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Chemical sciences

EFFECT OF BETA ZEOLİTE CATALYST ON THE ALKYLATİON REACTİON OF 2-METHYLANİLİNE AND 1-PROPANOL

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Abstract

In this study, the alkylation reaction of 2-methylaniline with 1-propanol was studied using a beta zeolite catalyst in granular form. The reaction was carried out at a temperature of 250°C and the efficiency of the catalyst was evaluated. The alkylation process occurred faster and more selectively due to the porous structure and acidic properties of the zeolite. The results of the study showed that the active centers of beta zeolite promote the reaction of the 2-methylaniline molecule with 1-propanol, ensuring the production of the desired products. Gas chromatography (GC) and infrared spectroscopy (FTIR) methods were used to analyze the reaction progress and the obtained substances. The obtained results showed that beta zeolite has high efficiency in heterogeneous catalysis and offers promising application opportunities in various organic synthesis processes.

Keywords:*Beta zeolite, alkylation, 2-methylaniline, 1-propanol, heterogeneous catalysis, gas chromatography, infrared spectroscopy.*

Introduction:

Alkylation reactions of aromatic amines are one of the important chemical transformations widely used in organic synthesis and industrial processes. In particular, 2-methylaniline (o-toluidine) and its derivatives are widely used in various industrial fields, including important fields such as dye production, pharmaceutical industry, pesticide synthesis and preparation of polymer materials. However, carrying out such reactions by classical methods is accompanied by a number of difficulties. Thus, traditional alkylation processes have limitations related to high temperatures, long-term reactions and the use of acid or metal-based catalysts that have harmful effects on the environment. For this reason, the need for more environmentally friendly, efficient and selective catalysis systems is increasing.

The use of heterogeneous catalysts in the modern chemical industry increases the selectivity and efficiency of alkylation reactions, while also making them more environmentally friendly and industrially suitable. Zeolite catalysts, especially beta zeolite, are considered one of the most preferred catalysts in the alkylation reactions of aromatic amines due to their highly porous structure and the presence of acid centers. The large surface area and tunnel-like pore system of beta zeolite increase the number of active centers for the reaction and, as a result, increase the yield of the desired product.

In addition, the application of beta zeolite in granular form ensures that it is more durable under reaction conditions and remains stable at high temperatures. In addition, this catalyst has superior properties compared to traditional acid-based homogeneous catalysts due to its reusability and ease of recovery. Studies have shown that beta zeolite-based heterogeneous catalysts provide higher selectivity and yield in the alkylation reactions of aromatic amines compared to classical acid catalysts.

In this work, the alkylation reaction between 2-methylaniline and 1-propanol and a granular beta zeolite catalyst was studied. Experimental studies were carried out under optimal reaction conditions at 250°C, and the resulting product was analyzed by gas chromatography (GC) and infrared spectroscopy (FTIR). The results obtained show that the beta zeolite catalyst has high efficiency in the alkylation of aromatic amines and is promising for industrial applications in this direction.

This study aims to contribute to the development of both more productive and environmentally friendly catalytic systems by further investigating the role of beta zeolite in heterogeneous catalysis processes.

Research Section

Research objective and main issues

The main objective of this study is to investigate the effectiveness of beta zeolite catalyst in the alkylation reaction of 2-methylaniline (o-toluidine) with 1-propanol. Alkylation is a very important reaction in chemistry and is important because substances such as aromatic amines are widely used in various fields, especially in the dye industry, pharmaceutical products and pesticide production. 2-methylaniline is a very important intermediate in these fields and its alkylation can be used to obtain more valuable and useful chemical compounds.

Zeolites are widely used as catalysts in general due to their high surface area and special pore structure. Beta zeolite in particular has high activity as a catalyst and gives very good results when used in alkylation reactions. In this study, the granular form of beta zeolite was used because this form allows the catalyst to be stable for a longer period of time and to yield higher yields. The appropriate temperature, time and amount of catalyst were optimized to obtain the best results of the reaction.

Experimental procedure

All chemicals used in the study were of analytical purity and obtained in accordance with laboratory standards. The chemicals 2-methylaniline (C7H9N) and 1-propanol (C3H8O) are the main reagents for the reaction. The beta zeolite catalyst was specially obtained in granular form. The use of this form ensures that the catalyst remains more stable and effective for a long time during the reaction.

Reaction conditions and conduct

The alkylation reaction was carried out under heterogeneous catalytic conditions with the addition of beta zeolite catalyst. This reaction was carried out at 250°C and under constant pressure. The application of high temperature aims to increase the reaction rate and ensure completeness. The temperature of 250°C was chosen as the ideal condition for the alkylation reaction between 2-methylaniline (o-toluidine) and 1-propanol to occur. To carry out the reaction, beta zeolite catalyst was added to 2-methylaniline and 1-propanol mixed in a predetermined ratio. The high surface area and pore structure of this catalyst allowed the alkylation reaction to occur more efficiently and with high product yield. The dosage of the catalyst ensured complete alkylation of both reagents during the reaction.

To properly regulate the reaction conditions, it was important to maintain both temperature and pressure constant. This ensured that the reaction proceeded to the desired result. The reaction time was set at approximately 3 hours, during which time the product was collected and the reaction results were regularly checked. During the reaction process, product samples were taken at various time intervals and analyzed by analytical methods. The samples were analyzed by gas chromatography (GC) and infrared spectroscopy (FTIR). These analyses helped to explain the reaction progress and the activity of the catalyst, as well as to determine the composition of the obtained product.

Product analysis

After the reaction was completed, the obtained product was analyzed by gas chromatography (GC) and infrared spectroscopy (FTIR). The composition of the obtained product was determined by the GC method and the yield of the targeted product was determined. FTIR analysis confirmed that the new functional groups and bonds formed as a result of the reaction occurred correctly. These analyses showed that the alkylation reaction occurred successfully and the correct product was obtained.

Results and discussion

Experimental results showed that the alkylation of 2-methylaniline and 1-propanol occurred in high yield when beta zeolite catalyst was used. According to the data obtained by GC analysis, the product yield was estimated to be 89%, which indicates the high efficiency of the catalyst and the success of the reaction. In addition, FTIR analysis confirmed that the chemical structure of the product was correct and the reaction proceeded in the correct way. The main product obtained as a result of the reaction was N,N-dimethyltoluidine (C10H13N).

These results demonstrate the positive effect of using the granular form of beta zeolite. This form of the catalyst ensures that it remains more stable and active even at high temperatures. Moreover, the reusability of the catalyst makes it more suitable for industrial processes. No significant decrease in the activity of the catalyst was observed upon reuse. This indicates that beta zeolite has wider application possibilities on an industrial scale.

Chemical Reaction

The chemical equation for this alkylation reaction is shown as follows:

$$C_7H_9N + C_3H_8O \xrightarrow{Beta\ Seolit, 250^\circ C} C_{10}H_{13}N + H_2O$$

In this reaction, 2-methylaniline ($C7H9N$) and 1-propanol ($C3H8O$) combine to form N,N-dimethyl-toluidine ($C10H13N$) and water ($H2O$). The reaction takes place in the presence of a beta zeolite catalyst and at a temperature of 250°C.

Conclusion

As a result of this study, it was shown that the alkylation reaction carried out with beta zeolite catalyst provided high productivity and efficiency. The granular form allowed the catalyst to remain active for a long time and achieve high product yields. These results increase the efficiency of using beta zeolite in chemical reactions such as alkylation of aromatic amines and the possibilities of its application in future industrial processes. As a result, this study aims to contribute to the development of more efficient catalytic processes and to enable the implementation of more environmentally friendly and sustainable reactions.

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SYNTHESIS HYDROXAMIC ACIDS WITH A CAGE FRAGMENT AND BIOLOGICAL ACTIVITY OF THEIR COMPLEXES WITH Cu^{2+} AND Fe^{3+}

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Abstract

The discovery of hydroxamic acids among natural compounds [15] caused a large-scale study of their role in biological processes [11]. It was found, in particular, that they and their complexes with metals exhibit bactericidal activity [14, 16]. In connection with the discovery of antiviral properties in adamantane derivatives [4], adamantane-1-hydroxamic acid and its complexes with 3d-elements were synthesized, which showed both antiviral and fungicidal activity [6]. Similar studies were also carried out on bicyclic substrates [3].

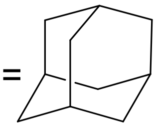
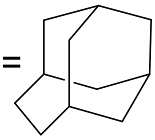
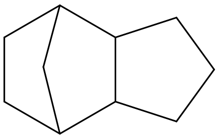
It was of interest to synthesize hydroxamic and methylhydroxamic acids substituted in the adamantane nucleus, their complexes, as well as acids and complexes with other framework fragments. The aim of the study was to elucidate the effect of the framework substituent on biological activity.

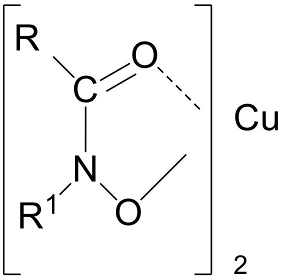
Keywords. *Adamantane-1-hydroxamic acid, adamantane-1-N-methylhydroxamic acid.*

The starting compounds were: adamantane-1-carboxylic acid (1a) [1], homoadamantane-1-carboxylic acid (1b0 [8], 1-methyladamantane-3-carboxylic acid (1c) [9], 1,3-dimethyladamantane- 5-carboxylic acid (1d) [7], 1,3,5-trimethyladamantan-7-carboxylic acid (1c) [13], obtained by an improved method from 1,3,5-trimethyladamantan-7-ol in 72% yield , tricyclo[5.2.1.02,6]decane-2-carboxylic acid (1d) [10].

The carboxylic acids (1) were converted into acid chlorides (2) by the action of thionyl chloride, from which the corresponding hydroxamic (3b, d, e) and methylhydroxamic (3a, b, d, e, f, g) acids were obtained by reaction with hydroxylamine or methylhydroxylamine.

$$\underset{(1)}{RCOOH} \rightarrow \underset{(2)}{RCOCl} \rightarrow \underset{(3)}{RCON(OH)R'}$$

Ad =  HomoAd =  TCD = 



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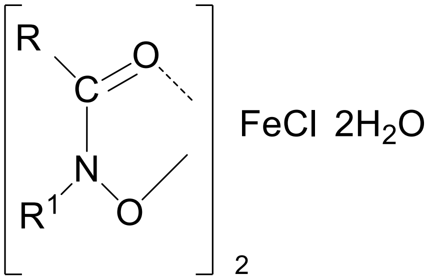

(5)

R = Ad-1 (1a – 5a); HomoAd-1 (1b – 5b); 1-MeAd-3 (1c – 5c; 3d – 5d);
1,3-Me_2Ad-5 (1d; 2d; 3e, ef– 5e,f); 1,3,5-Me_3Ad-7 (1e; 2e; 3f; 4f; 5i,g);
TCD-2 (1e; 2e; 3i,e; 4i; 5e,k)
R' = H (3c,e,f; 4c,e,f; 5c,e,g,f); CH_3 (3a,b,d,e – 5a,b,d,e; 3i,f; 5a,k)

The composition and structure of acids (3) was confirmed by elemental analysis and sectoral data. Yields and melting points of compounds (3) - (5) are presented in Table 1.

Table 1.

Yields and melting points of hydroxamic acids and their complexes with Cu^{2+} and Fe^{3+}

Compaund	Yield, %	Melting temperature, ^0C
3 a	69	75 – 6
3 b	75	101 – 3
3 c	61	112 – 3
3 d	71	88 – 90
3 e	92	121 – 23
3 f	59	124 – 5
3 g	48	137 – 8
3 h	80	150 – 3
3 i	69	131 – 3
4 a	95	195 (destr.)
4 b	96	225 (destr.)
4 c	94	220 (destr.)
4 d	85	250 – 4
4 e	95	180 – 5
4 f	83	235 – 6
4 g	78	245 – 7
4 h	95	210 (destr.)
5 a	93	178 – 81
5 b	82	183 – 5
5 c	98	119 – 23
5 d	90	210 – 2
5 e	98	170 – 1
5 f	76	180 – 3
5 g	98	141 – 3
5 h	75	223 – 5
5 i	97	185 – 6
5 j	93	112 – 4

Copper complexes were obtained by shaking a mixture of an aqueous solution of copper acetate and a chloroform acid solution (3). Complexes with Fe3+ were obtained by mixing iron chloride hexahydrate with acid (3) in methanol.

Judging by the data of elemental analysis, copper complexes contain 2 acid residues as ligands, while iron complexes have a composition represented by formula (5). In the latter case, as shown in [2, 3] using the example of complexes with adamantane- and norbornenehydroxamic acids, the chlorine anion is located on the outer sphere. Consideration of the IR spectra of the resulting complexes and their comparison with the spectra of the starting acids shows the following. If in the spectra of iron complexes with N-unsubstituted hydroxamic acids (5c, e, g, i) the NH bond vibration band near 3440 cm 3250 cm-1. These data can be interpreted as the existence of nitrogen-unsubstituted complexes of hydroxamic acids with Cu2+ in the form of iminolates with a hydroxyl at nitrogen.

Experimental part.

The antiviral activity of the synthesized compounds was studied in a screening test for plaque suppression against the Sindbis virus [5]. A 2-day culture of chick embryo fibroblasts was infected with the Sindbis virus at multiple initiation of 0.01 plaque-forming units per cell, and after one hour of virus absorption, the monolayer of embryos was covered with an agar coating according to Dulbenko [12]. After solidification, paper disks impregnated with a solution of the test compound at a concentration of 125 μg/disk were placed on the latter. The inhibitory effect was measured after 48 hours as the diameter of the plaque inhibition zone. In parallel, in a blank experiment, the diameter of the zone of cytotoxic action of the compound was measured in the absence of infection.

As the test results show, only 2 compounds - hydroxamic acid (3a) and a complex with iron (5b) show moderate activity with low toxicity. Most of the other compounds form zones of cytotoxic action that do not allow one to notice the antiviral effect.

The antimicrobial activity of the compounds was studied by the method of two-fold serial dilutions on a liquid nutrient medium, which is Hottinger's broth (pH 7.2–7.4). Microbial load for bacteria 2.5×105 cells of agar 18-hour culture in 1 ml of medium. The maximum of the tested concentrations is 200 μg/ml. The antimicrobial activity of the compounds was evaluated by the minimum bacteriostatic concentration. Staphylococcus aureus 209-P strain was used as Gram-positive bacteria, E. coli 675 strain was used as Gram-negative bacteria.

Test results show that hydroxamic and methylhydroxamic acids show high activity against Staphylococcus aureus (3). Complexes of hydroxoic acids with iron (4) and copper (4 c, e) show only moderate activity. Copper complexes of methylhydroxamic acids (4 a, b, d, f) are inactive. Among all the tested compounds, only complexes of hydroxamic acids with copper (4c, e, h) showed high activity against Escherichia coli (4c, e, h), the rest were inactive.

Sabouraud medium (pH 6.0–6.8) was used for growing fungi. Load - 500 thousand reproductive bodies in 1 ml. Antifungal activity was assessed by the minimum mycostatic concentration. The tests were carried out on a strain of Microsporum lanosum. Moderate activity was noted only for some hydroxamic acids (3 a – c) and copper complexes of methyl hydroxamic acids (4 d, f). The rest of the compounds had low or no activity.

Conclusions.

Thus, the presence of antibacterial and antifungal activity in some of the synthesized hydroxamic and methylhydroxamic acids and their copper complexes has been shown. The nature of the framework substituent can significantly affect the amount of activity.

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Economic sciences

PROSPECTS OF DEVELOPMENT OF DIGITAL BANKING IN THE MODERN CONDITIONS

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Abstract

The article examines the development prospects of digital banking in modern conditions. For this purpose, the essence of digital banking has been explained and its features have been systematized. The scope of services provided in digital banking is given and its advantages are mentioned. The problems of organizing banks' activities more flexibly and at the level of customer satisfaction were considered. The advantages of the digital banking mechanism in conducting bank transactions quickly and reliably are given. Modern aspects of the transformation of "smart" phones into the main integral part of customers' lives in the banking system have been considered. The possibilities of turning smartphones into the main banking channel have been assessed. The exceptional role of digital technologies, including digital banking, in the faster, cheaper and better development of sectors of the economy that use digital technologies has been justified. The issues of expanding the use of digital services and developing digital banking in Azerbaijan were touched upon. The digital transformation processes of the country's banking system were analyzed. The development of non-cash payments and related problems were considered. In the near future, generalizations were made and suggestions were made on the intensification of the development of digital banking.

Keywords: Azerbaijan, digitization, digital banking, digital services, electronic services, digital banking services, banking system development problems, banking system development prospects, internet banking.

Digital banking is the digitization of all traditional transactions. This service sector has many benefits. It is possible to get service without going to the office or waiting in line. Moreover, the development of this sector is beneficial not only to customers, but also to banks. Congestion in banks decreases, employees have a chance to use their time more efficiently. Banks are freed from the use of large offices and additional manpower. This increases the bank's profitability, and virtual implementation of all transactions increases their transparency, which is one of the most important reasons for the government to stimulate this sector. On the other hand, as digital interaction has become the primary choice of customers, the pandemic crisis has been a test for banks working with programs *that provide digital services. The growing need for digital assets poses challenges for many banks, while more mature banks may gain an edge in the sector during this period. The situation requires banks to reconsider their priorities and try to introduce new services to protect the trust of their customers. Recent events have shown once again that bank branches can offer better opportunities to reduce costs and use these funds to support investment. Thus, the primary direction is the analysis of customers' wishes and the formation of new types of services according to them. The bank's liquidity challenges challenged them to strengthen their advanced analytical skills to identify which customers they could serve and then develop customized proposals for them.*

In terms of summarizing the services provided in mobile banking in modern times, we would like to note that wherever there is an Internet connection, the possibility of carrying out bank transactions at any time of the day without going to a branch is noteworthy. In addition, with Internet banking, it is possible to carry out all banking operations 24 hours a day, 7 days a week. At the same time, in order to benefit from internet banking, it is enough to have a client's account in banks, and these accounts are functionally implemented both through current and through cards. Transactions include deposits, credit transactions, various money transfers and payments. In all cases, you can make domestic and international money transfers, utility payments, conversion, and salary payments anytime and anywhere you want with Internet banking at any point in the world.

At the same time, experts believe that bank branches and departments are becoming a thing of the past, that is, bank branches and departments will become obsolete and remain in the past. But it takes a long time and it will take some time for them to completely disappear. The driving directions for this will be the development of online banking channels, the gradual disappearance of the habit of visiting banks, their departments and branches, and the creation of grounds for the elimination of high commission fees charged per transaction, which lead to the creation of excess costs for the customer in branches. At the same time, fast banks will be able to continue to compete. Banks that are not fast will lose customers and relationships with them. Customers will migrate to digital banking systems provided by third-party technology companies (Доновська Д., 2020). This will cut ties between banks and customers, and banks will lose both branding and sales opportunities. ATMs will also be used less and less. ATMs will share the same fate as the old phone booths, they will be used very little and will only be used for withdrawing or depositing money. But given that the number of cash and check transactions will also decrease, perhaps then they will not be needed at all, as with branches (Ənənəvi yoxsa rəqəmsal bankçılıq? 2016).

It should be noted that brick-and-mortar banks are losing opportunities to expand due to the rapid shift in digital services, as customers are willing to switch their services to unique digital features such as online bill payments, mobile payments, faster transfer speeds and convenient credit applications (Abbasov, Ə.M., Məmmədov, Z.F., 2017). Although it can be used in many different ways on the Internet and elsewhere, the term digital banking actually combines online and mobile banking services under one umbrella (Faccia A., Mosteanu N., Bhatia S., Cavaliere L., 2020).

In our country, digital banking is used more by large companies than by individuals. However, there is a problem here that it is not convenient for medium and small entrepreneurs to use digital banking system. So, medium and small entrepreneurs have to withdraw this money sooner or later because they do not perform all their transactions virtually. Every time they withdraw money, they have to pay an additional commission. Analyzing modern developments in the field of digital banking, we can identify a group of areas for improving the economic security of the credit organization: 1) Automation of money laundering prevention processes; 2) Regulation of safety compliance by virtual employees; 3) Use of chat bots in solving administrative problems; 4) Use of computer vision systems installed in ATMs; 5) Application of technologies for automatic determination of customer reliability rating. Undoubtedly, banking services are available today in almost all areas of a person's digital life: 1) mobile devices; 2) social networks; 3) electronic payments and transfers; 4) Internet items; 5) cash deposits, etc.

We believe that failure to follow the necessary safety rules when using Internet Bank may result in financial losses. In this regard, when carrying out any financial transactions online, it is necessary to pay special attention to a group of issues: 1) to check whether there is a connection with the bank server to prevent the use of fake resources; 2) use licensed versions of antivirus protection systems; 3) protection from unauthorized access; 4) not to leave the computer unattended; 5) made sure to log out of the system after finishing work in the internet banking system; 6) keep information about login and password secret on the computer; 7) every two months the password to access the Internet banking system must be changed and 8) account statements must be monitored regularly (Tağıyev, X., Rüstəmov, T., 2021). It should be noted that during the pandemic in Azerbaijan, many citizens have already learned how to use *the bank's digital services, appreciated their convenience and plan to use them in the future. Services such as remote opening of deposits, receipt of statements and references, consideration of credit applications are now considered by customers as a necessary list of services that the bank should provide to them (Aslanov, A.M., 2014).*

The development of digital banking is the way to economic transparency, reduction of shadow economy, increase of tax revenues, number of jobs and Gross Domestic Product. The Central Bank of Azerbaijan implements a number of systematic measures in order to expand the digital transformation of the banking service and payment system. The application and development of innovative banking products should be reflected in the strategies of all banks. In addition to becoming one of the driving factors for the development of the banking system, digitalization can increase the level of trust between depositors and banks and ensure transparency in the sector. However, the main obstacle in digital transformation is the lack of competent professionals, as well as the lack of understanding of the need for urgent business transformation based on digital technologies. It goes without saying that in moving to a more technologically advanced way of doing things, the benefits outweigh the costs in the long run. Similarly, digital banking as a technological by-product aims to make life easier for the bank's customers.

It is known that digital transformation is an unstoppable and inevitable process to adapt to new conditions in the 21st century world business. In this new digital economy, it would be surprising to assume that business will operate with the old model, traditional processes and previous efficiencies. Business digital transformation will enable any company to keep up with new market realities and pressure from more pragmatic "digital" competitors. Thus, modern digital technologies offer great opportunities for banks. Artificial intelligence, machine learning, big data, infinite number of payments, virtual cards - the time of the new generation of digital products has arrived. Digital technologies are spreading at an incredible speed and are available in every region of the country: a person in the periphery can benefit from the same high-level service as a person living in the capital. In the realities of the modern world and in the fast flow of life, the fact that service does not depend on the customer's physical presence in most cases has become an important factor - this is the basis of digital banking.

In today's era, in the background of continuous development and application of innovations, banks that calculate their effectiveness and think about the future face a number of important tasks - reducing operating costs, increasing competitiveness, improving the business model, but most importantly, increasing the level of customer service and, as a result, customer satisfaction (Əliyev, Ş.T., 2017). The improvement of all these indicators listed above can be achieved through a successful digital transformation, which in turn will lead to an increase in the competitiveness of the brand. In terms of these factors, the digital transformation process begins with a detailed audit of the bank's existing IT infrastructure and its future implementation planning. Of course, it is impossible to imagine all this without highly qualified specialists in the field of information technologies. Digital transformation is a rather broad concept, and its full mastery requires high professionalism and work experience in several areas at the same time. In order to fully cope with the set goal and choose the most relevant solution from the market, it is not enough to be understanding and knowledgeable in only one direction of information technologies. One of the significant positive aspects of digital transformation is the tangible aspect of optimization. Compared to previous generations, the new approach requires fewer software processor licenses, which significantly reduces banking costs.

Thus, an organized digital transformation not only purposefully optimizes the IT infrastructure as a whole and increases its efficiency, but also leads to a decrease in operational costs. After implementing all the changes and innovations, it is important to ensure the integrity of the bank's ecosystem. This is based on the Business Process Management software, which provides a technological platform for the development and implementation of new components of digital banking and related modules. The platform allows the customer to use any digital channel, i.e. internet bank, mobile bank, ATM, voice/chat - contact center, etc. It will enable the quick and high-quality launch of new services and financial products, such as omni-channel banking. As one of the steps of the digital transformation in omni-channel banking, we see the opening of small and fully automated service networks. Such a service network, both for individuals and legal entities, through a ATM for all other transactions (obtaining statements, cash transactions, deposit/credit transactions, communication with the operator via video chat, various types of biometric identification, etc.) taking into account that, if necessary, there can be even a small accommodation area with only a security guard from the permanent staff. In addition to the digital transformation of companies, a new term called "digital elite" (Digirati) has emerged - a new concept that includes activity and strong management in the field of digital technologies, demonstrating *the transition from use of IT to business transformation. Digital transformation is considered a guarantee for the successful operation of any company (Rəqəmsal bankçılıq strategiyası, 2018).*

Various measures have been implemented in the strategic directions of further improving the institutional environment of digital payments, revitalizing the banking sector, forming a digital ecosystem, and strengthening awareness and promotion of digital payments, provided for in the adopted State Program. As a result, the Instant Payments System and blockchain-based Digital Identification System containing modern payment solutions were created, card infrastructure was improved, and cashless payment opportunities were increased. For the first time in the country, "smart student cards" with payment functionality have been issued to students in educational institutions. A number of amendments have been made to the existing legislation in order to support the latest technologies in retail payments as well as the development of digital banking. Within the framework of the creation of the Instant Payments System, appropriate standards have been prepared for the creation of the possibility of introducing cheap payment methods such as QR-code, which allows small economic entities to accept non-cash payments, and the acceptance of payments via QR code has been started in the economic entities selected as a pilot.

Taking into account the above, in order to eliminate the problems that prevent the development of cashless payments, to increase access to cheap and affordable financial services for the population and businesses in any area of our country, regardless of the place of residence, and to expand the use of digital payment services, 2021-2023 of the Central Bank of the Republic of Azerbaijan "Digital Payment Strategy" was developed. In the process of developing the strategy, the experiences of developed and emerging countries were studied, and at the same time, a number of strategic road maps prepared for the development of their payment market were analyzed. The main goal of the Digital Payment Strategy is to provide convenient and accessible payment services for the government, businesses and citizens. In this direction, the Strategy aims to achieve a set of goals: 1) ensuring the stability and sovereignty of the National Payment System; 2) Creation of a favorable legal level for the introduction of innovations in the sphere of payment; 3) Providing more profitable payment services to economic entities by strengthening the competitive environment; 4) Ensuring access to payment services for all population groups, regardless of residence and income factors, etc.

In addition to these, we should also note that there are existing problems in the digital payment market. Thus, the main obstacle in the development of non-cash payments and the dominant position of cash circulation are related to the institutional, economic and infrastructure factors that determine the high level of the shadow economy (Bəşirov, R.A., 2016). In addition, a number of factors related to weak competition in the payment market, the lack of a legislative framework supporting innovation, low financial literacy, demand and supply of payment services negatively affect the development of digital payments: I. Problems arising from the institutional structure of the economy and the level of development: 1) The dominant position of cash in the generation of income - the main part of the population's income is in cash: although the policy carried out in the last 2 years has removed 240,000 jobs from the shadows, a small part of the employed population (34.4%) still works for wages. At the same time, high non-bank cash turnover (M0/M2=53%) indicates the presence of private sector unregistered income. 2) Inequality and low transparency in income distribution. The low-income group (69% of the employed population has an income of less than 500 AZN) uses digital payment services less due to poor access to financial services. The high-income class prefers cash payments due to low transparency of income sources. 3) Inadequate management of money supply due to fiscal dominance. The trend of rapid expansion of the monetary base (2 times in the last 3 years) is one of the important factors preventing the transition to cashless payments. 4) Low economic growth rate. The average increase in the production of goods and services in the last 3 years has a negative effect on the demand for payment services. II. Problems related to financial markets: 1) Weak development of financial markets. The weak availability of liquid funds makes banks uninterested in promotional campaigns that encourage people to keep funds in their bank accounts. 2) Unhealthy competitive environment. The concentration of salary projects of pension and state organizations, which are the main card users, in large banks makes other banks uninterested in infrastructure development, increasing product variety, conducting marketing campaigns and prevents optimization of acquisition rates. III. Problems with the payment market: 1) Digital payment offerings are limited and expensive. The lack of legislation on the activities of non-bank organizations prevents their active involvement in the digital payment market. A weak competitive environment affects the range and availability of digital products, making them expensive for the end user. 2) Poor use of non-cash payment options. Poor use of payment opportunities created by business entities leads to a high volume of cash in circulation, reducing the interest of payment *providers to invest in digital payments. At the same time, Apple Pay, which provides innovative payment solutions, narrows the possibilities of attracting organizations like Samsung Pay to the country. 3) Counterparty risks in digital banking refers to the potential that one party involved in a financial transaction may default on its contractual obligations. This risk is particularly significant given the increasing reliance on technology and third-party services in the banking sector. 4) Default risks in digital banking means that there is a possibility that borrowers will not be able to meet financial obligations such as loan repayments. This risk has become increasingly important due to the expansion of digital banking, driven by technological advances and changing consumer behavior. IV. Financial literacy issues: 1) Low level of financial literacy of the population. 2) Inadequate level of knowledge of the population on financial services, as well as lack of knowledge about digital payments, their methods of use and benefits, has a negative effect on the indicator of using these services. 3) Research conducted by the World Bank shows that interest in opening bank accounts in Azerbaijan is significantly less. Financial literacy is lower in regions and rural areas, especially among housewives and elderly population groups (ARMB 2021-2023-cü illər üçün Rəqəmsal Ödəniş Strategiyası, 2021).*

It should be noted that one of the main measures of the "State Program for the Expansion of Digital Payments in the Republic of Azerbaijan in 2018-2020", approved by the Order No. 508 of the President of the Republic of Azerbaijan dated September 26, 2018, is about digital payment services for pupils, teachers and students (2018-2020-ci illərdə AR-də rəqəmsal ödənişlərin genişləndirilməsi üzrə Dövlət Proqramı, 2018). Within the implementation of this measure entrusted to the Ministry of Education of the Republic of Azerbaijan, a textbook entitled "Digital payments and electronic banking services" was written for the first time in the country. The main goal of the course is to increase the financial literacy of the population in digital payments, to train new professional personnel who will work in this field, as well as to further improve the knowledge and skills of bank employees and students in the field of digital payments and electronic banking services (Rəqəmsal ödənişlər və elektron bankçılıq xidmətləri, 2023).

Currently, the National Priorities for the period up to 2030 are being implemented in Azerbaijan, and the main measures include the improvement and renewal of the structure of the national economy in accordance with modern challenges (Azərbaycan 2030: sosial-iqtisadi inkişafa dair Milli Prioritetlər, 2021). In these processes, the exceptional role of financial resources will increase and the economy's demand for more flexible financial resources will increase (Melikova, L., & Bagırova, A., 2024). At the same time, more multifunctional action mechanisms will be applied in the process of renewing the structure of the country's economy (Aliyev, Sh.T., 2014). Along with these, more flexible banking infrastructure is required in construction activities and projects implemented in post-conflict areas (Алиев, Ш.Т., Азимова, А.Р., Гурбанова, Р.В., 2021). In all these mentioned processes, the role of digital banking services will increase significantly.

If we touch upon the global trends in digital banking, the following should be noted: ehe emergence of super apps such as WeChat and Alipay has significantly transformed the landscape of digital banking, particularly in China. WeChat, initially a messaging platform developed by Tencent, has evolved into a comprehensive application integrating social networking, financial services, and mobile payments through WeChat Pay. This integration has facilitated cashless transactions, reduced reliance on traditional banking institutions, and enhanced financial accessibility, particularly in rural areas. WeChat Pay enables users to conduct a wide range of financial transactions, including money transfers, bill payments, and investments, while also expanding its reach internationally. Despite regulatory challenges, security concerns, and fraud risks, WeChat continues to innovate with technologies such as artificial intelligence and blockchain, setting a precedent for future financial technology developments worldwide (Your Guide To WeChat Features, 2022). Similarly, Alipay, launched by Alibaba's Ant Group in 2004, has evolved from an escrow service for e-commerce transactions into a multifaceted financial platform offering mobile payments, credit scoring, wealth management, and insurance services. Alipay has addressed several financial and economic challenges, including trust issues in online transactions through its escrow service, financial inclusion for unbanked populations, and fraud prevention using advanced AI-based security measures (Accessible digital payments for everyone, 2024). Additionally, it has empowered small businesses by enabling digital payments without expensive infrastructure and facilitated cross-border transactions for Chinese tourists. The platform has also expanded into microloans and insurance, further broadening financial accessibility. Both WeChat and Alipay exemplify the growing role of super apps in reshaping digital banking by enhancing convenience, security, and financial inclusion.

Furthermore, the expansion of digital banking has enhanced financial accessibility but also introduced regulatory challenges related to cybersecurity, fraud prevention, and data protection. In response, governments have implemented legal frameworks to mitigate these risks while fostering innovation. For *instance, in the European Union (EU), the General Data Protection Regulation (GDPR) enforces stringent data protection measures, ensuring transparency and granting individuals control over their personal data. Additionally, the Payment Services Directive 2 (PSD2) mandates Strong Customer Authentication (SCA) to enhance the security of online transactions. Then, in the United States, banking regulations are decentralized, with multiple agencies, including the Federal Reserve and the Consumer Financial Protection Bureau (CFPB), overseeing financial institutions. Key legislation includes the Gramm-Leach-Bliley Act (GLBA), which mandates the protection of consumer financial data, and the Dodd-Frank Act, which enhances financial transparency and reduces systemic risks. Additionally, China has increasingly tightened its regulatory framework for digital banking and fintech. The China Banking and Insurance Regulatory Commission (CBIRC) and the People's Bank of China (PBOC) supervise banking and payment services, respectively. Recent laws, such as the Personal Information Protection Law (PIPL) and the Data Security Law (DSL), impose strict data security requirements to safeguard consumer financial information and prevent misuse (Lessons from the rapidly evolving regulation of digital banking, 2021).*

Thus, in the near future, we can say that the development of digital banking in Azerbaijan will be intensified and electronic digital services will be introduced more quickly. These will be implemented mainly in the following directions and for a group of important goals:

- *First of all, the renewal of the structure of the country's economy and the provision of more efficient operation of digital banking in the formation and development of digital-based economic areas;*
- *Accelerating economic growth and attracting investments, increasing the role of internet banking in the transformation of economic sectors into a competitive and efficient one;*
- *Technological and digital modernization of industry and creation of high-tech production;*
- *Accessibility of the advantages and opportunities of the digital world for citizens, realization of human resources, acceleration of the development of digital industries and entrepreneurship, etc.*

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ENSURİNG STABLE AND SUSTAİNABLE DEVELOPMENT İN THE SOUTH CAUCASUS

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Abstract

Currently, ensuring peace and security in the South Caucasus is the most important issue for Azerbaijan.One of the hotbeds of ethnic conflict inherited from the Soviet empire was the Nagorno-Karabakh conflict. After Azerbaijan regained its state independence (October 18, 1991), this conflict escalated further, leading to a war between Armenia and Azerbaijan, and entering the stage of the Armenia-Azerbaijan-Nagorno-Karabakh conflict. As a result, the Nagorno-Karabakh region of Azerbaijan and surrounding regions were occupied by Armenian military forces. In various international and regional organizations, the Republic of Azerbaijan, which was unable to achieve a political solution to the conflict within the framework of bilateral and multilateral cooperation, demonstrated its will to resolve this historical injustice through military-political force and, in accordance with four resolutions of the UN Security Council, launched the "Peace Enforcement" ("Counter-Strike" Operation – MA) operation in the Karabakh region occupied by Armenia from September 27, 2020. As a result of the Second Karabakh War, which took place from September 27 to November 10, 2020, the Azerbaijani army inflicted a heavy defeat on the Armenian invaders, liberated the Nagorno-Karabakh region and surrounding regions from enemy occupation, and created new realities in the region. As a result of Russia's intervention in the process to save Armenia from its miserable situation, an act of capitulation was signed on November 10, 2020, confirming the political and military defeat of Armenia. On June 15, 2021, in the city of Shusha, President of the Republic of Azerbaijan Ilham Aliyev and President of the Republic of Turkey Recep Tayyip Erdogan signed the "Shusha Declaration on Allied Relations between the Republic of Azerbaijan and the Republic of Turkey". Today, Azerbaijan's political and economic potential has increased, our country has become a state with a say in the region, and its influence and position on the international political scene have been further strengthened. It should be especially noted that the implemented policy has created a favorable basis for our country to confidently move forward on the path of independent, secular and democratic state building, to have a decisive say in the region, and to establish equal and mutually beneficial partnership relations. It should also be emphasized that Azerbaijan is the main guarantor of peace and security in the region, in the South Caucasus. Yes, it is a fact that Azerbaijan created new realities in the region and the region after the 44-day Patriotic War and has great influence and power as a dictating state in the post-conflict period. Azerbaijan, as a victorious party, is a supporter of peace today and certain steps have been taken in this direction

Keywords: *south caucasus, sustainable development, peace, politics*

Azerbaijan, which has an independent foreign policy, is recognized as a reliable strategic partner, a strong and influential actor in the modern system of international relations. Acting as a leading state in the South Caucasus geopolitical space, our country, with its multi-vector and balanced foreign policy strategy, makes fundamental contributions to the geopolitical and geoeconomic, in other words, geostrategic security of the region in which it is located, both in the context of bilateral relations and against the background of multilateral relations, and plays the role of a central player in a regional-scale, global cooperation platform. Azerbaijan, which is not dependent on any international organization or nation-state, is already transforming from a regional actor into a global strategic partner. It is precisely as a result of all this that Azerbaijan is rapidly advancing in the hierarchy of influence and power of the modern system of international relations and world politics.

This indicates that Azerbaijan acts as a guarantor of security and a source of development for the region. First, the independent and balanced energy policy implemented by our country, in addition to ensuring the energy security of the region and the surrounding geography, has turned Azerbaijan into one of the leading exporters and partners in the world's energy market. Thus, today, Azerbaijan, *considered the flag bearer of the Caspian Basin, acts as one of the main actors playing an important role in ensuring energy security on an international scale by effectively using its rich energy resources. As a result of the policy implemented in accordance with the principles of national statehood and based on our national interests, our country acts as a central player in transnational projects that are regional in scale and global in importance. It is no coincidence that no project in the region can be implemented today without the participation of Azerbaijan, the main regional power that ensures the creation of regional cooperation platforms. This clearly reflects the importance that Azerbaijan has acquired in the perspective of strategic cooperation among world states. Currently, with all these advantages, Azerbaijan is one of the partner countries with which the main actors - the world's leading states and transnational companies - strive to develop cooperative relations in the long term.*

Secondly, Azerbaijan is making direct contributions to ensuring the military-political and economic security of the South Caucasus. All this, in addition to being adequate to the national interests of our country, also confirms the level of sovereignty of Azerbaijan, its independence from any state or organization. In short, Azerbaijan acts as a leading national actor - a leading state, a guarantor of security and development in the South Caucasus region.

Our country is recognized as an important strategic partner in the global energy market. As we have noted, Azerbaijan's energy strategy, as always, is in the center of attention of the world today. With the implemented multifaceted energy policy, our country has been able to become a regional and global actor. Azerbaijan also builds relations on this basis, correctly assessing its regional and global importance in energy relations, as well as its own energy potential.

Azerbaijan's energy policy is of great importance in terms of the energy security of European countries that depend on foreign oil and gas sources. The processes taking place from time to time in the world energy market show that some states are trying to take advantage of the oil and gas factor for their own economic and political goals by speculating. Azerbaijan, on the other hand, has gained the image of a reliable partner by establishing sincere, real market principles-based, legal relations with all its partners. The fact that our republic has such a position and is pursuing a balanced policy proves that it uses its energy resources to build reliable and long-term partnerships.

With the signing of the "Contract of the Century", Azerbaijan, known as an oil country in the world, has become an important participant in the global energy market with the Baku-Tbilisi-Ceyhan project, of which Azerbaijan is the supplier. Currently, oil and oil products are exported from Azerbaijan to up to 30 countries of the world. The fact that Azerbaijani oil accounts for 25-30 percent in the energy balance of some European countries is a fairly high indicator.At the same time, in recent years, our country has also attracted attention due to its natural gas reserves. Azerbaijan's existing gas reserves will allow the republic and partner countries to meet their demand for "blue fuel" for the next 100 years. The listed factors cause influential states, including international organizations, to constantly show interest in cooperation with Azerbaijan in the energy sector. Currently, Azerbaijani gas is transported to Georgia, Turkey, Russia, Iran and Greece through the Baku-Tbilisi-Erzurum and Turkey-Greece pipelines. These real indicators determine Azerbaijan's transformation into a major oil and gas producer and exporter in the region with its rich energy resources.

The next success of Azerbaijan's energy policy was the signing of the Intergovernmental Agreement and Host Agreement on the Trans-Anatolian Gas Pipeline (TANAP) project between Azerbaijan and Turkey in June 2012. The TANAP project, which defines another route for the delivery of Azerbaijani gas to Europe, meets the energy interests of the continental countries. Thus, Azerbaijan is interested in diversifying its energy export pipelines, and European countries are interested in diversifying their energy import sources. This project once again confirms that Azerbaijan is Europe's closest and most reliable energy partner. The gas intended for Europe under the TANAP project will be exported to Europe via the Turkey-Bulgaria or Turkey-Greece border.

By the way, it should be noted that NABUCCO and TANAP have signed a memorandum of understanding and cooperation. With this memorandum, both parties officially declared their agreement to cooperate for the development of the "Southern Gas Corridor". The memorandum states that NABUCCO and TANAP will exchange technical and other strategic information and cooperate in order to support the development of their respective projects. The document also reflects the need for further diversification of natural gas supply routes in order to improve the security and diversification of gas supplies to the European Union and the South-Eastern European regions.

Frank Sibert, Chief Financial Officer of Nabucco Gas Pipeline International GmbH, said: "We welcome this memorandum. In the coming months, all components of the value chain between Shah Deniz gas and European consumers will work together to align project programs in order to achieve maximum *commercial benefits for all stakeholders. This memorandum of understanding is an important step in this process."*

It is worth noting that the NABUCCO pipeline is planned to transport gas reserves from the Caspian Sea region, starting from the Turkish-Bulgarian border, passing through Bulgaria, Romania and Hungary, to the Central European Gas Hub in Baumgarten. As the central element of the "Southern Gas Corridor", NABUCCO is ideally located to diversify gas supplies to over 500 million consumers in the developing South-Eastern European economy and from there to Western Europe.

As can be seen, Azerbaijan, which plays a decisive role in the fuel supply of European countries today, is creating new export routes by increasing the volume of its rich oil and gas reserves every year. The diversification policy of our republic in the energy sector brings new qualitative changes to the world fuel market. These factors also create deep foundations for Azerbaijan to be a reliable supplier as a major gas supplier in the world market for more than 100 years. In general, Azerbaijan will export energy resources in a diversified manner and according to a system that can play a decisive role in the supply of all countries. Our country's position is related to the continuation of the policy of diversifying energy supply, and the multi-branch pipelines that have been put into operation so far can be considered a confirmation of this.

Azerbaijan's position in the world economy is strengthening and its rating is increasing It should be noted that thanks to the rational and pragmatic foreign policy course being implemented, Azerbaijan's position in the world economy is strengthening, and at the same time its rating is increasing. As we know, Azerbaijan is among the leading countries in the world in terms of the pace of economic development. The achievements in this area have been possible both due to the high level of implementation of socio-economic policy within the country and the successful transformation of foreign political relations into the sphere of economic cooperation. As a result, Azerbaijan is now recognized as an important and reliable partner in international economic cooperation.

In general, the growth of Azerbaijan's economic power has further increased interest in our country. Our country has achieved multifaceted economic cooperation with Turkey, Georgia and Russia, primarily among the countries of the region. Successful cooperation established in the energy sector, light industry, agricultural products, machine building and other spheres is a contribution to the development of the region. At the same time, Azerbaijan, as a country located at the crossroads of Europe and Asia, brings the two regions closer together politically, culturally, and economically. Azerbaijan actively cooperates within the framework of a number of economic projects on an international scale. The Europe-Caucasus-Asia Transport Corridor (TRACECA) program, also called the "New Silk Road", is a program that develops transport links between Central Asia, the Caucasus and Europe. The goal of the program is to support the political and economic independence of its founders, 5 Central Asian and 3 South Caucasian republics, to increase their access to European and world markets through alternative transport routes, and to create the fastest and cheapest transport corridor from Europe to Central Asia through the Black Sea and the Caucasus and vice versa. In this regard, the Baku-Tbilisi-Kars railway line, which is currently under construction, will become an important means of transporting goods. Pragmatic relations with Euro-Atlantic institutions and bilateral cooperation relations with European countries are on the level of dynamic development.

Relations with Euro-Atlantic institutions and bilateral cooperation with European states have a special importance in the course of Azerbaijan's foreign policy. Azerbaijan's policy of democratic state-building is the main factor that makes integration into the West possible. The policy of independent state-building, founded by the National Leader Heydar Aliyev, ensured the rapid liberation of various spheres of public life from the remnants of the totalitarian regime, and the democratic reforms implemented in the country, especially in the political, economic, judicial and legal spheres, have shown that Azerbaijan is determined on this path.
Also, democratic reforms in the mentioned direction are being successfully continued by President Ilham Aliyev. As an indicator of this, we can note the protection of citizens' rights and freedoms, the harmonization of the electoral system and legislation with European standards, and the implementation of progressive judicial and legal reforms. Currently, Azerbaijan, which is advancing along the lines of a democratic political system, civil society and the establishment of a legal state, is confidently moving forward on the path of comprehensive modernization reflecting social, political, economic, cultural and intellectual transformation. As a result of liberalization in the economic sphere, large-scale privatization measures, the transition to a market economy, the implementation of international energy projects and the successful continuation of the processes of integration into the world economy, Azerbaijan has become more closely connected with the European space in economic terms.

In addition, the free activity of the media, unrestricted use of the Internet, the amnesty of thousands of prisoners every year through pardon decrees that have become a tradition, the fight against corruption and bribery, ensuring the rule of law, the simplification of processes such as documentation, registration, tax payments, the establishment of e-government and other such steps confirm that Azerbaijan is truly forming as a modern, legal state. At the same time, the implementation of these measures, often in cooperation with organizations such as the European Union, the Council of Europe, the OSCE, and the European Parliament, acts as a fundamental strategic factor that makes Azerbaijan's integration into the European space successful.

The next link in the framework of a successful Western integration policy: Croatia Azerbaijan's integration into the European space is also based on our country's bilateral mutually beneficial cooperation with the states of the region in question. Azerbaijan has political, economic, cultural, and humanitarian relations with most European states. Our country's favorable geographical location, free market economy, creation of broad conditions for the activities of foreign investors, strengthening of its international political authority, and other factors are the main factors attracting the states of the region to cooperation with our republic. As an indicator of the expansion of bilateral relations, we can note the regular official and business visits at the level of heads of state and government, other officials.

The recent visit of President Ilham Aliyev to Croatia, the review of the current level of Azerbaijani-Croatian relations, discussions aimed at expanding cooperation in various fields, and the signing of a declaration on strategic partnership and friendly relations are important contributions to the development of relations. It should be noted that there is a wide potential for the development of cooperation between Azerbaijan and Croatia in many areas. The two countries are interested in relations and mutual investments in the fields of energy, tourism, transport, infrastructure, high technologies, agriculture, and humanitarian affairs. In addition, the positions of Azerbaijan and Croatia coincide on many political and regional security issues. Croatia is a country that openly states that Nagorno-Karabakh and surrounding regions are under occupation and supports the territorial integrity of Azerbaijan.

It should be noted that relations with Croatia are also beneficial for Azerbaijan's integration into the Euro-Atlantic space. Thus, official Zagreb supports the development of Azerbaijan-NATO relations. Also, Croatia is expected to become a member of the European Union (EU) in the near future. In this case, the number of friendly and partner countries in the EU with Azerbaijan will expand somewhat, which will make significant strategic contributions to our country's relations with the organization.

Thus, the integration of our republic into the European space continues on the basis of the high interest of European countries in cooperation with Azerbaijan, which has formed its positive international image, as well as the national political and economic interests of our country. Conveying the truths of Azerbaijan to the world occupies an important place in the foreign policy course of our state.

It is necessary to pay special attention to one point: in the course of Azerbaijan's foreign policy, conveying the realities of our country to the world community occupies a special place. In general, in the modern era, when information propaganda is of great importance, conveying the truths about our country to the world is one of the issues of fundamental importance. It is no coincidence that in the modern era, one of the important directions in the foreign relations of the Republic of Azerbaijan is the policy of conveying objective information to various states and international organizations about the reality of our country's exposure to military aggression by Armenia and its consequences, and the negative impact of the conflict on the stable future of the region. As a result of the hard work of the Great Leader Heydar Aliyev in conveying the realities of Azerbaijan to the world, as well as the continuation of this policy at a high level by President Ilham Aliyev, decisions and resolutions have been adopted by PACE, OIC, OSCE, UN and other organizations indicating the necessity of liberating Azerbaijani territories from occupation and returning internally displaced persons to their homelands.

The embassies of our republic operating in various countries are also demonstrating special activity in conveying to the world the truth about the occupation of Azerbaijani lands, as well as the looting committed in the occupied territories, and the destruction of material and cultural artifacts. Thus, every year books reflecting the truth about Azerbaijan are published in foreign countries, and numerous conferences and events are held.

In this regard, Azerbaijan also benefits from its position in the UN Security Council (UNSC). Thus, on May 4, 2011, at the high-level meeting of the UNSC chaired by President Ilham Aliyev, discussions were held on the topic of "Threats to international peace and security posed by terrorist acts" at the initiative of Azerbaijan. In his speech at the event, President Ilham Aliyev brought the state terrorism *policy pursued by Armenia against Azerbaijan to the attention of the world community from the highest rostrum.*

It is necessary to emphasize the services of the Heydar Aliyev Foundation in bringing to the world the troubles and tragedies that Armenians have inflicted on the Azerbaijani people, and the Armenia-Azerbaijan, Nagorno-Karabakh conflict. The international campaign "Justice for Khojaly", founded by the Foundation, conveys the truth of the genocide committed by Armenians against Azerbaijanis at the end of the 20th century to the public of more than 60 countries of the world. As a result of the numerous projects and work carried out by the Foundation, the public of various countries, as well as young people, are provided with comprehensive information about the tragedies that Azerbaijan has been subjected to. It is precisely the activities of this organization that have led to positive progress in better recognition of Azerbaijan in various countries of the world, in the mass dissemination of substantial information about the historical causes and tragic consequences of the Nagorno-Karabakh conflict, which is the main success of our country and the main problem.

As is known, using the wide potential of our national diaspora in conveying Azerbaijani truths to the world is one of the important points that our state pays attention to. Hundreds of our diaspora organizations, highly supported by the Azerbaijani government and operating in various countries, contribute to neutralizing disinformation directed against our country and to informing the international community correctly with the events and campaigns they organize every year. It is gratifying that today our compatriots living in every region of the world are organizing among themselves at great speed in order to serve their homeland in crucial issues, thereby becoming a powerful force in protecting Azerbaijan's interests on an international scale.

Thanks to the work done, the international community now has a broader understanding of the crimes committed by Armenians against humanity. As a clear indicator of this, it is worth noting the recognition of the Khojaly genocide by various states and federal entities around the world. Thus, following Massachusetts, Texas, New Jersey, Georgia and Maine, this year the states of New Mexico, Arkansas, Oklahoma have recognized the Khojaly tragedy. In addition, the US state of California has adopted resolutions and proclamations recognizing Nagorno-Karabakh as part of Azerbaijan.

Recognition of the Khojaly genocide at the level of individual states is also continuing successfully. After Mexico, Pakistan, and Colombia, in 2013 the Khojaly genocide was also recognized in the parliaments of the Czech Republic and Bosnia and Herzegovina.

Thus, today, the truths of Azerbaijan are confidently promoted in the world, and our country, which has taken the lead in the information space, is foiling the disinformation and black PR directed against us by Armenia and the Armenian lobby.

The issue of resolving the Nagorno-Karabakh conflict is a topical issue on the international agenda one of the important directions of the implemented independent foreign policy strategy is the task of resolving the Armenia-Azerbaijan, Nagorno-Karabakh conflict in accordance with the norms of international law. Our country is effectively using all its resources to resolve the Nagorno-Karabakh conflict, which emerged as a result of the geostrategic plans of some imperialist powers acting as actors in the system of international relations, and the aggressive policy of Armenia against the background of these plans, in accordance with the norms of international law.

Against the backdrop of the offensive diplomacy carried out under the leadership of our head of state, Azerbaijan has achieved significant achievements on the diplomatic front, as well as gained a significant advantage in the information war. The issue of resolving the conflict is now regularly brought to the agenda in the international arena and constitutes one of the topical subjects of discussion at a number of international meetings. At various times, the problem of resolving the Nagorno-Karabakh conflict has been brought to the agenda at the highest level and in the highest form, both at the broad-based meetings of the UN General Assembly, and at the sessions of other international organizations, in the legislative bodies-parliaments of various states, and at interstate bilateral and multilateral meetings. Naturally, the fundamental factor underlying all this is the successful foreign policy and high diplomatic competence of the Azerbaijani authorities. The successful continuation of the pragmatic, rational and realistic foreign political and strategic course, founded by the great leader Heydar Aliyev, by President Ilham Aliyev today in accordance with the requirements of the modern system of international relations, undoubtedly led to the resolution of the Armenia-Azerbaijan, Nagorno-Karabakh conflict becoming a topical issue on the international agenda. Already, statements on the resolution of the Nagorno-Karabakh conflict in accordance with the norms of international law are being made regularly and unambiguously by all states at one level or another. In short, against the background of all this, extremely optimistic views are being voiced that the Nagorno-Karabakh conflict will be resolved in accordance with *the norms of international law - within the territorial integrity of the Azerbaijani state. This gives grounds to make such a prediction that, as a legitimate result of the offensive diplomacy carried out by the Republic of Azerbaijan, the territorial integrity of our country will definitely be restored.*

As we have noted, Azerbaijan, which pursues a rational, pragmatic and multi-vector foreign policy course, is using all its resources to the maximum extent to resolve the conflict in accordance with international law. The fact is that the Republic of Azerbaijan has identified the resolution of the Nagorno-Karabakh conflict as a priority direction of its foreign policy strategy and is pursuing a strategic course based on offensive diplomacy in this direction. In other words, the resolution of the Armenia-Azerbaijan Nagorno-Karabakh conflict in accordance with international law is one of the most important and first strategic tasks facing the Azerbaijani state. It should also be noted that Azerbaijan currently prefers peace negotiations and diplomatic means to resolve the problem. This indicates that our country, which always bases its foreign policy activities on international law, continues to see peaceful means as the optimal and effective mechanism. However, this does not mean that if the negotiation process does not yield the desired results, Azerbaijan will not resort to another method, the use of military force. The Azerbaijani state will resort to every means and method to ensure that this struggle reaches its logical and legitimate conclusion - the restoration of the territorial integrity of our country. This is the supreme right of our country, established in accordance with the norms of international law. The reference to the method and mechanism of armed defense is also a legal alternative facing Azerbaijan. This right of our country is also recognized and confirmed by the norms and principles of international law in the Helsinki Final Act of the OSCE adopted in 1975. The Helsinki Final Act approaches the issue in this way: "Territorial integrity constitutes the basis of the main norms and principles of international law. If an act of external aggression occurs against any state and its territorial integrity, the state subjected to aggression may use armed forces to ensure its security..."

Azerbaijan as a reliable strategic partner and influential actor in the modern system of international relations

Thus, as a logical consequence of the above, it can be noted that as a result of the multilateral and balanced foreign policy implemented under the leadership of President Ilham Aliyev, Azerbaijan has become the strongest and most sovereign actor in the region, as well as a nation-state with high international prestige. Of course, pursuing an independent economic policy, making significant contributions to the dialogue between civilizations, and playing a significant role as a strategic partner in ensuring regional and international security are important factors that increase Azerbaijan's international prestige.

Also, a multi-vector, balanced foreign policy strategy has turned our country into one of the locomotive actors to be taken into account in several directions. In other words, Azerbaijan's position in the system of international relations is constantly strengthening. Currently, independent nation states pursuing a rational foreign policy course perceive our country as a reliable partner, a strong, influential national actor. Finally, in this context, Azerbaijan's 1-month chairmanship of the organization as a new non-permanent (temporary) member representing the Eastern European region in the United Nations Security Council in 2012-2013 is a key indicator of this. At the same time, Azerbaijan's hosting of prestigious international events, and the fact that influential and powerful nation states, as well as international organizations, attach special importance to cooperation with our country reflect the high international prestige of our state.

Conclusion

Thus, when we look at the security environment of the South Caucasus in the new geopolitical realities, it is possible to see that the factors that affect the security of the region and that we mentioned at the beginning of the analysis have not changed in the main. Along with all this, I would like to single out one factor, which is the ethno-political, territorial conflicts and problems that continue to exist in the region. This factor can be considered the biggest threat to the security system of the South Caucasus. The existence of the mentioned conflicts and problems directly affects the relations of both intra-regional and regional states with external power centers. Also, the potential for frozen conflicts (Georgian-Abkhazian, Georgian-Ossetian) and problems (Armenia-Azerbaijan) to turn into a major war and military operations again is quite large and seriously weakens the security system of the South Caucasus. In particular, here, I would like to note the contradictory position demonstrated by Armenia in its approach to post-conflict problems after the Second Karabakh War, its failure to completely abandon its territorial claims against Azerbaijan, and its policy of increasing its military power based on revanchist tendencies. Let us also add that in recent years, Armenia has been closely cooperating with countries such as Iran, India, and France in order to increase its military power, and in this context, the military cooperation of the mentioned countries with Armenia is contributing to the emergence of new clashes and conflicts in *the region. Finally, it can be concluded that it is impossible to achieve lasting peace, development, and institutionalization in the region unless the factors that determine the weakness of the security system of the South Caucasus change.*

The leading state in the South Caucasus region, both geopolitically and geoeconomically, is the Republic of Azerbaijan. After regaining its independence, Azerbaijan fell victim to ethnic conflicts inherited from the Soviet Empire, and since then, the Nagorno-Karabakh conflict has escalated and entered the stage of the Armenia-Azerbaijan-Nagorno-Karabakh war. As a result, the Nagorno-Karabakh region of Azerbaijan and its surrounding regions have been occupied by Armenian military forces. Despite the efforts of international organizations and leading states for many years, this problem has not been resolved due to the unfair approach to the conflict and the policy of freezing the conflict by some hegemonic states. The Republic of Azerbaijan, which has not been able to achieve a political solution to the conflict at the international level, has demonstrated its will to resolve this historical injustice through military-political force and, in accordance with four resolutions of the UN Security Council, launched a "Peace Enforcement" operation in the Karabakh region occupied by Armenia since September 27, 2020. As a result of the Second Karabakh War, which took place from September 27 to November 10, 2020, the Azerbaijani army inflicted a heavy defeat on the Armenian invaders and liberated the Nagorno-Karabakh region and surrounding regions from enemy occupation, and on November 10, 2020, an act of capitulation was signed confirming the political and military defeat of Armenia. On June 15, 2021, the signing of the "Shusha Declaration on Allied Relations between the Republic of Azerbaijan and the Republic of Turkey" by the President of the Republic of Azerbaijan Ilham Aliyev and the President of the Republic of Turkey Recep Tayyip Erdogan in the city of Shusha laid the foundation for a new geopolitical stage in the South Caucasus. At the same time, with this "Declaration", Turkey-Azerbaijan relations moved from the level of strategic partnership to the level of alliance. The "Shusha Declaration" is of great importance in ensuring peace and security in the South Caucasus, in the development of the Euro-Asian transport corridor, in the integration process of the Turkic world, and in particular in the further development of Azerbaijani-Turkish relations.

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EU REGIONAL POLICY AND NON-EU COUNTRIES

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Abstract

Significant disparities have emerged among member states and regions since the onset of the European integration process, particularly with each successive enlargement. In the early models of European regional investment, resources were focused on large-scale infrastructure projects, especially transportation networks and public utilities. The EU's willingness to finance projects beyond individual regions illustrated a practical expression of solidarity in building the European Union. These initiatives were primarily funded within a national context; no comprehensive European vision addressed regional issues, and, as a result, there was no distinct regional policy for the Union. It later became clear that strategies must be more comprehensive to promote sustainable economic growth and employment in disadvantaged regions. While infrastructure continued to be essential, there was an increasing need for investments in research, innovation, training, marketing development, and more. Numerous innovation programs were launched during these years, further affirming the EU's commitment to investing in people through training and adapting to the evolving needs of the labor market amid technological advancements.

Keywords: *Regional policy, EU countries' experiences, comprehensive strategies, innovation programs, and technological development.*

Introduction. *Throughout the 1990s, there was a growing awareness of the need to combat the environmental consequences of economic growth. Cohesion policies were also intended to bring present and future generations closer together. Regional strategies were designed to ensure that production growth and employment did not conflict with environmental protection and that businesses and other economic actors were held directly accountable for the damage they caused. The polluter pays principle was thus implemented in legislation and the financial support provided by European regional programs.*

The 1990s are known as an era in which, as a result of a long period of economic restructuring, social disparities between groups became more apparent, with adverse effects on marginalized groups in particular. Combating social exclusion was necessary to prevent the goals of cohesion from being undermined.

The result was a refinement of regional policies, recognizing that unequal access to opportunities would undermine growth. European policymakers adopted laws to overcome socio-economic problems, ensure better value for money, and help the EU cope with the different economic and social situations following enlargement. Integrated programs ensured growth and the development of new skills while at the same time trying to involve local communities, protect them, and improve their living environment.

Discussion

1. The current EU model for integrated regional development. *Today, European regional policy has three main directions. First, there is an emphasis on promoting economic convergence to help less developed regions (located mainly in the new member states) reduce their gap with more developed countries. Second, broad measures are aimed at improving regional competitiveness and employment. Third the third category of strategies aims to promote cooperation between regions and countries to reduce the economic importance of national borders.*

There are also three primary funding sources, which were created at different times in the development of the EU. The European Regional Development Fund (ERDF) focuses on initiatives related to economic growth, employment, and competitiveness, including investment in infrastructure. The Cohesion Fund focuses more on transport and environmental infrastructure, including renewable energy.

Thirdly, funding under the European Social Fund is directed towards investment in human capital in education and training.

2. The main objectives of modern regional policy. *Supporting growth within the Lisbon Strategy: Under the Lisbon Strategy, an agreement was reached in 2010 to make economic growth and job creation the highest priority of EU policy. EU ministers adopted this strategy to make the EU the world's most competitive and dynamic knowledge-based economy. It included a timetable for reviewing and monitoring the various sector strategies to continue the EU's progress towards competitive employment levels, economic growth, and research expenditure (among others) by 2020.*

In 2005, a new emphasis was placed on promoting innovation and the priorities of growth and job creation, placing regional policy at the center of efforts to improve the EU's competitiveness. Increasing levels of innovation are fundamental to helping European companies and, secondly, improving European employment opportunities.

Regional policy is no longer seen as a mechanism to help regions reach the EU average (although this aspect has not lost its importance). Competition between world market regions is increasing, with successful regional economies becoming real players in global production networks.

"EU regional policy is now a policy that identifies and targets opportunities for the future, mobilizing under-utilized potential rather than compensating for past problems."

3. Reforming the process of developing and implementing strategies for regions. *EU regional policy is a continuous review and adjustment process to ensure it remains relevant in a changing world. The last reform, which took place in 2016, was based on four main areas: developing the "knowledge economy"; decentralizing more responsibility for the management and financial control to Member States and regions; simplifying and accelerating procedures; developing the potential of each European region while focusing on the resources of the weakest ones.*

4. Addressing climate change and sustainability Sustainability *(i.e., achieving a certain balance between economic, social, and environmental priorities) has long been considered a core principle of EU regional development policy. Let us consider four main ways of orienting regional policy towards solving ecological problems: by directly investing in environmental infrastructure, particularly in wastewater treatment plants; by ensuring that Strategic Environmental Assessments (SEAs) are carried out for relevant programs; by ensuring that environmental impact assessments are carried out in the preparation of all significant projects; by stimulating the participation of representatives of environmental groups and agencies in the design and monitoring of programs. Total European support for environmental investments (direct and indirect) in 2017-2023 amounts to €105 billion, or 30.4% of total funding.*

Climate change is a significant challenge and a business opportunity. The diversity of landscapes and climates among the participating countries is striking. While 7% of the population lives in areas at risk of regular flooding, another 9% live in areas at drought risk.

The regional programs aim to take a balanced approach that protects natural resources through renewable and alternative energy sources (including wind, solar, and biomass). They also develop modern technologies that give European companies a commercial advantage over their overseas competitors. Smart investments in environmentally sustainable technologies can enable Europe to meet its emissions targets and modernize its production capacity. Recent innovations in individual programs have included eco-auditing to ensure the final impact of carbon emissions is neutral.

5. ***Leveraging regional and local resources and skills Innovation often comes from smaller companies with local knowledge****. However, broader collaboration within relevant networks can achieve even more significant gains. The Regions for Economic Change initiative (RfEC) encourages local and regional networks in the public and private sectors to share best practices and experiences to learn and implement change. The Regions for Economic Change initiative was launched by the European Commission in 2016 to improve the ability of cross-regional and city networks to test innovative policy ideas and then integrate them quickly into regional policy frameworks. The essence of EU membership is more significant political and economic convergence. Recognizing diversity, the EU seeks to exploit new opportunities by bringing local communities closer. Many challenges cannot be contained within standard administrative boundaries (at the national or regional level) and, therefore, often require a coordinated, joint response from several regions or countries, creating new forms of cooperation.*

In 2018, the Commission presented a new discussion paper on territorial cohesion, arguing that the EU's territorial diversity is a strength that can contribute to its sustainable development.

6. ***Bringing Member States closer together through transport.*** *Around 22% of EU cohesion policy resources are allocated to investment in transport projects, reflecting the significant contribution of modern, efficient transport links and distribution systems to economic success and social development.*

Regional programs are designed to achieve ambitious connectivity targets in all areas of the transport network. They provide new investment in roads, rail, and maritime transport. They focus on sustainable public transport systems in cities, creating better transport conditions for residents. Where countries are landlocked, European regional programs offer a unique opportunity to look beyond national borders and promote investment in transport networks that make economic sense.

*7. **Balancing urban and rural development**, which includes all regions regardless of geography. European regional development programs recognize the specific challenges facing cities and rural areas and propose different but interrelated solutions.*

The European URBAN Community Initiative was launched in cities in the mid-1990s to create opportunities for innovation in policy development. These programs focused on strong local partnerships, improving local ownership, and addressing issues that negatively impacted the city's quality of life. They were complemented by networking through the 'URBACT' program. From a small pilot project, this methodology for sustainable urban development has become part of the primary strategy since 2017.

In rural areas, the approach has long been to support companies and local communities where agriculture cannot guarantee prospects.

One of the challenges of the strategy for improving territorial cohesion is ensuring that administrative and institutional capacities are in place at the right level, in line with the levels and scales at which problems must be addressed. The relevant territorial scale can vary from inner-city to large cities, river basins, and mountainous areas. For general reasons, there is a clear need for greater coherence between European strategies with a territorial impact, including regional policy and strategy in transport, agriculture, environment, employment, competition, and research.

*8. **Demonstrating solidarity in the face of natural disasters.** The EU Solidarity Fund, which was set up at the initiative of the Commission in 2012, helps Member States and candidate countries to restore infrastructure and services in the event of a significant natural disaster. It is one of the most concrete demonstrations of solidarity between Member States in times of urgent need. During 2014-2019, the Fund provided funding to 18 Member States on 34 occasions, with the total amount of funds made available in response to emergencies amounting to €700 million.*

*9. **Integration through financial solidarity.** In the context of the negotiations aimed at accession to the EU, countries can count on preparatory assistance, depending on their economic situation. Such assistance aligns with the EU regional policy model, which supports economic development and improving infrastructure and administrative institutions. In December 2015, €160 billion was allocated for regional development programs in 12 new member states from 2017-2023. This represented an almost threefold increase compared to the previous period, and budget revenues equivalent to 3.2% of the countries' GDP. The new member states had to work hard to develop their capacity to spend these resources effectively. The scale of this task is considerable, although the initial results have given some hope.*

*10. **Building strong administrations/institutions**. Economic growth depends not only on investment but also on mechanisms for the effective management of development programs, with due attention to the effective management of public resources. This requires a functioning and reliable administrative system and a transparent legal framework. The new system for implementing EU regional policy in 2007-2013 includes support for specific programs to create administrative reform conditions and train civil servants in the latest management methods.*

*11. **Providing funding together with technical assistance (JASPERS)**. One mechanism for assisting new member countries is developing effective programs and completing all financial and technical stages before approval. JASPERS (Joint Actions for Support Projects in the European Regions) are opportunities that combine contributions from the European Commission in the form of funds to enable the involvement of experts and other staff from the European Investment Bank (EIB) and the European Bank for Reconstruction and Development.*

European regional policy provides vital investments at the local and regional levels. This is especially important given the recession that began in 2008. One of the main assets of EU regional policy is its flexibility in adapting to changing conditions.

In the current global economic downturn, the sustainability of economic development and the need for forward-looking, adaptable strategies have never been more evident. European Regional Policy provides a stable, secure, and targeted source of funding that can be used to stimulate economic recovery.

*12. **Use flexible and innovative forms of funding to support SMEs.** Regional development in Europe benefits from a wide range of diverse funding options. The primary funding sources are the European Regional Development Fund, the Cohesion Fund, and the European Social Fund. Still, other mechanisms are related to raising capital and different types of funding. Projects (especially those that can generate* *some revenue) are increasingly financed through grants and loans or other financial instruments such as equity participation.*

The economic framework conditions are of critical importance. On the one hand, European experience clearly shows that a level playing field for businesses and other financial actors, which is ensured at the European level within the Single Market, is fundamental to the success of the European economy. According to the second observation, the success of growth strategies depends mainly on their interaction with individual national strategies (strategies related to specific sectors, taxes, and labor market). Adequate macroeconomic conditions and a favorable microeconomic environment (regulatory conditions, business climate) are prerequisites for effective strategies to help lagging regions. If national strategies encourage regions to remain immobile, then development is a fight with higher authorities. There is a need for tailored strategies with a mix of appropriate measures. EU experience has shown how relevant regional and local knowledge is a key factor in understanding how to ensure sustainable development. Programs should be carefully tailored to the needs and aspirations of the region concerned. Many potential actions can be taken, so providing the right mix from the outset is vital.

While prestigious investment projects have their place and can be an essential starting point or catalyst for future benefits, the EU experience tends to support the view that the most critical factor in economic growth is investment and innovation in small and medium-sized companies.

The importance of stable budgets and coherent programming. The European Union's seven-year budget cannot be overestimated for the success of regional policy. It provides stability in promoting investment in long-term projects in line with a strategic vision relatively insulated from volatile political conditions.

The need for international cooperation. Since its inception, promoting cross-border, transnational, and interregional cooperation (an element of EU regional policy) has brought significant benefits. On the one hand, the ability to promote constructive contacts between regions across the EU's external borders has helped many candidate countries prepare for the responsibilities of EU membership and has also helped to convince their populations of the benefits of EU membership. On the other hand, cooperation between regions across internal EU borders has strengthened relations between sometimes relatively divided or isolated territorial communities, as seen most clearly in the Northern Ireland peace process. The ability to bring together regions of several countries that share common problems (notably in the Baltic Sea region) increasingly encourages a practical and constructive approach to the familiar concept.

Creating efficient transport networks is one prominent example of a policy area in which the supranational concept transcends national borders.

Agglomeration economics and urbanization. In Europe (as in other regions), urban agglomerations (or large city areas) are key factors in economic growth. The European experience shows the mixed spatial effects of economic concentration. With its relatively high population density and land prices, Europe faces problems such as overcrowding, pollution, and crime. Particularly in developed economies, the economic benefits of urbanization must be weighed against the costs associated with the corresponding problems—the role of small and medium-sized cities and local centers. Europe has learned that it is not only large cities that are drivers of growth. The experience of regional policy in Spain and elsewhere shows the importance of connectivity in the context of small and medium-sized towns (polycentric development) and the role of local centers in rural areas. The role of medium-sized cities is to connect large and small towns and remote rural areas; medium-sized cities also play an essential role in promoting integration, connectivity, and economies of scale. They also play a vital role in curbing rural depopulation through local employment and capacity-building initiatives. Local development plays a key role in stimulating economic growth in lagging regions. There is also a strong interest in poverty reduction, and the focus has shifted to the role of employment in reducing the risk of poverty. In addition, Europe is characterized by relatively low geographical mobility of workers.

We thus find ourselves in a situation in which there is a relatively strong consensus on the need to promote local employment and capacity-building initiatives so that lagging regions can take advantage of opportunities for linkages with the mainstream economy.

Strong institutional support. The need for strong institutions has increased with each successive step in the EU enlargement process. The wide diversity of economic strengths, wealth and social trends, the natural environment, and cultural and ethnic heritage… all add up to an exceptionally diverse union geographically.

The EU's regional development has thus revealed the need for strong institutional leadership at all levels, which requires respect for all parts of society. At the EU level, an effective political system, sound *economic analysis and strategic planning, and technical expertise must guide project managers "on the ground." At the national level, institutions must be well coordinated.*

Multi-level governance. Successful development strategies must have "owners" at every level. European regional policy is managed in such a way as to maximize vertical and horizontal integration. In the vertical governance system, the different levels of European, national, regional, and local government are stimulated by a system of planning and programming that has evolved over the years to share information and move in the same direction to ensure local benefits. Companies, social groups, and civil society organizations are actively involved in the process and government activities in the horizontal governance system. This means they can influence and shape the development strategy in their sectors and areas.

Conclusion. *One way to use the EU experience in regional policy is to extract essential questions or issues that should have been considered in developing and managing the strategy over the past twenty years. Let us consider ten such considerations.*

Firstly, regional policy requires a long-term strategic vision to achieve the goals. These may include the development of key sectors, particularly transport, or geographical areas, for example, when EU policy prioritizes less developed regions. EU programs are characterized by both a sectoral and a geographical approach. In the case of transport, priority has been given to projects that contribute to implementing trans-European networks, a transport strategy to ensure connectivity within the EU, as defined by the participating countries.

Secondly, an objective, or 'non-political,' must be used to raise and distribute resources. In other words, how money is raised and distributed within the programs or regions must be clear. Statistical indicators must support this; the implementation of regional policy, therefore, requires a statistical service and the corresponding investments. One of the issues that has been central to the European debate on the respective strategies has been the choice between an exclusive and an inclusive approach to beneficiaries. Today, EU policy has adopted an inclusive approach to beneficiaries, whereby all regions are entitled to claim some form of support. Still, at the same time, there has been a very high concentration of resources in the least developed regions.

Third, we have seen that a system that combines co-financing and partnerships strengthens property rights. The governing bodies that bring together a wide range of interests must also cover between 15 and 50 percent of the costs associated with specific projects from local (public or private) sources. Projects imposed by higher-level bodies make no sense, so projects belong to the community that benefits from their implementation.

Fourth, it is essential to separate the legal framework, which sets out a wide range of rules governing the implementation of the strategy, from individual decisions on projects. In the EU, this results from an institutional architecture in which the political level, the Member States, and the European Parliament choose the legal framework. At the same time, the choice of projects is delegated to national and regional authorities, which are separate from the European institutional level.

Fifth, decisions have to be made on whether to support integrated programs (i.e., support linked actions in infrastructure, human resources, and business development) or to support individual projects. Today, the EU works in both directions within the framework of different funds. It can be said that integrated programs require greater institutional capacity at the regional level. Accordingly, a project-based approach can be recommended when institutional capacity is weak.

Sixth, there is the problem of reliance on grants or a combination of grants and reimbursable forms of support. EU policy is moving towards increasing the volume of aid that needs to be reimbursed, thus trying to increase available resources and create additional incentives for efficiency on the part of beneficiaries and the additional expertise provided by banks and the financial services sector. Seventh, the EU recognizes that adequate formal and informal institutional capacity is critical to successfully managing programs. This includes financial management and control capacities, economic development planning, and identifying and motivating relevant partners. The issue of institutional capacity is significant for the successful implementation of neighboring country programs, which bring together administrative structures that may have limited experience of joint action.

Eighth, monitoring and evaluating action are necessary to demonstrate the value created for beneficiaries and taxpayers. This requires the inclusion of technical capacity in program management, although some specialist tasks, such as macroeconomic modeling, may be carried out by research institutions or universities.

Ninth, the issue of program conditionality is essential for the EU. Key conditions for receiving EU support include respect for open markets in the EU (rules of competition for state aid, open door rules).

Tenth, transparency in implementing the strategy and program is regarded as essential to good governance in the 21st century. Therefore, effective communication and information systems should be incorporated into program management processes, for instance, to show which projects have received assistance, the outcomes of monitoring and evaluation, and how potential beneficiaries can access government support.

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THEORETICAL-METHODOLOGICAL BASIS OF RESEARCHING INNOVATIONS IN THE FINANCIAL SECTOR

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Abstract

To ensure sustainable economic development, it is necessary to improve the institutional environment of the economy, create conditions for the successful implementation of commercial projects with the participation of the private sector of the economy, including actively developing the financial sector of the economy. The development of the financial sector will increase the growth rate of the country's economy; increase the availability of capital; strengthen national positions in the global economy, and can partially reduce the risks arising from negative changes in the international economic environment. The study of the factors determining the development of the financial sector of the economy has shown that the higher the growth of profits in the financial sector, the more its participants need to develop new methods and tools to increase their economic efficiency.

Keywords: finance, economy, innovations, global

Introduction

The development of new areas for the use of existing financial instruments and/or institutions, the creation of new markets will ensure an increase in the pace of economic development. A number of scholars note that innovations in the financial sector contribute to a sharp decrease in transaction costs and are one of the main factors in the formation of global finance [7]. In our opinion, the development of an efficient national financial sector in conditions of limited participation in the global financial market is practically impossible. Therefore, it is advisable to develop a market for financial innovations for the organic development of the financial sector of the economy.

Over the past few decades, traditional financial technologies have undergone a major transformation. Today, digital optimization of finance is developing effectively and is widely used in social and economic spheres.

Despite all its importance and growing interest in the concept of financial technologies, the functional purpose of this category still provokes different opinions of many experts about its functions and features of use; This is due to their rapid development and insufficient scientific, theoretical and methodological substantiation.

Financial technologies are undergoing significant transformation as a large number of technology entrepreneurs enter the industry, constantly changing it, and adapting the sector to solve economic problems and meet social needs [12].

In a way, financial technology is a breakthrough that combines innovative technologies, creating innovative financial technology, enabling high business efficiency, cost reduction, business process improvement, speed, agility, innovation, etc.

At the same time, financial technology is also used to refer to companies and startup projects that are intermediaries for these types of services.

The main research methods are discourse analysis with the study of the term in the works of domestic and foreign scholars, a scientific research method based on the exclusion of its insignificant aspects and features when studying a certain event or process. Given that it is based on the conceptualization of the category using a systematic approach. The results obtained demonstrate different approaches to the interpretation of the term, while also paying attention to the technological aspect. In addition, based on observations, it is possible to present a conceptual model of financial technologies through the sequential transformation of technologies, organizational factors and cash flows into services, services and organizational processes of financial activity.[5].

The economic essence of financial innovation

Financial innovation refers to the final result of innovative activity in the financial sector in the form of a new financial product or transaction [8].

According to DV. Bochkova, financial innovations are aimed at improving the financing mechanism and financial relations, as well as financial control and document flow of financial reporting.[9].

In foreign scientific literature, financial innovation is understood as a certain catalyst for the economy (ensuring market transparency, information accessibility), which is a new financial product or process that performs various functions in terms of creating additional liquidity. [10] It is emphasized that innovation plays an important role in economic development, since any initial innovation leads to changes in the behavior of economic entities and shapes subsequent innovative growth in various sectors of the economy [12].

According to the authors, financial innovations are new financial products or services that reduce the risks and costs of participants in economic relations through a more efficient process of their implementation.

In her study, EA Grishina proposes the following classification of financial innovations according to the characteristics of the activities of various types of financial and credit organizations: banking financial innovations, non-banking financial innovations, universal [13].

The prerequisites for active implementation of banking innovations to increase the efficiency of credit and financial institutions are the influence of the external environment, the increase in the number of foreign banks in international practice, the gradual integration of domestic banks into the global financial system, the restructuring of the banking sector, and scientific and technological progress [14]. For example, the introduction of innovations in payment systems allows reducing transaction costs, reducing risks, and thereby reducing the cost of services provided, which has a positive effect on the competitiveness of the economic agent.

The emergence of innovations in the stock market is associated with the liberalization and globalization of international financial and commodity markets, changes in national legislation in many countries to eliminate financial market regulation, and the increase in the speed of obtaining, processing, and using information. [15]

Consequently, the prerequisites for the creation and active dissemination of financial innovations are scientific and technological progress, which has a significant impact on the transformation of the work of economic entities within the financial sector of the economy, as well as an unstable macroeconomic environment requires the modernization of existing financial instruments to hedge against negative changes in market conditions.

Innovative financial instruments and their application areas

Financial technologies can be presented as a complex of financial services and information technologies [17]. Financial technology is an innovative process with a certain degree of high efficiency, since an innovative invention will soon become widespread and become a traditional financial service. For example, remote banking.

Financial technologies can also be defined as a complex of innovative financial products with innovative financial technologies, more technological modifications of products already created in the past [11].

Table 1

Approaches to financial technologies by foreign researchers

A. Fitri:	*Financial technology is a set of digital technologies used in financial transactions to increase efficiency in the marketplace.*
P. Shufel:	*Fintech is an independent field of the financial market focused on the application of advanced digital technology practices in the field of financial asset management.*
Demertis, M. Meller, S. GB Wolf Financial:	*Technologies is an information technology business group within Business Processes, whose activities are focused on developing products and services to increase the competitiveness and activity in the financial market for transparent financial companies.*
Gelis P.	*Financial technologies are a business group of the fourth industrial revolution, created in response to the full-scale digitalization of economic relations, providing an independent alternative to traditional financial businesses.*
Wang J.	*Financial technology is the result of intra-company cooperation between transparent financial businesses and information technologies and combines alternative financial businesses formed on the basis of advanced practices in the use of digital technologies.*
Belozerov S.	*Financial technologies - a set of technologies based on digital technologies to increase the efficiency and security of working with financial assets*
Barykin S.A.	*Fintech is a new element of the financial market that emerged in response to Industry 4.0, namely commercial partnerships between transparent financial firms and information technology companies to reduce the costs of managing financial assets.*
Fillipov D.I	*Fintech is a group of independent businesses based on the integration of digital technologies into the process of transactions with financial assets.*
Sitnik A.A	*Financial technologies are the newest stage in the progressive development of the financial market, its task is to provide financial market entities with modern infrastructure and service solutions created within the framework of Industry 4.0.*

Source: Compiled based on author's research

The basis of financial services, for example, cash transactions carried out using a mobile telecommunications network device, the process of detecting, interpreting and reporting patterns found in data, ensuring transparency of all cash flows, etc.

Based on the information in the proposed conceptual model of the concept of financial technologies, it can be assumed that the emergence of the concept is related to financial technologies, but its application mainly applies to financial innovations and similar areas.

Thus, by modifying the traditional understanding of the concept, it can be concluded that in the modern sense, financial technologies represent outwardly innovative financial technologies, financial innovations of a technological nature [15].

A key factor in the development of the modern economy is the development of digital technologies in the financial market, as this has a positive impact on the reduction of transaction costs, the organization and development of financial services, as well as their qualitative characteristics.

It should be noted that today there is no common understanding of the concept of financial technologies. At the same time, by carefully studying the views of researchers and scientists on this concept and combining their main constructs of this concept, we can conclude that financial technology is a complex system that combines the innovative technology industry and financial services, temporary organizations [2].

In world practice, the following factors influence the pace of development of the financial technology market: access to financing, technology development, state infrastructure and control, high demand for these services among the population and business structures, the activity of offering financial technical services by financial organizations, human resources. However, there are many problems in the financial technology sector, such as the low level of financial literacy of the population, strict control of the financial technology market by the Central Bank, and in international practice, the effective transformation of the financial system depends on rational policy.

Innovative financial instruments implementation methodology

Innovation theory has come a long way - from describing the concepts of "entrepreneur", "firm" and "state" as separate elements of the innovation process to understanding them as interconnected parts of a complex institutional system. The origins of innovation theory can be conditionally attributed to the 10-30s of the 20th century, when empirical studies confirmed that scientific and technological progress provides an additional growth rate of gross domestic product.

The founder of the theory of innovation activity, which found its followers in the second half of the 20th century, is J. Schumpeter. According to him, thanks to innovation, the production system moves to *a different level with new, better parameters, and the innovation process continues until the new combination becomes familiar and accessible to all economic entities. [9].*

According to J. Schumpeter, the innovation process is associated with four postulates [8]:

- *production of new goods;*
- *introduction of new production methods or use of existing goods;*
- *development of new markets or sources of raw materials;*
- *change in industrial structure.*

Modern authors supplement these postulates with an assessment of the economic efficiency of marketing and innovations [4; 11].

Currently, during the globalization of the economy, the focus is not on individual organizations or their specific tasks, but on infrastructure (technology parks, science cities, special economic zones, clusters, etc.) that ensure the development and implementation of innovations at all stages of the innovation process.

Therefore, it is necessary to emphasize the integration approach to financing innovative entrepreneurship. Integration in a narrow sense means the process of unifying organizations from different sectors of the economy, interconnected in a technological chain, ensuring the consistent implementation of the technological process of producing the final consumer product. In a broad sense, integration is a process of interaction between economic entities, which is the result of the constant development of the social division of labor, the differentiation of sectors, the deepening of specialization of production, the strengthening of intra-industry and inter-sectoral commodity exchange, creating conditions for accelerating scientific and technological progress and contributing to the optimization of resource provision and the achievement of common goals [2; 5; 15; 19].

The most appropriate interactions between organizations in terms of effective financing are:

1) cluster associations represented by a group of localized organizations united by common goals and objectives; science cities - municipal entities whose city-forming organizations are scientific, scientific-production and other organizations related to the scientific and technical development of the country;

2) special economic zones - a state or part of the territory of a state where a special favorable regime exists for the implementation of entrepreneurial activity through the provision of tax, customs, administrative and other benefits;

3) entrepreneurial networks - the interaction of independent organizations and entrepreneurs, united by common goals, tasks and problems, as a single structure, regardless of the form of ownership, location and scale of activity;

4) public-private partnership - interaction between state bodies and business entities, within the framework of which a part of the costs of paying interest on loans and debts attracted in accordance with the rules for providing subsidies from the federal budget are covered. [10].

As the world economic system develops, deeper integration processes are taking place in both global and national economies. Integration also encompasses separate organizations that form single production and economic complexes, where capital is pooled and new types of products (services) are created on the market.

The effectiveness of the development of innovative entrepreneurship is determined by the level of integration of science, education, production, the general economic situation in the country and the state's scientific and technical strategy, full provision of resources, market conditions, professionalism of specialists and effective management. The state plays an important role in this process, creating a favorable investment environment with the help of financial levers and tools.

Areas of application of innovative financial instruments

The concept content and scope of application of innovative financial products designed and modeled through financial engineering to solve various problems of modern financial markets are explained.

The financial activity of any business entity is multifaceted and represents a set of interrelated areas, the priority of which in a strategic perspective is the design, modeling and implementation of various financial products that provide the best final financial result. Financial institutions, including commercial banks, taking into account the current situation in the financial markets: credit, funds, currencies, etc., carry out certain operations on attracting and placing financial resources, as well as hedging and financing projects using various financial instruments.

Innovative financial products are the result of specific relationships between economic entities in the process of their innovative activity in the financial market, which helps to satisfy the needs of these *entities for the redistribution of risks, liquidity and final financial assets among various market participants. In turn, innovative financial products complicate economic relations, giving rise to new needs that lead to more complex financial innovations.*

By making decisions aimed at achieving their goals, financial institutions simultaneously influence the money market, the securities market and their derivatives, the foreign exchange market, as well as the real sector of the economy, thereby having a significant impact on the economic system as a whole. In this regard, the financial organization is faced with the task of not only developing new areas of activity, but also introducing new methods and mechanisms for the effective formation and use of innovative financial products in interaction. [13].

Despite the large number of studies on innovative financial processes and, in particular, on the securities market and derivative financial instruments, today there is no single picture of possible mechanisms for the formation and use of innovative products. both in financial activity and in the real sector of the economy. Therefore, it seems relevant to study methodological approaches to the use of innovative financial products, to develop models of economic relations, which allow taking into account the purposeful behavior of financial market entities, as well as to formulate and solve the problem of choosing efficient mechanisms of action of the financial market. formation and use of innovative financial products.

The formation and use of innovative financial products involves an analytical analysis of their structure, volume, profitability, riskiness, and a quantitative assessment of cash flows that determine the innovative strategy of the financial institution.

The study of the content of innovative financial products should begin with an analysis of the definitions of the concept of "innovation" and its economic component. There are several approaches to determining the essence of innovation in the literature, which are interpreted as the transformation of potential scientific and technical progress into real progress embodied in new products and technologies.

The complex nature of innovations, their multifaceted nature, and the diversity of their areas and methods of use allow us to identify the following general characteristics of innovations:

1. The use of strategies that differ from each other in all aspects in the activities of a market participant.

2. Mastering new methods to achieve competitiveness and finding the best ways to compete.

3. Creating competitive advantages by creating fundamentally new favorable conditions in the market, filling market segments that competitors do not pay attention to. [16].

Thus, our study of the economic category of "innovation" shows that the latter has a direct dependence on such components of the financial market as the capital market, investment, risk, financial resources, etc. Depending on the degree of interaction of innovations with these categories, we can talk about the areas of implementation of innovations in financial markets. In the context of our study, innovations implemented in financial markets can be divided into two groups:

1. Introduction of new instruments into financial markets. An example of such implementation is now the introduction of traditional derivative financial instruments - swaps, futures, forwards, as well as innovative financial products of the derivatives market - swaps, credit derivatives, innovative leasing options, etc.

2. A new (innovative) combination of financial market instruments, which allows designing various innovative financial products - stock and currency, term and credit, financial innovations and the capital market, etc. - to increase the profitability of the enterprise, attract investment resources, increase sales volumes, insure possible financial and innovative risks, provide financial and credit support for the innovative activities of entities, etc. forfeiting, franchising, issue of specialized securities, etc.

Thus, today the development of financial engineering is facilitated by factors that have general regularities in the development of the financial market. These are, on the one hand, environmental factors such as increased price volatility in most market sectors, the general globalization of markets, tax asymmetry, the development of computer equipment and information technologies, the achievements of financial science, and many other factors. On the other hand, internal factors were also important - the need for liquidity and risk aversion of business entities.

Obstacles to the development of financial innovation

There are a number of reasons why the rapid development and spread of financial innovations as a key element of the financial sector in international practice is impossible.

The first reason is the general unfavorable investment climate that characterizes the economy. A number of negative macroeconomic factors affect the growth rate of the state's economy, the capabilities of economic agents, capital flows, and, as a result, the efficiency of the financial sector of *the economy. In such conditions, investing free financial resources in the development or dissemination of financial innovations attracts only aggressive investors. [12].*

The second reason is the high cost of developing financial innovations. This process includes the development and implementation of technological solutions, the development or creation of infrastructure, as well as increasing the security of existing financial instruments. The listed areas of activity require the involvement of highly qualified specialists with experience in these or related activities, large financial investments in the form of "long-term" money.

The third reason is the uncertainty of the timing of the development and spread of financial innovations. Often, long payback periods, uncertainty and high risks are the main features of innovation processes in any sector of the economy. In this regard, most investors prefer to direct only part of their free financial resources to innovation processes, i.e. diversify your investment portfolio. It is noted that diversification allows the investor to redirect capital and resources to other areas of activity in the event of certain difficulties or crisis events in a particular area of activity, thereby minimizing the risk of possible losses [17].

As a result, there may be an outflow of capital from projects related to the development and/or dissemination of financial innovations, which, if not stopped, could slow down the development of this area of activity.

The fourth reason is the market's lack of responsiveness to financial innovations. The international economy is currently characterized by low demand for innovative products due to high prices and lack of information about the market situation. It turned out that the basis of the current situation is the lack of a full-fledged innovation system, in which all its components - education, science and innovation - are coordinated with each other and are united by a single goal - the creation of competitive advantages both domestic and foreign markets [18]. This situation may also be due to the influence of formed stereotypes, illusions of perception, biased judgments and errors in the analysis of information [19]. Thus, currently there are no favorable conditions for the creation and implementation of financial innovations in the domestic market.

The fifth reason is the legal regulation of financial innovations by the state. Legal regulation of financial innovations, both at the national and international levels, is considered one of the aspects of the implementation of political risk for investors interested in their development [10]. Currently, in foreign law

There are similar provisions regulating the guarantees of fulfillment of obligations and the formation of special requirements for organizations providing financial services [11]. If the state financial law is relatively young and issues related to financial innovation are not yet fully reflected in the legislation, this seems to be another obstacle to the development of financial innovation. At the same time, the domestic legislation should be adapted to new threats to financial security (for example, "deoffshorization", corruption, distrust in the insurance industry, etc.), as well as to optimize the practice of their application [9].

Conclusion

The above reasons determine the sufficient flow of investments for the development and dissemination of financial innovations in international practice. In our opinion, the following measures can act as a catalyst for the process of active introduction of financial innovations into the world economy.

First, the current education system should be regulated in such a way that at each stage the student acquires independent research and development skills under the guidance of competent specialists in a particular field. The education system should provide the state with highly qualified specialists capable of creating new ideas and implementing them. Since the level of public confidence in operations carried out in the financial sector of the economy and, consequently, its involvement, also depends on this, it is also necessary to increase the financial literacy of the population.

Secondly, if we pursue the goal of attracting the population's savings to financial innovations, it is necessary to ensure attractive investment conditions and stability of the financial sector of the economy, i.e. minimize the negative impact of regulatory innovations on the activities of various financial institutions.

Thirdly, the development of financial and innovation infrastructure is important. The creation of at least a number of technological parks in various state institutions will allow concentrating specialists who know the specifics of their regions, as well as their needs, which can increase the range of financial innovations being developed and the degree of their adoption by the market, since the end consumer of the developed innovation will be immediately identified.

Fourth, the formation of partial compliance of domestic legislation with foreign legislation in the field of regulation of financial innovations will reduce the risks of foreign investors, increase their confidence in the domestic market, and attract the national financial innovation market to the international environment.

Based on the above, financial innovation is one of the key elements in the development of the financial sector of the economy. Various types of financial innovations allow improving the work of financial institutions by offering customers more products and services aimed at obtaining maximum profit at the appropriate level of risk. According to the authors, in international practice, the development and active implementation of financial innovations are hampered by such factors as the low investment attractiveness of the financial sector of the economy for both foreign and domestic investors, the general unpredictability of the actions of financial institutions, as well as the low financial literacy of the population, which is not ready to actively invest idle financial resources in high-risk activities. It will allow to level the negative impact of these factors.

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THE CURRENT PROBLEMS OF THE EXPORT POTENTIAL OF AZERBAIJAN

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АКТУАЛЬНЫЕ ПРОБЛЕМЫ ЭКСПОРТНОГО ПОТЕНЦИАЛА АЗЕРБАЙДЖАНА

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Abstract

The article examines the current problems of the export potential of Azerbaijan. For this purpose, the problems of formation and development of export potential were analyzed. The potential of export-oriented sectors of the country's economy was considered. The problems of diversification of the export structure were explained and ways to solve them were shown. The current problems of improving the state's import policy and stimulating local production came to the fore. It was recognized as expedient to effectively use the resources of potentially export-oriented sectors of the economy. Recommendations were given and proposals were prepared to increase the country's export potential in the near future.

Аннотация

В статье рассматриваются современные проблемы экспортного потенциала Азербайджана. С этой целью были проанализированы проблемы формирования и развития экспортного потенциала. Был рассмотрен потенциал экспортно-ориентированных отраслей экономики страны. Раскрыта проблемы диверсификации структуры экспорта и показаны пути их решения. Отмечены актуальные проблемы совершенствования импортной политики государства и стимулирования местного производства. Признано целесообразным эффективно использовать ресурсы потенциально экспортно-ориентированных отраслей экономики. Даны рекомендации и подготовлены предложения по увеличению экспортного потенциала страны в ближайшей перспективе.

***Keywords**: Azerbaijan, export potential, export products, current export issues, import-substituting industries, export diversification, export-oriented sectors of the economy.*

***Ключевые слова:** Азербайджан, экспортный потенциал, экспортная продукция, актуальные проблемы экспорта, импортозамещающие отрасли, диверсификация экспорта, экспортно-ориентированные отрасли экономики.*

Отметим, что внешняя торговля играет исключительную роль в целенаправленном использовании имеющихся ресурсов страны. С этой точки зрения одним из важнейших вопросов *экономического развития государства и формирования его приоритетов являются проблемы, связанные с повышением экспортного потенциала. Таким образом, проблемы эффективности экономического развития требуют обоснованного подхода к ряду необходимых факторов, и в связи с этим важно расширять экспорт, изучать и оценивать экспортный потенциал каждой отрасли экономики [1]. Если каналы доступа промышленных товаров и услуг на мировые рынки не будут диверсифицированы и стабильны, формирование экспортного потенциала в этих сферах маловероятно. Поэтому крайне важно провести углубленный анализ способности товаров и услуг перемещаться на рынках и перспективы прогресса в этом направлении. На эффективность и устойчивость экспорта в стране влияет ряд факторов - принципы ведения бизнеса и экспортная политика, уровень законодательства, функционирование налогового режима и экспортных процедур, адекватность движения товаров на мировых рынках и др.*

Следует подчеркнуть, что достигнутая стабильность в экономике нашей республики стала основой макроэкономического развития: привлечение иностранных инвестиций в развитие страны, обеспечение финансовой стабильности, налаживание экономического развития и другие факторы влияют на рост ВВП [2; 3].

В Азербайджане для реализации устойчивости развития необходимо на эффективной основе укреплять экспортный потенциал и совершенствовать правовое обеспечение в соответствии с требованиями текущей ситуации [4]. Именно с этой точки зрения необходимо определить факторы, препятствующие этому процессу. Прежде чем рассматривать возможности и особенности укрепления экспортного потенциала, целесообразнее уточнить его экономическое содержание. В широком смысле экспортный потенциал - это способность национальной экономики, отраслей и предприятий производить конкурентоспособные товары и услуги и экспортировать их на мировые рынки. На уровне предприятия экспортный потенциал можно определить как ресурсы и инструменты, которые можно использовать для достижения целей, поставленных для различных рынков [5].

На основании существующих исследований можно дать следующее определение этого понятия: Экспортный потенциал – это способность промышленных предприятий экспортировать конкурентоспособную продукцию на внешние рынки, определяемая совокупностью производственного, кадрового, финансового и рыночного потенциала [6]. Так, специфика и характер экспортного потенциала определяет сложность разработки единой методики его оценки. Кроме того, экспортный потенциал - это способность производить и экспортировать материальные товары и услуги в различных количествах и качестве, удовлетворяющие потребности потребителей на внешнем рынке [7].

Экспортный потенциал делится на внутренний и внешний. Внутренний экспортный потенциал включает совокупность материальных, природных, трудовых, финансовых и информационных ресурсов, необходимых для производства продукции. Решающим фактором здесь является не только наличие этих ресурсов, но и эффективность их использования. Внешний экспортный потенциал включает реализацию конкурирующей продукции на внешних рынках, маркетинговую, логистическую и сервисную деятельность предприятия. В экономической литературе также классифицируют экспортный потенциал продукции по отношению к рынкам сбыта: 1. Экспортный потенциал существующего продукта на ограниченном рынке. 2. Экспортный потенциал текущего продукта на будущем рынке. 3. Экспортный потенциал новой продукции на ограниченном рынке. 4. Экспортный потенциал новой продукции на будущем рынке.

Одним из показателей эффективного использования экспортного потенциала является уровень роста экономики страны и его соответствие существующему экспортному потенциалу отрасли. Эффективно реализовать этот потенциал возможно благодаря макроэкономической стабильности в стране и эффективному использованию имеющихся ресурсов. Еще одним фактором, существенно влияющим на рациональное использование этого потенциала является таможенная система и задачи ее развития - современное состояние таможенной системы характеризует уровень тарифного регулирования и либерализации торговли. Кроме того, необходимо обеспечить устойчивое развитие предприятий, которые ориентируются на внешний рынок [8]. Совершенствование политики в области госмударственного регулирования, определение наиболее эффективного использования экспортного потенциала требует его точной оценки. Можно сказать, что такая оценка проводится во всех странах, причем в одних странах основной целью этого процесса является *определение эффективности его использования, а в других - уровня развития отношений в товарно-денежной сфере.*

В целом, экспортный потенциал означает способность экономики и ее различных секторов производить и экспортировать различные виды материальных товаров и услуг. Чтобы что-то экспортировать, сначала на это должен быть спрос и если принять во внимание, что объем производства внутри страны достаточно мал по сравнению с объемом производства аналогичной продукции на мировом рынке, то потенциальный спрос на нефтепродукты в мире был и остается высоким. Среди других факторов, которые следует учитывать при анализе экспортного потенциала, – показатель качества, соответствующий мировым стандартам. Поэтому при оценке экспортного потенциала продукции необходимо сравнивать цены и определить возможности получения прибыли при реализации этой продукции по мировым ценам. Усиление процессов развития национальной экономики увеличивает возможности использования экспортного потенциала отраслей экономики. Экспортный потенциал на уровне отраслей включает в себя все природные ресурсы, сырье и полуфабрикаты, новые знания, передовые технологии, высококвалифицированный персонал, услуги, информационные ресурсы, различные лицензии и патенты, имеющиеся в стране.

На содержание и сложную структуру экспортного потенциала влияют различные факторы. К этим факторам относятся совершенствование и улучшение использования рабочей силы, производственных фондов, открытие новых и продуктивных полезных ископаемых, повышение производственных мощностей, развитие интеграционных процессов. Влияние каждого из этих факторов на экспортный потенциал существенно различается.

Факторами, оказывающими негативное влияние на экспортный потенциал, являются наличие большого количества сырья в структуре внешней торговли, низкий международный кредитный и инвестиционный рейтинг страны, высокий уровень внешнего долга, зависимость страны от импорта и т.д. Наличие природных ресурсов и уровень их освоения определяют развитие производительных сил страны, особенно материальных средств производства и, следовательно, экспортного потенциала. Таким образом, экспортный потенциал конкретной страны зависит от имеющихся у нее природных ресурсов и объема производимой продукции. Согласно классической теории, страны должны специализироваться на производстве и экспорте продукции. Однако развитие экспортного потенциала не может ограничиваться только увеличением количества факторов, задействованных в производстве. Кроме того, важно обратить внимание на преимущества, связанные с развитием науки и техники.

В реконструкции механизма управления экспортным потенциалом наряду с бизнес-структурами важное место должно быть уделено государственным органам, формирующим законодательную базу, налоговую и инвестиционную политику. Одним из основных направлений управления этим потенциалом является наличие в современной экономической науке конкретного механизма его формирования и развития [9]. Любое предприятие может развивать свой экспортный потенциал в двух направлениях: товарном и географическом.

Для повышения конкурентоспособности экономики и расширения мирохозяйственных связей необходимо формировать экспортный потенциал страны и развивать этот потенциал. Известно, что ежегодное снижение общего объема экспорта свидетельствует о наличии препятствий на пути реализации потенциала реальных секторов экономики и обеспечения стабильного роста производительности труда. С этой точки зрения актуально определить критерии формирования экспортного потенциала отраслей и сформулировать меры в направлении устранения основных препятствий на пути развития этого потенциала. В настоящее время технологические достижения играют одну из важных ролей в повышении не только экспортного потенциала страны, но и ее конкурентоспособности на внешних рынках. Технологические инновации могут привести к различиям в производственных процессах стран [10]. На следующем этапе анализа экспортного потенциала изучается маркетинговая деятельность предприятия, рассматривается реализация продукции на внешние рынки. Аналогичный подход позволит предприятиям эффективно использовать свои возможности на повышение экспортного потенциала [11].

В маркетинговом сегменте экспортной деятельности ставятся новые задачи, готовятся стратегические маркетинговые пути развития продукции предприятия. Также необходимо рассчитать основные маркетинговые показатели, к которым относятся затраты на рекламу, объем спроса на продукцию предприятия, рентабельность маркетинговой деятельности и долю целевого рынка экспортной продукции. Принимая во внимание особенности продукции *предприятия, необходимо сделать акцент на оценке инновационного потенциала как части его экспортного потенциала. Для анализа инновационного потенциала необходимо рассчитать уровень затрат на исследования и разработку, а также изучить всевозможные способы применения новых технологий в производстве [12]. Критерии оценки включают качественные и количественные показатели. К количественным показателям относятся рентабельность экспортных продаж, доля инновационной продукции, эффективность производства и конкурентоспособность производителя. Если на начальных этапах на первый план выходили такие факторы производства, как земля, труд и капитал, то на современном этапе важно создать экономические условия для стимулирования новых факторов.*

В процессе развития страны, наряду с проблемами укрепления экспортного потенциала, следует уделять внимание и импортной политике. Потому что стратегия импортозамещения играет важную роль в развитии потенциала этой страны. В условиях развития экспортно-ориентированной модели возможна защита ведущих отраслей сельского хозяйства и национальной промышленности от негативного воздействия импорта за счет максимального использования существующего потенциала различных отраслей экономики. Основным направлением укрепления экспортного потенциала в Азербайджане является создание технопарков и промышленных городков, основными задачами которых являются повышение потенциала кадров и уровня их квалификации, стимулирование малого и среднего бизнеса, привлечение инвестиций в промышленность страны и развитие ее экспорта [13].

В условиях новых вызовов в Азербайджане значительна роль регулирования экспортного потенциала. Так, в древности существовали различные теории о роли экономического развития стран мира. В настоящее время эти теории играют решающую и важную роль в регулировании внешней торговли страны, определении ее экспортной стратегии, а также в создании современных теорий международной торговли.

В условиях новых вызовов необходимо внедрить эффективные механизмы регулирования в целях укрепления экспортного потенциала Азербайджана. Теоретически механизмы регулирования этого потенциала включают правовые законы, постановления, государственные программы, квоты, лицензирование, развитие экономической и экспортной структуры, налоговые льготы, освобождение экспортеров от прямых пошлин, экспортные торговые зоны, экспортные промышленные районы и т.д. Таким образом, существуют различные методы и многофункциональные механизмы регулирования экспортного потенциала. Основной задачей государства является формирование политики оптимального регулирования экспортной концепции ненефтяного сектора нашей страны. Фактически регулирование экспортного потенциала видов экономической деятельности, входящих в ненефтяной сектор, считается одной из важных составляющих системы мер по повышению конкурентоспособности нашей национальной экономики и государственной промышленной политики, уровня «открытости» экономики» и пр. Известно, что если внешнеторговый оборот страны составляет 25% ВВП и более, то экономика страны считается «открытой экономикой».

Уровень сформированности экспортного потенциала в основном напрямую связаны с международной специализацией направлений и приоритетов в сфере внешней торговли по макроэкономическим параметрам, и в этих процессах важным является стимулирование иностранного капитала и усиление поддержки национальных экспортеров выхода на внешние рынки со стороны государства. Географическое направление предполагает увеличение экспортного потенциала за счет завоевания новых рынков или увеличения реализации продукции на уже развитых рынках, и с этой точки зрения можно выделить четыре переменные экспортного потенциала предприятия: существующий продукт, новый продукт, сложившийся рынок и перспективный рынок [14].

Механизм управления экспортным потенциалом включает в себя следующие процедуры: Определение типа экспортного рынка – тип рынка определяется на основании документов, находящихся внутри предприятия; Определение вида экспортной продукции, которое должно основываться на количественной информации о них [15]. При регулировании экспортного потенциала нашей страны основными целями являются обеспечение долгосрочного развития национальной экономики и поддержание макроэкономической стабильности. С другой стороны, главными условиями являются увеличение экспортного потенциала, его эффективное использование, макроэкономическая стабильность и долгосрочное развитие экономики.

Поэтому представляется необходимым изучение показателей макроэкономического развития и тенденций, наблюдаемых в экономике страны [16].

Отметим, что в связи с возрождением постконфликтных территорий образовались благоприятные условия для создания сети экспортноориентированных предприятий [17]. Подобное развитие событий позволит эффективно использовать мировой опыт по рациональному размещению производительных сил в регионах и обеспечить развитие производственной инфраструктуры, в первую очередь, экспортноориентированных перерабатывающих производственных мощностей [18]. Кроме того, исходя из традиционных и исторических особенностей, имеется возможности создания текстильных предприятий, которые могут выпускать брендовые товары для реализации их на внешнем рынке [19]. Одновременно путем создания специальных экономических зон возможно активное привлечение инвестиционных ресурсов в регион и развитие отдельных секторов экономики [20].

Таким образом, новые подходы к повышению экспортного потенциала и его регулированию требуют развития государственных механизмов. В этом контексте, в условиях усиливающегося влияния глобализации, необходимо оценить правомерность многих проблем. Поэтому, по нашему мнению, в ближайшее время Азербайджану предстоит принять следующие меры по укреплению своего экспортного потенциала:

– приоритет должен быть отдан развитию экономики на научной основе и основное внимание должно быть направлено на развитие современных технологий, конкурентоспособных и экспортно-ориентированных производств;

– следует углубить специализацию в производстве продукции, осваивать новые рынки, выводить на эти рынки больше национальных брендов, диверсифицировать отношения с потенциальными компаниями и инвесторами, заинтересованными в нашей стране, а так же укреплять торговое сотрудничество;

– с учетом мультипликативного эффекта экспортный потенциал следует рассматривать как важное приоритетное направление экономики и т.д.

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Pedagogical sciences

TEACHING PROFESSION IN HAYDER ALIYEV'S LEGACY

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HEYDƏR ƏLİYEVİN NƏZƏRİ İRSİNDƏ MÜƏLLİMLİK PEŞƏSİ

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Abstract

In all historical periods, prominent personalities and statesmen have highly valued the teaching profession and considered teaching to be the most honorable profession in society. Among these wise thoughts, the words of Heydar Aliyev, the genius of the 20th century and the great statesman, about the teaching profession stand out for their special value, importance and the high value he gives to the profession: "I do not know a higher name on earth than the name of teacher!". These precious words come from the fact that our Great Leader is closely connected to the teaching profession, that he is familiar with this profession, that his first professional qualification is teaching, and that his first job assignment is also teaching.

He said about this in his speech at the First Congress of Azerbaijan Teachers: "It is true, you consider me a teacher too. There is a certain basis here. You say this based on my education... Yes, I graduated from Pedagogical College in Nakhchivan in 1939. Nakhchivan Pedagogical Technical College trained teachers due to the shortage of teachers at that time, because there were no teachers to teach primary classes, even up to the 7th and 8th grades of secondary schools. After finishing the 8th grade of secondary school, I entered the pedagogical technical school. My goal was that I wanted to become a teacher, work as a teacher and help my family. ... In the last year of the pedagogical technical college, they gave us a pedagogical practice lesson. We went 2-3 times a week and taught in the 2nd, 3rd and 4th grades of schools. Therefore, I have had the experience of teaching since then..."[1].

Xülasə

Bütün tarixi dövrlərdə görkəmli şəxsiyyətlər, dövlət adamları müəllimlik peşəsinə yüksək qiymət vermiş və müəllimliyi cəmiyyətin ən şərəfli peşəsi hesab etmişlər. Bu müdrik fikirlər sırasında XX əsrin dahi şəxsiyyəti, böyük dövlət xadimi Heydər Əliyevin müəllimlik peşəsi haqqında dediyi sözlər öz xüsusi dəyəri, əhəmiyyəti və peşəyə verdiyi yüksək qiyməti ilə seçilir: "Mən yer üzündə müəllim adından yüksək bir ad tanımıram!". Bu qiymətli sözlər Ulu Öndərmizin müəllimlik peşəsinə sıx bağlı olmasından, bu peşəyə yaxından bələd olmasından, ilk peşə ixtisasının müəllimlik olmasından və ilk vəzifə təyinatının da müəllimlik olmasından irəli gəlməkdədir. O bu barədə Azərbaycan Müəllimlərinin I qurultayındakı nitqində belə demişdir: "Doğrudur, siz məni də müəllim hesab edirsiniz. Burada müəyyən əsas var. Siz mənim təhsilimə əsaslanaraq bunu deyirsiniz... Bəli, mən 1939-cu ildə Naxçıvanda Pedaqoji Texnikumu bitirmişəm. Naxçıvan Pedaqoji Texnikumu məhz həmin dövrdə müəllim çatışmazlığına, ibtidai siniflərə, hətta orta məktəblərin 7-8-ci siniflərinə qədər dərs demək üçün müəllim olmadığına görə müəllim kadrları hazırlayırdı. Mən isə orta məktəbin 8-ci sinfini bitirdikdən sonra pedaqoji texnikuma daxil oldum. Məqsədim də o idi ki, müəllim olmaq, müəllim işləmək və ailəmə kömək etmək istəyirdim. ... Pedaqoji texnikumun sonuncu kursunda bizə pedaqoji təcrübə dərsi verirdilər. Biz həftədə 2-3 dəfə gedib məktəblərin 2-ci, 3-cü, 4-cü siniflərində dərs deyirdik. Ona görə də mənim o vaxtdan dərs vermək təcrübəm olubdur..."[1].

Keywords: *school, education, education, pedagogical reforms*
Açar sözlər: *məktəb, maarif, təhsil, pedaqoji islahatlar*

Heydər Əliyevin məktəblə, maariflə həmişə sıx bağlı olması haqda özü belə deyirdi: "Məktəb, maarif, təhsil işi ilə həmişə sıx bağlı olmuşam...Hesab edirəm ki, cəmiyyət harada olursa olsun kəsib *təhsilə xərcləməli, gənc nəslin savadına, biliyinə, müəllimə kömək etməlidir...” O müəllimlik peşəsini ürəkdən sevmiş, müəllim əməyinə yüksək qiymət vermiş və heç də təsadüfi deyil ki, Heydər Əliyev Azərbaycanda ona təklif olunan müxtəlif fəxri adlardan yalnız “Xalq müəllimi” fəxri adını məmnuniyyətlə qəbul etmişdir.*

Heydər Əliyev müəllimlik adını çox yüksəkdə tutmuş və ona müqəddəs bir peşə kimi baxmışdır. “ …Mən Azərbaycanın sadə vətəndaşıyam. Bu addan yüksək ad yoxdur. Ancaq bundan da yüksək ad müəllimlikdir...” [4]-demişdir.

Ümumtəhsil məktəblərində qazanılan biliklərin mahiyyətini, məndəricəsini yüksək qiymətləndirən ulu öndər hər bir insanın həyat mövqeyinin formalaşmasında, cəmiyyətdə öz yerini tutmasında orta təhsilin çox böyük əhəmiyyət daşıdığını vurğulamışdır. Ulu öndərimizin aşağıdakı dəyərli fikirləri bu baxımdan səciyyəvidir: “İnsan təhsilinin əsasını orta məktəbdə alır... Əgər onun fundamental, köklü orta təhsili varsa, o, cəmiyyətdə özünə yer tapacaq, çalışacaq, ...cəmiyyətimizin şüurlu üzvü olacaqdır”. Bu mövzunun davamı kimi qeyd edək ki, dahi rəhbərin orta təhsilin qarşısında duran vəzifələrlə bağlı qiymətli tövsiyə və tapşırıqları da bütün zamanlar üçün dəyərini saxlayan əsl fəaliyyət proqramıdır. Xalqımızın böyük oğlu Heydər Əliyev tədris ocaqlarında, o cümlədən orta ümumtəhsil məktəblərində şagirdlərin bütün müvafiq elmlər üzrə zəruri biliklərə yiyələnməsini, onların seçdikləri gələcək ixtisaslara uyğun fənləri daha dərindən öyrənməsini lazım bilmiş, bunlarla yanaşı, istisnasız olaraq hər bir şagirdin mükəmməl bilməsi son dərəcə vacib olan fənləri də ayrıca vurğulamışdır: “Bizim uşaqlarımız, gənclərimiz hər bir fənni bilməlidirlər və xüsusən o fənlərdə ki, ixtisaslaşmaq istəyir, onu daha da yaxşı bilməlidirlər... Amma orta məktəblər üçün bizim bir neçə şərtlərimiz vardır, onları həyata keçirməlidirlər. Ana dilini bilməlidirlər, ədəbiyyatımızı bilməlidirlər, bizim tariximizi bilməlidirlər, bizim mədəniyyətimizi bilməlidirlər”. Bütün bunlar isə təhsilin milli məzmununu müəyyənləşdirən çox mühüm amillər kimi düşünülmüş, ciddi bir vəzifə, bir proqram olaraq qarşıya qoyulmuşdur. Təhsilin məzmunca milli müstəqilliyimizin prinsiplərinə uyğunlaşdırılmasında humanitar fənlərin, xüsusən Azərbaycan dilinin, tarixinin və ədəbiyyatının tədrisinin mahiyyətcə yeniləşməsini dahi rəhbər çox vacib şərt saymışdır. Bu da təsadüfi deyil. Çünki gələcəyin qurucuları olan yeni nəsillərin milli ideologiyaya yiyələnməsi məktəbdən başlayır və bu işin düzgün təşkili ölkə üçün həyati əhəmiyyətə malikdir. Ona görə də ümummilli liderimiz tövsiyə edirdi: “Milli ideologiyamızı hər yerdə tətbiq etmək üçün məktəblərdə Azərbaycan xalqının tarixinin tədrisinə çox ciddi fikir vermək lazımdır. Gənclərimiz öz tarixini, öz tarixi keçmişini gərək yaxşı bilsinlər”.

Heydər Əliyev bir pedaqoq məharəti ilə müəllimlərə təkcə öyrənmək və öyrədə bilmək bacarığını deyil, həmçinin, məktəbliləri, tələbə -gəncləri Vətənə sədaqətlə xidmət etmək ruhunda böyütməyi, xalqımızın milli xüsusiyyətləri əsasında tərbiyə etməyi, onları milli-mənəvi dəyərlər əsasında yetişdirməyi tövsiyə edirdi. Ulu öndərimizin 1 sentyabr 1997-si ildə Bakının 18 №-li məktəbində keçirilən görüşdəki nitqi bu baxımdan çox dəyərlidir: “Uşaqlar gərək orta məktəblərdə bütün fənləri mənimsəsinlər. Bunların hamısı ilə bərabər, bizim xalqımızın zəngin tarixini, mədəniyyətini, mənəviyyatını, mənəvi dəyərlərini uşaqlara öyrətmək, çatdırmaq, uşaqları məhz həmin ənənələr ruhunda tərbiyə etmək müəllimlərin müqəddəs borcudur. Mən arzu edərdim ki, müəllimlər bunu heç vaxt unutmasınlar....“[5].

Ulu Öndərimiz Heydər Əliyev özlərini vətən torpağının bir zərrəsi sayan gənslərin tərbiyə edilib yetişdirilməsində müəllim əməyinə, onun şəxsiyyətinə yüksək qiymət vermişdir. Heydər Əliyev deyirdi ki, müəllim adı şərəfli addır, müəllim adı yüksək addır. Müəllim vəzifəsi ona görə şərəflidir ki, o, səmiyyət üçün ən dəyərli, bilikli, zəkalı, tərbiyəli, vətənpərvər vətəndaş hazırlayır. Müəllim dünyada yeganə şəxsiyyətdir ki, cəmiyyət öz gələcəyini – uşaqlarının tərbiyəsini yalnız ona etibar edir [3].

Ulu öndər Heydər Əliyev də müəllimlik adını çox yüksəkdə tutmuş, onu ən vaçib peşə kimi qiymətləndirmişdir: “...hər bir müəllim bilməlidir ki, onun üzərinə düşən vəzifə, onun dövlət üçün, millət üçün, Azərbaycan xalqı üçün gördüyü iş bütün başqa sahələrdə fəaliyyət göstərən insanların hamısının işindən ən gərəklisidir, ən lazımlısıdır” [2].

Ulu öndər deyirdi ki, ölkədə təhsilin hərtərəfli yüksəlişində, təlim-tərbiyə prosesində qarşıda duran mühüm, çoxşaxəli vəzifələrin uğurla həyata keçirilməsində təkcə məktəbin, orada çalışan pedaqoji heyətin əməyi kifayət deyil. Yeniyetmə və gənclərin gələcəyin savadlı mütəxəssisi, layiqli vətəndaşı kimi formalaşması üçün bütün cəmiyyət maraqlı olmalıdır, xüsusən də məktəblə ailənin birgə fəaliyyəti təmin edilməlidir. Ümummilli liderimiz həmin məsələyə də diqqət yetirərək demişdir: “Məktəblə ailənin sıx, qarşılıqlı əlaqəsi olmadan mükəmməl tərbiyə ola bilməz, çünki bu proses kompleks bir prosesdir və onun səmərəliliyini valideynlərlə pedaqoqların birgə səyi ilə yüksəltmək lazımdır”. Bir sözlə dahi rəhbər Heydər Əliyevin milli təhsil və tərbiyə məsələlərinə dair nəzəri konsepsiyası son *dərəcə qiymətli olub, çağdaş dövrdə də, gələcək yüzillərdə də öz dəyərini, əhəmiyyətini saxlamaq gücünə malikdir. Bu konsepsiya hər bir təhsil alanın, hər bir pedaqoqun, ümumən, hər bir Azərbaycan vətəndaşının fəaliyyət devizi, həyat amalıdır.*

Təhsil və tərbiyə prosesində müəllimin peşə hazırlığı, savadı, mənəviyyatı mühüm əhəmiyyət daşıyır. "Özünü müəllimliyə həsr etmiş insan ən şərəfli insandır", – deyən dahi rəhbərimizin müdrik tövsiyəsi belədir ki, əsl pedaqoq olmaq, şagird və tələbələrə mükəmməl, hərtərəfli bilik vermək, onları nəcib mənəvi amallara sədaqət ruhunda yetişdirmək üçün məktəblərdə müvafiq şərait, lazımi mühit yaradılmalı, müəllimin özü bu yüksək keyfiyyətləri dərindən mənimsəməli, yetirmələrinə nümunə olmalıdır: "Məktəbdə, universitetdə formalaşan gənc, Azərbaycanın gələcək vətəndaşı gərək, birincisi, mənəviyyatca saf olsun. Ona görə də gərək mənəvi saflıq ali məktəblərdə, orta məktəblərdə hökm sürsün ... Ona görə də gərək onun müəllimləri, tərbiyəçiləri özləri vətənpərvər olsunlar, vətənpərvərliyi gənclərə aşılaya bilsinlər".

Heydər Əliyev harada təhsil almışdırsa yalnız "Əla" qiymətlər almış, hər yerdə ən qabaqcıl, fəal lider olmuşdur. O hələ Naxçıvanda orta məktəbdə oxuduğu illərdə "Əla" qiymətlərlə oxumuş, daha sonrakı təhsil illərində də yalnız "əla" qiymətlərlə oxumuş, həmişə də öz müəllimlərinə böyük hörmət və ehtiramla yanaşmış, onları daim minnətdarlıqla xatırlamışdır: "Mən həmişə Naxçıvanda təhsil aldığım illəri xatırlayıram. Bu illər mənim yaddaşımdan heç vaxt silinməyəcək. Müəllimlərimin hamısı yadımdadır. Hansı binada, hansı sinif otağında dərs keçməyimizi, hansı parta arxasında oturduğumu da yaxşı xatırlayıram. Mən burada mükəmməl təhsil almışam, özü də elə həvəs və aludəçiliklə oxumuşam ki, sonralar digər ali təhsil müəssisələrində oxumağım mənim üçün çətin olmayıb. Əksinə, burada olduğu kimi, tələbələr arasında da seçilmişəm...." [5]... "İndiyə qədər həyatımda keçdiyim yol mənim biliyim, elmim - hamısı məhz orta məktəbdə aldığım təhsillə bağlıdır, müəllimlərin mənə verdiyi biliklərlə bağlıdır, müəllimlərin mənə və o illərdə oxuyan mənim kimi gənclərə göstərdikləri qayğıkeşliklə bağlıdır, eyni zamanda mənim kimi bizim də, xüsusən mənim müəllimə böyük hörmətimlə, ehtiramımla bağlıdır. Mən indi də - on illər keçib üstündən – müəllimlərimi heç vaxt unutmamışam və ömrümün son dəqiqəsinə qədər unutmayacağam. Mənim üçün müəllim adı həmişə ən ülvi, ən şərəfli bir məfhum olubdur. Mən bu gün müəllim qarşısında baş əyirəm, müəllimə hörmət və ehtiramımı bildirir, Azərbaycan müəllimlərinə bundan sonra da öz işlərində uğurlar arzulayır, cansağlığı və səadət diləyirəm" [7].

Heydər Əliyev Naxçıvanda orta məktəbi "əla" qiymətlərlə başa vurduqdan sonra Naxçıvan Pedaqoji Texnikumuna daxil olmuş və burada təhsil aldığı dövrdə ən fəal və əlaçı tələbə olmuş, ictimai işlərdə fəal iştirak etmiş, idman yarışlarında birincilik qazanmış, incəsənətlə - rəssamlıqla, aktyorluqla məşğul olmuş, daim mütaliə etmiş, kitablar oxumuş və hərtərəfli inkişaf etmiş, fiziki cəhətdən güclü qamətli, yaraşıqlı bir gənc olmuşdur. Texnikumun peşəkar, tələbkar müəllimləri Heydər Əliyevin ən sevimli müəllimləri olmuş və özünün dediyi kimi: "…39-cu ildə burada pedaqoji texnikumu qurtarmışam. O dövrdə aldığım təhsil gələcək həyatımın bütün mərhələlərində mənə yardım edibdir... Naxçıvan məktəbində müəllimlərimin mənə verdiyi dərslər, o cümlədən başqaları ilə bərabər ana dili, ədəbiyyat dərsləri mənim bu günkü dilimin əsasını təşkil edir. Ona görə mən öz müəllimlərimi həmişə xatırlayıram.

Bilirsiniz ki, mən böyük həyat yolu keçmişəm, yaşım da az deyildir. Çox şeylər, çox insanlar görmüşəm, çox böyük şəxsiyyətlər görmüşəm. Yadda qalanları da, qalmayanları da var. Az yadda qalanı var, çox yadda qalanı var. Amma sizə demək istəyirəm ki, ən yadda qalanlar, mənim üçün əziz adamlar Naxçıvandakı müəllimlərimdir..."[1]. Bəli, o müəllimlərini heç zaman unutmadı, onları yüksək qiymətləndirdi, onların hər biri haqqında, onların pedaqoji məharəti, pedaqoji ustalığı haqqında çox dəyərli fikirlər söylədi: "Pedaqoji texnikumda bizə Azərbaycan dilinin incəliklərini öyrədən, Azərbaycan dilinin qrammatikasını, ədəbiyyatı öyrədən gözəl müəllimlərimiz var idi. Amma bu müəllimlərin içərisində Lətif Hüseynzadə xüsusi yer tuturdu...O sinifdə lövhədə Azərbaycan dilinin qrammatikasından sözləri yazırdı, hər bir sözün düzgün yazılışını və mənasını izah edirdi... Bir də Azərbaycan ədəbiyyatını-şairlərimizi, yazıçılarımızı çox yaxşı öyrədirdi...Lətif müəllim özü canlı bir tarixdir" [4].

Yeri gəlmişkən qeyd edək ki, Naxçıvan Pedaqoji Texnikumu öz məzunları və müəllimləri ilə məktəb və pedaqoji fikri tariximizdə çox layiqli yer tutmuş və Azərbaycan pedaqoji kadrlarının hazırlanmasında mühüm xidmətləri olmuşdur. Texnikumun məzunları çox dəyərli, ləyaqətli, vətənpərvər məzunlar olmuşlar ki, onları Qori Müəllimlər Seminariyasının məzunları ilə də müqayisə etmək olar. Onlardan aşağıdakıların adlarını çəkmək olar: Əli Sultanlı (professor, görkəmli ədbiyyatşünas alim), Səfərəli Babayev(professor, coğrafiyaşünas alim), Manaf Xudiyev (Əməkdar müəllim, görkəmli jurnalist, mətbuat işçisi), İnayət Bektaşi (professor, ədəbiyyatşünas alim), Abbas Bektaşi (II dünya müahribəsində fədakar əskər), Dövlət Məmmədov ("Şöhrət" ordenli, Əməkdar rəssam), Cavad Cavadlı (görkəmli jurnalist), İsa

Məmmədov (professor, psixoloq), Firudin Hüseynov (professor, ədəbiyaytşünas alim), Həsən Fətullayev (görkəmli yazıçı), Teymur Nağıyev (Əməkdar müəllim, görkəmli ictimai xadim) və başqaları olmuşdur. Əlbəttə, bu məzunlar içərisində ulu öndər Heydər Əliyevin xüsusi yeri və şərəfli mövqeyi vardır.Texnikumun görkəmli qadın məzunları da olmuşdur.

Burada dərs deyən müəllimlər də çox təcrübəli, bilikli, peşəkar müəllimlər olmuşlar, dövrün hər cür çətinliklərinə baxmayaraq həvəslə, fədakarlıqla çalışmışlar. Onların bir çoxu Qori Müəllimlər Seminariyasını, İrəvan Müəllimlər Seminariyasını bitirmiş, bəziləri də Rusiya universitetlərində təhsil almış həvəslə çalışan, peşəkar müəllimlər olmuşlar.

Naxçıvanda "Rüşdiyyə" adlı "Yeni üsul" məktəbində, Hüseyn Caviddən türk dili, onun böyük qardaşı Şeyx Məhəmməd Rasizadədən ərəb dili, kiçik qardaşı Əlirzadan rus dili dərsləri almış, BDU –nun Şərqşünaslıq fakültəsinin lisaniyyat ixtisasından məzun olmuş, "İstiqlal" ordenli "Əməkdar müəllim", dosent atam Lətif Hüseynzadə texnikumun dərs hissə müdiri və ədəbiyyat müəllimi olmuş və bu barədə xatirələrində belə deyirdi: "Texnikumun direktoru Əməkdar müəllim Kazım Talıblı idi. Çox bacarıqlı işgüzar, təşkilatçı və olduqca tələbkar bir şəxs idi. Hüseyn Cavidin böyük qardaşı Şeyx Məhəmməd Rasizdə isə Tehranda, Nəcəfdə təhsil almış mükəmməl bilik sahibi idi. Ədəbiyyat dərslərini o tədris edirdi. Hüseyn Cavidin kiçik qardaşı Əlirza isə Qori Müəllimlər Seminariyasının məzunu olaraq rus dili müəllimi idi. Tofiq Bektaşi Sankt Peterburqda təhsil almış, çox ciddi, dərin bilikli, çox tələbkar riyaziyyat müəllimi idi...Əli Əliyev tariximizin mükəmməl bilicisi, onu tədris və təbliğ edən, tələbələrə böyük qayğıkeşliklə yanaşan bir pedaqoq, müəllim idi. Əsəd Cəfərli təcrübəli bir müəllim kimi təbiət, biologiya dərslərini tədris edirdi. Bir müddət texnikumun direktoru vəzifəsində də işləmiş və Naxçıvan maarifinin inkişafında xidmətləri böyükdür. Murad Tutayuq Rusiyada təhsil almış fizika-riyaziyyat müəllimi idi. Cəfər İmanov, Əsgər Əhmədov kimya fənnini, Qafar Zamanov tarix fənnini tədris edirdilər. Cəlil İskəndərli ədəbiyyat, Abbas Əsgərov Azərbaycan dili müəllimi idi. Həsən Bəy Qaziyev İrəvanda təhsil almışdı, anatomiya dərslərini aparırdı. Əbdüləzim Bəy Rüstəmov coğrafiya müəllimi idi. Naxçıvanda maarif və mədəniyyətin inkişafında böyük xidmətləri olmuş və ictimai xadim kimi də fəaliyyət göstərmişdir. Sonralar Ordu Generalı olmuş Akim Abbasov texnikumun hərbi rəhbəri idi. Həsən Səfərli rus dili, Nəcəf Qəhrəmanov isə hərbi hazırlıq müəllimləri idilər. Daha sonra Qori Müəllimlər Seminariyasının məzunu Kazımbəy Rəhimbəyov rus dili müəllimi, Həsən Salayev, David İsrafilov, Xədicə Yusifbəyli, Mirzə Musayev və başqaları texnikumun sevimli müəllimləri idilər. Texnikumda bədən tərbiyə və idman işləri yüksək səviyyədə qurulmuşdu. Bu dərsləri İbrahimxəlil Axundov öyrədirdi. O həm də Rusiyada zabitlik məktəbini bitirdiyindən tələbələrin hərbi təliminə ciddi fikir verirdi.

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PSYCHOLOGICAL AND PEDAGOGICAL CHARACTERISTICS OF SPEECH MONOLOGIC SKILLS OF STUDENTS AT THE INTERMEDIATE LEVEL OF EDUCATION

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Abstract

This article deals with the psychological and pedagogical characteristics of speech monologic kills of intermediate level students. These characteristics influence the process of organizing monologues which is quite complicated and needs to include resources for practicing monologues, clichés and proper content.

Keywords: *monologue, psychological characteristics, pedagogical characteristics, authentic text, authentic video, podcast.*

Introduction

The process of monologue speech learning is an important step to enrich active vocabulary of students. That is why it should be organised properly considering the age of students, their psychological development and other corresponding factors. Psychological and pedagogical characteristics of adolescents studying at the intermediate level of school education are essential for maintaining proper monologue practice at schools.

Materials and type of research

Objectives of the study: first, to analyse the psychological characteristics of students at the intermediate level of education; second, to analyse the pedagogical characteristics of students at the intermediate level of education; third, to reveal the peculiarities of monologue teaching students at the intermediate level.

The study involved 9th grade secondary school students.

Research stages:

1. Preparation of monologues.

2. Creating the tasks to develop monologue speech.

3. Systematization and analysis of results.

Research questions

Here are the research questions:

- *What psychological and pedagogical characteristics should be taken into account while teaching students monologue speech?*
- *How can monologue speech be developed at the intermediate level of school students?*

Discussion

Monologue speech is an important source to improve communication of English learners. Developing communicative skills of learners of English corresponds to the significant changes of level education in the Republic of Kazakhstan, mainly to 'transition to teaching English based on teaching communication skills, not only lexics and grammar' [16, p. 137].

Practicing English using monologues students can explore the culture, traditions, attitude to different life situations, increase cognitive abilities and improve communication skills [12, p. 174]. It is important to choose the content, speech situations, roles that contribute to the educational programme and reflect the real-life situations.

A monologue is an independent type of character's speech that does not require an immediate response from anyone, does not depend on how the listener perceives what was said, what impression he or she gets; and dialogue is a means communication between two or more people, a type of characteristic speech in which the words of one depend on the words of another. Characteristic features, features of thinking, ideological channels of the image are also expressed through a monologue [17, p 6]. Monologues as a form of oral speech lead to the assumption of learners how language can be used in *real world [10, p. 88]. For that reason monologues can be based on authentic texts, modern culture, urgent problems in the world and so on.*

To proceed speaking skills of students from 5th to 9th grades it is a good idea to create a convenient and free environment among students in the classroom, listening the teacher and to the thoughts of their classmates is an inseparable part of successful fulfillment of any task in the process of learning. Psychological development of adolescents demands communicative support from a teacher that means the process of monologue organization has to be planed profoundly. The matter is actually connected to the fact that 'logical and communicative supports increase the mental potential of students in the process of using these supports. These kinds of support play a key role in improving the speech performance of students in intermediate grades, and the variety in each lesson increases the interest of students, motivating students to create monologue pronunciation' [13, p 104].

The application of logical and communicative supports contributes to the formation of aim-based attention of students, the creation of elements of memory and imagination, increased their intellectual activity and interests. In English classes students' horizons are broadened, students develop creative thinking when composing a monologue. Students also develop an emotionally positive attitude to the creative process and develop flexible skills such as empathic communication [15, p. 58]. Focusing interest on learning goals based on formation of students ' thinking abilities from simple (knowledge, awareness, application) to the highest values (analysis, synthesis, assessment) [11, p. 43].

In the basic school, the teaching of monological speech is primarily aimed at the formation of speech skills, which are further reinforced by communicative skills. When teaching monological speech, pupils acquire the ability to combine, form and organise their own thoughts and attitudes, which subsequently contributes to the development of mechanisms and communicative activities.

The conceptual block of psychological and pedagogical conditions of learning activity includes 'an environment in which individual interaction between teacher and student takes place; students communicate freely within their age group; developing pedagogical technologies are used in lessons, the subject-space environment stimulates communication and learning of new material, modern information technologies are actively used' [1, p. 960].

According to L.N. Tolstoy, there are the following psychological and pedagogical conditions of the educational process:

1. 'The student is an active subject of cognition, and the teacher possesses strategies for turning his subject into a means of development of the student's personality;

2. The recognition of spiritual and moral values should be taken into account as well as the content of education 'should come from life' take care of creating 'naturalness of relations' between the teacher and students to ensure the creative development of children.

3. The main condition and criterion of effective organisation of the learning process by the teacher is freedom' [6, p. 24-25].

Psychological and pedagogical characteristics include psychological and pedagogical support which is understood 'as a method of creating conditions in which a student is able to make an independent choice in a problem situation' [1, p. 961]. Monologue usually needs attention in following one's thoughts that is why such choice assists to make the oral speech logical and complete.

The leading activity in the basic school is communication - with peers, with adults, which implies the use of a large number of communicative tasks for the development of language skills and abilities of students and the development of their personal competences [7]. Accordingly, in the oral speech of students of grades 5-9, one of the common topics is the interaction of adolescents with friends, parents and other people, the development of the learner's personality, etc.

It is important for the teacher to take into account the age specifics of adolescents' development, in particular the aspects of development of 'thinking, memory, imagination and sensation' [4, p. 430]. Adequate work of these psychological processes when studying and reproducing speech situations at foreign language lessons leads to 'effective memorisation of foreign language vocabulary and promotes active thinking activity' [3, p. 18].

At the age of 14-16 there is a peculiar transition from a teenager to an adolescent, which leads to the formation of new personal qualities, age interests and psychological features. There is a development of self-awareness, interest in one's own personal qualities, and a desire for self-development. Students at the middle stage develop a sense of adulthood, which leads to the conscious assimilation of norms, values and ways of behaviour.

Towards the end of the middle stage of schooling, the nature of the adolescent's cognitive activity changes; he or she becomes capable of a more complex analytical and synthetic perception of *phenomena and objects. The student develops assiduity, the ability to organised attention. When teaching monologic reasoning it is necessary to use the personal-activity approach, according to which the schoolchild, his goals, motives, and psychological make-up are at the centre of learning [2]. The teacher organises the lesson based on the interests of the student, the level of his/her foreign language skills. In this case, when compiling a methodology for teaching monologic reasoning, it is necessary to focus on the real needs, motives, abilities of the student, his individual psychological characteristics. The tasks should stimulate intellectual and speech activity.*

According to I. Zimnya, in adolescence 'the mechanisms of speech activity improve: memory, thinking, prediction; students can conduct deductive reasoning, show independent creative thought, support their point of view with evidence [2]. Monological speech thus becomes more meaningful and analytical, there is a regulative function, which allows the speaker to form his unique style of speech.

Discussing the peculiarities of monologue speech teaching for adolescents, some key moments have to be highlighted. For instance, features of monologue speech 'should be considered as purposefulness, continuity and development of the statement, and semantic completeness' [13, p 104].

Efforts aimed at organizing English language teaching, taking into account the requirements of differentiation of the learning process, lead to a certain increase in the performance of the class as a whole and each student individually. The training is conducted taking into account the abilities of the students. Students develop high skills of speaking, listening, reading, writing and behavioral norms. Thanks to the variety of tasks that stimulate cognitive activity, it is possible to increase the activity of students in the educational process [9, p. 149].

Students of intermediate level of school studying know how to generalise and reveal abstract judgement. This way English teachers conduct lessons in way when students definitely use repeated practice of monological speech and develop this way their thinking process, oratory skill and logic. Consequently the level and volume of lexics enriches, grammar and syntax become more complex and wider that results in more complex monological utterance. Another psychological peculiarity of students of this age is the so-called 'clip thinking', in which the student gets used to perceive information in brief fragments, images, and is unable to analyse it, because he or she lacks time and desire to do so. For that reason different forms of monologue should be practiced at this level of foreign language in a secondary school.

It is necessary to take into account the need of intermediate stage students for self-expression, which promotes social and learning-cognitive motives. This need is perfectly embodied in the form of monological reasoning, in which the student must express a personal, yet reasoned opinion, in the formation of which the student will be forced to organise an independent study of a given topic.

Research results

In the framework of our research, the experimental part is conducted among 9th grade students, in connection with which it is necessary to specify the conditions of monological speech for this age period (15-16 years old) - students are able to generalise information, meaningfully carry out cause and effect relationships. They can productively assimilate a large amount of information in English, which favourably influences the development of spontaneous speech. Teenagers become extremely interested in creative activities and solving problem situations, in particular, strengthening personal positions in the team [5]. The given information about psychological and pedagogical conditions indicates the motivation for the development of monologic speech, pupils like to make long discourses and follow the course of their thoughts, as a foreign language acts as a means of self-expression.

There are different ways to develop oral speaking skills. Regarding the growing popularity of computer technologies and Internet resources, videocasts are widely used, forming oral-pronouncing skills and oral-speech skills in teaching English. Moreover, modern technologies form the socio-cultural and sociolinguistic competence of students [15, p. 151].

The aim of teaching monological reasoning is to develop the student's ability to communicate orally and unilaterally in a variety of situations. The student should be able to speak coherently and logically on a particular topic, express his/her point of view with appropriate argumentation. The teacher should take into account the students' abilities (principle of feasibility), aptitudes and needs (principle of motivation). In this case, the student will act as an active subject of learning activity, and, therefore, the pedagogical principle of activity [8] will be embodied, which requires from the student active speech activity, which in turn leads to the tension of mental processes, attentiveness on the part of students. The development of reasoning abilities allows the formation of general theoretical thinking and reflection.

Based on modern technological resources like Youtube, learning videos, podcasts and others students practice all stages of monologue speech performance. Initially, at the preparatory stage for *discussing the content, students answer problem questions and communicative tasks aimed at solving a practical task, at understanding the content of what they have watched. For example, the following questions can be used at this stage:*

- What happens in the video / podcast?

- Why do you think the people there behave like that?

- What is the meaning of this video or what does it tell us?

These questions as well as revising speech clichés assist to prepare students to compose an independent speech monologue, as well as to express their point of view on the content.

Quite often retelling of the video becomes a common task for practicing monological skills. Students have to remember the key information in the video or the podcast and tell about it using their ow sentences. To help them perform the retelling properly, the teacher can highlight key points, draw up a plan of the content, etc.

Lessons aimed at monological skills development can include different blocks based on the types of language work - for example, lessons contain lexical, grammatical, phonetic blocks, as well as blocks built on the principle of semantic organisation of the text - introduction, main part, climax, conclusion. Work with the lexical block includes various tasks to activate lexical units, lexical-thematic field, finding the same root words, vocabulary development, etc. Initially, work with the lexical block begins with the title of the text - students can make chains of words related to the title of the text and explain their correlation with the key words of the title.

The grammar block allows to activate grammatical constructions in students' monological speech, which serve as the basis for composing retellings, reasoning and other types of monological speech. The texts that can contain various grammatical tenses, rules of formation of forms of parts of speech and exceptions to them are interesting. In this way, students practically consolidate grammatical rules and improve their ability to compose a grammatically correct monologue, which is important for the development of students' speech skills.

Let us consider a set of pre-view tasks, which are aimed at activating monologic speech, relieving language difficulties, and forming motivation to work with an authentic video resource. The teacher can formulate the following questions for students:

- Look at the name of the video. What can it be about?

- What places / people can you see? What are the people doing?

While watching the video, students need to get the common idea of the video and pay attention to the key information: location, actions, atmosphere. At the final stage of work with the video, communicative tasks that allow simulating actions close to a real communication situation are quite effective. This stage of learning can be labelled as partially reproductive, which is realised in the following exemplary types of tasks:

- Were your suggestions about the content of the video right?

- Say the main topic of the video using one phrase or a sentence.

- Describe the characters of the video using the following adjectives. Explain your choice of adjectives.

- Make a detailed plan of retelling the video with the key words.

- Retell the story from the third person's side / from the side of one of the main characters [14, p. 7].

There is also a block of productive tasks for working with a video content. The idea shown in the video can be developed further. For instance, students can share their own experience of the situation shown in the video or express their attitude towards the situation. If there is a problem in the video, a teacher can ask a student for his/her personal solution of the situation. For example, a teacher can formulate the following questions for the students, to which they should give oral answers:

- What is the situation / problem like?

- What is the morality or appeal of the situation?

- What solution can you suggest?

- Tell about ..(the topic of the video) in your life.

The choice of the videos should be done according to the education programme, the topic studied while watching the video and the students' current level of English. Some of the suggested videos can be taken from BBC channel videos, social media platforms, where the name of the video is usually followed with hashtags. The choice of the video has to be done according to psychological and pedagogical characteristics, precisely – it needs to be informative, real-life, interesting and suitable for discussion.

Conclusion

The development of monologue speech skills is effective when the choice of the material (texts or videos) is performed properly. Teenagers like to express their own opinion, share it with peers, so communication becomes a leading activity in their education process. Various authentic materials like texts, videos and podcasts serve as a source for showing the students' position to the issues shown in these materials. Another common task is retelling which helps to accumulate the information perceived by students and motivate them to tell about it in their words. Teachers should always support students, find the ways to explain any unknown information and encourage students to speak continuously, logically and correctly.

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CREATIVE APPROACHES IN TEACHING ENGLISH FOR THE TOURISM SPECIALITY

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Abstract

This article explores innovative and creative approaches in teaching English to students specializing in tourism. With the growing globalization of the tourism industry, proficiency in English has become an essential skill for tourism professionals. Traditional teaching methods often fail to engage students effectively or address the practical language needs of the field. This paper discusses various modern pedagogical strategies, including task-based learning, role-playing, digital tools, experiential learning, gamification, and interdisciplinary collaborations, which enhance students' language competence and intercultural communication skills. The research highlights the effectiveness of these approaches in improving language proficiency and preparing students for real-world tourism interactions. Additionally, the article presents case studies, best practices from various institutions, and an evaluation of emerging trends in English language instruction for tourism students.

Keywords: English for tourism, creative teaching methods, experiential learning, task-based learning, digital tools, role-playing, language acquisition, communicative competence, pedagogy, language immersion, interdisciplinary learning, curriculum development, cultural competence.

Introduction

The tourism industry is one of the fastest-growing global economic sectors, requiring professionals to possess excellent communication skills, especially in English. English serves as the lingua franca in international tourism, making it a fundamental component of tourism education. However, traditional methods of teaching English often focus on grammar and vocabulary memorization rather than communicative competence, which is crucial in the tourism sector. To bridge this gap, educators must adopt creative approaches that facilitate active learning and real-world application of language skills. This article examines innovative methodologies that can enhance the teaching of English for tourism students, ensuring they acquire practical language proficiency and cultural awareness.

Tourism professionals must interact with diverse international clients, requiring not only fluency in English but also the ability to navigate cross-cultural communication effectively. Miscommunication in the tourism industry can lead to customer dissatisfaction, business losses, and even safety concerns. Therefore, English language instruction for tourism students must extend beyond linguistic competence to include intercultural sensitivity, problem-solving skills, and adaptability. These elements are essential in ensuring tourism professionals can provide high-quality service in an industry where customer experience is paramount.

Additionally, the rapid advancement of technology has reshaped the tourism sector, affecting how tourists access services, book accommodations, and interact with local cultures. Digitalization has led to the increased use of online booking systems, virtual tours, and AI-driven customer service chatbots, all of which require tourism professionals to be proficient in English in digital contexts. As a result, English language instruction must integrate digital literacy and familiarize students with industry-relevant software, social media communication, and online customer service strategies. The incorporation of technology-enhanced learning into language instruction ensures that students are prepared for the evolving landscape of global tourism.

Furthermore, traditional lecture-based teaching methods may not be sufficient for preparing students for the dynamic and unpredictable nature of the tourism industry. The implementation of innovative approaches such as role-playing, problem-based learning, and simulation exercises allows students *to develop the confidence and practical skills necessary to handle real-life tourism scenarios. These methods enable students to engage in authentic interactions, such as managing guest complaints, leading guided tours, or providing travel recommendations, all within a controlled classroom environment. This experiential approach bridges the gap between theoretical language knowledge and its practical application in professional settings.*

This study also aims to explore how interdisciplinary collaborations, cultural immersion, and technology-enhanced learning contribute to better learning outcomes for tourism students. By analyzing current research, case studies, and best practices in English for Specific Purposes (ESP), this article provides insights into the effectiveness of contemporary teaching strategies. The research also highlights challenges faced by educators in implementing creative teaching techniques and suggests solutions for overcoming these obstacles [1]. Ultimately, this paper seeks to provide a comprehensive framework for modernizing English language education in tourism, ensuring that students are equipped with the necessary linguistic, technological, and interpersonal skills to excel in the global tourism industry.

Theoretical Foundations of Creative Teaching in English for Tourism *Modern language teaching methodologies emphasize communicative competence, student engagement, and contextual learning. The communicative approach, task-based language teaching (TBLT), and constructivist learning theories provide the theoretical framework for creative teaching in English for tourism. These approaches advocate for interactive, student-centered learning that mirrors real-life communication in the tourism industry.*

Communicative Language Teaching (CLT) *The communicative approach to language teaching prioritizes authentic communication over rote memorization. Students engage in activities such as problem-solving, discussions, and role-playing to develop fluency and accuracy in real-world situations. This approach is particularly effective for tourism students as it mimics professional interactions with tourists and colleagues.*

Task-Based Language Teaching (TBLT) *TBLT emphasizes the use of meaningful tasks that require students to use English in practical scenarios. Tourism students benefit from tasks such as planning travel itineraries, responding to customer complaints, or creating tourism advertisements. This method fosters problem-solving skills and linguistic adaptability.*

Constructivist Learning Theory *Constructivist approaches encourage active participation in knowledge construction rather than passive absorption of information. Through project-based and experiential learning strategies, students learn to apply their language skills in real-world settings, reinforcing retention and contextual usage [2].*

Creative Approaches in Teaching English for Tourism

Task-Based Language Learning (TBLT) *Task-based language learning involves students engaging in meaningful tasks that simulate real-world situations. In tourism education, tasks such as planning a travel itinerary, handling hotel reservations, or assisting tourists with inquiries provide practical language practice. This method encourages active learning and enhances students' problem-solving abilities while using English in authentic contexts [3].*

Role-Playing and Simulations *Role-playing exercises allow students to practice conversational skills in simulated tourism-related scenarios, such as acting as tour guides, hotel receptionists, or travel agents. These exercises help students develop confidence, improve fluency, and understand cultural nuances in customer interactions. Simulations of real-world situations also foster critical thinking and adaptability in language use [4].*

Digital Tools and Online Resources *Technology plays a crucial role in modern language education. The use of digital tools such as language learning apps, virtual reality (VR) simulations, and online collaboration platforms enhances the learning experience. For example, virtual tours of famous tourist destinations can provide students with immersive experiences that improve their descriptive and narrative skills in English. Online language exchange programs also offer opportunities for real-life communication with native speakers.*

Experiential Learning and Field Trips *Experiential learning involves direct engagement with the subject matter through activities such as guided tours, industry visits, and interactive workshops. Taking students on field trips to hotels, museums, and cultural sites allows them to practice English in real-world settings. Such experiences reinforce language skills and familiarize students with industry-specific vocabulary. Additionally, these activities improve students' adaptability and professional confidence [5].*

Gamification and Interactive Learning *Gamification introduces game-like elements into language learning, making it more engaging and enjoyable. Language games, quizzes, and competitive team-based activities enhance motivation and retention of language structures. Escape room challenges, where* *students must solve clues using English, can be particularly effective in developing teamwork and problem-solving skills. The use of storytelling-based language games also helps students internalize tourism-specific vocabulary in a fun and engaging manner.*

Project-Based Learning (PBL) Project-based learning encourages students to work on long-term projects related to tourism, such as creating a promotional video for a travel destination or designing a digital travel guide. This method fosters creativity, collaboration, and real-world application of English skills while integrating multimedia and research components. PBL also allows students to develop cross-disciplinary skills, such as digital literacy, marketing strategies, and customer service etiquette [6].

Cultural Immersion and Interdisciplinary Learning Cultural immersion programs, including exchange programs, international internships, and study-abroad opportunities, provide students with firsthand experiences that deepen their linguistic and cultural knowledge. Additionally, interdisciplinary learning—integrating tourism studies with history, business, and environmental science—enhances students' holistic understanding of tourism and language application.

Evaluating the Effectiveness of Creative Teaching Methods Assessing the impact of creative teaching approaches is essential to ensure their effectiveness. Student feedback, performance assessments, and language proficiency tests provide valuable insights into the success of these methodologies. Research studies have shown that students exposed to interactive and experiential learning techniques demonstrate higher engagement, improved fluency, and better retention of language skills [7]. Additionally, longitudinal studies indicate that students trained with creative methods tend to adapt more effectively to professional tourism environments and exhibit greater confidence in using English in customer service settings.

Conclusion

Teaching English for tourism requires innovative and dynamic approaches that go beyond traditional language instruction. By incorporating task-based learning, role-playing, digital tools, experiential activities, gamification, and project-based learning, educators can enhance students' language proficiency and prepare them for professional success in the tourism industry [8]. These creative teaching methods help bridge the gap between theoretical knowledge and real-world application, ensuring that students are not only proficient in English but also equipped with the soft skills necessary to navigate cross-cultural interactions and customer service challenges effectively.

One of the key takeaways from this study is the importance of integrating interdisciplinary learning into English for tourism. The tourism industry is multifaceted, requiring knowledge of history, geography, business management, marketing, and cultural studies. By designing language learning experiences that incorporate these elements, educators can provide students with a holistic understanding of the tourism industry while simultaneously enhancing their linguistic competence. This interdisciplinary approach fosters critical thinking and problem-solving skills, which are essential for success in a fast-paced and customer-oriented field like tourism [9].

Moreover, the role of technology in language education cannot be overlooked. Digital platforms, virtual simulations, and AI-driven learning tools have revolutionized the way students acquire language skills, offering immersive and interactive learning experiences. The integration of digital tools not only improves accessibility but also ensures that students are exposed to real-world communication scenarios. Furthermore, online language exchange programs and international collaborations can significantly enhance students' exposure to different accents, dialects, and cultural communication styles, preparing them for a diverse global workforce.

Despite the evident benefits of creative teaching methods, educators may face several challenges in implementing them effectively. These challenges include a lack of institutional support, limited technological resources, and resistance to change from traditional teaching paradigms. To overcome these barriers, universities and language institutions must invest in professional development programs for educators, equipping them with the skills and knowledge necessary to integrate innovative teaching methodologies successfully. Additionally, curriculum designers should work closely with industry professionals to ensure that language instruction remains relevant to current tourism trends and demands [10].

In conclusion, the future of English language education for tourism students lies in the adoption of creative, student-centered teaching strategies that emphasize communication, cultural awareness, and industry-specific skills. By fostering an interactive and immersive learning environment, educators can better prepare students for the challenges and opportunities of working in the tourism sector. As the industry continues to evolve with globalization and digitalization, so too must language education. A forward-thinking approach that embraces technology, experiential learning, and interdisciplinary *collaboration will ensure that tourism students develop the linguistic and professional competencies needed to excel in an increasingly competitive global market.*

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DEVELOPING PRESENTATION SKILLS IN ENGLISH FOR ENGINEERING STUDENTS

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Abstract

Presentation skills constitute one of the many important skills an engineering student and a future engineer should possess to succeed and to stand out from others in an academic environment or workplace. Moving a step forward to presentation skills in English, besides mastering them in the native language, is a huge asset. Such skills are vital to engineering students in conveying their ideas, and they should be well-developed and acquired during their studies of the foreign language, in this case, English. It is not only a matter of presenting ideas; it is more to be understood by the audience and convincing them. Presentation skills assist the future engineer not only in the case of giving a proper presentation in front of an audience, giving speeches at conferences, and presenting findings of their research, as it is mostly inferred, but they help them in communication in general and in a daily context with their co-workers, in transmitting ideas to their colleagues, working as a team in international projects, applying for projects etc. While being in the student status, these skills might tell one apart from the others and affect their assessments in various courses in which they are asked to deliver technical or academic presentations. Considering this aspect of an engineer's daily routine, it is regarded as advantageous to encourage and teach these skills to students during the English course for a promising career in an international and global context. In this article, I will present the current situation of performances of a number of engineering students when presenting their course assignments in the English classes at the Polytechnic University of Tirana and in light of it, recommendations for improvement.

Keywords: Presentation skills, communication skills, English language, engineering students.

Objective

The aim of this article is to encourage teaching and practicing presentation skills in an English course for Engineering students, who will almost inevitably be faced with giving presentations in English either during their academic life or professional one. Besides technical and academic knowledge in their field of study, equipping students with such skills constitutes an auspicious and valuable aspect for their future career or current academic life. It is of paramount importance to engineers to clearly and convincingly transmit and share ideas that will later be exercised in various walks of life, either making them a huge advancement or a disastrous failure because for the engineers, it is not only important to come up with a solution to a problem, but also to be able to communicate that solution and also expect arguments and input from the others. The knowledge and experience they gain in practicing presentations during the English course is valuable for their academic and professional presentations.

Methodology

For this article, I have applied the qualitative, descriptive methodology, basing the findings of the article on my personal experience and observation as a lecturer of engineering English at the Polytechnic University of Tirana. I have considered the strengths and weaknesses of a considerable number of presentations of the course assignments given yearly by students from various engineering branches as either a prerequisite for entering the final exam or as part of the continuous assessment of the students' performance throughout the semester. In their presentation, they have to share information on a branch-related topic in English. Among the many aspects assessed, presentation skills are always pointed out and constitute a huge difference in the final evaluation of the course assignment, usually divided into 40% content, 30 % structure and organization and 30 % communication.

Introduction

Our students have, throughout the years, either directly or indirectly, been taught presentation skills ever since they are asked to give presentations in front of the class on a topic related to their engineering branch. This fully supports what Suroto S et al. state about the role of the teacher to provide their students with adequate practice opportunities. However, in many cases, presentations have not *been a complete success because most of the time, they rely on technology and programs such as PowerPoint, incorrectly used, resulting in students reading slides rather than presenting information. Sometimes, such presentations have failed because students were not in complete command of either the English language or the topic being presented by simply copying information from the internet and not elaborating on it. It is these cases that have brought out the issue of teaching students presentation skills in English during the English class, which apparently is not that easy. It involves many skills. First, it requires a good command of English. Second, a good command and advanced knowledge of the topic being presented, usually a technical or academic one in the case of our engineering students. Third, a logical and clear organization of the information shared with the audience, making it tangible and simple. Fourth, conveying confidence easily done via non-verbal communication, which results in an embraced, convincing and comprehensive presentation. Fifth, independence from technology and presentation programs, believed to do miracles. It is not what is shown on slides that matters the most, it is the way information is interpreted during the speech. Sixth, adapting the right register and tone for the audience. And lastly, rehearsals in advance, aiding students in keeping track of the time and acting out as if presenting in front of a real audience, which makes a huge mental difference.*

Acknowledgement of the importance of presentation skills is obvious in one of the textbooks used with our students, 'Engineering', by Career Paths, in which one of the units is dedicated to Presentation skills, entitled 'Presenting information'. In this unit, the students are given in a nutshell, the key tips and instructions they need to always consider when preparing a presentation, starting with the clear statement of the objective of the presentation, the organization of ideas (using general-to-specific strategy), the use of visual aid by making use of presentation programs, delivering of handouts (for detailed information), the use of cue cards by the presenter to help one with the speech flow, the awareness of body language to convey confidence, the use of signposts to indicate change in topic, to summarize the main ideas, to cite in case one refers to other authors and lastly to always keep the presentation short and simple in order to keep the audience attention.

Literature review

Catana, E.S (2015) strongly believes that developing presentation skills in English to students contributes to their future success in their career advancement. Strong presentation skills might help future engineers gain leadership positions and improve their communicative competence. Catana concludes that by becoming competent communicators, students have a high chance of becoming successful in our 21st century knowledge society.

Abhishek, D.J and Rasakumaran, A (2019), entail communication and presentation skills under the transferable skills that need to be cherished. According to them, presentation skills can be mastered with practice even though they cannot be achieved within a day's time.

Vukovic M et al, (2022) define public presentation while considering managerial positions as a special type of communication process in which message is transmitted to the audience with the help of audio-visual effects, and they consider presentation skills as fundamental to almost every aspect of academic and business life pointing out such skills as being either beneficial or having the opposite effect to business in certain contexts.

Suroto S et al., (2023) point out the teacher's role in instructing students on how to perform a presentation effectively in order to develop their academic and professional skills by serving as some role model students can imitate and learn from. Applying instructions in everyday educational presentations is very efficient for the learners, who are not simply given instruction but can see their implementation.

What makes a good presentation?

A good presentation comes with good content and audience-relevant content in order to raise interest in the audience. It is new or unknown information, findings, or approaches that grab the audience's attention most of the time, with the purpose being clear to the presenter (whether one is informing, teaching, persuading, encouraging, motivating or entertaining the audience). Ideas and information should be reliable and fully supported by the presenter by revealing the source such information is taken from and conveying confidence to the audience on the ideas presented. A presentation should be easy to follow, and this is achieved via a logical ordering of ideas and a clear statement of the objectives. Another important factor to be considered, which depends on the nature of the topic as well as on the audience, is the simplicity in which information is transmitted, thus explaining complex technical concepts into simple ones, especially when addressing a non-technical audience. Details are sometimes crucial in fully understanding technical issues. However, overuse of them misleads and distracts the audience.

Current situation of PUT students giving presentations in English.

There are several common mistakes students make in preparing and giving a presentation in English. One is improper selection of information by giving too detailed information to be absorbed by the audience and lack of coherence. References and citations are rarely included. Too much text is added to the slides, overloading slides making it tiring for the audience to follow and read. Not using a clear design of the slides. Bad time management, which usually derives from lack of rehearsals at home. Reading rather than presenting information, bringing out the idea of dependence on technology or not having a good command of the information being shared. Keeping eye contact with the lecturer rather than the entire audience, even though the lecturer tries to point this out during the presentation by pointing at the audience.

Nevertheless, there are many aspects in which learners possess a good command. In giving instructions on how to prepare and conduct a presentation, they try to bear in mind and consider the audience. Most of the time, knowing the audience, they are clear on which register to use as well as the tone, both being fully adapted. The content is always branch-related (as required by the lecturer) and scientific, even though sometimes they lack coherence. They are aware of the importance of body language and try to show confidence during their talk by avoiding moving around, however, depending on how well they have acquired the information, sometimes they keep looking at the screen.

Presentation quality from the first group of students to the next differs in quality after systematic intervention by the lecturer, pointing out the strengths and weaknesses of each presentation, reassuring the importance of instant feedback by the lecturer or the peers. Suroto S et al. (2023) point out the great role of integrating feedback provided during the evaluation of prior presentations through which learners can enhance their oral presenting abilities and academic learning. Constructive feedback, a realistic one, improves presentation skills. Presenters are more aware of their strengths and weaknesses, and they try to apply criticism (both positive and negative) in their upcoming presentations to improve their performance. Practice makes perfect, and the same applies in this context. It is not only learning from seeing but learning from doing. Despite the fact that sometimes, certain skills are difficult to be integrated in a course because of time restrictions, there are certain skills that cannot be neglected. Developing students' presentation skills is an important goal of higher education (Suroto S et al: 2023). To which I would add 'teaching these skills in either native language or a foreign one).

Conclusions

Certainly, engineering students have a lot to study for their future careers, and sometimes certain extra-curricular subjects might seem too overloading. However, this is the perfect time for them to be well-rounded in all walks of life, to gain some soft skills and be introduced to various aspects of their profession, apart from the main and crucial branch-related information they get. Presentation skills in English are a huge asset for engineering students. The capacity to clearly communicate ideas in a foreign language is a great opportunity for one to be more likely to succeed in their career. Integrating such skills in the English class is indeed helpful to the students, and it is our responsibility as lecturers to encourage and incorporate such skills in our classes and curricula.

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PEDAGOGICAL TECHNOLOGIES IN THE FORMATION OF SOCIAL MATURITY OF MEDICAL STUDENTS

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Abstract
At the present stage, higher education institutions face numerous challenges, one of which is the formation of social maturity in students as future professionals. This article examines the role of social maturity in the professional development of medical students. Its structure as an integral quality of personality has been revealed and the factors that play a role in the effective formation of students' social maturity have been justified. The educational work with students has shown a positive influence on their personal growth and professional development, therefore contributing to the development of their social maturity. An important aspect in the formation of moral and ethical qualities in students is the revival of national traditions and customs, which act as regulators of harmonious relationships between the individual and society, as well as their aesthetic upbringing. The role of aesthetic education in the formation of social activity and self-determination as elements of social maturity has been analyzed.

Keywords: *social maturity, education, medical students.*

Introduction. *The dynamic development of modern society requires a new generation of highly qualified young specialists with innovative thinking, certain social experience, the ability to make independent decisions, take appropriate actions in various situations, and adapt quickly to changing social conditions. Therefore, the modern system of professional education of students in higher education institutions (HEIs), particularly medical, must not only be profession-oriented but also equip students with tools regarding life and professional development strategy, and fostering personal characteristics. One such quality of personality development in students across all fields of study is social maturity. Social maturity, as understood in modern scientific and pedagogical literature, refers to the level of personal development in a specific social environment that ensures creative entry into various aspects of culture and contributes to its intensive social and professional growth [2, p.204,208, 5, p.12-24].*

Main Part. *The student age is a period of intensive social formation of the personality. It is a time of self-assertion and independence-seeking, moral improvement and formation of social maturity, and development of professional thinking and behavior patterns — namely a period that significantly influences all the following years of life. This age is characterized not only by romanticism, activity, and the search for novelty but also by heightened sensitivity, fragile self-esteem, increased distrust and impulsive behavior, maximalism, and instability in judgment. These traits should not be ignored, as moral-psychological instability, heightened emotional sensitivity and dynamism provide a foundation for the development and self-assertion of the personality [1, p.197-199, 3, p.109-112]. Currently, there is a negative trend in youth development, particularly among students — young people don't read much literary fiction, with 25% of them not reading at all according to the statistics in 2019, and not visiting cultural venues that are aimed to positively affect their psychological state [4, p.302, 411]. In recent years, crime, violence, and drug addiction have increased, altering the spiritual world of the young person. With an intent to prevent the spread of crime among students, professors pay much attention to the moral-ethical and legal culture of the students, which are components of their social maturity. These are based on the affirmation of national principles of universal morality, legal education, and legal upbringing. The formation of an individual's moral-ethical qualities based on the revival of national traditions and customs aims to develop stable principles in youth that act as regulators of harmonious relationships between the individual and society [5, p.114, 268]. An essential step in this direction is holding educational hours, discussions, tests, surveys, and competitions aimed at creating a favorable microclimate within the group and fostering positive relationships between each other (e.g., thematic* *communication hours: you are among people, and people are around you; living by the laws of human communication; from nurturing the mind to nurturing the soul; what constitutes lawful behavior?; the correlation between legal and moral norms in life; the spiritual world of a person; eternal spiritual values such as good and evil). One of the basic educational ideals in forming the personality is an aesthetic approach to students 'upbringing. The sources of aesthetic education at our HEI include literature (instilling a love for books in cultural studies and Ukrainian language classes), music (participation in student amateur groups, such as the "Trembita" folk ensemble, different competitions), theater (regular visits to the O. Kobilyanska Drama Theater and the regional philharmonic), art exhibitions, photography exhibitions (visiting the art museum), among others. The personality of a student is a complex social phenomenon. The integrity of the personality is achieved through the harmonious development of its components. A student's ability to fulfill their primary social functions depends on the integrity of their personality. Social maturity consists of elements such as social activity, social self-determination, and social responsibility. A student's activity as an important condition for social involvement and a characteristic of their level of personal social maturity arises through the interaction of consciousness and social-practical activity and develops optimally through the combination of various types of activities that form a creative and responsible attitude toward the results achieved [6, p.11]. As a student develops professionally, they tend to prefer certain activities where their abilities, needs, and life plans can be realized to the fullest. A student's personality, influenced by the environment, social institutions, and personal activities, still maintains relative autonomy in the development of their inner world, self-awareness, and self-identity. The potential ability to carry out self-control, self-regulation, and self-awareness lies at the heart of a student's active life position.*

The fullest development of a student's inner world is facilitated by their activity. The quality of the activity is defined by the conscious, purposeful, and creative approach the student brings to it. The quality of a student's activity, the same as a future professional's in their chosen field, is best revealed in their social activity, which is manifested through specific transformations and self-initiative in all spheres of student life [7, p.3320,340]. The formation of a student's social position is one of the prerequisites for the effective development of their social maturity. Social responsibility in a student's personality involves the realization of self-determination, and on this basis, a socially mature student demonstrates the ability to comprehend their actions and recognize the need for personal contribution to society, as well as responsibility for these actions; the free and initiative-driven choice of socially significant goals; the alignment of their intentions, capabilities, and individual qualities with the requirements of specific activities and spheres of interaction with the social environment [8, p.10].

Forming social responsibility as one of the most important professional qualities in a student, as well as a future professional, requires targeted, comprehensive work with all students. The knowledge students acquire has significance for the individual; it transforms into convictions, becomes potential behavioral motives, and, as a result, is manifested in practical activity. The formation of the elements of social maturity in a student's personality occurs during their professional training and practice. The intensity of a student's activity during this period significantly influences their social maturity characteristics (social activity, social self-determination, social responsibility), which take on corresponding forms and manifest on different levels of social maturity [6, p.10-11]. Today's students are the future leaders of Ukraine. Student self-government is gaining momentum, and students, adopting the European experience, are becoming increasingly active in public and political life. The need for the formation of socio-professional qualities in future medical professionals is explained by the demands for their professional preparedness and the general issues existing in the socio-humanitarian sphere. The growth of social maturity in students during their studies is directly related to the increase in their active independence in extracurricular cognitive activities, which becomes the realization of the combination of societal demands, individual freedom, and objective circumstances. This situation is one of the conditions for the purposeful influence on the process of forming the social maturity of students' personalities. An individual style of work, which contributes to the formation of a higher level of social maturity in professional education and through it, is inherent in students who demonstrate creative cognitive activity. A distinctive feature of a socially mature student's personality is the growth of extracurricular cognitive activity, which allows for reciprocal influence on the environment. This feature becomes apparent when the student not only realizes what connects them to other students in their specialty but also recognizes their unique creative self-expression in the realization of their professional goals. Improving their cognitive activity, the student perceives themselves not only as a socially mature person but also as a social-professional entity. Thanks to this, the student understands and feels their *significance to those around them, realizing their responsibility before them, then before themselves, and ultimately the highest level of responsibility for themselves and their surroundings before others. Self-education is the foundation of a student's independent cognitive activity, realized through their purposeful need to constantly update and assimilate knowledge from various sources. Extracurricular cognitive activity may be directed by the professor, but the student independently performs the necessary tasks, expands and deepens the knowledge acquired during professional training. For the student, extracurricular cognitive activity is autonomous because it is driven and regulated by their internal needs and interests. The student independently defines the goals, scope, and methods for acquiring knowledge, as well as forms of self-control [4, p.500-522, 8, p.6-8]. The formation of intellectual activity in future professionals is ensured through subject-specific professional cognitive activity, while the social maturity of the student is shaped by their activities in mastering the norms of interaction with others. In organizing extracurricular cognitive activity, the level of students 'social self-determination is fostered through activities such as deepening methods of theoretical and practical analysis, researching new task-setting techniques, analyzing current situations as problems, transitioning to innovative actions, expanding the scope and updating the content of information, growing erudition, acquiring a higher level of professional worldview, mastering a comprehensive analysis of existing problems, substantiating different perspectives and their potential convergence, mastering techniques and tools for taking on various social roles, demonstrating flexibility in assuming the appropriate role, and emulating and performing functions which lie at the heart of mastering additional specialties (or expanding the information-content load of a single specialty) — all leading to the formation of a broader profile professional [3, p.110]. Through communication with peers and professors in joint work aimed at self-education, the student grows individually. Professionally oriented, the student prioritizes activities where their abilities, needs, and life plans can be realized to the fullest. As student develops an interest in professional orientation, they acquire not only skills and habits related to existing demands but also a scientific worldview. In the process of self-determination, a student undergoes a transition from external experience to internal experience, developing internal needs, impulses, and behavioral motivations. By acquiring knowledge from various sources, students systematize it into a specific structure that is unique to their field of study. As a result, numerous associations are formed in their consciousness, which combine into a cohesive and harmonious system of knowledge and beliefs. Personal growth in students, during the process of education and upbringing, is an integral component of a properly organized educational process aimed at preparing highly qualified specialists with a profound awareness of their own social significance and social responsibility.*

Conclusion. *Therefore, the activation of medical students in both academic and extracurricular cognitive activities leads to an increase in motivation for personal and professional growth and shapes a level of social maturity that not only facilitates the acquisition of new knowledge but also positively contributes to the development of the individual. This development encompasses qualities such as intelligence, morality, health, diligence, patriotism, creativity, awareness, collectivism, justice, organization, and experience.*

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Philological sciences

SPORTS TERMS THAT OCCUR WITH RESPECT TO THE WORDS "FOOT" AND "HEAD"

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Abstract

Along with the development of society, there are some developments in language. If a terminological system is formed and matured in a language, we can include that language in the ranks of developed languages. If we say that the benefit of the language to the society has increased and started to develop, it is the terminological words (terms) in the language that make us say this statement. This is because the development of society brings all kinds of innovations to social life. These changes increase and develop the people's enthusiasm for knowledge, expand their social will and world view. The people who have learnt the alphabet and whose worldview has started to develop, gradually turn to the study of science and begin to develop technology. As a result, words of foreign origin and phrases and phrases that underwent many changes in the process of termisation began to enter our vocabulary. This process continues until today. Terminology in our language still continues. Such development of the language also strengthens its duty to the society. Words like these, which increase the language treasury and improve the service area, are called 'term words' in the language of science.

As science and technology have developed, new terms have emerged, but the folk terms used in the past have preserved their place in the language until today. For example, in Kazakh Turkish 'bayge', 'kokpar', 'kız kuww', 'awdarıspaq', 'tenge aluw' are terms related to horse games, 'beldesuw', 'ustasuw', 'ayaqtan shaluw', 'jambas' are terms related to wrestling. In Turkey Turkish, 'aba', 'shalwar', 'pırpıt', 'mattress', 'baş', 'boğma' are terms related to wrestling, 'javelin', 'whip', 'saddle' are terms related to horse games. Apart from these, there are many concepts with term meaning. Each of them requires a detailed study.

In this study, we have tried to examine the ways of formation and logic of sports terms in Turkish and Kazakh Turkish. Because, sports terms are one of the basic elements in the vocabulary of a language. As it is known, one of the elements that determine the degree of kinship of languages coming from the same root is the basic vocabulary. Therefore, in this study, while discussing the formation and logic of sports terms in Kazakh Turkish and Turkish, we wanted to draw attention to the similar aspects of the two dialects that clearly show that they come from the same root.

Keywords: *Ayaq, Bas, Adym, Bacak, Vucud organlary, Taban, Topuk …*

Sports terms that occur with respect to the words "FOOT"

It is possible to see that many nations have a common approach in determining and defining sports terms related to the foot. In many languages, foot-related expressions are used in the expression of sports terms.

"Ayaq": In Turkish national wrestling "yağly guresh" and "karakucak guresh", it is the smallest in weight category and height. The logic behind the word "ayaq", which is a body organ, being a national wrestling term is that it is a body structure.

"Adym": This term, which means "the distance between the two feet while walking", is also one of the most used terms in sports.

Apart from this, we can also examine the sports term "ayak topu", which is the exact equivalent of the ball game known to everyone as "football". The sports term in question, which is formed by combining the words "foot" (Turkish "ayak", Kaz. "ayaq") and "ball" (Turkish "top", Kaz. "dop") in the English language, is known as "soccer" in Canada. If it was previously used in Kazakhstan with its variant that entered from foreign languages, now in the process of nationalizing terms, the variant of the term in question in Kazakh Turkish (Kaz. "Ayaq doby") is more commonly used.

There is also the sports term "ayaktopçu", which is formed by adding the suffix "-cı", "-ci", "-cu", "-cü", "-çı", "-çi", "-çu", "-çi" to the term in question in Turkey Turkish. In Kazakh Turkish, the sports term "ayaq dop sheberi" is used instead of this term. In addition, the term "futbolşy" or its variant in Russian "futbolist" is also used.

There are also derived sports terms such as "football field" (Kaz. "ayaq dop alañý"), "ayaq dop ayaq kiyimi" (Kaz. "football shoe"), which are derived from the term "football".

In Turkey Turkish, the sports term "ayağından" is used in the sense of "scoring a goal with a foot kick". The same sports term is not used in Kazakh Turkish.

As for the sports term "Ayaq Hatasy", some illegal movements made with the foot in the sports game "basketball" are penalized. Touching the ball to the foot, not throwing the ball into the basket in three steps or not passing it to another player are movements that are against the rules in the game of "basketball". If we examine it according to the rules of grammar, the sports term "ayaq hatasy" serves as an indefinite noun phrase. The term in question is not used in Kazakh Turkish and the foreign origin sports term "foul" is used instead.

The wrestling term "ayak kösteği", which means "holding one of the opponent wrestler's legs with both hands" in Turkish, is transferred to Kazakh Turkish as "ayaqtı eki qolmen ustaw".

There are also sports terms related to the foot, such as "iten ayaq" and "pivot foot".

In addition, the term "ayaq" is used in the sports term "dort ayaq yürüyüşü". In Kazakh Turkish, the sports term in question was formed by adding the locative case suffix "-de" to the word "parter" from the Russian language and adding the word "jüruw" (Turkish. "yürümek"). The exact Kazakh Turkish equivalent, the sports term "tört tagandap jüruw", has also started to be used a lot recently.

The equivalent of the sports term "dört ayak duruşu" used in Turkish in Kazakh Turkish is "tört tagandap turuw". The form coming from the Russian language, the sports term "parterge turuw" is also used.

While explaining the sports terms related to the body organ "ayaq", we cannot fail to mention the sports terms formed by using the expressions "bacak", "topuk", "taban" and "baldır".

In Turkish, there is a sports term "bacak arası" which means "to pass the ball between the opponent's feet". The equivalent of this term in Kazakh Turkish is "ayaktarı arasısan dop otkizuw".

The sports term "sıçrama bacağı", which is used to mean "the foot that rises above the ground when jumping", was created. The term "bacak", which is one of the body organs, was actually used instead of the term "ayaq".

Sports terms formed by the expression "taban":

"Taban basma" (Kaz. "tabanmen basuw")

"Taban çıkmak (koymak)" (to put) (Kaz. "In football: "doppen kele jatqan oyunşının izlen Tabanmen toqtatuw")

During the work, we also came across sports terms related to the "topuk". For example;

"topuk burun" (Kaz. Ärbir kadam jasağanda aldymen tobiqti tiygizip. sodan keyin gana ayaqtin ushumen basuw)

"Topuk elleme" heel touchıng (Kaz. "Küreste; ayaqqa qaray sekirip, karsilastin tobiğinan tartıp qulatuw")

"Topuk kapma" (Kaz. "Küreste, ayaqqa şabuwıl jasap, qarsilastın tobınan ustaw äreketi")

"Topuk kesme" in English "Heel cut" (Kaz. "Küreste; qarsilasti köterip turip, tobuğınan tartıp jerge qulatuw")

"Topuk pası" Eng. "Heel pass" (Kaz. "In football; dopti tobiqpen beruw")

In oil wrestling, which is created using the expression "baldır" Eng. "calf", there is also the sports term "Baldır patlatan" Eng. "calf popping", which is used in the sense of the game of holding one of the opponent wrestler's legs and bending it up to the knee and falling on him. This game is a technical game that is against the rules of wrestling. The equivalent of this term in Kazakh Turkish is "ayaqqa awırtuw adisi". In addition, of course, the sports term "ayaqqa bolevoy" coming from the Russian language is also used.

In Turkish and Kazakh, any sports term that is used as "ayaq". However, it is very common to come across sports terms that are based on the word "ayaq".

Sports Terms Related to the "Baş" Eng. "Head" Apart from body organs such as hands, fingers and feet, the word "head" has also been used to create sports terms.

Sports terms that occur with respect to the words "HEAD"

"Baş": This term is one of the sports terms that are created using the semantic method in creating sports terms found in Turkish. The body organ in question, the expression "baş" Eng. "head", has been used both as a homophone and as a synonym in the sports terms we encounter.

What we mean by saying "homonym" is that "Baş" Eng. "head" is used as a body organ in some sports terms, and in some it is used in the meaning of "main".

The expression "kafa", which is the synonym of the body organ "baş" Eng. "head" in Turkish, also has a very important place in creating sports terms.

Now let's try to prove what we said above.

The term "helmet", which is known as a protective device for the "head", which is a body organ, has the equivalent in Turkish as "Baş kipesi". This term also has the form of "başlık" Eng. "headgear" used in Turkish. Along with the variants of "şlem" and "kaska" that entered Kazakh Turkish via the Russian language, the variant of "Bas qorğanıs qurali", which is the equivalent in Kazakh Turkish, is also used.

In Turkey Turkish, there is also the term "baş üstünden pas" Eng. "pass from the head" used in the sports game "Basketball". In the said sports term, the meaning given by the word "baş" is the body organ. In Kazakh Turkish, this term is "bastan asyra pas beruw" Eng. "pas from the head to the top".

In Turkey Turkish, the sports term "Baş" is used in the sense of both a body organ and the largest in a weight category. For example, in the sports term "başağırlık" (Kaz. "En ülken salmaq kategoriyası"), in the sports term "başaltı" (Kaz "awır salmaqtan buringı salmaq ölşemi"), in the sports term "başa güreşmek" (Kaz. "Tüye paluwandıqqa Küresuw"), in the sports terms "baş" is not used in the sense of a body organ, but in the sense of weight category, weight. In the sports terms "baş kipesi" and "başlık" that we mentioned above, the term "baş" is used in the sense of a body organ.

In our work, we also came across sports terms used with the title "kafa", which is a synonym for the sports term "ayaq".

"Kafa stopu" Eng. "Head stop" The term in question, which is used in the meaning of "stopping the ball with the head", "to stop", is formed as an indefinite noun phrase. The equivalent of the term in Kazakh Turkish is "doptı baspen toqtatuw". In terms of its formation, it is a "half-translated term". Its first element is a body organ in Turkey Turkish, and its second element is a foreign word that has undergone morphological change.

The sports term "kafa şutu" Eng. "heading shot" used in Turkey Turkish is the same as the sports term mentioned above in terms of its formation and structure.

As for the sports term "kafasından" Eng. "from the head", the term in question is used in the sense of "scoring a goal with the head". A sports term created by the semantic method has undergone a morphological change and changed its form.

The sports term "kafakol", which is formed by combining the words "kafa" Eng. "head" and "kol" Eng. "hand" in Turkish, is a term used in "judo" to refer to a body organ, meaning "to take the opponent's head under the arm, to ask with the arm".

As a result, the sports terms formed by means of expressions related to "Baş" Eng. "Head" are not numerous. However, it is seen that the expression in question is used in various ways in terms of usage. The synonym of the term in question also gains great importance in forming sports terms. In addition, the word "baş" Eng. "head", which is a homophone of the word "baş" Eng. "head", which is a body organ, and is used in the meaning of "basic", "main", has also been used in forming terms.

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METHODOLOGICAL RESOURCES OF MODERN EDUCATION

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Abstract

Today's younger generation, studying in both secondary and higher schools, lives in an environment of constantly changing and improving technological resources that can be successfully used in the learning process.

This situation radically changes the position of the teacher, who must meet modern requirements for education and in the technological aspect.

In the modern educational program, there is an obvious increasing integration of a large number of innovative techniques and methods.

But this does not mean at all that the adopted multimedia approach is the guarantor of successful results in mastering practical and theoretical material in any academic discipline.

The modern education system has included in its circulation universal digitalization and informatization of the modern world. The information that is available to the student has a volume, a variety of content and a large share of inconsistency.

In the educational process, a verbal, linguistic justification for the formation of subject knowledge, skills, skills and the creation of a single polemical space of discourse, a special context that receives the nomination of the leading semantic concept, is important.

Keywords: modern educational program, theoretical material, educational process, subject knowledge, leading semantic concept

The qualitative development of the educational process in the Republic of Kazakhstan is impossible at the present stage without the active use of the most advanced innovative educational technologies. Their skillful use during the process of mastering new knowledge by students significantly increases creative activity in the classroom and significantly saves the time spent on reproductive activity.

Innovative technologies make it possible to avoid monotony in the application of teaching methods and forms and are recognized as a very "effective resource in world pedagogical science" [1, 68].

The advantage of innovative educational technologies is that they are able to present to their addressee an unlimited amount of information of theoretical and practical nature, "which can be mastered both together with the teacher and independently" [2, 115].

Today's younger generation, studying in both secondary and higher schools, lives in an environment of constantly changing and improving technological resources that can be successfully used in the learning process.

This situation radically changes the position of the teacher, who must meet modern requirements for education and in the technological aspect.

In the modern educational program, there is an obvious increasing integration of a large number of innovative techniques and methods.

But this does not mean at all that the adopted multimedia approach is the guarantor of successful results in mastering practical and theoretical material in any academic discipline.

The choice of innovative technologies should be approached carefully and selected in accordance with the effectiveness in the study of each specific discipline. In our opinion, when choosing innovative technologies, one should refer to the principles that are set forth in the work of M. Miller. He believes that the most important principle is "the ability to highlight the most significant aspects from the material offered to the student and pay special attention to them" [3, 7].

Next, the principle of spatial proximity should be preserved, the essence of which is that the text and the graphic image related to it should be in close proximity to each other. At the same time, the text itself must be located directly under those graphic images that have more complexity in their perception.

During the lecture, the principle of temporary synchronicity should be adhered to. It consists in the fact that the description and explanation of the theoretical material coincides in time with the demonstration of visual graphic images.

When presenting rather complex content, when students with different degrees of training are in the audience, it should be divided into separate segments and the most difficult to understand sections of the topic under study should be explained more carefully.

In this case, it is possible to track the speed of transition from one segment to another and determine the degree of efficiency of perception of new information.

It is extremely useful to draw the attention of students to the use of new terminology, in which case it is necessary to create a separate module in the presentation dedicated to their decryption.

During the presentation of the new material, graphic images should be supplemented as much as possible with audio accompaniment, unless it is overloaded with technical terms unfamiliar to students. A separate aspect in teaching secondary subjects in our and higher education "is the presence of an electronic portfolio" [4,7].

The purpose of the presentation is a more accessible and effective explanation of the material, and the electronic portfolio in this sense allows you to most qualitatively assess the level of knowledge of students. It is an individual collection of works that demonstrates the content and progress in the training of a particular high school student, college or university student, that can be presentations, notes, audio and video materials collected on one electronic platform.

In the process of creating an individual portfolio, it is necessary to determine its specific goal, which must meet the qualitative criteria of the most important educational needs of the student. Equally important is the question of how the information contained in a particular portfolio will be used.

The student's portfolio can be presentations of works that are most successful from his point of view. The portfolio may include comments and various teacher recommendations, but entries in the portfolio must correspond to the types of training activities in a particular lesson.

The portfolio should become a type of systematic work of students and constantly replenished with constant new content in the process of mastering new scientific, theoretical or practical material.

It provides a useful discussion of individual portfolios in the classroom and an assessment of the content by the students themselves.

A new type of electronic portfolio is the blogfolio, which is quickly gaining popularity among students [5]. Blogfolio is a separate type of interactive online blog that is created with a previously thought out goal. This type of portfolio helps to more actively involve students in the educational process and allows you to use creative ways to monitor and evaluate the knowledge of each student.

Blogfolio provides for the choice of the most interesting topic around which the discussion can be organized.

Students must have resources that can be used to expand the information on a topic declared in a specific blogfolio.

An important part of the blogfolio is the preparation and implementation of a video in which the student explains the relevance and content of the topic declared by him.

Thus, the correct use of various innovative technologies significantly expands the field of activity of students and contributes to increasing the efficiency of the entire educational process as a whole.

The modern education system has included in its circulation universal digitalization and informatization of the modern world. The information that is available to the student has a volume, a variety of content and a large share of inconsistency.

The acceleration of the modern rhythm of life significantly stimulates the cognitive potencies of the modern personality and greatly affects the attention, thinking and possibilities of human memory.

Modernization of modern educational programs requires appropriate solutions that would take into account the state of the human person both in the public social environment and in the purely private sphere of its life.

In this sense, in pedagogical science and practice, a competent-personal approach is recognized as quite effective, which allows you to make training sessions or the entire educational process as a whole more productive. This approach is based on the expansion of methodological technologies that are aimed at solving special creative problems by students. During the implementation of a competently personal *approach to the learning process, value orientations are developing, which are extremely important in the formation of morality and civic maturity of the younger generation.*

The competence-personality approach is closely "connected with the technology of the development of critical thinking, which is recognized as a fact by world pedagogical science" [6, 461]. The nature of critical thinking as such is closely related to the situation of instability and uncertainty of views, beliefs and values that a certain person has at the moment.

Uncertainty gives rise to internal tension and dissonance tangible by the personality, which prompts her to critically assess and correct her own worldview and moral position, her judgments about the world and turns to the consideration of other views and worldviews.

The effectiveness of critical thinking directly depends on the forced analysis by the personality of those priorities and positions that are most different from its own. Cognitive dissonance stimulates the possibilities of critical thinking and the ability to rearrange original views and beliefs.

A reflective model is created in the minds of students, with the help of which they more successfully master new information for them and adapt it to the new in accordance with the set learning chains and tasks. Theoretical understanding of the obtained material stimulates active practical activity in the training session.

Thus, the ability to creative thinking is formed and the so-called metacognitive function of consciousness is formed, when a person acquires the potency to observe the process of his own understanding of reality. In the scientific research of Engel and Conant, it was emphasized that new information contributes to the emergence of discussions and exchange of different points of view on the same problem discussed in the classroom. During the discussion, a methodology is developed for building your own evidence and convincing argumentation regarding the issue of interest.

In this case, the intra-group exchange of opinions, judgments and ideas is extremely useful. In the course of active and problematic discussion, completely new ideas and approaches may be born that are not taken into account earlier, which is valuable in the course of the general educational process.

The development of students' critical thinking skills is transmitted in the process of developing and introducing new technologies, among which the resource of the so-called provocative pedagogy is quite effective. It is "a type of applied pedagogy that studies the methods of provocation that are possible during the educational process" [7, 19].

Provocative pedagogy is built on the fact that it contains a certain challenge and provokes the student's personal reaction to overcome the impact, which carries a frankly negative charge.

It is calculated that as a response, the student will release latent energy aimed at resisting and activating his personal positive resources, "stimulating him to self-realization and self-development" [8, 79].

A person can be in the sphere of his negative socialization and acquire negative life experience, which will motivate him to choose opposite personal moral norms, values and ways of behavior in society. In this sense, a negative example has the same educational power from the opposite as an obviously positive example.

Provocative pedagogy uses a series of techniques and techniques aimed at confrontation, opposition and unanswered questions. Its purpose is to impose an acute life situation or conflict on a person and force her to actively think, look for a way out and come "to determine her own moral scientific or worldview position" [9, 295].

The success of provocative pedagogy is associated with the presence of a certain educational environment in which psychological comfort and mutual trust between the teacher himself and his audience are preserved. In this case, it is important to have a sense of humor and the ability to smooth out the negative effect of the provocative impact and the ability to transfer the discussion into a positive direction.

Provocative learning can become an additional resource in pedagogical practice, as it contributes to the development of students' critical thinking and introspection skills. This is its educational and developing potential and the possibility of effective application in the educational environment.

In the educational process, a verbal, linguistic justification for the formation of subject knowledge, skills, skills and the creation of a single polemical space of discourse, a special context that receives the nomination of the leading semantic concept, is important. The required criterion is formed in the competence of both the teacher and the student in a very short period of time laid down within the framework of the training session.

As a result, any practical lesson acquires a multifunctional and figurative character. Imagery is defined as a set of stylized methodological techniques that are "endowed with a load implemented in verbal form" [10, 43].

In this case, the teacher uses a cultural image that is understandable in this national environment and mentality, which ultimately motivates the interest of students and directs their attention to the studied linguistic or cultural phenomenon. For example, the expression "dust of history" - corresponds in Russian to the expression "dust of centuries," and in this case the relationship of both of these cultural phenomena is revealed.

A figurative concept forms a semantic field, captures any fact, object or event and "awakens semantic parallels and bright associations in the minds of students" [11, 73].

A whole chain of culturonyms arises, which form in the minds of students a certain episteme based on the discourse of knowledge - > knowing. Such a relationship is necessary for the perception of the personality of a student of the 21st century, whose consciousness is strongly influenced by a standardized mass culture. The student's consciousness is formed under the influence of many other factors related to marital status, nationality and the complex relationship of concepts and stereotypes.

The goal of the teacher is to be able to interest students and create conditions for motivated training of the ability to work with voluminous, complex material.

Such a process inevitably provides for interpersonal communication, which creates fertile ground for the success of the educational process as a whole.

The task of the educational process as a whole is to form a universal personality that has a whole range of vital knowledge and skills.

The personality of a modern student should include a system of key qualities, among which the most significant is the ability to correctly predict the expected results and the ability to interact with various groups of their social environment.

In this case, the presence of competence in project activities helps to educate leadership qualities in the personality and teaches how to work harmoniously in a team. Working on a training project is important for adequate assessment by students of their strengths and weaknesses and teaches them to bring the solution to the problem to the end.

World pedagogy has made efforts to scientifically substantiate the design methodology as such and describe ways and techniques for its effective use during the educational process. In the twentieth century, the Russian teacher S.T. Shatsky and the American psychologist D. Dewey tried to present detailed descriptions of the possibilities of the design method [12].

The end of the twentieth century gave examples of the practical use of the method of educational projects, and E.S. Polat at the beginning of the new century proposed a detailed description of project activities and its implementation in the educational curriculum [13].

Project activity is defined as the possibility of a correct interactive characteristic of the subject, which is implemented in the theoretical and practical field during the implementation of the training project.

Project competence includes knowledge of the design features, stages of this process and the quality of its assessment.

The teacher should acquaint students with the existing types of projects and help in organizing the project itself.

Project competence is successful when, in the course of work, students receive a volume of useful sociocultural information, especially "if it concerns the appeal to a different national culture, religion or mentality" [14, 142].

In project activities, it is important to take into account the linguo-communicative factor, that is, the ability of students to fluently master the skills of expressive oral speech or to speak quite freely and stylistically competently in the foreign language required in this project.

The project activities should involve the reflective and evaluative ability of students to adequately assess the result of their own work and the contribution of other participants to the implementation of the project.

The success of project work depends on careful planning of its stages and personal attitude on the part of the student and teacher. During the project, new ideas and new directions for solving the problem may arise.

Each project work is unique in its own way, and this makes it especially interesting and meaningful on the part of students.

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INTERPRETATION OF POETIC WISDOM IN ANCIENT MYTHOLOGICAL THINKING

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Abstract

The "poetic wisdom" proposed by Vico, as the original wisdom of human beings, as a kind of original creative thinking, reproduces the past history in the way of imagination, understanding and empathy, which provides us with a way to understand the origin of human art—ancient An explanatory framework for myths. Ye Shuxian understands ancient mythological thinking by exploring symbolic metaphors, tracing archetypal patterns, interpreting Frye's theory of archetypal criticism, analysing linguistic texts, and applying the fourfold method of evidence. He proposes a new perspective for Chinese scholars in mythological research. It gives readers a sense of the origins of mythological thinking and science and technology. The innovative spirit and bold imagination in mythological thinking can inspire scientists and technologists to break through the boundaries of traditional thinking and explore the unknown. At the same time, the humanistic spirit embedded in myths, such as care for human destiny and judgement of good and evil, can guide science and technology in a direction favourable to human beings and society, so that science and technology will not deviate from the track of humanistic values while pursuing progress.

Keywords: *mythology, Vico, poetic wisdom, Ye Shuxian, mythological thinking*

Introduction

Mythology contains a variety of knowledge of productive human life and the germ of many disciplines today. The rapid development of the natural sciences in the 21st century has created new drivers for research in the humanities and social sciences. The study of mythological theory is characterized by pluralism, interdisciplinarity, and diversity. Since the beginning of the 21st century, the creation of new mythologies has been sweeping through the world of literature and film. It triggered the 2005 Retelling Myths movement, which has attracted widespread interest and attention in many countries worldwide. The popularity of neo-mythicist creation is not just a literary phenomenon; its intellectual background is the worldwide cultural search for roots that has been taking place since the 20th century. In contemporary social life, myth has evolved into a message, a spirit, a symbol, and a way of constituting meaning. Mythological thinking and mythological themes as cultural capital have become a hot topic of common concern for today's academic research and cultural industries and provide us with a new path and approach to reconceptualize ancient myths.

The Italian philosopher Vico (1668-1744) was "the first to consciously explore primitive culture and primitive thinking" [1]. In his book《New Science》, he proposed the concept of "poetic wisdom" to illustrate the state of mind of primitive humans. The so-called "poetic wisdom" is simply a way of thinking of primitive humans. Compared with rational thinking, this poetic wisdom has two major differences: "First, it is a collective representation rather than an individual representation, so There can be no self-consciousness. Second, it is a kind of "body language" or "action thinking", rather than an abstract symbolic form or system" [2]. Consistent with these two major differences are the two characteristics presented by poetic wisdom, one is "imaginative genus concept" and the other is anthropomorphism or "metaphor for analogical thinking".

Vico identified twelve gods in Homer's epic, and these gods formed a celestial world. Since primitive man was not yet good at abstract thinking, these gods became imaginary class concepts. Vico said: Because of the uncertainty of the human mind, whenever he falls into ignorance, man takes himself as the standard to weigh all things. The tall and mighty god with thunder and lightning in his hand was conceived by the primitive savages and took themselves as the standard by way of analogy thinking. Although the gods never really appeared in front of them, the bombardment of thunder and lightning showed the existence of gods. It is in this way of "empathy" that the ancient human beings in the childhood of the world endow everything with spirituality.

After the primitive man created Thor in the way of empathy and analogical thinking, he infused all things with life in the same way, and regarded everything as a living entity, with rich imagination and *poetic wisdom infiltrating infinitely, the primitive man is In this way, the self is pushed towards everything, or in other words, everything is brought into the self, creating a life world full of spirit, vivid charm, and full of spiritual image characteristics. The source of reason lies in poetic wisdom itself. Its fundamental feature is awareness of the self. When the wild people were knocked down by lightning for the first time, they must have felt the existence of a "not-self" in their ignorant hearts. The analogy thinking of the primitive ancestors of "taking oneself to measure things" is actually based on their rich imagination, because there is no real relationship between the two things being analogized, but based on their imagination.*

In addition, Vico also described primitive man's language as "poetic language"[3], because this poetic language is figurative and concrete, for example, primitive man does not say "I am angry" like civilized man, but Said "Blood is boiling in my heart". Zhu Guangqian devoted himself to the study of Vico in his later years, and believed that "Vico's outstanding contribution lies in the study of image thinking"[4]. It can be said that the "poetic wisdom" mentioned by Vico is, in Zhu Guangqian's view, image thinking.

Vico's theory of poetic wisdom gave us a huge breakthrough in deciphering myths. Vico pays attention to primitive mythology. In his view, myth is the earliest art of mankind, and myth is the oldest history of different nations. As Vico wrote in his "Conclusions" at the end of the second volume of the 《Nouveau Science》,"Poetic Wisdom", In fact, as we have seen in myths, ancient wisdom rather created or fictionally depicted some myths. In these myths we find, as in the placenta, the broad outlines of all esoteric wisdom.

It can be said that in these myths and stories, various peoples use the language of human senses to describe the origin of the world of various sciences in a rough way, and later the specialized research of experts and scholars will make it clear for us through reasoning and summarization. From all this we can draw a conclusion for this volume: " Theological poets are the senses of human wisdom, and philosophers are the reason of human society"[5]. Vico believed that theological poets expressed their ideas with a strong imagination and a fantasy language. Each tribe member is a theological poet, implied by the habits of mind unique to the group. The theological poet imagined everything as a living entity, and created on this basis a series of gods.

Obviously, when interpreting myths from the perspective of poetic wisdom, myths contain "human historical content". In this sense, "myths are history" and "true and reliable history". For Vico, myth is essentially poetic wisdom. Poetic wisdom is a kind of visual and intuitive thinking, so myth is essentially the product of visual thinking. It instinctively uses poetic words and words to create real stories. He defines myth from a semantic point of view as "different or another way of saying", that is, "to sum up various people, deeds or things in a specific image equivalent to a general concept, and then use this specific Image as a means of expression" [6].

If Vico looks at the commonalities in human nature from the perspective of the source of human thinking, then Taylor puts forward a bold assumption about some commonalities in the human spirit from the perspective of anthropology. His "Animism" and Lévi-Briul's "Mystic Law of Interpenetration" are the core content of poetic wisdom or primitive thinking. The so-called"animism"comes from the Latin "nai ma", which originally means"a mysterious attribute that exists in all existence and natural phenomena, that is, gods. This attribute is by its nature. It is unperceivable by human senses, but in the eyes of those who hold this primitive religious belief, objects that cannot be perceived are more important than objects that can be directly perceived" [7]. It contains two meanings, one is natural Everything has a soul, and the second is that the connection between the unperceivable gods and people is carried out in some mysterious way.

Some domestic scholars have obtained aesthetic inspiration from Vico's poetic wisdom", and believe that "the basic characteristics of aesthetic and artistic thinking, as well as symbols, metaphors, anthropomorphism, etc., all originate from primitive thinking, and primitive thinking is in the long process of development. It has become a fixed mindset of human beings, and its emotional, concrete, creative and other characteristics are directly derived into the thinking characteristics of art, it can be said that "aesthetic thinking is the natural extension and development of the original way of thinking"[8]. This view shows that primitive thinking, what Vico called "poetic wisdom"or poetic thinking, is the source of later literary and artistic thinking.

Ye Shuxian is an early and systematic Chinese scholar who has studied prehistoric human thinking from the perspective of cultural anthropology. Regarding the"primitiveness"and the scope of research of "primitive thinking" referred to by Western scholars,Ye Shuxian made the following limitations in his article Introduction to the Research on the Genetics of Primitive Thinking: "One is the primitive thinking form compared to civilized people; the other is the primary or primitive stage relative to the advanced *stage of thinking development". And further pointed out:"The semantic scope of primitive thinking refers to the entire thinking development process of prehistoric human beings. The upper limit of primitive thinking is human beings. The upper limit of origin, the lower limit of primitive thinking is in principle the beginning of the history of civilization"[9]. Compared with Western scholars' research on primitive human thinking patterns, Ye Shuxian's delineation of the semantic scope of primitive thinking more clearly defines the meaning of "primitive thinking" in the sense of time.*

Ye Shuxian attempts to decipher ancient Chinese documents or cultural phenomena anthropologically, interpret and restore ancient myths, and even reconstruct culture to seek unique cultural values in literature. Ye Shuxian's research on Chinese mythology is to use the theory of "myth-prototype criticism" to seek the "meta-language" in ancient Chinese mythology. Further explanation. At the same time, Ye Shuxian also used anthropological research methods to further explore the cultural value and meaning existing in the"metalanguage"of Chinese mythology. When he reconstructs culture, he often adopts the personalization method of "things and I are the same", equating cultures with people, making them comparable, and endowing cultures with human characteristics and attributes. This is precisely the characteristic of China's unique "people-oriented"culture, which is not only different from the Western Christian-style "God-based" culture, which is based on God, but also different from the material-oriented "Humanistic" culture recently introduced in Europe and the United States culture.

The culture under the influence of Chinese poetic wisdom is a "human-oriented" culture that is obedient to the will of God, filial to parents, and full of love. In essence, it is a kind of immortal wisdom that directly inherits the original concept of life. "It does not use the reflection method of rational thinking, but the intuitive method of poetic wisdom, which integrates death into a part of life. It takes the continuation of the group as the first meaning, thereby dissolving the life and death of the individual in the endless historical extension of the race, so as to make life spiritually immortal" [10]. The state of the unity of heaven and man that "heaven and earth coexist with me, and all things and me are one" shown in ancient Chinese mythology is undoubtedly consistent with the fundamental characteristics of Chinese poetic wisdom.

Ye Shuxian used linguistics and semiotics research methods flexibly in his 《Philosophy of Chinese Mythology》, his took the study of Chinese characters as an important breakthrough in mythology research,Through the method of "Explaining the Chinese Characters", with the help of the pictographic characteristics of Chinese characters, the study of Chinese characters is used to support the study of mythology.In addition, Ye Shuxian believes that mythological thinking is developed on the basis of the action thinking and representational thinking of primitive humans. He pointed out a more specific period in which mythological thinking came into being, that is, the mythical age that human beings have experienced.

Conclusion

To sum up, the concept of poetic wisdom affirms the thinking facts of primitive people in ancient society, and inspires future generations to continue to explore the process of myth's generation and development with the perspective and method of historical development. The ancient mythological thinking is concrete and figurative. It is accompanied by strong emotional experience, forming symbolic and metaphorical aesthetic characteristics, which are consistent with the concept of "poetic wisdom".

The deeper implication of myth is that it is a unique artistic way for ancient human beings to conquer the world and realize their own essential power, and a poetic means for weak human beings to deal with the huge external world. Therefore, the poetic wisdom we have learned from myths is not only the unique human senses and imagination, but also a kind of wisdom that grasps the world and realizes oneself in a poetic and aesthetic way.

Ancient mythological thinking was based on primitive beliefs and imagination, mostly stemming from awe and curiosity about natural phenomena and the origin of life, often giving supernatural attributes to all natural things. Science and technology, on the other hand, is based on empirical research, logical reasoning and experimental verification, and relies on the scientific method to explore the laws of nature and solve problems. Many of the imaginations in ancient myths have provided inspiration for the development of science and technology, such as the myth of Chang'e's journey to the moon, which inspired human beings to aspire to space exploration, and nowadays manned spaceflight technology has made human beings' dream of running to the moon come true. In short, although science and technology and ancient mythological thinking are different, they influence and promote each other, and together they enrich human cognition and culture.

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Physical sciences

ELECTRONIC DUALISM AND ENTANGLEMENT OF ELECTRONIC STATES IN QUANTUM-SIZED INDIUM ANTIMONIDE NANOCRYSTALS

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Abstract

In a quantum-sized nanocrystal, due to the duality of the properties of an electron, its movement occurs as a wave process with reflections and interference of plane Debraulle waves and interaction with atoms as a quantum particle. In this case, resonant current peaks appear on the voltage characteristics due to the quantum uncertainty of the states and, consequently, the spatiotemporal instability of the electron. When an electron interacts with an atom, deceleration occurs with the bifurcation of its states and the emission of a photon having specific properties of an electromagnetic wave and a super-short time interval. An experiment on two identical samples of nanocrystals has shown that when they interact remotely, resonant states are destroyed, which can be considered as a manifestation of quantum entanglement. It can be assumed that the considered model of electron motion and interaction in a quantum-sized nanocrystal corresponds to the quantum coherence and entanglement of electronic states, and the nanocrystal itself can be a source and recorder of entangled photons.

Keywords: *Electronic dualism, electronic states, nanocrystal, dimensional quantization, quantum conduction, quantum oscillations, quantum coherence, quantum entanglement.*

Introduction

In recent years, there has been increased interest in one of the phenomena predicted by the theory – quantum entanglement. The Nobel Prize in Physics was awarded in 2022 for experiments with entangled photons. Thanks to these works, quantum entanglement has become a physical reality from a thought experiment. In the form of entanglement, quantum mechanics offers resources that are absent in classical systems, and their use promises to yield tremendous results in the most important areas of computer science – ultrafast computing, cryptography, information teleportation [1].

In experiments, photons are used as entangled ones. This is due to the relative ease of receiving and transmitting them to detectors. However, the formation of single photons in real time remains a problem due to weak coupled signals. One of the ways to overcome it is the use of stimulating laser radiation [2], controlled Compton scattering of initial photons before polarization measurements [3], parametric frequency reduction transformation in nonlinear optical crystals [4]. As a rule, works use a polarizing beam splitter, the laws of quantum probability, statistical correlation, and the entanglement argument in order to calculate Bell's inequalities [5].

The physical meaning of these methods is to create pairs of single identical photons in real time and simultaneously measure the correlation (entanglement) of their properties under conditions of changes in one of the pairs. Another way is to use sources that emit single photons directly. Such sources can be nanoparticles under appropriate conditions. In recent years, some scientists have conducted research on this option using quantum dots, when entangled pairs of photons can be emitted through a biexiton-exciton cascade, which makes it possible to achieve high purity of states if the fine structure of excitons is weakly split [6].

The electron is characterized by wave-particle dualism, which is the manifestation of wave and particle properties in the process of space-time changes (motion). In the particle model, an electron in its quantum states has two fundamental properties: orbital motion and the vector of its own magnetic field, diffusion–drift motion and the vector of its velocity. The quantum nature of the electron motion in these two cases is reflected by the spin and wave vector parameters.

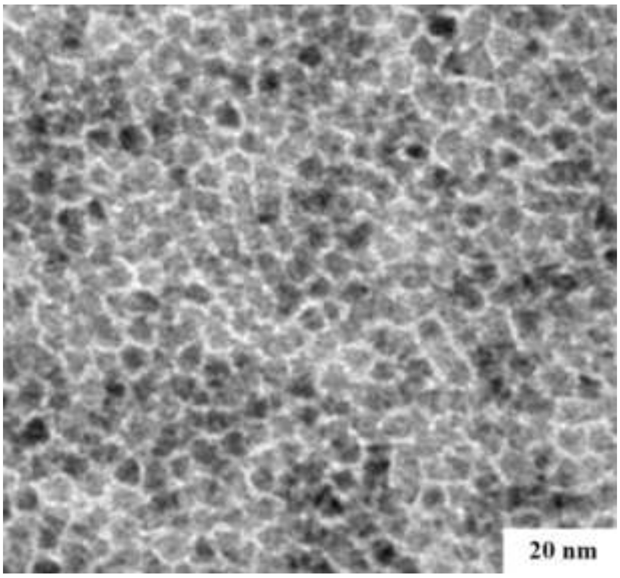
Recent publications include studies of quantum transport in nanostructures based on indium antimonide, noted as a promising material for nanoelectronics [7, 8]. The papers note that indium antimonide *nanostructures (including nanocrystals) are a promising platform for studying new quantum phenomena and may be candidate systems for the study and implementation of topologically organized quantum elements and the creation of electrically controlled qubits.*

In our current work, indium antimonide nanocrystals were manufactured and their conduction properties and quantum manifestations were investigated.

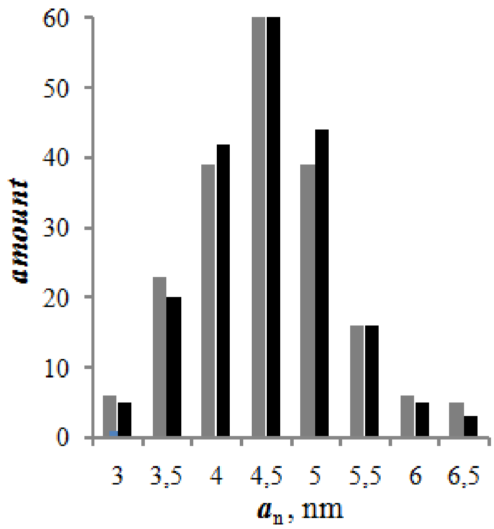
Experiment

We study the features of electronic transport and radiation in nanocrystals of narrow–band semiconductors using the example of indium antimonide [9-11]. Nanocrystals were synthesized by colloidal chemistry, controlled on random samples by scanning electron microscopy (SEM) methods based on stoichiometric composition and temperature control of their shape and size on a transmission electron microscope, and studied by the voltammetric characteristics (VAC) method. The VAC measurements were carried out on individual nanocrystals in the interelectrode nanoscale of a scanning probe microscope used as a probe station in autoemission modes from the probe at relatively large probe-sample nanoscale values (~5 nm).

Figure 1 shows a typical fragmentary snapshot of nanocrystals deposited on a substrate using the Langmuir-Blodgett film method, and the corresponding histogram of the size distribution (black columns), constructed from measurements of two hundred points in the image. From the image, it can be concluded that the placement of nanocrystals is dense, and their shape is polygonal with three- to five-angle shapes. The size distribution is close to normal with a variance of 0.544 nm.



a



b

Figure 1 – a: typical fragmentary snapshot of NC-InSb nanocrystals on a Legmure-Blodgett film; b: histograms of nanocrystal size distribution.

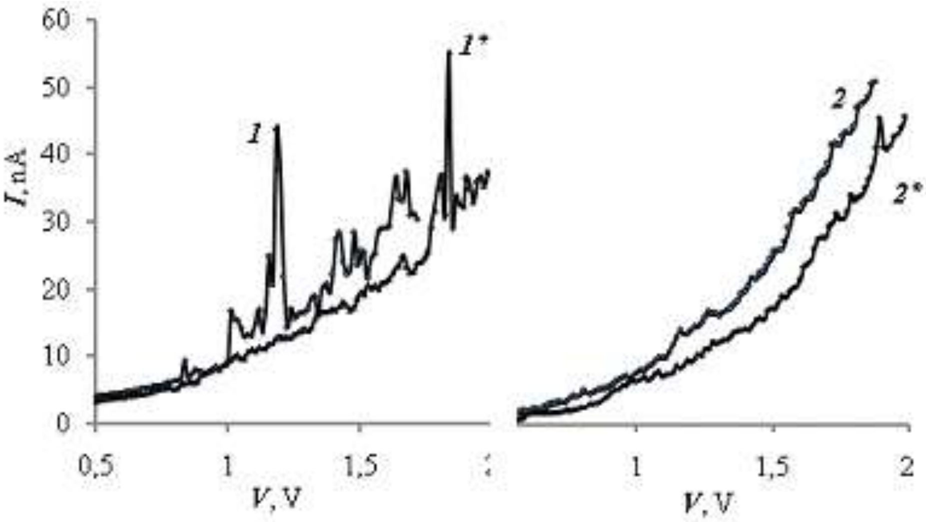
In the researchers' experiments with entangled photons, two streams of zero-total-spin photons emitted from the source were directed at Nicolas prisms, in which, due to double refraction, the polarizations of each photon were divided into elementary ones, after which the beams were sent to the detectors in two streams spaced over a considerable distance. The signals from the detectors were sent via photomultipliers to a recording device, where the Bell inequality was calculated by counting the number of photons.

In these experiments, entangled photons are thus created from ordinary (non-entangled) photons, and the phenomenon of entanglement itself is tested as information teleportation. In our work, we believe that a nanocrystal can be a source of entangled photons under certain conditions. Then the experiment can be quite simple.

We conducted such an experiment on two identical NANOEDUCATOR probe scanning microscopes, which are electrically and spatially unrelated and located at a distance of about one meter. First, the VAC of each sample was measured separately, and then simultaneously. On each of the samples, 25-30 points (nanocrystals) in the same zone were selected, the VAC was measured and their statistical processing was carried out. Figure 2 shows the averaged VAC of NC-InSb samples without interaction (cr. 1 and 2) and with their interaction by the assumed entangled radiation (cr. 1 and 2*). The frequency bands* *with resonance (characteristic resonance peaks) are significantly shifted relatively (Fig. 2, a). The VAC without them has not changed qualitatively (Fig. 2, b).*

We have obtained and studied statistical data on changes in the VAC, from which it follows that the positions of the peaks (voltage values) have significantly shifted towards higher values. At the same time, for the same reason, and taking into account the limited voltage range (no more than 2 V), the proportion of peak-free VAC has increased significantly.

We explain the observed phenomenon by the fact that in the gamut of nanocrystals of the same batch there will always be absolutely identical in size and structural perfection, emitting at the same time absolutely identical single photons, which may be similar to the manifestation of quantum entanglement. Due to parameterized single-photon radiation interacting only with the "native" environment, a manifestation similar to quantum entanglement is possible.



a *b*

Figure 2 – Typical VAC of NC-InSb samples without interaction (1 and 2) and with the interaction of the expected radiation (1 and 2*). **a** – VAC with characteristic resonant peaks; **b** – without them.*

Discussion

The quantum dimension of a nanocrystal is due to the fact that all its dimensions are less than the de Broglie wavelength for an electron. This, in turn, means that the probability of finding a nonequilibrium conduction electron at any point in the nanocrystal is approximately the same and close to unity. In this case, it is obvious that there can only be one nonequilibrium conduction electron injected into a nanocrystal, otherwise the wave functions of neighboring electrons would overlap, and Coulomb interaction and mutual blockade would occur. The transport process is thus single-electronic with manifestations of quantum conduction and oscillations. In this case, the "path" of an electron's motion, as a quantum particle, consists of successive one–dimensional linear distances - the lengths of resonators formed by parallel crystallographic planes. In electron transport, the dualism of its properties is manifested – a quantum wave process with the selection of quantum states by interference of plane waves and the movement of an electron as a quantum particle with mass and momentum.

The quantum-wave process of electron transport in a deep, extended quantum well is accompanied by spatiotemporal charge oscillations. These oscillations are a quantum mechanical phenomenon caused by the quantum uncertainty of states and, consequently, the space–time instability of an electron located in the periodic potential of a crystal lattice and, in particular, under the influence of an electric field. The physical essence of the phenomenon is due to the reflections of the Debroglie wave from the crystallographic planes so that an electron in the space of the nanocrystal band diagram performs an oscillatory motion along the axis of the wave vector near the origin in the scheme of repeating Brillouin zones.

Figure 3 shows in fragments some possible variants of the motion of an electron as a quantum particle in a nanocrystal. In the particle model, an electron moves between the boundaries of a nanocrystal along atomic orbitals, shown in Figure 3 as large circles. In these orbitals, it is quasi-free and can have a spin. There are possible variants of its movement – A-B-C, A-D-C and some other, more complex ones. In addition, the plane of motion can change the angle of its location. However, the resonant nature of the movement will determine the choice of its path in favor of a minimal curve. That is, we can assume that it will move along the curve A-O_1-B-O_2-C.

In certain areas of this motion, the electron experiences deceleration (points O1 and O2), emitting a photon with certain specific properties of an electromagnetic wave. In our opinion, the physical essence of the phenomenon in this case is that an electron in a nanocrystal, oscillating resonantly in time and space, creates single-photon (more precisely, poly-photon) radiation with rigidly fixed parameters (frequency, polarization, coherence, phase relations, spin, etc.). The time interval of radiation (the time size of a photon) is extremely small. Such radiation most likely interacts only with an electron in the same state as the one that emitted it, that is, with exactly the same nanocrystal. In this case, the state of uncertainty will be expressed in the statistical difference between the technologically specified properties of the nanocrystal and the quantum mechanical uncertainty of the electron states in it. If it is possible to find two absolutely identical nanocrystals, then only statistically on a large number of nanocrystals from a random sample. In this case, the interaction of two identical samples located at a certain distance from each other and devoid of any influence of an obvious nature - electric and electromagnetic–wave should manifest itself. Due to the rigidly parameterized single-photon radiation interacting only with the "native" environment, its manifestation is possible similar to quantum entanglement.

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Technical sciences

INTELLIGENT TECHNIQUES FOR LICENSE PLATE RECOGNITION IN ADVERSE VISIBILITY CONDITIONS

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Abstract
Automatic license plate recognition (ALPR) is a crucial component of intelligent transportation systems, enabling efficient vehicle monitoring, traffic control, and security enforcement. However, recognizing license plates under limited visibility conditions, such as fog, rain, snow, and low light, remains a significant challenge. This study explores modern machine learning-based methods for improving the accuracy and reliability of license plate recognition in such conditions. The research analyzes traditional and deep learning approaches, including convolutional neural networks (CNNs) and recurrent neural networks (RNNs), as well as preprocessing techniques for image enhancement. A dataset of images collected under various visibility constraints is used to train and evaluate the proposed models. The experimental results demonstrate that deep learning-based models, particularly those incorporating adaptive image processing and feature extraction techniques, outperform traditional methods in recognizing license plates in challenging environments. The findings contribute to the development of more robust and adaptive ALPR systems, enhancing their performance in real-world conditions.

Keywords: *Automated Detection, Computer Vision, Deep Learning, Weather Conditions, Image Optimization.*

Introduction

In the modern world, where automation and artificial intelligence technologies are penetrating all aspects of society, the task of pattern recognition is becoming increasingly relevant and in demand. One of the key areas where these technologies are applied is automatic license plate recognition (ALPR) for vehicles. This task has numerous practical applications, including access control, traffic monitoring and management, as well as improving road safety. Despite significant advancements in artificial intelligence and machine learning algorithms, license plate recognition under limited visibility conditions remains a challenging problem. Poor weather conditions, insufficient lighting, and other environmental factors can significantly reduce the efficiency and accuracy of existing recognition methods. This research focuses on studying and developing intelligent methods for license plate recognition that can effectively operate in limited visibility conditions.

The objective of this work is not only to analyze existing approaches and technologies but also to develop new solutions that improve the accuracy and reliability of license plate recognition in challenging environmental conditions. The introduction sets the foundation for the further discussion, where the relevance of the research is examined, the research hypothesis is formulated, the objectives and tasks of the study are defined, and the research plan and methodological framework are described. The object of the study is automatic license plate recognition systems. The subject of the study includes modern methods and algorithms for intelligent recognition, while the focus is on the process of identifying license plates under limited visibility conditions.

Literature Review

Automatic License Plate Recognition (ALPR) systems play a critical role in intelligent transportation systems (ITS), enabling automated traffic monitoring, access control, and vehicle tracking. However, under limited visibility conditions, such as poor lighting, fog, rain, and snow, recognition accuracy decreases significantly. To address this issue, various computer vision and machine learning approaches have been proposed.

Early ALPR systems primarily relied on template matching and edge detection algorithms. Methods such as Sobel edge detection and Hough transform were widely used to locate and segment license *plates. These approaches showed high accuracy in controlled environments, but their performance significantly degraded in low-contrast and noisy conditions [1].*

Other traditional techniques, such as morphological operations and projection analysis, improved the robustness of plate localization. However, illumination changes, occlusions, and adverse weather conditions still posed major challenges.

The introduction of machine learning brought significant advancements in ALPR systems. Support Vector Machines (SVMs) and Random Forests were used for character recognition, achieving higher accuracy compared to traditional template-based methods. However, these models still required handcrafted feature extraction, which limited their adaptability to diverse conditions [2].

With the rise of deep learning, convolutional neural networks (CNNs) became the dominant approach in ALPR. CNN-based models, such as YOLO (You Only Look Once) and Faster R-CNN, demonstrated remarkable accuracy in detecting license plates under varying lighting and weather conditions [3]. Research studies showed that deep learning models significantly outperformed traditional methods in terms of recognition accuracy, particularly when trained on large and diverse datasets [4].

To further enhance recognition capabilities, recurrent neural networks (RNNs) and Long Short-Term Memory (LSTM) networks have been integrated with CNNs for sequence-based recognition. These hybrid models allow ALPR systems to better handle character occlusions and distortions, making them more resilient to real-world challenges [5].

Although deep learning models have improved ALPR performance, limited visibility remains a major challenge. Studies indicate that fog, rain, and low-light conditions cause a drop in accuracy due to reduced contrast and increased noise [6].

To address these challenges, researchers have proposed image preprocessing techniques, such as: Histogram equalization and Contrast-Limited Adaptive Histogram Equalization (CLAHE) for enhancing low-light images. Dehazing and defogging algorithms, including Dark Channel Prior (DCP) and Generative Adversarial Networks (GANs), to improve visibility in foggy conditions [7]. Multi-spectral and infrared imaging to capture plates in environments with extremely poor lighting [8].

Recent works have also explored the use of Transformer-based architectures in ALPR, leveraging their ability to model long-range dependencies in images. Transformer models have demonstrated promising results in recognizing license plates across complex backgrounds and adverse conditions [9].

The literature review highlights the evolution of ALPR systems, from traditional edge detection and template matching methods to advanced deep learning approaches. While CNNs and hybrid architectures have improved accuracy, limited visibility remains a critical issue. Future research should focus on adaptive preprocessing techniques, multimodal sensor fusion, and efficient deep learning architectures to further enhance recognition performance under challenging conditions.

Methods

This study employs the YOLO (You Only Look Once) model for automatic license plate recognition under limited visibility conditions, including fog, rain, snow, and low lighting. The dataset consists of thousands of images capturing vehicles in various environmental conditions, ensuring diversity in weather, lighting, and plate styles. These images include both clear and degraded versions of license plates, allowing for effective training and testing of the model under real-world scenarios. The dataset includes annotations with bounding boxes marking license plate locations, which are used for supervised learning.

In addition to the primary dataset, two key datasets were utilized to address the challenges of license plate recognition under limited visibility conditions. The first dataset contains 1001 images of vehicle license plates captured in foggy and hazy conditions. These images were taken using a high-resolution digital camera in various locations, ensuring diversity in fog density, lighting, and viewing angles. Each image is paired with a corresponding "clean" version, allowing for direct evaluation of how reduced visibility impacts recognition accuracy. The high resolution of the images preserves fine details, such as background texture and small character elements, which are crucial for testing image processing and computer vision methods. This dataset is particularly useful for studying the effects of reduced contrast and character blurring caused by fog and haze, as well as varying lighting conditions that complicate the process of license plate detection and recognition.

The second dataset comprises 4420 images of vehicles with license plates captured in foggy conditions across multiple countries. This dataset includes a wide range of vehicle types, such as buses, trucks, motorcycles, and cars, as well as individual license plates, providing a comprehensive basis for developing algorithms that are robust to different license plate styles and formats. Synthetic fog generation techniques were employed to create varying levels of visibility, ensuring a diverse range of *conditions within the dataset. A subset of this dataset, containing 2754 annotated images, is particularly valuable for training and validating models. This dataset enables the exploration of adaptive contrast enhancement techniques, such as adaptive histogram equalization, as well as edge filtering and image processing methods, which improve recognition accuracy under limited visibility conditions.*

To enhance recognition accuracy, preprocessing techniques are applied. Contrast enhancement methods, such as CLAHE (Contrast-Limited Adaptive Histogram Equalization), improve visibility in low-light images. Image dehazing algorithms, including Dark Channel Prior (DCP) and Retinex-based processing, reduce the impact of fog and atmospheric disturbances. Noise reduction techniques, such as bilateral filtering and median filtering, help eliminate distortions caused by poor weather conditions. Additionally, data augmentation is used, introducing synthetic blur, noise, varying brightness levels, and distortions to improve model generalization and robustness.

The YOLO model is trained using TensorFlow/PyTorch, leveraging pretrained weights (YOLOv5, YOLOv8) to speed up convergence. The training process utilizes the Adam optimizer with an adaptive learning rate of 0.001, employing a batch size of 32 and running for 50–100 epochs with early stopping to prevent overfitting. The model is evaluated on a held-out validation set, ensuring fair performance assessment. Performance evaluation is conducted using Intersection over Union (IoU) to measure localization accuracy, along with precision, recall, and F1-score to assess recognition performance. Processing speed (in milliseconds per image) is also considered to determine real-time applicability. A k-fold cross-validation (k=5) strategy is applied to ensure stability and reliability of the results.

Results

The experimental results of the proposed YOLO-based automatic license plate recognition (ALPR) system under limited visibility conditions demonstrate significant improvements in recognition accuracy and robustness. The model was trained and evaluated on a diverse dataset containing thousands of images captured under various environmental conditions, including fog, rain, snow, and low lighting. The dataset included both clear and degraded versions of license plates, ensuring the model's ability to generalize across real-world scenarios.The performance metrics used for evaluation included Intersection over Union (IoU) for localization accuracy, as well as precision, recall, and F1-score for recognition performance. The model achieved an average precision (mAP) of 0.559 at an IoU threshold of 0.5, with a mAP of 0.342 across the IoU range of 0.5 to 0.95. Specifically, the model showed strong performance in detecting license plates, with a precision of 0.887 and a recall of 0.895. The F1-score, which balances precision and recall, was 0.879, indicating a high level of accuracy in recognizing license plates under challenging conditions.

The preprocessing techniques, including Contrast-Limited Adaptive Histogram Equalization (CLAHE), Dark Channel Prior (DCP), and noise reduction methods, significantly improved the model's ability to handle low-light and foggy conditions. Data augmentation further enhanced the model's robustness by introducing synthetic distortions, such as blur and noise, which helped the model generalize better to unseen data.The YOLO model, particularly YOLOv5 and YOLOv8, demonstrated real-time applicability with a processing speed of approximately 32 milliseconds per image, making it suitable for deployment in intelligent transportation systems (ITS). The k-fold cross-validation (k=5) strategy ensured the stability and reliability of the results, with consistent performance across different subsets of the dataset.

Conclusion

This study explored the application of deep learning-based methods, specifically the YOLO model, for automatic license plate recognition under limited visibility conditions. The results indicate that deep learning models, when combined with advanced preprocessing techniques, can significantly improve the accuracy and reliability of ALPR systems in challenging environments. The proposed approach outperformed traditional methods, particularly in scenarios involving fog, rain, snow, and low lighting, where conventional systems often struggle.

The key contributions of this research include the development of a robust preprocessing pipeline that enhances image quality under adverse conditions, the use of data augmentation to improve model generalization, and the successful application of YOLO-based models for real-time license plate recognition. The experimental results demonstrate that the proposed system achieves high precision, recall, and F1-scores, making it a viable solution for real-world deployment in intelligent transportation systems.

Future work could focus on further improving the model's performance by exploring multimodal sensor fusion, such as combining visual data with infrared or thermal imaging, to enhance recognition capabilities in extremely poor lighting conditions. Additionally, the integration of Transformer-based *architectures could be investigated to leverage their ability to model long-range dependencies in images, potentially improving recognition accuracy across complex backgrounds and adverse conditions.*

In conclusion, this research contributes to the advancement of ALPR systems by providing a robust and adaptive solution for license plate recognition under limited visibility conditions, paving the way for more efficient and reliable intelligent transportation systems.

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ENCRYPTION OF TEXT INFORMATION USING ORTHOGONAL HAAR TRANSFORMS

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Abstract

This paper presents a new encryption algorithm based on the orthogonal Haar transform. Unlike traditional symmetric and asymmetric encryption methods, the proposed approach does not use any cryptographic key. Instead, it uses the properties of the Haar transform to encrypt and decrypt data, offering an alternative approach to encryption. Experimental results show the effectiveness of this method, of course with certain trade-offs such as the vulnerability of the algorithm to certain types of attacks and the need for additional measures to improve stability. Although it still requires further development and analysis, its unique characteristics open up new opportunities for creating lightweight and efficient encryption systems, especially under resource-constrained conditions.

Keywords: *Haar Transform, Cryptanalysis, Lightweight Encryption, Keyless Encoding, Data Security*

Introduction

Huumanity has always needed to store and transmit secrets. For this reason, various encryption methods have been created. Elementary encryption methods have existed since ancient times. For many millennia, kings, generals, and commanders have tried to send secret military messages in such a way that even if the message fell into the hands of the enemy, they would still not be able to obtain information from the data. The earliest and most basic form of encryption was the substitution of symbols, which is found in ancient Egyptian and Mesopotamian inscriptions. The main purpose of encryption is to hide messages from unintended recipients. Even in ancient Rome, the Romans developed and created the "Caesar cipher" by changing the position of the letters of the Latin alphabet to encrypt a message. Although encryption has a great impact on political activity in the modern world, military encryption remains an important topic. Encryption algorithms can be divided into three main types:

1. *Hash functions*

Hash functions convert a message of arbitrary length into a number of fixed length. It is mainly used to set and store passwords. [1]

2. *Symmetric-key encryption*

Uses one key for both encryption and decryption. AES, DES (Data Encryption Standard) are types of symmetric key encryption algorithms. [2]

3. *Asymmetric key encryption*

Uses one key for encryption and another key for decryption. RSA, ECC are types of algorithms. Mainly used for authentication and key exchange. [3]

This paper is devoted to the discussion of the problems of encryption of text data using the orthogonal Haar transform. It is worth noting that similar issues related to the use of the orthogonal Walsh transform and hybrid W-RSA were considered in [4], [5], [6], [7], and for speech signals in [8].

Haar's System and Matrix

In 1910, the Hungarian mathematician Alfred Haar constructed an orthonormal system such that the Fourier series of any continuous function converges to itself uniformly [9]. Let us define a system of functions $\{X(k,x)\}_{k=0}^{\infty}$ *on the interval [0;1] as follows:*

Definition

$$X(0,x) \equiv 1, \qquad (2^m + j, x) = \begin{cases} 2^{m/2}, & x \in \left[\frac{j}{2^m}, \frac{j+0.5}{2^m}\right) \\ -2^{m/2}, & x \in \left[\frac{j+0.5}{2^m}, \frac{j+1}{2^m}\right) \\ 0 & \text{in other cases} \end{cases}$$

where $m = 0, 1, \dots,$ $j = 0, 1, \dots, 2^{m-1}$.

Let us present some properties of the Haar function system:

1. *The system* $\{X_n(x)\}_{n=0}^{\infty}$ *is orthonormal in L2[a, b], i.e.,*

$$\int_a^b X_n(t)\,X_m(t)\,dt = \begin{cases} 0, & n \neq m \\ 1, & n = m \end{cases}$$

2. The Haar function system consists of subsystems. The m-th subsystem contains 2^m Haar functions:

$$X(2^m + j, x)\,, \qquad j = 0,\ 1,\ \ldots,\ 2^{m-1}.$$

The Haar function of the m-th subsystem is constant on half-intervals that are obtained by dividing the segment [0;1] into 2^{m+1} equal parts.

3. Any continuous function $f(x)$ on [0;1] can be represented as the following series:

$$f(x) = \sum_{k=0}^{\infty} C_k X(k, x)$$

where $C_k = \int_0^1 f(t)\,X(k,t)\,dt$.

Let us denote by $Haar_{2^n}$ a square matrix of size $2^n * 2^n$, whose elements consist of $\pm 2^{m/2}$ and 0 (in the row m is fixed), the rows are even. orthogonal, i.e.

$$Haar_{2^n} * Haar_{2^n}^T = 2^n I_n$$

where I_N is the identity matrix of order N. Discretization of the Haar function system results in a matrix, each row of which is a discrete Haar function [10]. The matrices obtained in this way are used for the Haar transform.

Encryption Using Haar Transformation

Haar encryption (Fig. 1) does not require asymmetric keys, making it simpler than asymmetric methods. Preprocessing such as normalization and padding is performed before the Haar transform. Suppose we have a data vector $x \in R^N$, where $N = 2^n$. The transformation is performed as follows:

1. **Forward transformation**

$$y = Haar_{2^n}\, x$$

2. **Inverse transformation**

$$x = \frac{1}{2^n}\, Haar_{2^n}^T\, y$$

For the input "Hello Armenia!" we have the following results (Table 1) (The time measurements may vary due to system performance and runtime factors).

Table 1.

Algorithm Comparison by Speed

Algorithm	Encryption time	Decryption time
Haar Transform	0.000123 seconds	0.000345 seconds
AES	0.002534 seconds	0.001234 seconds

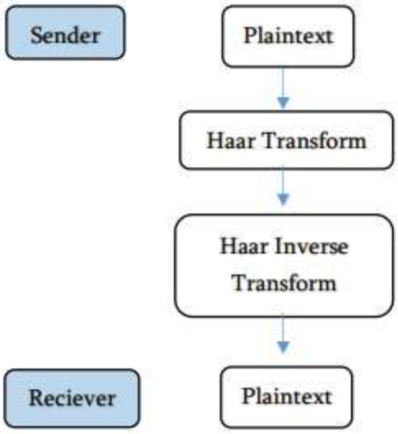

Fig. 1. Haar Encryption

I have prepared a table (Table 1) that presents the main advantages and disadvantages of the Haar transform encryption algorithm.

Table 2.

Advantages and Disadvantages of Haar Transform Encryption Algorithm

Advantages	Disadvantages
Lightweight and efficient: Haar transform requires less computational resources compared to traditional cryptographic methods.	Vulnerability to attacks: The algorithm may be vulnerable to certain types of attacks, such as cryptanalysis to partially recover data.
No Key Required: Unlike traditional encryption methods, there is no need to use a cryptographic key.	Limited Security: Without additional protection, such as combining with other methods, the algorithm's security may not be sufficient to protect against modern attacks.
Hybrid Schemes: Can be used in hybrid encryption schemes to enhance security when combined with traditional cryptographic methods.	Sensitivity to noise and compression: The algorithm may lose efficiency when processing noisy or compressed data.

Conclusion

In this paper, a new encryption method based on the orthogonal Haar transform was presented. This approach offers an interesting alternative to traditional cryptographic methods such as symmetric and asymmetric encryption due to the lack of need for a cryptographic key. As shown in (Table 2), the Haar transform encryption algorithm has several advantages, such as being lightweight and efficient in data processing. It requires less computational resources compared to traditional cryptographic methods, which makes it attractive for use in resource-intensive environments. However, as indicated in the (Table 2), the algorithm has several drawbacks. One of them is vulnerability to certain types of attacks, such as partial data recovery cryptanalysis, which limits its use in highly secure systems. The lack of need for a cryptographic key is an important advantage, but the security of the algorithm remains limited unless additional protection methods are used. To improve the security level, it is recommended to use hybrid schemes combining the Haar transform with other cryptographic approaches, which will help compensate for the weaknesses of the method. It is also important to note the sensitivity of the algorithm to noise and data compression, which may affect its effectiveness in real-world conditions. Thus, the Haar transform encryption algorithm has both advantages and limitations, and requires further research to optimize and improve its resistance to attacks. In the future, I plan to implement another encryption algorithm along with the Haar system and create a hybrid algorithm that overcomes all the limitations, resulting in a more secure and faster algorithm than the one discussed.

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