



*XIV international scientific conference  
Beijing. China  
18-19.02.2025*

# SCIENCE IN MODERN SOCIETY

*Proceedings of the XIV International Scientific and Practical Conference*

*18-19 February 2025*

BEIJING. CHINA

2025

*UDC 001.1*

*BBC 1*

*XIV International Scientific and Practical Conference « Science in modern society», February 18-19, 2025, Beijing. China. 39 p.*

*ISBN 978-91-65424-08-1*

*DOI <https://doi.org/10.5281/zenodo.14916697>*

*Publisher: «SC. Scientific conferences»*

*Main organization:* 

*Editor: Hans Muller*

*Layout: Ellen Schwimmer*

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*The sample of the citation for publication is Gugin Aleksandr, Lisnievska Yuliia ANTI-ADVERTISING IN THE HOTEL BUSINESS // XIV International Scientific and Practical Conference «Modern science: fundamental and applied aspects», February 18-19, 2025, Beijing. China. Pp.9-11, URL: <https://sconferences.com>*

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## Biological sciences

### ANALYSIS OF VEGETATION SPATIAL DISTRIBUTION CHARACTERISTICS IN THE ARID DESERT ZONE OF USTYURT BOZOI, ALMATY REGION, KAZAKHSTAN

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#### **Abstract**

The study of vegetation distribution characteristics in desert zones is crucial for vegetation restoration, ecosystem stabilization, and ecological rehabilitation in areas of mineral extraction and livestock grazing. This research focuses on a small watershed in the arid desert region of north-western Ustyurt Bozoi in the Almaty region, which features typical open mineral deposits. Using satellite images from Google Earth Pro and calculating NDVI (Normalized Difference Vegetation Index) results for the study area, we extracted  $NDVI > 0$  as vegetation coverage and analyzed it using DEM (Digital Elevation Model). We examined the relationship between vegetation distribution, slope aspect, and water runoff trajectory. Our findings indicate that under natural conditions, 75.6% of vegetation distribution occurs on semi-sunny and shaded slopes, while the sunny slopes, which comprise 24.4% of the total area, host only 11.9% of the vegetation. This suggests that semi-sunny and shaded slopes are more suitable for vegetation growth in the study area. In the upper reaches of the basin, less affected by human activities, natural vegetation is distributed in bands along watercourses. However, in the mineral extraction area, significantly influenced by human activities, the characteristics of vegetation distribution change markedly.

**Keywords:** vegetation; arid desert region Almaty; Google Earth Pro Imagery; mineral extraction area.

#### *Introduction*

Ustyurt Bozoy is located south of the sandy Sarytaukum Valley, between the Ashysu and Kurty rivers. Small mountain rivers originate here and dry up by mid-summer. Ustyurt is a desert region used for animal grazing. It is situated in the arid desert zone of northwestern Almaty region, characterized by scarce rainfall, strong winds, and sand, leading to vegetation degradation, severe desertification issues, and an extremely fragile ecological environment [1].

Ustyurt Bozoy is located on the southern side of the Sarytaukum Desert, between the Ashysu and Kuoty rivers. The average elevation ranges from 400 to 500 meters above sea level. Ustyurt Bozoy extends from the northwest to the southeast for 45-50 kilometers, with its highest point being Mount Kazbek (785 meters) (fig. 1).

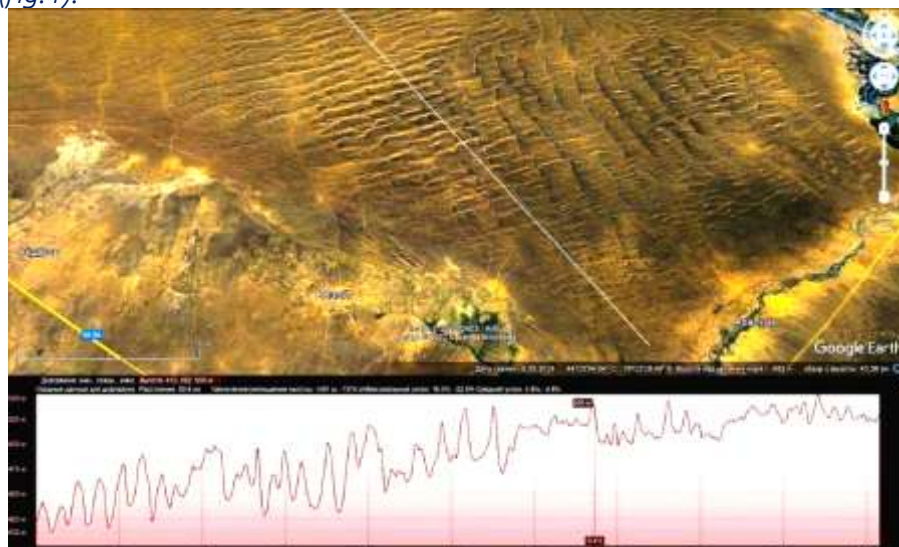


Figure 1. Map of the Relief Structure of Ustyurt Bozoy

*As the scale and intensity of mineral extraction continue to expand, the environmental issues in the area are becoming increasingly severe. In the context of the specific geographical environment, vegetation in this region gradually adapts to the arid desert conditions through natural selection, forming a unique spatial distribution pattern. Studying the spatial distribution of vegetation in the context of mineral extraction in this area is scientifically significant for maintaining the regional ecological balance and restoring the environmental landscape [2].*

*The Google Earth Pro remote sensing satellite is the first civilian optical remote sensing satellite with a spatial resolution of over 1.0 meter. It features high spatial resolution, high radiometric accuracy, and high positional accuracy, and is widely used in national land resource surveys, soil moisture monitoring, and environmental assessments [3-5].*

*Using Google Earth Pro satellite images and calculating NDVI (Normalized Difference Vegetation Index) results for the study area, extracting NDVI > 0 as the vegetation coverage area, and analyzing it with a DEM (Digital Elevation Model), fully leverages the advantages of high-resolution imagery, including high image clarity, high geometric accuracy, and rich spectral information, meeting or exceeding the levels of remote sensing data with similar or close resolutions both domestically and internationally [6].*

*Using Google Earth Pro imagery and NDVI data combined with field studies, this paper analyzes the characteristics of the spatial distribution of vegetation in a small watershed in a typical desert area, including a mineral extraction region. The paper examines the relationship between topography, river system confluence paths, and vegetation distribution. The findings are of great importance for guiding vegetation restoration and stabilizing the pastoral ecosystem in the mineral extraction areas of Ustyurt Bozoy.*

#### *Materials and Methods*

*A small area featuring typical open terrain was selected for the study, and its geographical location is shown in Figure 2.*



*Figure 2. Location of the Study Area*

*The relief of the study area is high in the east and low in the west. Precipitation is low, and evaporation is high: the average annual precipitation is less than 150 mm, while average evaporation exceeds 3500 mm. The region has a typical continental climate characterized by short springs and autumns, long winters and summers, significant diurnal temperature variation, and extended periods of sunshine.*

*The primary lithology consists of limestone, with Quaternary loose layers downstream, mainly comprising gravel, sand, clay, and aeolian sand. Data for the study were sourced from Google Earth Pro remote sensing, with observation dated March 29, 2023. This dataset included one panchromatic image with a spatial resolution of 1 meter and four multispectral images with a spatial resolution of 4 meters.*

*Following preliminary data processing, we calculated the NDVI and identified values greater than zero as areas of vegetation coverage. We then used a DEM to analyze slope aspects: shaded slope (0–45° and 315–360°), semi-shaded slope (45–135°), sunny slope (135–225°), semi-shaded slope (225–315°), and assigned a value of -1 to flat areas without a slope direction, classifying them as gentle slopes. We calculated the proportion of vegetation distribution area on different slopes to analyze the suitability of each slope for vegetation growth. Using a hydrological analysis tool, we determined the flow path and basin boundary. We analyzed the relationship between vegetation distribution and the river system's confluence path. The specific process is illustrated in Figure 3.*

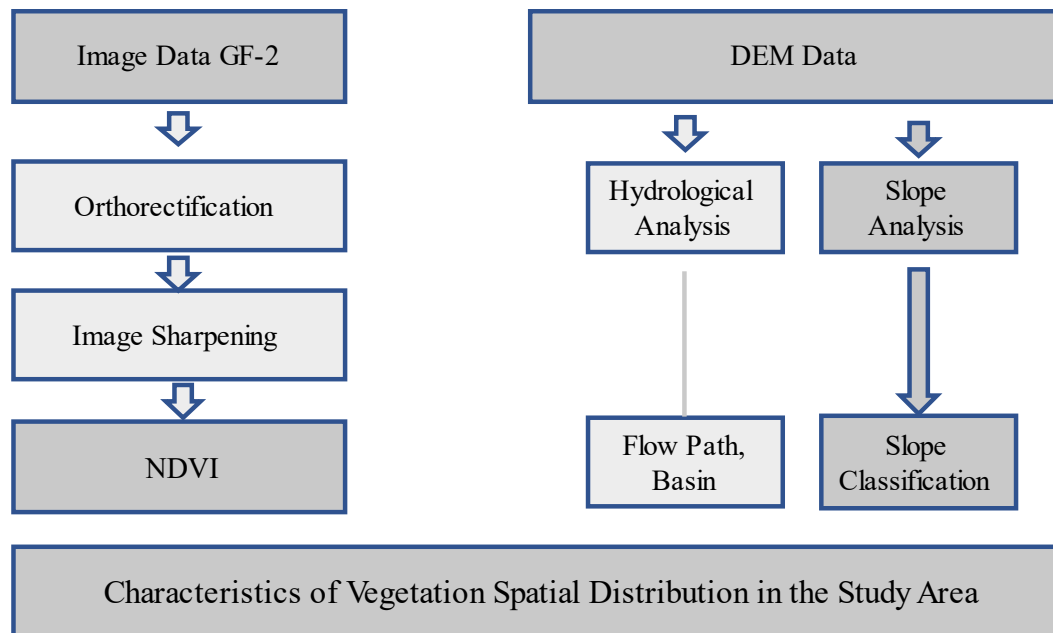


Figure 3. Process of Vegetation Distribution Study Results

*Relationship Between Vegetation Distribution and Slope Aspect. The results of the comprehensive analysis of vegetation distribution and slope aspects are shown in Figure 4, illustrating the heterogeneous distribution of vegetation. The results were calculated using the NDVI (Normalized Difference Vegetation Index) method, which is a simple indicator of the amount of photosynthetically active biomass (commonly known as the vegetation index). This index is computed based on the absorption and reflection of red and near-infrared light by plants. Vegetation index values range from 0.20 to 0.95. The better the vegetation is developed during the growing season, the higher the NDVI value.*

$$NDVI = ((NIR - RED) / (NIR + RED)), \quad (1)$$

where:

- NIR = near-infrared reflection
- RED = red light reflection

*Thus, NDVI is an index that indicates the development of green plant mass during the growing season.*

*Different shades are used to indicate slope direction. According to Figure 4, vegetation is primarily distributed on semi-sunny and shaded slopes.*

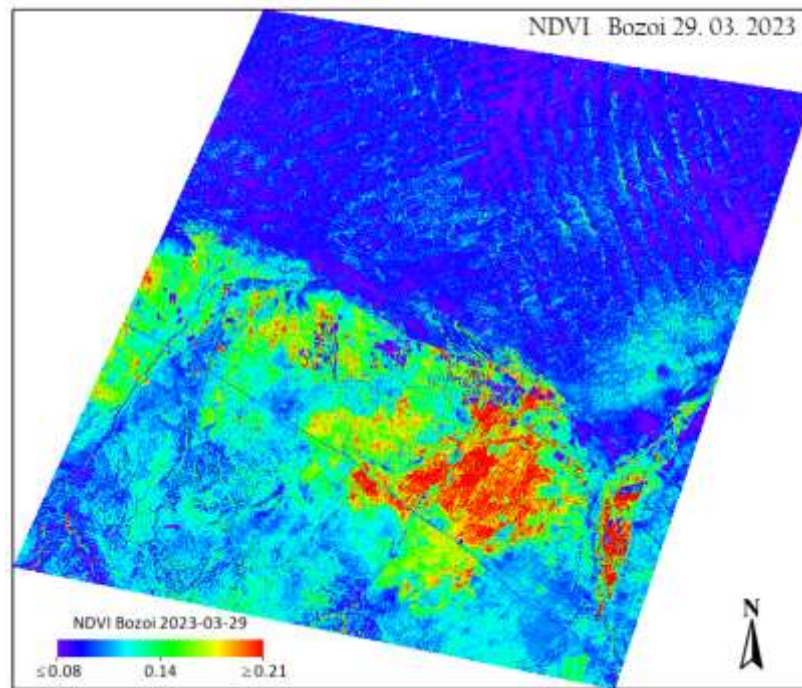


Figure 4. Vegetation Distribution Results

Note: At the beginning of the season, the NDVI index can indicate how well the plant has overwintered. Generally, the spectral channels in the red (0.55-0.75  $\mu\text{m}$ ) and infrared ranges follow this logic:

1. If the NDVI is below 0.15, it is likely that all plants in the area have died. Such values usually correspond to plowed soil without vegetation.
2. 0.15–0.2 is also a low indicator. This may indicate that plants entered dormancy at an early phenological phase, before tillering.
3. 0.2–0.3 is a relatively good indicator. It likely means the plants have entered the tillering phase and are resuming growth.
4. 0.3–0.5 is a good indicator. Note that high NDVI values may indicate that plants entered dormancy at a later developmental stage. If the satellite image was taken before vegetation resumed, the state of the area should be re-analyzed after the growth period begins.
5. Above 0.5 is an abnormal indicator after winter dormancy. This area should be checked personally.

The results of the area proportions classified by slope aspects are shown in Figure 5.

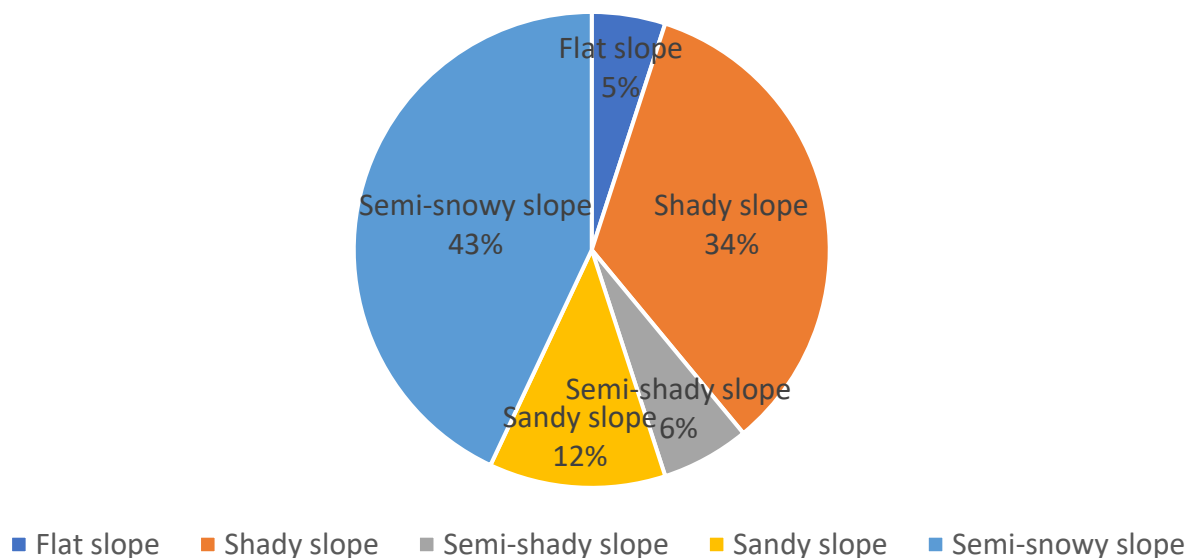


Figure 5. Watershed slope classification and area proportions

The proportion of vegetation distribution classified by slope aspects is shown in Figure 6.

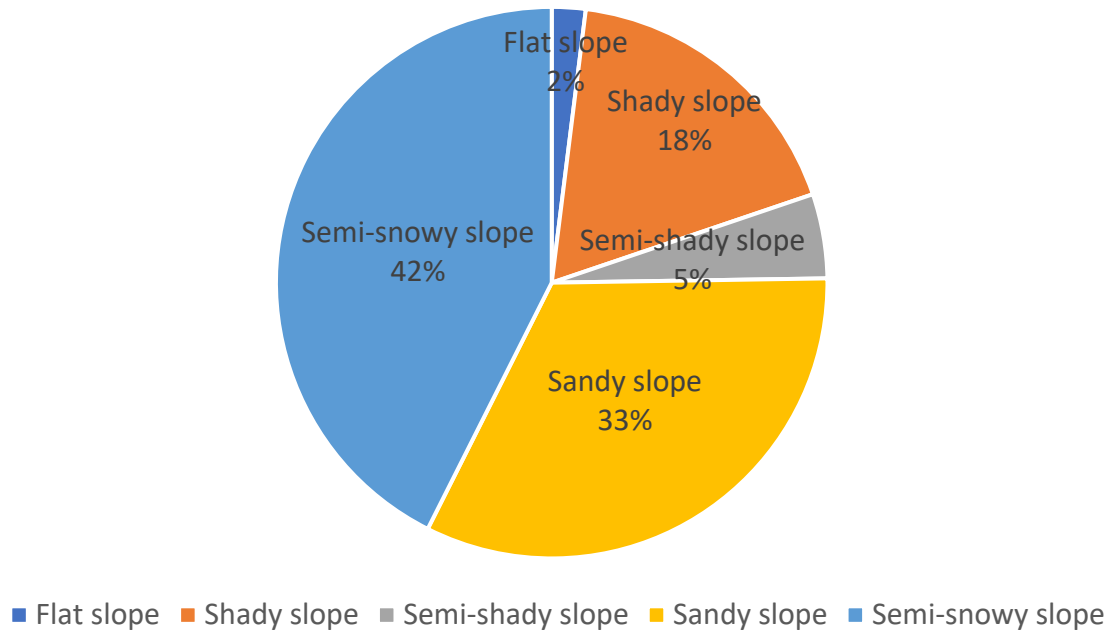


Figure 6. Vegetation distribution proportion by slopes

Comparison of slope classification and vegetation distribution is presented in Table 1. The proportion of sunny slopes is 33.1%, whereas the vegetation proportion on these slopes is only 11.9%, with a difference of -21.2%. The proportion of shaded slopes is 17.7%, while the vegetation proportion on shaded slopes is 33.9%, with a difference of 16.2%. The above shows that vegetation in the arid desert zone of Ustyurt Bozoy is more suitable for growth on shaded slopes than on sunny slopes.

Table 1

**Comparison of Slope Aspect Classification and Vegetation Distribution**

| Slope Classification | Basin (%) | Vegetation (%) | Difference (%) |
|----------------------|-----------|----------------|----------------|
| Flat Slope           | 2,2       | 5,3            | 3,0            |
| Shaded Slope         | 17,7      | 33,9           | 16,2           |
| Semi-Shaded Slope    | 5,2       | 6,3            | 1,1            |
| Sunny Slope          | 33,1      | 11,9           | -21,2          |
| Semi-Sunny Slope     | 41,7      | 42,6           | 0,9            |

Relationship between vegetation distribution and flow direction was also analyzed. The main factors and conditions for the formation of river runoff include climatic conditions, geomorphological (relief) factors, soil and hydrogeological conditions, vegetation cover, and geological conditions (tectonics). Comprehensive results of vegetation distribution and hydrological analysis indicate that vegetation in the upper reaches of the basin is distributed in bands along the flow path, as shown in Figure 7. In the mining area, vegetation distribution characteristics significantly change. Due to human activities, vegetation, which represents artificial landscaping, is predominantly found in the office zone.



Figure 7. Vegetation distribution in the basin headwaters

The vegetation in the area is defined by elevation zones. In the lower mountain belt up to an altitude of 600 meters, desert-type vegetation predominates, including *Artemisia*, *Salsola* L., and *Kochia*. Above this level, the steppe belt becomes prominent with *Stipa*, *Phleum*, *Rosa*, *Lonicera* and along river valleys, you find apple-aspen forests mixed with *Padus* and *Crataegus*. The forest-meadow belt extends up to 2200 meters, consisting of Tian Shan spruce and Siberian fir. Beyond this is the alpine belt with species like *Kobresia*, *Viola altaica*, *Saxifraga*, and *Papaver alpinum*. There are no rare or endangered Red Book plants in the area of influence. Natural food and medicinal plants are absent. According to the cadastral records, there are no agricultural lands in the study area.

Mining operations at the "Bozoy" site involve the extraction of building stone, located in the Zhambyl district of Almaty region. The "Bozoy" site is situated 8.0 km south of Bozoy village and 95 km north of the administrative center of the Zhambyl district, Uzynagash village.

To assess the environmental impact of the site and establish natural resource usage standards, the characteristics of emissions of harmful substances into the atmosphere were studied. The list of pollutants expected to be emitted into the atmosphere includes 10 names (nitrogen dioxide, nitrogen oxide, carbon (soot), sulfur dioxide, carbon monoxide, prop-2-en-1-al, formaldehyde, kerosene, alkanes  $C_{12-19}$ , inorganic dust containing  $SiO_2$  from 20-70%), of which 2 substances form a summation group (nitrogen dioxide + sulfur dioxide). The estimated emission is 14.9201 tons/year, including solids - 11.4885 tons/year and gases - 3.4316 tons/year. According to dispersion calculations, the maximum ground-level concentrations of harmful substances created by the site's emissions at the sanitary protection zone boundary are below the maximum permissible concentrations (MPC) and can be proposed as the permissible emission standards (PES) in the volume determined by this project. Therefore, the impact of the site on atmospheric air is assessed as insignificant.

**Assessment of the Impact of Quarry Development on Water Resources.** Drinking and technical water supply is provided by water transported from nearby settlements. To prevent possible contamination of soil and groundwater at the quarry, wastewater is collected in a waterproof pit with a volume of 4.5 m<sup>3</sup>. Household wastewater is not produced in large quantities, which eliminates the risk of groundwater and soil contamination. As the pit fills, household wastewater is transported by vacuum trucks to the nearest wastewater treatment facilities. Atmospheric precipitation in warm periods almost entirely evaporates. The site does not use toxic and chemically active substances that, in case of accidental spills during transportation, could harm surface and groundwater. There are no harmful toxic industrial effluents that could be released onto the soil and thus become a source of groundwater pollution. The nearest water body, the Kurty River, is 20 km east of the "Bozoy" site. There are no surface water sources detected within the study area. The site is located outside the water protection zones and strips of surface water bodies.

Therefore, based on the above, it can be concluded that by adhering to water protection measures, harmful negative impacts on the quality of underground and surface waters are excluded.

**Assessment of Impact on Subsoil and Soil Cover.** Favorable mining and geological conditions at the site, the horizontal bedding of productive strata, and the nature of the mineral resources determine the feasibility of open-pit mining using modern mechanized extraction and loading techniques. The primary

waste generated at the site includes solid domestic waste (SDW) and oil-soaked rags from equipment. Hazardous industrial waste such as used oils, tires, and batteries is not generated on-site as vehicle maintenance is carried out at the production base of contracting organizations. There are no harmful toxic industrial effluents that could be released onto the soil, thereby becoming a source of groundwater pollution. Collection and storage of solid domestic waste are arranged in special containers placed on a hard surface area. Oil-soaked rags are collected separately in metal containers and handed over to third-party organizations for further disposal as they accumulate.

Measures to preserve land resources include:

- Rational placement of access roads and parking areas for vehicles;
- Disposal of overburden in locations unsuitable for agricultural use;
- Post-mining land reclamation by the user, developing a reclamation project and agreeing it with the relevant environmental protection authorities.

Thus, by following the mining technology as per the project, the impact on subsoil and soil cover is assessed as minimal. Rational placement of access roads, vehicle parking areas, overburden disposal in non-agricultural areas, and conducting reclamation works will minimize the impact on land resources.

*Environmental Impact.* Physical, noise, vibrational, radiation, thermal, and electromagnetic impacts on people are negligible due to the significant distance between the residential zone and the mining area. The impact on the flora and fauna is also considered minimal as the mining site is located on land with sparse vegetation and there are no rare or endangered animals in the area.

Due to the low precipitation in the arid desert zone, sparse vegetation, and harsh environmental conditions, high-resolution Google Earth Pro imagery is advantageous for accurately and conveniently extracting vegetation data in such regions. Vegetation in the study area is distributed in strips, consistent with field research results. The analysis of the relationship between vegetation, slope distribution, and water flow paths in the watershed shows that natural vegetation usually aligns along water flow paths and is more suitable for growth on semi-sunny and shaded slopes.

*Vegetation distribution and flow path characteristics.* The origin of patchy vegetation remains a debated topic among scientists. In arid desert regions, precipitation is scant and primarily consists of heavy rains that create runoff and erode the soil. Soil continues to accumulate along the water flow paths, providing suitable soil and moisture conditions for vegetation growth. Solar radiation on semi-sunny and shaded slopes is relatively lower, which helps reduce water evaporation. These findings align with the theory of the origin of patchy vegetation in arid zones.

#### Conclusion

Based on the use of remote sensing images from Google Earth Pro and the analysis of the spatial distribution characteristics of vegetation in a typical watershed in the arid desert area of Ustyurt Bozoy, Almaty Region, the following conclusions can be drawn:

Vegetation in the study area is mainly distributed on the semi-sunny and shady slopes, accounting for 74.8% of the area. The sunny slope makes up 33.1% of the total area of the study area, while the vegetation distribution on this slope is only 11.9%. The shady slope accounts for 17.7% of the basin, and the proportion of vegetation distributed on the shady slope is 33.9%.

This indicates that vegetation is more suitable for growing on semi-sunny and shady slopes in its natural state. Based on the water flow paths of the river system and the location of vegetation distribution in the study area, the vegetation distribution in the upper reaches of the basin is arranged in strips along the water flow paths. However, in the mining area, the characteristics of vegetation distribution have significantly changed, obviously influenced by human activities. Vegetation is mainly distributed in the office area, which is artificially landscaped.

The above conclusions can be used to guide the restoration of mountain vegetation in the arid desert-steppe zone in Ustyurt Bozoy, Almaty Region.

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## Jurisprudence

### ANALYZING THE SUSPENSION OF LIMITATION PERIODS: LEGAL FRAMEWORK AND PROPOSALS FOR REFORM UNDER AZERBAIJANI LAW

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#### **INTRODUCTION: "AGERE NON VALENTI NON CURRIT PRAESCRIPTIO"**

"*Agere non valenti non currit praescriptio*" (prescription does not run against a person who is unable to act) is a foundational principle of Roman law, which has been adopted into modern legal systems. This principle highlights the dual purpose of limitation periods. On one hand, limitation periods are established to provide certainty and protection to debtors, while on the other hand, they ensure that claimants have sufficient time to assert their rights. A creditor must have the ability to file a claim in court independently and without hindrance; otherwise, the continued running of the limitation period would be unjust.

The Civil Code of the Republic of Azerbaijan (hereinafter referred to as the "Civil Code") establishes mechanisms for suspending limitation periods under particular circumstances. This article critically analyzes these mechanisms, highlighting gaps and contradictions, and suggests changes to improve justice and legal clarity.

#### **ANALYSIS OF SPECIFIC GROUNDS FOR SUSPENSION**

##### **FORCE MAJEURE (ARTICLE 379.1.1)**

Force majeure refers to events of a natural or technogenic (social) nature that occur objectively and independently of the will of the parties. These events must possess the characteristics of extraordinariness and irresistibility under the given circumstances and must prevent an individual from exercising their right to judicial protection. To determine whether a circumstance qualifies as force majeure, there are certain characteristics:

1. **Objectivity:** The circumstance must be of an objective nature, meaning it should not depend on the actions or inactions of the disputing parties.

2. **Extraordinariness:** The event should exhibit characteristics of exceptionality relative to events occurring in the normal course of civil transactions. For instance, if a business owner is unable to file a claim due to an industrial accident, this cannot be considered force majeure, as accidents are foreseeable risks within normal production processes and should be accounted for in entrepreneurial activities.

3. **Inevitability:** The event must be unavoidable, meaning that neither the parties involved in the disputed legal relationship nor other participants in civil transactions under similar circumstances could have prevented its occurrence or consequences.

4. **Relativity:** An event deemed extraordinary in one area may be considered ordinary in another. For example, snowfall in a region where it occurs annually cannot be considered extraordinary. However, if snowfall occurs in an area only once every 50–60 years, it could be classified as extraordinary and unavoidable. As stated in Article 379.1.1, the event must be one that "under the given circumstances" could not have been prevented.

##### **MARTIAL LAW (ARTICLE 379.1.2)**

When the claimant or defendant is part of the armed forces placed under martial law, the limitation period is suspended.<sup>1</sup> The President declares martial law in the entire territory of the Republic or specific parts of it when a portion of the country's territory is under *de facto* occupation, a foreign state or states declare war, there is a real threat of an armed attack, the territory of the Republic is placed under blockade, or when there is a real threat of blockade. The decree issued by the President in such cases must be submitted to the Milli Majlis (National Assembly) of the Republic of Azerbaijan for approval within 24 hours.<sup>2</sup>

When interpreted literally, the suspension of the limitation period should apply only if martial law is declared following the established procedure, in cases such as the *de facto* occupation of Azerbaijani territory, a declaration of war by a foreign state or states, a real threat of armed attack, or the imposition of a blockade or the real threat of one.

<sup>1</sup> Article 379.1.2, Civil Code of the Republic of Azerbaijan (hereinafter "Civil Code")

<sup>2</sup> Article 111, Constitution of the Republic of Azerbaijan

*In my view, the inability of a person to exercise their right to judicial protection may also arise during combat operations, even if martial law has not been formally declared. For instance, during actions aimed at violating the territorial integrity of the Republic of Azerbaijan, rebellions or coups against the state, or violent mass disturbances, a state of emergency may be declared. Therefore, the application of this norm should not be strictly limited to situations where "martial law" has been declared. Moreover, it should suffice for this provision to apply if the military unit to which the claimant or defendant belongs is placed under martial law, rather than requiring the entire armed forces to be subject to martial law.*

#### **MORATORIUM ON OBLIGATIONS (ARTICLE 379.1.3)**

*The authority to declare a moratorium is vested in the Cabinet of Ministers of the Republic of Azerbaijan<sup>3</sup>. However, the legislative framework governing the implementation of moratoriums for the performance of obligations by the Cabinet of Ministers is highly limited. It remains unclear how, under what procedures, and in which circumstances the Cabinet can implement such measures. This level of ambiguity renders the provision a "dead" norm.*

*For comparison, Article 202 of the Civil Code of the Russian Federation, which contains a similar provision, specifies that a moratorium can be introduced by the government based on a law.<sup>4</sup> This implies the existence of specific legislation on moratoriums that the government can rely on. The absence of such a guiding framework in Azerbaijani legislation further complicates the practical implementation of this norm.*

#### **LEGAL INCAPACITY (ARTICLE 379.1.4)**

*In Roman law, one of the grounds for suspending the limitation period was the claimant's lack of legal capacity, such as being under the age of majority. This principle recognized that individuals unable to act on their own behalf required special protection to prevent their legal rights from being compromised due to an inability to bring a claim within the prescribed timeframe.*

*This concept remains integral to the legislation of several European countries. For example, Article 2235 of the French Civil Code (the Napoleonic Code of 1804) explicitly states that, with certain exceptions—such as obligations related to rent, alimony, or wage recovery—the limitation period does not run for unemancipated minors or adults under guardianship.*

*It is, in my view, more equitable to suspend the limitation period until a legal representative is appointed for a person lacking legal capacity if no such representative exists. During this period, it is impossible to adequately safeguard the person's rights, as the absence of a representative obstructs the measures necessary to protect their interests.*

#### **SUSPENSION OF LEGAL ACTS (ARTICLE 379.1.5)**

*In such cases, the legal basis for the claim ceases to exist, rendering the filing of the claim impossible. This provision ensures fairness by acknowledging that a claimant cannot reasonably be expected to pursue a claim when the regulatory framework underlying their legal rights or obligations is no longer in effect. By suspending the limitation period in such instances, the law prevents the unfair expiration of claims that cannot be pursued due to the temporary suspension of the applicable legal norms.*

#### **MEDIATION (ARTICLE 379.1.6)**

*The primary characteristic of other grounds is that they relate to situations where a person is objectively unable to file a claim due to reasons beyond their control. In contrast, the provisions of the Law "On Mediation" impose a specific requirement for participation in the initial mediation session for disputes arising from family, or labor relationships before filing a claim in court, which does not entirely preclude the exercise of the right to judicial protection. During this session, the mediator explains the essence, advantages, and procedures of mediation to the parties, holds joint and individual meetings, and ensures that the parties decide whether they wish to participate in subsequent mediation sessions.<sup>5</sup> Thus, the continuation of the mediation process depends on the voluntary decision of the parties and is not a mandatory requirement imposed by the legislator.*

*The legislator has adopted this measure to encourage greater interest in mediation and address concerns about the expiration of limitation periods during the mediation process. However, it is important to note that alternative dispute resolution methods extend beyond mediation. Therefore, granting mediation exclusive status as a ground for suspending limitation periods may not be entirely appropriate.*

<sup>3</sup> Decree of the President of the Republic of Azerbaijan "On the Implementation of the Law of the Republic of Azerbaijan 'On the Approval, Entry into Force, and Related Legal Regulation of the Civil Code of the Republic of Azerbaijan'" (25 August 2000)

<sup>4</sup> Article 202, Civil Code of the Russian Federation

<sup>5</sup> Article 29.1, The Law on Mediation

Moreover, the mandatory participation in an initial mediation session is limited to disputes arising from family or labor relationships. For other types of disputes, this requirement does not apply.

To address these inconsistencies, I propose removing Article 379.1.6 and introducing a new Article 379.2-1 with the following content: "379.2-1. When the parties refer the dispute to legally prescribed out-of-court resolution procedures (mediation, conciliation, administrative procedures, arbitration, etc.), the limitation period shall be suspended for the period specified by law for such procedures, or, if no such period is specified, for six months from the date the relevant procedure is initiated."

#### **COMPENSATION FOR LIFE OR HEALTH DAMAGE (ARTICLE 379.2)**

Another ground for suspending the running of the limitation period is regulated for claims related to compensation for damage to the life or health of individuals. Specifically, for such claims, the limitation period is also suspended until the assignment of a pension or benefit, or the refusal to assign them, in connection with the individual's application to the relevant authority. There is a direct contradiction regarding this issue. One of the claims to which the limitation period does not apply is the claim for compensation for damage to an individual's life or health.<sup>6</sup> In this case, it is illogical to establish a ground for suspending the limitation period for claims to which the limitation period does not apply. Therefore, I propose to remove Article 379.2.

#### **SPOUSAL CLAIMS (ARTICLE 379.5)**

The running of the limitation period for claims between spouses is suspended during the period of their marriage. This provision is based on the rationale that continuing the limitation period during this time could harm the stability and existence of the family, lead to disputes among family members, and damage the foundations of the family. At the same time, the legislator seeks to protect the rights of each spouse as an individual, making the suspension of the limitation period during this time permissible.

#### **DISMISSAL WITHOUT CONSIDERATION (ARTICLE 381)**

If a claim filed in a criminal case is dismissed without consideration by the court, the running of the limitation period, which had already begun, is **suspended** until the ruling dismissing the claim takes legal effect.<sup>7</sup> This approach is based on the notion that, during criminal proceedings, the accused may either be found guilty or acquitted. Since it is initially uncertain whether the individual committed the crime, the suspended period can be considered the time necessary to identify the appropriate defendant against whom the claim should be filed.

However, a question arises regarding the dismissal of a claim without consideration in cases unrelated to criminal proceedings. If a claim is dismissed without consideration by the court, the running of the limitation period that began continues under the general rule until the claim is refiled.<sup>8</sup> This provision does not use the term "suspension" nor does it imply any mechanism suggesting the suspension of the limitation period. Instead, it regulates the **continuation** of the limitation period. Logically, it can be concluded that the first part of Article 381 regulates cases where dismissal without consideration does not result in the suspension of the limitation period, while the second part regulates cases where it does.

#### **CONCLUSION**

The grounds and procedures for suspending the limitation period play a significant role in calculating the limitation period. Researching these issues is crucial for the correct application of limitation periods and, consequently, for ensuring the protection of the rights of both claimants and defendants. By adopting the proposed amendments, the Civil Code can better align with practical realities, ensuring fairness and clarity in legal proceedings.

<sup>6</sup> Article 384, Civil Code

<sup>7</sup> Article 381.2, Civil Code

<sup>8</sup> Article 381.1, Civil Code

## Pedagogical sciences

### **DEVELOPMENT AND IMPLEMENTATION OF AN ELECTRONIC TEXTBOOK AS ONE OF THE MEANS TO INCREASE STUDENTS' MOTIVATION**

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#### **Abstract**

*The paper discusses the possibilities of using electronic textbooks in a general education organization, which is especially relevant in the light of modern requirements of federal state educational standards, implying the development of communicative competence at a high level with the ability to communicate on various topics, in varying communication situations, as well as the formation of competence in the field of use electronic textbooks, information technologies. The author carried out a theoretical analysis of scientific and practical literature with the aim of defining and comparing the most popular Internet resources. The results of the study confirm the assumption that the process of developing aspect grammatical skills and including them in speech skills will be effective when using the algorithm proposed by the authors, the analyzed Internet resources, sites, platforms that are presented in this work. Both theoretical and practical results of the research can be useful in the process of professional activity of specialists in the field of general and higher education when teaching a foreign language. Research in the field of the use of electronic textbooks that allow the implementation of interactive methods in teaching aspects of a foreign language are considered promising.*

**Keywords:** *grammatical skills, grammatical structure, electronic textbooks, Internet resources, information technology, interactive learning, algorithm.*

*The modern educational space is undergoing certain changes, which, first of all, are focused on the development of all spheres of society. The field of education is no exception. A graduate of the 21st century school should possess not only knowledge, skills and certain experience of activity, but also be a successful person with qualities that allow him to be flexible and quickly adapt to changing conditions of development and existence. These provisions are reflected, among other things, in the requirements of current federal educational standards of general education for the results of mastering the content of training.*

*One of the most important planned learning outcomes is the (foreign language) communicative competence formed at a certain level with respect to each stage of learning, i.e. the ability to communicate in a foreign language with native speakers in a variety of communicative situations. The formation of the latter is not possible without teaching the grammatical side of speech as the basis for the formulation of statements, a tool for structuring speech.*

*The solution to the problem of increasing the interest of students, their motivation to study grammar as a functional and integral component of the development of foreign language speech, the implementation of the principle of interactivity and speech orientation in the process of mastering grammatical material can undoubtedly be the use of modern information and communication (IC) tools, including Internet technologies.*

*Effective methodological techniques, technologies and methods of work in foreign language lessons, including techniques and methods of teaching the grammatical side of speech, are described and classified in the studies of such famous scientists as I.L. Bim, R.P. Milrud, N.D. Galskova, E.I. Passov, etc. [3; 5; 8; 11]; the problems of using Internet technologies in teaching are revealed in the works of researchers E.P. Asimov, L.P. Vladimirova, I.V. Kruglova, T.A. Polilova, etc. [1; 4; 7; 12].*

*The purpose of the presented research is to develop methodological recommendations on the use of modern information technologies in the process of teaching foreign grammar to schoolchildren.*

*The goal is revealed in the following tasks: to analyze Internet technologies used to teach English grammar; to test an algorithm for the development of grammatical skills using Internet technologies.*

*The purpose and objectives of the study determined the use of the following methods: methods of systematization and generalization of data from theoretical sources, survey, questionnaire, method of logical and theoretical analysis of scientific literature, methods of induction and deduction, method of analytical generalization, method of interpretation of the results of approbation.*

**Presentation of the main part of the article.**

*Grammatical skills are the ability to automatically recall from long-term memory the grammatical means necessary for speech communication. Grammatical structure is a certain set of laws of a language that regulate the correctness of the construction of significant speech segments (words, utterances, texts). Grammatical material is that part of the language material, the study of which is provided by the content of the training. It is customary to include grammatical units, forms and structures, rules for changing words and combining them into sentences.*

*The survey participants were asked to highlight the main advantages of using the Internet, information technologies in foreign language education. Information technologies – processes, methods of searching, collecting, storing, processing, providing, distributing information and ways of implementing such processes and methods. Internet technologies are a tool for creating and maintaining various information resources on the Internet: websites, blogs, forums, chats, electronic libraries and encyclopedias [1].*

*The use of Internet technologies in education, according to respondents, increases motivation for learning, expands the area of individual activity of each student, reduces the time spent on mastering and presenting a certain amount of educational content, and Internet resources and information technologies in general allow:*

- to create conditions for group interaction of subjects of the educational process in problem-search activities;*
- coordinate the educational activities of a larger range of subjects;*
- to provide a remote form of full-time and part-time online education in a difficult epidemiological situation;*
- to exchange information;*
- to develop the skills of searching, processing, filtering out information in the conditions of research and search activities related to various data sources;*
- to design communication situations that provide conditions for cooperation;*
- to organize the conscious development of communication skills for interaction in a society saturated with information;*
- provide complexity in mastering communication skills.*

*Communicating in a truly linguistic environment provided with Internet resources and platforms, students find themselves in authentic or close to authentic life situations where training and application of grammatical aspect skills can be carried out. Students face a task that reflects the functionality of the language in real life. This task is, most often, new, interesting, realistic. To solve it, spontaneity, adequacy of reaction is necessary, which allows us to speak about the originality of replicas-reactions. Thus, the use of a grammatical rule, structure, is motivated by the need to understand and convey thoughts and meanings, ideas, content.*

*Integrated grammar teaching using Internet technologies is one of the most effective ways to create interaction in the classroom. According to R.P. Milrud's definition, interactivity is "the unification, coordination and complementarity of efforts of a communicative goal and result by speech means" [8, p. 49].*

*Internet resources can be used in various ways when working on the grammatical side of speech, for example:*

- as a visual aid when familiarizing with the material;*
- as a basis for extracurricular work, independent preparation at home, for problem-searching tasks, group or pair work;*
- during the application of elements of the project methodology;*
- in the process of online communication (video, audio, correspondence) with a native speaker;*
- as a tool for modifying the program, which is characteristic of this class in the process of digitalization of learning.*

*Let's consider the most popular Internet resources and technologies used in teaching grammar (Table 1)*

| <i>Names</i>                      | <i>Brief description of the main features</i>                                                                                                                                                                                                                                                                                                                                                                   | <i>Interface 1</i>  | <i>Option for smartphones</i> | <i>The possibility of authentic online communication</i> |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------------|----------------------------------------------------------|
| <i>AngloLink</i>                  | <ul style="list-style-type: none"> <li>- a resource for honing skills in pronunciation and writing short dictation with certain grammatical constructions;</li> <li>- available installations;</li> <li>- convenient thematic search.</li> </ul>                                                                                                                                                                | <i>high level</i>   | <i>No</i>                     | <i>No</i>                                                |
| <i>Grammar.net</i>                | <ul style="list-style-type: none"> <li>- large visual supports;</li> <li>- grammar is presented schematically.</li> </ul>                                                                                                                                                                                                                                                                                       | <i>high level</i>   | <i>No</i>                     | <i>No</i>                                                |
| <i>Activities for ESL</i>         | <ul style="list-style-type: none"> <li>- focused on both teachers and students;</li> <li>- redundant information and tasks for training an active grammatical minimum;</li> <li>- to increase motivation, there are quizzes, riddles, jokes, videos, tasks;</li> <li>- there is a complex information retrieval system that makes it difficult for students to work independently with the resource.</li> </ul> | <i>low level</i>    | <i>No</i>                     | <i>no</i>                                                |
| <i>My languageexchange</i>        | <ul style="list-style-type: none"> <li>- possibility of group work online;</li> <li>- the ability to find a pen pal after filling out the questionnaire and indicating personality traits, interests, age;</li> <li>- availability of free access to authentic books and special aspect games.</li> </ul>                                                                                                       | <i>high level</i>   | <i>yes</i>                    | <i>yes</i>                                               |
| <i>BBC LearningEnglish</i>        | <ul style="list-style-type: none"> <li>- training courses for different levels of training;</li> <li>- thematic division of information and exercises presented on the site.</li> </ul>                                                                                                                                                                                                                         | <i>high level</i>   | <i>yes</i>                    | <i>No</i>                                                |
| <i>BritishCouncilLearnEnglish</i> | <ul style="list-style-type: none"> <li>- interactive exercises, educational videos and games.</li> </ul>                                                                                                                                                                                                                                                                                                        | <i>Medium level</i> | <i>No</i>                     | <i>Yes. but to write only comments</i>                   |
| <i>Duolingo</i>                   | <ul style="list-style-type: none"> <li>- exercises for the initial level of training are free of charge;</li> <li>- tasks for intermediate and advanced level training are paid.</li> </ul>                                                                                                                                                                                                                     | <i>high level</i>   | <i>Yes, but not free</i>      | <i>No</i>                                                |
| <i>Lingualeo</i>                  | <ul style="list-style-type: none"> <li>- accentuated grammar study;</li> <li>- availability of free and paid training courses.</li> </ul>                                                                                                                                                                                                                                                                       | <i>Medium level</i> | <i>Yes, but not free</i>      | <i>No</i>                                                |
| <i>EngVid</i>                     | <ul style="list-style-type: none"> <li>- video lessons for learning English grammar;</li> <li>- thematic division;</li> <li>- preparation of students (partially) for international exams (IELTS, TOEFL)</li> </ul>                                                                                                                                                                                             | <i>Medium level</i> | <i>No</i>                     | <i>No</i>                                                |
| <i>Memrise</i>                    | <ul style="list-style-type: none"> <li>- learning grammar using a flash-card system;</li> <li>- the ability to design content by users;</li> <li>- modification of tasks for the level, group, plan.</li> </ul>                                                                                                                                                                                                 | <i>Medium level</i> | <i>No</i>                     | <i>No</i>                                                |

|           |                                                                                                                                                                                                                                                                                                                                                                             |            |                   |     |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|-----|
| Bussu     | <ul style="list-style-type: none"> <li>- the ability to find a pen pal;</li> <li>- more than 10 languages; in addition to grammar exercises</li> <li>- , tasks for vocabulary and pronunciation training are presented;</li> <li>- checking the correctness of performing exercises online;</li> <li>- Interface and applications developed for iOS and Android.</li> </ul> | high level | yes               | Yes |
| Livemocha | <ul style="list-style-type: none"> <li>- mutual verification and mutual training;</li> <li>- it is possible to coordinate teachers online and independent work of students;</li> <li>- text messaging is possible;</li> <li>- the possibility of online video and audio communication is a paid option.</li> </ul>                                                          | high level | Yes, but not free | Yes |

*[the table is compiled by authors]*

In order to obtain reliable results on the effectiveness of the proposed algorithm, an approbation was carried out on the basis of a secondary school in Orenburg. Two groups took part in the methodical experiment – control and experimental. The students of the control group studied according to the standard program without using Internet technologies in the educational process. Students from the experimental group studied the same topic as the control group, but the material was worked out on the basis of a developed algorithm for teaching grammar using Internet technologies at the stage of basic general education.

### Conclusion

Thus, it can be concluded that there is a positive dynamics based on the results of testing, an increase in the effectiveness of grammar teaching within this particular topic, an increase in the number of students with a high level of grammatical skills development and a decrease in the number of students with an average level. The average score in the control group was lower than in the experimental group. So, the application of the algorithm of teaching English grammar at school presented by the authors of the study on the basis of a communicative approach through the implementation of Internet resources and information technologies makes it possible to increase the efficiency of the learning process, while the teacher should offer students functional installations, direct search activities, coordinate the processing of information and communication online in a foreign language.

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**THE ROLE OF THE PRESS IN THE PEDAGOGICAL MOVEMENT IN THE EARLY XX CENTURY****Gojayeve Gulara Mohammad***Azerbaijan State Pedagogical University, Azerbaijan**Ph.D. in pedagogy, head teacher***XX ƏSRİN ƏVVƏLLƏRİNDƏ PEDAQOJİ HƏRƏKATDA MƏTBUATIN ROLU****Qocayeva Gülarə Məhəmməd***Azərbaycan Dövlət Pedaqoji Universiteti, Azərbaycan**pedaqogika üzrə fəlsəfə doktoru, baş müəllim***Abstract**

*At the beginning of the 20th century, the deterioration of the military, political, economic and social situation in the world caused protests against the empire's colonial policy by the peoples living in the Russian Empire. The widespread revolutionary struggle in that period had an important effect on the activation of the society from the political and ideological point of view in Azerbaijan. The rise of the national struggle movement and ideological spirit of the Azerbaijani people caused the ideology of Turkism and nationalism to become more important in the nation's self-awareness. The intellectual elite of Azerbaijan felt deep anxiety about the destiny of the people. They wanted a more extensive reform in the field of analysis, coming out with more persistent positions in the direction of removing prohibitions on a more legal level. [3, p. 25]*

*"In the process of formation of the self-awareness of the Azerbaijani people, the journalism of those years played a big role. The authors of numerous articles and information materials were not content with covering only political events in their writings. They explained each of these events to the people of Azerbaijan with evidence-based explanations, thus fulfilling an important task in the development of national self-awareness - the task of raising the political culture of the people, attachment to the events happening in the nation, awakening the feeling of the ability to take responsibility for the fate of the nation" [5, p. 148].*

**Xülasə**

*XX yüzilliyin əvvəllərində dünyadakı hərbi-siyasi, iqtisadi və sosial durumun pisləşməsi Rusiya imperiyasında yaşayan xalqların imperiyanın sömürgəçilik siyasəti əleyhinə olan etirazların baş qaldırmasına səbəb olmuşdu. Həmin dövərdə geniş vüsət almış inqilabi mübarizə Azərbaycanda da siyasi və ideoloji baxımdan cəmiyyətin aktivləşməsinə önəmli təsir etmişdir. Azərbaycan xalqının milli mübarizə hərəkatı və ideoloji ruhunun yüksəlməsi millətin özünüdərkində - türkçülük və millətçilik məfkurəsinin daha önəmli əhəmiyyət kəsb etməsinə səbəb oldu. Azərbaycanın ziyalı elitası xalqın müqəddəratı ilə əlaqədar dərin narahatçılıq hissi keçirirdilər. Daha çox hüquqi müstəvidə qadağaların aradan qaldırılması istiqamətində daha ısrarlı mövqelərlə çıxış edərək, təhlil sahəsində daha geniş islahat aparılmasını istəyirdilər. [3, s. 25]*

*"Azərbaycan xalqının özünüdərkinin formalaşması prosesində o illərin publisistikası böyük rol oynayırdı. Çoxsaylı məqalələrin və informasiya məlumatlarının müəllifləri öz yazılarında təkcə siyasi hadisələri işıqlandırmaqla kifayətlənmirdilər. Onlar bu hadisələrin hər birini Azərbaycan əhalisinə sübutlu-dəlilli şərhlərlə izah edir, beləliklə milli özünüdərk inkişafı işində önəmli vəzifəni – xalqın siyasi mədəniyyətinin yüksəldilməsi, xalqda baş verən hadisələrə bağlılıq, millətin taleyi üçün məsuliyyət daşımağa qadirlilik hissinin oyadılması vəzifəsini yerinə yetirirdilər" [5, s.148].*

**Keywords:** *education, press, development, intellectuals***Açar sözlər:** *maariflənmə, mətbuat, inkişaf, ziyalılar*

*Bu ziyalılar xalqın kütləvi şəkildə savadlanıb maariflənməsini təhsil sisteminin milli əsaslar üzərində yenidən qurulmasında, milli düşüncənin dəyişdirilməsində görürdülər. Bunun üçün ziyalılar inadlı şəkildə mübarizələrə qoşularaq ölkədə ana dilli məktəblərin açılması, rus-Azərbaycan məktəblər şəbəkəsinin böyüdülməsi, anadilli müəllim kadrlarının yetişdirilməsi, müasir tədris plan və proqramlarının, dərs vəsaitləri və dərsliklərin yazılması, qiraət məkanları və kitabxana şəbəkələrinin*

təşkil edilməsini mübarizənin önündə görürdülər. Həmçinin bunlarla yanaşı qızların təhsil almasına şərait yaratmaq üçün məktəblərlə yanaşı anadilli qəzet və jurnalların çap edilməsi və bununla da kütləvi maariflənmə işinin həyata keçirilməsi önəmli sayılırdı.

Azərbaycanlı ictimai xadimlər və ziyalılar xalqı cəhalətdən qurtarmaq, mütərəqqi ideyalarla tərbiyələndirmək yolunda mətbuatın işinə xüsusi əhəmiyyət verirdilər. "Onlar ədəbiyyat və incəsənətə, mətbuata xalqın ictimai yaralarını müalicə edən qüdrətli vasitə kimi baxırdılar" [3, s. 299]. Bu səbəbdən onlar ana dilində qəzet və jurnal nəşri, senzura əngəllərinin yumşaldılması məsələləri ilə bağlı istəklərini çar hakimiyyəti orqanlarına çatdırmışdılar. Lakin çar Rusiyasının müsəlmanlara, xüsusi olaraq da Azərbaycan türklərinə qarşı apardığı müstəmləkəçilik, ruslaşdırma siyasətinin nəticəsi olaraq hər dəfə rədd cavabı verilirdi. "Azərbaycan dilində qəzet nəşr etmək istəyənlərə çar III Aleksandrın Qafqaz müsəlmanları üçün söylədiyi "qoy onlar rusca oxusunlar" kəlamını xatırladır, yerlərdən gələn təşəbbüslərin qarşısını alırdılar. Çarizmin yürütdüyü bu siyasətə qarşı mübarizə aparan ziyalılar milli mətbu orqanların çapı üçün bütün vasitələrdən istifadə edirdilər. Çünki onlar gözəl anlayırdılar ki, ictimai fikrin inkişafında, siyasi və ictimai ideyaların mənimsənilməsində, milli şüurun oyanışında anadilli mətbuatın əvəzsiz rolu var" [1, s. 69].

Nəriman Nərimanov Milli Mətbuatın yaradılmasını xalqın sürətli təhsilini və inkişafını təmin edən ən qüdrətli amil kimi qəbul edən və bu yolda yorulmadan çalışan ziyalılardan biri idi. N.Nərimanov 1896-cı ildə "Sovqat" adlı uşaq jurnalı çıxarmaq istəyirdi. Lakin onun bu yolda göstərdiyi bütün cəhdlər boş çıxdı.

1905-1907-ci illərdə çarizm siyasətinə qarşı inqilabi hərəkatlar hökuməti bir çox məsələlərdə xalqın xeyrinə güzəştə getməyə məcbur etdi və 1905-ci ildə 17 oktyabr Manifestində xalqa vicdan, mətbuat və söz azadlığı vəd edildi.

Bu Manifestdən yararlanmaq istəyən N.Nərimanov xalqın maarifləndirilməsində mətbuatın roluna xüsusi əhəmiyyət verərək qeyd edirdi: "Əgər bir mühazirəni ən çox 500-600 nəfər dinləyirsə, qəzeti minlərlə adam oxuyur, əgər bir müəllim 30-40 şagirdi öyrədirsə, qəzet bütün xalq kütləsini öyrədir" [3, s. 300].

Buna görə də XX yüzilin ilk onilliyindən başlayaraq ictimai-siyasi, pedaqoji hərəkat nəticəsində Azərbaycanda geniş vüsət alan maarifçilik fəaliyyəti, təhsil və məktəb uğrunda gərgin mübarizə nəticəsində bəzi pedaqoji və maarifləndirici nəşrlərin işıq üzü görməsi də zamanın tələbinə çevrildi. Jurnal və qəzetlərin nəşr olunmasının maarifdən və inkişafdan geri qalmış əhali kütləsinin irəli getməsində böyük önəm kəsb etdiyini görən ziyalılar cətin və məhdud şəraitlə də olsa bu işləri da-yandırmaq istəmirdilər.

Belə ki, 1900-cü ildə bakılı müəllimlərdən Əlisgəndər Cəfərzadə "Dəbistan" adlı jurnal buraxmaq fikrində idi. Əlisgəndər Cəfərzadə jurnalın nəşrinə icazə almaq üçün çox səy göstərərək Bakı merinə müraciət ünvanlayır. Müraciətdə yazır ki, bizdə xüsusi və ümumtəhsil müsəlman məktəblərində təhsil alan uşaqlar üçün anadilli mətbuat yoxdur. Biz xalq maarifçisi kimi Azərbaycan dilində ayda bir dəfə nəşr olunacaq "Dəbistan" adlı illüstrasiyalı uşaq jurnalını nəşr etmək istəyirik. 1887-1890-cı illərdə Bakıda ilk rus-müsəlman məktəbində təhsil almış Əlisgəndər Cəfərzadə bu jurnalın nəşrinə düz altı il sonra, 1906-cı ilin aprel ayının 16-da ideya dostu Məhəmməd Həsən Əfəndizadə ilə birgə nail ola bildilər.

"Dəbistan" jurnalının nəşri zamanı Ə. Cəfərzadə qarşısına "türk milləti-nəcibəmizin balalarına bir xidmət göstərmək", onların "əql, zəhin, əxlaqi-həsənə və hissiyyatlarını oyandırır" inkişaf etdirməklə "zəhmətkeş, xadimi-din, millətpərəst və vətənpərəst cavanlar" yetirmək vəzifəsi qoyaraq, dövrünün görkəmli ziyalılarını ətrafına toplamış, həm uşaqların təlim-tərbiyəsinə dair bədii əsərlər-şeyrlər, hekayələr, atalar sözləri, məsəllər, lətifələr, həm görkəmli şəxsiyyətlər, yazıçılar haqqında, elm və texnika aləmində baş verən ən son yeniliklər, coğrafiya, fizika, heyvanat aləmi, həm də klassik ədəbi irsin öyrənilməsinə kömək edən məqalələr, rus və dünya ədəbiyyatından tərcümələr dərc etdirmişdir [1, s.4;137, s.1].

Jurnalın nəşrini təbrik etmək məqsədi ilə N. Nərimanov "İrşad" qəzetində yazırdı: "Gözünüz aydın olsun, türk balaları, bu günədək şikayət edirdiniz, nə oxuyaq, qiraət üçün kitabımız yoxdur. Şimdi Leyli-Məcnundan və qeyri-vahimə gətirən nitqlərdən canınız qurtardı. Oxuyunuz şimdi "Dəbistan" jurnalını, məlumat axtaran, ana dilini sevən balalar. Oxuyunuz hamı jurnalın "Validəynlərə məxsus vəərəqə"sini, balalarını sevən atalar, analar. Bəli, dünən aprelin 16-da "Dəbistan" jurnalının əvvəlinci nömrəsi çapdan çıxdı. Çox gözəl bir jurnal. Görünür mühərrir əfəndilərimiz lazım olan səyi ediblər. Şimdi atalarımızın borcudur, jurnalı uşaqları üçün yazdırsınlar. Təbrik edirik, cavan qardaşımız "Dəbistan"-ı. Uşaqlarımıza böyük xidmət göstərməyini gözləyirik" [2, s. 102].

"Dəbistan" jurnalının birinci nömrəsinin baş məqaləsində qeyd olunurdu ki, jurnalın əsas məqsədi uşaqları maarifləndirmək, onlarda biliyə maraq oyatmaq, elmin müxtəlif sahələri, o cümlədən Azərbaycan və dünya ədəbiyyatı nümunələri ilə tanış etmək, uşaqların yaş səviyyəsinə uyğun olan gülməli və ibrətamiz hekayələr və şeirlər çap etdirmək, onlara gözəl hisslər aşılamaqdır. [3, s. 47]

Ekoloji tərbiyə baxımından "Dəbistan"-ın daimi rubrikaları olub. Onlardan "Təbiət tarixindən" rubrikasında uşaqların yaş xüsusiyyətlərinə və dünyagörüşünə uyğun təbiətşünaslıq mövzularında yazılar çap olunurdu ki, bunların da əksəriyyəti H.Zərdabinin məqalələri idi.

"Maarifdən və elmdən məhrum olan xalq işıqdan məhrumdur" deyən Həsən bəy Zərdabi xalqın savadlanması, tərəqqisi və səadəti uğrunda mübarizəyə kiçik yaşlı uşaqların təlim və tərbiyəsindən başlamaq lazım gəldiyini deyirdi. Pedaqogikanı və metodikanı yaxşı bilən H. Zərdabi təbiətə dair mövzuları çox aydın və rəvan bir dildə oxuculara çatdırırdı [3, s. 193].

Məsələn, "Qarınca" məqaləsində H. Zərdabi təkcə qarışqaların bioloji xüsusiyyətlərini, onların həyat şəraiti haqqında danışmaqla kifayətlənmir. Mövzudan istifadə edib uşaqlarda zəhmətə həvəs oyadan, cəmiyyətlə, insanların yaşayış tərzilə əlaqədar olan fikirlər söyləyirdi. Bu sözlərə diqqət yetirək: "Nə qədər elmi cəmiyyət var isə, ağıllı hesab olunan insanın cəmiyyəti artıq naqisdir. Biz müsəlmanlarıq, ac qurd kimi bir birimizi yemək qəsdində olub, "el və cəmiyyət üçün ağlayan gözənlər" məsələmizin təqiri ilə dolanırıq. Amma insandan çox alçaq və kəmtər olan heyvanlardan, adını həşərat qoyduğumuz qarıncadan cəmiyyət nə tövr olmağını öyrənməyimiz vacibdir" [4, s. 103].

H. Zərdabi qarışqaları nümunə göstərərək uşaqlara bərabər əmək bölgüsü, birgə zəhmət çəkmək, tənbellər, müfəxorlara qarşı kəskin mübarizə aşılayırdı. H. Zərdabi heyvanlara aid müxtəlif məqalələrdə heyvanlar aləminin uşaqlar üçün qaranlıq olan cəhətlərini parlaq şəkildə işıqlandırır, mövhumu fikirləri rədd edir, onları elmi dillə şərh edirdi.

Ə. Hüseynzadə "Həyat" qəzetinin 18 may 1906-cı il tarixli nömrəsində dərc etdirdiyi "Molla Nəsrəddin" və "Dəbistan" məqaləsində yazırdı: "Dəbistan" məcəlləsinə gəlincə, bunun camaatımız haqqında fikir və nəzəri və arzu və məqsədi haman "Molla Nəsrəddin" nəzər və məqsədinin eynidir" [5, s. 14]. Ə. Hüseynzadə qeyd edirdi ki, "Dəbistan" jurnalı camaatımıza yonulmamış qaya, odun nəzərləri ilə baxır. Bu tip materiallardan gözəl-gözəl şeylər düzəltmək - tərbiyəli, vətənə, xalqa dəyərli gənclər yetişdirmək mümkündür. Lakin "Dəbistan"-ın əlində "Molla Nəsrəddin"-in baltası kimi qəti və kəskin bir alət olmadığından, belə gözəllikləri yaratmaq üçün uşaqları kiçik yaşdan başlayaraq tərbiyə edir. Çünki uşaqlıqda kəsb olunmuş elm daşa həkk edilmiş kimidir. Uşaqlıq dövrü keçdikdən sonra təlim və tərbiyə vaxtı əldən gedir. Hər kimə ki uşaqlıqda ədəb və tərbiyə verilməzsə böyüyəndə onu tərbiyə etmək çox çətin olar. Yaş ağacı hər necə istəsən əymək mümkündür. Lakin quru ağacı ancaq od ilə düzəltmək mümkündür. "Molla Nəsrəddin" ilə "Dəbistan"-ı yek digərinə qiyas etmək lazım gəlsə demək olar ki, quru ağacı yonata bilən "Molla Nəsrəddin" daha hünərli isə, yaş ağacı əyib düzəldən "Dəbistan" daha tədbirlidir" [2, s. 14].

Deməli, "Molla Nəsrəddin" və "Dəbistan" millətin tərəqqisi uğrunda mübarizə səhnəsində eyni işi görürdülər. "Molla Nəsrəddin" böyükləri, "Dəbistan" kiçikləri öhdəsinə götürmüşdür [6, səh. 142].

Jurnalın hər ay 8 səhifədən ibarət əlavəsi çap olunurdu. Əlavələrin bir hissəsi "Validəynlərə məxsus vərəqə" adı altında çıxırdı. Burada uşaqların tərbiyə olunması haqqında valideynlərə tövsiyələr verilir.

Jurnalda Azərbaycan yazıçılarının vətənə, xalqa məhəbbət, maarifpərvərlik, vətənpərvərlik ruhunda şeir və hekayələri də çap olunurdu. Hər bir çap olunan şeir və hekayələrdə tərbiyəvi mövzunun olması, uşaqlara təsir imkanları nəzərə alınır. Məsələn, A. Səhhətin "Fəryadi-intibah yaxud amali-vətənpərvərane", "Firdövsül-ətfal yaxud çocuqlar baxçası", "Ana və oğul", "İt və kölgəsi" şeirləri tərbiyəvi mövzudadır, gənclər elmə, təhsilə dəvət olunur. M. Ə. Sabirin "Məktəb şərqisi", şeirində məktəbin gözəlliklərindən danışılır, uşaqlar oxumağa həvəsləndirilir. A. Şaiqin "Ananın oğluna layla deməsi", şeirində də elm və təhsilin gözəlliklərindən söz açılır. Məhəmməd Hədinin "Məktəb-Darüldəb", "Təsviri-lövhəyi-maarif", "Ricayi-vətən", "Sevgili şagirdlərimizə ərməğan", "Təqdir qılınız əhli vətən işbu məqalı", "Bədaye-i-təbiət", "Arzu-i-dil" şeirlərində də məktəb, təhsil, elmin faydalarından bəhs olunur, uşaqlar elm və təhsilə həvəsləndirilir.

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## THE EFFECTIVE WAYS OF USING THE FREE ASSOCIATION METHOD IN TEACHING A FOREIGN LANGUAGE

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### Abstract

The Free Association Method, traditionally used in psychoanalysis, can be effectively adapted to language learning to enhance fluency, creativity, and spontaneity. In this approach, learners are encouraged to engage with the target language by freely associating words, concepts, and experiences without focusing on correctness or grammatical structure. This method fosters a more organic and intuitive interaction with the language, allowing learners to build vocabulary, improve conversational skills, and reduce language anxiety. Through activities such as word association games, free writing, storytelling, and role-playing, students are given opportunities to think and speak in the language naturally, which boosts confidence and supports deeper cognitive connections. While challenges such as proficiency levels and cultural sensitivity may arise, the Free Association Method offers a dynamic and engaging way to promote language acquisition, making it an effective tool for both teachers and students in a foreign language classroom.

**Keywords:** free association method, language learning, fluency, creativity, spontaneity, vocabulary building, language acquisition, language anxiety, role-playing, word association, free writing, conversational skills, cultural sensitivity.

The Free association method, traditionally used in psychoanalysis, can also be adapted as a dynamic and creative approach in language learning. This method can help learners of a foreign language engage with the language in a more intuitive, spontaneous, and deeper way by encouraging them to express thoughts and ideas without overthinking grammar or vocabulary choices. By tapping into the learners' natural associations and creative thought processes, teachers can help foster fluency, build confidence, and enhance the learning experience.

According to Vladimirova L.P, in the context of teaching a foreign language, free association refers to an exercise in which students are encouraged to speak, write, or think freely in the target language without focusing too much on correctness. The goal is for learners to link words, phrases, or concepts to one another in an organic, unfiltered manner. This can include forming associations between the target language and their own experiences, thoughts, emotions, or images. By engaging with language in this free-flowing manner, learners can strengthen their vocabulary, understand cultural nuances, and boost overall fluency[1].

The free association method in language teaching can be used in a variety of ways, both in individual and group settings. Below are a few methods in which free association can be applied to help students learn a foreign language:

### 1. Word Association Games

Kazakhstani researcher Galskova N.D suggests one of the simplest ways to implement free association in language teaching is through word association games[2]. In this activity, the teacher says a word in the target language, and students must quickly say or write the first word or phrase that comes to their mind, also in the target language.

- For example, if the teacher says "apple" in English, a student might respond with "fruit," "red," or "sweet." The teacher can then ask follow-up questions or prompt students to describe the association in more detail, offering opportunities to practice more vocabulary.

- This exercise helps students build connections between words, expand their lexicon, and think in the target language without the pressure of constructing perfect sentences[3].

### 2. Associative Visual Exercises

Teachers can show a set of pictures or symbols to the students and ask them to freely associate any words, phrases, or memories related to the visuals. Students may respond with words, actions, or short sentences. This can be a fun and interactive way to practice language while engaging the creative side of the brain.

• For example, showing a picture of a beach might prompt students to say "sea," "sun," "vacation," or "relax." Teachers can build on these associations to expand on related vocabulary (e.g., weather terms, activities, feelings).

The method of free associations is widely used in foreign language learning as it promotes memory development, active learning of new vocabulary and grammatical constructions. This study examines the effectiveness of using this method in the study of comparative and superlative degree of adjectives by first-year students.

The study was conducted at the West Kazakhstan University named after Makhambet Utemisov. Makhambet Utemisov University with 1st year students studying English. The study involved 40 students who were divided into two groups:

Experimental group (20 students) studied using the method of free associations. The control group (20 students) studied the topic using traditional methods (textbooks, exercises, translations).

Tasks for the experimental group included:

- creating associative series (e.g., "big - bigger - the biggest" + visual images);
- composing stories using comparative and superlative forms of adjectives;
- association games (e.g., "Who is the most...?" and "What is different about this object?").

After 4 weeks of training, a test was carried out to check the learning of the material.

The test results showed that the students of the experimental group coped with the tasks 25% better than the students of the control group. They formed correct constructions faster and made mistakes less often when using comparative and superlative forms of adjectives.

The use of the free association method in the study of comparative and superlative adjectives has a positive effect on memorization and application of grammatical rules. This method makes learning more interactive, promotes creative thinking and improves students' language intuition.

### **Conclusion**

The free association method can be a powerful tool in language learning, providing students with opportunities to engage with the language in a more fluid, intuitive, and creative way. By removing the constraints of grammar and perfection, learners are encouraged to think freely and express themselves naturally, which can lead to greater fluency, confidence, and cultural understanding. When applied thoughtfully, free association can transform language learning from a structured task into a fun and organic process that mirrors real-world communication.

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## *Philological sciences*

### **INCORPORATING VOCABULARY BUILDING ACTIVITIES INTO LANGUAGE LESSONS**

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#### **Abstract**

*This study explores strategies for incorporating vocabulary building activities into language lessons. It examines the effectiveness of game-based approaches, such as word bingo and charades, in increasing vocabulary retention and comprehension. Additionally, the study highlights the value of thematic word lists and embedded learning in promoting contextual understanding of new words. The incorporation of technology, including multimedia resources and educational apps, is also discussed as a means of enriching vocabulary learning experiences. The research provides educators with practical insights and methods to enhance language instruction, fostering engaging and effective vocabulary acquisition among learners.*

**Keywords:** communication, vocabulary, technology, words, topics, create, active, encourage, collaboration, online.

*Incorporating vocabulary building activities into language lessons is vital for enhancing learners' understanding and usage of a new language. Vocabulary serves as the foundation for communication, enabling students to comprehend and convey ideas effectively. By integrating varied activities focused on vocabulary, educators can create an engaging learning environment that not only promotes retention but also encourages active participation. This multifaceted approach helps students to connect new words with their meanings and context, making it easier for them to recall and use the vocabulary in their everyday conversations and written assignments.*

*One effective strategy for vocabulary building is through the use of games. Gamified vocabulary learning keeps students engaged and motivated through competition, rewards, and progress tracking. Activities like word bingo, crossword puzzles, or vocabulary charades can transform learning into a fun and interactive experience. These games can be tailored to different proficiency levels and cater to various learning styles, ensuring that all students remain engaged. For example, in a game like word bingo, students can reinforce their understanding of word meanings while practicing listening skills as they identify terms called out by the teacher. This playful context not only alleviates the stress often associated with learning new vocabulary but also fosters a sense of camaraderie among classmates. [1, 14]*

*Online vocabulary games such as Kahoot!, Gimkit allow teachers create interactive vocabulary quizzes and games that students can play individually or in teams using their devices. The competitive element encourages quick recall and retention.*

*Another impactful way to enhance vocabulary is through thematic word lists and embedded learning. By focusing on specific themes—such as travel, food, or hobbies—educators can introduce learners to a curated selection of relevant vocabulary that they are likely to encounter in authentic contexts. This approach can be supplemented with multimedia resources, such as videos or articles, that showcase the vocabulary in action. Students can engage in discussions or projects around these themes, further solidifying their understanding of the words as they apply them in context. This not only aids in vocabulary retention but also helps learners recognize the practical applications of their new language skills.*

*Finally, incorporating technology can significantly enrich vocabulary-building activities. Various apps and online platforms offer interactive exercises, quizzes, and flashcards that can complement traditional teaching methods. These tools allow for immediate feedback and personalized pacing, empowering students to take charge of their learning. Moreover, technology can facilitate collaborative vocabulary learning, where students work in pairs or small groups to create shared digital glossaries or engage in virtual word challenges. [2, 12] By leveraging these resources, educators can not only make vocabulary acquisition more dynamic and enjoyable but also prepare students for a world increasingly mediated by technology and communication.*

The platforms as Quizlet, Memrise, Vocabulary.com, Blooket offer pre-made and customizable flashcards, quizzes, and games. Students can learn words through spaced repetition, matching, fill-in-the-blank exercises, and even compete with classmates. Many apps include audio pronunciation and example sentences.

Using 'Digital Escape Rooms' educators create a digital escape room where players must solve vocabulary-based puzzles to progress. This encourages collaborative problem-solving and active word usage.

By implementing Collaborative Writing Projects (Google Docs, Padlet) it's possible to assign group writing projects that require students to use specific vocabulary words. Google Docs allows for real-time collaboration and feedback. Padlet is a virtual bulletin board where students can post ideas and examples.

Technology facilitates collaboration and interaction, allowing students to learn from each other and practice using new vocabulary in meaningful contexts. [3, 18]

Examples:

1. Online Forums and Discussion Boards: Create online forums or discussion boards where students can discuss vocabulary words, share examples of their usage, and ask questions.

2. Video Conferencing (Zoom, Google Meet): Use video conferencing for vocabulary review sessions, debates, or role-playing activities where students can practice using new words in a conversational setting.

3. Social Media Integration (Edmodo, ClassDojo): Share vocabulary words, definitions, and examples on a class social media platform and encourage students to comment, ask questions, and create their own sentences.

4. Digital Storytelling (Storybird, Book Creator): Students create digital stories using new vocabulary words. This encourages creative writing and contextual understanding.

5. Podcasting: Students create podcasts on topics related to the vocabulary words they are learning. This requires them to research, write scripts, and practice pronunciation.

6. Creating Infographics (Canva, Piktochart): Students create infographics to visually represent the meaning of vocabulary words and their relationships to other concepts.

Video Production (iMovie, Adobe Premiere Rush): Students create short videos that define, illustrate, or demonstrate the use of vocabulary words in context.

Technology can adapt to individual learning styles and paces, providing personalized vocabulary instruction and practice. For examples, Adaptive Learning Platforms (Newsela, ReadWorks) provide articles and reading passages at various reading levels, allowing students to encounter vocabulary words in context that is appropriate for their abilities. Some platforms also offer personalized vocabulary quizzes and exercises. [4, 57]

By thoughtfully incorporating these technologies, you can create engaging and effective vocabulary-building activities that cater to diverse learning styles and promote deeper understanding and retention.

In conclusion, incorporating vocabulary building activities into language lessons is essential for fostering a deeper understanding and effective usage of a new language among learners. Through varied strategies such as games, thematic word lists, and multimedia resources, educators can engage students in a dynamic learning experience that enhances vocabulary retention and application. By creating a contextualized and interactive environment, students are better equipped to integrate new words into their daily interactions and written communication. Ultimately, a comprehensive approach to vocabulary instruction not only enriches language acquisition but also empowers learners to express themselves more confidently and competently in their new language.

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## MODERN EDUCATIONAL STRATEGIES AND CREATIVITY OF STUDENTS

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**Abstract**

Research proves that media tools provide increased access to new, educational information and are therefore socially significant.

This method of learning takes into account the personal interests of each student. A student or student enjoys friendly support from family and peers.

In this case, interconnected training allows you to adjust individual preferences with academic achievements and your role in the social environment.

**Keywords:** educational information, method of learning, personal interests of each student, interconnected training, social environment.

In the modern world, there was an inevitable need to change the strategy in the process of training professional specialists in high school. Innovative technologies and knowledge of foreign languages are considered as one of the most important components of training a high-level specialist in any field of science and production.

In this area, there is a problem of autonomy of students in the process of acquiring new knowledge and skills and their responsibility for the results of their own educational activities.

A modern specialist must acquire the necessary skills to autonomously solve the tasks assigned to him, and in this regard, a new area began to take shape in the methodology of pedagogical research, in the center of which is not the teacher and the process of teaching a certain discipline as such, but the students and the mechanism for acquiring them new knowledge and skills.

In this sense, Weinstein and Mayer believed that the learning strategy is based on the behavior model and mindset that learners demonstrate in the learning process. Based on this, such models should also affect the "nature of the mastered information that is offered to students" [1, 321]. On the other hand, D. Richards and D. Platt substantiate the learning strategy as a process of purposeful thinking and behavioral tactics with the "aim of remembering and receiving new information acquired when acquiring new knowledge and skills" [2, 73].

Further, A. Cohen defines educational strategies as thoughts and actions that correspond to the conscious choice of the student when performing a specific educational task [3, 93]. Thus, educational strategies generally mean characteristic actions, behavioral practices, methods and techniques that are used by students in the educational process. Based on this, strategies are an effective learning tool that are aimed at its recipient and are extremely important for the successful acquisition of communication skills.

But the intensity of the modern educational process leads to the fact that the learning strategy is replaced by the study strategy, that is, it is necessary to teach students to acquire new knowledge and practical skills.

In the works of J. Rubin, the main characteristics that students should have in the process of mastering new information are highlighted. He believed that in this case, students try to guess the correct approach to solving the problem, "without experiencing discomfort of the state of uncertainty" [4, 57]. They have a desire for learning through communication, and they make efforts to clearly state their own position.

*They are not afraid of language errors in a direct learning situation and work on coherent and competent speech. They also closely follow the speech of their interlocutors and acquire new practical skills. Methods and techniques that are used in the learning process in an implicit or explicit plan make it especially important to develop a strategy for self-management and self-control of each student.*

*According to certain functions in pedagogical science, several types of strategies are distinguished.*

*Cognitive strategies are associated with processes that provide insight and better recall of new information. They are not afraid of language errors in a direct learning situation and work on coherent and competent speech. They also closely follow the speech of their interlocutors and acquire new practical skills. Methods and techniques that are used in the learning process in an implicit or explicit plan make it especially important to develop a strategy for self-management and self-control of each student.*

*According to certain functions in pedagogical science, several types of strategies are distinguished. In this case, a chain of mental associations arises in the student's mind and the understanding of keywords and phrases in the proposed scientific text is fixed.*

*Metacognitive strategies are characterized by the fact that they plan future actions and solutions, are responsible for ongoing verification of the stages of research into the problem at hand, and, finally, form ways to achieve the goal.*

*Social strategies differ in providing the means by which students engage in collaborative communication and demonstrate teamwork skills.*

*In the process of communication, students express their own opinion on the problem being solved and listen to the positions of other participants. In the course of such a discussion, the most optimal approach is developed to achieve this goal.*

*Emotive strategies are actions that are important for controlling one's own emotions while communicating together. These strategies save students from excessive isolation, indecision and inability to find quick contact and mutual understanding with their interlocutor.*

*The study of learning strategies is necessary to obtain information regarding their specific effectiveness in the educational process. It is very important to help students understand the nature and specifics of these strategies so that they improve their own skills to successfully solve problems of any complexity.*

*Students should be motivated to apply various strategies without the help of a teacher and should find out the most effective ones for themselves in solving a certain range of educational problems.*

*As for teaching strategies, they are divided into direct and indirect. If the teacher uses a direct strategy, then it includes preparation, presentation, practical part, evaluation component and development perspective.*

*The strategies are initially adjusted by the teacher, and then their model includes a series of practical tasks, as a result of which a study strategy is formed.*

*The teacher and students are constantly looking for a choice and analysis of the effectiveness of the applied strategies. Students begin to actively independently apply the strategies they have mastered, and thus the responsibility for the result of the entire educational process shifts from the teacher to the student's personality.*

*The concept of learning strategies forms an important understanding of what techniques and methods are included in the general concept of the model of teaching academic disciplines as such. Pedagogical practice should be guided by the solution of a number of issues.*

*The teacher must determine what strategies are included in a specific method of solving the problem and to what extent students use it. It is also important for the teacher to understand which of the strategies are most useful for students and to what extent they develop their independence in the course of acquiring new knowledge and skills.*

*The most effective study strategies should be accumulated, analyzed and modeled by the students themselves. Based on this, each student forms an individual effective model of strategies, which will depend on a number of factors.*

*The teacher should be focused on the needs of students and encourage them to develop their own strategies. As a result, students are presented with great opportunities for a conscious approach to mastering their future profession and their personal interest in improving their own educational level increases. Study strategies form self-assessment and self-correction skills and increase the role of the teacher's personality.*

*Study strategies are always problem-oriented, which is very important for the formation of a high-level specialist. The implementation of these strategies creates favorable conditions for the productivity*

of the general educational process and serves as the basis for the successful work of future young specialists in all spheres of science and production.

We live in an era of active implementation of all world technologies that are widely used in all spheres of human activity. In all advanced countries, there is a desire to implement the digital economy program. However, this task requires the generation of ideas and the manifestation of all kinds of creative abilities in science and life practice. The universal level of creativity motivates the enrichment of practical skills and efforts and gives rise to a positive emotional background in the individual.

Progressive mental attitudes are formed in the mind of the personality, which leads to the active development of intellectual potential.

In personality, there is a reassessment of worldview principles leading to its aesthetic and mental progress. She develops the best natural inclinations and there is an accumulation of the latest professional skills and abilities. The history of mankind testifies to the fact that creative activity was the incentive that left the next generations all the cultural values accumulated over thousands of centuries.

The younger generation is the creative potential and future of any nation. Human language activity and the creative sphere have been closely related from time immemorial. In the works of K. Fossler, language was defined "as an expression of all spiritual, mental processes that make up the structure of a person" [5, 41].

In this sense, K. Fossler proceeded from the teachings of W. Humboldt on language as a special sphere of human activity. K. Fossler rightly believed that language research should be based on the concept of its dynamic development, the whole process of its origin and formation, the nature of which is inextricably linked with creative nature. In other words, personal creative activity depends on the forms of the level of manifestation of the language.

The creative abilities of a person are determined by the level of their cognitive activity and are included "as a separate, important component in the general structure of mental abilities" [5, 73].

E. Fromm wrote that creativity was given to any person even at his birth, and E. Torrens' research admits that creativity is directly related to the highest level of the thought process, in which there is intuition and sudden conjecture, which causes in the human consciousness "a series of associations directly related to the problem" [6, 32].

From the point of view of S. Mednik, associative thinking is the fundamental core of the creative development of the individual. Creativity provides for "a personal desire to take a step abroad already known and gives rise to a wide range of new associations" [7, 33].

It should be borne in mind the position of A.V. Khutorsky, which replaces the concept of creative abilities with the concept of "creativity" [8, 42]. To them, he relates the ability to imagery, imagination and the generation of new ideas. A set of these qualities is included in the generalized concept of creativity. Based on the above, the creative abilities of a person can be considered as a synthesis of the psychophysical features of an individual and his qualitatively new states associated with a relational assessment of oneself, the surrounding reality and the processes taking place in it. The successful realization of all these states is carried out in successful scientific or practical activities.

The process of developing creative abilities is aimed at creating the need for creativity, which should become a stable personal characteristic. The individual must maintain a desire to continue creative activity, and its development largely depends on the influence of the surrounding social and educational environment.

In psychology, it is an established thesis that the potential of creative abilities is associated with the mechanism of human thinking.

George Guilford argued that creatively developed individuals possess so-called "divergent thinking" [9, 29].

When a person has this type of thinking, he does not focus all his mental resources on finding the only right solution, but is engaged in finding all possible options. His thinking has a trajectory of several directions, and therefore this type of personality is able to create new combinations of those elements, the combination of which is accepted by the majority as established and obviously correct. People with divergent thinking are not afraid to question established truths and are able to find internal connections between phenomena or processes that seem completely different.

The divergent type of creative thinking is characterized by the speed of response and the ability to generate the largest number of ideas in the minimum period. Individuals of such a warehouse have flexibility of thinking, and a wide range of a wide variety of hypotheses and ideas are born in their minds. Divergent thinking is characterized by a high degree of originality and the ability to give its theory, hypothesis or idea a complete, logically clear form.

*In pedagogical science, facts from the biography of famous people and the history of their creative and scientific success were studied. Among them were representatives of both science and the field of art, and according to these studies, A.N. Luka identified the main features of the creative abilities of the individual [10]. Creativity is associated with the ability to recognize the presence of a certain problem and look for ways to solve it. Firstly, the process of concretization, generalization takes place and the accumulated life experience is actively used. The creative person has a holistic perception of the world around him and associative thinking. The creative abilities of the person suggest to her one of the possible ways to solve the problem before his specific test for truth.*

*In this case, new information is integrated into the system of existing knowledge and skills. Creativity provides flexibility of thinking and the ability to refine the original idea. Creative thinking is associated with an objective perception of reality and the ability to highlight in it what is the result of a subjective approach or individual interpretation. The creative personality has a rich imagination and easily produces new ideas. Based on another classification of V. Kudryavtsev and V. Sinelnikov, a creative person has four main creative abilities, including imagination realism, that is, "perception and recreation of the world in all its colors and shades" [9,47]. People of the creative warehouse are able to see the problem in its integrity, without distinguishing it into individual private issues. They have a need for active experimentation, and their solutions are supracitative and transformative. In addition to these qualities, G. Altshuller identifies the main signs of the creative potential of a person. They include divergent thinking and risk-taking. Creative personal potential consists of flexibility and high speed of thinking, and is also impossible without rich imagination, developed intuition and acceptance of the thesis about the possible ambiguity of phenomena and facts of the surrounding world. Creative thinking excludes a banal approach to solving the research problem, provides for the risk of new, non-trivial ways to solve it and "as a rule, has a high aesthetic value" [11, 129].*

*Thus, creative thinking is directed to the creation of new ideas, hypotheses and concepts that provide forward movement of theoretical science and practice.*

*The development of creative abilities among students occurs only in the process of creative activity. In this sense, project activities are very effective, which are associated with independent planning of their actions and forecasting of various results of their work. The creative potential of a person is based on the synthesis of individual mental and physiological features of the personality and its acquired, new qualitative state, which should be characteristic of a modern student or student of any age, who is in line with the general educational process.*

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## Technical sciences

### THE PLACE OF ARTIFICIAL INTELLIGENCE IN ACADEMIC WRITING

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#### Abstract

The article is devoted to the study of the introduction of artificial intelligence (AI) in the higher education system of Kazakhstan within the framework of the implementation of the "Digital Kazakhstan" program. The study considers the main areas of application of AI in the field of education, which are the creation of individual educational trajectories, automation of administrative processes and assessment of students' academic performance. Examples of successful projects of introducing AI in universities of Kazakhstan are given, which allowed to increase the flexibility of educational programs and improve the quality of education. Particular attention is paid to how AI helps to train specialists with the necessary skills that are in demand in the labor market in the digital economy. At the end of the article, recommendations are given to improve the process of introducing AI in educational institutions and the possibilities of further using these technologies to modernize the educational process in accordance with the requirements of the digital economy.

**Keywords:** artificial intelligence, higher education, Kazakhstan, digitalization of education, personalized learning, innovative technologies, future education, information technologies in the learning process.

**Introduction.** Artificial intelligence (AI) is a science and technology different in the fields of big dynamic work did. Of that inside, academic subscription The industry also includes these seven pillars. own to work The introduction of AI technologies natural languages processing and texts automation in the field intense development scientific of works structure change, write the process to facilitate opportunity This study identifies key aspects of the use of AI technologies in academic writing, and analyzes their advantages and limitations. The aim of the study is to assess the impact of AI tools in academic writing and understand their role in the development of science.

Modern technological developments, including artificial intelligence (AI), play a significant role in changing the way higher education is delivered, especially in Kazakhstan, where digitalization is a priority. The Digital Kazakhstan program actively supports the use of AI in educational institutions, which contributes to the modernization of the educational process and allows for the creation of learning trajectories that best meet the individual needs of students.

This personalized approach helps improve academic achievement, makes the learning process more flexible and focused on specific results, and increases student motivation and interest. In addition, the use of AI opens up new opportunities for adapting educational programs to the requirements of the rapidly changing labor market. This will allow Kazakhstani higher education institutions to train qualified specialists who meet the demands of the digital economy and have the necessary skills in areas such as data analytics, information technology, and engineering. Such an approach will increase the competitiveness of graduates in the labor market and make them in demand both domestically and abroad.

In addition to directly influencing the learning process, AI also actively helps to automate administrative tasks, such as monitoring attendance, assessing progress, and managing the lesson schedule. This allows teachers to focus more on teaching and interacting with students. Innovative digital solutions, including intelligent assistance systems and online platforms, allow students to access the necessary resources at any convenient time, which is especially important for those who combine their studies with work or other obligations.

### **Method and approach**

Document analysis and qualitative research methods were used as research methods. To study the use of AI systems in academic writing, scientific articles and studies published in the last 5 years were analyzed. The effectiveness of AI-based tools (for example, ChatGPT-4) was evaluated during the study.

One of the main areas of current research is the study of the impact of artificial intelligence (AI) on the development of academic writing skills in doctoral students. The introduction of AI into the educational process provides personalized and adapted learning, increasing its effectiveness for different categories of learners.

In the context of developing academic writing skills, artificial intelligence technologies offer powerful tools for analyzing and improving texts. Intelligent writing assistants help doctoral students improve the grammatical accuracy, stylistic design, and logical structure of scientific texts, thereby contributing to the formation of academic discourse. Automated AI-based written work assessment systems provide continuous feedback, contributing to the improvement of scientific writing and an increase in the level of argumentation in texts.

In addition, Natural Language Processing (NLP) technologies allow you to analyze texts for coherence, compliance with academic standards, and the use of specialized terminology. This is especially important for doctoral students conducting dissertation research, as such tools help improve the structure of the work, increase its logical coherence, and ensure compliance with academic requirements.

Evaluating the effectiveness of AI in teaching academic writing requires comprehensive data collection and analysis. In particular, pre- and post-tests can be used to assess progress in written communication, as well as surveys of doctoral students to determine the level of adoption of AI technologies. Analytical tools of artificial intelligence allow teachers to track the dynamics of the development of academic writing skills and adapt educational materials to the individual needs of students.

Thus, the use of artificial intelligence in developing doctoral students' academic writing skills opens up wide opportunities for creating personalized learning trajectories. Further research in this area will help develop optimal strategies for integrating AI into the educational process, which in turn can significantly increase the effectiveness of scientific personnel training.

The study used a comprehensive approach that included quantitative and qualitative analysis methods. The quantitative part of the study included collecting data on current indicators of the use of AI in higher education institutions of Kazakhstan, the impact of these technologies on students' academic performance, the quality of the educational process, and the efficiency of administrative work. As part of the qualitative analysis, interviews and focus group studies were conducted with teachers and students to determine their attitudes towards the use of AI and its benefits for the educational process. For the quantitative analysis, reporting data from universities supporting the Digital Kazakhstan program were used. The qualitative data included surveys of students working with AI elements on educational platforms, as well as interviews with teachers and university staff, which allowed us to analyze the experience and attitudes of the study participants towards technology.

### **Results**

#### **1. Automated text processing and structural control**

AI systems can automatically check the structure of scientific articles. For example, GPT-4-based chatbots help doctoral students write their dissertations. According to research conducted in Norway, such chatbots provide PhD students with structural suggestions when writing an abstract (synopsis), helping them to adjust them according to academic writing requirements.

#### **2. Correcting grammatical and stylistic errors**

AI tools such as Hemingway Editor and ProWritingAid make it easy to clean up and edit the language of research papers. AI systems also ensure the correct use of scientific terminology, but their level of in-depth understanding of the text is limited.

#### **3. Literature management and reference checking**

AI tools help to automatically format bibliographies in scientific articles and studies. However, one study based on ChatGPT-4 revealed a problem with its inability to accurately cite bibliographic data: while 36% of the sources provided were authentic, 16% were completely fabricated, and the remaining 48% contained various errors.

#### **4. Reduce writing time**

AI tools can speed up the writing process. However, their ability to provide in-depth understanding of the content of scientific texts is limited. For example, in a study based on ChatGPT-4, although the

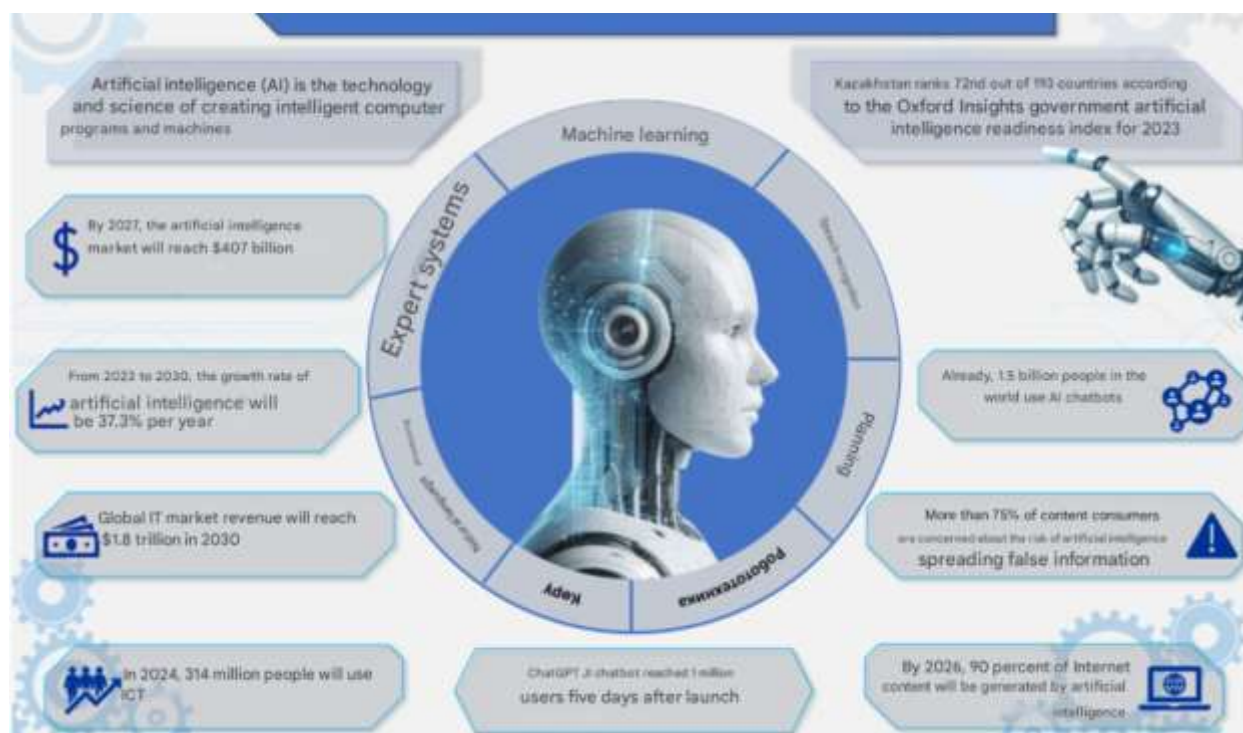
relevance of a review written by AI was high (5/5 points), its depth of content was rated at an average level (2-3/5 points).

#### 5. Limitations of AI systems

AI systems still have some limitations. In particular, they do not fully understand the meaning of scientific text and cannot correctly convey complex theoretical problems. In addition, the quality of AI's writing varies depending on the initial instructions it is given, meaning that it can give different answers to the same query.

##### 1. AI tools efficiency

| IR tool                  | Usage industry                                | Efficiency                                                       | Limitations                                                |
|--------------------------|-----------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------|
| Chatbots based on GPT- 4 | Scientific of work structure check            | Improving the structure of dissertations and scientific articles | Limited depth of content, sometimes inaccurate information |
| Hemingway Editor         | Grammatical and stylistic mistakes correction | The text language cleaning helps                                 | Scientific terminology deep misunderstanding maybe         |
| ProWritingAid            | Stylistic and linguistic mistakes correction  | Scientific in the language mistakes correction                   | May not fully appreciate the depth of the text             |
| NLP tools                | Texts coherence from the ground analysis      | Ensuring compliance with academic standards                      | Specific terminology to understand difficult               |



#### Discussion

When discussing the place and role of artificial intelligence in academic writing, it is necessary to address several key issues and opportunities. The main advantages of using AI systems in scientific writing include:

AI increases work productivity, saves time, and reduces errors.

AI helps to check texts according to scientific style.

AI tools facilitate the organization of the research process.

However, AI systems cannot fully master some important aspects of scientific work. For example, forming hypotheses and developing new ideas, which are an important part of scientific research - they depend on human creative thinking.

In addition, the ethical and legal aspects of using AI are also important. The impact of AI on copyright issues and its sometimes misleading risk have been criticized by researchers.

#### Conclusion

*The role of artificial intelligence in academic writing is becoming increasingly important. It can simplify the process of writing scientific papers and increase efficiency. However, AI systems cannot completely replace human creativity. Therefore, it is necessary to use AI tools correctly and ethically.*

*Based on the results of the study, it can be concluded that artificial intelligence (AI) has significant potential for the development of higher education in Kazakhstan. The introduction of AI will contribute to the personalization of learning, improving the quality of educational programs, and automating administrative processes, which in turn will make the education system more flexible and adaptable.*

*The use of AI technologies not only improves students' academic performance, but also optimizes the work of teachers. This allows them to free themselves from daily administrative tasks and focus more on developing innovative teaching methods. In addition, adaptive educational platforms based on AI provide a personalized approach to learning, contributing to the development of students' professional skills and increasing their competitiveness in the labor market.*

*Despite its significant advantages, the integration of AI into higher education is associated with a number of challenges. These include the lack of qualified specialists, the high cost of implementing technologies, and data security issues. In this regard, future research should be focused on developing cost-effective AI implementation models, improving algorithms, and ensuring the protection of students' personal data.*

*Future research should also consider the long-term impact of AI on the development of graduates' professional competencies and its role in creating a high-quality and sustainable educational environment. Optimizing the integration of AI will increase the competitiveness of Kazakhstani higher education institutions and prepare specialists who can work effectively in the digital economy and high-tech labor market.*

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## DEVELOPMENT OF A METHOD FOR DETERMINING SERVICE RATING BASED ON CUSTOMER REVIEWS

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### Abstract

User-generated reviews offer valuable insights into service quality and customer satisfaction. This study develops a method for determining service ratings using Natural Language Processing (NLP) and machine learning, specifically tailored to the Kazakhstani market. A dataset of 10000 reviews from Yandex Maps for establishments in Astana, Kazakhstan, was collected through web scraping. After preprocessing, including text cleaning, stopword removal, and TF-IDF vectorization, an XGBoost Classifier (XGBClassifier) was trained for sentiment classification. The model, optimized for Kazakhstani user data, achieved an accuracy of 75.66%, effectively identifying positive reviews, though classification of negative sentiments requires improvement. The results demonstrate the potential of machine learning for automating sentiment analysis in Kazakhstan, providing businesses with data-driven insights into local customer preferences and service quality.

**Keywords:** Sentiment Analysis, Natural Language Processing (NLP), Machine Learning, Text Classification, Opinion Mining, Review Analysis, Customer Feedback, XGBoost

### Introduction

In today's highly competitive and digitally-driven world, customer service quality is becoming one of the key success factors for companies providing mass services. Customer reviews play an important role in shaping public opinion about a company and can significantly affect the attraction of new customers and the retention of existing ones. Therefore, analyzing customer reviews is an important tool for understanding their needs and expectations, as well as for improving the quality of services provided.

Machine learning (ML) provides powerful tools for automatically analyzing large amounts of data, including customer review texts. Methods such as natural language processing (NLP) allow you to extract useful information from text data, making them indispensable for analyzing customer reviews. Research shows that using machine learning to analyze customer reviews can significantly improve the efficiency of identifying key customer issues and preferences [1][2].

Machine learning methods not only automate the process of review analysis, but also provide a deeper understanding of customer sentiment and emotions. For example, models based on deep neural networks, such as recurrent neural networks (RNNs) and transformers, are able to analyze context and identify hidden patterns in texts [3]. This allows the company to respond to customer reviews more accurately and quickly, improving service quality and customer satisfaction.

The purpose of this dissertation is to develop a machine learning method for analyzing customer reviews of mass service companies. The study will consider various approaches to text data analysis, including classification methods, sentiment analysis, and topic modeling. A comparative analysis of various machine learning algorithms will also be conducted to identify the most effective solutions.

The scientific novelty of the study lies in the development of a new method for analyzing customer reviews based on a combination of various machine learning and NLP approaches. The practical significance of the work is to create a tool that will allow mass service companies to more effectively analyze customer reviews, identify key problems, and improve service quality.

### Literature Review

Modern mass service companies are increasingly confronted with a growing volume of customer reviews published across various online platforms. These reviews contain valuable insights into service quality, customer preferences, and expectations. However, traditional data analysis methods often prove insufficient for processing such large-scale and unstructured text data. Machine learning (ML) techniques offer powerful tools for automating review analysis, enabling companies to respond more effectively to customer feedback and enhance service quality [2] [6].

*A BrightLocal report indicates that 91% of consumers read online reviews before engaging with a company's services, and 84% trust them as much as personal recommendations [4]. This underscores the crucial role of review analysis in shaping consumer perceptions. Furthermore, research suggests that positive reviews significantly enhance customer trust, whereas negative reviews can severely damage a company's reputation [5].*

*The application of machine learning methods to customer reviews not only automates text data processing but also uncovers hidden patterns and trends that can inform strategic planning and service improvement initiatives. Advances in natural language processing (NLP) and sentiment analysis have demonstrated that deep neural networks and transformer-based architectures substantially improve the accuracy and efficiency of text analysis tasks [7] [8].*

*Despite notable progress in this field, several research gaps remain. In particular, the integration of multiple machine learning techniques for enhanced review analysis requires further exploration. For instance, the combination of sentiment analysis with topic modeling to identify deeper relationships in customer feedback has not been sufficiently studied [9]. Additionally, there is a growing demand for more adaptive models capable of handling multilingual reviews and considering cultural variations in sentiment expression.*

*The development of advanced machine learning methods for customer review analysis holds significant social and practical value. Effective sentiment analysis allows businesses to: swiftly address customer needs and expectations, enhance service quality, increase customer satisfaction and loyalty. These factors contribute to strengthening a company's reputation and competitiveness in a highly dynamic market environment [10]. By leveraging state-of-the-art machine learning techniques, organizations can gain actionable insights from customer feedback, ultimately fostering long-term business success.*

*In the modern digital landscape, reviews have become a critical factor influencing consumer decision-making across various industries, ranging from small enterprises to large corporations. In the 21st century, where a vast selection of goods and services is available, potential customers often rely on ratings and reviews provided by other users to assess the quality of a product or service. Each rating and review contributes to shaping the overall perception of a company, making reputation management a key concern for businesses.*

*In Kazakhstan, platforms such as 2GIS play a crucial role in aggregating user feedback. However, discrepancies frequently arise between numerical ratings and textual reviews. For instance, a customer might leave a comment such as "Excellent bank" but inadvertently assign a rating of one out of five stars. Such accidental misratings can significantly impact a company's overall score. A business that could maintain an average rating of 4.0 may instead receive 3.9, which, in a competitive environment, can be perceived far less favorably. Conversely, the opposite scenario may occur, where a company receives an unreasonably high rating.*

*This study aims to address the following key research questions: What is the true evaluation of a company based on user reviews? What are the strengths and weaknesses of a company as identified through sentiment analysis?*

*The selection of relevant literature is guided by the significance and depth of sentiment analysis as a research domain. Given the rapid advancements in machine learning techniques for text analysis, this study primarily considers publications from 2015 onwards, as this period marks the rise of machine learning applications in sentiment analysis. The sources include peer-reviewed journal articles, conference proceedings, books, and technical reports, with a focus on studies published in high-impact journals and conferences recognized in the fields of machine learning and text analytics.*

*The literature search is conducted using prominent academic databases such as Google Scholar, IEEE Xplore, SpringerLink, and the ACM Digital Library. The search terms include: sentiment analysis, review analysis, opinion mining.*

*Numerous studies have demonstrated that machine learning-based sentiment classification surpasses traditional methods in accuracy and reliability [1]. Notably, research such as "Recent Trends in Deep Learning-Based Natural Language Processing" and "BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding" highlight the effectiveness of deep neural networks and transformers in text analysis, achieving significant improvements in both accuracy and computational efficiency [2] [11].*

*Furthermore, the study "Sentiment Analysis of Product Reviews: A Review" underscores the critical role of sentiment analysis in consumer decision-making [12]. However, it also emphasizes the necessity of evaluating reviews based on quality metrics such as usefulness, relevance, and credibility. The*

*literature survey identifies various sophisticated methodologies for performing sentiment analysis across multiple aspects.*

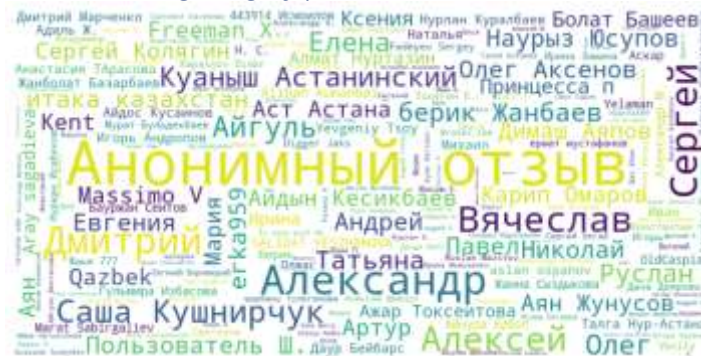
Additionally, the paper “A Review on Sentiment Analysis Methodologies, Practices, and Applications” provides an extensive overview of sentiment analysis research. It includes an empirical comparison of various machine learning techniques, datasets, and their respective performance metrics [13].

## Methods

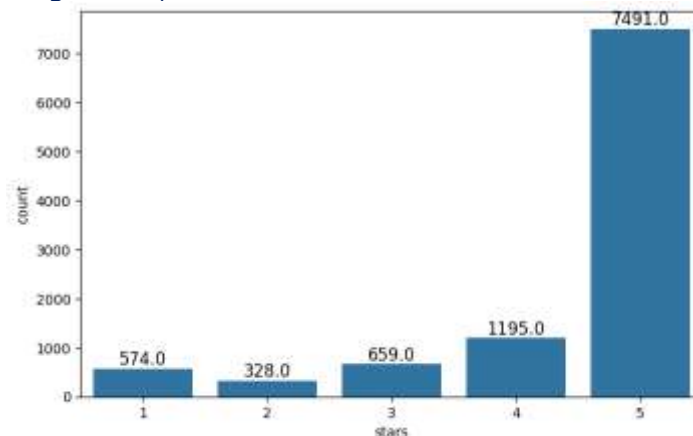
*For this study, we utilized web scraping as a data collection method to extract user-generated reviews and ratings of various establishments. The data was sourced from Yandex Maps ([yandex.kz/maps/ru](https://yandex.kz/maps/ru)), specifically focusing on user reviews from the city of Astana.*

The dataset comprises approximately 10000 records, capturing diverse user feedback on local businesses. The extracted attributes include:

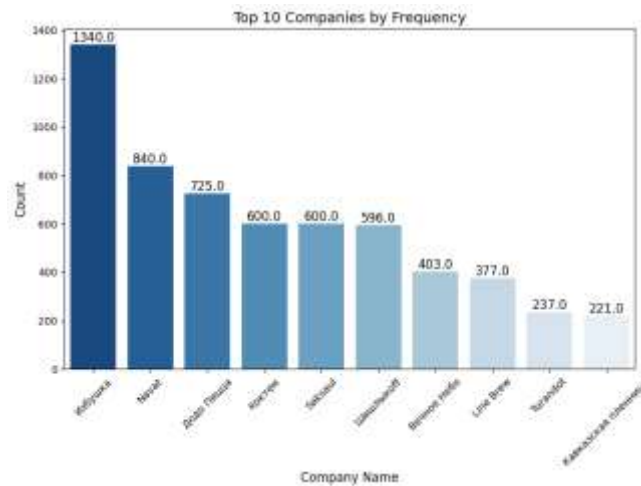
- *User Name* – The username of the individual who left the review.
- *Date of Publication* – The date when the review was posted.
- *Review Text* – The textual content of the user's review.
- *Review Rating* – A numerical rating assigned by the user, ranging from 1 to 5, with 1 representing a negative experience and 5 indicating a highly positive one.



A word cloud visualization of user names reveals that a significant portion of reviews were written anonymously. Additionally, we observe a mix of Russian and Kazakh names, reflecting the diverse linguistic and cultural background of Astana's residents.



The analysis of review ratings shows that positive ratings (4 and 5 stars) significantly outweigh negative ratings (1 and 2 stars). This suggests that most users tend to leave favorable reviews about their experiences.



The dataset contains reviews from multiple establishments across Astana. The top businesses with the highest number of reviews are:

1. Izbushka – 1,340 reviews
2. Navat – 840 reviews
3. Dodo Pizza – 725 reviews
4. Koktem – 600 reviews
5. Saksaul – 600 reviews
6. Shashlykoff – 596 reviews
7. Vechnoye Nebo – 403 reviews
8. Line Brew – 377 reviews
9. Turandot – 237 reviews
10. Kavkazskaya Plennitsa – 221 reviews

These statistics highlight the most popular venues in Astana based on user engagement.

To ensure high-quality data for analysis, we will perform several preprocessing steps:

- Stopword Removal – Eliminate common words that do not contribute to sentiment analysis (e.g., "the," "and," "is").
- Symbol and Special Character Removal – Remove unnecessary punctuation, emojis, and other symbols from the text.
- Duplicate Removal – Identify and eliminate duplicate reviews to prevent data redundancy.

After data cleaning, we will apply advanced machine learning techniques to classify reviews. Our approach is inspired by previous studies reviewed in the literature survey, where researchers successfully implemented machine learning models to classify textual data with high accuracy.

We will experiment with different models and evaluate their performance on our dataset. The goal is to determine how well these approaches perform in categorizing user sentiments and identifying key factors influencing customer satisfaction.

#### Results

The used machine learning model is XGBClassifier, an optimized gradient boosting algorithm, for sentiment classification. The model was trained on the preprocessed dataset using TF-IDF vectorization for feature extraction. After training the model, we evaluated its effectiveness using accuracy, precision, recall, and F1-score metrics. The overall accuracy achieved was 0.7566 (75.66%), indicating a reasonably good performance in classifying user sentiments.

| Sentiment Class      | Precision | Recall | F1-score | Support |
|----------------------|-----------|--------|----------|---------|
| 1 (Very Negative)    | 0.61      | 0.35   | 0.45     | 136     |
| 2 (Negative)         | 0.24      | 0.09   | 0.13     | 70      |
| 3 (Neutral-Negative) | 0.30      | 0.15   | 0.20     | 134     |
| 4 (Neutral-Positive) | 0.36      | 0.22   | 0.27     | 230     |
| 5 (Positive)         | 0.82      | 0.96   | 0.89     | 1,476   |

Macro Average: Precision (0.47), Recall (0.35), F1-score (0.39)

Weighted Average: Precision (0.70), Recall (0.76), F1-score (0.72)

The model performed best in classifying positive reviews (4-star ratings), achieving an F1-score of 0.89, with precision of 82% and recall of 96%. However, classification for negative reviews (1-star and 2-star) had lower performance, which suggests that the model struggles with distinguishing nuanced negative sentiments.

### Conclusion

This study successfully collected and analyzed user-generated review data from Yandex Maps for establishments in Astana. Using web scraping techniques, approximately 10,000 reviews were obtained, including attributes such as user name, review text, rating, and date of publication.

A literature review on existing methods for sentiment classification revealed that machine learning-based approaches, particularly NLP techniques, have been widely used with promising results. Based on these insights, state-of-the-art Natural Language Processing (NLP) and machine learning methods were applied to clean, preprocess, and classify the collected data.

For classification, TF-IDF vectorization was used to transform the text data into numerical features, and an XGBoost Classifier (XGBClassifier) was trained for sentiment prediction. The model achieved an accuracy of 75.66%, with particularly strong performance in identifying positive reviews. However, the classification of negative reviews showed room for improvement, indicating the need for additional techniques such as data balancing and advanced deep learning models.

Overall, the approach demonstrated that machine learning can effectively classify user reviews and provide valuable insights into customer sentiment. Future work will focus on improving model performance, experimenting with deep learning models (such as BERT and LSTMs), and enhancing feature engineering techniques to refine sentiment classification further.

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