged 0.96–2.37, averaging 1.57 ± 0.03 SE; the relative condition factor Kn was 0.59–1.59, averaging 1.01 ± 0.02 SE. Values of Kn close to 1 indicate a favorable physiological status of the population during the study period (March, April, August). Taken together, the growth and condition metrics are consistent and confirm the stability of the crucian carp population under the limited water exchange and elevated mineralization characteristic of Dengizkul Lake.

Given the bimodal length structure, we infer the simultaneous presence of a strong juvenile cohort and an exploited commercial group. For management, this implies that maintaining recruitment and controlling fishing pressure by size classes will help preserve the observed "nearly isometric" growth pattern and satisfactory K/Kn values.

Conclusion. *In the crucian carp (Carassius gibelio) population of Dengizkul Lake, body proportions are stable (SL = −0.340 + 0.822·TL; $R^2 = 0.989$). The length–weight relationship W = 0.0130·TL^3.0659 ($R^2 = 0.9887$; $b > 3$) indicates growth close to isometric with a slight positive allometry. Condition indices (K = 1.57 ± 0.03; Kn = 1.01 ± 0.02) confirm stock well-being, and the bimodal size structure (juveniles and commercial-size group) points to regular recruitment under ongoing exploitation and provides a basis for inter-lake comparisons and for setting size- and season-based fishery regulations.*

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Medical sciences

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OVARIAN CANCER: THE COMPLEXITY OF THE PROBLEM

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Abstract

This scientific and analytical work presents modern world and local-regional data on incidence, mortality, lethality and five-year survival rate of such a common oncological pathology as ovarian cancer. The issues of etiology and pathogenesis, modern approaches and principles of complex diagnostics, prospects for improving treatment results, as well as the prognosis are covered in detail. The epidemiological characteristics of this pathology in our republic are given in the context of the regions of the country.

Keywords: *oncology, ovarian cancer, biomarkers, cancer antigen 125, human epididymis protein 4, BRCA1/2 mutation, DNA, RNA, epidemiology, incidence, mortality, lethality, five-year survival rate, prognosis.*

Ovarian cancer (OC) is a malignant tumor that most often develops from the ovarian epithelium. Requirements for the pathomorphological conclusion in OC: 1) macroscopic description of the specimen separately for each ovary [size and weight, color, capsule condition, cross-sectional view, approximate ratio of cystic and solid components (in %), presence of papillary structures (if any, in % approximately), and other involved organs]; 2) tumor [total size (3 dimensions: height, width, length), location, type, invasion depth (in relation to the myometrium/endometrium border), myometrium thickness (mm), endometrium, involvement of the serous membrane of the uterus, involvement of the cervix, appendages)]; 3) other findings (presence of invasion into other organs); 4) lymph nodes (if present: size, location, size of the largest lymph node, number, number of cassettes); 5) microscopic description [primary tumor: histologic type, degree of differentiation, invasion, capsule/surface involvement, lymphovascular invasion, immunohistochemical (IHC) markers, metastases (preferably described separately): location of metastases (lymph nodes involved/number of nodes, size of largest metastasis, extension beyond lymph node)] [1].

The diagnostic criteria are as follows. Complaints and anamnesis: all patients are recommended *to have a thorough collection of complaints and anamnesis; in the early stages, OC may be asymptomatic or cause minor discomfort; in the advanced stage, the disease manifests itself with non-specific symptoms: an increase in abdominal volume, dyspeptic symptoms, weight loss, loss of appetite, pain in the abdomen or pelvis, shortness of breath, general weakness. The level of evidence for recommendations is A (the level of evidence is 1). Comment: collecting information about complaints and anamnesis details, including family history, is carried out in order to identify factors that may influence the choice of treatment tactics.*

Physical examination: a thorough physical examination is recommended; it includes a recto-vaginal examination, palpation of the abdominal organs and all groups of peripheral lymph nodes, auscultation and percussion of the lungs, palpation of the mammary glands. The level of evidence for recommendations is A (the level of reliability of evidence is 1). Comment: special attention should be paid to assessing the patient's condition according to the WHO/ECOG and/or Karnofsky scale, assessing nutritional status, pain syndrome, body temperature, hemodynamics, enlarged peripheral lymph nodes, and the presence of pleurisy and ascites.

Laboratory diagnostic tests: it is recommended to perform a complete general (clinical) blood test, a general therapeutic biochemical blood test with assessment of liver and kidney function, a complete (clinical) urine test, and a study of the blood coagulation system for all patients with OC in order to assess the patient's condition, determine the patient's treatment tactics and algorithm, and assess the prognosis of the disease. The level of evidence for recommendations is C (the level of reliability of evidence is 4). Comments: A complete blood count is performed (repeated) at least 5 days before the start of the next course of chemotherapy; in a complete general (clinical) blood test, it is advisable to assess the following parameters: hemoglobin, hematocrit, erythrocytes, mean corpuscular volume, erythrocyte distribution by size, mean corpuscular hemoglobin content, mean corpuscular hemoglobin concentration, leukocyte platelets, leukocyte formula, erythrocyte sedimentation rate; in a general therapeutic biochemical blood test with an assessment of liver and kidney function indicators - total protein, glucose, bilirubin, creatinine, urea, iron, alanine aminotransferase, aspartate aminotransferase, total bilirubin, lactate aminotransferase, alkaline phosphatase, plasma electrolytes (potassium, sodium, chlorine), in a general (clinical) urine test - determination of color, transparency of urine, its specific gravity, protein in urine, pH, glucose, ketone bodies, urobilinogen, leukocyte esterase, by hardware microscopy of epithelial cells, erythrocytes, cylinders, salt, mucus, bacteria and fungi; as part of the study of the blood coagulation system, a coagulogram (an indicative study of the hemostasis system) is assessed (fibrinogen, prothrombin (according to Quick), international normalized ratio, prothrombin time, prothrombin index, activated partial thromboplastin time, thrombin time, if indicated, additionally - antithrombin III, D-dimer, plasminogen, % activity); it is recommended that all patients undergo a study of the level of adenogenic cancer antigen CA 125 in the blood in order to identify OC and its recurrence. The level of evidence for recommendations is A (the level of reliability of evidence is 1) [1].

In the absence of morphological verification of the diagnosis, it is recommended that all patients with suspected OC undergo determination of human epididymis protein 4 (HE4) in the blood and determination of the Risk of Ovarian Malignancy Algorithm (ROMA) index in order to assess the probability of OC. The strength of the recommendations is B (the level of evidence is 2). Comment: determination of HE4 in the blood and the ROMA index does not replace the need for morphological verification of the diagnosis, but an elevated HE4 level increases the specificity of OC diagnostics; if mucinous carcinoma is suspected, it is recommended, in addition to testing the level of adenogenic cancer antigen CA 125 in the blood, to test the level of adenogenic cancer antigen CA 19-9 in the blood and test the level of carcinoembryonic antigen (CEA) in the blood serum for the purpose of differential diagnosis. The strength of the recommendations is A (the level of evidence is 2). Comment: CEA and CA19-9 may increase in mucinous OC, which allows for subsequent monitoring of the effectiveness of the treatment; for women under 40, who have a high probability of non-epithelial tumors, it is recommended to perform a study of the alpha-fetoprotein level in the blood serum, a study of the level of chorionic gonadotropin in the blood, and a study of the level of inhibin B in the blood at the diagnostic stage. The level of evidence for recommendations is C (the level of reliability of evidence is 5). Comment: non-epithelial ovarian tumors predominate at a young age (detailed information is provided in the section on non-epithelial ovarian tumors). All patients with high-grade serous and endometrioid carcinomas are recommended to undergo molecular genetic testing for mutations in the BRCA1 and BRCA2 genes in the blood or by scraping the oral mucosa and/or in biopsy (surgical) material as predictors of the disease outcome and the choice of the patient's treatment algorithm. The level of evidence for recommendations is B (the level of reliability of evidence is 2). Comment: the frequency of mutations in the BRCA1 and BRCA 2 genes in the indicated *histological types of tumors is about 15%. Information about the presence of a BRCA mutation is useful for determining a higher sensitivity of the tumor to therapy with alkylating agents, platinum derivatives and poly (adenosine diphosphate-ribose) polymerase (PARP) inhibitors [1].*

1. All patients with OC or suspected OC are recommended to undergo computed tomography (CT) of the chest, abdominal cavity, retroperitoneal space, and kidneys at the diagnostic stage, with or without intravenous contrast in order to determine the extent of the tumor process and plan the treatment algorithm. The level of evidence for recommendations is A (the level of reliability of evidence is 1). Comment: CT allows (a) to visualize the primary tumor, (b) to identify metastases of the disease, (c) to assess the possibility of performing an optimal cytoreductive surgery. If CT is contraindicated or insufficiently informative, magnetic resonance imaging (MRI) with intravenous contrast may be performed. If distant metastasis is suspected, positron emission tomography (PET)/CT may be performed.

2. All patients with OC or suspected OC are recommended to undergo MRI of the pelvic organs with or without intravenous contrast at the diagnostic stage in order to determine the extent of the tumor process and plan the treatment algorithm. The strength of the recommendations is A (the level of evidence is 1). Comment: MRI allows (a) to visualize the primary tumor, (b) to identify metastases of the disease, (c) to assess the possibility of performing an optimal cytoreductive surgery. In case of contraindications to MRI examination or its insufficiently informativeness, as well as when it is not possible to perform MRI, CT with or without intravenous contrast is indicated. If distant metastasis is suspected, PET/CT can be performed.

3. All patients with OC or suspected OC are recommended to undergo chest X-ray at the diagnostic stage if CT of the chest is not possible. The strength of the recommendations is C (the level of evidence is 5). Comment: CT of the chest organs is more sensitive and specific in detecting metastases in the lungs and mediastinal lymph nodes.

4. All patients with OC or suspected OC are recommended to undergo ultrasound examination of the lymph nodes in the cervical-supraclavicular region, axillary, inguinal lymph nodes, ultrasound of the abdominal cavity, retroperitoneal space and pelvis at the diagnostic stage if CT/MRI/PET-CT cannot be performed in order to determine the prevalence of the tumor process and plan the treatment algorithm. The level of evidence for recommendations is B (the level of reliability of evidence is 2). Comment: Ultrasound is the simplest method for visualizing formations in the abdominal cavity, in the pelvic cavity, and secondary lymph node damage. However, this method is significantly inferior to CT/MRI/PET-CT in terms of making a decision on the first stage of treatment. Evaluation of the effect of chemotherapy according to RECIST 1.1 criteria is also impossible based on the results of ultrasound.

5. All patients with OC or suspected OC at the diagnostic stage are recommended to undergo examination of the mammary glands in order to exclude secondary (metastatic) ovarian lesions or primary multiple malignant neoplasms. The level of evidence for the recommendations is A (the level of reliability of the evidence is 1). Comments: Women under 40 years of age undergo ultrasound examination of the mammary glands in the first phase of the menstrual cycle, if available; women over 40 years of age are recommended to undergo mammography in the first phase of the menstrual cycle, if available. Examination of the mammary glands is carried out in accordance with the principles set out in the clinical guidelines for malignant neoplasms of the mammary glands.

6. For patients with OC, diagnostic laparoscopy is recommended to clarify the extent of the process, morphologically verify the diagnosis and assess resectability, as well as in cases where the performance of optimal cytoreduction is questionable for staging or if it was not adequately performed during previous cytoreduction, as well as for morphological verification of the diagnosis if less invasive methods are not effective [1].

As noted by Zhu B. et al. [2] the incidence and mortality of gynaecological cancers (GCs) can significantly impact women's quality of life and increase the health care burden for organisations globally. The objective of study was to evaluate global inequalities in the incidence and mortality of GCs in 2022, based on The Global Cancer Observatory (GLOBOCAN) 2022 estimates. The future burden of GCs in 2050 was also projected. Data regarding to the total cases and deaths related to GCs, as well as cases and deaths pertaining to different subtypes of GCs, gathered from the GLOBOCAN database for the year 2022. Predictions for the number of cases and deaths in the year 2050 were derived from global demographic projections, categorised by world region and Human Development Index (HDI). In 2022, there were 1 473 427 new cases of GCs and 680 372 deaths. The incidence of gynecological cancer reached 30.3 per 100 000, and the mortality rate hit 13.2 per 100 000. The age-standardised incidence of GCs in Eastern Africa is higher than 50 per 100 000, whereas the age-standardised incidence in Northern Africa is 17.1 per 100 000. The highest mortality rates were found in East Africa (age-standardised mortality *rates of 35.3 per 100 000) and the lowest in Australia and New Zealand (age-standardised mortality rates of 8.1 per 100 000). These are related to the endemic areas of HIV and HPV. Very high HDI countries had the highest incidence of GCs, with age-standardised incidence rates of 34.8 per 100 000, and low HDI countries had the second highest incidence rate, with an age-standardised incidence rates of 33.0 per 100 000. Eswatini had the highest incidence and mortality (105.4 per 100 000; 71.1 per 100 000) and Yemen the lowest (5.8 per 100 000; 4.4 per 100 000). If the current trends in incidence and mortality are maintained, number of new cases and deaths from female reproductive tract tumours is projected to increase over the next two decades. In conclusion, the authors point out that in 2022, GCs accounted for 1 473 427 new cases and 680 372 deaths globally, with significant regional disparities in incidence and mortality rates. The highest rates were observed in Eastern Africa and countries with very high and low HDI, with Eswatini recording the most severe statistics. If current trends continue, the number of new cases and deaths from GCs is expected to rise over the next two decades, highlighting the urgent need for effective interventions.*

OC is a leading cause of death in women worldwide, with more than 300,000 new cases and nearly 200,000 deaths globally each year [3].

Medina J.E. et al. emphasize in their work that [4], OC is a leading cause of death for women worldwide, in part due to ineffective screening methods. Unfortunately, OC is usually detected in advanced stages (stages III and IV) due to nonspecific clinical symptoms at earlier stages and the lack of an effective screening approach. Consequently, there is a clear unmet clinical need for the development of highly specific and sensitive assays to detect OC in its earliest stages. In their study, the authors used whole-genome cell-free DNA (cfDNA) fragmentome and protein biomarker [cancer antigen 125 (CA-125) and HE4] analyses to evaluate 591 women with OC, with benign adnexal masses, or without ovarian lesions. Using a machine learning model with the combined features, researchers detected OC with specificity >99% and sensitivities of 72%, 69%, 87%, and 100% for stages I to IV, respectively. At the same specificity, CA-125 alone detected 34%, 62%, 63%, and 100%, and HE4 alone detected 28%, 27%, 67%, and 100% of OCs for stages I to IV, respectively. This approach differentiated benign masses from OCs with high accuracy (AUC = 0.88, 95% confidence interval, 0.83-0.92). These results were validated in an independent population. These findings show that integrated cfDNA fragmentome and protein analyses detect OCs with high performance, enabling a new accessible approach for noninvasive OC screening and diagnostic evaluation.

Qian F. et al. [5] in their study note that OC is the fifth leading cause of cancer deaths in US women, due to its typically advanced stage at presentation. Furthermore, unlike breast or colorectal cancer, there is no proven screening method for OC to identify early disease and initiate treatment to improve survival. Family history, oral contraceptive use, parity, body mass index (BMI), and genetic variants are potentially useful in estimating lifetime risk. Along with this, because of differences in age at onset and tumour histology/grade, risk factors for OC might be different for BRCA1/2 mutation carriers than women in the general population. Penetrance of BRCA1/2 mutations is likely modified by other genetic variants and lifestyle or reproductive factors. Investigation of these factors could aid in implementation of strategies to reduce OC risk among mutation carriers. In their work, the authors point out that height and BMI are associated with higher OC risk in the general population, but whether such associations exist among BRCA1/2 mutation carriers is unknown. The researchers applied a Mendelian randomisation approach to examine height/BMI with OC risk using the Consortium of Investigators for the Modifiers of BRCA1/2 data set, comprising 14,676 BRCA1 and 7912 BRCA2 mutation carriers, with 2923 OC cases. They created a height genetic score using 586 height-associated variants and a BMI genetic score using 93 BMI-associated variants. Associations were assessed using weighted Cox models. Observed height was not associated with OC risk (hazard ratio [HR]: 1.07 per 10-cm increase in height, 95% confidence interval [CI]: 0.94-1.23). Height genetic score showed similar results (HR = 1.02, 95% CI: 0.85-1.23). Higher BMI was significantly associated with increased risk in premenopausal women with HR = 1.25 (95% CI: 1.06-1.48) and HR = 1.59 (95% CI: 1.08-2.33) per 5-kg/m2 increase in observed and genetically determined BMI, respectively. No association was found for postmenopausal women. Interaction between menopausal status and BMI was significant (pinteraction < 0.05). Our colleagues emphasize that the results of their observation of a positive association between BMI and OC risk in premenopausal BRCA1/2 mutation carriers is consistent with findings in the general population.

Jara-Rosales S. et al. [6] in their work they say that in 2020, OC ranked fourth in incidence among gynecological cancers worldwide, following breast cancer, cervical cancer, and uterine cancer. In terms of mortality, it ranked third, establishing itself as one of the most lethal gynecological cancers. A 2021 study revealed that the variability in the incidence depends on each country and region, but the mortality *rate remains similar among the 185 countries included. This behavior is attributed to nonspecific symptoms and the lack of screening programs, leading to diagnoses at advanced stages with unfavorable prognoses for patients [7]. OC constitutes a group of diverse diseases, each characterized by its own morphology and biological behavior. This heterogeneity implies that different subtypes may respond differently to treatments and show variations in their progression rates [8]. It is therefore essential to recognize this diversity to effectively address the different manifestations of OC. The risk factors for OC are divided into two categories: modifiable and non-modifiable. Modifiable factors include smoking, hormone replacement therapy, and dietary elements, among others. Non-modifiable factors include heredity, mutations in the BRCA1 and BRCA2 genes, family history, Lynch syndrome, uninterrupted ovulation cycles, and the presence of endometriosis, among others [7].*

Our colleagues conducted an exhaustive search was conducted to identify literature to describe the OC biology and physiopathology for new readers, in particular focused on clinical researchers. In addition, a more stringent search was performed to find studies related to the genetic components, social determinants, and comorbidities associated with OC in South America. The search was performed through PubMed and Google Scholar, using the MeSH descriptors and keywords such as "Hereditary Breast and Ovarian Cancer Syndrome", "Latin America", "BRCA1 Genes", "BRCA2 Genes", and "Ovarian Neoplasms". Additionally, the keywords "Obesity", "chronic disease", "Comorbidity", "poverty", "education", "race", "ethnicity", "menarche", "menopause", "multiparity", "urbanization", "epidemiology", and "risk factors" were utilized to capture relevant studies. Due the reported disparities in clinical trials and other biomedical studies, the Latin American population is greatly underrepresented in most of the cancer and genomic databases, including local investigations. For this reason, the number of identified reports according to the specific topics was very small for further analysis. The revision of the literature was conducted based on original articles, including cohort studies, case-control studies, cross-sectional studies, and experimental research investigating the risk factors for OC in the South American population, and the selected articles were published within the last 10 years, with full-text availability, and were written in English or Spanish. The authors considered studies involving women from 12 South American countries, without age restrictions, focusing particularly on those analyzing genetic components, socioeconomic determinants, and comorbidities. Considering the main goal of this work, they excluded studies focused on OC treatment, research validating laboratory tests for detecting OC-related mutations, and non-original content such as reviews, opinions, editorials, letters to the editor, and conference abstracts. Articles that did not clearly specify the region or country of interest, or those centered on education about OC risk factors, were also excluded. [6].

In the conclusions following from the study, the researchers note that based on the revised articles, it can be concluded that although there are reports on the prevalence of mutations in the BRCA1 and BRCA2 genes in South American countries, such as Chile, Colombia, Argentina, Uruguay, and Brazil, including Mexico as Hispanic, the general prevalence is close to 15-20% in women with hereditary risk factors or those diagnosed with ovarian and/or breast cancer. However, it is important to highlight that the available studies are limited. More research is needed to accurately determine the prevalence of the punctual mutation in each country, as well as those mutational signatures that could be unique for the Latin American population. In terms of the social, demographic, and economic factors that influence the incidence of OC, these vary by country, but similarities are observed in age, being more prevalent in women over 50 years old, and in women with poor education and difficulties in accessing healthcare. Similarly, the absence of studies regarding the effect of contraception and hormone replacement therapy in the Latin American population is highlighted, despite being widely studied factors in the international scientific literature. This gap in the research underscores the need to address these aspects in future research in the region. This article has several limitations, starting with the very limited number of studies published and the number of participants in each study. The revised literature covers several years of research conducted in each country; these years may represent disparities in funding for biomedical research, the number and capabilities of each research group and the possibility of enrolling patients, and the access to technological facilities. For now, it is not possible to conduct a more comprehensive analysis; however, this work may promote the interest of other researchers to collaborate in the systematic revision of current and future data. Regarding the need to improve lifestyles as a preventive measure to reduce the possibility of morbidities and the concomitant development of OC, although the literature may not be sufficient to conclusively establish a direct link between obesity and/or diabetes and the development of OC, the indirect association suggests the importance of conducting additional clinical studies. These studies could confirm or dismiss the hypothesis that obesity and diabetes could be related to the risk of developing OC, thereby providing a more solid basis for future interventions and prevention *strategies [6].*

Bryant A. et al. [9] provide data showing that OC is the seventh most common cancer among women and a leading cause of death from gynaecological malignancies. Epithelial OC is the most common type, accounting for around 90% of all OCs. This specific type of OC starts in the surface layer covering the ovary or lining of the fallopian tube. Surgery is performed either before chemotherapy [upfront or primary debulking surgery (PDS)] or in the middle of a course of treatment with chemotherapy [neoadjuvant chemotherapy and interval debulking surgery (IDS)], with the aim of removing all visible tumour and achieving no macroscopic residual disease (NMRD). The aim of this study was to investigate the prognostic impact of size of residual disease (RD) nodules in women who received upfront or interval cytoreductive surgery for advanced (stage III and IV) epithelial OC (EOC). To assess the prognostic impact of RD after primary surgery on survival outcomes for advanced (stage III and IV) EOC. In separate analyses, primary surgery included both upfront PDS followed by adjuvant chemotherapy and neoadjuvant chemotherapy followed by IDS. Each RD threshold is considered as a separate prognostic factor. The authors searched CENTRAL (2021, Issue 8), MEDLINE via Ovid (to 30 August 2021) and Embase via Ovid (to 30 August 2021). Our colleagues included survival data from studies of at least 100 women with advanced EOC after primary surgery. RD was assessed as a prognostic factor in multivariate prognostic models. They excluded studies that reported fewer than 100 women, women with concurrent malignancies or studies that only reported unadjusted results. Women were included into two distinct groups: those who received PDS followed by platinum-based chemotherapy and those who received IDS, analysed separately. The researchers included studies that reported all RD thresholds after surgery, but the main thresholds of interest were microscopic RD (labelled NMRD), RD 0.1 cm to 1 cm [small-volume residual disease (SVRD)] and RD > 1 cm [large-volume residual disease (LVRD)]. Two review authors independently abstracted data and assessed risk of bias. Where possible, they synthesised the data in meta-analysis. To assess the adequacy of adjustment factors used in multivariate Cox models, authors used the 'adjustment for other prognostic factors' and 'statistical analysis and reporting' domains of the quality in prognosis studies tool.

Our colleagues also made judgements about the certainty of the evidence for each outcome in the main comparisons, using GRADE. The researchers examined differences between FIGO stages III and IV for different thresholds of RD after primary surgery. They considered factors such as age, grade, length of follow-up, type and experience of surgeon, and type of surgery in the interpretation of any heterogeneity. The authors also performed sensitivity analyses that distinguished between studies that included NMRD in RD categories of < 1 cm and those that did not. This was applicable to comparisons involving RD < 1 cm with the exception of RD < 1 cm versus NMRD. They evaluated women undergoing PDS and IDS in separate analyses. The researchers found 46 studies reporting multivariate prognostic analyses, including RD as a prognostic factor, which met inclusion criteria: 22,376 women who underwent PDS and 3697 who underwent IDS, all with varying levels of RD. While we identified a range of different RD thresholds, authors of the work mainly report on comparisons that are the focus of a key area of clinical uncertainty (involving NMRD, SVRD and LVRD). The comparison involving any visible disease (RD > 0 cm) and NMRD was also important. SVRD versus NMRD in a PDS setting In PDS studies, most showed an increased risk of death in all RD groups when those with macroscopic RD (MRD) were compared to NMRD. Women who had SVRD after PDS had more than twice the risk of death compared to women with NMRD (HR 2.03, 95% CI 1.80 to 2.29; I2 = 50%; 17 studies; 9404 participants; moderate-certainty). The analysis of progression-free survival found that women who had SVRD after PDS had nearly twice the risk of death compared to women with NMRD (HR 1.88, 95% CI 1.63 to 2.16; I2 = 63%; 10 studies; 6596 participants; moderate-certainty). LVRD versus SVRD in a PDS setting. When authors compared LVRD versus SVRD following surgery, the estimates were attenuated compared to NMRD comparisons. All analyses showed an overall survival benefit in women who had RD < 1 cm after surgery (HR 1.22, 95% CI 1.13 to 1.32; I2 = 0%; 5 studies; 6000 participants; moderate-certainty). The results were robust to analyses of progression-free survival. SVRD and LVRD versus NMRD in an IDS setting The one study that defined the categories as NMRD, SVRD and LVRD showed that women who had SVRD and LVRD after IDS had more than twice the risk of death compared to women who had NMRD (HR 2.09, 95% CI 1.20 to 3.66; 310 participants; I2 = 56%, and HR 2.23, 95% CI 1.49 to 3.34; 343 participants; I2 = 35%; very low-certainty, for SVRD versus NMRD and LVRD versus NMRD, respectively). LVRD versus SVRD + NMRD in an IDS setting meta-analysis found that women who had LVRD had a greater risk of death and disease progression compared to women who had either SVRD or NMRD (HR 1.60, 95% CI 1.21 to 2.11; 6 studies; 1572 participants; I2 = 58% for overall survival and HR 1.76, 95% CI 1.23 to 2.52; 1145 participants; I2 = 60% for progression-free survival; very low-certainty). However, this result is biased as in all but one *study it was not possible to distinguish NMRD within the < 1 cm thresholds. Only one study separated NMRD from SVRD; all others included NMRD in the SVRD group, which may create bias when comparing with LVRD, making interpretation challenging. MRD versus NMRD in an IDS setting. Women who had any amount of MRD after IDS had more than twice the risk of death compared to women with NMRD (HR 2.11, 95% CI 1.35 to 3.29, I2 = 81%; 906 participants; very low-certainty). Summing up the results of the study, the authors point out that in a PDS setting, there is moderate-certainty evidence that the amount of RD after primary surgery is a prognostic factor for overall and progression-free survival in women with advanced OC. Our colleagues separated our analysis into three distinct categories for the survival outcome including NMRD, SVRD and LVRD. After IDS, there may be only two categories required, although this is based on very low-certainty evidence, as all but one study included NMRD in the SVRD category. The one study that separated NMRD from SVRD showed no improved survival outcome in the SVRD category, compared to LVRD. Further low-certainty evidence also supported restricting to two categories, where women who had any amount of MRD after IDS had a significantly greater risk of death compared to women with NMRD. Therefore, the evidence presented in this review cannot conclude that using three categories applies in an IDS setting (very low-certainty evidence), as was supported for PDS (which has convincing moderate-certainty evidence) [9].*

What knowledge is available today about the specifics of OC treatment? Drug resistance is the bottleneck in OC treatment. The increasing use of novel drugs in clinical practice poses challenges for the treatment of drug-resistant OC. Although maintenance therapy with PARP inhibitors (PARPis) has prolonged progression-free survival and 5-year overall survival, unfortunately, many patients do not respond to PARPis treatment due to intrinsic or acquired resistance [10].

Wang L. et al. [11] indicate that despite receiving standard-of-care therapy (optimal cytoreductive surgery followed by adjuvant chemotherapy), most patients develop recurrent disease, which is resistant to chemotherapy, resulting in a 5-year survival rate of approximately 30-40% worldwide. Drug resistance is a formidable challenge in the treatment of OC and is the primary contributor to poor prognosis. According to the National Comprehensive Cancer Network guidelines (version 1.2023), there are many therapeutic regimens for resistant OC, including some novel agents. However, the objective remission rate is still low, and the median survival time is less than 12 months due to complicated resistance mechanisms. In resistant OC, the classical mechanisms of action of common drugs can be disrupted or altered, possibly resulting in impaired therapeutic effects. Thus, treatment regimens should not rely only on empirical options. As the number of categories of agents increases, after the development of multidrug resistance, the decision of appropriate later-line therapeutic regimens is very challenging. The authors reviewed the literature regarding various drug resistance mechanisms in OC and found that the main resistance mechanisms are as follows: abnormalities in transmembrane transport, alterations in DNA damage repair, dysregulation of cancer-associated signaling pathways, and epigenetic modifications. DNA methylation, histone modifications and noncoding RNA activity, three key classes of epigenetic modifications, constitute pivotal mechanisms of drug resistance. One drug can have multiple resistance mechanisms. Moreover, common chemotherapies and targeted drugs may have cross (overlapping) resistance mechanisms. MicroRNAs (miRNAs) can interfere with and thus regulate the abovementioned pathways. A subclass of miRNAs, "epi-miRNAs", can modulate epigenetic regulators to impact therapeutic responses. Thus, they also reviewed the regulatory influence of miRNAs on resistance mechanisms. Moreover, researchers summarized recent phase I/II clinical trials of novel drugs for OC based on the abovementioned resistance mechanisms. A multitude of new therapies are under evaluation, and the preliminary results are encouraging. Summarizing the results of the study, our colleagues emphasize that with the increasing use of novel therapeutic drugs for OC, the development of later-line treatments has been under enormous pressure. Recently, resistance to a variety of therapeutic drugs, such as PARPis, angiogenesis inhibitors, and immune checkpoint inhibitors, has been found to occur. In the past, therapeutic agents for OC have been limited, and researchers have usually described the underlying mechanism and explored therapeutic strategies for overcoming resistance based on the drug classification. However, as increasing numbers of new agents are applied in clinical practice, the resistance mechanisms of these various new drugs must be identified, and these mechanisms may be similar or even identical to those of other drugs. Thus, the classification of drug resistance should not be confined to the drug category, and all should attempt to obtain insight into classification of resistance based on molecular mechanisms. The concept of drug resistance classification provides a sound basis for further research to develop more precise reversal strategies.

Instead of simply distinguishing resistance by agent, researchers attempted to classify drug resistance by mechanism. The authors summarized four major mechanisms from the published literature:

1) abnormalities in transmembrane transport, 2) alterations in DNA damage repair, 3) dysregulation of cancer-associated signaling pathways, and 4) epigenetic modifications. In the context of the increasing number of novel agents, summary of the four resistance mechanisms of OC provides a new concept for resistance classification by molecular mechanism, not by drug category. Given the intersections between drug resistance mechanisms, this concept is likely to result in the realization of "two birds with one stone" effects on the reversal of drug resistance in OC. Furthermore, these findings are anticipated to have broad implications for the development of precise therapeutic approaches for reversing drug resistance in OC. On this basis, umbrella trials can be carried out to explore the diagnostic and therapeutic targets of the four resistance mechanisms, and this may be a direction of future researches on drug resistance in OC [11].

As Porter J.M. et al. [12] note in their study epithelial OC (ovarian carcinoma) is the most common form of the disease and comprises multiple histological types (histotypes): high-grade serous (70% of patients), endometrioid (10%), clear cell (10%), low-grade serous (≤5%), and mucinous (≤5%). Ovarian carcinosarcomas - previously considered a separate disease entity - are now recognized to represent metaplastic carcinomas and account for no more than 5% of diagnoses. A wealth of evidence now demonstrates that each histotype represents a unique disease entity, each with distinct developmental origins, molecular landscapes, intrinsic chemosensitivity, survival profile, and susceptibility to targeted molecular therapeutics.

The authors emphasize that complete macroscopic resection is a key factor associated with prolonged survival in OC. That being said, patients with clear cell ovarian carcinoma and low-grade serous ovarian carcinoma represent some of the groups that benefit most from achieving complete macroscopic resection; given that these cases are unlikely to respond well to neoadjuvant chemotherapy, complete primary cytoreduction is a major priority for these patients. Endometrioid ovarian carcinoma also represents a histotype in which complete macroscopic resection is associated with marked patient survival benefit. Engagement with multiple surgical teams to improve the likelihood of resecting disease at hepatobiliary, gastrointestinal, and other anatomical sites beyond the pelvis will be key for delivering optimal outcomes for such cases that present with extensive advanced-stage disease. More work is also required to understand the impact of resecting disease outside of the pelvis and abdomen. Achievement of complete macroscopic resection across the overall OC patient population is associated with markedly prolonged survival time, though differences in the degree of survival benefit are apparent across different histotypes. Patients with clear cell ovarian carcinoma derive one of the greatest survival benefits associated with complete macroscopic resection. High-grade serous ovarian carcinoma patients demonstrate highly clinically and statistically meaningful survival benefit, but the magnitude of benefit is lower than in some of the other histotypes. The extent of benefit from complete macroscopic resection does not appear to relate solely to levels of intrinsic chemosensitivity of each histotype [12].

Now, as for this pathology in our country at the republican level. The incidence of OC in the Republic of Kazakhstan in 2023 was 6.3 per 100 thousand population (6.2 in 2022) with a growth rate of 2.1% compared to the previous year, amounting to 1,251 people in absolute numbers (1,201 women a year earlier). The proportion of cases with a diagnosis established for the first time in life, recorded by oncological organizations, was 3.4%, as in the previous year in the general population, and 6.0% among women (in 2022 also 6.0%) and 4th rank place after breast cancer, cervical cancer and endometrial cancer [13].

Above the national average, OC was established in 8 regions of the country: the city of Almaty - 10.4 (maximum indicator); Pavlodar - 9.7; Karaganda - 8.6; Abay - 8.4; Akmola - 7.7; Kostanay - 7.6; North Kazakhstan - 7.5; West Kazakhstan - 7.2. Aktobe, Atyrau and Kyzylorda regions are on par with the national average. This indicator is lower than the national average in the remaining 9 regions: Turkestan - 2.9 (the lowest level); Mangistau - 3.5; Ulytau - 3.6; Almaty - 3.7; Zhambyl - 4.3; the city of Shymkent - 4.6; East Kazakhstan - 5.8; Zhetysu - 5.9 regions and the city of Astana - 6.2 per 100 thousand people. The mortality rate from this pathology in 2023 was 2.1, a year earlier - 2.4 per 100 thousand population. The regions where the mortality rate from OC is higher than the average in the republic (2.1 per 100 thousand population) include: Abay - 3.0 (maximum level); the city of Astana - 2.9; Karaganda and Pavlodar - 2.5; Kyzylorda - 2.4; Aktobe and the city of Almaty - 2.2. This indicator is at the same level with the national average in the East Kazakhstan region. The lowest rates were noted in Turkestan - 1.5 (minimum rate); Almaty and Atyrau - 1.6; Zhambyl - 1.7; Ulytau and Mangistau - 1.8; North Kazakhstan and Kostanay - 1.9; West Kazakhstan, Zhetysu, Akmola regions and the city of Shymkent - 2.0 per 100 thousand population [13].

The one-year mortality rate was 7.2% (7.9% in 2022). At the same time, the ratio between one-

year mortality and neglect (stage IV) was quite high - 1.7 (a year earlier it was even higher - 2.1. At the same time, it should be noted that the farthest from "1" is the worst ratio between one-year mortality and neglect.

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 against 23,623 patients identified in 2022, i.e. +6.6%. This is due to the further abatement of the epidemiological troubles due to 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 per year.

Of course, with in the analysis of the epidemiological situation, the indicators of early diagnostics are very important issues. In general, in terms of the amount of detected cases of cancer of all localizations, in 2023 the proportion of forms detected at early stages (0, I-II stages) increased from 66.3% to 67.9%. As for OC, the early detection of this pathology during preventive examinations increased from 40.5 to 44.8%. The number of newly diagnosed patients with OC registered with oncology organizations amounted to 1,218 people (1,173 - a year earlier). At the same time, the absolute number of cases detected during preventive examinations in 2023 was 863, in 2022 - 875; the proportion of cases detected during preventive examinations was 70.9% and 74.6%, respectively. Of these, patients with stages I-II - 387 in 2023 and 354 in 2022.

The regions where the proportion of patients with early stage I of the pathology in question is above the national average (31.0% and 9th place among all nosological forms of malignant neoplasms) include the following regions: the city of Almaty - 45.3%; (the best indicator); Zhetysu - 43.9%; the city of Astana - 42.2%; Zhambyl - 38.5%; Kyzylorda - 35.8%; East Kazakhstan and Akmola - 35.0%; Kostanay - 33.9%; Almaty - 33.3%.

The lowest rates of early diagnosis were recorded in 11 regions. Against this background, two regions stand out - Aktobe and Turkestan, where stage I of the disease was established at only 5.2% and 6.5%, respectively (the worst rates in the republic). Next come: Mangistau - 16.0%; the city of Shymkent - 18.5%; Pavlodar - 23.3%; Abay - 23.4%; Ulytau and West Kazakhstan - 25.0%; Karaganda - 25.5%; Atyrau - 28.6% and North Kazakhstan - 30.8% of the region [13]. It should be noted that only two patients out of every five were detected in the early (I-II stages) of this pathology, making up 41.7% in the republic. The regions where the proportion of patients with OC detected at stages I-II is higher than the national average include the following regions. The best indicator is in the Zhetysu region - 51.2%. Then come two megacities - the cities of Almaty (51.6%) and Astana (50.6%); then - East Kazakhstan and Atyrau (50.0%); Akmola (48.3%); Mangistau (48.0%); Kostanay (45.2%); Zhambyl (44.2%); North Kazakhstan (43.6%); Karaganda (42.6%) regions. Low rates of early diagnosis were recorded in the following regions. Against the general background, the Aktobe region stands out negatively, where only every tenth patient was detected in the early stages of the disease - 10.3%. Then come the following regions: Turkestan (16.1%); Shymkent city (31.5%); West Kazakhstan (33.3%); Abay (34.0%); Almaty (37.0%); Ulytau (37.5%); Pavlodar (41.1%) and Kyzylorda (41.5%) regions [13].

As can be clearly seen from the above data, there is a very large spread in early diagnostic rates across the country, from good to disappointing. Of course, it is necessary to take into account migration processes and other factors that affect early diagnostic rates, but nevertheless, the results obtained give reason not to stop there, both for oncologists and gynecological oncologists, as well as for obstetricians and gynecologists, visual diagnostic doctors, and general practitioners, since improving the rates of early diagnostics of malignant tumors has remained one of the main postulates and one of the main tasks of medicine in general, and continues to be relevant today. The proportion of stage IV OC among all nosological forms of malignant neoplasms was 7.2%, and this is the 17th rank. In general, in 2023, the proportion of malignant neoplasms of stage IV in the republic for the sum of all nosologies decreased from 12.58 to 11.7% (from 4790 to 4735 patients).

As for the average national indicator of the proportion of stage IV (7.2%), Zhetysu and Mangistau regions stand out against this background - 0.0%. Then come: Kyzylorda and Zhambyl (1.9%); Atyrau (2.4%); North Kazakhstan (2.6%); the city of Almaty (3.6%); East Kazakhstan (5.0%); Pavlodar (5.5%). The city of Astana is on the same level with the average national indicator. The indicators are lower in the following regions. Abay region stands apart from all others, where every fifth patient is diagnosed in the terminal stage of the disease (21.3%). Next come: Turkestan (12.9%); Karaganda (12.8%); Ulytau (12.5%); Aktobe (12.1%); the city of Shymkent (11.1%); Akmola (10.0%); Kostanay (9.7%); West Kazakhstan (8.3%); Almaty (7.4%) regions.

The morphological verification rate of the disease in the country was 84.3%. In 5 regions out of 20, this is a 100% figure (East Kazakhstan, Zhambyl, Ulytau regions, as well as the cities of Astana and Shymkent). The lowest figure is in the Kyzylorda region (32.1%). Next on this list are the city of Almaty (55.2%); Zhetysu (78.0%); Mangistau and Akmola (80.0%); Aktobe (91.4%); Atyrau (92.9%); West Kazakhstan (93.8%); North Kazakhstan (94.9%); Turkestan and Kostanay (95.2%); Karaganda (95.7%); Pavlodar (95.9%); Almaty (96.3%) and Abay (97.9%) regions [13].

The total number of patients with malignant neoplasms, consisting of registered in specialized oncological organizations of the republic, continued to grow and by the end of 2023 amounted to 218,186 people, with an increase of 6.0% compared to the level of the previous year (2022 - 205,822, +5.8%). The overall incidence rate of malignant neoplasms increased by 3.9%, from 1055.3 to 1096.4 per 100 thousand population. The growth of this indicator is due to both the increase in the incidence and detection of pathology, and the increase in the survival rate of cancer patients. In addition, statistical data on patients diagnosed with malignant neoplasms, who have been under observation for 5 years or more, and continue to be observed in 2023, showed that the number of patients under observation by oncological organizations in Kazakhstan for over five years continued to grow and at the end of the reporting year amounted to 117,616 people, with an increase of 6.2% (2022 - 110,790 people, +6.6%) (form. No. 7).

It is impossible to ignore such an important clinical aspect as the coverage of patients with a first-ever diagnosis of OC in the Republic of Kazakhstan with specialized treatment.

In 2023, the number of hospitalizations for all nosological forms of malignant tumors in the country's oncology organizations amounted to 108,252 cases (2022 - 101,095), with an increase of 7.1% compared to the previous year, which is associated with a constant increase in the number of cancer patients, improved standardization of oncological care, and the development of palliative and restorative services.

At the end of 2023, the absolute number of patients with OC who completed specialized treatment amounted to 697 people, continuing treatment - 387 patients. The following results were obtained in percentage terms by methods and types of treatment. The overwhelming majority of patients received complex treatment - 68.4%, only surgical treatment - 21.1%, only drug treatment - 8.3%; combined - 0.3%, chemo-radiation - 0.1%.

Next, regarding the five-year survival rate of patients. As for OC, at the end of 2023, 8229 people or 41.4 per 100 thousand of the population were registered with the dispensary (at the end of 2022 - 7864 patients or 40.3 per 100 thousand of the population, respectively); and this is the 9th rank place among all nosological forms of malignant neoplasms.

At the same time, the mortality rate of the observed contingents in 2023 was 5.0% (6.0% - in 2022).

The five-year survival rate of patients with OC was 58.2% in 2023 (57.5% - a year earlier) [13].

Summarizing the above, we can conclude that OC occupies a significant place among all existing malignant tumors of other localizations. At the same time, despite the small percentage of patients detected at stage IV, taking into account a number of factors, the indicators of early diagnostics do not allow oncologists to "sleep peacefully", since the locally advanced stage III, which significantly prevails over all stages, in addition to the prevalence itself, gives a large number of complications and locoregional metastases, and these patients are subject to aggressive complex treatment, constituting the overwhelming percentage (68.4%) among all methods of treating this pathology. The variability and veiling of symptoms, its similarity with various non-core processes (sometimes the only symptom is a gradual increase in the abdomen due to ascites), leads to the neglect of the disease. All this requires both oncologists and gynecological oncologists, and, first of all, primary health care workers, as well as obstetricians and gynecologists and visual diagnostics doctors, to increase the level of cancer alertness, inform the population about early symptoms that may indicate this pathology or the onset of proliferative changes and conduct high-tech diagnostic measures and, as a result, timely treatment. Women at risk are advised to visit specialized specialists annually and, if necessary, undergo an examination.

An epidemiological assessment of the situation with OC in our country suggests that there are sometimes significant differences between regions not only in incidence rates, but also in the parameters of early diagnosis and mortality from this pathology. In connection with the above, this pathology continues to be a serious problem in modern clinical oncology.

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Pedagogical sciences

CURRENT MODELS OF INCLUSIVE EDUCATION FOR CHILDREN WITH SPECIAL EDUCATIONAL NEEDS

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Abstract

The international community views inclusive education as a flexible system that serves the needs of different groups of students and contributes to the elimination of all forms of discrimination. Inclusive education in Kazakhstan is interpreted as ensuring equal access to education for all students, taking into account the diversity of special educational needs and individual abilities. The article reveals the problems of modern inclusive education for children with SEN of various nosologies, describes models of organizing inclusive education for children with SEN, and characterizes the features of the application of educational technologies. The development of innovative models of inclusive education for children with SEN is based on the principle of ensuring equal access to education for children with SEN. To provide targeted assistance to children with SEN in an inclusive education setting, it is possible to combine various models of the above-mentioned areas: the technologization of the inclusive educational process, the support of inclusive education for children with SEN, and the creation of an inclusive educational environment based on the principle of synergy.

Keywords: model, models of inclusive education, inclusive education, students with disabilities, support for students with disabilities.

Considering the issues of modern inclusive education for children with special educational needs of various nosologies, as well as its models in this article, we consider it necessary to define the definitions of this concept in the Kazakhstani and foreign educational space. According to the definition of a number of foreign researchers, inclusive education is interpreted from such positions as a special philosophical category, whose fundamental principle is the recognition by the educational environment and society of the value, uniqueness, and individuality of each child, regardless of their individual characteristics, as well as the joint education of children with special educational needs in schools in their place of residence with a mandatory flexible system of assistance to such children in the educational process [1]. Based on these provisions, inclusive education can also be viewed as a social concept that prioritizes the education of all children, including children with disabilities, in general education classes with the necessary support for this category of children in these classes. Thus, it can be concluded that the international community views inclusive education as a flexible system that serves the needs of different groups of students and contributes to the elimination of all forms of discrimination (UNESCO, 2001, 2009), Stainback and Stainback (1996), and Alur and Bach (2010) [2].

Next, we will consider the definition of inclusive education adopted in Kazakhstan, "On Amendments and Additions to Certain Legislative Acts of the Republic of Kazakhstan on Inclusive Education", is interpreted as ensuring equal access to education for all students, taking into account the diversity of special educational needs and individual abilities. There are some common grounds here, but there are also certain differences. In order to eliminate these discrepancies, we will attempt to clarify the concept of "equal access" as the opportunity not only to receive quality educational services, but also flexible support for the learning process depending on the individual characteristics of students, equal access to educational institutions alongside healthy peers, as well as communication and social interaction with healthy peers, and the creation of an environment in educational institutions where everyone is valued [2]. It is from these positions that we will understand inclusive education for children with SEN. Based on the above, we consider innovative processes in inclusive education for children with

SEN from the following positions: technologies for teaching children with SEN together with healthy children, the organisation of a support system for children with SEN in the inclusive educational process, the organisation of an inclusive educational environment in educational institutions, including not only an accessible environment for students with SEN, but also productive interaction between the participants in the educational process in this environment. Based on the above directions, let us consider several models for organizing inclusive education for children with SEN.

Techniques for teaching children with SEN together with healthy children. It is important to emphasize here that when choosing techniques, it is necessary to be guided by the optimality of pedagogical influences and the achievement of successful learning for each child. One of the main areas of work will be the formation of independent work in the classroom, which meets the requirements of the State Educational Standards. When organizing independent work for children with SEN, it will be possible to use the help of a tutor, which in turn can be implemented in the following areas: individual assistance or organization of independent work in class, developing independence in children with SEN within the framework of individual remedial classes.

As a proposed model for conducting lessons in inclusive education classes, one can consider the model of organizing a class in a complex class, where students are divided into groups of children studying according to the basic and adapted educational programs, differentiation is carried out according to their educational abilities, where subgroups can include both healthy students and students with SEN (flexible subgroups can be formed), an individual approach to students is implemented in the lesson, including the assistance of a tutor, flexible classes are created, where the study of individual disciplines by students with SEN is implied as part of flexible classes created in parallel (for example, when teaching mathematics, students with special educational needs from the entire parallel class study mathematics or individual topics in mathematics separately from healthy students according to an adapted educational program in a flexible class), students are taught in structured classrooms. It is assumed that the workspaces for students will be separated from each other in the classroom by screens or by arranging the desks so that the students' faces are turned toward a blank wall. This model is appropriate for children with emotional and volitional disorders [3].

Next, we will describe the features of applying educational technologies in inclusive classrooms. As mentioned above, it is advisable to use technologies for individually differentiated learning in such classrooms. The following technologies can be used here. Level-based differentiation of learning based on mandatory results. This technology proposes the introduction of two levels of learning (the level that the school must provide to interested, capable, and hardworking graduates) and the GOSO level. Collective learning method. The essence of this system is that older students, initially under the guidance of a teacher, studied the material themselves and then, after receiving appropriate instructions, taught those who knew less. This promotes individual tutoring among students and team building in an inclusive classroom [4]. A similar foreign technology is flexible tutoring, where either a senior student, which is typical for classes, or a more successful student is assigned as a tutor for a student with problems. In this case, the tutors from among the students may change periodically. The method of paragraphby-paragraph text analysis is designed for studying articles or complex texts in pairs of varying composition. The text selected for study should not be too short (no less than one page) [4]. Individual learning sheets. The essence of the method is that, even before studying the topic, students received so-called individual learning sheets, which contained questions on the topic (a paragraph from the textbook) and space for answers. The children studied the proposed material of the paragraph independently at home, filled in the answers, and became active learners. During the lesson, the assignments are discussed, and gaps in knowledge are eliminated.

Organization of a support system for children with SEN in the inclusive educational process. Here we will consider the models proposed by A.Mukhametjanova, K.Aidarbekova, E.Kosylgan, which assume different levels of support for children with SEN with coordination and mutual cooperation between these levels. These are the model of activity of the psychological, medical, and pedagogical commission, the model of activity of the coordinator of the educational organization for inclusive education, the model of inclusive support services for young children, and the model of a system for improving the qualifications of specialists in educational organizations who implement inclusive practices. It is necessary to take into account the current realities of these models and the model of activity of a cluster, district or municipal center for psychological and pedagogical assistance to families, and the support service of an educational organization [5]. These models are based on a synergistic concept, which involves the interaction of the above models at different levels, the mobility of specialists, their interaction, and the organization of seminars and internships for specialists implementing inclusive *practices as part of professional development courses. Next, we will consider the support models proposed by Z.A.Movkebayeva. Here, we also see various synergistic interactions between different support services, and effective assistance implies integration between different models.*

Organization of an inclusive educational environment in educational organization. Traditionally, the educational environment of a mass educational organization was aimed at segregating unsuccessful students, especially children with SEN and disabilities, because these students would not be able to master the entire necessary list of knowledge, skills, and abilities. The fact is that, while remaining "educational and training", educational institutions were also part of a social mechanism that tested individuals' abilities, selected them, and determined their future social positions. In other words, the fundamental social function of such a school was, first of all, not only to find out whether the student had mastered the required material or not, but above all to use exams and other tests to determine which children were the most successful and which were not, what abilities they had, to what extent they manifested themselves, and which of them were socially and morally significant. Secondly, this function consisted in eliminating, excluding, or isolating those who did not achieve the expected learning outcomes. Thirdly, by eliminating such inconvenient" students and closing off avenues for their further advancement, at least in certain social areas, the advancement of capable students towards social positions that correspond to their general and specific characteristics is ensured [6]. Thus, here the educational organization can be represented as a kind of tool for selecting successful and unsuccessful students. Naturally, children who have not coped with their studies and have not fit into the school community, among whom there are more likely to be children with SEN, can be considered among the unsuccessful. Therefore, there is a need to create an environment in which all healthy students and students with SEN can be successful or have the potential to achieve success. Swedish scientist I.Emanuelson argues that the essence of inclusion is to create conditions in the classroom or group for the full inclusion of everyone, and that these conditions are determined by the content and methods of teaching. He also emphasizes that inclusion, among other things, is the ability of a group or community to take responsibility and contribute to solving problems arising from the characteristics of the student's initial data [7]. Therefore, it is necessary to create special conditions that stimulate the interaction of the subjects of the inclusive educational process, that is, the creation of a special social space. It should be noted that every person in social space has a social status or social position corresponding to a system of social coordinates, because social practice has already developed another, more reliable and simpler method, similar to the coordinate system used to determine the geometric position of an object in geometric space. The components of this method are as follows: a person's relationship to certain groups, the relationship of these groups to each other within the population, and the relationship of the population under study to other populations within humanity.

As applied to an educational organization practicing inclusive education, these provisions can be interpreted as follows:

1. The need to form inclusive norms and values in the minds of participants in the educational process. In addition, it is important to note that some of these manifestations have their own meaning and can be useful for most people in terms of cognition. It is necessary to better understand the essence of the manifestation of "special" in classmates with SEN.

2. The formation of a special way of thinking and acting in the minds of participants in the educational process in accordance with the values of inclusive education.

3. Creating an environment that takes into account all the characteristics of people with disabilities.

Such an environment will also be adequate for healthy people, as it takes into account all their needs. It will serve as a kind of equalizing component, giving everyone the opportunity to feel equal. However, attention should be paid not only to external material conditions, but also to the vocabulary used by those around us. This creates the culture of the environment, and it is important to show respect and equality towards people with disabilities in speech. Such sociocultural interaction has three interrelated aspects that are inseparable from each other: the individual, who in this case is considered as the subject of interaction, society, represented as a collection of interacting individuals with their sociocultural relationships and processes, and culture, which is a collection of meanings, values, and norms possessed by interacting individuals, a collection of carriers who objectify, socialize, and reveal these meanings. This sociocultural interaction can be illustrated by the following example. Thus, the teacher and students in the classroom, as well as students with SEN, are individuals, and the totality of these individuals, together with the norms of their relationships, constitutes the classroom community, as well as the ideas, different points of view, opinions, not only scientific and everyday, which they possess *and exchange, books, the blackboard, furniture, lamps, various visual teaching aids, posters, auxiliary devices for organizing educational and other activities for children with SEN, but also the classroom itself represent the culture of this community. None of the members of this indivisible triad, which includes personality, society, and culture, can exist without the other two. The same position is held by Schmidt M. and Kagran B. in their study [8]. Based on the above, the areas of work will be as follows: stimulating a positive attitude in a heterogeneous group, organizing interaction between healthy children and children with SEN in leading activities, organizing communication, motivating joint free activities, and, finally, stimulating positive emotions from communicating with each other, as well as the space itself in the room, where the needs of all students are taken into account and maximum accessibility is ensured for all categories of students. This will be the main direction for creating an inclusive educational environment. When forming relationships between the subjects of inclusive education, it will be advisable to start by establishing emotional contact with society, that is, to rely on the attractiveness of the included individual to society, evoking sympathy and warm friendly relations towards them. then it will be necessary for the individual to adapt to society and to align the child's internal assessments and aspirations with the expectations of society. In addition, the most important condition will be the inclusion of activities with healthy children. And even if it is one type of activity, the content of the individual activities of the subjects will differ depending on their abilities. The inclusion of a child with SEN in collective activities, which may differ from the activities of other students but correspond to his or her abilities, will be presented as his or her contribution to the common cause. Here it is important to show the child's abilities in performing certain tasks. The joint activities of children with SEN and healthy children studying in an inclusive classroom can be viewed from two perspectives: the emergence of collective relationships in the direction of class development and the development of educational activities in the context of implementing inclusive education practices. A child with special educational needs can be involved in community life through both educational and extracurricular activities. Specific steps to include them in the community are important here. An appropriate attitude of healthy people towards people with disabilities will help them to participate fully in educational and social activities, which is the most important positive outcome of the existence of inclusive educational organizations [9].*

Thus, when considering aspects of modeling various directions for organizing inclusive education for children with disabilities, it should be noted that the development of innovative models of inclusive education for children with disabilities is based on the principle of ensuring equal access to education for children with disabilities. It should also be noted here that in order to provide targeted assistance to children with SEN in the context of inclusive education, it is possible to combine various models of the above-mentioned areas, the technologization of the inclusive educational process, the support of inclusive education for children with SEN, and the creation of an inclusive educational environment based on the principle of synergy. Thus, it is necessary to take into account the characteristics of the child and his or her individual needs in the educational space, the availability and qualifications of specialists at various levels of support for such a child, and the conditions created in the educational organization. When combining or integrating the above models, it is also necessary to assess the possibilities for their interaction at different levels, the resources available in the educational organization and the area where the child with SEN lives, the competence of teachers and other specialists who interact with the child with SEN and his or her family, and so on.

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Philological sciences

SOCIAL LAYERS OF THE AMERICAN LEXICON

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Abstract
In the 20th century, the American linguistic identity was studied in the cultural and historical space of the USA. The possibilities of a prototype approach to its analysis and reconstruction as a three-level mental model were revealed. Factors such as the pragmatic orientation of the individual's cognitive activity, the perception of information in terms of categories and binary opposition, the influence of extralinguistic reality on the procedures for the output of language knowledge are considered as system-forming factors. This means that this phenomenon should be protected as an important element of society so that it does not become politicized and cause various complications. It is also known that cultural unity and cultural institutions, while covering all aspects of the social life of culture, sometimes also affect political processes. Noting that American culture is today's global culture, he writes: "One of the reasons for the emergence of Americanism as a global culture is that the United States perceives its culture as a multicultural culture." In the idea of multiculturalism, every modern nation acts as both an ethnic and a political-legal civil community.

Keywords: languages, dialects, formation, linguistic, American English

Introduction. To date, English is the most common and a significant language in the world. Dialects of the English language - a set of dialects that have developed in the British Isles, emerged as a result of the expansion of the British Empire and - after World War II - the influence of the United States around the globe. The number of dialects and English languages and pidgins is quite large.

The study of dialects gives invaluable and truly inexhaustible material not only for penetration into the deepest origins of the language, but also for its historical past, but allows us to assess and understand, without bias and unilateralism, the features of the formation and development of the literary norm, of various social and professional voices, as well as linguistic variants. Only the recording of dialectal data opens the opportunity to understand not only the so-called "deviations" from the rules of pronunciation and grammar, but these rules themselves, and can serve as a solid basis for studying the formation and development of meanings of words [2,p.21].

There is a point of view that dialects are a "vulgar speech" used by "uneducated" layers of society. However, such a judgment is anti-historical and incorrect in fact, because, firstly, the literary norm, as a rule, develops on the basis of one or several local dialects; Secondly, the linguistic features of any local dialect are due not to "negligence" of the speeches of its bearers, but to strict historical laws.

English does not have a central body coordinating its development, such as, for example, the Academy for the language, which leads to the absence of a single language norm. The two most common standardized dialects of the English language are the "British (Royal) English" based on the southern British dialect and "American (General American) English" based on the mid-Western American dialect. Newfoundland English in Canada or African American and South American English in the United Meanwhile, it seems clear that the real picture of the existing relationship between the American and British version of the English language can be revealed not by simply listing their distinctive features, but only by revealing the specific weight of the distinctive elements, as well as the scale and depth of the differences at all levels of the linguistic structure. And this can be achieved only if the distinctive and common elements are considered as an integral part of a single language system. Dialect is a unique language, which uses for communication a separate group of persons. As a rule, these people live on the same territory or belong to the same social status and profession. There is a certain pattern, which is that different dialects are usually observed among the inhabitants of rural areas [2,p.18]. As a rule, two types of dialects are distinguished, one of which is territorial, and the other is social. Thus, we see that the American standard of English language at the phonetic level has a number of specific features, distinguishing it from British English. Most often differences in the pronunciation of vowel sounds, rather than *consonants, widely retro flexion is widespread. Also sometimes there are lexemes, whose pronunciation does not meet the American standard Pronunciation, which can be characteristic of a certain regional pronunciation Territorial dialect is a kind of language that is used in a particular territory as a means of communication of local residents. A social dialect is a language spoken by a specific social group of the population. The work carried out contributed to a deeper penetration into the structure of the language, the history of the emergence of various variants of the English language, especially the American dialect. As already mentioned, there are many dialects in the English language. The aim of the work was to study the differences between the two main English versions - British English and American English. The analysis of the sources showed that the main distinguishing features relate mainly to the following layers of language: vocabulary, pronunciation and grammatical structure [3,p.44]. The greatest discrepancy lies in the sound variety of British and American dialects, the less subject to change is the grammatical structure of the language, especially the written English language, the so-called Standard English. But the biggest and most noticeable difference is pronunciation.*

-on the street (Am) — in the street (Br);

-He's in the hospital (Am) — He's in hospital (Br).

This can easily be found in the utterance of in the words: port, more, dinner. While this sound is not pronounced in British English, the inhabitants of Scotland have such a sound dominating in the speech. The English language can surprise a variety of varieties of dialects. There are two most common standardized dialects of English. The second dialect of English is "American English," which, as you might guess, is based on the mid Western American dialect. We also found that the quantitative growth of Americanisms is closely related to the history of the language (and mainly vocabulary as its most mobile part) and the history of the development of American society. Dialects of the language and the literary standard (exemplary, normalized language, the norms of which are perceived as "correct" and universally binding, and which is opposed to dialects and common sense, are inextricably linked not only because dialectal speech arises on the basis of the standard, but also because, as a rule, The language standard of the English language is not an exception: in the 15th century, Britain was abundant in the presence of many different dialects as it increased I flowed from the village to the city, these dialects became more and more mixed up and the result was a linguistic standard (it could be said that originally it was the London form of the southeast dialect). Over time, this language was perfected and was recognized as a language on which said the educated part of the population of the country [2,p.7].

However, it would be incorrect to assume that the standard is a fixed form of pronunciation that is not subject to change. The natural evolution of the language, as well as various extralinguistic factors, lead to a change in the literary standard (but the process of change is very slow). Some norms of language come out of use and are replaced by new because of the disappearance of some realities and the appearance of others.

The degree of difference of dialect speech from the literary standard is determined by a number of factors: the history of the origin and development of the dialect, socioeconomic structure of society, etc. In many cases, in dialectal speech, you can find the norms of language that have already come out of use in the language standard. The intensive growth of its economic and state structure necessitated the creation of special terminology, which also imperceptibly penetrated all spheres of life of British society. In other words, we are talking about bilateral assimilation. Summing up all the above, I would like to note that the area for studying various variants of the English language is so inexhaustible and undoubtedly of interest both for really enthusiastic linguists and for expanding their general horizons of students of educational achievements [3,38]. When writing this work, we set ourselves several tasks: to consider the basic phonetic, lexical and grammatical features of each of the most well-known variants of the English language. The article considered only a few Features of the active used in speech the practice of the dialect English - about the full analysis of this version of modern English the language to speak, perhaps temporarily, because the process of its development is in the dynamics. In the course of the work, we were convinced that each variant of the English language has its own distinctive features, conditioned by historical development, the influence of the languages of neighboring countries, and also the language of the indigenous population. One of the significant aspects of the problem under consideration is the typology of language situations. There are different situations in which social and communicative systems of different languages interact, systems of the same language, functionally equivalent systems (balanced situations) and systems that functionally complement each other Sociolinguistics studies the problems associated with the social aspect of language proficiency, social regulation of speech behavior, with a complex set of questions related to the confusion of languages and the formation, as a result of this process, of "intermediate" language idioms - pidgin and Creole languages. Sociolinguistics also studies *the problems of bilingualism and the processes of interaction and interaction of languages. He takes part in solving questions of language policy and language planning. Thus, it can be concluded that the lexical differences of the American variant are very extensive due to the numerous borrowings from the Spanish and Indian languages, which was not in British English. As for the grammatical features of the American version, they do not have the status of normative in modern English. The history of the development of opinion on this issue, however, deserves special attention on the statements and reflections that somehow contributed to them, and we can distinguish certain opinions or bases of evaluation. Language analysis has shown that the differences between the American and British versions of the English language are quite noticeable. However, the opinion about the significant differences between the American and British versions of the English language is just a myth. As in the whole world, this process was conditioned by necessity. As a result, we have simplified orthography, grammar, as well as a peculiar pronunciation and a different from the British English lexical composition of the language. Everything depends on the goal that the person sets himself. If knowledge of the language is required in order to communicate with business partners living in the US, then, of course, you need to make efforts to learn basic American English. The main phonetic differences between dialects and the literary standard consist both in quantitative characteristics and in the quality of individual sounds. Dialects are very characteristic of the pronunciation of those sounds, which in the literary version are not pronounced at all. Therefore, society and the social, economic and cultural changes that occur in it can not but affect the various levels of language. Equally, language has a significant impact on society [4,p.36]. The consideration of the speech continuum from the point of view of the contrast of the northern and southern pronunciation characteristics allows us to correlate the segmental and ultra-segmental levels of analysis of regional speech It is quite difficult to draw a line between the concept of the linguistic variant and the concept of dialect speech, since, according to the definition, both can be characterized as a variant of the pronunciation of a given language, specific to a certain group of people. For today day there is a need for a language of international communication for the implementation of international trade, business, diplomacy, security, mass communication, cultural exchange and other areas of international cooperation, so the possession of sound language structure, proper pronunciation and culture of voice is an indispensable condition for communication in any form. back side similar spread of language around the world is that it. He lost his unity with regard to the sounding speech: now there are so many "English" in their colloquial form, that only written form supports the unity of language as a whole [1,p.25]. Wrong pronunciation or intonation of one language, being applied to another language, can make it difficult to understand each other and, as a consequence, leads to problems of language communication or penetration in the culture of another nation.*

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TEACHING REVIEW MATERIALS

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Abstract

Some of the materials included in the content of the literature subject are review materials.

Review materials have wide educational opportunities regardless of their place. They either create a general idea of its content at the beginning of the course, or prepare the ground for a more correct understanding of any work that will be studied in detail, or, by summarizing our literary and cultural achievements of several centuries, allow for the necessary understanding of the next topic - the creativity of artists that will be studied individually.

Review topics are reminiscent of a kind of first word, an introductory word. That first word that creates a certain idea in the participants about the speaker himself, about the issue he is talking about. The recognition of that person by the environment decides the fate of his fate. It seems that the responsibility of this first word is quite great. When Einstein was asked what you find most difficult? His answer was: in giving an introductory speech to the audience. The same is true in our literature course. The fate of the topics (program materials) to be studied in the future depends on the quality of the introductory speech, the first impression created.

Keywords: overview material, beginning, introductory speech, first topic, teaching process, historical-literary characteristics, literary-cultural landscape of the period, brief summary of the period, etc.

Overview materials have wide educational opportunities regardless of their place. They either create a general idea of its content at the beginning of the course, or prepare the ground for a more correct understanding of any work to be studied in detail, or by summarizing our literary-cultural achievements of several centuries, they allow for the necessary level of understanding of the next topic - the creativity of artists to be studied individually.

Our topics similar to the introduction - reviews are of three types. The topics called "Introduction" of the literature course are the subjects of the course, the historical-literary reviews are the subjects of the section of the artists who lived and created within this period and are intended to be taught separately, and the topics "the artist's life, creative path" in the upper grades allow for a correct understanding of the value of artistic works. Therefore, these reviews have the effect of an introductory word to the course, section, and the study of a specific work. Reviews either introduce students to the world of literature in a perfect way (topics of introduction to the course), or introduce students to the world of the artist's words, directing them to a correct understanding of the work to be studied separately (gives a general picture of the artist's creativity), or provide a literary-cultural picture of a period of several centuries, summarizing our history, literary-cultural achievements within the boundaries of that time, and allow for a more correct understanding of a specific artist. The word review means in short, concise, summing up and synopsis. When teaching introductory topics, it is necessary to look at the information in the textbook. In teaching these topics, it is possible to select and implement certain standards from the content lines of oral and written speech. (1, p.82) These topics and their content make a consistent contribution to the students' spirituality, worldview, and the development of feelings of statehood and Azerbaijaniness. We should not forget this even for a moment. These topics are taught in the type of inductive lessons. In historical-literary reviews, along with a socio-political, literary-cultural summary of several centuries, there is also a brief discussion about the artists who wrote and created during that period and their artistic heritage. These reviews are currently presented in the literature course in grades VIII-XI. The importance of teaching such reviews is determined by its main tasks:

- ✓ *To create a connection and communication between different periods of the literature course,*
- ✓ *To reveal and show the development trends of literature, issues of tradition and inheritance,*
- ✓ *To help in fully imagining the place of the artist to be studied in a monographic form in our literary history,*
- ✓ *To make our students love our history perfectly, in unity with our other spiritual values,*

✓ To introduce them to the peculiarities of the artistic heritage of our artists who reflected our literary achievements in the mentioned centuries in their creativity. Currently, there are such reviews that are reflected in literature textbooks:

For grade VIII:

1. Our ancient and rich literature (introductory review)

2. Ancient Azerbaijani literature

3. Renaissance Azerbaijani literature

4. Medieval Azerbaijani literature

5. Early realism period in Azerbaijani literature

6. Enlightenment realism period in Azerbaijani literature

7. Critical realism and romanticism period For grade IX: The realities of life and our rich literature (introductory review)

Azerbaijani literature during the national-democratic movement, the Soviet period and state independence:

I stage. Literature during the national-democratic movement in Azerbaijan

II stage. Soviet-era Azerbaijani literature

1. Literature during the period of proletarian culture and repression (1920–1940)

2. Literature during the Second World War, personality cult and moderation (1941–1960)

3. Literature during the period of national-spiritual self-awareness (1961–1990)

III stage. Azerbaijani literature during the period of state independence (from 1991 to the present day) for X grade:

1. Our art of speech - our spiritual wealth (introductory review).

2. Azerbaijani oral folk art

3. Ancient period Azerbaijani literature (VII-X centuries)

4. Renaissance period Azerbaijani literature (XI-XII centuries)

5. Medieval Azerbaijani literature (XIII-XVI centuries)

6. Early modern period Azerbaijani literature (XVII-XVIII centuries)

7. Enlightenment-realism period in Azerbaijani literature (XIX century)

In XI grade:

1. The period of critical realism and romanticism in Azerbaijani literature (from the 90s of the XIX century to 1920)

2. Soviet period Azerbaijani literature (1920-1991)

3. The stage of national self-awareness and independence in Azerbaijani literature (60-90s of the XX century)

In historical-literary reviews, along with a socio-political, literary-cultural summary of several centuries, there is talk about the artists who lived and created at that time, so certain difficulties may arise in its teaching in terms of the abundance of information. In grades VIII-IX, these materials are of an introductory nature. They play the role of a guide for the topics covered later. No separate time is allocated for their teaching. (2, p.187) Let's consider an example from the literature textbook for grade VIII:

Grade VIII. ANCIENT AZERBAIJAN LITERATURE

Azerbaijani literature has an ancient and rich history. From the most ancient times, peoples speaking the Turkic language prevailed among the various tribes living in the territory of Azerbaijan, and along with rich examples of oral folk creativity in this language, written monuments were created. The foundation of our literature of that period is ancient universal Turkic literature. The art of speech created by our ancestors in the most ancient times is considered common Turkic literature. The Orkhon-Yenisei monuments are the first examples of common Turkic literature. Many examples of literature and culture that arose in Azerbaijan in the most ancient times did not reach later periods. However, the legends given in Herodotus's "History", other valuable examples, as well as the ideas about the high culture of Media, once again confirm what is said about the development of Azerbaijani literature.

After the occupation of Azerbaijan by the Arabs and the adoption of Islam in the 7th century, madrasas in Arabic were opened, and the Arabic alphabet was switched to. The education of intellectuals in Arabic-language madrasas did not remain without an impact on their artistic creativity. This factor led our artists to write and create in Arabic. At that time, Musa Shahavat, Ismail ibn Yasar, Abdul Abbas al-Ama were well-known poets who wrote valuable works of art in Arabic. Although they wrote in Arabic in accordance with the requirements of the time, the glorification of patriotic feelings occupied an important place in their poems. "Dade Gorgud", an unparalleled folk creative event in ancient Azerbaijani *literature, is one of the rarest magnificent monuments in world literature. The epics of "Kitabi-Dade Gorgud", a product of the artistic thought of our ancestors - the Oghuz Turks, have been the focus of attention of world scholars for hundreds of years with their ideological content and inimitable beauty. (3, p. 11)*

Observe the content and volume of the material. The content here helps students a lot in understanding the next material(s) (After this review, it is intended to teach the topic "The time when the son of Kazan bey Uruz bey was imprisoned (from the epic "Kitab-Dede Gorgud")). The main attention should be paid to the correct retention of the literary achievements existing within this time frame by students. In the new course, in grades X-XI, the authors gave these reviews a project character (it is relative, it does not correspond to the concept of a project - F.Y.) and allocated one hour for teaching. The word project there is relative. The most important issue in teaching such review topics is to provide students with information about the brief socio-historical situation, the artists who lived and created during that time period, and the rich heritage, traditions and innovations they left behind, and to record their conclusions. Students can make observations on such texts presented in the textbook, divide them into logical parts, learn what is reflected in the content of the material, and present their conclusions. Ancient and medieval period (as well as in other historical and literary reviews), when teaching the review topic, the historical map of Azerbaijan for that period should be used as appropriate. The importance of this work in terms of interdisciplinary connection and visuality is very great. Recommendations for teaching the topic are given in the methodological manual. Considering that there are some deviations in the application of the lessons there, we will also present an example of teaching that topic based on active (interactive) learning. Of course, since it is a lesson that provides new knowledge, we should choose an inductive lesson type. Here, reference should also be made to the standards for oral and written speech content lines that correspond to the content of the material. Let us not forget that each of the proposed lessons (whether the teacher's manual or the ones we present) is of a recommendatory nature and in no way means limiting the teacher's independent work. Considering the work process here, accept it simply as a work example. To summarize what has been said, let us recall once again that when teaching historical and literary reviews, the teacher should keep several issues in mind:

1. Each to clearly imagine the educational, educational and developmental goals pursued by the topic.

2. What tasks to give students in the process of studying that topic and how to correlate them with the standards.

3. What tasks to perform to make the lesson interesting and lively.

Now let's move on to the specific lesson model for teaching the topic. The course of an active (interactive) lesson on the topic can be organized as follows. For this, let's look at the teaching of one of the reviews in the X grade - the topic "Ancient Azerbaijani Literature". In order for you to have a certain idea about this, we present the text of the historical-literary review from the X grade and the lesson model for teaching it.

Class X. ANCIENT AZERBAIJAN LITERATURE

Text in the textbook In ancient times, the literature of the Turkic peoples spread over a wide geographical area had a common characteristic, and Azerbaijani literature emerged as an integral part of the general Turkic literature. As we go back to ancient times, we can see that the commonality and connection between Turkic literatures in terms of language, style, and image is stronger. Chinese sources were the first to introduce us to examples of ancient Turkic artistic thought. Examples - fragments of poetry translated into Chinese, dating back to the 2nd century BC, make today's Turks think due to their ideological content, causing them to feel sad and mournful. The feelings and thoughts expressed in these fragments are repeated a thousand years later in the Orkhon-Yenisei monuments, heard in the Turk's own language, read in the Turk's own alphabet and writing. The epic creations that formed the basis of the common literature of the ancient Turks - "The Creation of the World", "The Origin of the Turks", "Oguz Khagan", "Alp Er Tonga", "Erganekon", "Koch" are valuable artistic examples reflecting their history and heroism. In these works created in a common space, geography, and spiritual environment, the thinking of our ancestors, their view of the world, life, and cultural traditions found artistic expression.

From the examples that have reached us, it is clear that they were diverse and colorful in content. For example, in the epic "Creation", the ancient Turks' ideas about how the landscape of the universe used to be are reflected. The image of the God Gara Khan is created in the work. The world is subject to the will of God. Along with goodness, there is also malevolence in the world. God does not allow malevolence to overcome goodness and rule the world. God, who sits on the seventh floor of the sky and *rules the universe, determines the fate of both the land and society where the Turks live. The ethnic and tribal groups that formed the ancestral roots of the ancient Turks were in close economic and cultural relations with the peoples living in the Middle East. This relationship led to the widespread spread of examples of word art that originated in one of the peoples with the same roots among other peoples. One of such works, "Avesta", was also a religious book of the fire-worshipping Azerbaijani Turks.*

The author of "Avesta" is the prophet Zoroaster. In "Qatlar", which is considered the core of the work and a product of artistic thinking, the creation of the first man, various moments of human life, the struggle between man and nature, and the feelings caused by victory and defeat in war are reflected in artistic language. The work talks about the struggle between the god of Good Ahura Mazda (Hormuz) and the god of Evil Ahriman (Angramanyu). The god of Good Hormuz is the creator of all good things – light, health, fire, life. The god of Evil Ahriman created lies, darkness, death, and diseases. Their struggle results in the victory of light over darkness, good over evil. In the "Avesta" people were called to humanism, good deeds, agriculture, and cattle breeding, which are considered the basis of abundance in life. Fire worshipers worshiped fire, which they considered sacred, and believed that it was possible to get rid of evil through it. A number of customs associated with Zoroastrianism - considering fire sacred, raising the sky, jumping over fire (bonfire), etc. have reached our time. Like the history of the creation of the epic, when it was written down is also explained differently. (4, p.19)

Although the ancient heroic chronicle of the Azerbaijani Turks, the first perfect literary and artistic event of our artistic word, "Kitabi-Dade Gorgud", is included in the "Oguznamel" series long before Islam, it is a monument of our native Turkic language. Its writing down showed that our written literature developed not only in Arabic or Persian, but also in our native language. This valuable monument is a reliable source for studying and evaluating not only our language and history, but also the spirituality, psychology, outlook on life, etc. of our people as a whole. The powerful Islamic state that emerged in Arabia in the mid-7th century invaded many countries under the banner of Islam. Azerbaijan was not left out. The Arabs who attacked our country met with serious resistance from the people. Although with difficulty, the country was occupied. After the adoption of Islam, madrasas were opened in various regions. The goal was to master the basics of the Islamic religion and the Arabic language.

Our artists, such as Musa Shahavat, Ismail ibn Yasar, and Abul-Abbas al-Ama, who created excellent works of art in Arabic, gave ample space to the expression of patriotism and feelings of attachment to their homeland. The conflict between justice and oppression, and protest against the injustices in the social environment were among the issues reflected in their works. The search for innovation, sincerity, and lyricism were clearly evident in the works written on natural themes by these artists. After the weakening of the Arab Caliphate, the Persian language began to spread widely in the countries of the Near and Middle East and in the palaces. Starting from the middle of the 11th century, a tradition of writing in Persian emerged in Azerbaijan. In palace literature, such types of qasidah as medhiyya, satirical poems, laments, and fakhiriyya were given ample space, and special attention was paid to writing works on religious themes. Medhiyya were not limited to praising the power and deeds of rulers; they were invited to be kind and merciful, to carry out constructive work in the country, and to create peace. Progressive artists living in the palace gave direction to the enrichment of palace literature in terms of subject and content with their works dedicated to historical events and socio-philosophical issues. Although they wrote their works in Persian, they reflected the Turkish-Azerbaijani worldview and spirituality in terms of the ideas and artistic craftsmanship they propagated. Qatran Tabrizi, Abul-ula Ganjavi, Falaki Shirvani, Mujiraddin Beylagani, Mahsati Ganjavi, and Afzaladdin Khagani wrote lyric poems praising love and nature, as well as reflecting deep philosophical thoughts. Socio-political problems and humanist ideas were also reflected in the work of these artists. The legacy of Q. Tabrizi, who gained fame as an outstanding representative of the palace literature of the 11th century, consists of "Divan" and a Persian dictionary called "At-tafsir". The poet's "Divan" includes, in addition to eulogies, lyrical poems on love, homeland, human destiny, nature, as well as dissatisfaction with the palace.

The poet, who wrote and created in Ganja and Tabriz, has two poems about the earthquake that occurred in Tabriz, which are valuable as a source of information about this ancient city. M. Ganjavi gained fame in our 12th century literature with his rubaiyats with deep social and philosophical content. The lyrical hero of these poems is a lover who loves deeply, suffers, and appreciates beauty. The fact that he mentions people of various professions in his rubaiyats reflects the high value that the poet places on the working person. In these examples, humanistic thoughts about the fate, life, joy, and sorrow of a person have found a highly poetic expression:

Yesterday I hit the stone with my clay pot,
I was drunk, I did not know, I dropped it.
The pot came to life and said,
"I was like you, I have remained to this day."

A. The reflection of the motifs of dissatisfaction with the palace in Khagani's "Divan" poems with social and philosophical content, the poem "Tohfatul-Iraqayn", and the ode "Medayin Kharabalari" were related to the civic position of the writer protesting against injustice. The first poem in our literature, "Tohfatul-Iraqayn", also reflects the poet's memories of his own life, childhood, education, and friends. The rebellious poet turned away from the palace and the rulers and cherished a deep love for his people and the common people: I do not want, they call me Khagani, I am a poet of the poor, a Khalqani, a Khalqani. In his ode "The Ruins of Madain", the poet aimed to teach a lesson to the kings of his time by describing the ruins of the city of Madain, the capital of the Sasanian rulers. (4, p. 8) The poet's works are strongly influenced by the love for his native land and the complaint caused by separation from it:

Shamakhi! O my beloved land!
I have made a mistress in your bosom.
And now you have taken pity on me,
If I were to leave your embrace, mother,
My hope, my refuge is Tabriz, Tabriz.
That city is also dear to me, dear.

Nizami Ganjavi, who preferred to stay away from palace life, is considered the pinnacle of ancient Azerbaijani literature, the Renaissance, in terms of its content, perfection of artistic form, and expression of humanistic ideas. Nizami laid the foundation for a new literary school and gave direction to the development of Middle Eastern literature with his poems.

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Technical sciences

ON ANIMATED BIOMETRIC QR-CODES WITH ENCRYPTED DATA FOR A SPECIFIED TIME

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The [1] proposes a method and device for creating color animated biometric codes. The method consists in embedding biometric information in a color face image. To do this, the input color face image is analyzed, the original image size is determined and adjusted to the selected QR code size. The coordinates of the anthropometric points of the face used as the main biometric information about the face are calculated. Original messages are prepared based on the biometric information and the specified documentary information. Next, the QR code "ANTRO" containing the biometric information and the QR code "INFO" containing the documentary information are generated. The QR code "PHENO" containing additional biometric information about the face phenotype is also generated. Finally, the LSB layers of the halftone QR codes "ANTRO", "INFO" and "PHENO" are allocated, which are embedded instead of the LSB layers of the components "R", "G" and "B", after which these components are combined into the output color image.

This paper considers the extension of this method by adding the function of encryption of documentary information for a certain specified time. To implement the new functionality, it is proposed to use a cryptographic protocol for encryption of data for a specified time called Elliptic Curve Time-Lapse Cryptography [2]. The proposed extension involves interaction with the so-called Service, which is a network of n distributed servers and accepts requests for encryption using a portal for receiving and processing requests. This network performs calculations specified by the protocol, stores secret data, and performs backup copies of data in case of emergency situations. In addition, within the framework of the protocol, servers do not exchange confidential information with each other that is not provided for by the protocol. It is also assumed that there is a threshold value "t" at which a maximum of t-1 servers can violate the protocol, and at least t servers are considered to honestly adhere to the protocol. The condition $n \geq 2t-1$ $(t \leq (n+1)/2)$ must be met. And if one or more servers (maximum t-1 servers) fail, the system will continue to operate. Also, a cryptographic module containing the necessary encryption algorithms (symmetric and asymmetric) is added to the QR codes generation and reading devices. The module is designed to encrypt documentary information in the QR code "INFO".

The proposed extension is as follows. When forming a colored animated biometric QR code at some point in time T, the documentary information (or only the necessary part of it) is encrypted with a symmetric block cipher, and the public key of the Service is requested with an indication of some future point in time T+δ. Upon receiving a request, the Service generates a public key according to the ECTLC cryptographic protocol and transmits it to the device generating the code. The key with which the information was encrypted is encrypted with the public key using an asymmetric cipher. The encrypted information and the encrypted key are placed in the QR code. When attempting to read the QR code before time T+δ, information will appear about the impossibility of reading the information before the specified time. Upon reaching the specified time, the private key of the Service is requested when reading the QR code. Upon receiving a request, the Service generates a private key according to the ECTLC cryptographic *protocol and transmits it to the device reading the QR code. Using the received key, the key with which the information was encrypted is decrypted, and then all the information is decrypted. The extension is illustrated by Figure 1.*

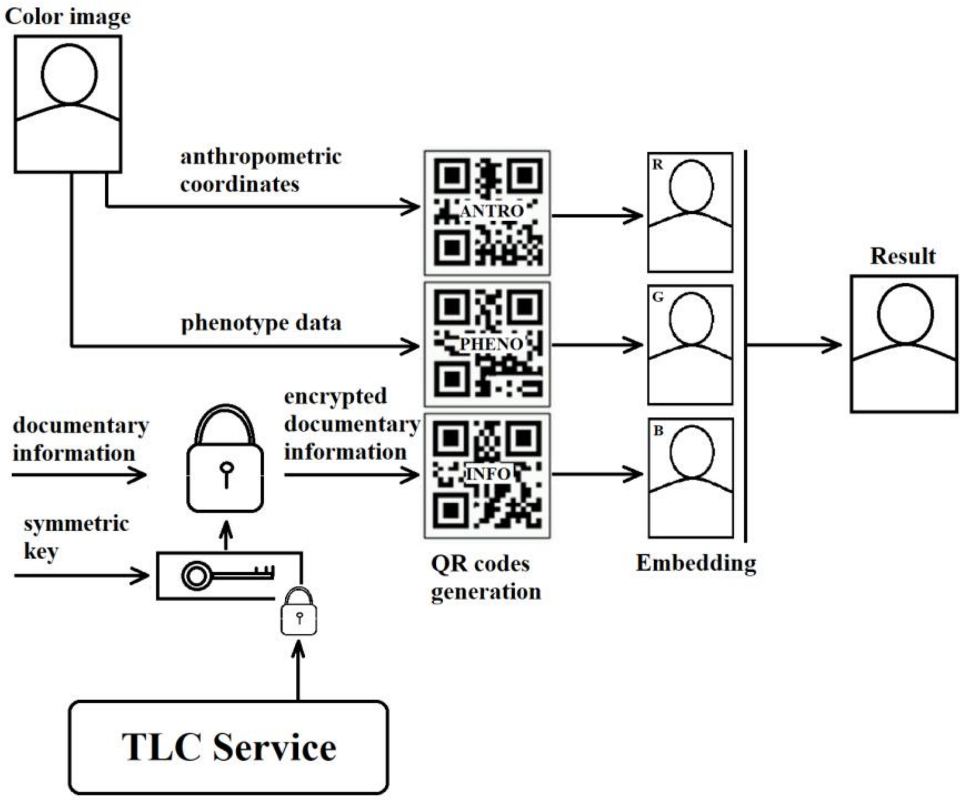

Figure 1. The extension of the method for creating color animated biometric codes by adding the function of encryption of documentary information for a certain specified time.

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