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APPLICATION OF ANTISTRESS DRUGS ON MAIZE HYBRIDS UNDER DIFFERENT CULTIVATION TECHNOLOGIES

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Abstract

The article reflects the results of research on the use of antistress preparations on corn crops of different maturity stages under conventional and No-till cultivation technologies. The research was carried out in the field conditions of the experimental farm of Mykolaiv National Agrarian University using laboratory, field, laboratory-field and mathematical-statistical research methods. According to the scheme of the experiment, the early-ripening hybrid DCS 3050, the medium-early hybrid DCS 3623 and the medium-ripening hybrid DCS 4943 were used. Observations and analyzes were carried out during 2020-2023. As a result of the research, we found that the studied factors had an impact on the yields and economics of growing corn hybrids. Thus, the maximum crop yields were formed by plants of the mid-season hybrid DCS 4943 both under traditional technology (9.31 t/ha) and No-till technology (9.06 t/ha). Foliar fertilization of crops increased this indicator by 3.86-5.08% under conventional technology and by 4.73-5.30% under No-till technology. Reducing the cost part of the technology of growing corn without tillage (No-till) gave a higher yield of conditional net profit per hectare of crops. Thus, the use of foliar treatment of mid-season maize hybrid DCS 4943 with the anti-stress complex of Quantum preparations under No-till technology without tillage allowed to obtain a yield of 9.06 t/ha, reduce the total cost of growing the crop, and increase the rate of conditional net profit per unit area of maize sowing compared to traditional deep tillage.

Keywords: *corn, hybrids, cultivation technology, antidepressants, yield, economic indicators of cultivation*

Introduction. *In the context of increasing intensification in agricultural production, research on the development of models of crop cultivation technologies in the context of self-regenerating farming systems is most appropriate. These systems are the closest to the effective use of the laws of nature and the fuller utilization of the available bioclimatic resources of the region. They should ensure the preservation and enhancement of soil fertility, efficient use of precipitation and productive moisture reserves, and contribute to the growth of corn grain yields. It is known that the model of a self-regenerating farming system should include a set of organizational and agrotechnical measures that are economically and environmentally sound with maximum involvement and optimal use of knowledge-intensive technologies, biological products of symbiotic associative and protective action and natural growth stimulants [1-10]. Therefore, the study of the response of new maize hybrids to organized growing factors under traditional and alternative farming systems is an extremely urgent problem that requires appropriate justification for the conditions of the region.*

Thus, corn is an extremely important food crop that has the highest productivity among cereals. Therefore, the use of the latest technological techniques, in particular modern corn hybrids and technologies for growing corn for grain, will make it possible to maximize the potential of this crop [1, 4, 5].

The aim of the research was to identify the dependencies of growth, development and formation of grain yields of maize hybrids on the influence of elements of cultivation technology and hydrothermal resources in the Northern Steppe zone of Mykolaiv region.

Materials and methods of research. *The experiments were carried out in 2020-2023 on the experimental fields of the branch of the Department of Plant Growing and Gardening of Mykolaiv National Agrarian University. The soils of the farm are represented by a slightly degraded black soil with a slightly acidic reaction, which turns into neutral with depth: the pH of the salt extract of the arable layer is 6.89-6.94, with a humus content in the arable layer of 3.0-3.3% [10].*

The research program provided for the study of the peculiarities of growth, development and formation of grain productivity of modern maize hybrids of different maturity groups, provided that elements of cultivation technology, in particular, no-till tillage technology and foliar application of anti-stress drugs, were used.

Apart from the factors studied, the corn cultivation technique is generally accepted for the growing area. The predecessor in the experimental fields was soybeans. The fertilizer system included the application of phosphorus and potassium fertilizers (simple superphosphate and potassium salt) at the rate of $P_{60}K_{30}$ for basic tillage and nitrogen fertilizers in the form of ammonium nitrate (N_{60}) for pre-sowing cultivation. Before sowing, the soil herbicide Harness was applied, 90% c.e. (2.5 l/ha) with simultaneous incorporation into the soil. No-till technology was used with Roundup (3.5 l/ha) before sowing and sulfonylurea-based herbicides (0.15 g/ha) during the growing season of corn.

The corn hybrids were sown with a SK-12 FS seeder of the "Multicorn" type using traditional technology and a MF-555 direct seeder, guided by soil temperature, according to the experimental design. The sowing method is wide-row with row spacing of 70 cm. The seeding depth is 5 cm. The seeding rate was 50 thousand seeds per hectare. The corn was harvested manually from each plot and the yield was recalculated for 14% grain moisture.

Corn hybrids of three maturity groups (early, medium early, and mid-season) were sown in the experiment. Each maturity group was represented by one corn hybrid.

The experimental design included the following variants:

Factor A - corn hybrids of the DEKALB® research network:

1. *Early maturing (DCS 3050) (St);*
2. *Medium early (DCS 3623);*
3. *Mid-season (DCS 4943).*

Factor B - soil cultivation system:

1. traditional (shelf cultivation by 25-27 cm);

2. No-till.

Factor C - treatment with an anti-stress drug:

1. without using the drug (Control);

2. use of the cold stress preparation Quantum AquaSil (2.0 l/ha) + Quantum AminoMax 200 (0.5 l/ha) - phase 3 and 6-9 leaves.

The area of the sown plot is 56 m^2, the accounting area is 25 m^2.

The main task of modern corn hybrids on the market is to best meet the expectations of agricultural producers for highly profitable cultivation of this crop. To do this, it is necessary to understand the needs and challenges that farmers face in their work. Some of the challenges are related to the influence of regulated factors - in fact, what is called the growing technology. Cultivation techniques have an extremely important impact on the realization of the yield potential of modern corn hybrids [8,10,11,15,16]. Increasing the yield of cultivated plants is the main goal of most agronomic research. Success in increasing yields largely depends on knowledge of the basic laws of productive processes and their relationship with growing conditions.

Research results. *The influence of environmental growing conditions on the course of phenological phases of plant growth and development, on the dynamics of leaf surface growth, photosynthetic potential and the level of dry matter accumulation, which we found, is reflected in the individual productivity of maize hybrids of different maturity groups [8,10,11,15,16]. In particular, our research analyzed the impact of conventional and No-till technologies on maize hybrids of different maturity, as well as the intensification of technology through the use of foliar biostimulants Quantum, which activate*

a cascade of biochemical reactions aimed at activating the root system of plants under conditions of cold and heat stress.

Analyzing the hybrids of different maturity groups during the research period, it can be stated that the highest yield of corn grain was obtained using traditional cultivation technology, in plots of medium-ripening hybrid of foreign selection DCS 4943 with a grain yield of 9.13 t/ha, and the maximum value of 9.31 t/ha was noted for this hybrid with two-time application of antidepressants (Table 1). The lowest level of grain productivity was observed in the early ripe hybrid DCS 3050 with a yield of 7.84 t/ha in the control variant.

Table 1

Grain yields of corn hybrids using traditional cultivation technology (average for 2020-2023), t/ha

Corn hybrid (factor A)	Anti-stress drug (factor C)	Average for factor C	Average for factor A
ДКС 3050	without processing (Control)	7,84	8,05
	Quantum	8,26	
ДКС 3623	untreated	8,53	8,72
	Quantum	8,90	
ДКС 4943	untreated	8,95	9,13
	Quantum	9,31	
$SSD_{0,05}$ (A) – 0,34, $SSD_{,05}$ (C) – 0,16, $SSD_{0,05}$ (AC) – 0,52			

According to the results of our research, the grain yield of maize hybrids in other variants was distributed according to the pattern that was also observed for other indicators. It consists in the fact that with the increase in the length of the growing season and high photosynthetic activity in the plant, the value of the productivity index increases. Over the years of research, the grain yield of maize hybrids of different maturity groups was no exception, it also decreased with a decrease in the period of plant vegetation and the effect of stress factors. We found that the maximum level of grain productivity when using No-till technology in the northern part of Mykolaiv region was provided by a mid-season corn hybrid. Thus, the hybrid DCS 4943 averaged 8.84 t/ha, the medium-early group DCS 3623 - 8.45 t/ha, and the early-ripening hybrid DCS 3050 under No-till technology is able to form a grain yield of 7.72 t/ha (Table 2).

Also, it should be noted that the mid-season hybrid had a slow growth in the early stages of development, but actively responded to growth-stimulating measures (intensification of technology). The grain yield for this hybrid was significantly higher in the variants where Quantum biostimulants were used.

Thus, the realization of the genetic potential of its productivity in the conditions of natural moisture of the northern part of Mykolaiv region depends on the selection of a maize hybrid of a certain maturity group with the available zonation [10,11]. With full compliance of the available hydrothermal resources of the region with the requirements of hybrid biology to the factors of influence, it is possible to obtain grain yields of more than 7.8-9.3 t/ha using traditional technology and 7.5-9.1 t/ha using no-till technology.

Table 2

Grain yields of corn hybrids under no-till technology cultivation (average for 2020-2023), t/ha

Corn hybrid (factor A)	Anti-stress drug (factor C)	Average for factor C	Average for factor A
ДКС 3050	without processing (Control)	7,51	7,72
	Quantum	7,93	
ДКС 3623	untreated	8,25	8,46
	Quantum	8,66	
ДКС 4943	untreated	8,62	8,84
	Quantum	9,06	
$SSD_{0,05}$ (A) – 0,66, $SSD_{0,05}$ (C) – 0,19, $SSD_{0,05}$ (AC) – 0,83			

According to the results of our research, the cost of corn production under traditional cultivation and deep tillage averaged 19322 UAH per 1 ha of crops. At the same time, the level of costs clearly correlated with the level of productivity of hybrids. In other words, high corn productivity is possible with sufficient financial support for sowing, care and timely harvesting of the crop. For example, to obtain the highest grain yield when growing a mid-season hybrid, DCS 4943 required 20400 UAH/ha. Direct costs for the hybrid DCS 3623 ranged from 18516 to 20050 UAH/ha. early ripe hybrid DCS 3050 - from 18423

to 19743 UAH/ha (Table 3). The width of the cost range was directly influenced by the intensification of cultivation technology, which led to an increase in additional technological costs.

Table 3

Economic efficiency of growing corn hybrids for grain using conventional technology (average for 2020-2023)

Corn hybrids	Anti-stress drug	Yield, t/ha	Value of gross production, UAH	Growing costs, UAH	Pro forma net profit, UAH/ha	Cost price, UAH/t	Profitability level,%
ДКС 3050	unprocessed	7,84	39200	18423	20777	2350	112,8
	Quantum	8,26	41300	19743	21557	2390	109,2
ДКС 3623	unprocessed	8,53	42650	18516	24134	2171	130,3
	Quantum	8,90	44500	20050	24450	2253	121,9
ДКС 4943	unprocessed	8,95	44750	18799	25951	2100	138,0
	Quantum	9,31	46550	20400	26150	2191	128,2

It is noted that the level of conditional net profit when growing corn using traditional technology in the forest-steppe of Mykolaiv region was 20777 - 26150 UAH/ha. At the same time, the highest net profit of 26150 UAH/ha was obtained by sowing the mid-season hybrid DCS 4943 with the use of intensification of the technological process and 25951 UAH/ha - without the use of antidepressants. For another hybrid, DCS 3623, the conditional net profit ranged from 24134 to 24450 UAH/ha and was practically at the same level.

One of the main indicators that characterizes the economic efficiency of production is profitability, i.e. profitability, profitability of production.

Thus, in the conditions of our study, when growing corn for grain using traditional technology, the best indicators of economic efficiency were characterized by the hybrid DCS 4943.

The use of No-till technology of corn cultivation without existing tillage allowed to reduce total costs on average from 16908 UAH to 14923 UAH per 1 ha. Accordingly, the highest value of the cost of production was obtained in the variants with the hybrid DCS 4943 and amounted to 45300 UAH/ha (Table 4).

As a result of the calculation, the indicator of conditional net profit per unit area of corn sown without the use of mechanical tillage on average reached the level of 22627-28392 UAH/ha, which is lower compared to the average corn crop under traditional deep tillage. Such hybrids as DCS 3623 and DCS 4943 provided a higher level of profitability under no-till technology, and amounted to 173.8 and 175.7%. It was also noted that in order to significantly increase profits, additional operations to intensify No-till technology should be applied. They allowed to obtain additional profits on the crops of all hybrids that we studied.

Table 4

Economic efficiency of growing corn hybrids for grain using No-till technology (average for 2020-2023)

Corn hybrids	Anti-stress drug	Yield, t/ha	Value of gross production, UAH	Growing costs, UAH	Pro forma net profit, UAH/ha	Cost price, UAH/t	Profitability level,%
ДКС 3050	unprocessed	7,51	37550	14923	22627	1987	151,6
	Quantum	7,93	39650	16243	23407	2048	144,1
ДКС 3623	unprocessed	8,25	41250	15067	26183	1826	173,8
	Quantum	8,66	43300	16558	26742	1912	161,5
ДКС 4943	unprocessed	8,62	43100	15634	27466	1814	175,7
	Quantum	9,06	45300	16908	28392	1866	167,9

We have proved that the cost of 1 ton of grain grown on the farm under no-till technology averaged 1909 UAH/t. At the same time, the lowest cost was formed in the mid-season hybrid DCS 4943 at the level of 1818 UAH/t.

The analysis of profitability indicators allows managers and specialists of an agricultural enterprise to determine which types of products and technologies are most profitable to produce on the farm, where it is possible to increase the profitability of production. Therefore, it is the indicator of profitability (the ratio of net profit to the total cost of production expressed as a percentage) that is the main criterion for assessing the effectiveness of crop cultivation technology [15].

Thus, due to the disparity in prices for the components of the costs of growing corn hybrids and the selling price of marketable products, a situation arises that provides the producer with a maximum yield of 9.31 t/ha using conventional technology, 9.06 t/ha using No-till technology and its maximum cost - 46550 and 45300 UAH/ha, conditional net profit 26150 and 28392 UAH/ha, but does not provide the maximum level of production profitability. The maximum profitability of maize cultivation of 175.7% was observed when sowing hybrid DCS 4943 without antidepressant treatment under No-till technology.

Conclusions. *Thus, the highest yield of corn grain in the experiment was obtained using the traditional technology of growing medium-ripening hybrid of foreign selection DCS 4943 with a grain yield of 9.13 t/ha. The use of no-till corn cultivation technology without tillage allowed to reduce total costs on average from 16908 to 14923 UAH per 1 ha, and the indicator of conditional net profit per unit area of corn sowing without the use of mechanical tillage on average for the research variants was 25803 UAH/ha, which is higher compared to the average corn crop under traditional deep tillage (23837 UAH/ha). Such hybrids as DCS 3623 and DCS 4943 provided an average higher level of profitability under no-till technology, which amounted to 167.7 and 171.8%. Based on the results of field and laboratory studies, their economic analysis and assessment of competitiveness, as well as the introduction of corn cultivation technology by agro-formations of the peninsular part of Mykolaiv region, it is recommended to use a hybrid of the mid-season group DCS 4943 with foliar treatment with anti-stress drugs Quantum under No-till technology, which ensures the realization of their genetic potential by 75-80% in the region.*

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INTEGRATION OF SATELLITE TECHNOLOGIES IN HUMAN AGRICULTURAL ACTIVITY

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Abstract

Nowadays, the use of satellites is becoming widespread in various spheres of human activity, including agricultural orientation in the form of soil and plant monitoring, as well as in various other spheres of activity. The use of satellite technologies for monitoring has a great potential for widespread interaction with agricultural activities. This is due to the practical possibilities of satellite monitoring and evaluation, which allow for the use of indices to assess the condition of the fields, create yield forecasts, and evaluate the overall efficiency of certain crops based on the combined data of ground and satellite observations.

Keywords: *Satellite technologies, Agricultural, Monitoring, NDVI, NDMI, Soil.*

Satellite and agriculture

Satellite and agriculture actively interact with each other in monitoring efforts to collect data on the state of plant cover and soil, utilizing satellite capabilities in the combined form of indices. These indices allow assessment of both the vegetative state of plants and the amount of moisture that they store. Based on these data, it is possible to evaluate the condition of plants and soil enabling the identification of damaged or diseased plants within plots. This serves as an example of the integration of satellite technologies into agricultural practices.

This example illustrates just a fraction of the opportunities satellite technology offers in monitoring, hinting at the potential for enhanced efficiency in yield assessment and forecasting. This, in turn, facilitates the selection of more suitable soil preparation methods and measures based on the gathered information and tailored to the specific tasks within relevant fields.

For a more effective integration of satellite technologies in the field of agriculture, it is possible to create special indices such as NDVI, NDMI, these indices are used to determine the level of vegetation and the level of plant moisture.

These indices were developed based on channel data from satellites, exemplified by NDVI, which is derived from channels in the formula (B8 - B4)/(B8 + B4). Similarly, specific indices can be created for more specialized tasks in plant and soil monitoring. These individual indices aid in tracking and management of serviced fields.

Besides assessing the condition of plants, satellite monitoring allows for the identification of more suitable areas and the prediction of their practical effectiveness. For instance, satellite data can reveal terrain features crucial for determining the optimal location and layout of a field, considering factors such as slope angle, to achieve specific performance objectives.

Furthermore, the utilization of satellite technologies enables the monitoring of field conditions and timely implementation of appropriate measures to sustain productivity levels. It also facilitates the creation of archival data for more comprehensive analysis and the development of new strategies based on this information, potentially leading to significant improvements in both the productivity and the practicality of these measures.

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KINEMATIC RESULTS OF A COMBINED MACHINE THAT PROVIDES MINERAL FERTILIZER UNDER PLOWING ON SLOPES

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Abstract

The study of efficient energy-saving methods for the application of mineral fertilizers on the slopes, the use of fertilizers in different soil and climatic conditions of the republic for the cultivation of agricultural crops is an urgent task of modern agriculture. Theoretical and real speed, hourly productivity, efficiency, tensile strength of the combined plough, which provides equal mineral fertilizer under plowing on slopes, were calculated and related graphs were constructed between them. Taking into account the difficult working conditions on the slopes, the speed of the tractor, depending on the power of the tractor, the speed corresponding to the tensile strength of the combined plough was selected and plotted. Taking into account small farms in the country, the optimal power of the tractor was selected. The optimal kinematic values obtained as a result of experimental studies allow for continuous movement on the slopes and continuous operation of the process.

Keywords: slope, plow, mineral fertilizer, combined plough, speed

Introduction. *The fundamental criteria of modern technologies are the preservation and improvement of soil fertility, resource conservation, environmental safety of products and protection of the environment.In the cultivation of cereals on the slopes apply equal amounts of mineral fertilizers to the soil before sowing is a very important technological process.For each agricultural crop in specific climatic conditions, there is an optimal dose of fertilization [1].Uniform application of fertilizers along the soil surface is one of the conditions that increase their efficiency within the field. Numerous studies have proven that agrotechnicalindicators are influenced by the type of the distributor working body, the uniformity of distribution over the field, and the method of fertilization.Thus, on the basis of materials from domestic and foreign publications and a study of the influence of the quality of fertilizer distribution over the entire field, it has been established that uneven fertilization is created by applying machines [4;5].*

Given the main issues mentioned, combined plough has been developed in our laboratory.Experimental studies were performed on mountain slopes.The kinetic motion criteria of the combined plough were selected and evaluated.

2. Methodology of kinematic calculation of combined plough.

When performing technological operations, the speed of the machine-tractor unit must meet the agro-technical requirements for high-quality mechanized work and correspond to the capabilities of the power vehicle. By changing the speed, it is possible to achieve full engine load, maximum productivity of the unit, and minimum labor and money consumption per unit of work performed.

During the study, the operating speed of the unit was determined as V_i (km / h) [7].

$$V = \frac{S}{t} \; ; \; \ldots\ldots\ldots\ldots\ldots \; (1)$$

Here: *S - length of the road, km*
t - is the time of movement, hours

Theoretical hourly productivity is expressed by the following formula.

$$W_s = C_w B_k V_n \; , \quad km/h \; ; \; \ldots\ldots\ldots\ldots\ldots \; (2)$$

Theoretical turn-time productivity

$$W_n = C_w B_k V_n t_{nov} \; , \quad ha/turn \; ; \; \ldots\ldots\ldots\ldots\ldots\ldots \; (3)$$

Here: *C_w - is a coefficient that depends on the unit of measurement of speed.*
C_w = 0.1 km / h, C_w = 0.36 m / sec is assumed.
B_k - is the constructive width of the machine. B_k = 1.4 m
V_n - is the theoretical speed of the car, km / h
t_{nov} - is the time of the queue, $t_{növ}$ = 8 hours

Theoretical productivity does not reflect changes in the quantities B_k, V_n, t_{nov} in the work process. Thus, the working width of the unit often differs from the constructive width. Since the actual width of the combined plough is greater than the design width, the technical productivity is calculated as follows.

$$W_t = C_w B_i V_i \; t_{növ} = C_w B_k V_n \; \beta \xi_v t \; ; \ldots\ldots\ldots\ldots\ldots (4)$$

Here: $\beta = \frac{Bi}{Bk} = \frac{1.51}{1.4} = 1.08$

B_i – combined plough working width

The working speed Vi, differs from the theoretical speed Vn by the traction of the moving part of the tractor, the reduction of the rotational speed of the crankshaft of the tractor engine and the loss of time to stop while passing gears.

The velocity utilization coefficient ξ_v of these factors is estimated.

$$\xi_v = V_i / V_n \; ; \ldots\ldots\ldots\ldots\ldots (5)$$

Time utilization factor τ It is possible to estimate the use of queue time.

T_i is the ratio of net working time to T_n shift time [8].

$$\tau = T_i / T_{nov} \; ; \ldots\ldots\ldots\ldots\ldots (6)$$

The operational productivity of the combined plough during the shift can be determined as follows, taking into account the working conditions and technical capabilities of the combined plough.

$$W = C_w B_i V_i T_i = C_w B_i \xi_v V_n \; \tau T_{nov} \; ; \ldots\ldots\ldots\ldots\ldots (7)$$

Garyachkin's formula is used to find the tensile strength of a combined plough.

$$P = P_1 + P_2 + P_3 \; ; \ldots\ldots\ldots\ldots\ldots (8)$$

$$P_1 = f G, \quad P_2 = k a b, \quad P_3 = \varepsilon a b V_n^2$$

Here: f - is the coefficient of friction in the soil, f = 0.5

G - is the mass of the plough, G = 700 kg

k - utilization factor, k = 0.7 kg / cm²

a - depth of cultivation of the plough, a = 25 cm

b - is the width of the plough, b = 35 cm

ε - 180 kg sm² / m⁴

V_n - is the theoretical velocity of the plough.

The efficiency of the combined plough.

$$\eta_{kot} = \frac{P - P^1}{P} = 1 \frac{fG}{P} \; ; \ldots\ldots\ldots\ldots\ldots (8)$$

As the energy density of modern tractors increases, it is necessary to determine the dependence on engine power and the energy demand for the operation performed. Let us express the dependence of the working width of the unit on the resistance of the unit and the specific resistance of the combined plough.

$$B_i = R_a / K_m \; ; \ldots\ldots\ldots\ldots\ldots (10)$$

Here we can consider $R_a = R_q$ - the resistance of the unit as the force on the hook of the tractor.

$$R_q = 3{,}6 \, N_q / V_i \; ; \ldots\ldots\ldots\ldots\ldots (11)$$

Calculated time is measured in R_q – kN; V_i - km / h; N_q - kW.

Then $B_i = 3{,}6 \, N_q / V_i K_m \; ; \ldots\ldots\ldots\ldots\ldots (12)$

Write the value of B_i in the hourly technical productivity formula.

$$W_s = 0.36 \, N_q \, \tau / K_m \; , \; ha/s \; ; \ldots\ldots\ldots\ldots\ldots (13)$$

Let's express productivity during full turns. With the formula for the ratio of the force on the tractor hook to the effective power of the tractor, we can get the value of the traction efficiency.

$$\eta_t = N_q / N_e \; ; \ldots\ldots\ldots\ldots\ldots (14)$$

Here: *taking into account $N_q = N_e \eta t$ and $T_i = \tau T_{nov}$, let us write in place of the productivity in the queue.*

$$W_n = 0.36 \, N_e \eta_t \, \tau \, T_{növ} / K_m \; ; \ldots\ldots\ldots\ldots\ldots (15)$$

3.Combined plough

In mountain farming, it is considered efficient to perform several operations on the slopes of with a combined plough in order to prevent excessive soil compaction and reduce fuel consumption[2;3]. At the same time, combining plowing operations with equal application of fertilizers to under the plow is more cost-effective. The results of research conducted in our country confirm the selection of a 4-body plough for our conditions. Taking into account the above, we have prepared a combined plough, which provides mineral fertilizers to under the plow. As can be seen in the picture, two ATP-2 fertilizer spreaders were installed on the plough.

Movement of the devices is provided by the support wheel of the plough. The rate of fertilizer application is regulated by the change of stars. The scheme of the technological work process of the combined plough is shown in Figure 1. The combined plough consists of two ATP-2 fertilizer spreaders (3) mounted on a Turkish-made SP-12 4-body plough (1). Fertilizers (3) receive movement from the plough support wheel (7) by means of chain transmissions (2). The support wheel is equipped with rebar to prevent slipping. Fertilizers, moving from the support wheel, spread the fertilizer under the plow through four fertilizer pipes (5). A smooth spreader (8) is attached to the outlet of the pipes to ensure even distribution of fertilizers.

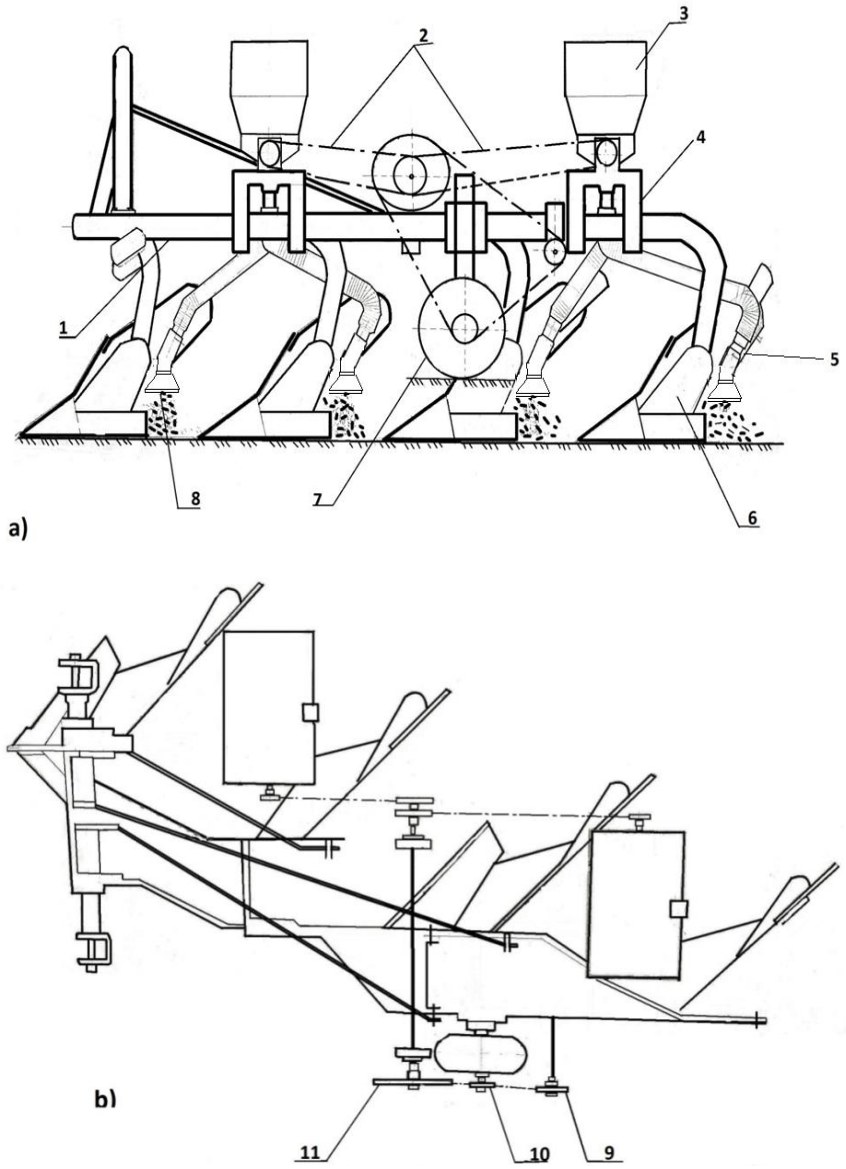

Fig. 1 Combined plough. (a) side view, (b) top view

1- plough frame, 2-chain transmission, 3-fertilizer, 4-fertilizer connecting frame to plough, 5-fertilizer transfer pipe, 6-plough body 7- moving support wheel, 8-smooth spreader, 9-regulator, 10 - leading star, 11 - intermediate star

Table 1. Technical parameters of the combined plough

Indicator	Numerical indicator
Productivity, ha / hour	0,7...0,9
Working width, m	1,4
Number of working bodies, PCS	4
Weight, kg	700
Overall dimensions, mm	
length	3120
width	1700
height	1300
Working depth, cm	20...22
Working speed , km/h	3,9...6
One working width, mm	350
Number of bunkers,PCS	2
Bunker capacity,dm^3	45
Norm of mineral fertilizer applied per 1 ha, kg	65...830
Type of attachment to the tractor	hanging
Aggregates with 30 kN class tractors	1

The use of a combined plough before plowing completely reduces the operation of fertilizer spreading, cost and labor costs, while ensuring high efficiency of fertilizer use, ie the application of fertilizer under the plow prevents its loss, ensures even distribution, etc.In addition, it saves a lot of time and allows you to perform operations in a short time [6].

4. Results and Discussion

Theoretical and real values were calculated and measured in experimental research. From the specified parameters, the speed of the first unit on the slopes was selected.

Table 2. Theoretical and working speed value

V_n (km/h)	4	4,4	4,8	5,2	5,6	6
V_i (km/h)	3,9	4,3	4,7	5,1	5,5	5,9

During the calculations, the values of the resistance of the combined plough to the movement were obtained and the relationship between the speed of the unit and the efficiency was studied.

Table 3. Dependence of the parameters of the combined plough

Resistance to movement of the combined plough P_{kot},kN	28,76	28,93	29,11	29,30	29,51	29,73
η_{kot}	0,880	0,880	0,880	0,880	0,880	0,893
V_n, km/h	4	4,4	4,8	5,2	5,6	6

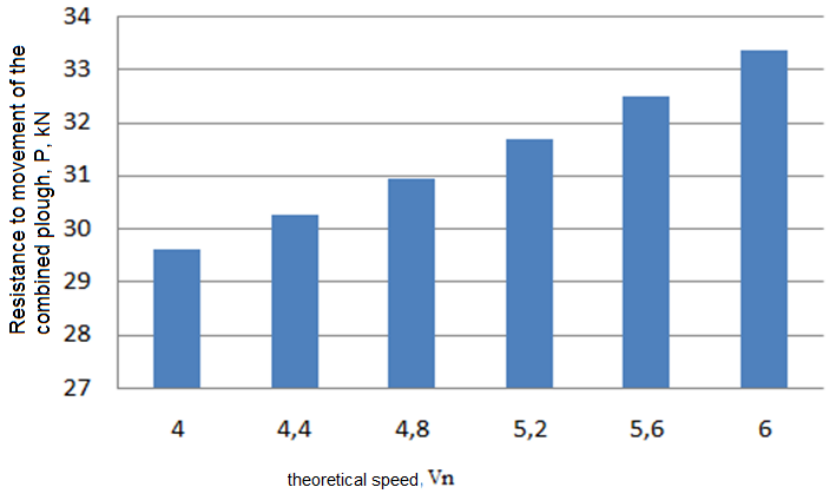

Fig. 2 Diagram of the dependence of the theoretical speed of a combined plough on the resistance to motion

Selection of efficient gears of the tractor.In the experimental study, according to the tractor that performs the work of the combined plough, the operating mode corresponds to the gears with the highest traction of the tractor.It is advisable to consider these gears as working shifts.In addition to the main working gearbox, there were spare gearboxes with one lower and one upper.This is especially important for combined plough when working in areas with inclined and sharply changing soil climatic conditions.The rational traction load area of the tractor (the most economical operating gears), the optimal intervals of working speeds and the potential traction characteristics of the traction load are determined.

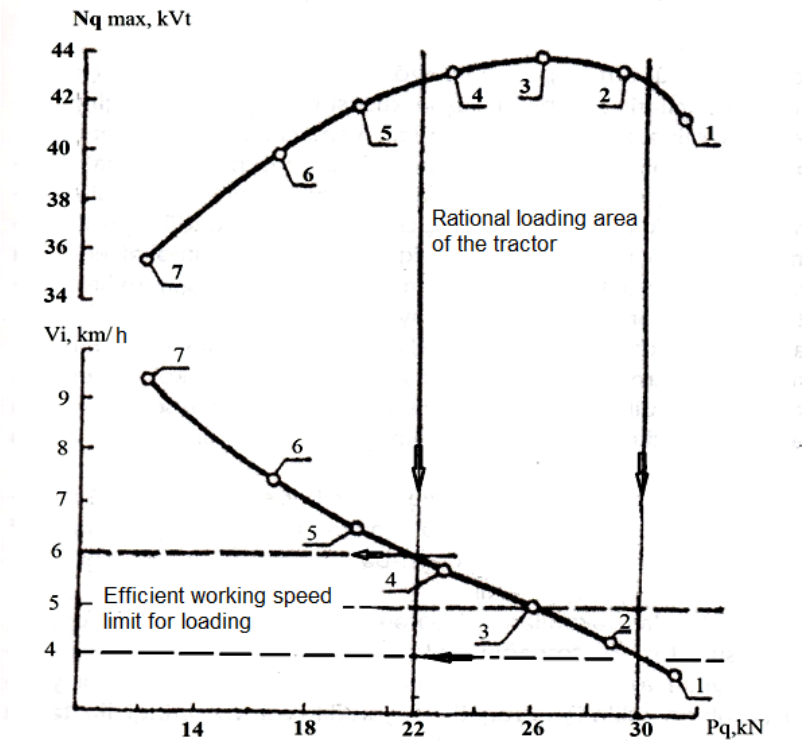

Fig. 3 Dependence of traction force (Nq / max) on tractor hook and working speed (Vi) on traction force (Pq) on hook

Fig. 3 shows the curves of the traction force (Nq / max) on the tractor hook and the working speed (Vi) depending on the traction force (Pq) on the hook at the gears 1-7. The maximum traction power of the tractor was obtained on 2-4 working gears. This tractor corresponds to a rational traction load class of 22-33 kN. Due to the rational load, the working speeds are provided in the range of 4-6 km / h.

When selecting the transmission speed of the tractor, along with the efficient use of its traction capabilities, the technological work of the combined plough was taken into account.

Mathematical analysis of the productivity of the combined plough. *The productivity of the combined plough is divided into theoretical and working productivity, depending on the initial data.Theoretical productivity is calculated on the basis of the theoretical speed of the unit and the non-productive operating time taking into account the fact that the unit is idle for various reasons.*

Table 4. Dependence of speed on productivity at different prices

V_n (km/h)	4	4,4	4,8	5,2	5,6	6
$W_{s,\ ha/h}$	0,78	0,86	0,96	1,02	1,10	1,18
$W_{n\ ,ha/nov}$	6,24	6,88	7,68	8,16	8,80	9,44

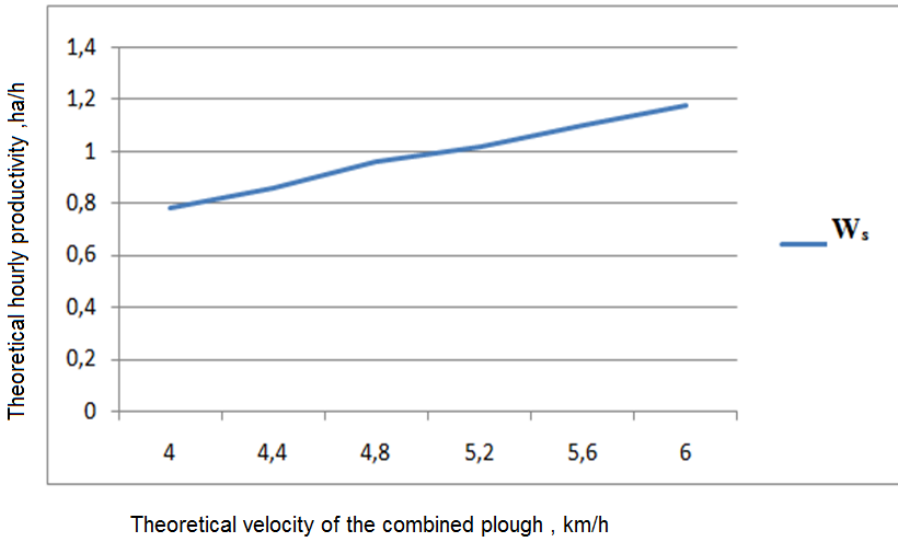

Fig. 4 Dependence of the combined plough on the theoretical speed of hourly productivity

Table 5. Dependencies of indicators during work

V_n (km/h)	4	4,4	4,8	5,2	5,6	6
V_i (km/h)	3,9	4,3	4,7	5,1	5,5	5,9
ξ_v,speed utilization factor	0.98	0.98	0.98	0.98	0.98	0.98
W_t, technicalproductivity	4.62	5.10	5.69	6.16	6.64	7.11

During the shift, as well as during the cultivation of the soil in the field, productive work is not fully used, and in the process of work there are idle turns, walks and stops for various reasons.

Calculations show that the higher the engine power and the traction of the tractor, the higher the efficiency of the unit. Reduces the productivity of the aggregate by increasing the specific resistance of the combined plough.Factors affecting productivity when combined plough aggregates can be divided into three groups. The first group includes factors that depend on the technical, economic and other performance of the tractor and the combined plough included in the unit. These include: unit speed, working width, engine power, tractor traction and traction at different speeds, time spent on maintenance, reliability and suitability of the unit, etc. These factors determine the technical capabilities of the unit. The second group includes factors related to the working conditions and, above all, the characteristics of the land cultivated with combined plough: mechanical composition of the soil, size and shape of the land, soil relief, soil moisture, slopes, etc. These factors allow to determine the mode of movement of the combined plough, the specific resistance, the size of the fall. The third group includes the organization of the use of combined plough, operation technology in the trailer, the specialty of the tractor driver, the form of organization, wages, etc. dependent factors.

Conslusion

1. The use of a combined plough completely reduces the operation of fertilizer application by plowing machines before plowing, its costs and labor costs, saves time and ensures that the operations are performed in a short time. Under plow fertilization is not only environmentally friendly, but also prevents fertilizer loss.

2. The design of the combined plough has been developed, including: frame; bunker; sowing apparatus; smooth disperser; motion transmitters; plough;

3. As a result of experimental testing of the combined plough, the working speed was 3.9 ... 6 km / h, the working width was 1.51 cm, the cultivation depth was 20 ... 25 cm, the fertilizer application rate was 65 ... 830 kg / ha.

4. As a result of the application of the combined plough, labor costs are reduced by 14.65% and operating costs by 18.3% compared to the usual method.

5. The maximum traction power of the tractor was obtained in 2-4 working transmissions. This tractor corresponds to a rational traction load class of 22-33 kN. Due to the rational load, the working speeds are provided in the range of 4-6 km / h.

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Arts

THEORETICAL ASPECTS OF NOMADIC CULTURE IN MODERN DESIGN

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Abstract

This article examines the influence of nomadic culture on modern design. The relevance of the study is that globalisation has changed all our lives, revising the past, complicating our present, confusing our future. It all seemed to happen rather quickly. Within two decades, the new world has made urgent demands on us for new values, new sets of work and social skills, and new identities.

The problems of cultural heritage in the context of the dynamics of globalisation and localisation processes are currently a topical interdisciplinary research and socio-cultural area at the national and international level. Appeal to the available historiographical and source material resource related to different countries will contribute to the formulation and solution of innovative scientific tasks related to the formation of a general theory of heritage; the creation of algorithms for the implementation of effective programmes that ensure the development of heritage; the development of the trend of correlation between heritage and national identity.

To date, ethno-cultural values are a peculiar combination of traditional and innovative elements, which concentrate the experience of life activity of an ethnic subject in civilisation. From L.N.Gumilev's formulation of the term "ethnos" it follows that ethnic culture, in turn, is a cultural experience historically acquired by an ethnos during the development of a certain territory and adaptation to specific natural conditions of existence, which crystallises in the form of aggregate material and spiritual values, norms and stereotypes of behaviour, reflecting the internal and external interactions of the ethnos, necessary for its full-fledged activity.

Keywords: *nomad, ethnoculture, modern design, ethno elements, material culture.*

Nomads have travelled the earth for thousands of years, adapting to changing conditions and traversing vast landscapes. Their way of life has influenced various aspects of culture, including art, architecture and design. The influence of nomadic material culture on modern design is particularly significant, as their objects and methods of working with natural materials have become the basis in the design of modern products, furniture and architecture.

One way in which nomadic design has influenced modern design is through the use of materials. Nomads traditionally used materials that were available in their environment, such as wood, stone and animal skins. Similarly, modern designers often use natural materials such as wood, stone and leather to create functional and beautiful products. The use of natural materials not only reflects a connection to the land, but also provides tactile and sensory experiences that are valued in contemporary design [1].

Another important aspect of nomadic culture is its aesthetic qualities. Nomadic cultures have a deep appreciation for beauty and harmony, which is reflected in their architecture. Many nomadic buildings are decorated with intricate patterns, bright colours and symbolic motifs that are often inspired by the natural world or religious beliefs.

The same mythical images can become the subject of a wallpaper collection, and ornamentation can become an integral part of the décor. The colour solution can become an accent in the interior design or vice versa, but at the same time create a sense of calm.

Every year the market of finishing materials is replenished not only with new companies, but also with new designers and collections. Aspects of ethnoculture permeate the design point by point, just through certain collections of ceramic tiles, wallpapers and other interior elements.

Manuel Canovas company creates decorative fabrics and wallpapers. This company was founded in Paris in 1963 and bears the name of its founder. This brand differs from others in that it is not fixated on the culture of Europe. Through its design, the brand translates different cultures of the world and

their philosophies. Its "SACHA" collection has a print called "HAZARA" which represents the story of nomads. The design presents interesting scenes from the daily life of nomads (Figure 1).

The image of nomads on horses, yurts decorated with decorative elements. This plot is typical not only for Kazakh culture, but also for all Turkic peoples. Therefore, do not be critical of the image of clothes, hats. This collection is presented in the format of wallpaper and in the format of fabric, for sewing decorative pillows, curtains. This brand also has prints of various plant motifs taken from many cultures, such as Indian, Uzbek and others.

Fig. 1 - "HAZARA BY MANUEL CANOVAS" print for wallpapers and fabrics

The HOOKEDONWALLS brand of designer wallpaper was founded 10 years ago, but its popularity is gaining momentum. The brand has its own characteristic style, their prints are suitable for both residential and public interiors. One of their collections is called "Nomadia" ("Nomads"). The slogan of this collection is: "The vivid dreams of the modern traveller. Traveling from place to place, like a wandering nomad". Travelling from place to place, like a wandering nomad"). [2].

The print of "Solid" wallpaper from this collection is uncomplicated and simple in its construction. Clear geometric shapes, when superimposed, a cross inside a circle is formed. Considering this print from the point of view of Turkic peoples' idea of the world, we can safely say that this print carries a strong semantic load (Fig. 2). Since the cross in a circle is a symbol of the solar circle, it is the cycle of life and death. The wallpaper colour can be considered both separately and together. Considering separately the blue colour, it is the colour of Heaven, the colour of Tengri. If considered together with the picture, it further strengthens the meaning of this image.

Fig. 2 - Solid wallpaper print, brand HOOKEDONWALLS

Object design has started to develop in Kazakhstan relatively recently, but some have already earned special attention in the design world internationally [3].

A contemporary Kazakh designer, Aidana Yerimbet, has created a chair with the image of a Kazakh tazy hound (Fig. 3). According to the author of this design, if the traditions of our ancestors are left without a master, the end will be as sad as the end of M. Magauin's work "Death of the Hound". The stool has its name "Lashyn", after the dog in the work. Also tazy is one of the "seven treasures" of Kazakhs, has a special status. It is a symbol of national traditions. This chair was presented at the DUBAI DESIGN WEEK international exhibition in the United Arab Emirates in 2021.

Fig. 3 - Lashyn chair

The design of wooden trays "Jibek Joly" by the same designer is also noteworthy. The Great Silk Road is a part of the history of Kazakhstan. It connected the world of the West and the East. The lines that create this shape imitate the path of a caravan in the desert. Also this product symbolises the lustre of flowing silk. The colour ultramarine represents the blue of the night starry sky. At one time the starry luminaries were a reference point for travellers and traders. According to A. Yerimbet the set "Jibek Joly" can unite the concept of premises of different purposes and at the same time diversify the interior, as the Great Silk Road connected different states, developing their cultures.

Hence, design based on ethno-images develops and deepens the perception of material culture codes. If a designer understands what an object is saying, he or she can create a new thing that also embodies certain messages. The form of ethnodesign objects gains its meaning solely through the existence of meaning, which constitutes its essence and inner reality. Form is the veil under which the true meaning of all things lies, and only a human being can see the meaning behind the form [4].

Design is able to become a conductor between a person and the heritage of material culture. The meaningfulness of ethnodesign objects is based on their cultural affiliation and on the individual characteristics of the perceiver.

Thus the influence of nomadic culture on design and architecture is manifested in many ways, such as the use of portable and adaptable structures, the use of natural materials, and the emphasis on functional and practical as well as meaningful (filled with concepts of the universe and special philosophy) design. These elements continue to shape contemporary architecture, and designers incorporate similar concepts into their designs to create sustainable, adaptable and functional projects that meet the needs of modern society. By studying and learning from nomadic cultures, architects and designers can continue to create innovative and sustainable designs that meet the needs of society and the environment.

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Biological sciences

EFFECTIVE SPECIES OF BUMBLEBEES (APOİDEA, APİDAE, BOMBUS LATREİLLE) FOR POLLINATING VEGETABLE CROPS IN GREENHOUSES

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ЭФФЕКТИВНЫЕ ВИДЫ ШМЕЛЕЙ (APOİDEA, APİDAE, BOMBUS LATREİLLE) ДЛЯ ОПЫЛЕНИЯ ОВОЩНЫХ КУЛЬТУР В ТЕПЛИЦАХ

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Введение. *Ухудшение экологической ситуации, изменения климата оказывают негативное влияние и на деятельность пчелиных. В результате значительно сокращается численность и видовое разнообразие пчел, являющихся естественными опылителями растений. В связи с уменьшением численности естественных опылителей в различных отраслях сельского хозяйства – овощеводстве, садоводстве, кормовых культурах и др. снижается производительность. В течение многих лет использование одного вида - медоносной пчелы в качестве опылителя в сельском хозяйстве нарушил естественный баланс между медоносными и дикими пчелиными в природе. Единственный выход из этой ситуации — изменение существующей стратегии в сельском хозяйстве: переход от экстенсивного развития к интенсивному, сокращение использования пестицидов и химических удобрений, использование биологических методов борьбы с вредителями, искусственному разведению диких опылителей и т. д.*

Обсуждение. *Для надежного снабжения населения отечественными продуктами питания очень актуально развитие тепличных хозяйств в республике. Но пока не удалось полностью удовлетворить спрос на основные продукты питания в стране за счет местного производства. Главное условие получения качественной продукции в теплицах - опыление. В настоящее время в теплицах, в основном, используют самоопыляемые сорта растений, однако вкусовые качества этих сортов низкие и против вредителей применяются химические препараты. В целях устранения этих негативных ситуаций во многих передовых странах в теплицах применяются методы биологической борьбы с вредителями, а опыление осуществляется естественными опылителями. Как правило, в качестве опылителей в теплицах используют медоносных пчел. В настоящее время для этой цели больше используют шмелей, их искусственно размножают и успешно применяют для опыления различных кормовых, плодовых и бахчевых культур. Шмели незаменимы, особенно, при опылении в теплицах различных овощных культур (томатов, перца, фасоли, баклажан и др.). Шмели имеют множество преимуществ по сравнению с медоносными пчелами: высокая работоспособность, выносливость, не агрессивность, низкая требовательность к кормовой базе, погодным условиям и т. д. Но в Азербайджане нет лабораторий или хозяйств по искусственному разведению местных видов шмелей, шмелиные пакеты закупаются за границей.*

Фермеры, имеющие тепличные хозяйства, особо отмечают эффективность опыления полосатыми пчелами. Так, в результате опыления полосатыми пчелами продуктивность увеличивается на 25-30%, иногда даже до 50%. При этом продукт, полученный путем опыления насекомыми, отличается высоким качеством и долго не портится. По расчетам, для повышения продуктивности и проведения опыления достаточно на 1 га обрабатываемой земли разместить не менее 4-6 шмелиных семей, тогда как медоносных ульев необходимо 10-12. Особенно эффективны шмели в теплицах, где применяются биологические методы борьбы с вредителями (не используются пестициды). Поскольку они менее агрессивны, их можно широко использовать на приусадебных участках. Искусственно разведенные шмелиные семьи также успешно используются в посевах люцерны и клевера [4].

Выводы. *Принимая во внимание хозяйственное значение и эффективность шмелей в лаборатории «Наземные беспозвоночные» Института Зоологии Министерства Науки и Образования Азербайджанской республики проведены исследования с целью выявления эффективных видов шмелей для искусственного разведения. Установлено, что в Азербайджане распространены 48 видов шмелей (Bombus) [1,2]. Трофические связи шмелей изучались, как путем определения видов цветковых растений, пыльцой и нектаром которых питаются, так и путем палинологического анализа пыльцы, собираемой пчелами на своих ножках. Установлено, что в условиях Азербайджана шмели опыляют 227 видов растений, принадлежащих 27 семействам. Наиболее опыляемые семейства растений — Asteraceae (26 видов пчел), Lamiaceae (24 вида пчел), Rosaceae (23 вида пчел), Fabaceae (21 вид пчел), Apiaceae (21 вид пчел), Ranunculaceae (15 видов пчел), а Caprifoliaceae (12 видов пчел).*

В результате исследований, проведенных в течении 2015-2022 гг. были выявлены виды, наиболее эффективные для искусственного размножения в Азербайджане. Это виды- Bombus soroeensis Fabricius,1776 и Bombus terrestris Linnaeus,1758.

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Cultural sciences

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DESIGN OF MODERN VISUAL NOVELS

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Abstract

The thesis examines the concept of visual novels, delves into their developmental history, and explores how design changes have been influenced by evolving trends and the passage of time

Keywords: *visual novels, visual, design, genre, computer game*

INTRODUCTION

Visual novels stand out as a widely acclaimed genre in the gaming industry, maintaining a prominent position in game store rankings to date. Their ability to captivate audiences primarily lies in their narrative rather than their graphical features. Nevertheless, it is the design that plays a crucial role in setting these games apart from others in the genre [1].

Originally originating in Japan, visual novels quickly gained popularity and transcended national borders. The structural foundation of visual novels was established in 1992 with the launch of «Otogirisou» and further solidified in 1994 with «Kamaitachi no Yoru», both published by Chunsoft as part of the Chunsoft Sound Novel series. The term «visual novel» was coined two years later by Leaf. Due to copyright considerations, the use of the term «Sound Novel» for game classification was impractical, leading to the adoption of the name «Visual Novel», Leaf's decision to focus on game design was pivotal, featuring vibrant and high-quality imagery of characters, backgrounds, and objects, which contributed to a unique style and heightened visual impact on players.

According to another perspective, the inception of visual novels traces back to the game «Portopia Serial Murder Case», with many attributing its creators as the pioneers of the genre. However, an alternative view suggests that the genre's roots can be traced back to early American adventure games.

In an interview with Retro Gamer, Yuji Horii, the designer of «The Portopia Serial Murder Case», reminisces that adventure games were the predominant storytelling genre in the gaming landscape at the time. He conceived the game as a means to introduce American adventure games to the Japanese audience, drawing inspiration from titles like «King's Quest», Unlike visual novels which gradually prioritized storytelling, adventure games of that era emphasized puzzles and gameplay mechanics. The challenge lay in methodically exploring static environments and using narrative cues to progress. The gameplay mechanics were crafted to subtly conceal key details from players, striking a balance between obscurity and discoverability. While both genres shared similar visual designs initially, visual novels gradually emphasized storytelling, incorporating animations such as moving backgrounds and character portraits. Rather than relying solely on independent drawn assets, visual novels began adopting a panel-based storytelling approach akin to Japanese manga, enhancing the narrative delivery [3].

Later on, the genre began to integrate both visual approaches, alternating between them as the story progressed. While the narrative was primarily presented using the first design option, important plot points utilized the second approach. However, visual representation wasn't limited to illustrations; it could also incorporate stylized photographs, ensuring that individual elements complemented the overall composition and sustained player engagement with the visual aesthetics of the design. Another factor influencing this phenomenon is the narrative orientation and target demographic of the game. The use of a photographic style is often observed in visual novels aimed at a broader audience spanning different age groups, as well as those exploring societal themes and dynamics [2].

This approach introduces complexity to character expressiveness by maintaining a level of realism within its stylized nature, albeit with limitations on emotional expression. Character designs must accurately reflect their personalities and roles in the story, ensuring they harmonize with the overarching visual design unless narrative significance justifies deviations.

A streamlined and user-friendly interface is pivotal for enabling players to interact effortlessly with the story and choose various paths within it. The interactive design and overall art style involve selecting

responses or solving puzzles that seamlessly integrate and logically connect to the narrative. Animation is employed to inject vitality into scenes and gameplay, serving to underscore pivotal moments and character actions, although the majority of the time, images remain static.

PURPOSE

The papers seek to define what constitutes a visual novel, trace the evolutionary path and definition of this genre, explore the issue of its stagnation, and assess the significance of this topic.

RESULTS AND DISCUSSION

Visual novels represent a relatively recent addition to the vast landscape of interactive entertainment, yet they have swiftly developed a set of defining features that distinguish them from other genres. However, a significant challenge facing this genre is its perceived monotony and lack of innovation, particularly in terms of technological advancements, gameplay dynamics, and design evolution.

Interestingly, visual novels derive a unique strength from this perceived uniformity. Unlike the dynamic and action-packed experiences often associated with other gaming genres, players of visual novels come with distinct expectations. Rather than seeking pulse-pounding action sequences, they are drawn to immersive narratives and nuanced character development that are characteristic of this genre.

The genre's adherence to established conventions can be perceived as both a limitation and a strength. While the lack of perceived innovation may raise concerns about its long-term viability, it also caters to a devoted audience seeking immersion, emotional resonance, and thought-provoking storytelling, hallmarks of visual novels. Thus, the very characteristics that may hinder the genre's advancement serve as the foundation of its unique appeal.

Despite being in a state of stagnation, the genre can diversify and expand by integrating fresh and innovative elements, which enhance player engagement with the narrative. These innovations not only distinguish the game visually with nuanced adjustments but also impact gameplay design, shaping the overall direction of the genre. By consistently striving to enhance the player's experience and foster deeper connections between players and unfolding narratives, these advancements play a crucial role in shaping the genre's trajectory.

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Economic sciences

THE ROLE OF PERFORMANCE MONITORING IN ACHIEVING SUSTAINABLE MANAGEMENT AND EFFICIENT USE OF NATURAL RESOURCES

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Abstract

The current research aims to study the cognitive foundations of performance monitoring and sustainable management, in addition to demonstrating the extent of the efficiency of the Ministry of Oil in maximizing the production of gas oil (gas oil) to meet the local need.

One main hypothesis was put forward: Performance oversight can point out and identify defects and weaknesses and take sound procedures and methods by the Ministry of Oil to maximize the production of gas oil to fill the shortfall in supply to the consumer. In order to achieve the research objectives and test its hypothesis, the research relied on the descriptive analytical approach to trace He examined its material, in addition to the statistical approach, and conducted some statistical methods on it in order to draw results for the period (2019-2022), and the research reached a set of conclusions, the most important of which was the increase in the total costs resulting from the process of importing gas oil products, amounting to (3.4) trillion dinars, The research also concluded with a set of recommendations, the most important of which was adding modern technologies that contribute to increasing production and thus reducing import operations that burden the state budget as a result of the large sums spent to import gas oil to meet the needs of the growing local market.

Introduction

Gas oil is considered one of the most in-demand petroleum derivatives in Iraq due to its effective contribution to the operation of engines that operate with this type of fuel, such as car engines and electric power stations, which consume large quantities of petroleum derivatives, the most important of which is gas oil fuel, which is considered one of the most efficient. Types of fuel to run its engines with high efficiency, in addition to private generators, especially in the summer and with the decrease in the hours of supply with national electrical energy. For this reason, the Ministry of Oil resorts either to maximize its production by mixing gas oil and white oil producers, or by importing, as the total costs resulting from Import of gas oil product for the years (2019-2022) (3.4) trillion and four hundred billion dinars. From here came the idea of the current paper, as the researchers sought to investigate the nature and procedures of the Ministry of Oil in maximizing gas oil production because of its relationship to Goal No. (12 Consumption and Production The two responsible for the sustainable development goals for the year 2030, because it directly affects the economy due to the high import costs compared to the production cost of this vital product, on which our economy depends greatly. The research consists of four sections, the first is the research methodology, the second is the theoretical aspect, the third is the applied aspect of the research, and the fourth is testing hypotheses. Research, conclusions and recommendations.

Research problem

The real problem is that there is a large gap between the actual production quantities of gas oil and local consumption, which leads to the Ministry of Oil importing the product to supply the resulting shortage at very large amounts and costs.

Therefore, the research problem can be formulated through the following question: (Can the mechanisms and procedures of the Ministry of Oil mitigate the impact of the problem and maximize the production of gas oil to fill the shortfall in supply to the consumer?).

In order to identify the causes of the main problem, its sub-problems were identified, which are listed below:

1 .What are the costs of importing imported gas oil sold to citizens?

2 .What are the reasons for not completing projects related to maximizing gas oil production?

3 .What are the problems and obstacles that Iraqi refinery companies suffer from, which limit the production of gasoline?

Research Aims

The current research aims to study the cognitive foundations of performance monitoring and sustainable management, in addition to demonstrating the extent of the efficiency of the Ministry of Oil in maximizing the production of gas oil (gas oil) to meet the local need.

Research Importance

The research derives its importance from the importance of performance control, and the positive role it provides in identifying defects and weaknesses and working to address them in order to save fuel (gas oil) and fill the shortfall in the quantities prepared for consumption.

Research Hypothesis

The research was built on a basic hypothesis that: (Performance oversight can point out and identify defects and weaknesses and take sound measures and methods by the Ministry of Oil to fill the deficit resulting from the gap between production quantities and local consumption and maximize production.

The research relied on the descriptive analytical approach in tracking and auditing its material, in addition to the statistical approach based on analyzing the time period (2019-2022), and conducting some statistical methods on it in order to draw results and demonstrate the role of performance auditing in achieving sustainable management.

The concept and objectives of performance auditing

The concept of performance auditing is an auditing process through which essential information and data are obtained about the performance of the entire institution by identifying the strengths and weaknesses of its activities, knowing the validity of the institution's internal organization, and reconsidering its established programs and policies (Demetrios & Karra 2008).

Performance auditing has been defined through the United Nations Guide as "an objective examination of the current performance and performance of operations in the body, programmer, activity or function in order to direct this performance towards achieving greater efficiency, economy and effectiveness (Hossain, 2010).

Performance auditing has been defined as an objective examination that diagnoses policies, systems, process management, and activity results in entities subject to oversight. Through it, it compares achievement with plans, results with rules, and practice with policy, in order to detect deviations (negative and positive) and explain their causes, ensure that economic resources are managed efficiently, identify the causes of waste, extravagance, misuse and exploitation, and develop suggestions that address aspects of deviation and extravagance in order to direct performance towards achieving Effective, efficient, economical, and providing greater savings. (Federal Office of Financial Supervision).

Dimensions of performance audit

1. Efficiency:

It deals with measuring the relationship between the products of goods and services and the resources that were used in their production to determine the degree of productivity and the extent of efficiency in managing the resources of the units subject to control, whether these resources are human or material, and whether they were obtained in appropriate quality and quantity at the lowest level of cost. (Hossain 2010).

2. Effectiveness:

It deals in particular with ensuring whether the objectives achieved and the methods used to achieve them are consistent with the established objectives and planned methods. Revealing negative and positive deviations, explaining their causes, and presenting proposals that would support and continue the positive aspects of performance, address the negative aspects of it, and work to prevent them from recurring in the future. (Syntetos & Boylan, 2006).

3. Economic:

This aspect focuses on the relationship of cost to the benefit resulting from it and the extent of the economic return for that benefit. This relationship can be measured and compared in an overall manner so that it addresses the entire activity of the entity subject to oversight. The measurement can also take the form of a detailed partial evaluation of each department, branch, activity, program or task in that entity. It is also possible to imagine that this aspect of evaluation will be interested in studying the extent of rationalization of cost or spending when it is difficult to compare the cost and expense and the corresponding benefit when it is not possible to determine the economic return.

Performance audit objectives

Through the previous definitions and determining the scope of work for this type of oversight, the most important objectives of this type of oversight can be summarized as follows:

1. Providing a basis for improving public sector management of resources of all types.

2. Improving the quality of information related to the results of public sector management that is provided to policy makers, legislators and society in general.

3. Encouraging public sector management to introduce new methods in their work performance.

4. Providing more appropriate public accountability to the implementing administrative agencies.

5. Contributing to creating a situation that, over time, results in a decrease in unnecessary procedures and measures.

6. Creating the appropriate climate to improve and develop the relationship between superiors and subordinates. (Federal Office of Financial Supervision).

The origins, development, concept and goals of sustainable development

The concept of sustainable development did not appear in the twentieth century, but rather existed 600 years ago when the European continent suffered from a major environmental crisis due to the use of wood until it reached a peak that led to almost complete deforestation. The idea of sustainability has its roots in human history, where it The Prince of Wales linked the idea of sustainability to the human spirit, explaining that there is an innate ability to live with nature in a sustainable manner (Bosselmann, 2008).

The World Food and Agriculture Organization (FAO) defined sustainable development as "the management of the resource base, its preservation, and the direction of the process of biological and institutional change in a way that ensures the continuous satisfaction of the human needs of present and future generations in all economic sectors, does not lead to environmental degradation, and is characterized by technicality and acceptance" (Salam, 2014; Alkarawy, 2023).

Bramwell also defined sustainable development as a concept that expresses social construction and competition that reflects the interests of stakeholders, and is the main key in conversations in the region about the social, environmental, and economic future, through which the environment is protected (Bramwell, 2004).

Sustainable development means the ability of the current generation to better exploit resources without compromising the ability of future generations to access the same resources (Daly, 2008).

Abdulridha, & Alkarawy (2022) defined sustainable development as "a pattern of growth that allows future generations to live at a level that is not less than the current pattern and degree of growth, but may even exceed it" (Abdulridha, & Alkarawy, 2022).

Schrijver et al believe that it is possible to define sustainable development as harmonizing economic, social and environmental balances with the needs of the current generation and the future generation (Schrijver et al, 2004).

Afgan views sustainable development as treating the future in the long term in a manner similar to how it treats the present (Afgan, 2005).

Dimensions of sustainable development

1. Economic dimension:

This dimension aims to improve the level of human well-being through his share in necessary goods and services, the availability of the main elements of production, first and foremost (stability, organization, knowledge, capital), and raise the level of efficiency and effectiveness of individuals and institutions concerned with implementing development policies and programmers, increasing growth rates in various fields. Production to increase the rate of individual income and stimulate the relationship and feedback between inputs and outputs. (Boeve et al, 2015).

2. Environmental dimension:

Managing the environment in a balanced manner is a necessity for the development process. Poverty is the most prominent factor causing threat and destruction to the environment in developing countries. The emergence of the concept of sustainable development centered on meeting the needs of the current generation without depleting the needs of future generations is based in its first clauses on the balance between the economic system and the environmental system (Fighting the depletion of natural resources, taking into account environmental security. (Ukaga, et al, 2010).

3. Social dimension:

This dimension deals with achieving social justice in the distribution and availability of social services, including health, education, gender equality, accountability, and participation in decision-making, as there is a strong correlation between the basic areas on which the sustainable development

process depends, as this relationship is a conditional relationship, and in order to be... Development is continuous. There must be a balance between the systems that include relationships between human and natural communities, which include the biosphere, the technical environment, and the social environment. Each of these three areas includes a number of activities that intersect with each other in order to achieve sustainable development (Daly, 2008)

4. Institutional dimension:

Public administrations and institutions represent the executive arm of the state through which it formulates and implements its social, economic and environmental development policies. The state provides services and benefits to its subjects and citizens, thus achieving sustainable development, the steady advancement of societies, raising the standard and quality of life of individuals, securing their human rights, and providing a valid framework for their commitment to their duties towards society. In addition, the state all depends on the extent of the success of its institutions and administration in performing its functions and missions (Duić, et al, 2013).

Results

1 .The Central Refineries Company resorts to exceeding the design limits of the refining units to produce gas oil (gas oil), and this is at the expense of the white oil product during the months of the year (from April to September) for each year. This mechanism is accomplished either by:

First: Mixing the two products (white oil and gas oil) in tanks in certain proportions while maintaining the marketing specifications of the product.

Second: Changing the volumetric production ratios of the medium harvest (gas oil + white oil) in the refining units in the refineries, which are variable from one refinery to another, as shown in the table (1).

Table 1. Maximization ratios

Seq.	The liquidator	Volumetric ratios (gas oil - white oil)	
		Before the exaltation %	After the exaltation %
1	Aldawra	)8-16 (	)7-17 (
2	Alsamawa	)10-15 (	)5-20 (
3	Diwaniyah	)10-15 (	)5-20 (
4	Najaf	)10-15 (	)5-20 (

Source: Prepared by the researchers based on data from the Federal Audit Office

Despite the maximization mechanism to increase production quantities, the shortfall resulting from the increasing demand for gas oil was not filled, so the Ministry of Oil turned to importing it to compensate for the shortfall in its production. The table (2) below shows the quantities produced and the local need for the years 2019-2022.

Table 2. Quantities produced and annual need

Seq.	the year	Quantities produced in refineries are m3	Local need m3	Actual domestic need %
1	2019	4,450,799	6,464,000	68
2	2020	4,905,712	7,851,000	62
3	2021	5,623,789	8,584,000	65
4	2022	5,078,525	7,437,000	68

Source: Prepared by researchers based on data from the Federal Bureau of Financial Supervision

From the above, it is clear that there is no database at the Ministry of Oil to determine the need or the size of the local annual demand for gas oil for the purpose of developing an import plan in light of that data, taking into account the amount of local production and the deficit in covering the demand, as the Ministry relies on the quantity consumed of gas oil (Gas Oil) resulting from the total amount produced by refinery companies in addition to what is imported as an annual requirement.

The total costs resulting from the process of importing gas oil products during the calendar years (2017-2020) amounted to approximately (3,467,481) million dinars (three trillion, four hundred and sixty-seven billion, four hundred and eighty-one million dinars) for the imported quantities amounting to (7,330,000) million / liter during the same period. The following table 3 explains this.

Table 3. Import costs

Seq.	the year	Imported quantities are million/ liter	The price is one dinar/ liter	The import cost one million dinars	Quantities produced: thousand/ liter	Average production cost: dinars/ liter	The total production cost one million dinars	The amount of costs is one million dinars
1	2019	1,993	529	4,450,799	1,054,297	78	347,385	898,743
2	2020	1,657	671	4,905,712	1,111,847	72	353,064	992,593
3	2021	1,859	607	5,623,789	1,128,413	102	570,646	938,795
4	2022	1,821	408	2,803,796	742,968	58	161,583	637,350
Total		7,330			4,037,525		1432678	3467841

Source: Prepared by researchers based on data from the Federal Bureau of Financial Supervision

Conclusions

The Central Refineries Company exceeded the designed limits for the refining units to produce gas oil (gas oil), at the expense of white oil during the months (April - September) of each year.

An increase in the total costs resulting from the process of importing gas oil products during the years (2019-2022), amounting to (3.4) trillion (three trillion and four hundred billion dinars).

The large number of unplanned stops and the failure to implement development projects in the refineries (central and northern) led to an increase in the imported quantities of gas oil, as well as a large number of forced stops of the Central Refineries Company's refining units, which affected the quantities of gas oil produced due to the scarcity of quantities of crude oil prepared for the company's refineries.

There is a fluctuation in the specifications of the crude oil received, as it contains large quantities of salts and impurities, so that it is below the working level of the operational units, causing technical problems in the units and the occurrence of sudden malfunctions.

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THE SUCCESS RATE OF SMALL ENTERPRISES AND THE FACTORS THAT INFLUENCE THEM

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Abstract

In this article, the issues of assessing the success of small business activities and the criteria used in it are considered. The factors determining the choice of certain criteria have been identified. The criteria are divided into financial and non-financial, and the scope of their application is analyzed. The possibility of increasing the success of small businesses through additional education and enlightenment of entrepreneurs is described.

Keywords: *small business, business, success, criteria, indicators, assessment*

Introduction

The significant contribution of small enterprises to the national economy emphasizes their relevance in promoting growth. While the move from a planned to a market-driven economy has resulted in a steady growth in their share of GDP in some countries, their importance in other countries' socioeconomic landscapes may be smaller. The state has implemented a number of initiatives to help small businesses grow, but entrepreneurs' motives and ambitions are influenced by a variety of factors, many of which are subjective. Foreign literature describes the elements influencing small business perception, which also play an important role.

Creating a supportive environment for small business development entails establishing indicators and goals to assist decision-making. While many experts propose utilizing quantitative metrics such as profit, working capital, and profitability to assess performance, they may not cover the entire scope of business development. Large organizations rely heavily on quantitative indicators, which are frequently generated from economic studies, to determine performance. However, for small enterprises, attaining initial goals like consolidation may necessitate the consideration of indirect financial factors like managing retirement uncertainty or avoiding insurance premium increases.

However, measuring performance purely using quantitative measures is insufficient. Quality considerations, which include both individual preferences and external issues such as personal life and health, are equally important. Independence, satisfaction, and adaptability to work and family commitments are all important criteria to consider for business owners. Businesses should set criteria based on their individual goals, such as achieving economic freedom, independence, personal fulfillment, and seizing new chances.

While financial indicators are generally selected since they are consistent with traditional economic principles, organizations may opt to prioritize other criteria based on their goals and values.

Classical economics has a propensity to prioritize the financial side of success, perhaps overlooking persons who do not desire monetary rewards. These folks frequently gain personal gratification and various sorts of compensation from their efforts. Some authors propose using terminology like "psychological reward" or "psychological income" to represent these non-monetary rewards, which can successfully replace financial objectives. Contrary to popular opinion, personal engagement, responsibility, and other elements, as well as financial consequences, play important roles in motivating human participation and desire for success.

Many business owners aspire to a certain lifestyle rather than financial success, and this viewpoint has a significant impact on the appraisal of small business success. Entrepreneurs' entrepreneurial ambitions are influenced by a variety of personal qualities, including their level of ambition, age, family circumstances, education, stereotypes, and the current political and economic climate. Furthermore, the location of the business might have a big impact.

Women entrepreneurs frequently confront particular hurdles, such as juggling family duties and company ventures. While preconceptions may suggest that women are less likely to considerably expand their enterprises, this is not necessarily true. Women frequently emphasize family commitments and devote less time to their businesses than men, but they can also demonstrate significant passion and entrepreneurship on a smaller scale. Childcare, freedom, and flexible work conditions are critical for female entrepreneurs, impacting their decision-making and success rating based on financial metrics.

Choosing the right company location, whether at home or in an external area, can have a big impact on success. For many, the flexibility to manage a business from home is a critical factor of success, especially given the cost advantages over hiring office space. However, moving from a home-based firm to a bigger office environment has both financial and emotional dangers.

Analysis

In countries like Australia, over 58% of firms operate from home. However, there are issues about the amount of trust and confidence among partners and customers when dealing with a home-based business, notably in terms of product quality and the seriousness of the venture. As a result, as firms expand, there is typically a tendency to relocate to specialized office buildings in order to increase credibility and professionalism.

Despite this tendency, technological and digital improvements have made it less necessary to migrate from home offices to official office spaces. Many entrepreneurs prefer the convenience and flexibility of working from home, even if it means forgoing possible financial benefits and the prestige that comes with owning a dedicated office space.

The COVID-19 epidemic hastened the transition to home-based firms, since lockdowns and social distancing measures drove many entrepreneurs to adapt to remote labor. This adaption not only saved time and money on commute and office rentals, but it also strengthened ties with clients and partners by increasing flexibility and accessibility.

E. Walker points out that a variety of factors influence the impact of financial criteria on business decisions. These include the level of economic wealth, societal prestige, company life cycle stability, and the entrepreneur's age, among other factors. Drawing on international experiences, a poll of Western Australian entrepreneurs sought to identify the elements that underpin their success and business decisions. The bulk of respondents (88%) stated that revenue generation was their top motivator, while 71% stressed characteristics such as job satisfaction, independence, and seizing important possibilities.

According to the poll results, 64% of Australian small company owners were men, and 79% had family responsibilities. In terms of age distribution, 30% were between the ages of 30 and 40, 34% were between the ages of 41 and 50, and 34% were beyond the age of 50. Education levels were rather high, with 50% holding higher education qualifications. In terms of business duration, 45% had been in operation for up to 5 years, 27% for 6-10 years, 21% for 11-20 years, and 6% for more than 20 years. Among the Australian micro-entrepreneurs polled, 44% worked from home and 56% from an office environment, with the majority of big entrepreneurs running their firms from an office. According to the survey results, work satisfaction emerged as an important criterion for business owners in Western Australia.

A survey of small enterprises in Western Australia aimed to identify the elements impacting work satisfaction. According to the findings, Western Australian entrepreneurs view personal satisfaction and a flexible lifestyle as critical success factors.

Furthermore, the poll emphasized the variety of criteria utilized by various people. The investigation divided the criteria that define success into four categories: lifestyle, financial role decline (related with company expansion), solely financial, and social responsibility.

The "living the lifestyle" component is particularly important, since it emphasizes striking a balance between financial goals and personal well-being. This lifestyle frequently entails self-employment and the capacity to manage one's time well, allowing for personal pursuits like childcare or supporting a partner's profession, which can be difficult to achieve in larger organizations.

Working at large organizations, on the other hand, entails a distinct dynamic, with a corporate environment that is often competitive and has historically been dominated by men. This atmosphere may provide less freedom and individuality, resulting in a reduced emphasis on personal and financial goals. Financial success is highly appreciated, frequently associated with high salary and career advancement.

In major corporations, technical skill and dedication to work may be prioritized, with employees expected to devote significant time to their jobs. While this dedication may result in cash rewards inside the corporate structure, some people may feel limited by a lack of autonomy and opportunities for personal growth. As a result, some entrepreneurs may decide to transfer from corporate employment to running their own enterprises in order to maximize their skills and follow their own objectives.

Creating and operating one's own business necessitates ongoing effort and the building of short-term partnerships. Individuals who want to avoid the long-term commitments that come with permanent positions frequently seek temporary employment. When it comes to success determinants, especially in terms of gender, women value lifestyle preferences over financial considerations more than men. Men generally prioritize marriage, lifestyle, and finance in equal measure. Those who work from home may

prioritize lifestyle issues such as work-life balance while also prioritizing financial stability. However, small business owners frequently emphasize financial issues to maintain acceptable levels of financial security.

It is worth emphasizing that small firms frequently contribute to economic and social prosperity in their communities, particularly with the rise of social entrepreneurship, which prioritizes spiritual fulfillment for business owners. A poll done by local writers highlighted three key characteristics of small business success: income generation capabilities, growth potential, and competitiveness development.

It should be noted that the majority of company leaders who responded to this study did not always own it. These persons' interests may differ significantly from those of entrepreneurs. Successful entrepreneurial activity, as well as the presence of significant market demand for items, might result in the need to expand the business. At the same time, the owner is pushed to focus more on management and less on entrepreneurship. The nature of his job evolves, as do his interests. The entrepreneur will have to decide whether to expand the business to a larger level or to maintain it small.

It is also likely that competition prevents him from leaving a modest volume of activity, since this would result in losing the necessary market influence. The entrepreneur is compelled to make a conscious decision between expanding the business or ceasing operations. Many entrepreneurs desire to keep their businesses small and refuse to expand. Conscious limitation of business scope might occur due to external negative factors such as administrative pressure, increased competition, and so on. Another reason small business owners give up on development is preferred circumstances in a specific income range and number of employees.

One of the most essential aspects influencing a small business's success is the competence of its owner (leader). The author [4, p.65] advocates categorizing crucial first-person talents in business as entrepreneurial (tactical), skill (strategic), and management skills. The ability to adapt, plan, predict, make decisions, solve problems, work with information, coordinate work, communicate with other participants, and so on is highlighted. To improve these skills, it is advised that small business owners participate in particular professional training and development programs. The drawback of basic education is that in the course of professional training, universal abilities are primarily taught for employment, whereas training in training is more tailored to the unique needs of the entrepreneur.

When developing the necessary skills for an entrepreneur and his team, keep in mind that there are numerous sorts of activities and methods for organizing a business and solving difficulties that arise. As a result, it makes no sense to train based on the experience of a small number of successful organizations. Significant disparities in the required management abilities between small and large businesses are also considered throughout training.

Conclusion

Finally, it should be mentioned that the development of small enterprises is heavily influenced by how entrepreneurs evaluate the effectiveness of their operations in relation to the conditions of the environment in which they operate. Quantitative, mostly financial, indicators are commonly used to evaluate the success of an endeavor. However, one distinguishing trait of tiny businesses is that they are non-financial and employ quality indicators. The factors utilized are various and frequently relate to entrepreneurs' lifestyles and social responsibilities. Business development and expansion can have a substantial impact on success criteria. Small entrepreneurs can improve their success rates by providing customized training to themselves and the employees they hire.

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Jurisprudence

LEGAL FRAMEWORK FOR THE CONFLICT OF INTEREST IN THE PUBLIC ADMINISTRATION IN ALBANIA

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Abstract

Based on the need for changes in the legislation in the field of conflict of interest in the public administration, during the last two decades in Albania, important steps have been taken in drafting and approving a series of legal acts. These changes were a necessary condition for aligning the Albanian legislation with that of the European Union countries in this field, as well as for the regulation of the very problematic state of this phenomenon in the public administration at all levels; whether in the central or local administration, but also in other independent institutions. The evidence of this phenomenon repeatedly was the result of repeated checks by the High Control of the state, the High Inspectorate of Declaration and Control of Assets and Conflict of Interests (ILDKPI), reports of various non-governmental associations, as well as from denunciations of different political factors. Since Albania had just emerged from a highly controlled and centralized totalitarian system, the process of building the rule of law also required adequate legislation in the field of conflict of interest in all its forms and at all levels. Understandably, this legal process was carried out in several steps, firstly, not having a previous tradition and institutions specialized in this sector as well as the necessary infrastructure, and secondly, the need to prevent and punish all sophisticated forms of abuse of this phenomenon. The legislation has undergone continuous changes during the last years in order to deal with the problems that have appeared during its implementation in practice. Moreover, there has been a great focus on improving the administrative capacities of the institutions responsible for the implementation and monitoring of legislation. It is also observed that there is an increase in coordination and strengthening of cooperation between the responsible law enforcement institutions in the country and independent institutions, for increasing the efficiency of criminal or administrative investigations, as well as punishing corrupt practices, in order to achieve concrete and tangible results in the prevention and fight against corruption. During the last years, important steps have been taken in the implementation of justice reform with the establishment of new law enforcement institutions in the fight against corruption and organized crime, such as the Special Anti-Corruption Structure (SPAK), the National Bureau of Investigation (BKH), the Court Special Against Corruption and Organized Crime (GJKKO), the focus of which has been the cases of conflict between interests in all forms of manifestation.

Keywords: *conflict of interest, public administration, corruption, institution.*

The history of legislation for the control and prevention of conflict of interest in the public administration in Albania

Law No. 9049, dated 10.04.2003, "On the declaration and control of the assets and financial obligations of the elected officials of some public officials", as well as Law No. 9131, dated 08.09.2003, "On the rules of ethics in public administration", are the foundations of Albanian legislation, for the control and prevention of conflict of interest in public administration.

This process was carried out within the framework of fulfilling the requirements and international standards with binding force, passing through legal steps, of which the most important in the development of legislation for the control and prevention of conflict of interest in the public administration have been:

-Council of Europe Model Code of Conduct for Public Officials (Model Code) adopted in 2000;

-United Nations Convention against Corruption (UNCAC) adopted in 2003;

-OECD Guidelines for the Management of Conflict of Interest in the Public Service, adopted in 2003;

-The Stabilization-Association Agreement concluded between the Republic of Albania and the European Union, an agreement which has been ratified by becoming part of the internal legislation through Law No. 9590, dated 27.07.2006, "On the ratification of the Stabilization-Association Agreement between the Republic of Albania and the European Communities and their member states"[1].

The Stabilization-Association Report for Albania, of 2003, carried out by the Commission of the European Community, evidenced what were the problems encountered in practice, the legal deficiencies and the steps that the Albanian state should take to create legislation for prevention, control and punishment of cases of conflict of interest in public administration.

Using the comparative method, among the changes made in the legislation on the conflict of interest, a fundamental change in the definition and expansion of the meaning of its notion is observed, not only in the cases of the presence of direct personal interests, also the presence of indirect personal interests.

The innovations that the Law has brought to Albanian legislation at the time of its adoption have come about because it was drafted based on European legislation, this is a necessary requirement for the conditions that our country must fulfill in the approximation of legislations. For the first time, we encounter restrictions for public administration officials to take actions to prevent conflicts of interest in any form provided for in the conflict of interest law.

Based on the approved legislation, every employee of the public administration has the obligation to check the possibility of conflict of interest cases, and after verifying them, he has the legal obligation to report to the highest instances of the public administration responsible for the implementation of these cases.

Also the approval of Law No. 9131, dated 08.09.2003 "On the rules of ethics in public administration", is very important for laying the foundations for the improvement of legislation in this field in the future, after the relevant legal obligations for public administration officials were defined for the first time, not only during the exercise of the duty, but also after leaving[2].

The definition of the notion of "conflict of interest" in the current Albanian legislation was further expanded by Law No. 9637, dated 04.07.2005 "On the prevention of conflict of interests in the exercise of public functions (amended), in article 3/1 of which it is provided as the state of conflict between the public duty and the private interests of an official, in which he has private interests, direct or indirect, which affect, may affect or appear to affect the improper performance of his public duties and responsibilities[3].

In comparison with the definition given for the conflict of interest in the previous law, an expansion of its concept can be observed, in the definition of a conflict of interest, in addition to the presence of direct personal interests, also the presence of indirect personal interests.

The innovations that the Law has brought to Albanian legislation at the time of its adoption have come about because it was drafted based on the Model Code of the Council of Europe, which was used as a basic model. Through this law, the obligations of the public administration employee to perform active actions to avoid the situation of conflict of interest were defined for the first time in the Albanian legislation. With the adoption of this law, the public administration employee was burdened with the obligation to verify the existence of potential or actual conflicts of interest. Not only that, but with their finding, the employee already had the obligation to notify the relevant superiors and personnel units of the conflict of interest situation. The law provided for the obligation of public administration officials not to engage in an external activity that hinders the performance of their official duties, or that may require a mental or physical commitment from them that makes it difficult to perform their duties.

Public administration officials within the framework of the implementation of this law, restricted the right to request or accept gifts, favors, entertainment or any other benefit, or avoidance of possible losses, as well as promises to them, to themselves, to the family, relatives, persons or organizations with which there is a relationship, which influence or seem to influence the impartiality of the performance of the duty, or are or seem to be a reward for the way of performing the official duty[4].

Also the approval of Law No. 9131, dated 08.09.2003 "On the rules of ethics in public administration", is very important for laying the foundations for the improvement of legislation in this

[1] *Law no. 9131, dated 08.09.2003 "On the rules of ethics in public administration", Article 4*
[2] *Report of the Civil Service Commission 2002 http://www.dap.gov.al/publikime/raporte-vjetore/85-raporti-vjetor-2002*
[3] *Law no. 9637 dated 04.07.2005 "On the prevention of conflict of interests in the exercise of public functions (amended), Article 3/1*
[4] *Law no. 9131, dated 08.09.2003 "On the rules of ethics in public administration", Article 10*

field in the future, after the relevant legal obligations for public administration officials were defined for the first time, not only during the exercise of the duty, but also after leaving[5].

Determination of officials subject to the law "On the prevention of conflict of interests in the exercise of public functions".

An official receives the quality of the subject of this law due to decision-making powers as well as due to the quality, position of work in a public body, also qualified as a subject of this law.

In order for a public administration official to be included as a subject of this law due to decision-making powers, the latter must be related to:

Administrative acts and contracts;

Acts of judicial, notarial bodies, for the execution of executive titles by enforcement bodies and acts of prosecution bodies;

Normative acts, as well as only those laws that create legal consequences for individually defined subjects[6].

For an official to benefit from the quality of the subject of this law due to the position assigned to a public institution, he must be an official of state, central or local institutions, or a representative of these institutions in the bodies created under them, at the moment that participates in a decision-making for contracts, which create legal-civil relations, with parties to these subjects.

The verification of the existence of the conflict of interest situation requires the taking of the necessary legal measures as effective as preventive and/or punitive by the relevant institutions and bodies, provided for in the law.

Pursuant to the relevant legislation, it is the duty of each public institution to define precise and detailed rules, the preliminary cases of decision-making and the essential and determining competence in the internal regulations of the institution.

Forms of manifestation of conflict of interest

In Law no. 9367, dated 07.04.2005 "For the prevention of conflict of interests in the exercise of public functions" several forms of conflict of interest have been accepted, forms which we do not find qualified in the previous laws that regulated the relations created in the conflict to the interest until the moment of its approval. The conflict of interest can appear in such forms during the exercise of the duty by a public official, in such a way that it is qualified as factual, possible or apparent. Also, the law provides special provisions for the prevention of these situations, as well as the legal solution that is offered in every case.

The conflict of interest during the exercise of the duty by a public official can appear in any of the types: factual, potential or apparent, and in cases where it appears in relation to a particular decision-making, the law has determined that it will be dealt with according to the provisions governing the conflict of interest on a case-by-case basis[7]*. In order to be in situations of the case of this form of conflict of interest, we must deal with one or several concrete decision-making which the official takes during the exercise of his duties. It is the official's duty to take all measures to avoid situations of conflict of interest as early as possible and in the most fruitful way possible*[8]*. Failure to comply with this obligation charges the official with legal responsibility, which responsibility, depending on the consequences caused, the attitude maintained by the official during the exercise of powers, can vary from administrative responsibility to criminal responsibility.*

In the explanatory and training manual for the prevention of conflict of interest of the ILKDP, it is recommended that the official to reach the conclusion whether or not there is a conflict of interest is advisable to follow the following methodological steps, giving answers to these questions:

1. What are the specific and detailed duties and powers of the official in question?

2. Does he have essential and determining competence in decision-making for the issuance of concrete normative and/or individual acts?

3. What is the sphere (space, field) of the impact of this act?

4. How strong is the impact of this act in this sphere?

5. What are the private interests of the official in question?

6. What are the chances that the act will affect the private interests of this official in his favor?

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[5] *Law no. 9131, dated 08.09.2003 "On the rules of ethics in public administration", Chapter V*

[6] *Law no. 9367, dated 04.07.2005 "On the prevention of conflict of interests in the exercise of public functions", Article 4*

[7] *Law no. 9367, dated 04.07.2005 "On the prevention of conflict of interests in the exercise of public functions", Article 3*

[8] *Law no. 9367, dated 04.07.2005 "On the prevention of conflict of interests in the exercise of public functions", Article 6*

7. What are the chances that the official's private interests will negatively affect his role in decision-making for this act?

8. Is there a strong cause-and-effect relationship between the interests and the act, such that the public decision-making can be, for this reason and only for that, an unfair decision-making?

These questions from the official must be answered before the action is carried out, so that it is considered that the relevant measures have been taken to avoid in any way the creation of conditions of a conflict of interest situation. Based on the type of conflict of interest that the official may be faced with, i.e. actual, potential or apparent, the path that must be followed in order to prevent the conflict of interest is determined.

Conflict of interest situations can arise for any official regardless of the position and hierarchical level in office. For this reason, the measures provided by the law to prevent situations of conflict of interest must be taken by every relevant official and superior.

The person who objectively has the best opportunity to know about possible conflict of interest situations is the official himself. For this reason, the law stipulates the obligation for every official to take all the necessary measures, in proportion to the importance of the situation, to avoid conflict of interest during the exercise of functional powers.[9].

As far as it is possible according to the specific case, one of the ways that the law provides for the avoidance of the conflict situation by the official is the transfer of the private interest, which caused the conflict situation. The other way is related to the self-exclusion from the concrete decision-making procedure. Exceptions to the application of this second method are the cases when the delegation of powers to another official cannot be carried out, because the law does not allow it or for other reasons of impossibility.

In cases where the official who is in a conflict situation is a member of a collegial body, he excludes himself from decision-making in the specific case, if this is possible without affecting the regular activity of the body.

In cases where the official finds that due to the possession of a function or a private commitment, a situation of conflict of interest with the public duty that he exercises is created, he is obliged to give up one of the functions: from the private one that prevents him from exercising the public duty, or relinquishing public office (this is mostly applied in cases of ongoing conflict of interest)[10].

In its article 6, the law on the prevention of conflict of interest has foreseen the obligation of every official to take active and effective measures, at the most fruitful time to avoid conflict situations. Also, the official is obliged to consult with his superior in the event of ambiguities, as the case may be. The obligation to take measures to avoid conflict is not only for every official, but also for every superior and superior institution, the moment the official himself becomes aware of the conflict of interest situation.

In addition to the provision of this obligation, the law has also provided for the relevant sanctions, specifically in articles 44 and 45 of the law on the prevention of conflict of interest, where administrative penalties are provided for cases of failure to take appropriate measures for the prevention and resolution of the conflict of interest situation. .

A number of international, regional and European instruments and regulations recommend guidelines for best practices and in order to control and prevent conflicts of interest in public administration. In this regard, it is found that there is an increased commitment of international organizations to provide rules and recommendations for the effective treatment and management of the conflict of interest. Some of the most important documents are the Council of Europe's Model Code of Conduct for Public Officials (Model Code) adopted in 2000, the United Nations Convention against Corruption (UNCAC) adopted in 2003, as well as the OECD Guidelines- on the Management of Conflict of Interests in the Public Service, approved during this year.

The Model Code requires the adoption of laws and regulations that will provide for the rights and obligations of public officials, such as the obligation to declare interests, incompatibility with external activities, gifts, inappropriate offers, abuse of official position, responsibilities after leaving public service , etc[11].

The United Nations Convention against Corruption (UNCAC) provides a general obligation for states to 'adopt, maintain and strengthen systems that promote transparency and prevent conflicts of interest'. With regard to the obligation to declare, the UNCAC instructs that states should "endeavor to establish measures and systems that require public officials to make declarations to the appropriate

[9] *Law no. 9367, dated 04.07.2005 "On the prevention of conflict of interests in the exercise of public functions", Article 37*
[10] *Law no. 9367, dated 04.07.2005 "On the prevention of conflict of interests in the exercise of public functions", Article 37*
[11] *Ibid.*

authorities, inter alia, regarding external activities, employment, investments, assets and large gifts or privileges from which a conflict of interest may arise because of their functions as public official".

Regarding conflict of interest, the UNCAC instructs that states should take measures to prevent "conflict of interest by placing restrictions, if appropriate and for a reasonable period of time, on the professional activities of former public officials or on employment of public servants from the private sector after resignation or upon retirement, if these activities or this employment is directly related to the functions exercised or supervised by those public officials during the exercise of their official duties"[12].

Conclusions

The conflict of interest in public administration is a constant challenge of our country. It is worth evaluating the drafting and approval of the legislation as a significant improvement in the function of preventing the conflict of interest. The legislation in force has adopted almost a significant part of the international standards in this field as well as the recommendations of international organizations.

However, the management of the conflict of interest in the public administration in our country appears to be partial. In this regard, we find that this partial implementation of policies and legislation for the prevention of conflict of interest has come as a result of the interaction of several factors that have contributed to their ineffective implementation.

It is also observed that there is an increase in coordination and strengthening of cooperation between the responsible law enforcement institutions in the country and independent institutions, for increasing the efficiency of criminal or administrative investigations, as well as punishing corrupt practices, in order to achieve concrete and tangible results in the prevention and fight against corruption. During the last years, important steps have been taken in the implementation of justice reform with the establishment of new law enforcement institutions in the fight against corruption and organized crime, such as the Special Anti-Corruption Structure (SPAK), the National Bureau of Investigation (BKH), the Court Special Against Corruption and Organized Crime (GJKKO), the focus of which has been the cases of conflict between interests in all forms of manifestation.

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Medical sciences

SURGICAL METHODS FOR TREATING UTERINE FIBROIDS

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Abstract

Uterine myoma (UM) is a hormone-dependent disease [1,3]. Infertility is a disease of the reproductive system characterized by absence of clinical pregnancy after 12 months or more of regular unprotected intercourse [2,4]. One-fourth of women (24%) had primary infertility or pregnancy failure, while 25-56% of women had secondary infertility in the presence of myomatous nodules (MN). A comparative analysis of 15-22% of women with UM who had habitual miscarriage showed that it happened 2-3 times more likely at women without UM. The incidence among women of reproductive age is as high as 70% [5,6,7]. UM may be the sole cause of infertility in 2-3% of women. The high prevalence and increasing frequency of uterine fibroids, along with their negative impact on reproductive function, highlight the relevance of studying this condition. In line with this, the aim of the study was to enhance infertility treatment outcomes for women of reproductive age with large submucosal uterine fibroids.

Keywords: *myoma, laparoscopy, hysteroresectoscopy, myomectomy, infertility.*

Methods

The study included 60 patients diagnosed with 6 cm submucosal uterine leiomyoma classified as FIGO-0. These patients were divided into two groups, each differing in terms of surgical access and the method of operation. The participants were randomized into the following groups: 1. Resectoscopy myomectomy; 2. Laparoscopy with uterine artery cross-clamping.

Results

The decrease in hemoglobin levels during laparoscopy with cross-clamping was statistically significantly less compared with the first group. Statistically significantly lower blood loss were found during laparoscopy with cross-clamping compared to the first group. A higher incidence rate of uterine synechias were found after resectoscopy compared with other approaches.

Conclusion

The findings revealed that laparoscopic myomectomy with temporary clipping of the uterine arteries emerged as a promising procedure for 4-6 cm submucosal uterine leiomyoma. This technique allowed for efficient surgical care delivery within a shorter timeframe, particularly benefiting patients with moderate and mild anemia. Importantly, the procedure eliminated the need for blood transfusion during the postoperative period.

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FACTORS AFFECTING THE QUALITY OF MEDICAL STUDENTS' TRAINING

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Abstract
This article presents the results of a study of the health status of medical students. The data from an anonymous survey devoted to studying students' attitudes towards their health are presented. It is shown that students of the Faculty of Medicine do not always pay attention to the state of their health; during an exacerbation of the disease, they are forced to miss classes, which has a negative impact on the mastery of subjects.

Keywords: *student, healthy lifestyle, bad habits, chronic diseases, proper nutrition*

Introduction. *In our republic, the government and the President pay great attention to the health of young people and the quality of their education. The year 2024 in the Republic of Uzbekistan is called the "Year of Support for Youth and Business."*

Students represent a special industrial and professional group, which is characterized by specific working and living conditions: an increased level of risk of disease due to significant psycho-emotional, mental stress and the need to adapt to newly created learning and living conditions [2].

Students are forced to change their lifestyle, which they often perceive as a loss of control, and in order to minimize the loss of control, they feel the need to use all their resources [3].

In this regard, during the period of study at universities, the student's body is exposed to various unfavorable factors, which have increased in the last decade due to significant reforms in educational technology. As a result of the influence of these factors, there is a tendency to reduce the level of health of students [1].

One of the factors that affects the learning process of students is the presence of chronic diseases, during the exacerbation of which they are forced to miss classes.

Chronic diseases are defined as diseases that last a long time, infrequently resolve spontaneously, and are rarely cured completely [5].

Chronic diseases such as cancer, diabetes, hypertension, stroke, heart disease, respiratory disease, arthritis, obesity, and oral disease can lead to hospitalization, long-term disability, decreased quality of life, and death [4].

The purpose of the study. *Studying the degree of influence of chronic diseases on the quality of education of medical students.*

Materials and methods. *To study the health status of future doctors, we conducted an anonymous survey, which contained 10 questions to assess the health of students (nutrition, bad habits, sleep patterns, presence of chronic diseases, frequency of visits to specialists, compliance with doctors' orders during exacerbations of diseases, rehabilitation measures, medical examination). The survey was conducted using the Google doc platform. form.*

Result and discussion. *В анкетирование приняли участие 347 студентов 1 курса медицинского факультета. Among the respondents, 56.2% were girls and 43.8% were boys.*

An analysis of the survey showed that 90.04% do not have bad habits (drinking alcohol and smoking), but the majority of respondents do not follow a daily routine (68.4%), eat poorly (53.7%), and are mostly sedentary. lifestyle (52.4%), do not engage in physical exercise (62.3%).

During the survey, it was revealed that 52.9% of students have various chronic diseases. Of these, 45.2% of students had degree I-II anemia, which today is often observed among young people and office workers.

20.8% of respondents have chronic gastrointestinal diseases, 20.2% indicated the presence of chronic liver diseases. 4.8% of students have other chronic diseases (chronic tonsillitis, chronic pyelonephritis).

70.2% of students are examined by a doctor only when they are sick. This shows that most students do not know that they have chronic diseases until the disease manifests itself. 6.7% of students with chronic diseases do not visit doctors, thereby increasing the risk of disease complications. Only 23.1% of surveyed students undergo medical examination every year and treat their health responsibly.

79.8% of students miss up to 30 hours, and 20.2% miss up to 50 hours of classes during complications of chronic diseases, which leads to falling behind fellow students and not mastering the educational material.

53.8% of students confirm that they do not have time to catch up on missed classes, but 46.2% of students try to catch up on missed classes to the detriment of their health, i.e. are not receiving proper treatment.

25.5% of students self-medicate during an exacerbation of chronic diseases, while 27.4% of students do not pay attention to the worsening of the disease, hoping that it will go away on its own.

Most people do not pay the necessary attention to the prevention of exacerbations of diseases and the rehabilitation process, thereby exposing their health to a repeated risk of exacerbation of the disease. When asked whether students undergo rehabilitation after illnesses, only 50% of respondents answered positively.

In conclusion. Thus, our survey showed that students of the Faculty of Medicine do not always pay attention to the state of their health; during an exacerbation of the disease, they are forced to miss classes, which has a negative impact on the mastery of subjects.

To avoid such problems, students need to maintain a healthy lifestyle, proper nutrition, refrain from bad habits (smoking, alcoholism), and maintain a daily routine. During an exacerbation of chronic diseases, it is imperative to contact specialists and undergo rehabilitation measures.

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Pedagogical sciences

BASIC FUNCTIONS AND METHODS OF WORKING WITH AUTHENTIC MATERIALS IN ENGLISH CLASSES

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Abstract

This article discusses the main functions and methods of working with authentic materials in English classes. The socio-economic changes that have occurred and are occurring in our country have led to a decisive revision of the place and role of a foreign language in the life of society. The change in the status of a foreign language in the education system has influenced the reshuffling of priorities in the work of foreign language teachers. The problem of teaching a foreign language is currently relevant. It is known that the goal of teaching a foreign language is the formation of communicative competence, which includes both linguistic and sociocultural competence. Learning a foreign language is designed to form a personality capable and willing to participate in intercultural communication.

In accordance with the new targets, the task of a foreign language teacher is to provide conditions for introducing the student's personality to a foreign language culture and preparing him for effective participation in the dialogue of cultures. Therefore, in a foreign language lesson, a special place should be given to such forms of classes that ensure the active participation of each student in the lesson, stimulate verbal communication, and contribute to the formation of interest and desire to learn a foreign language. In recent years, much attention has been paid to the problem of authenticity in foreign language teaching methods. Translated from English, "authentic" means "natural". This term is most often used to describe texts and other materials used in the classroom. However, the issue of authentic materials used in teaching foreign languages causes a lot of controversy. Currently, several approaches have been identified to determine the essence of authentic materials. Authentic materials are materials created by native speakers for native speakers for non-instructional purposes. Currently, the teacher has ample opportunities to use authentic materials from English textbooks, magazines and newspapers in his work; the use of video and audio materials is also very important. A well-chosen text maximizes the language activity of students and their communicative readiness. Thus, teaching a natural, modern foreign language is possible provided that materials taken from the life of native speakers are used or compiled taking into account the characteristics of their culture and mentality in accordance with accepted and used speech norms. The use of such authentic and educational-authentic materials, which represent a natural speech work created for methodological purposes, will make it possible to more effectively teach all types of speech activity, imitate immersion in a natural speech environment in foreign language lessons, and will help increase motivation for learning a foreign language.

Keywords: *educational-authentic materials, verbal communication, natural speech environment, video materials, self-confidence in 4 skills, requirements with working authentic texts*

Modern goals and objectives of teaching a foreign language imply the development of various types of speech activity in a complex: speaking, listening (understanding foreign language speech by ear), writing, reading and reading comprehension. Each type of speech activity develops successfully during the learning process. And it is quite obvious that each type of activity requires its own methods of work. It is clear to any teacher that the methods used to teach, for example, speaking, are not suitable for teaching, for example, writing. Therefore, from the point of view of the multitasking of modern teaching, each method has its own focus, in the context of the goals, objectives and materials used in the training session.

The traditional method, which is now a thing of the past, implies, in the process of work, the development of all types of speech activity to a given extent. This involves a thorough study of all aspects

of the language: grammar, phonetics, vocabulary; knowledge of a foreign language as a whole is put at the forefront, and not as a way of communication and familiarization with a foreign language culture. However, many years of practice show the ineffectiveness of this approach, since theoretical language proficiency prevails over practical, communicative competence (why do we study a foreign language in principle?) develops poorly.

Currently, the communicative approach is becoming dominant. Providing practical knowledge of the language, the communicative approach meets the modern needs of society and the state and meets the requirements of modern life.

One of the objectives of our research is to determine the functions and methods with authentic materials in English classes. Methods, technologies and techniques for working with authentic materials, as the main means of teaching, are a significant link in the foreign language teaching system as a whole, and, therefore, must be built in strict accordance with the conceptual provisions of the communicative approach. In modern methods, the process of teaching foreign languages is carried out through sequentially performed exercises [1].

Obviously, the productivity of the exercises depends on the thoroughness of the preparation and affects the success of mastering a particular speech activity in a foreign language.

In accordance with modern requirements for ensuring the educational process, tasks, methods and techniques must reflect the specifics of a foreign language as an academic subject - its interdisciplinary, multipurpose, activity-based nature.

Based on all of the above, the main functions of the methodological component of the educational process include:

– communicative – methods should contribute to the development of foreign language communicative competence, i.e. ability and readiness to communicate in a foreign language;

– informational – methods must correspond to the main aspects of the training content: the subject of speech, topic, problem, trained speech actions in order to solve educational and communicative problems;

– organizational and managerial – in the process of completing tasks, the activities of students are organized, their interaction with each other and the teacher, methods contribute to the development of reflection, control and self-control;

– educational and developmental – materials and methods of working with them are aimed at the diversified development of students.

The specifics of teaching a foreign language in our time are such that with an abundance of information sources and the development of information technologies, methodological work should be carried out depending on many factors - target, educational, age, content of the material, etc. In the theoretical chapter of our study, we said that one of the successful ways to develop communicative competence is the use of authentic materials in the classroom, be it original texts or audio-video files taken from primary sources, or adapted to the educational process [2].

To ensure work with this authentic material, a special methodology is required, which requires staged training, a multi-stage approach to teaching reading, and various working techniques. Let's consider the process of working with an authentic text. You cannot simply take the original text and read it; this type of work will not be relevant to the formation of communicative competence. All the benefits and significance of such a text in the educational process will be realized in the process of working with this text. It is quite obvious that well-chosen methods and techniques for working with authentic materials, expressed in specific tasks, will help maintain a balance between types of speech activity.

Reading at any stage of learning enriches students with knowledge, allows them to better understand the world around them or look at the surrounding reality from a different angle, serves as a source of aesthetic pleasure, and contributes to the formation of an intellectual, spiritual, culture-creating personality. In the modern Kazakhstani concept of education in general, and professional education in particular, the emphasis is on the development of an individual capable of continuous self-education. In the context of teaching a foreign language, authentic texts and working with them are an excellent method for implementing a modern concept.

Learning to read is one of the most important practical tasks of teaching a foreign language. Here we mean not only developing the ability to correctly voice what is read, but also to competently extract and use the information contained in the text. Reading is a process of perception and processing of a graphically recorded text, during which the information received is correlated with the recipient's personal attitude towards it, which is subjectively experienced as discovering the meaning of what is

being read [3] . In recent years, the goal of teaching reading has been to develop students' ability to read texts with different levels of understanding the information they contain:

– introductory reading with understanding of the main content;

– studying reading with a full understanding of the content;

– search reading with extraction of necessary information.

Thus, reading is both the goal and the means of learning a foreign language. In the educational process, it is necessary to clearly distinguish between these two functions, since they determine the methodological organization of all work. Mastering the ability to read in a foreign language is one of the main practical goals of studying this subject.

The features of reading as a type of speech activity make it a very effective learning tool. The activities carried out during the reading process ensure the memorization of language units, both studied and new. This is one of the ways to expand your vocabulary at any stage of learning.

-Reading has a positive effect on the development of oral speech, since all analyzers involved in speaking are involved in the reading processes. The content of what is read serves as the basis for many exercises directly aimed at developing oral speech - question and answer, retelling, conversations and discussions on what has been read.

However, the effectiveness of teaching reading is impossible without properly selected material. One of the main problems is the problem of selecting textual material, fiction, authentic newspaper materials and a clear methodological organization of working with it.

Here, factors such as compliance of the subject matter of the work with the interests of students, accessibility of texts in terms of linguistic means, and volume of text play an important role. If we are talking about the texts of literary works, then, on the one hand, they should touch on the life experience of readers, demonstrate the culture of the countries of the language being studied (fairy tales and jokes are not very appropriate at the senior stage of education, complex works of art will not arouse interest and cognitive activity at the younger stage), on the other hand, to be examples of a certain topic, to reflect the essence of the historical and cultural development of the countries of the language being studied, their realities, thereby strengthening the regional and cultural aspects of teaching a foreign language.

Very often, when teaching reading, teachers resort to authentic newspaper texts from periodicals, using two types of texts in their work:

– functional texts of everyday use (labels, advertising, diagrams, diagrams, drawings, paintings, theater or television programs, signs, road signs, etc.), performing instructive, explanatory, advertising functions;

– informative texts (article, message, interview, opinion poll, letters from readers, advertisements, current sensational information) that perform informative functions.

It is worth noting several stages of working with authentic material;

– pre-text and text exercises of a receptive nature, the purpose of which is to awaken and stimulate motivation to work with text;

– reproductive exercises, the purpose of which is the creative reconstruction of the text and preparing it for reproduction;

– reproductive and productive exercises aimed at developing the appropriate skills to conduct a conversation mediated by text;

– productive exercises focused on the active use of new speech means in situations close to authentic.

The methodologically competent use of authentic materials not only helps to increase the effectiveness of teaching a certain type of speech activity, but also develops the communicative competence and intellectual skills of students [4].

These skills appear in psychology and pedagogy in the form of terms: "mental operations", "techniques of mental activity", "learning activity skills", "general logical skills" and others. Intellectual skills, following the formulations of many scientists, namely: B. M. Bogoyavlensky, N. A. Menchinskaya, S. L. Rubenstein, M. N. Skatkin, are the ability to make comparisons, analysis and synthesis, classification and systematization of concepts and facts , highlight general, special, individual, etc. According to Yu. K. Babansky, the presence of such skills allows you to save a lot of time, that is, a large amount of educational work is completed, assimilating information in less time [5]. Intellectual skills provide developmental functions, that is, they contribute to the formation of observation, logic, analyticalness, and criticality of the mind.

The means of developing intellectual skills in teaching reading include active methods of work: problematic questions and situations, heuristic tasks, discussions. The main effect of such methods is manifested in the development of cognitive independence of students and the implementation of their subject position.

To develop a reading culture, it is necessary to possess basic reading skills: determine the main idea of the text, generalize, make judgments, and highlight the main facts. A special place belongs to creative tasks: imagining and acting out a situation, recording an emotional reading of a passage by role. These tasks stimulate self-development of students, because they express their position in a foreign language, forming a "creative reader" who not only receives pleasure from reading, but interprets the text, passing it through their own experience.

I would like to note that one of the most effective methods of teaching a foreign language is the method of immersing the student in the language environment. Authentic materials allow us to indirectly use this methodology when teaching students.

The use of authentic materials in practice allows us to stir up students' interest by showing films in the original, reading exciting works, and listening to contemporary performers together with students.

The key to your success in gaining authoritative status with any student is to communicate with him according to his interests.

Requirements for selecting authentic materials.

However, authentic materials require careful selection and the following factors should be taken into account:

- Compliance with the age characteristics of students and their speech experience in their native and foreign languages.

- Content of new and interesting information for students.

- Presentation of different forms of speech.

- Presence of redundant elements of information2/.

-The naturalness of the situation, characters and circumstances presented in it.

- The ability of the material to evoke a reciprocal emotional response.

According to the level of knowledge, students can be divided into 3 groups:

- abilities below average (when working with such students it is better to use materials such as schedules, tickets, menus, audio and video advertising, short news releases)

-intermediate level (newspaper articles, 4-5 minute videos and reports)

-advanced (should easily cope with unfamiliar vocabulary, can watch entire programs)

Working with unfamiliar vocabulary.

Any method has its pros and cons, and the use of authentic materials means working with unfamiliar vocabulary. In some cases, students avoid working with authentic materials because they seem too complicated due to the large amount of unfamiliar vocabulary.

It is advisable to finish reading the text and, based on the context, invite children to guess the meaning of the word.

It is very important to emphasize that students cannot and should not know absolutely everything. Thus, the use of authentic materials not only leads to the development of general skills, but also helps to increase confidence in real-life situations.

There are a number of tasks using authentic materials:

1) Working with newspapers

-Group assignments. Each group receives a newspaper. Questions are written on the walls of the office or on the interactive whiteboard. The goal for each group is to find the largest number of answers from newspapers or write down questions for this article. Then the groups switch places and try to find the answers in the article.

Based on the illustrations accompanying the article, you need to determine what it is about.

2) Letter

Learning how to write an email;

After reviewing the letter forms, answer the following questions:

• How to start an email?

• How to format an email?

• Where is the date written?

• What phrases does an email end with?

• Are abbreviations acceptable in writing?

• How does a formal email differ from an informal email?

• On what basis is the text divided into paragraphs?

• Determine the nature of each letter (personal, business, problem, letter of gratitude, letter of invitation, letter of congratulations)

• Compose a letter according to the proposed plan.

3) Audio recordings

Distribute lines from the song in private order (work in groups)

4) Forms of working with video material

Five W's and H Students are asked to watch the video and write down the basic data in 6 columns headed Who? What? Where? When? Why? How? This exercise is especially recommended when working with documentaries and news programs.

Info – Matching. Before watching a documentary or news, the teacher makes a list of facts, names and titles. Students can work in pairs and groups. Their task is to watch the video and record as much information as possible. After they have written down all the information they remember (including names and titles), they are given a list compiled by the teacher. They collate the data. Each match can be worth, for example, 10 points, and data that is not on the teacher's list can be worth 20 points if correct. After the points are tallied, it is determined which pair or group wins.

What do you want to know about? Before watching a topical video or documentary, students make a list of possible questions about the topic of the film. They then watch the video and find answers to as many questions as possible.

What happened? when? Students watch the video and then write sentences or questions that describe all the events or information in chronological order.

Matching. Students must match the names given to them in advance with what the character did, or what is said about the character, or what happened at the named location.

Where did it happen? Before viewing, students are asked to pay attention to some type of information, for example, geographical names, personal names, or write down numbers.

Authentic materials will increase students' confidence in their knowledge and prepare them for real-life situations where they will need English. Finally, they are simply interesting, which means that engaging lessons are guaranteed. Thus, this article discusses the main functions and methods of working with authentic texts in the process of educational activities at different stages of education, when choosing which each teacher is guided by the purpose, objectives and topic of the educational lesson, the type of text chosen for reading, as well as the stage of work with it.

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COMPETENCIES AS A FACTOR OF COMPREHENSIVE TRAINING OF FUTURE RUSSIAN LANGUAGE TEACHERS AT UNIVERSITY

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Abstract

This article is devoted to the problem of comprehensive training of a specialist in the field of language teaching. Material is presented on the problems of developing professional competencies of university students when studying the discipline "Practical course of the Russian language". The features of the formation of communicative, cognitive, creative competence in the classroom using a person-oriented approach in the process of learning Russian as an additional language and the development of individual creative resources are described in detail.

Keywords: *competencies, comprehensive training, creative development, philological sciences*

Introduction.

Modern society places increasingly high demands on the training of students, and priorities are aimed at the quality of education. Transformations have taken place in the educational system. The development of new educational programs is associated with the formation and development of competencies, with the main attention being paid to a practice-oriented approach in organizing the educational process. Transformations in the education system are primarily associated with the use of a competency-based approach to organizing the educational process in the training of competitive specialists. The acquisition of professional competencies is realized both in the study of individual academic disciplines, cycles, modules, and in the development of didactic units that are integrated into general professional and special disciplines.

The general goal of comprehensive training of specialists in the field of languages includes the development of students' ability for intercultural communication, the formation of readiness, based on a developed motivational sphere, to creatively carry out their communicative activities, while demonstrating professionally significant personal qualities.

Literature review.

There are variant interpretations of the concept of "competence". In particular, in Ozhegov's explanatory dictionary "competent - knowledgeable, knowledgeable, authoritative in any field." The concept of "professional competence" includes knowledge, abilities, skills, combining them with professional motives, abilities, attitudes of a specialist's personality, his social behavior, opportunities for self-realization and self-expression in the professional field. Mastery of competence creates the basis for the development of productive ways of acting and adaptability to new situations.

Various competencies are the basis for the development of competence, which, in a general sense, presupposes an employee's awareness of his professional activity and the ability to implement it on the basis of knowledge, skills, and technology skills.

A special approach to the educational process when mastering educational material has a positive psychological effect on students as they solve relevant educational problems, namely, it promotes the activation of speech and thought processes, increasing the creative activity of students, activates involuntary attention and memorization, stimulates interest in the Russian-language language being studied and reinforced information, makes it possible to motivate speech actions and actions, increasing the communicative significance of tasks, and creates a feeling of a real language environment.

Materials and methods.

Exploring the concepts of "competence", "competence" with the linguistic speech activity of students, as well as with their professionally oriented, creative and cognitive joint educational activities, we propose the concept of "linguo-pedagogical competence", the structure of which consists of three interrelated and interdependent competencies: communicative, cognitive and creative.

The communicative competence of students ensures the success of the main tasks of communication and self-realization of the individual, and is expressed in the possession of linguistic skills, compliance with specific socio-cultural norms of speech behavior and psychological laws of establishing

contact between communicating, maintaining a favorable atmosphere for the development of the emotional and sensory sphere of the individual.

In the educational process, important pedagogical conditions for the formation of students' communicative competence include the following:

– speech development based on data reflecting the real picture of students' speech activity;

– use of grammatical categories of text in the classroom to construct monologue and dialogic speech;– актуализация в речевых ситуациях знаний студентов в специальной области;

– the use in speech activity of techniques for forming the lexical minimum of a situation in specialization using individual and group approaches in teaching methods;

– organization of speech activity taking into account future professional activities.

Mastery of all components of communicative competence requires the development of the student's personal qualities that ensure effective interaction with other students - communication partners.

Communicative competence, considered in the pedagogical aspect, includes the independence of the student's personality, his activity, empathy, tolerance for a different way of thinking, the desire and ability to see and understand the differences and commonalities in cultures, in the worldview of their carriers. This competence presupposes the ability of students to conduct discussions, ask questions on the essence of the problem, build a dialogue with a partner, as well as developed skills of working in a group or team.

A university teacher must take into account that in the educational process when studying a language, it is important to include approaches to modern students that give high-quality results that could be further implemented in professional activities. Russian language classes must be structured based on the individual characteristics of students, that is, using a focused approach to each of them. Therefore, the direction of language learning is chosen by the teacher taking into account the student's future profession.

The process of learning a language is characterized not only by the development of students' communicative abilities, but also by the improvement of knowledge, intellectual properties of the individual, and understanding of the deep processes that occur in the language. The core of cognitive competence consists of well-developed memory, thinking, and general intelligence. Cognitive competence is ensured by the developed skills of systematization and extrapolation of educational and scientific information, skills of participation in collective and individual cognitive search, analysis of phenomena in a foreign language and comparison of these phenomena with similar ones in the native language.

Cognitive competence also involves the development of the following intellectual abilities:

- repeat or paraphrase the interlocutor's remarks to confirm understanding of his statement/question;

- seek help from your interlocutor (clarify the question, ask again);

- switch the conversation to another topic.

These abilities develop in students the desire to discover new areas of practical application of the language they are learning, and cultivate a tolerant attitude towards foreign language speech behavior and towards the interlocutor on the basis of empathy. Thus, the relationship between cognitive and communicative competencies is obvious, which is reflected in the concept of "intellectual communication." It is defined as the ability of a group to easily and quickly find a common language in discussing different points of view, to come to a common opinion in the process of searching for a common solution. Communication in joint educational and cognitive activities contributes to the acquisition of certain social experience by students.

Thus, cognitive competence is expressed in the close relationship of language learning as a means of interpersonal and intercultural communication with the intensification of intellectual skills and abilities.

Activation of the processes of intellectual development of students contributes to creative mastery of the methods of modern science, i.e. cognitive competence is closely intertwined with creative competence, manifested in creative abilities that determine the measure of success and effectiveness of students' activities, the degree of productivity of personality manifestations as a subject of activity.

As is known, creative abilities originate in individual activity and develop in collective activity, i.e., the "creative-communicative" feature of students is that when learning to communicate in another language, they have to take a creative approach to processing information, choosing strategies and

tactics communication with communication partners, linguistic and emotional means of expressing one's own opinion, attracting attention to one's position, persuading listeners during discussions.

Creativity in the joint educational activities of students is manifested in a collective search, the creation of a new product (previously unknown scientific knowledge, project, production, etc.). So, an integrated approach to the training of modern foreign language specialists at a university involves the formation of linguistic and pedagogical competence in students, represented by communicative, cognitive and creative competencies.

For the successful development and formation of the student's listed competencies, it is necessary to pay great attention to the dynamics of the motives of educational activity. The need for knowledge of the Russian language as a leading component of motivation is an internal condition, a stimulus for activity.

Consequently, the motives for students' educational activities can be divided into cognitive, achievement and social motives. The first group of motives includes the desire to acquire new knowledge and ways of obtaining this knowledge, and to independently improve methods of acquiring knowledge. Achievement motives are characterized by the desire to achieve creative success in the educational process for further implementation in professional activities, and these motives develop in the process of solving creative problems.

In classes, it is necessary to use a practice-oriented approach, to include topics from the life of the student himself and the situations that he encounters in reality. Particular attention is paid to nonverbal means of communication that accompany the speech situation, while the level of language proficiency of students must be taken into account.

Among the tasks facing a Russian language teacher when organizing work with students, two are especially important. The first, most relevant, is to teach the student the correct pronunciation, intonation, use of words and their forms, the construction of phrases and sentences, compliance with the drill norms of the language, and to achieve automaticity in the correct use of language units, which is especially important at the beginning of language learning. The second is to instill the skills of correctly constructing written and oral texts, using vocabulary to construct monologue and dialogic speech, including speech situations in a professional environment. During the lesson, the teacher needs to find modern methods of explaining complex linguistic phenomena.

Research results.

In Russian language classes, various pedagogical technologies are used, and a person-centered approach is applied to each student. In the pedagogical activity of a teacher, this methodological orientation allows, relying on interrelated pedagogical methods of action, to ensure and support the processes of self-education, self-development and self-realization of the student. The greatest interest in the educational process, in our opinion, is precisely reading textual material, in which one can not only master the features of the Russian language, but also master phonetic and lexical types of speech activity. When reading the text material, the student receives the information he needs.

At the initial stage of learning the Russian language, text material is first read aloud by the teacher. To facilitate the perception of new material, so that students understand what is being said in the text, it is necessary to carry out vocabulary work and introduce new words. This work is carried out so that the student remembers words whose meaning he already knows. We also need to remind you about the grammatical structures of the text. Full understanding of a sentence occurs only when the student has familiar words and phrases in stock.

To ensure that the student understands the text material read, you can use the reading technique developed by the methodologists, which includes the following points: at the beginning of the lesson, the teacher's demonstrative slow reading (no more than 120 words per minute); then fluent reading (words, phrases, sentences and paragraphs of text); repetition – expressive and exemplary reading. At the same time, students can also demonstrate expressive reading in class.

Including reading into the teaching methodology as one of the effective methods of learning the language, special attention should be paid to the phonetics of the Russian language, which poses a great difficulty for students. For this reason, in the classroom, the teacher must devote time to conducting such approaches as phonetic repetitions of sounds, syllables, words, phonetic dictations, and practicing various exercises for training and setting sounds when pronouncing words in Russian. When organizing a lesson, training the articulatory apparatus should be constant, especially at the initial stage of language learning.

Additional materials on specialization and specially selected texts provide opportunities for multi-aspect work with them, starting with training exercises and ending with constructing and organizing

discussions in class. When choosing a text for reading by students, they need to take into account their level of language proficiency and adhere to the principle "from simple to complex."

Conclusion.

The essence of the above comes down to the fact that the texts in the proposed reading textbooks have a developmental motivation. The educational material is presented problematically and is offered not only for memorization, but also for organizing mental activity.

A student-oriented approach involves changing the organization of the lesson structure, i.e. language learning is creative communication and problem-based discussion. First, we pose a question for the whole group, then we apply an individual approach to each student.

In the educational process of a university, the formation and development of students' professional competencies is closely related to their successful mastery of linguistic and pedagogical competence - learning outcomes depend on this. In the educational process, we pay great attention not only to practice-oriented reading, but also to the development of a system of exercises aimed at developing communicative, cognitive, and creative competencies in the field of professional communication. When offering various thematic exercises, it must be taken into account that they should always be close to a real professional situation.

From what was said earlier, it follows that in order to implement a professionally-oriented approach to studying the Russian language in the educational process of a university, it is necessary to develop such pedagogical technologies that could help create conditions for the self-actualization of the individual. To do this, it is necessary to develop teaching tools (including textbooks and teaching aids) that would reflect the principles of a professionally oriented approach.

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DEVELOPMENT OF THEORETICAL CONCEPTS ABOUT COMMUNICATION OF BUSINESS ENTITIES AND RELATED CONCEPTS

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РОЗВИТОК ТЕОРЕТИЧНИХ УЯВЛЕНЬ ПРО КОМУНІКАЦІЇ СУБ'ЄКТІВ ГОСПОДАРЮВАННЯ ТА ДОТИЧНІ ПОНЯТТЯ

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Актуальність дослідження. Розвиток ринкових відносин та завдання економічного зростання країни вимагають постійного вдосконалення форм та методів управління підприємствами. В умовах зростання складності та динамічності економічних процесів одним з основних напрямів цієї роботи є розвиток організаційних комунікацій суб'єктів господарювання, що передбачає покращення комунікаційних аспектів їх діяльності як у внутрішньому, так і у зовнішньому середовищі.

Сучасне значення і зміст терміна «комунікація» (від латинського communicatio, communicare – робити загальним; пов'язувати; спілкуватися) відноситься до того класу понять, поширеність і універсальний зміст яких знаходить своє відображення в різних галузях науки, техніки, технології, культури і всієї взагалі людської діяльності. Зв'язок, прийом та передача інформації, спілкування та будь-який інший вид інформаційної взаємодії, є настільки фундаментальними та загальними категоріями, що їх цілком можна віднести до тих порівняно небагатьох понять, які мають онтологічний статус.

Що стосується сфери екології, то слід зазначити, що теоретичні та прикладні роботи в галузі комунікації завжди становили, принаймні з часу створення перших управлінських доктрин, один з основних розділів досліджень у сфері впливу на довкілля виробництва, підприємництва.

Розглянемо основні концептуальні напрями вивчення комунікацій. Одним із перших напрямів у дослідженні комунікацій є дослідження комунікацій з погляду організації та організаційної поведінки. У рамках цього напряму виділяють три школи організаційної поведінки: школу «наукового управління», «школу людських взаємин» та «школу «соціальних систем».

Школа «наукового управління» (1885-1920) сприймала організацію через призму природничих наук, отже, організація розглядалася ними як закрита система, де довкіллю не надавалося істотного значення, отже, не досліджувалися зовнішні комунікації організації. Комунікація представлялася як односторонній вертикальний (згори донизу) процес, що зводиться до визначення робочого завдання [2, с.147].

Очевидно, що проблема спілкування всередині організації вже на початку XX століття приховано формувалася в процесі накопичення досвіду управління. Однак, прихильники класичної школи, як і ті, хто писав про наукове управління, не дуже дбали про екологічні аспекти управління.

Школа людських відносин в управлінні (1930-1950) була першою, яка визначила менеджмент як забезпечення виконання роботи за допомогою інших осіб. учасники школи спиралися на окремо взяту особу працівника, і встановили роль неформальних груп як головного фактора налагодження внутрішньофірмових комунікацій, які, у свою чергу, забезпечують раціоналізацію без капіталовкладень [6, с.145].

Дослідники вивчали різні аспекти соціальної взаємодії, мотивації, характеру влади та авторитету, організаційної структури, комунікації в організаціях, лідерства, зміну змісту роботи та якості професійного життя. Школа поведінкових наук значно відійшла від школи людських відносин, яка зосередила увагу, насамперед на методах налагодження міжособистісних взаємин. Науковці цього напряму розглядали комунікацію на великих підприємствах як засіб, за допомогою якого люди об'єднані в організацію задля досягнення спільної мети. Це й досі залишається основною функцією комунікації [3, с.110].

Діяльність групи людей неможлива без передачі інформації, оскільки без неї не можна досягти координації та здійснення змін. Здатність передавати абстрактні ідеї є однією з важливих особливостей людства. Міцність та якість взаємин залежать від симпатій та антипатій, спільності чи різниці характерів та темпераментів, поглядів на життя тощо. Оскільки організація є структурованим типом взаємин між людьми, вона значною мірою залежить від якості комунікацій для забезпечення ефективного функціонування. Очевидно, якщо комунікації між людьми не будуть ефективними, люди не зможуть домовитися про спільну мету, що є передумовою існування організації як такої.

Серед мотиваційних моделей, що мають велике значення для розуміння комунікацій, можна як окремий клас виділити концептуальні або змістовні моделі, засновані на ідентифікації людських потреб. Інший клас становлять процесуальні моделі, що концентрують увагу на тих процесах, через які цілі чи потреби реалізують свій вплив на людину.

Поява школи «соціальних систем» є логічним наслідком поширення загальної теорії систем, яка стає домінуючою у всіх сферах науки. У рамках цієї школи відбувається еволюція щодо поняття «організація», оскільки вона розглядається як відкрита система, пов'язана (входами і виходами) із зовнішнім середовищем.

Центральною концепцією теорії систем, системного підходу, усієї системології є поняття системи. Багато авторів аналізували це поняття, розвивали визначення системи до різного ступеня формалізації. Проте поняття «системи» досі залишається суб'єктивним та інтуїтивним [5, с.67].

Для цілей дослідження розумітимемо під системою цілісну безліч об'єктів (елементів), фізичних або (і) концептуальних, пов'язаних взаємними відносинами. Система має такі основні якості — цілісність, тобто неможливість зведення властивостей цілого до властивостей окремих елементів його складових; структурність, тобто система характеризується певними сталими зв'язками між її елементами; автономність, тобто можливістю самоврядування; стабільність у часі.

Структура взаємин – це невід'ємна якісна ознака будь-якої системи. Щоб зрозуміти, як діє система, потрібно визначити її структуру. Структура – сукупність стійких зв'язків об'єкта, що забезпечують її цілісність і тотожність самому собі, тобто збереження властивостей за різних зовнішніх і внутрішніх змін. Цілеспрямованою поведінкою володіє той елемент структури, який має можливість автономно вибирати та змінювати цілі свого функціонування. Наявність людини у кожному елементі створює умови цілеспрямованої поведінки. Ще одна важлива властивість систем – ієрархічність або «ієрархічна впорядкованість». У найзагальнішому вигляді, під ієрархією розуміється уявлення вихідної системи у вигляді ряду рівнів із встановленими відносинами підпорядкованості нижчих рівнів вищим. При цьому об'єднання компонентів у кожному вузлі ієрархії призводить до появи нових властивостей, яких не було в компонентів, що об'єднуються, і втрати ними деяких властивостей [4, с.102].

Термінологічний апарат дослідження. Деякі фахівці вважають, що за допомогою комунікації реалізується бажання поділитися своїм досвідом із оточуючими. Іншими словами, обмін інформацією, знаннями, інтелектуальними здібностями організація робить для того, щоб пояснити свої дії або плани на майбутнє. Це приклад вузької інтерпретації комунікації. Інші дивляться на комунікацію як можливість цілеспрямованого на знання, установки і поведінку одне одного.

Іншим підходом у сфері комунікацій є маркетинговий підхід, у межах якого процес комунікації розглядається у маркетинговому середовищі, під яким розуміється сукупність активних суб'єктів і сил, які діють поза фірми і які впливають на можливості керівництва встановлювати і підтримувати з цільовими клієнтами відносини успішного співробітництва [1, с.8].

У науковому обігу прийнято різні визначення комунікацій. Так, В. Никифоренко виділяє «комунікацію підприємства» (це поняття ідентичне поняттю фірмової комунікації), яка має на меті зробити підприємство «прозорим». Вона розкриває підприємство з позиції його людських, технологічних, фінансових засобів, пояснює його амбіції як економічного агента та повідомляє про засоби, якими воно користується у своїй діяльності [4, с.62].

П. Кожушко під комунікаціями розуміє всю сукупність зв'язків та взаємин між суб'єктами ринку, що виникають у процесі їхньої діяльності. Вони можуть включати виробничі та технологічні зв'язки між компаніями, що кооперуються, ділові зв'язки між покупцями і фірмами, що продають, особисті контакти між персоналом і компаніями, інформаційні зв'язки тощо [2,

с.145]. Л. Руденко комунікацію сприймає як процес обміну інформацією, та її смисловим значенням між двома і більше людьми [5, с.66].

Отже, під час розгляду питань комунікацій суб'єктів господарювання чітко виділяються два підходи. У одному найбільша увага приділяється вивченню комунікацій усередині організації як відкритої системи. У другому підході комунікації розглядаються вже стосовно просування товару у системі маркетингу. Комунікації в організаціях є розвиненою мережею каналів, призначених для збору, систематизації та аналізу інформації про довкілля, а також для передачі перероблених повідомлень назад у середовище.

Що стосується предмета нашого дослідження найбільш вдалим є застосування терміна «організаційні комунікації». Основний наголос у цьому дослідженні зроблено на управлінських аспектах комунікації, зокрема комунікації суб'єктів господарювання. Йдеться виключно про процеси передачі та отримання інформації людиною (внаслідок її дій).

Отже, організаційні комунікації мають місце у всіх випадках, коли у зв'язку з діяльністю підприємства відбувається передача або отримання інформації за участю або волею членів даної організації (окремих працівників або їх груп). Адже організація, юридична особа, будучи, по суті, своєрідною правовою конструкцією, може здійснювати свою діяльність лише через дії своїх працівників. Різноманітних прикладів організаційних комунікацій можна навести чимало. Це і ведення переговорів із постачальниками, і нарада у керівника, та заходи щодо мотивування співробітників, маркетингові комунікації, зв'язки з громадськістю тощо. Тому слід стверджувати про існування цілої системи організаційних комунікацій, що ніби утворюють нерозривний комунікативний простір підприємства і спрямованих на досягнення цим підприємством своїх цілей.

Використання традиційних підходів до розуміння комунікацій суб'єктів господарювання призводить до обмежувального тлумачення їх сутності та уривчастого розгляду їхнього функціонування лише в рамках окремих предметних галузей. Залежно від поглядів різних авторів, під ними розуміються або внутрішні (внутрішньофірмові), або зовнішні (маркетингові або PR-комунікації). Але внутрішні та зовнішні комунікації підприємства не можуть існувати ізольовано, у відриві від його, відповідно, зовнішнього та внутрішнього середовища.

Таким чином, за традиційного погляду на комунікації суб'єктів господарювання відсутній системний підхід до розуміння їх сутності. Пропонований підхід виходить з уявлення про організаційні комунікації як про цілісний комплекс внутрішніх та зовнішніх зв'язків підприємства, що утворює єдине комунікативне середовище та спрямованих на здійснення загальноорганізаційних цілей. Це зовсім не означає, що автором ставиться під сумнів доцільність відокремленого вивчення маркетингових або, наприклад, PR-комунікацій, як специфічних видів комунікативної взаємодії, що мають свої власні методи та цілі. Однак пропонований підхід усуває невиправдану вибірковість у трактуванні змісту поняття «комунікації» стосовно діяльності суб'єктів господарювання, при якій все різноманіття комунікацій зводиться лише до окремих, вузькоспеціальних сфер їх прояву.

Отже, під комунікацією суб'єктів господарювання розуміємо єдиний комплекс внутрішніх та зовнішніх зв'язків підприємства, що виникають у зв'язку із здійсненням ним своєї діяльності та заснований на процесах передачі та отримання інформації, що відбуваються за участю та/або з волі членів даного суб'єкта господарювання. Надалі, стверджуючи про комунікації, вважатимемо комунікації суб'єктів господарювання у вищезгаданому значенні цього поняття. Поняття «комунікації підприємства» вживатиметься як синонімічний.

Висновки. Комунікативні процеси, як і комунікації, стали предметом дослідження порівняно недавно. У зв'язку з жорсткою авторитарністю соціально-економічного та політичного устрою, донедавна поняття «комунікації» використовувалося досить слабо; в екологічній літературі воно не зустрічається його навіть у роботах, пов'язаних з вивченням інформаційних систем в управлінні виробництвом, оскільки основна увага приділяється технічним аспектам. І це тому, що в умовах адміністративно-командної системи взаємного обміну інформацією не могло бути, його замінювали накази і директиви, що спускаються «зверху».

Проте потреба дослідження комунікацій за умов ринкових форм господарювання значно зростає. Зумовлено це тим, що комунікації – це, по суті, система спілкування, що виконує функцію управління. Вона поставила людину на незмірно велику в порівнянні з навколишнім світом ступінь розвитку, визначила її виняткове місце в біосфері Землі. Будучи продуктом розумової діяльності і розвиваючись разом із нею, комунікації значно еволюціонували.

Останнє десятиліття економічних перетворень по-новому орієнтує підприємців,

управлінців в розвитку комунікацій. Тому дослідження всіх комунікативних процесів стало сьогодні нагальною необхідністю. У зв'язку з цим вивчення питань успішного функціонування взаємопов'язаного комплексу внутрішніх та зовнішніх комунікацій організації, об'єднаного в цій роботі поняттям «комунікації суб'єктів господарювання», сьогодні виходить на перший план. Комунікації для людей, соціальних груп, підприємств стають основою у суспільному розвиткові, що дозволяє зробити висновок у тому, що й значення функціонування суб'єктів господарювання, економіки загалом й у загальносоціальному сенсі неухильно зростатиме й надалі.

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THE ABILITIES OF FUTURE LAW ENFORCEMENT OFFICERS TO ESTABLISH A RELATIONSHIP OF TRUST WITH TEENAGERS AS A CONDITION FOR SUCCESSFUL PROFESSIONAL ACTIVITY

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ЗДАТНОСТІ МАЙБУТНІХ ФАХІВЦІВ ПРАВООХОРОННИХ ОРГАНІВ ВСТАНОВЛЮВАТИ ДОВІРЧІ ВЗАЄМИНИ З ПІДЛІТКАМИ ЯК УМОВА УСПІШНОЇ ПРОФЕСІЙНОЇ ДІЯЛЬНОСТІ

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Актуальність теми дослідження у пошуку ефективних шляхів і методів встановлення довірчих взаємин майбутніх фахівців правоохоронних органів із населенням зумовлена тим, що в демократичній державі ефективність влади повністю залежить від того, наскільки вона якісно взаємодіє зі своїми громадянами. Необхідність встановлення довірчих взаємин громадян з правоохоронними органами обумовлена значною роллю у створенні ефективної форми взаємодії соціальних інститутів для досягнення загального добробуту держави та вирішення суспільно значимих цілей.

Накопичений соціальними науками прикладний і теоретичний матеріал із проблеми довіри та її формування зробило необхідним залучення міждисциплінарного підходу до аналізу цієї категорії. Вирішення проблеми розвитку у майбутніх фахівців правоохоронних органів здатності до встановлення довірчих взаємин з різними категоріями громадян ми розглядаємо через соціально-філософський та психолого-педагогічні аспекти.

Ефективність систематичної профілактичної діяльності, проведення превентивних заходів з громадянами різних категорій сприяють посиленню довіри суспільства до поліції, а також, саме довірчі взаємини можуть значно знизити матеріальні та психологічні витрати у боротьбі зі злочинцями. Відтак, чим вищий рівень довіри у громадян до фахівців правоохоронних органів, тим вища продуктивність профілактичних заходів, ефективність у вирішенні поставлених цілей та завдань із забезпечення громадського порядку на місцях.

Термінологія дослідження. Сам термін «довірчі взаємини» або «довірче спілкування» схарактеризовані в роботах Л. Дунець, О. Хитрої, де вони виявили дві основні ознаки довірчих взаємин, які можна безпосередньо віднести до можливості поліцейського. До них автори віднесли: 1) значущість інформації, що довіряється, і 2) ставлення довіри до партнера (громадян) [2; 4]. Науковці підкреслюють, що значущою особливістю побудови довірчих взаємин «поліцейський-громадянин» є контакт тих, хто спілкується, в ході якого вони обмінюються інформацією, головними думками, своїми почуттями, переживаннями на основі взаємної довіри. Основними функціями довірчих взаємин можуть стати бажання громадянина-інформатора послужити на благо спільної справи, бажання випробувати психологічне задоволення від того, що зміг допомогти фахівцям правоохоронних органів у розкритті справи. Разом з тим, довірчі взаємини завжди пов'язані з певним ризиком, тому співробітник поліції повинен мати здатність переконати співрозмовника в тому, що з ним нічого не трапиться, що пов'язано з подоланням психологічної дистанції між тими, хто спілкується.

Вимоги до діяльності фахівців правоохоронних органів. Співробітник поліції, здатний створювати довірчі взаємини з різними категоріями громадян, без сумніву, має виявляти щирість та відкритість у спілкуванні. Щирість є важливим елементом чесності, правдивості особистості, наявність реальних почуттів та бажання допомогти у ставленні до іншої людини і тим, як ці почуття транслюються в словах людини. Л. Дунець пише, що відчуженість, значна емоційна і психологічна дистанція, яка встановлюється і підтримується навіть у близьких споріднених взаємин тими, хто не вміє довіряти, веде до суб'єктивної самотності, породжує труднощі в спілкуванні [2, с.5]. Довірчі взаємини, які має будувати у своїй професійній діяльності фахівець правоохоронних органів з громадянами, безпосередньо пов'язані з проявом довіри – як його постійна готовність вірити слову, інформації, повідомленням громадянських людей, їхній

обіцянці бути чесними та відкритими. І, навпаки, прояв поліцейським недовірливості, надмірної підозрілості гальмуватимуть, заважатимуть спілкуванню та довірчим стосункам.

Ще одна вимога до діяльності поліції щодо побудови довірчих взаємин у громадянами – це принцип партнерства, на якому ґрунтується довіра громадян до поліції. Державі життєво необхідно забезпечувати громадську безпеку поліції у світлі сучасної моделі взаємин громадян і поліції, згідно з новою ситуацією, а саме – партнерства.

Встановлення довірчих взаємин з підлітками. З метою налагодити стосунки з молодіжною групою фахівець правоохоронних органів повинен знати специфіку цієї особливої соціально-демографічної групи. Це важливо, оскільки рівень і кількість злочинів найчастіше припадає, на жаль, саме на молодіжну групу від 14 до 30 років. І більшою мірою, високий рівень злочинності припадає на підліткову групу від 14 до 17 років (грабунки, вживання та розповсюдження наркотиків, розбій тощо).

Згідно з поліцейськими зведеннями, підлітки, неповнолітні злочинці є негативним «резервом» злочинності в майбутньому. Саме з цієї причини фахівець правоохоронних органів повинен не тільки вміти взаємодіяти та будувати довірчі взаємини з підлітками в рамках постреабілітації, а й у рамках профілактичних дій, що є найважливішим у всій системі взаємодії народонаселення та поліції. Криміногенні чинники, які негативно впливають на дорослих злочинців, зароджуються набагато раніше – серед неповнолітніх підлітків. Підліткова злочинність завжди викликала і викликає підвищену увагу з боку фахівців правоохоронних органів, оскільки проблема злочинів серед неповнолітніх – одна з найважливіших соціально-правових, економічних та моральних проблем будь-якої держави. Злочини, які скоюються підлітками, виглядають жахливо, неприродно, неправдоподібно, оскільки дитина, підліток завжди асоціюється з чимось світлим, добрим, чистим, і раптом – безжалісність, жорстокість, брехня, зневага до всього. Не можна стверджувати, що держава, фахівці правоохоронних органів нічого не роблять у рамках запобігання черговим злочинам, але все ще недостатньо здійснюють її, оскільки не всі співробітники поліції, дільничні недостатньо займаються профілактичною діяльністю на місцях, слабо знають психологію молоді та підлітків, не знаходять час для індивідуальних розмов, не знають цінності, сподівання молодих людей, виявляють байдужість до їх долі. Статистика свідчить, що підлітки щороку вчиняють понад 300 000 правопорушень, серед яких – понад 100 000 дітей, які ще не досягли віку кримінальної відповідальності. Поряд із цим, реєструється щорічно ще понад 1 млн. дрібних адміністративних правопорушень [1, с.19].

В основі профілактики злочинності серед неповнолітніх, лежать основоположні принципи попередження злочинності в цілому, але водночас у попередженні злочинів, що скоюються неповнолітніми, є особливості, зумовлені їхньою відмінністю від осіб інших вікових категорій, а також специфікою злочинів, які вони вчиняють. Профілактична робота з учнями – процес складний, багатоаспектний, тривалий за часом. Завдання майбутніх фахівців правоохоронних органів у сфері запобігання правопорушенням – проведення систематичної ранньої профілактики, створюючи умови, які забезпечують можливість нормального розвитку молоді. Серед них: виявляти підлітків, які тяжіють до порушення моральних та соціально-правових норм; тісну взаємодію з вчителями ЗЗСО, які краще знають, фіксують індивідуальні особливості, окремі явища в колективі та причини такої поведінки підлітків; вчасно виявляти типові кризові ситуації, що виникають у молоді певного віку; використання фахівцями правоохоронних органів будь-яких можливостей самоврядування дітей, залучення до проведення заходів за місцем навчання та за місцем проживання; активна робота із неблагополучними сім'ями підлітків.

Питання профілактики та боротьби з підлітковою злочинністю – не нові питання, вони завжди були і завжди вирішувалися протягом багатьох століть, проте і сьогодні вони потребують пошуку нових механізмів, підбору нових методів співпраці поліції та молоді, вибудовування довірчих взаємин. Відомі випадки – як результат таких довірчих, тісних, чесних взаємин – підлітки, ставши на моральний шлях, у майбутньому ставали професійними оперативниками та слідчими, юристами та адвокатами.

Безумовно, профілактика правопорушень серед підлітків має власну специфіку – це, передусім, вікові, соціальні, психологічні відмінності підлітків від дорослого населення. «Підліток – час, коли формується усвідомлення себе в соціумі, пізнання норм поведінки та спілкування. Підлітка особливо цікавлять соціальні проблеми, цінності, закладається життєва позиція. З'являється прагнення самореалізації своїх здібностей. Дитина у стані диференціювати те, що справді їй цікаво, чим вона хотіла займатися у майбутньому» [3, с. 76]. Все це робить підлітка ніби «неприборканим», свавільним, бажаючим все пізнати і дізнатися відразу, відчути і

спробувати, штовхаючи його на не завжди продумані дії та провини. Поліцейський, дільничний повинен добре знати і передбачати дії тих підлітків, які негативно «зарекомендували» себе в навчальному колективі, мали приводи в поліцію або скарги з боку сусідів.

Інша особливість, яку має знати фахівець правоохоронних органів, щоб вибудувати довірчі стосунки з молодіжними групами – високий рівень мобільності, яка передбачає горизонтальну та вертикальну мобільність, де горизонтальна передбачає їх перехід у іншу соціальну групу без зміни соціального статусу та вертикальну мобільність – коли повністю змінюється статус людини. Молоді люди йдуть на контакт, якщо фахівець правоохоронних органів викликає певну повагу та довіру, що може стати основою подальших довірчих взаємин.

Обговорення. Отже, форми побудови довірчих взаємин із різними категоріями громадян (ми зупинилися на підлітках) можуть бути різними. Це може бути участь громадян в організації правопорядку та громадського порядку на своїй території; це можуть бути молодіжні волонтерські загони, волонтерські групи, складені з людей різного віку, діяльність яких спрямована на пошук зниклих людей, що заблукали в лісі тощо; це може бути позаштатна співпраця з поліцейською дільницею та фахівцями правоохоронних органів; створення громадських об'єднань, націлених на правоохоронну діяльність, створених з власної ініціативи громадян різних категорій. Разом з тим, незважаючи на взаємність побудови довірчих взаємин між фахівцями правоохоронних органів та громадянським населенням, сьогодні довіра частини населення до співробітників поліції проявляється все ще слабо і недостатньо, якщо порівняти з тими ж довірчими взаєминами, які відчувають громадяни європейських країн, які активно співпрацюють з поліцією з різних актуальних питань правопорядку та безпеки. Результати опитування громадян свідчать про те, що неактивний, повільний характер довірчих взаємин між правоохоронцями та громадянами – це насамперед відсутність здатності будувати з людьми довірчі взаємин – це небажання поліцейських швидко відгукуватися на прохання громадян про захист їх прав, які порушені внаслідок злочину; на другому місці стоїть причина – недостатня компетентність правоохоронців; і головна причина, через яку складно будувати поліцейським довірчі взаємини з громадянами – це незнання особливостей і специфіки людей, з якими їм доводиться спілкуватися, грубість, байдужість, зарозумілість. Позбавлення цих негативних якостей змогло б допомогти побудові міцних дружніх, чесних і довірчих взаємин поліцейських та громадян суспільства. Згадані якості фахівців правоохоронних органів – позитивні та негативні – стануть основою структурування компонентів досліджуваної здатності, яка допоможе ефективно та продуктивно будувати довірчі взаємини з громадянами будь-якої категорії.

Висновки. Теоретичний аналіз проблеми дослідження дозволив уточнити зміст здатності фахівців правоохоронних органів встановлювати довірчі взаємини як позитивний ресурс накопичення соціального капіталу, що відображає досвід позитивних взаємин поліцейських з людьми, що включає впевненість у чесності та доброзичливості, спілкуванні через певні принципи, механізми, традиції та взаємозв'язок складових частин цих взаємин, що базуються на системі позитивних очікувань і складають основу партнерських взаємин. Тобто, чим вищий рівень довіри у громадян до фахівців правоохоронних органів, тим вища продуктивність профілактичних заходів, ефективність у вирішенні поставлених цілей та завдань із забезпечення громадського порядку на місцях.

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MODERN ASPECTS IN TEACHING MATHEMATICS

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СОВРЕМЕННЫЕ АСПЕКТЫ В ПРЕПОДАВАНИИ МАТЕМАТИКЕ

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Abstract

Teaching is a universal effort. Mankind in the time they live always learn new things. During the learning and teaching process exist mitual data flow of information, that requires to be active in both cases. Teacheng scientific, moral and spiritual values to students, first starts in the school, shaped at high school and becomes experienced in society.

Аннотация

Обучение – это универсальное усилие. Человечество за время своего существования всегда учится новому. В процессе обучения и преподавания существует обмен данными, который требует активности в двухсторонном направлении. Обучение учащихся научным, моральным и духовным ценностям сначала начинается в школе, формируется в университетах и приобретает опыт в обществе.

Keywords: *Mathematic, teacher, practical problems, historical aspect, student*

Ключевые слова: *Математика, преподаватель, практические задачи, исторический аспект, студент*

Применение практических задач. Каждая из математических дисциплин должна увязываться с задачами практики, поскольку педагогу нужно знать о тесном взаимодействии теоретической математики и практики. В этом отношении нельзя осуществлять политику абстрагизацию математики с первого и до последнего дня пребывания студента в вузе. Известны случаи, когда с первых лекций преподавание курса алгебры подчинено единственной цели – подготовке изложения в идейном отношении последующих глав математики – абстрактных групп. Основная задача курса педагогических университетов состоит в другом – подкотовке увлеченного, знающего и умеющего преподавать учителя. Педагогическое умение – сложное и большое искусство, требующее не только формальных знаний, но также видения ясных связей математических знаний с задачами пракики – инженерной, биологической, экономической, медицинской, сельскохозяйственной, отчетливого представления исторических корней возникновения понятий, направлений исследований, математических дисциплин, свободного владения математическими методами для решения сложных задач, умения заинтересовать ученика предметом и найти нужные слова для объяснения непонятного ученикам материала. [1]

Гуманитарная направленность математики. Основным направлением в современном информационном обществе содержания и методом обучения математике является реализация ее более тесной связи с практической деятельностью, поворот обучения к человеку, к его многообразным связям с окружающим миром, повышение общекультурной и общеобразовательной значимости изучаемого материала. Реализация гуманитарной направленности курса математики происходит за счет ознакомления учащихся с математикой, как определенным методом миропознания, формирования у них представлений о математике как частиобщечеловеческой культуры, усиления практического и прикладного аспектов в ее преподавании. Ознакомление учащихся с математикой как специфической формой познания мира требует отказа от сложившейся практики построения математического образования как безупречной логическом и структурном отношении последовательности изложения готовых результатов и сведений. Лучшие традиции преподавания математики предлагают такую методическую систему, при которой, здание математики создаются на глазах у учащихся и с их посильным участием. [2]

Усиление практических аспектов и ИКТ. В преподавании математики должно происходить за счет отбора содержания, богатого приложениями, выявления отчетливых связей математических понятий с практической деятельностью человека, разработки системы соответствующих упражнений. При этом необходимо перейти от декларации учёта возрастных особенностей школьников к действительной реализации этой идеи. Преподавание должно максимально приблизиться к опыту учащихся, опираться на хорошо знакомые, доступные для понимания жизненные ситуации. Усилению прикладной направленности курса математики будет способствовать использование в обучении современных средств ИКТ, математическич пакетов (GeoGebra, MatLab, Mathcad, Mathematica), прикладных программ, позволяющих сосредоточить внимание ученика или студента на содержательной стороне приложений изучаемого материала.

Использование исторического аспекта. Для формирования представлений учащихся о математике как части общечеловеческой культуры в содержание математического образования должны органически вплетаться богатые в эмоциональном отношении истории науки, знакомящие учащихся с трудной борьбой идей, судьбами великих открытий, именами людей, творивших науку. Знакомство с такими замечательными фактами интеллектуальной истории человечества, как например, квадратура круга, Великая теорема Фермы, открытие неевклидовой геометрии создает культурно-историческую традицию в обучении математике, которое нужно тщательно беречь и развивать. [1]

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Philological sciences

COMPRESSING AND EXPANDING TEXT CONTENT

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Abstract

The work discusses the theoretical aspects and results of an experimental study of the possibilities of compression and expansion of text information by schoolchildren with severe speech impairments. Comparative indicators of compressed and expanded presentation of text content by students with normal and impaired speech development are considered. The analysis of empirical data is carried out from the perspective of cognitive linguistics and speech therapy. The article shows the correlation between the results of schoolchildren's textual activity and the peculiarities of the functioning of cognitive mechanisms of semantic equivalent substitutions, compression, explication, and narrative organization of predicative semantics of the text. Attention is drawn to the fact that the predicted ways of overcoming difficulties in interpreting textual information in schoolchildren with severe speech impairments are associated with the activation of the corresponding cognitive mechanisms.

Keywords: *text, cognitive mechanisms, difficulties in text activity, compressed and expanded*

The communicative activity of a linguistic personality is associated with the understanding and creation of texts. The text in this case is considered as a multi-level, hierarchically organized whole, the components of which have a semantic nature, differ from each other in the degree of complexity and are united by a common thought (topic, idea, subject of statement) and are characterized by the presence of a number of text categories.

Along with the multifaceted study of the problem of coherent utterance, the issues of compression and expansion of textual information by students in this category did not become the object of special research. The purpose of this publication is to establish theoretical approaches to the analysis of secondary text activity and to describe the features of compression and expansion of the content of literary texts by students with severe speech impairments.

In linguistic and psycholinguistic research, a multidimensional study of a text is carried out: its status, properties, external and internal structure, semantic organization, features of the implementation of various text categories, the specifics of its perception, reproduction, etc. are analyzed.

The success of assimilation of information contained in the text depends on the completeness of its understanding. The process of semantic processing of a textual whole includes various types of analytical activity: identifying its structural components, awareness of semantic connections between them, determining the dominant meaning, and others. If the skills of text analysis are formed, then all the diverse relationships and interdependencies between the individual links of the message are comprehended, and the content of the statement is mastered.

Structural and semantic analysis is the basis for a condensed presentation of the meaningful information of a work of art. This type of analysis includes a number of stages: establishing and categorizing the author's program of the source text; identification of its structural and compositional structure; highlighting text fragments; association of form with content based on the reader's linguistic picture of the world. At the final stage, the meaning of the author's program is synthesized, its maximum reduction takes place.

Semantic compression of the text is considered by researchers from different angles and is presented as "the process of semantic and structural restructuring of linguistic units in the text, as a result of which, when they are re-nominated, more capacious content is transmitted in the process of communication," that is, the content of the author's text is "thickened".

There are various ways of collapsing: replacing a fragment of a statement with another; condensation of individual semantic fragments into a whole unit; the use of nominal blocks that contain the content of entire sentences; omission of some characteristics; generalization of information about a number of situations, etc.

If it is necessary to create secondary text, the collapsed information is expanded. At the same time, the processes of analysis and synthesis are again carried out, associated with the transmission of the author's program in another verbal form. The choice of an adequate deployment scheme is preceded, as in the case of collapse, by identifying "semantic milestones" (support words), which are carriers of the general meaning.

The unfolding of the text is presented as a chain of "periphrases", each time reflecting a structure that is more marked than the original one, that is, the unfolding can be considered as a process of transition from simpler (undifferentiated) to more complex (dismembered) structures.

The text conveys a certain sequence of facts that unfold in time and space according to special rules depending on the content and type of text. In the process of deploying textual information, the theme (micro-theme) of each fragment is developed. V. N. Meshcheryakov points to such techniques for concretizing a theme or main idea (in micro-themes) as detailing, that is, developing a theme by displaying details; giving examples that support the idea; comparison and contrast of facts and phenomena presented in the micro-topic with other facts or phenomena; an indication of the consequence or condition indicated in the topic sentence; an explanation of the thesis or a causal justification for its content. The researcher also identifies such techniques for deploying information as defining concepts; indication of analogue; highlighting an event, person, sign with subsequent detailing; formulating a conclusion; addition or confirmation of the main idea; strengthening the theme reflected in the topic sentence; question-and-answer method of disseminating a statement.

Successful understanding and reproduction of text is mediated by the functioning of a number of cognitive mechanisms. The mechanisms of equivalent substitutions and compression are of fundamental importance for the processes of folding, and for the expansion of textual information - the mechanism of explication and the mechanism of narrative organization of the predicative semantics of the text.

We conducted an experimental study aimed at assessing the possibilities of compression and expansion of text information by schoolchildren with normal and impaired speech development. The first direction of the study was focused on assessing the skills of compressing text information and included the following tasks: reformulation (presentation in an abbreviated form) of topic sentences, transformation of titles of the whole text and its parts (with the goal of minimizing ready-made titles); determination of the theme, idea, leitmotif of the work, thematic title of the text and its parts, drawing up a plan based on the results of establishing the semantic program of the text, highlighting thematic sentences and keywords, condensed/brief retelling. In the course of analyzing the results of the study in schoolchildren with severe speech impairments, significant limitations in the processes of text compression were identified, due to the insufficient functioning of basic cognitive mechanisms.

Compression of the content information of the text is associated with the work of the mechanism of semantic (equivalent) replacements. The work of this mechanism, according to N.I. Zhinkin, is manifested in the ability to equate some verbal structures with others. The transformation process in this case is associated with the fact that certain linguistic structures (as part of the text) are transformed into semantically equivalent complexes. This mechanism ensures the objectivity of what is being discussed, controls the correct presentation of denotations, and ensures the enlargement of text units associated with the phenomenon of "contracting" thoughts into more capacious semantic formations.

The study found that students with normal speech development have the ability to convey the basic information of a text in their own words. They have access to a selection of sentences equivalent to thematic ones; it is possible to convey the content of micro-themes in paraphrased form and structural transformation of thematic sentences.

The limited possibilities of semantic transformation of a textual whole during its compression, characteristic of students with severe speech impairments, manifested themselves in the process of paraphrasing and reconstructing the basic elements of the text. The illegality of synonymous substitutions at various levels (in sentences or microtopics), which was expressed in the random selection of response options, was noted. The difficulties of transformational restructuring of text material, its combinatorial transformations, which manifested themselves in the rearrangement of parts of thematic sentences or their distribution instead of selecting equivalent ones, as well as the distortion of information in the main sentence during paraphrasing, were recorded.

Significant difficulties arose when searching for semantic equivalents for the titles of the entire text and, especially, its fragments. Question headings predominated in the answers; in most cases, it was noted that it was impossible to translate a question heading into a nominal one, and a thematic one into a semantic one.

Another mechanism that reflects the process of text compression is compression, which is carried out through thematic reduction and involves the analysis and reduction of the author's program to the core meaning. Associated with this mechanism is the ability to identify the semantic structure of the source text, highlight thematic sentences, determine the topic and main idea, as well as the ability to create short secondary texts.

An analysis of the skills of compressing the content of a primary source by students with normal speech development suggests that they are able to establish dominant information and reveal a topic on this basis, thematically title the text and its parts, and identify the global meaning. The results of our research showed that schoolchildren in the category under consideration determine the semantic program of the primary text and relate it to the topic. The compressed texts they create are characterized, on the one hand, by the preservation of the semantic structure of the original source, the presence of internal semantic-dynamic division and retention of key words, and on the other hand, by the presence of complex rearrangements (enlargement of syntactic blocks, exclusion of secondary information).

When studying the possibilities of semantic compression of text in schoolchildren with speech impairments, limited possibilities for distributing information into main and secondary, establishing dominant meaning at the global level and at the level of text fragments were revealed: inaccurate establishment of reference units at various levels, incorrect definition of the topic, micro-topics and the main idea of the original source. The insufficient functioning of the compression mechanism is also evidenced by the difficulties in naming the whole text and its parts. At the same time, the presentation in the form of titles of thematic sentences and individual fragments of the text that do not reflect its thematic focus is recorded. It should be noted that most titles are characterized by a lack of structural uniformity: in one work, along with the use of nominal names (a word or phrase), detailed fragments of text are offered.

Secondary texts of students with speech impairments, presented as compressed texts, are characterized by a number of features. In some cases, compression of text information is not carried out: along with the reflection of the semantic structure of the primary text, the preservation of most elements of additional and redundant information is noted. In other works, compression occurs due to truncation of the author's program of the text (omission of significant components of the semantic structure of the primary text, leading to a violation of the internal semantic-dynamic division). In this case, the presence of a certain amount of secondary information is recorded. A number of works are characterized by the predominant presentation of unimportant information and a significant reduction of the main one.

The second direction of the study was focused on assessing the skills of logical and semantic development of text information and is represented by the following tasks: disclosure (expansion) of the semantic program of the text, given in the form of topic sentences, plan points, keywords, factual chains.

The subject of further discussion is the analysis of the features of the detailed presentation of the content of the test and/or its fragments by students of the studied categories. The development of information contained in the text is realized through the action of the cognitive mechanism of explication. The functioning of this mechanism ensures the process of transforming a holistic, continuous (simultaneous) representation of the image of the text (its fragments) into an articulated (successively displayed), sequentially and logically constructed structure. As a result of the operation of this mechanism, when creating a secondary message, the reader extracts implicit textual information, establishes explicitly and implicitly expressed connections in the source text, puts forward and verifies hypotheses, and verbalizes conceptual content.

Analysis of the features of the detailed presentation of meaningful information in a literary text made it possible to document that schoolchildren with speech impairments have limited abilities to realize surface and deep connections at the level of the whole text and its fragments. Deficient or inconsistent use of pronominal, adverbial linking words, direct repetitions and periphrases was noted. Difficulties in realizing deep connections resulted in a violation of cause-and-effect, target, temporal and other relationships in the space of the text.

The deployment of textual information during its reproduction is also associated with the functioning of the mechanism of narrative organization of the predicative semantics of the text. Any text, including narrative, is represented by a structure of multi-order predications; the narrative process in it is organized through predicates, the semantics of which allows them to reveal the eventfulness of the situation. The program for deploying meaningful information (within each fragment) is embedded in thematic sentences and can be carried out using various methods. The parts of text passages (topic sentences) proposed in the tasks were focused on a variety of ways to disseminate their content. Some

fragments "required" subsequent consideration of details or examples, others required a comparison of facts or their opposition, and others indicated the need for a purposeful or causal justification of the information reflected in the topic sentence. Only if the available information is "read" (correctly deciphered) is its further development in the required direction possible.

The experiment found that schoolchildren with normal speech development know different ways of unfolding storylines. The results of microtheme deployment they proposed reflected the basic meanings of text fragments. Students chose the correct ways to distribute thematic sentences, objectified the corresponding logical-syntactic relations, and controlled the correctness of the wording.

When analyzing the written work of students with speech impairments, difficulties were noted in deciphering the semantics and grammar of narrative predicates.

Thus, the main didactic task of concise presentation is to teach how to convey perceived information briefly, in a generalized form. When conducting concise presentations, communication skills such as:

1) identify the main (essential) information;

2) when compressing text, focus on the communication situation;

3) shorten the text in different ways (exclusions or generalizations);

4) find and appropriately use linguistic means of generalized transmission of content.

This type of presentation helps to improve general communication skills: to reveal the topic and main idea of the text; plan a statement; improve the created text, etc.

A "memo" plan (how to write a concise presentation) provides great assistance to students when working on a concise presentation.

1. Read the story.

2. Determine its topic (what is it about?).

3. State its main idea (what does the story teach?).

4. Make a detailed plan.

5. Note the essential (c) and details (p) in the story.

6. Make a concise plan (what must be said).

7. Choose "capacious" words for a concise presentation.

8. Write a concise summary of each part, linking them together to make a short story.

Remember the main condition: in a concise presentation, everything should be clear and understandable to every person who reads it.

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CLASSIFICATION OF SPEECH ACTS IN ENGLISH

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КЛАССИФИКАЦИЯ РЕЧЕВЫХ АКТОВ В АНГЛИЙСКОМ ЯЗЫКЕ

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Abstract

The main work on which the theoretical concept of linguistic pragmatics is based is speech act theory. In modern linguistics, the term "speech act" is understood as a minimal unit of speech activity, distinguished and studied in speech act theory (SAT), a doctrine that is the most important component of linguistic pragmatics. One of the issues of speech act theory (SAD) that has attracted the attention of linguistic researchers for more than half a century is the question of speech act classification. The founders of TRA, in order to study their functioning in a meaningful way, initially proposed a number of general features to classify different types of speech acts into certain groups. In his main work "How to do things with words" John Austin gave the first classification of speech acts, taking into account the illocutionary purpose, the psychological state of the speaker, the direction of relations between the propositional content of the speech act and the state of affairs in the world, as well as the relation to the interests of the speaker.

John Austin in his work distinguishes three aspects of the speech act:

1. Locutive (speech).

2. Illocutionary (purpose), which answers the question "why?".

3. Perlocutive, which answers the question "what follows?".

The basis of this classification is a group of features, which the author himself calls "directions of differences between illocutionary forces". The speech act of request, as an inducement to action, does not always realise a perlocutive effect. The fulfilment or non-fulfilment of the action depends, on the one hand, on the personal attitudes of the addressee and argumentative functions of the speech act of request, on the other hand, which indirectly confirms the position that statements in the form of request in the classification of speech acts are directive, but occupy a transitional zone between orders, instructions, advice and recommendations.

Аннотация

Основной работой, на которой базируется теоретическая концепция лингвистической прагматики, является теория речевых актов. В современной лингвистике термин "речевой акт" понимается как минимальная единица речевой деятельности, выделяемая и изучаемая в теории речевых актов (ТРА) - учение, являющееся важнейшей составной частью лингвистической прагматики. Одним из вопросов теории речевых актов (ТРА), который привлекает внимание исследователей-лингвистов на протяжении более чем полвека, является вопрос о классификации речевых актов. Основатели ТРА с целью предметного изучения их функционирования изначально предложили ряд общих признаков для выделения различных типов речевых актов в определенные группы. В своей основной работе "How to do things with words" Джон Остин дал первую классификацию речевых актов, учитывая иллокутивную цель, психологическое состояние говорящего, направление отношений между пропозициональным содержанием речевого акта и положением дел в мире, а также отношение к интересам говорящего.

Джон Остин в своей работе выделяет три аспекта речевого акта:

1. Локутивный (речение).

2. Иллокутивный (цель), который отвечает на вопрос "зачем?".

3. Перлокутивный, отвечающий на вопрос "что следует?".

Базу этой классификации составляет группа признаков, которые сам автор называет "направлениями различий между иллокутивными силами". Речевой акт просьбы, как побуждение к действию, не всегда реализует перлокутивный эффект. Выполнение или невыполнение действия зависит, с одной стороны, от личных установок адресата и аргументативных функций речевого акта просьбы, с другой стороны, что косвенно подтверждает положение о том, что высказывания в форме просьбы в классификации

речевых актов являются директивными, однако занимают переходную зону между приказами, распоряжениями, советами и рекомендациями.

Keywords: *speech act, request, classification, English language, pragmalinguistics.*
Ключевые слова: *речевой акт, просьба, классификация, английский язык, прагмалингвистика.*

Основополагающей теоретической концепцией лингвистической прагматики является теория речевых актов. Ядро теории речевых актов (ТРА) составляют идеи, изложенные английским логиком Дж.Остином в курсе лекции, прочитанном в Гарвардском университете в 1955году и опубликованном в 1962 году под названием "How to do things with words" (на русском языке этот курс был опубликован под названием «Слово как действие»). (1, с.23). Главным новшеством Дж.Остина в описании речевых актов стало понятие иллокуции – намерение говорящего Дж.Остину принадлежит и первая классификация иллокутивных актов. Он полагал, что для этой цели нужно собрать и классифицировать глаголы, которые обозначают действия, производимые при говорении, и могут использоваться при ксплицировании силы высказывания, - иллокутивные глаголы. В основе концепции Дж.Остина лежит идея аналитической философии о том, что главной целью философского исследования является прояснение выражений обыденного языка (2). В современной лингвистике термин «речевой акт» понимается как минимальная единица речевой деятельности, выделяемая и изучаемая в теории речевых актов (ТРА)- учение, являющееся важнейшей составной частью лингвистической прагматики. Имеется три пары взаимосвязанных категорий анализа речевого акта и высказывания: локутивный акт – иллокутивная сила (или функция), перлокутивный акт – перлокутивный эффект. С момента возникновения теории речевых актов большое внимание ученых привлекали свойства глаголов, обозначающих то или иное речевое действие (1; 3; 4). Такие глаголы получили название перформативных, а перформативными были названы содержащие эти галголы высказывания. Перформативы прямо эксплицируют иллокутивную функцию высказывания и представляют в процессе коммуникации общепринятые акты, например, именования, присвоения званий и др. По Остину, перформативы – это высказывания, эквивалентные действию, поступку. Перформативы входят в контекст жизненных событий, создавая социальную, коммуникативную или межличностную ситуацию.

Перформатив – одно из центральных понятий прагматики и теории высказывания.

Перформатив характеризуется следующими чертами:

1) Перформатив обычно содержит глагол в первом лице единственного числа настоящего времени изъявительного наклонения действительного залога ("I swear"), хотя возможны и обезличенные перформативы (No smoking; Don't smoke).

2) Произнося перформатив, говорящий совершает (а не описывает или называет) действие (сравн.: "I swear" or "He swore"); следовательно перформатив, будучи действием, а не сообщением о действии, не может получить истинной оценки. Истинностное значение может иметь только пропозиция, вводимая перформативным глаголом; это отличает перформативы от таких автореферентных высказываний, как "I am talking now", выражающих необходимую истину.

3) Перформатив может быть эффективным или неэффективным, перформатив должен удовлетворять «условие успешности» (Felicity condition). Например, эффективность приказа обеспечивается тем, что он отдается лицом, наделенным ссответствующими полномочиями, выполним и имеется лицо, способное его выполнить (1).

Одним из вопросов теории речевых актов (ТРА), который привлекает внимание исследователей-лингвистов на протяжении более чем полвека является вопрос о классификации речевых актов.

Основатели ТРА с целью предметного изучения их функционирования, изначально предложили ряд общих признаков для выделения различных типов речевых актов в определенные группы. В своей основополагающей работе «How to do things with words» Джон Остин дал первую классификацию речевых актов, учитывая иллокутивную цель, психологическое состояние говорящего, направление отношений между пропозициональным содержанием речевого акта и положением дел в мире, отношение к интересам говорящего (6).

Джон Остин в своей работе выделяет три аспекта речевого акта:

1) локутивный (речение)

2) иллокутивный (цель), который отвечает на вопрос «зачем?»

3) перлокутивный, отвечающий на вопрос «что следует?»

Базу этой классификации составляет группа признаков, которые сам автор называет «направлениями различий между иллокутивными силами». На основе названных параметров Дж.Серль выделяет:

репрезентативы – речевые акты, представляющие некоторое положение дел; исполняя их, говорящий возлагает на себя ответственность за истинность сообщения (утверждения, предсказания, описания, объяснения, классификации); директивы – речевые акты, используемые говорящим для побуждения слушающего к совершению некоторого поступка (приказания, просьба, совет, инструкции)

коммиссивы – речевые акты, возлагающие на говорящего обязательств совершить некоторый поступок (обещания, клятвы, заверения, угрозы, предложения); экспрессивы – речевые акты, передающие психологическое состояние, вызванное некоторым событием (выражение благодарности, извинения, поздравления, приветствия, соболезнования); декларации – речевые акты, успешность совершения которых гарантирует установление соответствия между их пропозициональным содержанием и некоторым положением дел 9отречения, завещания, объявление войны, назначение на должность) (3. с.118). Вопрос классификации речевых актов со значением просьбы рассматривается в диссертации А.А.Романова. Автор исследует высказывания – просьбы в немецком языке,которые как и все директивные высказывания, характеризуются значением перформативности, каузирующего отношения между говорящим и адресатом. Высказывания – просьбы конструктивно могут быть эксплицитными и имплицитными. Автор уточняет, что наиболее адекватным средством выражения иллокутивного характера высказываний – просьб является стандартная эксплицитная формула типа Ich bitte Sie (или I want you to….). Высказывания-просьбы входят вместе с приказами, советами, приглашениями, рекомендациями в так называемый директивный тип, который характеризуется побуждением говорящего к совершению указанного им действия. Вместе с тем, высказывания – просьбы занимают промежуточное место между приказами, требованиями, распоряжениями, указаниями, с одной стороны, и советами, рекомендациями, приглашениями, с другой стороны (10, с.14).

В этом отношении важно замечание, которое делают Ф.Еемерен и Р.Гроотендорст. Ученые отмечают, что использование языка является и формой вербальной коммуникации, и формой социальной интеракции. С помощью своего речевого высказывания говорящий также хочет произвести более далеко идущий перлокутивный эффект на слушающего, который вызовет определенную реакцию у слушающего – возможно, ответ, выражение своего согласия или какое-либо действие. Например, говорящий, выражающий просьбу к слушающему, в принципе достигает не только того, что слушающий понимает, что к нему обращена просьба и что эта просьба влечет за собой, но также и то, что он либо выполнит, либо воздержится от выполнения определенного (вербального или невербального) акта или действия (11, с.218-219).

Таким образом, речевой акт просьбы как побуждение к действию не всегда реализует перлокутивный эффект. Выполнение или невыполнение действия зависит с одной стороны от личных установок адресата и аргументативных функций речевого акта просьбы с другой, что косвенно подтверждает положение о том, что высказывания-просьбы в классификации речевых актов являются директивными речевыми актами, однако занимают переходящую зону между приказами, распоряжениями и советами, рекомендациями.

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LINGUACULTURAL AND COGNITIVE STRUCTURE OF THE CONCEPT OF "MOOD" IN KAZAKH LEGENDS

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Abstract

The article considers Kazakh legends and stories in the aspect of the conceptosphere. On the basis of toponymic legends "Besaryk", "Okshy Ata", "legends about Korkyt" the author determined the features and cultural values of the concept of "mood", focused on understanding the role of the concept in Legends, artistic originality, visual style, and determined the individuality and diversity of semantic elements. The author noted the specifics of each concept found in Legends, analyzed the concept of "mood", which is widely used in Kazakh knowledge, as manifestations of the reality, culture, and spiritual worldview of an ethnic group formed on the basis of national cognitive structures. Judgments and conclusions are analyzed in relation to the main categories of cognitive semantics. He touched on some of the legends that were born in the Syrdarya region, and revealed the cognitive structures in the content of the word national cultural features.

Keywords: *concept, worldview, cognitive cognition, mood, legend, toponymy, anthropolinguistics, linguoculturology, national consciousness, ethnolinguistics, modeling, linguofolclortology.*

Introduction. *Currently, it is necessary to consider the main tasks of linguaculturology, which is developing as a branch of anthropolinguistics, in connection with the cognitive consciousness of national cultural features and the content of words in the language picture of the world. It is talked about the study of language and culture, linguaculturology and cognitive aspects, summarizing each national in accordance with its specific cultural and cognitive characteristics. The attitude to knowledge and concepts preserved in the minds of the people over the centuries changes, and through the facts of language, the worldview, language, mentality, and cultural values of the people are determined.*

A person learns about the world around him, fixes it with words, creates language concepts.

A.Islam explains: "the concept is a structure that expresses a centuries-old understanding of national cultural values, a compact and deeply meaningful reality that is preserved in the ethno-cultural consciousness, passed down from generation to generation of a particular nation" – (1.15).

Relevance of the study. *This is how the consciousness does that he reflects the specifics of each nationality. Legends born in the Syrdarya region have many unresolved issues related to the art and language of nation. It is our goal to open the features of its linguoculture. One of them is the conceptual cognitive structure of the word "mood" in legends. This issue includes the concept and cognitive linguistics, which leads a wide range of fields in modern linguistics, covers the worldview and cultural aspects of knowledge and experience.*

Although the linguistic and stylistic features of legends were studied, the breadth of their content knowledge, deep assimilation of national values inherent in an ethnic group, the abundance of words and proverbs related to religion, and words related to the history and culture of the nation were the basis for writing this work.

Therefore, the study of the language of truth, illustrated by the knowledge of folk legends, is one of the most pressing problems in cognitive linguistics. In addition, a separate consideration of the linguistic and cultural aspects of the word "mood" in the cognitive structure of the concepts of legends and stories, the disclosure of the content indicates the relevance of the work and determines the novelty of the topic.

Methodology. *To identify the factors contributing to the development of the Kazakh language and Kazakh linguistics, and to consider the problems in a systematic way. Differentiation in relation to language policy and language strategy based on their sources. Methods of interpretation, intuitive assessment, and linguistic analysis were used.*

Discussion and results. *Today, the generalization and application of all spiritual experience for the benefit of the country is a trend on the horizon of national consciousness and knowledge. The foundations of spirituality in the past era, the historical roots of national knowledge and existence are studied in depth. In this regard, the cognitive structure of the concept of "mood" in the Legends of*

historical, toponymic, heroism, courage, born in the Syrdarya region should be considered as an inexhaustible network of spiritual development, which has passed from time immemorial to the present.

In our opinion, the effective solution of the program "Madeni Mura" should also be considered in the context of language and culture in connection with the national cultural space.

It is important to identify the cognitive aspects of modern scientific and methodological significance, such as the formation of new, topical issues of national identity, content, modernization, and so on.

The Syrdarya region has long been rich in folklore heritage. Let's give an example of the concept of "mood", which occupies an important place in Kazakh knowledge. In Kazakh, there is a saying: "Be Afraid Of The Blind", that is, there are many cognitive and semantic layers of mood. This is the inner thought of a person, his feelings, the source of the soul, to be disappointed, to be offended, etc. Let's turn to examples to prove our point. In the Syrdarya region, there are many poetic and picturesque names of places and waters. One of these toponymic legends – "Besaryk" – is mentioned in several legends throughout the country. This is a legend associated with a well-known event, which is, based on historical reality. In ancient times, there was a daughter named Bayan of the head of Karakalpak tribe. She was so ***upset*** *that her father didn't give the land belonged to her. In the course of a year, she would go to his father and* ***sincerely*** *ask him the land. She asked her father about the flowing river and the beautiful nature of the land.*

He took the five flowing rivers with his father's permission and divided them into two, giving three to nogais and two to saigas (the name of the konyrat tribe). Since then, the name of the land has been called "Besaryk". The conceptual field of the concept of "mood" in the given example is formed by the concepts of mood, sincere, grateful attention. A set of concepts about a person's mood is presented in the form of a whole concept. In the legend, one national culture has created a system of concepts inherent in the type of knowledge.

The meanings of the words mood, attention, sincere, grateful mood, etc. in the text can be grouped within the semantic framework of the name "mood". Or one of the key words of the concept of "mood" is "attention", that is, psychological feeling. The noun "mood" means the subject matter, and is actualized with expressions "to be angry", "to be satisfied". In semantics "from the heart" there is a subject matter.

In addition, the movements that are characteristic of a person's mood are also contextualized with their specificity. In some stable phrases and proverbs, the semantic range of the word "mood" is very wide. Proverbs and sayings are often said in Kazakh: "eye – mood mirror, mood – nest", "out of sight out of mind", etc.

Therefore, all the activities characteristic of a person showed "mood" and reflects the versatility of the concept. There are many phraseological units in the Kazakh language according to "mood". For example, he was disappointed, he was upset, he was pleased, and he was so happy, etc. In this regard, according to scientists, it is clear that the main issue of cognitive linguistics is a problem of language and cognition. "Although cognitive linguistics is formed from structural linguistics by "arguing words" and "competing knowledge", it does not conflict with the principles of linguistic position, but uses it for its own purposes," – says linguist V.V.Maslova (2.12).

In this regard, the process that we consider in the continuity of nation and language, nation and culture is gaining a new quality in the study of the nature of language. In particular, one of the sources of spiritual information describing the historical and ethnic process are legends that were born in the Syrdarya region and spread to the people. Cognitive activity of a person develops through the recognition of certain objects by distinguishing them from others.

S.Kaskabassov in his work "Kazakh folk prose": "toponymic Legends of Kazakhs are of two types. One of them is related to a historical event, namely the wars against the Kalmyks and Kokans, and describes the place where the battle took place and tells the story," – he says (3.145).

Among the Legends born in the Syrdarya region, which we are talking about, there are such legends, like the Legend "Okshy Ata". It tells about the time of the struggle between the Kazakhs and the Kalmyks. The concept of "mood" is often found throughout the legend. In the Oghuz era, the Kalmyks dominated, conquered the country, seized food, and took their daughters as brides. People's frustration is falling into a crisis. In this country, a guy named Kogentup is engaged in agriculture. Kogentup made an arrow out of barley bristles and shot the Kalmyk Khan, who wanted to marry khan's daughter. There would be a lot of guys in the country who said that they killed the Khan. Then Kogentup said, "Open his heart, if there is barley, he died from my Arrow". The Khan opened his heart, and the arrow of Kogentup came out of the barley. Then the people nicknamed Kogentup as Okshy. Now there is a mausoleum of

Okshy Ata in Shieli District of Kyzylorda region. The basis of the story told in the legend is historical reality.

M.Gabdullin: "A significant branch of the works of the Kazakh people, which has been providing reality from life, says the legends," – (4.141). In this case, cognitive linguistics in the language of Legends and ethnolinguistics, which consider the nature of language in close connection with national thinking, national cognition, and linguistic and cultural differentiation are necessary.

The main conceptual system of the legends about "Okshy Ata", "Besaryk" originated from Karmakshy, Shirkeily areas of Syrdarya region is concept "mood". Therefore, "militant", "heroism", "protection of the country" is the main form of legendary. The support (concept) to help you understand legacy is a set of cognitive concepts of the population. This national concept system that supports the structure of the legend, the structure of the text continues and continues with the forms of folklore.

Concepts recognized by language can be considered as an indicator of the worldview of the people who own this language. In the Legend of "Okshy Ata", the following concepts were defined: "to receive attention" or "not disappointed", "to care", "hurt", "disappointed", which were raised to the level of a special concept in the knowledge of the Kazakh people as a concept that cannot be accurately translated into another language. By studying the cognitive and semantic aspects of Kazakh legends, it is possible to know the world of cultural values and cognitive features of our people.

Such toponymic legends as "Okshy Ata", "Besaryk", "Bes Tam" are folklore art. This is the first time that the Earth has been given a single name by telling a story that has happened in its lifetime. This fact can give rise to a toponymic legend.

As you know, language, culture, and civilization live in continuity with each other. The units of any language give an idea of the worldview of this nation, its spiritual field. Language is the spiritual and cultural wealth of the people, it is reflected in the folklore works of the people and gives a lot of information.

According to the scientist E.Zhanpeisov, "Ethnolinguistics is a general historical category in its nature. This is because it explores not only the present, but often the past of an ethnic group. And the past of an ethnic group is more clearly expressed in its ethno-cultural vocabulary," – he says (6.4).

According to the scientist, it is proven in science that ethno-cultural vocabulary in our language explores the past of our nation and reveals its identity. In particular, the history, way of life, and spiritual wealth of our nation are clearly reflected in the words.

National knowledge and taste are revealed through the recognition of the complex, inexhaustible treasure of the Kazakh language in Legends and stories of the concept of "mood", which we consider.

*In one of the legends about Korkyt, his mother carried Korkyt in her womb for three years. For three days and three nights before the birth of Korkyt, there was an unimaginable **darkness.** A fierce black storm struck, and the people of the country were very **afraid** and **disappointed.** There was **dark** above Karatau mountain. Therefore, this neighborhood was called "Karaspan". It turns out that the name of the child was "Korkyt" because he was born on **a terrible** day when the bright sun turned into a dark night (7.57).*

From the quoted passage, the word "mood" can be grouped with the words "fear", "strong fear", "fall", "disappointment". The conceptual keyword is "sadness", that is, the frustration of the people. The subject meaning of adjectives is actualized by verbs. The mental unity of "mood" is reflected in several motifs in the text. First, the black storm will frighten the country, second, the darkness will overwhelm Syrdarya region, and third, the people will perceive the birth of a special child with fear.

The individual image of the legendary people opens up the possibility of defining the concept of "mood" from a linguistic point of view.

The semantics of the word "anxiety-sadness" are the following: the arrival of sadness, the fog of the day, the reflection of the mountain, the transition to disappointment, the black cloud over the head, the spitting of blood, etc.

These phrases reflect human cognition. It symbolizes the mood of the people, such as grief for the people, the fear of one evil. The words mood, sadness is synonymous and can combine with other words.

In her research, B.I.Nurdauletova concludes: "cognitive linguistics faces three main problems: about the nature of language knowledge, about its assimilation, and about the use of language knowledge" – (8.14).

We would like to note that the basis and main position of our research is formed in accordance with this direction. In this regard, it is important to study the language of artistic texts in such a broad channel and integrity, in which knowledge and understanding based on national interests are reflected through individual language tools.

Cognitive structure modeling is a method of research in which language analysis implements immersion in the artistic world of a legend. This is evidenced by the opinion of the scientist Zh.Mankeeva: "these universal cognitive patterns (models) inherent in a person as a whole are the product of the complex cognitive activity of language, which is born in the "deep structures" of language. Cognitive models, meanwhile, show an intermediate image between human thought and consciousness," – says (6.274). When we recall this opinion of the scientist, the word "mood", which represents an intermediate image between the thought and consciousness of the people who gave rise to legends born in the Syrdarya region, means that the cognitive model is the result of cognitive activity.

Conclusion. *Cognitive semantics and pragmatics, the conditions for the formation of laws, the relationship of cultural realities reflected in language symbols, and the shaking of human consciousness in the spiritual modernization are the main principles that are emerging in the development and directions of Kazakh linguistics. Legends born in the Syrdarya region are grouped into historical, toponymic, heroic, Kui Legends, legends born in connection with love poems, legends born in connection with heroic feat, etc. A complete review of all the Legends of one region will not bring much results. It does not exceed a generalized review. Therefore, we tried to give an example of only some of them and reveal the problems related to the topic.*

A common problem in cognitive linguistics is the "mind", the relationship of language concepts, the role of language in the assimilation and cognition of the world, the development of a system of concepts, the development of new scientific linguistics measures for the dissemination of linguistic and cultural knowledge. In conclusion, it is necessary to conduct a thorough study to reveal the basics of cognitive structures in Kazakh legends.

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Technical sciences

SYMBOLIZATION OF DIGITAL CARTOGRAPHIC INFORMATION AND PREPARATION OF DIGITAL ELECTRONIC MAPS

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Abstract

The main goal of the article is the creation of new 1:10000 digital electronic maps that allow obtaining more information about the Garadagh region and the territory. For this purpose, 1:10000 scale topographic maps-tablets representing only Lokbatan settlement of that region were obtained and digital electronic maps were created.

Keywords: *digital electronic map, GIS, topographic map, thematic layers, database.*

Introduction. Digital electronic maps created in modern times have many advantages over paper maps. So, on such maps, it is possible to promptly record the changes occurring in the area and update the maps. It is for this reason that such maps are required to be used in almost all areas of our society in our modern times.

The process of creating electronic maps includes the following main stages [1,3]:

1) automatic conversion of original cartographic data into digital form;

2) symbolization of digital cartographic data and automated drawing of electronic maps;

3) development of a special database management system for working with electronic maps.

The area of Lokbatan settlement of Baku city was taken as the research area for the creation and updating of maps. Lokbatan is included in Garadagh district. The fact that the Garadagh region is a large region, the presence of various infrastructures along with residential facilities in it shows the need to prepare modern electronic maps of those areas (picture 1).

The obtained maps were removed from the scanner and brought to the same coordinates as the previous maps. A number of difficulties have appeared in the process of recognizing and deciphering maps. In order to overcome those difficulties, conventional symbols and classification process available for topographic maps were used [2].

Based on the 1: 10000 scale maps, the following layers were obtained (Figure 2). Each layer itself is divided into several sub-layers.

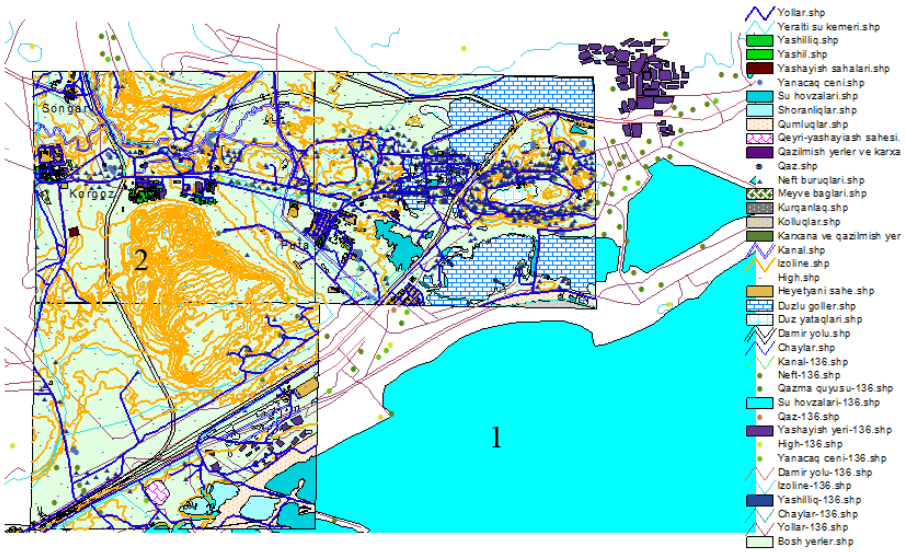


Figure 1. Layers obtained on the basis of 1:100000 scale maps of Garadagh region and 1:10000 scale layers superimposed: 1- 1:100000 scale, 2 – layers obtained on the basis of 1:10000 scale maps (only a part of the maps are presented in the picture)

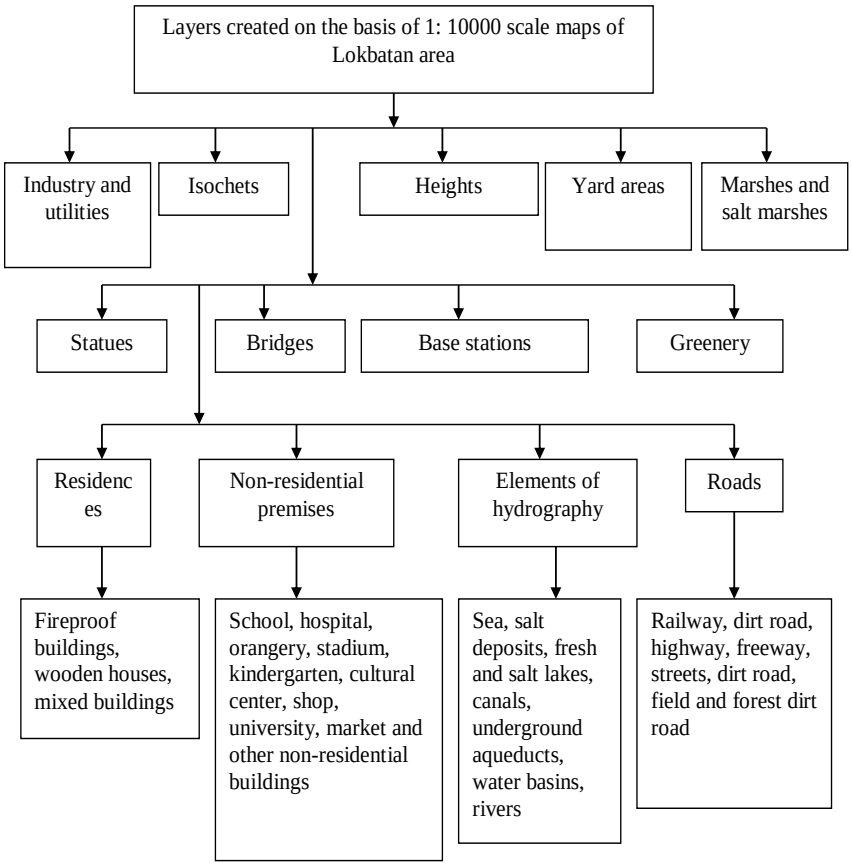


Figure 2. Description of the thematic layers created on the basis of 1:10000 scale topographic maps and the sub-layers included in some of them

Below is an example of one of those layers - a non-habitable place and a legend related to it (Figure 3).

The name of buildings, covering material, school number, floors of buildings, their address, phone numbers are included as attributive information in the database (table of attributes) of the layer reflecting "non-residential" places [4,6]. The figure below shows only a part of the table reflecting the information placed in the database (VB) of Arc GIS (figure 4).

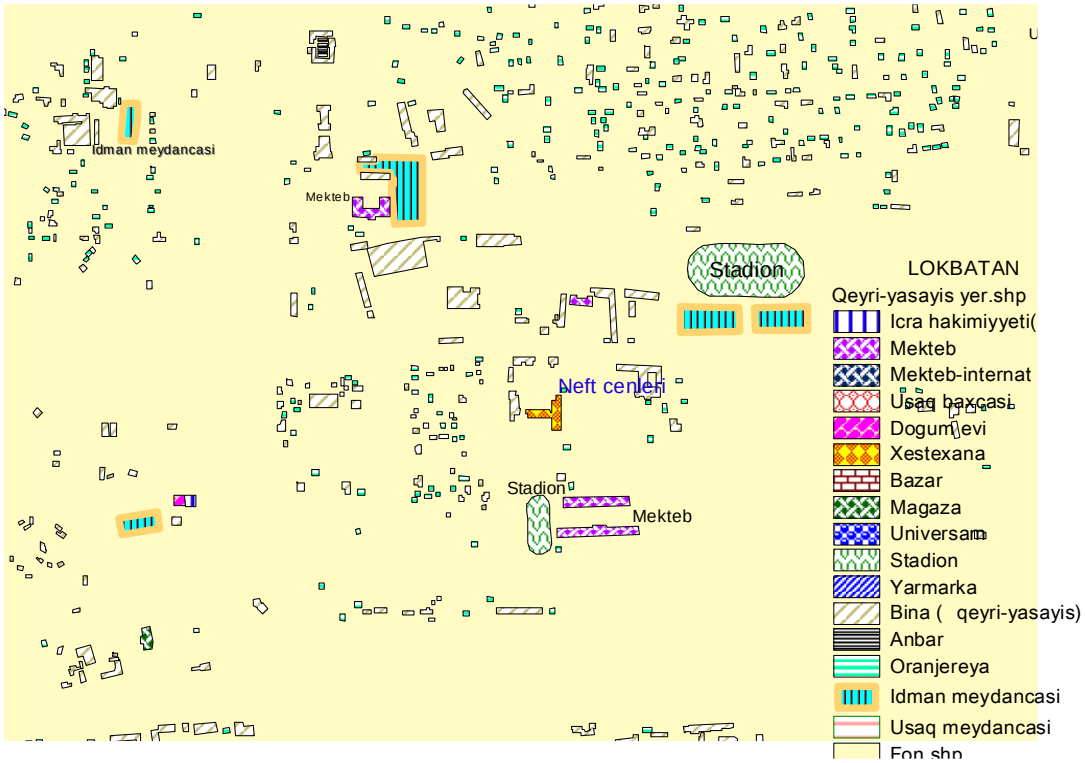
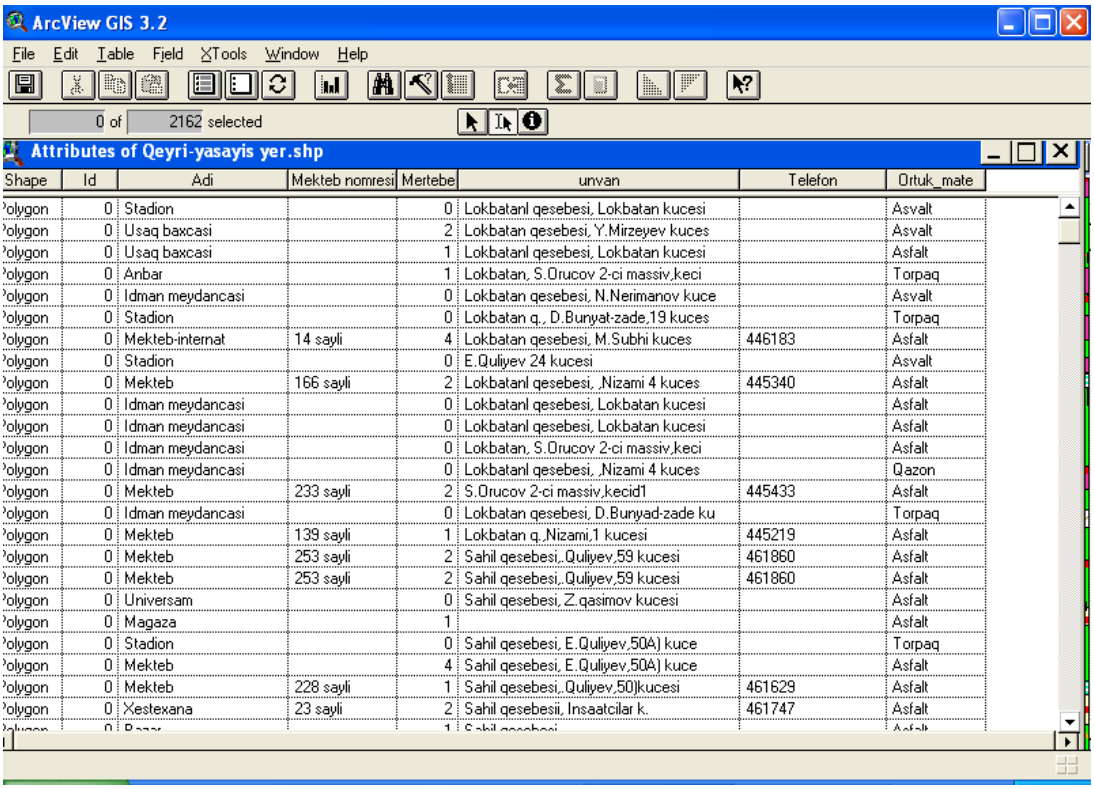


Figure 3. Description of the "Non-habitable" layer and its legend (only a small part of the area is depicted in the picture)



Shape	Id	Adi	Mekteb nomresi	Mertebe	unvan	Telefon	Ortuk_mate
olygon	0	Stadion		0	Lokbatanl qesebesi, Lokbatan kucesi		Asvalt
olygon	0	Usaq baxcasi		2	Lokbatan qesebesi, Y.Mirzeyev kuces		Asvalt
olygon	0	Usaq baxcasi		1	Lokbatanl qesebesi, Lokbatan kucesi		Asfalt
olygon	0	Anbar		1	Lokbatan, S.Orucov 2-ci massiv,keci		Torpaq
olygon	0	Idman meydancasi		0	Lokbatan qesebesi, N.Nerimanov kuce		Asvalt
olygon	0	Stadion		0	Lokbatan q., D.Bunyat-zade,19 kuces		Torpaq
olygon	0	Mekteb-internat	14 sayli	4	Lokbatan qesebesi, M.Subhi kuces	446183	Asfalt
olygon	0	Stadion		0	E.Quliyev 24 kucesi		Asvalt
olygon	0	Mekteb	166 sayli	2	Lokbatanl qesebesi, ,Nizami 4 kuces	445340	Asfalt
olygon	0	Idman meydancasi		0	Lokbatanl qesebesi, Lokbatan kucesi		Asfalt
olygon	0	Idman meydancasi		0	Lokbatanl qesebesi, Lokbatan kucesi		Asfalt
olygon	0	Idman meydancasi		0	Lokbatan, S.Orucov 2-ci massiv,keci		Asfalt
olygon	0	Idman meydancasi		0	Lokbatanl qesebesi, ,Nizami 4 kuces		Qazon
olygon	0	Mekteb	233 sayli	2	S.Orucov 2-ci massiv,kecid1	445433	Asfalt
olygon	0	Idman meydancasi		0	Lokbatan qesebesi, D.Bunyad-zade ku		Torpaq
olygon	0	Mekteb	139 sayli	1	Lokbatan q.,Nizami,1 kucesi	445219	Asfalt
olygon	0	Mekteb	253 sayli	2	Sahil qesebesi, Quliyev,59 kucesi	461860	Asfalt
olygon	0	Mekteb	253 sayli	2	Sahil qesebesi, Quliyev,59 kucesi	461860	Asfalt
olygon	0	Universam		0	Sahil qesebesi, Z.qasimov kucesi		Asfalt
olygon	0	Magaza		1			Asfalt
olygon	0	Stadion		0	Sahil qesebesi, E.Quliyev,50A) kuce		Torpaq
olygon	0	Mekteb		4	Sahil qesebesi, E.Quliyev,50A) kuce		Asfalt
olygon	0	Mekteb	228 sayli	1	Sahil qesebesi, Quliyev,50)kucesi	461629	Asfalt
olygon	0	Xestexana	23 sayli	2	Sahil qesebesii, Insaatcilar k.	461747	Asfalt

Figure 4. Information collected in the database of Arc GIS for Lokbatan settlement

The following attributive information is included in the attributive table of "Residential places", "Roads", "Isolines", "Industry and communal services" layers (Figure 5):

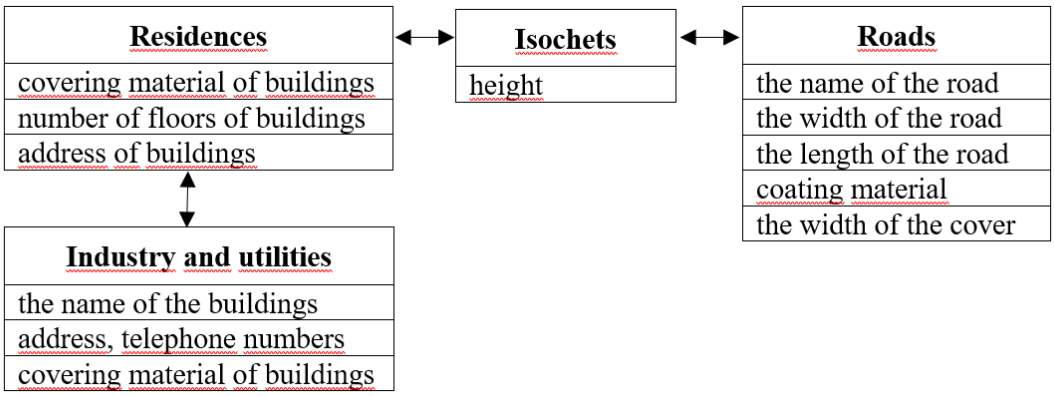


Figure 5. Layers included in the GIS relational database - attribute table

Various amounts of information are also included in other layers.

In the following pictures, maps created on the basis of 1:10000 scale topographical maps of Lokbatan settlement are presented, consisting of different thematic layers - roads and residential areas, non-residential areas, etc. (photo 6 and photo 7) [5].

Figure 6. Electronic map depicting the roads in Lokbatan area

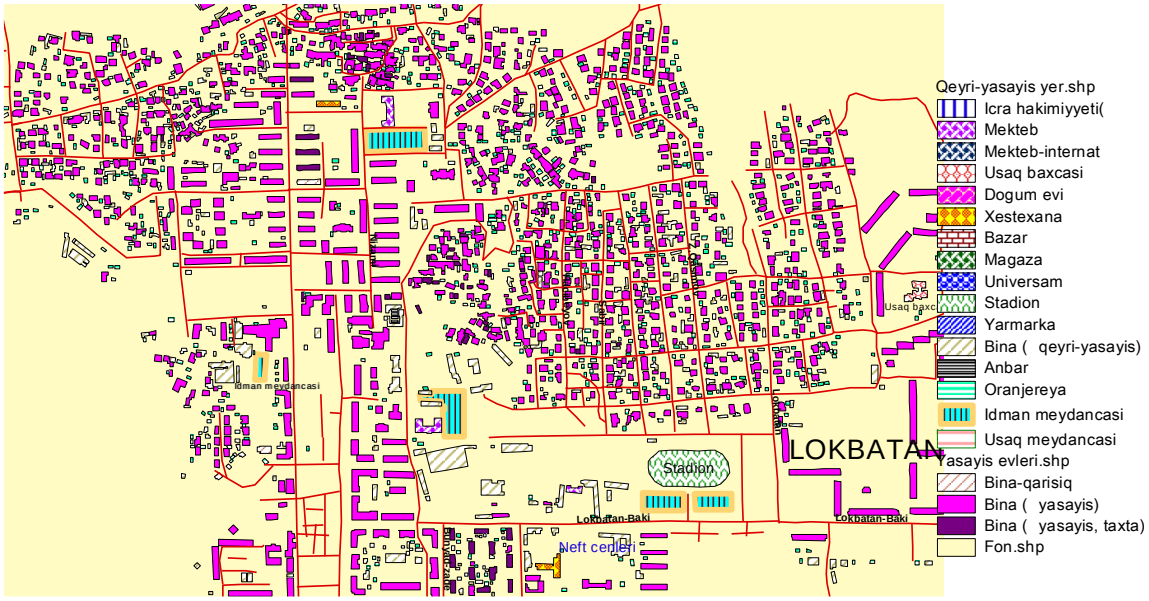


Figure 7. Electronic map depicting residential and non-residential areas and roads in Lokbatan area

During the creation of the electronic map, together with topographical maps, space images and GPS measurements were also used. An electronic map is created based on topographic maps. On the basis of GPS measurements and space images, the process of updating maps is carried out [4].

The result. 1:100000, 1:10000 scale topographic maps, which are input cartographic materials, were obtained, georeferencing process was carried out on them, they were brought to the same geographical connection and connected according to the selected reference points. After that, vectorization was carried out using the ArcGIS program on the 1:100000 and 1:10000 scale topographic maps representing the Garadagh region, and vector models of the maps were created;

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ANALYSIS OF THE ACCURACY OF DETERMINING THE COORDINATES OF THE CHARACTERISTIC POINTS OF THE BOUNDARIES OF LAND AREAS BY THE CARTOMETRIC METHOD

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Abstract

The article shows the possibilities of using the cartometric method when determining the coordinates of the characteristic points of the borders of real estate objects in cadastral and land organization works for different categories of land plots. The results of the analysis of the correctness of determining the coordinates of the characteristic points when determining the position of the boundaries of land plots by the cartometric method are presented. As a result of this method, it was determined that it could not be used to determine the coordinates of the characteristic points of the borders of a number of real estate objects assigned to land: settlements, agricultural lands and individual auxiliary farms, horticulture, individual garage or apartment construction. At present, the accuracy of the data on the characteristic points of the borders on the scale of cadastral plans, the records for the permitted use of various land plots and land plots does not meet the modern requirements of the existing normative documents. Recommendations are given on the justification of the selection of the scale of planning and cartographic materials, cadastral registration of land is carried out with their use.

Keywords: *land registration, real estate object, cartometric method, characteristic point, coordinates.*

Introduction. *State Land Cadastre means the collection, storage and use of spatial data of real estate objects for property management using geodetic methods. Cadastral work is carried out to obtain new information or to clarify information about registered real estate (land plots, buildings, facilities and other objects). These include the boundaries of land plots and other immovable properties, as well as buildings and structures located on them. The purpose of geodesy in the study of cadastral works is to determine the coordinates of the characteristic points (turning points of the plot) of the property and its territory [3].*

Cadastral plans are drawn up on the basis of topography or without using it as an independent information product.

The real estate object represents a closed area in the form of land cadastre (for which a cadastral plan is drawn up), its characteristic border point is considered a point of change (turning point) in the description of the border. The spatial position of characteristic points is defined by their rectangular coordinates.

Known methods are used to determine the plane rectangular coordinates of the characteristic points of the boundaries of land plots: satellite, geodetic, photogrammetric, analytical, cartometric, as well as their combination (combination method). For the application of these methods, the points of the state geodetic network (SGN) and the special purpose geodetic network - the reference border network (RBN) are taken as the initial basis [2].

The accuracy of the coordinates of the characteristic points is evaluated by the mean square error (rms) value of the closest points of the DSH or ISS. The characteristic accuracy of topographic plans and maps is the root mean square error of the position of the contour point on the plan. If the boundaries of the contour are clear enough, the value of this error is taken as 0.4 mm in the plan. For fuzzy contours (agriculture, forest land, swamps) with a degree of uncertainty in terrain recognition, the corresponding error in the plan can be up to 1.25 mm.

As shown in the current research experience, the most commonly used methods for creating a coordinate image of the contour boundaries of the territory are geodetic and satellite geodetic searches, as well as cartometric methods [1,5].

Geodetic methods include determining the coordinates of the characteristic (turning) points of the borders of the territories in the field, which requires certain costs and is quite a laborious task, using geodetic tools and appropriate processing technologies.

The coordinate description of land areas can be carried out using the cartometric method, that is, the coordinates are obtained graphically according to the available cartographic materials. Such data are less accurate than data obtained from field measurements, but they can be useful in some tasks related to determining the coordinates of the contours of agriculture, forest, water and other natural objects, at the same time, the boundaries of which may change over time, and especially in orthophotoplans.

The error in the position of the characteristic points of the boundaries of the plot of land and the characteristic points of the building, installation or structure on the plot is the sum of the errors of individual movements and is determined by the value of the mean square error:

$$M_t^2 = \sqrt{M_c^2 + M_n^2}\ . \qquad (1)$$

Here, M_t - is the mean square error of the boundary mark or the ratio of the contour (characteristic) point to the initial geodetic base of the nearby area;

M_c - is the mean square error of the ratio of the border drawing grid of the area to the reference border grid of the nearby area;

M_n - is the mean square error of the position of the boundary mark or the ratio of the boundary of the characteristic points to the boundary drawing grid of the nearby area.

The value of the mean square error and the formulas used to calculate it depend on the methods of determining the coordinates of the characteristic points. In modern conditions, the most widespread method of field measurements is polar measurements and measurements made with the help of electronic tachyometers, following the measurement instructions when conducting cadastral surveys, which fully ensures the necessary accuracy for determining the coordinates of characteristic points relative to the points of the SSR and SSR. The magnitude of errors in determining the characteristic point obtained from direct observations in the field depends on the errors of angular and linear measurements and is determined by the following formula:

$$m_C = \sqrt{m_S^2 + \left(\frac{m_\beta}{\rho}\right)^2 \cdot S^2}\ . \qquad (2)$$

Here, m_β - is the root mean square error of the angle measurement; m_S - is the mean square error of the linear measurement; S is the length of the line.

When using the mean square error of the cartometric method, the establishment of coordinates according to the plan depends on the errors of the actual measurement movements and the position error of the characteristic points on the plan and is determined by the following formula:

$$m_{x,y} = \sqrt{m_{öl ç}^2 + m_{mövqe}^2} \qquad (3)$$

The measurement error (by extracting the coordinates of the characteristic point) depends on the accuracy of the coordinate grid construction and the accuracy of the measurement of the two segments - the coordinate increment relative to the row. The accuracy of the construction of the coordinate grid is characterized by measuring the diagonals of its squares; the length of the diagonals must be equal to 14.14 cm or not more than Δ = ±0.2 mm. Then it is likely that if P = 0.95, Δ = 2 m, the grid construction error will be $m_C = \frac{0,2}{2} = 0,1$ mm. Using a cartographic method with a scale ruler, the measurement error will be equal to $m_{x,y} = \sqrt{0,1^2\,mm + 2(0,1mm)^2} = 0,17mm.$

The accuracy characteristic of topographic plans and maps is the root mean square error of the position of the contour point. The position error for clear contours is 0.4 mm in the plan. In the graphic method, we will assume the error of the position of the characteristic points for calculations m = 0.4 mm. Then the error of determining the coordinates of the characteristic point on the plan will be equal to $m_t = \sqrt{0,17^2 + 0,4^2} = 0,43$ (0.00043 m).

Taking into account the above justifications, to ensure the necessary accuracy using the cartometric method, the values of the mean square errors in determining the rectangular coordinates of the characteristic points are taken at the scale of the plan m_t = 0.0005 m.

Table 1 shows the mean square errors of the state of the characteristic points for different scales obtained according to the results of the research and recommended in the normative document. As can be seen from the results of the research, the values recommended in the normative document are correct.

It is clear from the calculations that the geodesy is related to the characteristic points of the border, which coincide with clear contour points determined relative to the grid points.

Table 1

Values of the mean square errors of the position of the characteristic points for different scales

Scale	The accuracy of determining the condition of characteristic points of land boundaries (m_t, m) obtained from studies of the accuracy of cadastral plans	The accuracy of determining the characteristic points of land boundaries (m_t = 0.0005 m on the plan scale) in accordance with normative documents
1:25000	10,8	12,5
1:10000	4,3	5
1:5000	2,1	2,5
1:2000	0,80	1,0
1:1000	0,43	0,5
1:500	0,21	0,25

The existing normative documents do not indicate to which category the lands belong and whether the cartometric method can be used from the land plots. Therefore, it is possible to justify the use of the cartometric method in terms of the requirements for the accuracy of the location of the characteristic border points of different land categories and the permissible use of the land [3].

According to the requirements, the characteristic points of the plots of land assigned to the lands of residential areas should be determined with an error of m_t = 0.1 m. Agricultural and private summer house, gardening, individual garage or apartment building, etc. The characteristic points of the boundaries of the land plots intended for m_t = 0.2 m should be determined. As shown in the results of our research shown in the table, it is impossible to provide such accuracy by cartometric method.

The accuracy of determining the position of characteristic points for industrial, energy, transport, communication, television, space activities, defense lands, security and other special purpose lands is m_t = 0.5 m. In studies, it is possible to provide cartometric method only according to 1:1000 and larger scale plans (table 1). Experience shows that the cadastral accounting of such lands is carried out on 1:5000–1:2000 scale plans, which should not be used to determine coordinates in the cartometric method.

Cadastre records are carried out on cartographic materials with a scale of 1:10,000–1:25,000 for land areas designated for agricultural land and specially protected areas, and the required accuracy of the position of characteristic points is 2.5 m, for large-scale plans of 1:5,000 and larger, cartometric method can be used to determine coordinates. For forest, water, reserve lands (cadastral plans scale 1:25000), the mean square error of the position of characteristic points m_t=5.0 m, coordinates 1:10000 and larger scale plans can be determined by cartometric method.

Often, the problems that arise during the registration of real estate objects are related to non-compliance with the requirements of regulatory documents for the characteristic border points set between different categories of land. In this case, the coordinates of the characteristic points should be determined in accordance with the requirements of that soil category, which has a higher accuracy [5].

For example, the position of the characteristic points of the boundary between forest fund lands (mt = 5.0 m) and industrial, energy, transport lands (mt = 0.5 m), areas where accuracy requirements differ by 10 times, should be determined more precisely with the requirements for industrial lands [2].

If the coordinate measurements were made according to the digital plan, then the error in determining the coordinates will be equal to m = 0.15 mm, which means that the digital plans were drawn up based on it. Increasing the scale of a digital plan on a computer does not increase the accuracy of determining coordinates, since the accuracy of obtaining coordinates is determined by the accuracy of the scale of the base plan. It is necessary to use a scale ruler and meters to determine the coordinates of characteristic points on paper (plans, maps) using the cartometric method. It is unacceptable to use other measuring instruments that do not provide the necessary accuracy.

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METHODS FOR CONSTRUCTING CALCULATION DIAGRAMS FOR WATER SUPPLY AND DISTRIBUTION SYSTEMS

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МЕТОДЫ ПОСТРОЕНИЯ РАСЧЁТНЫХ СХЕМ СИСТЕМ ПОДАЧИ И РАСПРЕДЕЛЕНИЯ ВОДЫ

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Abstract

The article presents methods for implementing methods for modeling consumption processes of the target product (heat supply, water supply and gas supply), models of water withdrawal flow in nodes obtained on the basis of reliable withdrawal values and collected from the results of many years of statistical processing of this data for pipeline engineering networks. Based on the results obtained in the work, the convergence of the results obtained with the results of simulation modeling of utility networks has been proven.

Аннотация

В статьи приведены способы реализации методов моделирования процессов потребления целевого продукта (теплоснабжение, водоснабжение и газоснабжение), модели потока отбора воды в узлах полученных на основе достоверных значений отборов и собранных в по результатам много летных статистических обработок этих данных для трубопроводных инженерных сетей. На основе полученной в работе результатов, доказана сходимость полученных результатов с результатами имитационного моделирования инженерных сетей.

Keywords: *water supply, water distribution, water consumption, hydraulic resistance.*

Ключевые слова: *водоснабжения, распределения воды, водопотреблении, гидравлического сопротивления.*

Введение

Обоснованные решения о развитии систем водоснабжения могут быть получены только на базе обширных и достоверных данных о техническом состоянии отдельных элементов этих систем и параметрах режимов их работы, т.е. на данных предпроектных изысканий. Однако во многих случаях недостаточно использовать только имеющуюся в эксплуатационных организациях документацию, характеризующую параметры отдельных элементов и оборудования. Это связана с тем, что в процессе эксплуатации происходит непрерывное и закономерное изменение технических параметров сооружения, а фактические режимы работы систем подачи и распределения воды (ПРВ) значительно отличаются от расчетных, регламентированных ранее разработанными проектами.

Методы

Сбор информации о фактическом состоянии систем ПРВ представляет достаточно сложную техническую задачу, решение которой не всегда возможно силами проектных организаций. В тоже время работы, выполненные некоторыми организациями, свидетельствуют о том, что за счет получения обширной информации о системе ПРВ возможно получение значительного экономического эффекта и улучшение обеспечения потребителей. Так АКХ им. К.Д. Памфилова разработан комплекс методических приемов, при выполнении которого решения по управлению развитием и реконструкцией систем ПРВ

подготавливаются на базе специальных обследований систем ПРВ и эквивалентных расчетных схем.

Первый этап построения эквивалентных расчетных схем (моделей), которые по основным параметрам (давление в узлах сети, напор на насосных станциях, расход воды по водоводам и наиболее важным линиям сети, гидравлическое сопротивления участков трубопроводов) с достаточной точностью соответствуют реальным условиям, состоит в определении величин водопотребления у различных абонентов, в анализе полной карты водопроводной сети и ее упрощении. Трудности упрощения полной схемы сети связаны с тем, что гидравлический расчет сложных кольцевых сетей, даже при использовании современной вычислительной техники, является непростой задачей. Практически, число колец в сетях, которые могут быть рассчитаны с применением широко распространенных ЭВМ, не превышает 200-300, тогда как реальные сети крупных городов могут насчитывать 1500-2000 колец. Поэтому рекомендуется оставлять в расчетной схеме лишь основные магистральные линии с наибольшей нагрузкой, исключая практически всю разводящую сеть и тупиковые линии. Во многих случаях число элементов расчетной схемы сокращают за счет объединения нескольких линий сети в один элемент схемы с эквивалентным гидравлическим сопротивлением.

Данные о среднем водопотреблении в системе ПРВ получают по материалам абонентских отделов или контрольных замеров. При этом требуется особая тщательность, так как из-за несовершенства приборов для учета количества потребляемой воды, данные о водопотреблении, не обладают высокой точностью. Рекомендуется экспериментально определять расходы воды на насосных станциях и у наиболее крупных потребителей (с расходами более 1-2 % общего водопотребления).

Данные о водопотреблении систематизируется, и наносятся на расчетную схему в виде узловых отборов. Одним из важнейших этапов работ по построению эквивалентной модели системы ПРВ является проведение натурных обследований, определение фактических гидравлических сопротивление действующих трубопроводов и расходно-напорных характеристик насосных агрегатов.

Материалы манометрической съемки в характерные периоды относительно стабильного водопотребления (с 11 до 15 ч и с 1 до 5 ч в будние дни) является основой для оценки эквивалентности расчетной схемы системы ПРВ реальным условиям эксплуатации. Манометрическая съемка, т. е. измерение напоров, производиться в достаточна большом количестве узлов (основных пересечений магистралей), число которых должно быть не менее 70% общего число узлов сети. Для больших сетей измерения проводятся в течение нескольких дней, при этом стабильность режимов водопотребления, должно быть подтверждена данными диспетчерской службы, которая должна предотвращать резкое изменение режимов работы основных сооружений (насосных станций, резервуаров и т.п.) в период проведения манометрической съемки.

Данные манометрической съемки являются основной для построения движения воды. Уже предварительный анализ данных манометрической съемки позволяет выявить участки сети с аномально, высокими потерями напора (из-за прикрытых задвижек, засоров, промерзания и т.п.), а устранение этих аномалий приводит к улучшению водоснабжения некоторых локальных зон водопроводной сети.

Наиболее важным видом натурных испытаний являются работы по определению фактических гидравлических сопротивлений трубопроводов. Известно, что в результате коррозии и обрастания гидравлических условия работы длительно эксплуатируемых трубопроводов могут значительно отличаться от условий новых труб. Кроме того, некачественное строительство трубопроводов также приводит к увеличению гидравлических сопротивлений. Картина обрастания внутренней поверхности трубопроводов может быть проанализирована путем осмотра, но получение количественных характеристик возможно только путем экспериментальных исследований. Наиболее достоверным и практически доступном методом таких исследований является определение гидравлических сопротивлений трубопроводов по данным измерения напорными трубками скоростей движения воды в различных точках сечения, в том числе на оси трубы.

В результате проведения ряд исследований были получены зависимости для вычисления значений коэффициентов гидравлического сопротивления по данным об измеренных скоростях. Указанные исследования являются наиболее трудоемким и не могут быть выполнены на всех участках сети. Тем не менее рекомендуется охватить измерениями участки трубопроводов из

различных материалов, различных лет постройки, различных диаметров с тем, чтобы достаточно обоснованно экстраполировать результаты ограниченного числа измерений на всю сеть.

Применяется также и другие методы измерения гидравлических сопротивлений, которые основаны на определение разности давлений в начальных и концевых участках трубопроводов, расходы воды по которым определяются с помощью водосчетчиков.

Результаты

При натурных обследованиях систем ПРВ рекомендуется определять и расходно-напорные характеристики насосных агрегатов, так как в процессе эксплуатации из-за износа оборудования эти характеристики достаточно сильно отличаются от паспортных данных. Следует отметить, что именно этап натурных обследований представляет наибольшую сложность для проектных организаций, но только обязательное выполнение работ этого этапа силами специализированных изыскательских подразделений проектных институтов, наладочных организаций или эксплуатационных служб может гарантировать получение достаточного объема исходной информации об условиях работы системы ПРВ. Отсутствие этой информации приводить к тому что, что принятое решение о развитии системы не будет соответствовать фактическому положению и не приведет к существенному улучшению водообеспечения потребителей, не обеспечит возможности подключения к системе новых абонентов и нормальной работы системы на весь принятый расчетный срок действия проекта. Экспериментально определенные коэффициенты гидравлического сопротивления трубопроводов системы ПРВ дают возможность вычислить поправочные коэффициенты к таблицам значений этих сопротивлений. Однако автоматическая экстраполяция таких данных на все элементы расчетной схемы возможна, так как даже для труб одного и того же года укладки и изготовленных из одного и того же материала фактически коэффициенты гидравлического сопротивления могут иметь значительные различия. Кроме того, элементы расчетной схемы, полученные путем объединения нескольких параллельно или последовательно соединенных участков, имеют эквивалентное сопротивление, корректировать которое по данным измерений следует весьма осторожно. Поэтому следующий этап описываемых работ состоит в идентификации расчетной схемы, т.е. в ее корректировке таким образом, чтобы вычисленные путем гидравлических расчетов по этой схеме значения пьезометрических напоров в узлах сети достаточно точно совпадали с данными натурных измерений. Здесь используется поэтапная коррекция параметров расчетной схемы, которая производится до тех пор, пока разность измеренных и расчетных пьезометров не будет ≤ 1 м. Обычно достаточно проводить 5 – 6 этапов коррекции при которых коэффициенты гидравлических сопротивлений линий расчетной схемы умножаются на величину

$$K_i = \Delta h_{i\text{факт}} / \Delta h_{i\text{расч}}$$

где: K_i *- поправочный множитель для i - го участка сети;*

$\Delta h_{i\text{факт}}$ *- разность измеренных по концам i - го участка напоров;*

$\Delta h_{i\text{расч}}$ *- разность расчетных напоров по концам i- го участка.*

Вывод

В процессе коррекции параметров расчетной схемы измерение значения коэффициентов гидравлического сопротивления служат ограничениями величин K_i *(наибольшее отклонение* K_i *от измеренных величин не должно превышать ± 50%) для тех участков расчетной схемы, на которых измерение не проводились.*

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RECOMMENDATION SYSTEM FOR THE TOURISM INDUSTRY

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1. Introduction

Various factors cause the need for tourism in modern society and reflects the complex aspects of modern life. Modern society highly values cultural exchange. Tourism provides people with the opportunity to explore new cultures, traditions, languages and customs, promoting understanding and mutual respect between different nationalities. The growing level of stress and tension in modern life creates a need for rest and relaxation. Tourism allows people to break away from everyday routines, immerse themselves in nature or enjoy cultural travel. Tourism is becoming an important segment of the global economy, providing jobs, fostering the development of local industries, and stimulating investment in infrastructure. Traveling opens up new opportunities for education and self-improvement. People gain new knowledge, develop their worldview and broaden their horizons through interaction with other cultures. Tourism can promote social integration, especially for less developed regions [1]. Interaction between tourists and locals fosters mutual understanding and the development of socio-cultural relations. Growing environmental awareness is leading to the popularity of environmentally friendly forms of tourism, such as ecotourism and travel to nature reserves, contributing to environmental conservation. Tourism can help countries, regions or cities create a positive image, attracting attention and increasing their attractiveness to tourists and investors. The combination of these factors defines and drives the need for tourism in modern society, making it an important aspect of human life and international relations. In Ukraine, tourism is recognized as one of the industries that require priority development and requires the use of information technologies and systems [2].

The purpose of this paper is to analyze the processes of creating an information system for the tourism industry. The object of research is the process of creating a recommendation system. The subject of the study is the methods and means of developing a recommendation system.

Keywords: recommendation system, tourism industry, information technology, method of analysis of hierarchies, method of expert evaluation, method of joint filtering based on data.

2. Analytical review of research sources

There are several approaches to classifying tourism, and different aspects can be used to define its types. Health tourism aims to improve physical and mental health [3]. Cultural tourism is focused on exploring and interacting with the cultural aspects of different places. Business tourism is associated with work or business events and meetings. Ecotourism is aimed at visiting natural and environmentally friendly sites.

There are several types of tourism that are in demand today, depending on the type of recreation. Sports tourism is associated with sporting events and activities. Shopping tourism, which is focused on shopping. Gastronomic tourism, associated with taste experiences and culinary delights. These are just some of the general approaches, and each type of tourism may include various combinations of these characteristics. The classification of tourism can also be specific to a particular study or area, as there is still no clear, generally accepted classification of tourism.

The classification of tourism helps to determine the class of information systems that need to be developed to meet the needs of each type of tourism. According to the functional load, information systems in the tourism industry can be divided into the following classes: strategic level, management level, knowledge level, operations level and combined. In-Trip systems include a variety of technological solutions and services that are provided during a trip or stay in a particular place. Navigation and mapping systems provide information about routes, maps of objects and terrain, as well as navigation directions for travelling in a new place [4].

Transport booking platforms include apps and services that allow you to order taxis, car hire or other transport services while travelling. Systems for online booking of accommodation - hotels, apartments, hostels or other types of accommodation while travelling. Mobile guides and information services include applications that provide users with information about tourist attractions, restaurants, shops, events and other places of interest while travelling. Language translation systems include mobile applications and devices that provide language translation to facilitate communication in foreign countries. Alert and safety systems provide information and safety tips, and can send alerts about events or emergencies. These are just a few examples. The market for travel assistance systems is constantly evolving, and new information technologies are constantly being added to make the travel experience easier and more enriching.

Guide apps, or automated guide systems, are defined by their features that provide users with an interactive and informative travel experience. The use of various multimedia elements, such as audio, video and textual information, provides rich content. The use of GPS technology and geolocation integration helps to determine the user's location and provide location-specific content. Personalisation and customisation allow users to adjust the content based on their interests, language or other preferences. The ability to recognise objects or places using computer vision technology or other sensors. The inclusion of interactive elements such as questions, quizzes, pictures, etc. are used to attract the user's attention and interaction. The ability to download content and use the guide app offline, so that users can get information even without internet access. Navigation features provide route details, navigation directions, and other useful features to help users get around. Adaptability and compatibility with different devices such as smartphones, tablets, audio guides make them versatile for different users. Providing historical and cultural information about a particular place helps users to better understand its significance. Collecting information on how the guide app is used provides manufacturers with data to analyse and improve its effectiveness. These features provide an interactive and informative experience for users as they travel or visit locations [5].

Tourist Information Systems (TIS) are specialised solutions aimed at providing tourists with convenient and complete information support during their travels. They are characterised by the ability to determine the user's location and provide information tailored to a specific location. The Interactive Map Viewer and Navigation function allows you to view interactive maps that display tourist attractions, routes and other places of interest. It provides detailed information about tourist attractions, museums, monuments, restaurants, hotels and other tourist sites, as well as the ability to book hotels and other accommodation options, get information about restaurants, cafes, local dishes and gastronomic events, public transport, taxis, route planning and timetables. It also provides notifications about events and entertainment, reviews of cultural events, concerts, festivals and other entertainment activities, and supports multiple languages for easy use by users from different countries. Regular updates of data and information ensure its relevance and integration with social networks. It is possible to save some information for offline use without access to the Internet. These features allow tourist information systems to provide a complete and convenient service for travellers [6].

Tourist Recommendation Systems are aimed at providing personalised advice and recommendations to tourists based on their individual preferences and travel context. The features of such systems include the ability to provide personalised recommendations tailored to a specific user, taking into account their interests, predictions and previous experiences. The use of geolocation helps to provide recommendations that take into account the user's location and planned routes. The use of big data analytics technologies helps to identify trends, demand and other factors that influence recommendations. Multimedia recommendation technologies provide recommendations in the form of photos, videos, audio, or other multimedia materials. Integration with social networks provides the ability to share and view recommendations via social networks. Route recommendations provide users with information about the best tourist routes and places to visit. Food and restaurant recommendations are seen as providing advice and recommendations on places to eat, menus and gastronomic experiences. Interaction with local businesses is aimed at presenting special offers, discounts or other incentives,

taking into account user ratings and feedback when forming recommendations. The ability to download recommendations facilitates the use of the system offline without access to the Internet. These features are aimed at creating a personalised and satisfying experience for tourists during their travels.

Content-Based Recommender Systems is a type of recommender system that uses information about the characteristics or content of objects and users to make recommendations. The main idea is to take into account the similarities between the content that the user has liked in the past and new content that may be of interest to the user. By analysing the attributes of objects (such as keywords, tags, author, categories), the recommendation system determines the similarity between objects and takes into account user preferences. Based on the user's history of interaction with objects, the system creates a user profile that reflects their preferences and interests. By analysing the content that the user has rated or consumed in the past, the recommender system determines what new content might be of interest to the user. A recommender system of this type is characterised by the ability to work with different types of content, such as text, images, video, audio, or other multimedia data, and to determine similarities between objects based on features or characteristics defined for each object. The ability to provide recommendations even for new users is based on their personal characteristics and preferences. These systems can be effective in niche markets where data is limited and users have unique preferences. Using filtering or weighting of characteristics to provide personalised recommendations [7].

3. Development of the information system

Collaborative Filtering Recommender Systems are a type of recommender system that uses information about interactions between users and objects (such as places, hotels, restaurants) to provide personalised recommendations. The basic idea is to predict user interests based on interactions with similar users.

In order to determine the feasibility of developing an information system to fulfil the task set in the study, 7 main criteria for evaluating the system were selected, namely: relevance; quality; convenience; optimisation; productivity; efficiency; optimality [8].

In order to determine the type of information system and assess the compliance of its quality with the requirements, the hierarchy analysis method was used. The first step of this method is to create a hierarchical structure. For the system under consideration, the hierarchical structure is shown in Fig. 1.

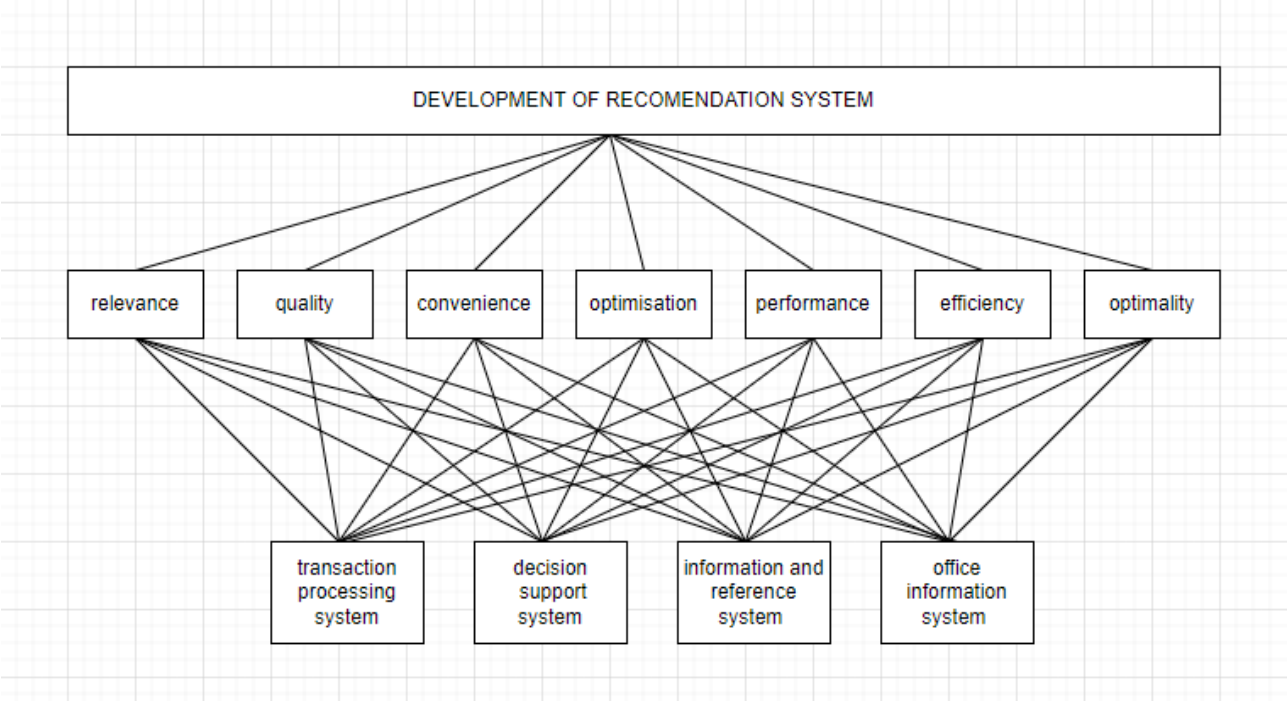

Figure 1. Hierarchy analysis method for selecting a system type

Recommender systems in the travel industry mostly generate recommendations based on collaborative filtering using methods:

- *Collaborative filtering based on user data, recommendations are based on the interactions of other users who have similar preferences to a particular user.*

- *Collaborative element-based filtering (IBCF), recommendations are based on user interaction with similar objects (places, hotels, restaurants).*
- *Context-aware approaches, which takes into account contextual factors such as time, place, situation, or other parameters to provide personalised recommendations. Context-awareness improves the accuracy and relevance of recommendations by taking into account the user's changing conditions at a particular time. Each of these methods has its own characteristics.*

The recommender system will generate recommendations using the collaborative filtering method based on user data. This method in travel recommender systems uses the interaction between users to provide personalised recommendations. Let us consider an example of using this method in the travel recommender system we have developed:

- *Step 1: Data collection. The system collects data about users and their interactions with various tourist attractions, such as places, hotels, restaurants, and attractions.*
- *Step 2: Create an interaction matrix.*
- *Step 3: Identify user similarities.*
- *Step 4: Select the most similar users.*
- *Step 5: Generate recommendations.*

4. Conclusion

The development of information systems for the tourism industry is a complex and multifaceted problem. To select the type of information system, we analysed the requirements for the system using 7 criteria. Using the method of expert evaluation, different types of systems were evaluated according to each of the criteria, and the method of hierarchy analysis provided an opportunity to choose the type of information system that is more appropriate to develop to solve the tasks set in the study.

The approach to generating recommendations and the main functionality of the developed recommendation system are analysed.

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APPLICATION OF QUANTUM ALGORITHMS IN IMAGE PREPROCESSING

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Abstract

This article discusses the problem of using quantum algorithms for image processing. The main emphasis is on converting classical images into a quantum state. Methods for converting images using quantum computing are considered, and the prospects and possibilities of using quantum algorithms in image processing problems are also explored. The advantages and limitations of this approach are discussed, and ways forward for further development and research in this area are suggested.

Keywords: *Quantum computing, image processing, image transformation, quantum state, classical images, image processing algorithms.*

1. Introduction. *Modern problems in image processing pose new challenges for the scientific community that require innovative approaches. In recent years, the research topic of using quantum algorithms for image processing has become increasingly relevant. This approach offers the potential to significantly improve the efficiency and accuracy of image processing by applying the principles of quantum mechanics. One of the key aspects of this topic is the transformation of classical images into a quantum state. This allows image information to be transferred to a quantum format that can be processed using quantum algorithms. This approach opens up new possibilities for solving image processing problems, such as edge detection, segmentation, object recognition and others [1].*

In this context, it becomes important to research and develop methods, algorithms and models that can effectively take advantage of quantum computing for image processing. In addition to converting classical images into a quantum state, the possibilities of using quantum algorithms for edge detection, converting halftone images to binary, and other image processing tasks are also considered. The purpose of this work is to study the prospects for using quantum algorithms for image processing, as well as to develop effective methods and models for solving related problems. The results of this research may lead to the development of new approaches in the field of image processing based on the principles of quantum mechanics, and open up new opportunities for solving complex problems in this field [2].

2. Materials and methods. *The process of forming a set of qubits is a key step in preparing a quantum system for computation or information processing. The initial step is to select the physical system that will be used to implement the qubits. The formation of the basic state usually begins with the state $|0\rangle$. The next step is to use quantum gates or other operations to manipulate qubits and create states corresponding to the desired quantum states. These operations can include rotations on the Bloch sphere, the application of guided operations, superpositions, and quantum interactions between qubits. Next, control and measurement are carried out. Controlling the state of qubits using measurements and feedback allows you to perform operations on qubits with high accuracy and control the process of formation of quantum states. Error correction mechanisms, such as quantum error codes, are enabled to reduce the impact of errors on the state of the qubits and improve the reliability of the quantum system. The next stage is the preparation of the quantum state to perform specific calculations or information processing. This may include the creation of superpositions, quantum inversion, and other operations necessary to implement quantum algorithms. The process of forming a set of qubits requires strict control and manipulation of quantum states to ensure their stability and accuracy [3].*

Measuring each qubit $|q(i,j)\rangle$ of the entire pixel set of the image allows us to form a matrix of the pixel system. In this case, the correspondence of quantum states 0 and 1 to pixel values at the output leads to a binary object at the output. Figure 2 shows the developed model of a quantum computing device and the result of executing a quantum algorithm for transforming a set of pixels. The result of transforming a pixel set of a photograph using a quantum algorithm can be illustrated as a binary image, where each pixel takes on the value 0 or 1 depending on the quantum state of the corresponding qubit. This approach makes it possible to efficiently represent an image using quantum information and process it using quantum algorithms. The qubit measurement process in this context is based on the use of random numbers from the interval [0, 1]. When measuring the qubit $|q(i,j)\rangle$, where c1 is the amplitude

of the state |1⟩, a random number from this interval is played. If the random number falls in the interval [0, |c1|^2], then the output value of the measurement is the basis state |0⟩. Otherwise, if the random number falls in the interval [|c1|^2, 1], the output value of the measurement will be the quantum state |1⟩. Thus, this process allows one to probabilistically determine the state of the qubit after measurement, taking into account the amplitude of its state and the random nature of the measurement [4].

3. Computational experiment. *Performing a transformation from a classical image to a quantum superposition state requires several steps, including image preparation, information encoding, and creation of the quantum superposition. The classic image is loaded into the image processing program. The image must be represented as a matrix of pixels, where each pixel is characterized by intensity or color. Each pixel in the image is encoded into a quantum state. This can be achieved using amplitude quantization, where the intensity of each pixel is represented by the probability amplitude on a quantum bit. If you have a monochrome image with 8-bit color depth (256 intensity levels), each pixel can be encoded on a single 8-qubit or on multiple qubits with a lower color depth. Next, apply the superposition operation to the qubits representing the pixels of the image. This makes it possible to create a quantum superposition of different pixel states. For example, one can use the Hadamard operation to create a superposition of the |0⟩ and |1⟩ states on each qubit, allowing all possible combinations of pixel states to be represented in a single quantum state. After creating a quantum superposition, the measurement of quantum states is performed (Fig.1).*

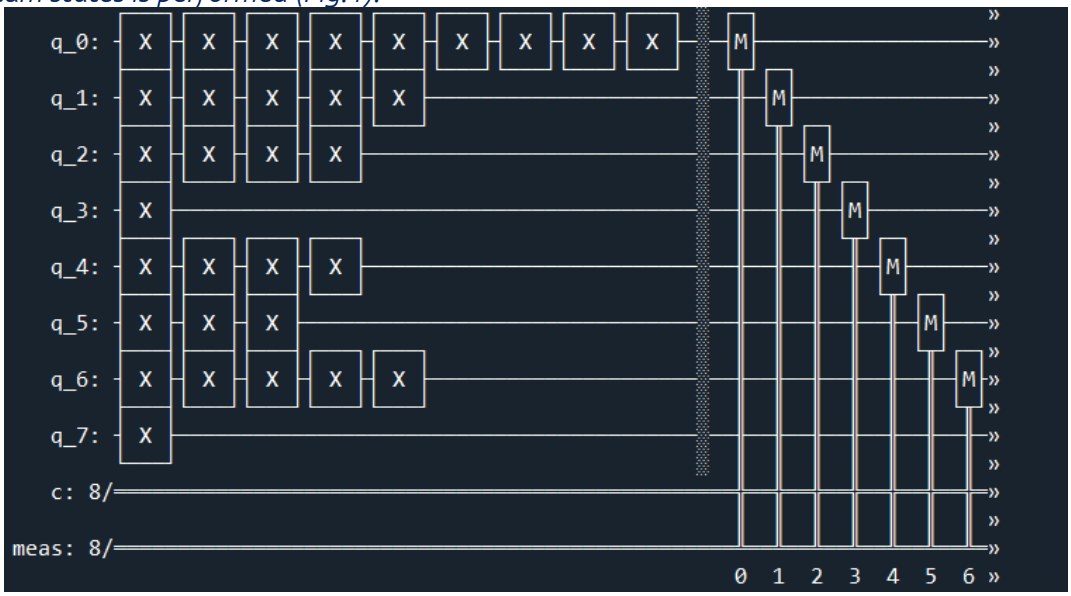

Fig.1. Quantum contrast enhancement circuit

This will lead to the collapse of the superposition into one of the states in accordance with the probability distribution of amplitudes. The resulting state will be a quantum version of the classical image (Fig.2).

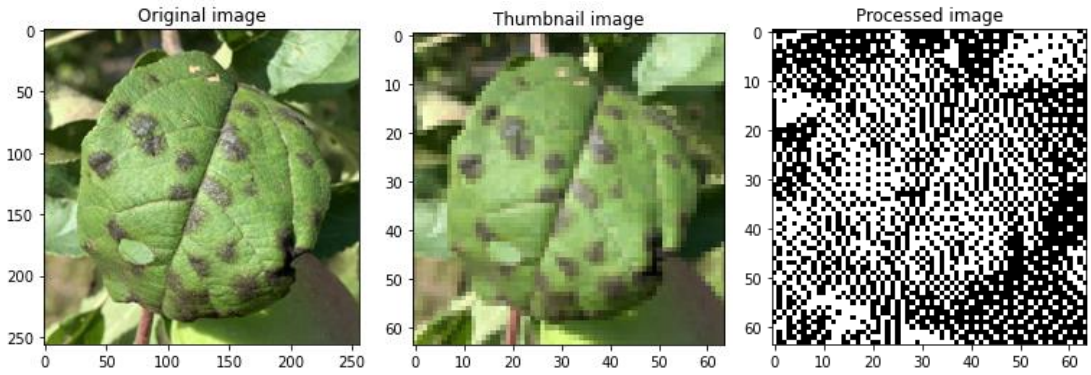

Fig.2. Original and processed image

Performing the transformation of a classical image into a quantum superposition state requires combining image processing techniques with the principles of quantum mechanics to create and analyze the quantum states that represent the image.

4. Conclusion. The application of quantum algorithms in image processing is a promising direction, opening up new opportunities for solving complex problems and improving the performance of image processing systems. The use of quantum algorithms can significantly speed up the computational process by applying the principles of quantum mechanics, such as quantum superposition and quantum parallelism. This allows you to efficiently process large volumes of data and perform complex operations such as filtering, segmentation, and object recognition more quickly and efficiently than classical methods. One of the key advantages of using quantum algorithms in image processing is their ability to provide stability under different angles of an object and its movement. This makes it possible to create more reliable and accurate image processing systems that can work in various conditions and provide a high degree of accuracy in object recognition.

In addition, the use of quantum algorithms in image processing can also improve the level of cryptographic noise immunity, which is an important aspect in modern information processing and data privacy protection systems. Thus, the application of quantum algorithms in image processing represents a promising direction that can lead to more efficient, faster and more accurate image processing systems, opening up new opportunities for innovation in this field.

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QUANTUM FOURIER TRANSFORM OF IMAGES

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Abstract

This paper presents an approach to applying quantum Fourier transform (QFT) to image processing using quantum computing. The use of quantum computing for image analysis and processing is becoming increasingly relevant in modern science and technology. A quantum QFT circuit is presented, implemented using the Qiskit framework, which is a tool for programming quantum computers. The paper presents the basic steps of QFT and their application to a state vector representing the pixel intensities of an image. We explore the impact of quantum transformation on image structure and present the results in the form of graphs and visualizations. In addition, we are introducing the ability to infer the QFT quantum circuit for a more visual representation of the algorithm. The results highlight the potential of quantum computing in the field of image processing and open new prospects for the use of quantum technologies in the field of computer vision.

Keywords. *Quantum computing, Fourier transform, image processing, quantum circuit.*

1. Introduction. *With the development of quantum technologies, new opportunities appear for solving computational problems, including in the field of image processing. Traditional image processing methods often face limitations in speed and efficiency, especially when dealing with large volumes of data. In this context, the application of quantum computing for image processing represents a promising research direction. Quantum algorithms, such as the Quantum Fourier Transform (QFT), can provide more efficient data processing by using the principles of quantum mechanics. With the development of quantum computing and the expansion of its scope, new opportunities in the field of data processing arise. One exciting area of research is the application of quantum methods to image processing. Traditional methods, although effective, often face limitations, especially when working with large amounts of information [1].*

The purpose of this work is to review and analyze the application of QFT to images using quantum computing. We explore the key steps of quantum transformation in the context of image processing and consider the impact of this method on the structure of images. We also present a new aspect in the form of the output of the QFT quantum circuit for a clear demonstration of the algorithm. This work aims to expand understanding of the capabilities of quantum computing in the field of image processing and contribute to the development of new data analysis methods using quantum technologies [2].

2.Materials and methods.

To conduct the study, a digital image of interest for analysis was selected. The image can be either monochrome or color to view the effect of quantum transformation on different types of data. The image is converted into a format suitable for processing, such as black and white. The image size can also be reduced to the nearest lesser power of two for ease of application of the Quantum Fourier Transform (QFT). Each pixel in the image is converted to intensity and a state vector is generated. This vector is prepared for use in a quantum circuit. A quantum circuit is implemented to apply QFT to the image state vector. The Qiskit library for the Python programming language is used for this. Each element of the state vector represents the probability amplitude on the corresponding qubit [3].

The impact of QFT on image structure is studied. State vectors before and after transformation, as well as the resulting images, are analyzed. Visualization of results is used for a clearer understanding of the process. To visually represent the QFT algorithm in a quantum circuit, the Qiskit library is used. A quantum circuit is derived by applying QFT to the input data. The experiment is carried out with various variants of images and QFT parameters to identify the features and influence of quantum transformation on the structure of the input data [4].

To implement a quantum circuit, the program uses the Qiskit library, which provides the ability to work with quantum circuits in the Python programming language. Quantum bits are created that will be used to represent the input image state vector. The number of qubits is equal to the nearest lesser power of two to the image size (for example, if the image size is 64x64, then 6 qubits are used). The quantum

circuit presented in this program performs the Fourier transform on quantum bits (quantum qubits). The Fourier transform is a mathematical transformation that has applications in various fields, including classical and quantum information science [5].

3. Results. *A quantum circuit uses quantum bits, which are the quantum analogues of classical bits. Qubits can be in a linear combination of the states |0⟩|0⟩ and |1⟩|1⟩ due to the phenomenon of quantum interference. The Fourier transform in this context is performed on quantum bits. This transform is the quantum analogue of the classical Fourier transform, which is applied to a sequence of values. The circuit uses quantum gates such as Hadamard gates H, controlled phase gates Rϕ), and controlled phase gates C (Fig. 1).*

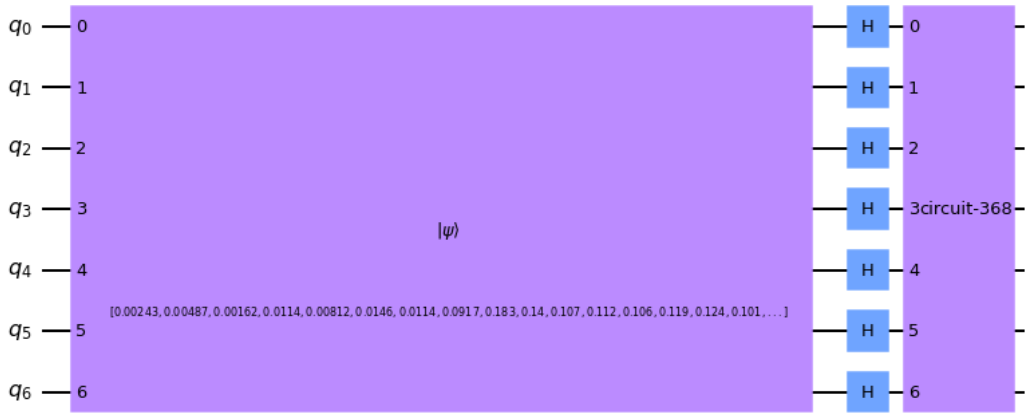

Fig. 1. Quantum circuit Fourier transform to qubit state

The initial state of the quantum system is initialized with an image, and then a quantum transformation is performed. After this, qubits are measured to obtain classical information. The results of quantum transformation are visualized using graphs, allowing you to see how the state vector and image change after the transformation (Fig.2).

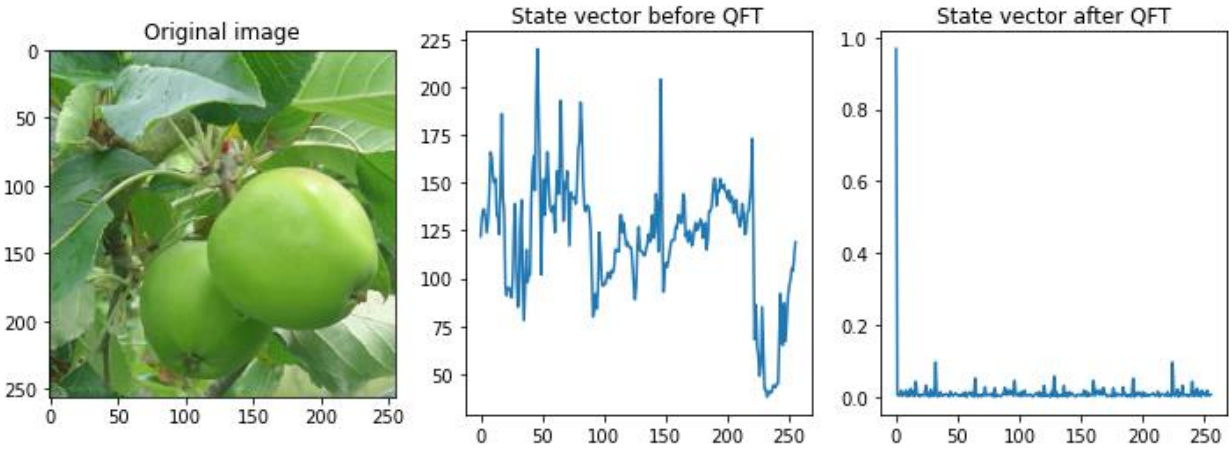

Fig.2. State vector before and after QFT

Such a quantum circuit can be used to study quantum transformations in images and in the context of quantum data processing algorithms.

4.Conclusion. *In this work, the application of Quantum Fourier Transform (QFT) in the context of image processing was analyzed. Experimental results show that quantum transformation can affect the structure of images, leading to changes in pixel amplitudes. The efficiency of quantum conversion was assessed using images using different numbers of quantum bits. Increasing the number of bits resulted in higher transformation granularity, but required more computational resources.*

The amplitude histogram after QFT can serve as an indicator of important image characteristics. However, it must be taken into account that the results can greatly depend on the image itself and the parameters of the quantum circuit. It also highlighted areas of application where quantum image processing techniques could be most useful, such as highlighting singular points and patterns. However, it should be noted that quantum image processing methods have their limitations, and the performance

of such approaches can be improved with further research and optimization. These results highlight the promise of using quantum approaches in image processing, providing new opportunities for analyzing and modifying visual data. Further research in this area will help optimize the parameters of quantum circuits and expand the scope of their application in practical image processing problems.

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FORMATION OF IRREGULAR STRUCTURED LOCAL SILICON THIN FILMS AND STUDY OF THEIR ELECTROPHYSICAL PROPERTIES

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Abstract

In the article, various acquisition technologies of weakly doped Irregular Structured Layers (ISL) in the process of epitaxial growing of monocrystalline silicon layers are described ISL is obtained by the well-known method of pyrolysis of monosilane by depositing a thin layer of polysilicon dye on a pre-oxidized silicon substrate at 8300 C.

Conducted studies have shown the possibility of forming an LDS with the required configuration and parameters on a technology compatible with standard microelectronic technology.

Keywords: *Amorphous material, electrical phenomena, silicon, polycrystalline, disordered structure.*

Introduction.

In contrast to the traditional group processing of semiconductor plates, they are characterized by high productivity, low energy demand, high-temperature processes with high precision in small size and weight of devices [1-3].

Three-point bending, local plastic deformation, and electric spark machining methods were previously used to obtain local dislocation structures (LDS). The main drawback of these methods, that is, the defect of introducing dislocations into semiconductor crystals, is related to the necessity of processing each plate, which is not compatible with the batch production of ICs by standard technological processes. A new method that allows obtaining local dislocation structures without manual processing of each plate individually is the rapid thermal processing (STI) method of locally oxidized plates.

Research object and methodology

During the preparation of irregularly structured local area samples, we used the ITO-18 MB pulse thermoprocessing unit designed for precession pulse thermoprocessing of semi-automatic, vacuum, table-top type, microprocessor-controlled semiconductor structures with a pre-given thermocyclogram. The basis of control systems of pulse thermoprocessing modes is a thermocouple transmitter that controls the heating of plates at 400-1300□C.

Control of work modes with microprocessors implements a single-board micro EHM based on the K588 series BIS kit, which ensures the small size of devices and energy requirements. The use of microprocessor control allows the implementation of a large number of functions, increasing accuracy and integrity of control.

The vacuum reaction chamber consists of three welded elements (middle part, front and back walls) cooled by water. In the form of a camera, a handle of radiating and semiconductor plates consisting of 12 metal halogen KQ 220-1500 lamps is placed.

Studies have shown that one-sided processing of semiconductor plates with a duration of several seconds is possible with halogen lamps without increasing their thermal tension, in the range of 40-100 mm in air, in an inert environment and in a vacuum, at a maximum speed of 200 degrees/second. The duration of thermoprocessing in the thermostabilization mode is 1-60 seconds.

Analysis of results

E_1 energy is that part of the elastic strain energy that spreads over distances comparable to the distances between dislocations. E_2 is the elastic strain energy of the cage. The residual E_3 part of the energy essentially describes the superposition of the stress fields of other dislocations. $E_\perp$ full energy

$$E_\perp = E_1 + E_2 + E_3 \qquad (1)$$

is defined by the expression according to [4].

$$E_{\perp} = \frac{\mu b^2}{4\pi(1-\nu)} \ln \frac{r_1}{r_0} \qquad (2)$$

Where, μ - sliding modulu,
ν- Puasson's coefficient,
r_o – the radius of the dislocation core,
r_1 – the radius of the cylindrical tubular load,
b – Burgers vector.

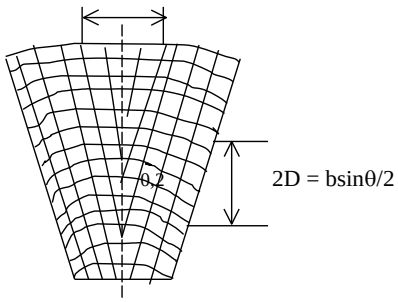

Fig. 1. Compression and tension zones in boundary dislocations

It is known that if the dislocations in the crystal are dominant in any direction, the conductivity of the crystal in this direction becomes sharply anisotropic. This is due to the formation of a cylindrical area of space charges around the dislocations. Occupancy of the main charge carriers leads to a decrease in the conductivity of the material, when the flow of charge carriers is perpendicular to the dislocation lines, the conductivity does not change when the flow is parallel to the dislocation lines.

Results

Conducted studies fully confirmed that the included defects are of dislocation nature (anisotropy of conductivity, barrier nature of VAX, anomalous temperature dependence of conductivity). This standard confirms the development of the LDS acquisition technology that is maximally compatible with microelectronic technology, which allows to form the LDS with the necessary configuration and parameters. Thanks to this, LDSs can be used in IS technology for side insulation of elements, radiation-resistant resistances, sensors of various non-electrical quantities, local heterization of point defects from the working areas of IMSs, high recombination speed boundaries in the form of edge regions, etc. can be used as, which greatly increases the functional capabilities of microelectronic elements.

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PROSPECTS FOR THE USE OF QUANTUM COMPUTERS

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Abstract

The article explores the potential applications of quantum computing in the contemporary environment. A special focus is placed on the definition of a quantum computer's idea and essence, as well as the evolution of its application throughout history. It is observed that although quantum computing offers tremendous potential, quantum technologies also provide a number of challenges, mostly stemming from essentially distinct natural laws and the challenges associated with the shift to quantum mechanics. In light of this, the study discusses the potential benefits and new dangers associated with the use of quantum computers.

Keywords: *quantum computer, computing device, negatives, prospects.*

Electronic technology of today is evolving quickly. Before our very eyes, what was only a dream a few years ago is turning into a reality. Nowadays, information plays a crucial role in our daily lives. Human society is searching more and more for systems and means of processing and transmitting information. Even the most potent supercomputers, which take up an entire data center, cannot tackle the issues that humanity faces today. Ordinary people can benefit from the assistance of quantum computers, which can tackle issues of any complexity.

Through the efforts of physicist Richard Feynman, who was awarded the Nobel Prize in physics, the concept of quantum computing technology emerged in the 1980s. Examining the evolution of the quantum computer's history, we will highlight the crucial phases of advancement:

Figure 1. The history of the quantum computer

Quantum computers can open up new horizons for humanity. The development of quantum technology will affect many areas of life. Let's consider the prospects for using quantum computers.

Decomposition into prime numbers is one of the key uses of a quantum computer. The foundation of all contemporary encryption is the fact that nobody can efficiently factor in thirty to forty digits, or more, into prime factors. Such a task would take billions of years on a standard computer. This may take a quantum computer eighteen seconds or less. The concept behind a quantum computer was to leverage the same uncertainty that makes conventional computations so challenging for calculations, turning a disadvantage into an advantage. Let's say you have to figure out a password who's final two characters are unknown. Four potential combinations are as follows: 00, 01, 10, and 11. They all need to be counted independently in the traditional scenario, so replace it with the appropriate value and see what happens. All four configurations, however, can be tested concurrently if the information carrier is a quantum object, such as two qubits superposed in polarization. This means that there will be no more secrets, because any encryption schemes may be instantaneously cracked and access to anything. This applies to everything from bank transfers to instant chat conversations. There may come an exciting point when conventional encryption ceases functioning, and quantum encryption has not yet been established.

Quantum computers could be integrated into a quantum internet that would be more secure than the one that exists today. "Quantum computers and quantum communications allow you to do things much more privately," says MIT physicist Seth Lloyd, who envisions Internet searches that even a search engine couldn't spy on.

It is undeniable that quantum technologies, and particularly quantum computers, are being employed in medicine today, even if their full potential has not yet been realized. Currently, one of the most popular and promising fields is quantum medicine. And from here, a plethora of innovative ideas are likely to be forthcoming. There can be significant advancements in the hunt for novel drugs. There are currently a lot of excellent medications available, but their effectiveness and production rate are quite constrained. Due to the constraints of current computing systems, even with the most recent advancements in speed and precision offered by classical computers, the latter remain relatively tiny. There are countless ways in which the human body can respond to drugs, plus the limitless genetic diversity at the molecular level and the potential outcomes for nonspecific drugs, all of which add up to numbers in the billions. Classical computers are not able to cope with this. And only quantum computers will have the ability to study every possible scenario of an organism's interaction with a drug and present not only the best possible course of action, but also the person's chances of successfully taking the drug - through a combination of more accurate and faster DNA sequencing and a more precise understanding of protein folding. Quantum calculations will make it possible to simulate complex molecular interactions at the atomic level, which will become invaluable when it comes to developing new methods of medical pharmaceuticals. It will be possible to model 20,000 proteins and their interactions with myriad new different drugs (even those that have not yet been invented) with impeccable accuracy. Analysis of these interactions (again using quantum computing) will lead to the creation of new treatments for currently incurable diseases.

The innovations that will be discovered with the help of quantum computers will inevitably lead to a better understanding of how life functions in general, which will subsequently lead to a much more accurate interpretation of it, improving medicines and the results of their action. Quantum computers will help to fully understand the brain and cure the neurodegenerative diseases Parkinson's and Alzheimer's, which cannot be cured today, since it is impossible to calculate the entire sequence of neuron activation - the power of conventional computers is not enough. Quantum computers could help rewire the brain to increase happiness and reduce suffering. At the same time, quantum sensors will make it possible to record the neural activity of the brain, in fact making it possible to even read thoughts.

Working with quantum computers requires special knowledge and methodological skills. A traffic control project in Lisbon is already using quantum computers. Not supercomputers, but quantum systems are best suited for predicting car traffic, demand for transport at a certain moment and travel time, Volkswagen says. Volkswagen's algorithm first analyzes anonymous data about motorists' movements using conventional computers, and then turns to quantum systems to optimize traffic using predictive analytics. Road models created using quantum technologies help reduce downtime of public transport, relieve congestion on roads during rush hours, and adapt the operation of traffic lights to the current traffic situation. In addition, in the future there will be a large number of unmanned vehicles on the roads, from which a quantum computer will collect data and simultaneously control it. To implement such a project, Volkswagen used the power of quantum computers from D-Wave. They first decided to use a traffic management system in Barcelona, where they deployed a large database that collects information about the situation on the roads. Intelligent motion control using quantum computer performance could provide significant support for cities and suburbs.

Another area where quantum computers could help the auto industry make significant strides is in battery technology. Understanding what exactly happens to a battery at the atomic level could pave the way to lighter and even more powerful batteries for electric vehicles. This data will be directly used, for example, in the recently started production of battery cells at the Volkswagen Center of Excellence for Battery Research in Salzgitter. Then every electric vehicle driver will benefit concretely from this research in their daily life.

Fast processing of large data sets or complex calculations are required in various areas of the defense industry. The introduction of quantum computers will simplify software development, speed up the design of various structures, and also reduce the required number of full-scale tests. High performance can be useful when creating systems with artificial intelligence for various purposes - this area is also of interest to military and defense enterprises.

Ray Johnson, a board member of quantum computing startup QxBranch, said that even with state-of-the-art tools that analyze temperature and pressure, there are too many possible ways a given weather pattern could manifest itself, and current weather forecasts are an educated guess at best. . Quantum computing can analyze all this data at once and give a better idea of when and where bad weather will strike. Special services would provide advance notice of severe storms such as hurricanes, and additional preparation time could help save lives.

However, despite the amazing capabilities that quantum computers provide, quantum technologies present a number of problems, which are mainly caused by fundamentally different laws of nature and the difficulties of transitioning to quantum mechanics.

In essence, quantum computers make almost all modern approaches to programming, processing and data protection obsolete. Humanity will not only have to use new technology, but also focus on creating completely new data transfer protocols and infrastructure.

For major players in the IT market, quantum computers represent both amazing potential and huge risks. Since modern corporations such as Google or Facebook make most of their income from advertising and the sale of user data, they will be forced to completely rebuild their business models because their existing technologies will simply no longer work.

Quantum computing is also attracting significant interest at the government level. The new computer revolution will dramatically reduce the influence of individual politicians, since solutions to most government problems will be easy to calculate. At the same time, issues of regulation of quantum technologies will also be resolved at the political level.

Problems related to the coordination and legislation of quantum computers may arise in the near future - as soon as we see the first machine with enough computing power to threaten the privacy of personal, corporate or government data or disrupt financial systems. Classical encryption systems are publicly available, they are feasible for a quantum computer - this means not only the opportunity to steal money, but in the future also to steal, for example, health: to hack the control of a pacemaker or other devices, of which there will only be more. Like any coin, a quantum computer has two sides: it is not only the advantage of new materials, logistics, optimization, but also a risk.

Modern quantum computing systems are huge and complex machines that are extremely expensive to develop and maintain. Only corporations or universities can afford them. But the same thing happened with ordinary computers, which, instead of taking up entire rooms, fit on our desks - and even in our pockets. Full-fledged quantum computers are likely to appear in the next few decades, but due to their high cost, users will only be able to rent computing power and cloud services, as IBM currently offers. Will today's society witness the creation of tiny quantum smartphones that will have more power than any modern computer and will be able to transmit any information anywhere in the Universe? It's hard to say for sure. But the practical application of laws operating at the quantum level - completely different from those used in our macrocosm, governed by the laws of Newtonian mechanics - already seems quite achievable.

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CHANGES IN MILK POWDER PROTEINS UNDER THERMAL INFLUENCE

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Abstract

The work analyzed the change in milk powder proteins under thermal influence in the range of 60°C - 160°C. As a result of the thermal effect that milk undergoes during the technological operations of heating, pasteurization, thickening, the fractional composition of proteins changes and the composition of individual fractions also changes. Experimental data on the composition of proteins and the composition of casein in whole milk powder under thermal influence were presented.

Keywords: *Powdered milk, casein, fractional composition of proteins, temperature.*

The maximum permissible heating temperature of a material is, as a rule, determined experimentally during experimental studies or production tests of a specific product in a specific drying installation [1].

However, it should be especially emphasized that the boundaries of the maximum permissible heating temperature of a material during the drying process are in many cases unclear; different researchers provide conflicting data for the same material. Thus, according to A.S. Ginzburg, the indicated value of the maximum permissible temperature for grain is approximate; it is important to consider not only the temperature, but also the heating rate and the duration of holding the product at the maximum permissible temperature [2,3,4].

To predict the quality of the product obtained during the drying process, it was necessary to study the change in the constituent components of milk. Protein in dry milk products is the most labile component. It is changes in protein properties that, first, impose restrictions on the heat treatment regimes of whole milk powder.

Many works have been devoted to the study of protein substances in milk. Changes in protein substances during the drying process have been little studied. Meanwhile, an idea of the nature and depth of these changes is not only theoretical, but also practical in substantiating rational and optimal modes of milk drying. Therefore, the next stage of the study was to study changes in the protein of whole milk powder under the influence of temperature. The experimental data obtained are presented in Table 1.

Table 1

Determination of total nitrogen and total protein content in milk powder samples

Option No.	Thermal mode	Total nitrogen content, %	Protein content, %
experiment 1	Control sample	4,98±0,01	26,00±2,52
experiment 2	t=60°C	5,07±0,01	26,47±2,52
experiment 3	t =80°C	4,98±0,01	26,00±2,52
experiment 4	t =100°C	5,02±0,01	26,20±2,52
experiment 5	t =110°C	5,32±0,01	27,70±2,52
experiment 6	t =120°C	5,13±0,01	26,50±2,52
experiment 7	t =130° C	5,61±0,01	28,60±2,52
experiment 8	t =140° C	5,67±0,01	30,40±2,52
experiment 9	t =150°C	4,13±0,01	21,54±2,52
experiment 10	t =160°C	4,67±0,01	24,13±2,52

We believe that the increase in total nitrogen content is associated with the removal of carbon compounds. A further decrease is associated with the onset of the deamination reaction and the interaction between decomposition products.

The technological properties of milk used for the production of whole milk powder are largely determined by the qualitative composition of proteins. The electrophoresis method allows us to identify

the biochemical transformations of whole milk powder proteins that they undergo during the drying process, and based on this, evaluate the quality of the finished product. As a result of the thermal effect that milk undergoes during the technological operations of heating, pasteurization, thickening, the fractional composition of proteins changes and the composition of individual fractions also changes.

Tables 2 and 3 show the fractional composition of proteins in whole milk powder of the control sample (without thermal exposure).

Table 2

Fractional composition of whey milk proteins, %

Name of factions	Milk	Condensed milk	Powdered milk
Serum albumin	9,12	2,07	3,44
p- lactoglobulin	43,95	29,09	28,12
a- lactalbumin	8,42	6,40	5,44
Immune globulins	29,00	10,64	5,61
Starter proteins	9,51	3,30	2,18

As can be seen from the table data, as a result of technological operations preceding drying - pasteurization, thickening, the fractional composition of proteins undergoes changes, and the quantitative content decreases.

Table 3

Fractional composition of powdered milk casein, %

Name of factions	Powdered milk
a_{32} - casein	5,2
a - casein	30,0
β- casein	48,5
Starter proteins	4,5

The results show that when dry milk is exposed to heat with increasing temperature, the fractional composition of proteins undergoes changes:

- a_{32} casein tends to decrease

- the most stable is β - casein

- the length of sample exposure affects the distillation time, since protein fractions lose electrophoretic mobility and migrate in the gel much more slowly

- the appearance of minor fractions is characteristic, which begins at a temperature of 80 ° C and occurs most intensively at 110 ° C

- low molecular weight protein components are also formed as a result of changes in az2-casein

- the amount of starting proteins changes insignificantly, so we can assume that the complexation of individual fractions is also insignificant

- at a temperature of 120°C, the electrophoretic mobility of the fractions changes sharply and difficulties arise during distillation.

Thus, when whole milk powder is exposed to temperature, a proteolytic process takes place even with low moisture content. The mechanism of heat accumulation by proteins is described in the literature and is based on the irreversible interaction of casein micelles with inorganic colloidal phosphate and whey proteins. When exposed to heat, the surface of the micelles is covered with whey proteins, depending on the intensity of heating. An energy barrier arises for the penetration of protons into the micelle.

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CONTENT OF FREE AMINO ACIDS IN ATRIPLEX PRATOVII AND ATRIPLEX MONETA PLANTS

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Abstract

The work examined the content of amino acids in the organs of plants of two species, Atriplex pratovii and Atriplex moneta. Studying the content of amino acids in plant organs allows us to study the processes of plant adaptation under stressful conditions, such as drought or high salt tolerance. As a result of the analysis, the amount of free phenylalanine, glycine and proline in the organs of the plant species Atriplex pratovii and Atriplex moneta was determined.

Keywords: *homogenization, fat globules, proteins, agglutination, fossils, consistency, immunoglobulin.*

Free amino acids are the main molecular material in the process of biosynthesis in the cell and stabilize the mineral composition of the internal environment of the cell during the synthesis of various proteins, which is one of the important biochemical factors. To understand the role of amino acids in the process of biosynthesis in plant cells, as well as their importance in the response to unfavorable environmental environmental factors, the amount of free amino acids in the vegetative organs (leaves and stems) of plants growing on the dried bottom of the Aral Sea and on sands and gypsum-bearing clays is determined. foothills of Baysun in Surkhandarya region. This made it possible to observe the features of adaptation of plant species to various unfavorable environmental factors of the external environment against a natural background [1].

To date, the research work carried out to study the biochemical composition and molecular biological studies of desert plants in Uzbekistan cannot be considered sufficient. Most scientific sources provide the structure and physicochemical properties of alkaloid, glucoside, flavonoid, phenolic compounds and many other biochemical compounds with lower molecular weight of plant species growing in the mountainous regions of our republic. Scientific work in this area has been deeply studied by employees of a number of laboratories for many years.

Plants of the genus Atriplex are known for their ability to grow in harsh conditions, including saline soils and areas with high levels of heavy metals. As a result of biochemical analysis of plants of the genus Atriplex, it has aroused great interest among researchers seeking to understand how these plants are able to survive in these difficult conditions [2].

The composition of their tissues was studied in plants of the genus Atriplex. Research has shown that plants of the Atriplex genus contain high levels of proline, an amino acid that plays a role in osmotic regulation and stress resistance. It often accumulates in plants under stressful conditions such as drought or high salt concentrations. Proline plays an important role in protecting cells from dehydration and resistance to stress.

Glutamic acid was also detected. It plays an important role in nitrogen metabolism and is a key amino acid for nitrogen transport in the plant [3].

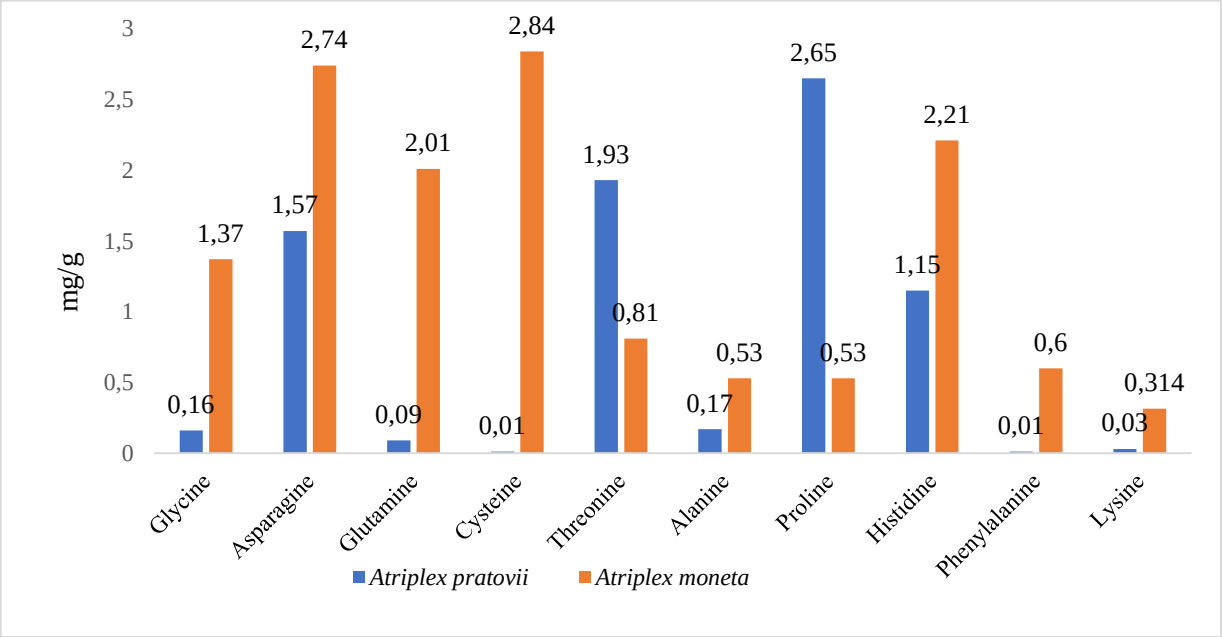
The amino acid asparagine is a common amino acid in plants. It is involved in nitrogen transport and is an important source of nitrogen for various biochemical processes [4].

The work examined the content of free amino acids in the organs of plants of the species Atriplex pratovii, growing on the dried bottom of the Aral Sea, and Atriplex moneta, growing on the sands and gypsum-bearing clays of the Baysun foothills in the Surkhandarya region. Studying the content of free amino acids in plant organs allows us to study the processes of plant adaptation under stressful conditions, such as drought or high salt concentrations.

Free amino acids with phenylthiocarbamail (PTC) were isolated based on high performance liquid chromatography (HPLC) conjugation analysis. Samples of two plant species, Atriplex pratovii - growing on the dry bottom of the Aral Sea and Atriplex moneta - growing on the sands and gypsum-bearing clays

of the Baysun foothills in the Surkhandarya region were compared with the amount of free amino acids. Samples for analysis were taken from both regions in the same year.

As a result of the analysis, the amount of free phenylalanine, glycine and proline in the organs of the plant species Atriplex pratovii and Atriplex moneta was determined. The amount of free proline in the organs of plants of the Atriplex pratovii species, growing on the dried bottom of the Aral Sea, in comparison with another species of this genus, Atriplex moneta, growing on the sands and gypsum-bearing clays of the Baysun foothills in the Surkhandarya region, turned out to be significantly higher. The amount of free glycine in the organs turned out to be significantly higher in the plant species Atriplex moneta, compared to another species of this genus, the plant species Atriplex pratovii (Fig. 1).



Pic. 1. Content of free amino acids in plant species Atriplex pratovii and Atriplex moneta

The role of factors such as light, photoperiodism, water and salt stress, and response to pathogens in the biosynthetic pathway of proline regulation in plant metabolism has been determined. Changes in the concentration of phenylalanine and proline during salt tolerance of plants (K+, Ca++, Mg++ and P and NaCl ions) were confirmed by experiments on cultivated plants.

During the research, this process was once again confirmed by the example of plant species growing in the arid regions of the Aral Sea and on the sands and gypsum-bearing clays of the Baysun foothills in the Surkhandarya region.

The development of the proposed hypothetical scheme was based on the obtained environmental analysis, the number of chemical elements and the role of free amino acids.

This indicates that the synthesis of free amino acids is rapidly increasing in these species. It should be noted that it can be assumed that the increase in the amount of free amino acids, namely proline and phenylalanine in the cytoplasm plays a central role in the stability of biochemical processes in cells in exchange for reducing and neutralizing the negative effects of various salt levels.

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