SC
scientific conferences

XIV international scientific conference
Rome. Italy
25-26.02.2025

Scientific conferences

MODERN SCIENCE: FUNDAMENTAL AND APPLIED ASPECTS

Proceedings of the XIV International Scientific and Practical Conference

25-26 February 2025

ROME. ITALY

2025

UDC 001.1

BBC 1

XIV International Scientific and Practical Conference «Modern science: fundamental and applied aspects», February 25-26, 2025, Rome. Italy. 98 p.

ISBN 978-91-65424-09-8

DOI https://doi.org/10.5281/zenodo.15004814

Publisher: «SC. Scientific conferences»

Main organization: artmedia24

Editor: Hans Muller

Layout: Ellen Schwimmer

The sample of the citation for publication is Gugnin Aleksandr, Lisnievska Yuliia ANTI-ADVERTISING IN THE HOTEL BUSINESS // XIV International Scientific and Practical Conference «Modern science: fundamental and applied aspects», February 25-26, 2025, Rome. Italy. Pp.9-11, URL: https://sconferences.com

Contact information

Website: https://sconferences.com

E-mail: info@sconferences.com

Content

Architecture

Biological sciences

Chemical sciences

Economic sciences

Historical sciences

Jurisprudence

Medical sciences

Pedagogical sciences

Philological sciences

Architecture

THE ALTAR AREA OF THE TEMPLE IN THE WORKS OF V.I. BAZHENOV

Naumkin G.I.
PhD in Architecture,
Associate professor, Chair of Architecture,
State University of Land Use Planning
Moscow, Russia

АЛТАРНАЯ ЗОНА ХРАМА В ТВОРЧЕСТВЕ В.И. БАЖЕНОВА

Наумкин Г.И.
кандидат архитектуры, доцент кафедры архитектуры
Государственного университета по землеустройству
Москва, Россия

Abstract

The material offered for consideration contains a symbolic symbolization of the temple in the works of Vasily Ivanovich Bazhenov, an 18th-century architect. Until now, his architecture remains the most mysterious in its content. In the process of studying the semantics in considering his author's examples, in most cases, the symbols used by him are not quite readable and contain a hidden meaning. Understanding historical traditions and theological knowledge makes it possible to get closer to the author's ideological basis. In its conceptual content, the temple architecture of V.I. Bazhenov manifested itself in the Tsaritsyno ensemble, which was intended for the summer residence of Catherine II. In the new study, this residence represents a connection with the architecture of spiritual purpose - the Upper City, where the symbolized altar of God Almighty is located. Consideration of historical monuments of temple architecture confirmed that V.I. Bazhenov improved the structure of temple architecture, which was manifested in his projects, which consists of combining two zones: - the crossing and the altar.

Аннотация

Предлагаемые к рассмотрению материал содержит знаковую символизацию храма в творчестве Василия Ивановича Баженова, архитектора XVIII века. До настоящего времени его архитектура остается самой загадочной по своему содержанию. В процессе изучения семантики в рассмотрении его авторских примерах в большинстве своем, используемые им символы не совсем прочитываются и содержат скрытый смысл. Познание исторических традиций, теологических знаний дает возможность приблизиться к авторской идейной основе. В концептуальном содержании храмовая архитектура В.И. Баженова проявилась в Царицынском ансамбле, которая предназначалась для летней резиденции Екатерины II. В новом исследовании эта резиденция представляет связь с архитектурой духовного предназначения – Горнего Града, где содержится символизированный алтарь Бога Вседержителя. Рассмотрение исторических памятников храмовой архитектуры стало подтверждением, что В.И. Баженов усовершенствовал структуру храмовой архитектуры, которая проявилась на его проектах, которая заключается на совмещении двух зон: – средокрестия и алтаря.

Keywords: *altar, crossing, spirituality, symbol of the sun, iconostasis, dome ceiling, Christianity.*

Ключевые слова: *алтарь, средокрестие, духовность, символ солнца, иконостас, купольное перекрытие, христианство.*

Под понятием алтарь в сакральной архитектуре подразумевается возвышенное место, которое означает центр мира. В Античной Греции в пространстве мегарона на возвышении размещался жертвенник. Постепенно алтарь становится самостоятельным архитектурным объектом. В Пергаме (Малая Азия) алтарь Зевса, так называемый «Пергамский алтарь», *представлял собой грандиозное сооружение, состоящее из колоннады, приподнятой на высокий цоколь, украшенный божественными рельефами.*

Общее представление о мироздании приводит к созданию храма, где алтарь занимает главное место. С алтарем связывают символ солнца, восход, обновление и надежду. Движение к алтарю олицетворяется с восхождением к бессмертию. Алтарь входит в основную структурную часть храмового сооружения, совмещается с вертикальной и горизонтальной осями. В подкупольном пространстве алтарь представляет собой престол «невидимого бога», позднее «стол», над которым располагается киворий или шатер.

С появлением в храмовом пространстве апсиды и утверждением в нем символа небосвода алтарь выводится из-под купола и переносится в эту часть храма. Апсидой завершается пространство храмового сооружения в восточном направлении. В античных зданиях апсида чаще всего представляет собой наружную пристройку, экседру. В X веке апсиды и алтари храмов ориентируются на восток, и то, где отводится место для престола, считается главной апсидой, а пристроенные к ней боковые апсиды предусматриваются для ризниц. Перекрытие главной апсиды в форме полукупола (конха) становится местом изображения Христа на троне. Таким изображением утверждается представление божественного небосвода.

В христологическом толковании алтарь имеет значение невидимого Божества, а храм – видимого. В антропологическом истолковании алтарь означает человеческую душу, а храм – тело. В материализованном храме формируется понимание существования двух миров. Перед алтарем формируется стенка, которая совмещает в себе земной и невидимый мир.

Невысокая стенка – алтарная преграда, разделяющая два мира, как это было в Византии, в дальнейшем превращается в иконостас с царскими вратами посередине. В храме на иконостасе изображаются вещественные явления святых, как живых божьих свидетелей, которые представлены в виде духовных образов.

Свет в храмовом пространстве неотделим от солнца, что во внешнем пространстве, но свет в храме становится целесообразной организацией формы, средством отражения высшей духовной реальности. В алтарной зоне свет представлен основным иконографическим символом храма, а символизация небосвода утверждается в формализации купольного свода.

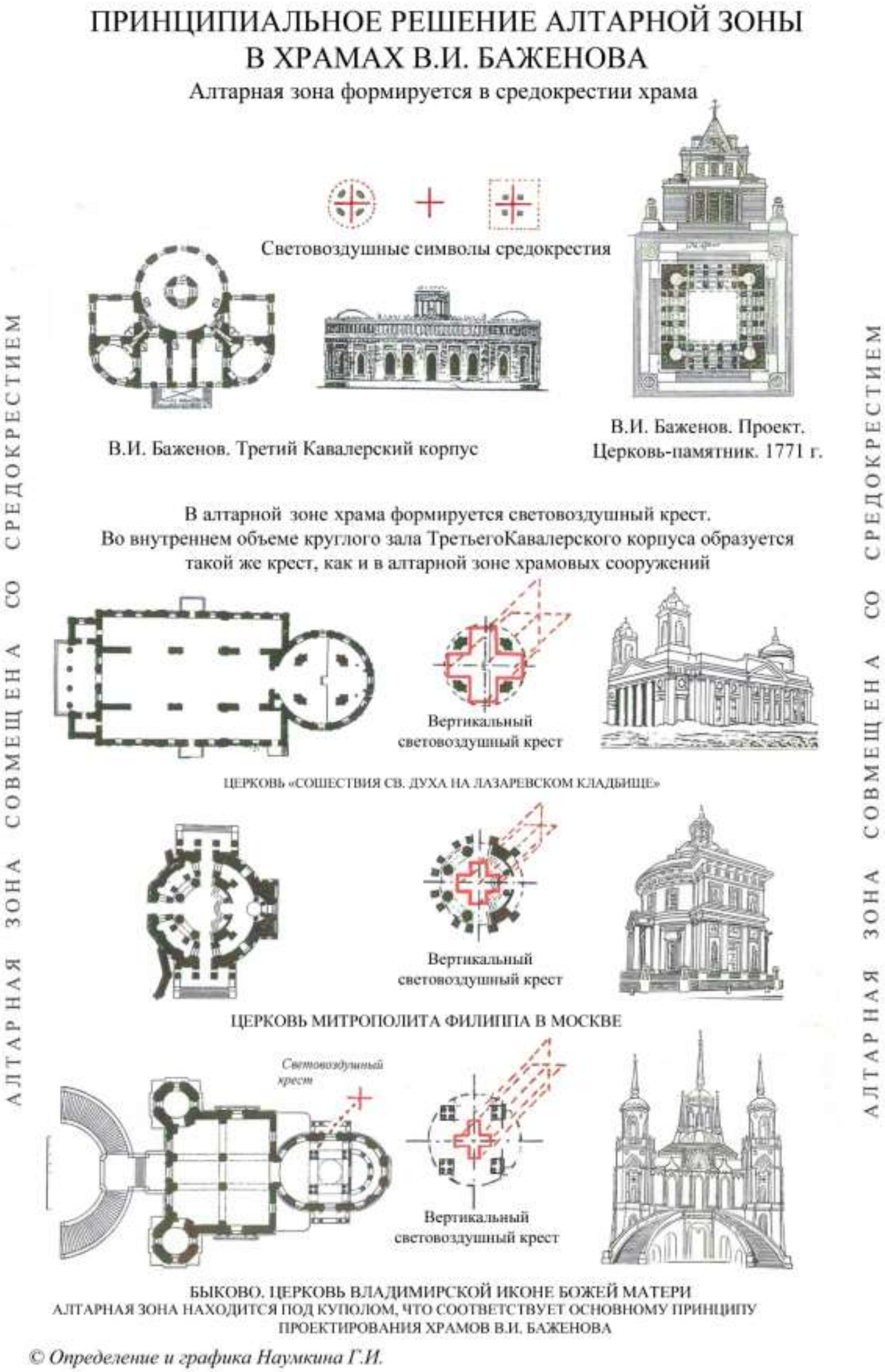
Основное верхнее освещение осуществляется через световые проемы центрального барабана храма, который удерживается четырехстолпной конструкцией. В центральном объемном пространстве византийского храма применение несущих конструкций из четырехстолпных опор-колонн становится обязательным атрибутом, так как они преломляют и формализуют по вертикальный световой поток в виде световоздушного креста.

На протяжении длительного периода: от XI века до настоящего времени – средокрестие формируется четырьмя колоннами и не зависит от иерархического предназначения храма: главный собор города или приходская церковь. В византийском храме во внутреннем объемном пространстве формализуется световой крест, что не зависит от количества галерей.

На рассматриваемом временном отрезке за алтарем закрепляется восточная часть храма – центральная, главная апсида, которая располагается на одной из главных осей светового креста. При таком композиционном решении вертикальное естественное освещение достигает алтарной зоны через световые проемы иконостаса, где иконы, как и окна, пропускают через себя свет.

В храмовом строительстве существует временной период, когда алтарная зона находилась в средокрестии. В таких храмах вертикальный световой солнечный луч проникал в средокрестие и подкупольный алтарь. В церквях Владимировской иконы Божией Матери с. Быково XVIII в. и Рождества Богородицы в усадьбе князя Голицына алтарь содержится в средокрестии, но в зоне апсиды, что не свойственно для традиционного строительства.

К таким сооружениям следует отнести церковь «Сошествие Св. Духа» на Лазаревском кладбище, церковь митрополита Филиппа в Москве, которые приписывают к постройкам В. И. Баженова. Новаторское решение дает убедительное основание, что их автор глубоко знает основы христианского учения и может по-новому организовать храмовое пространство.



Известно, что основной составляющей в храме является алтарная зона, которая характеризует завершенность строительства. В храмовой организации алтарной зоны отражается понимание христианского учения и авторская индивидуальность зодчего. В *проекте Третьего Кавалерского корпуса Царицынского ансамбля В. И. Баженов также применяет принципиальное решение внутреннего пространства, где, как в алтарной зоне храма, центральный световой поток четырехстолпными опорами распределяется лучами по схеме креста. Во внутреннем пространстве круглого зала Третьего Кавалерского корпуса используется такой же эффект, как и в рассматриваемых храмах.*

В проекте Третьего Кавалерского корпуса используется такой же световоздушный эффект, что и в «Церкви-памятника» В. И. Баженова, представляющего идеализированную модель. Типология храма и диагностическая морфология алтарной зоны «Церкви-памятника» дали возможность зафиксировать баженовский иконографический принцип, по которому алтарь в виде световой субстанции достигает наивысшей иконографической цели в храмовом строительстве.

Литература

1. Гене Ренон. Simboles de la sciens sacrée/Символы священной наук/ Ренон Гене. – [М]: Беловодье, 2004. – 480 с.: ил.[Опубликовано на русском языке]

2. Naumkin G.I. TSaritsyno model' Rossiiskogo gosudarstva – M: Izdatel'stvo «Pero», 2024. 168 p. il. [Опубликовано на русском языке]

Biological sciences

EFFECTS OF CADMIUM EXPOSURE ON BONE TISSUE IN EXPERIMENTAL RATS: A HISTOLOGICAL AND TOXICOLOGICAL ANALYSIS

Zholdasbayeva Zhazira Rakhmatullakyzy
2nd year Master's degree student of Abay Kazakh National Pedagogical University, Almaty,Kazakhstan
Tungyshbayeva Z.B.
Professor, Candidate of Biological Sciences, Abay Kazakh National Pedagogical University, Almaty,Kazakhstan

Abstract

Cadmium (Cd) is a heavy metal with significant toxic effects on living organisms, particularly in relation to bone metabolism [1]. This study investigates the impact of cadmium exposure on the bone structure of experimental rats. Twenty rats were divided into four groups: a control group, a group exposed to the permissible dose concentration (PDC, 0.001 mg/L), a group exposed to a subtoxic concentration (0.01 mg/L), and a group exposed to a high-dose concentration (0.1 mg/L). Histological analysis of bone tissue was conducted to assess structural alterations after an 8-week exposure period. The results indicate that while the control group exhibited normal bone morphology, the PDC group showed minor porosity. The subtoxic concentration group displayed structural degradation, while the high-concentration group exhibited significant bone resorption and osteomalacia-like symptoms. These findings suggest that cadmium exposure adversely affects bone integrity in a dose-dependent manner, highlighting potential risks for environmental and occupational exposure. Additionally, this study underscores the importance of regulatory policies to minimize cadmium exposure in industrial and urban environments [2].

Keywords: cadmium toxicity, bone histology, osteomalacia, experimental rats, environmental exposure, heavy metals, skeletal damage, toxicology, calcium metabolism

Introduction

Cadmium is a widely recognized environmental pollutant with harmful effects on human and animal health [3]. It is commonly found in industrial emissions, contaminated food, cigarette smoke, and polluted water sources. Cadmium enters the human body primarily through inhalation, ingestion of contaminated food and water, and, to a lesser extent, dermal absorption. High levels of cadmium accumulation are commonly observed in people exposed to cigarette smoke and those residing in industrial areas. Once inside the body, cadmium binds to proteins and accumulates in organs such as the liver, kidneys, and bones, leading to chronic toxicity over time [4]. Cadmium is also present in batteries, pigments, plastic stabilizers, and certain fertilizers, further contributing to environmental contamination. The metal has a long biological half-life, meaning that once absorbed, it remains in the body for years, gradually accumulating in tissues. Occupational exposure is particularly high among workers in metallurgy, battery manufacturing, and waste disposal industries. The bioaccumulation of cadmium is of significant concern due to its systemic effects, including kidney damage, neurological disorders, and skeletal deterioration [5]. Cadmium contamination is widespread due to industrial discharges into the environment. The primary sources of cadmium exposure include mining, metal refining, and the production of batteries and plastics. Additionally, cadmium has been detected in various food products, such as cereals, shellfish, leafy vegetables, and organ meats. The ingestion of contaminated food is the leading cause of chronic exposure in non-smoking individuals [6]. Prolonged exposure to cadmium has been linked to various pathological conditions, including kidney damage, respiratory issues, and disruptions in calcium metabolism leading to bone disease. The primary mechanism by which cadmium exerts its toxic effects on bone tissue is through interference with calcium absorption and the suppression of osteoblast function, resulting in decreased bone density and increased risk of fractures. Given the increasing levels of cadmium contamination in the environment due to industrial activities, understanding its effects on skeletal health is critical. The objective of this study was to evaluate the structural effects of cadmium on bone tissue in rats through histological examination.

Materials and Methods

A total of 20 healthy adult male rats were selected for the study and housed under controlled environmental conditions with a 12-hour light-dark cycle, a temperature range of 22-24°C, and controlled humidity levels. The animals were provided with a standard laboratory diet and water ad libitum. The rats were divided into four groups: a control group, a group exposed to the permissible dose concentration (PDC, 0.001 mg/L), a group exposed to a subtoxic concentration (0.01 mg/L), and a group exposed to a high concentration of cadmium (0.1 mg/L). Cadmium was administered via drinking water daily for 8 weeks. The exposure doses were selected based on environmental contamination levels and previous toxicological studies [2]. Throughout the study, the rats were monitored daily for signs of distress, changes in feeding behavior, water intake, and overall activity levels. Weekly health checks were conducted to assess physiological changes. The rats' weights were recorded, and any abnormalities in movement or feeding behavior were noted. At the end of the experiment, the rats were euthanized using an overdose of sodium pentobarbital to ensure humane treatment. Femoral bone samples were collected, fixed in 10% formalin, decalcified in ethylenediaminetetraacetic acid (EDTA) solution, and embedded in paraffin blocks. Thin sections (4-6 µm) were prepared and stained with hematoxylin and eosin (H&E) for microscopic examination. Additionally, bone mineral density (BMD) measurements were taken using dual-energy X-ray absorptiometry (DXA) to quantify structural changes.

Results

The histological and structural analysis of bone samples revealed significant alterations in response to cadmium exposure, demonstrating a clear dose-dependent effect on skeletal integrity.

Control Group: The bone architecture in the control group remained well-preserved, characterized by dense trabecular structures, uniform mineralization, and normal osteoblast and osteoclast activity. There were no signs of pathological changes, and bone mineral density (BMD) values remained within normal physiological ranges.

PDC Group (0.001 mg/L): Mild structural modifications were observed, including slight trabecular thinning and an increase in porosity. However, the overall bone morphology remained largely intact, with only minor deviations from the control group. BMD values showed a slight but statistically insignificant reduction, suggesting early-stage skeletal adaptation rather than outright degradation.

Subtoxic Concentration Group (0.01 mg/L): Notable histopathological changes were detected in this group, including a significant reduction in trabecular thickness, increased porosity, and irregularities in bone matrix organization. Osteoclastic activity was elevated, indicative of increased bone resorption, while osteoblastic activity appeared suppressed. BMD measurements showed a moderate but statistically significant decrease compared to the control and PDC groups, suggesting an early onset of osteopenic conditions.

High-Concentration Group (0.1 mg/L): Severe structural deterioration was evident in this group, with pronounced trabecular thinning, fragmentation, and a marked increase in porosity. The bone matrix exhibited irregular mineralization, with signs of osteomalacia-like defects. Histological analysis revealed excessive osteoclastic activity, with a significant reduction in osteoblast numbers, further confirming a disruption in normal bone remodeling. BMD values were significantly reduced, indicating advanced skeletal degradation and an increased risk of fracture susceptibility. Additionally, this group exhibited a noticeable decline in overall body weight, suggesting systemic toxicity.

These findings collectively indicate that cadmium exerts a deleterious effect on bone structure in a dose-dependent manner, with increasing exposure levels correlating with progressive skeletal deterioration. The observed histological alterations align with previous studies on cadmium-induced osteotoxicity, emphasizing the necessity of further research into the underlying mechanisms of cadmium-related bone disease.

Discussion

The results demonstrate that cadmium exposure negatively impacts bone integrity in a dose-dependent manner. The mild porosity observed in the PDC group suggests that even low levels of exposure may contribute to bone weakening over time. More pronounced structural damage in the subtoxic and high-concentration groups indicates that cadmium disrupts normal bone remodeling, likely through interference with calcium homeostasis and osteoblast-osteoclast balance. The mechanism of cadmium-induced bone damage is multifactorial. Cadmium competes with calcium for intestinal absorption, leading to hypocalcemia and subsequent secondary hyperparathyroidism, which increases bone resorption. Additionally, cadmium exposure has been linked to oxidative stress and inflammatory responses, further exacerbating skeletal deterioration. The observed changes in bone mineral density in *the subtoxic and high-dose groups suggest that cadmium not only affects bone microarchitecture but also impairs overall bone strength and resistance to fractures.*

Conclusion

The findings of this study highlight the severe dose-dependent effects of cadmium exposure on bone structure. Even at permissible exposure levels, minor structural changes were observed, while higher concentrations led to significant bone resorption and osteomalacia-like conditions. These results emphasize the critical need for stricter regulations on cadmium contamination in the environment, particularly in industrial and agricultural sectors where exposure is most prevalent. Additionally, the study underscores the importance of continued research into the mechanisms by which cadmium disrupts bone homeostasis. Oxidative stress, calcium metabolism interference, and hormonal imbalances all play a role in cadmium-induced skeletal damage. Future research should explore therapeutic strategies, including nutritional supplementation with calcium, vitamin D, and antioxidants, to mitigate the adverse effects of cadmium on bone health. Furthermore, public awareness campaigns should be promoted to reduce cadmium exposure from food, water, and occupational hazards. Given the long biological half-life of cadmium, early intervention and preventive measures are essential to minimizing long-term health risks. Ultimately, reducing cadmium pollution and exposure is crucial for protecting both environmental and human health.

References

1. Bernard, A. "Cadmium & its adverse effects on human health." Indian Journal of Medical Research, 2008, 128(4), 557-564.

2. Nordberg, G. F., et al. "Handbook on the toxicology of metals." Academic Press, 2014.

3. Godt, J., Scheidig, F., Grosse-Siestrup, C., Esche, V., Brandenburg, P., Reich, A., & Groneberg, D. A. "The toxicity of cadmium and resulting hazards for human health." Journal of Occupational Medicine and Toxicology, 2006, 1(1), 22.

4. Järup, L., Berglund, M., Elinder, C. G., Nordberg, G., & Vahter, M. "Health effects of cadmium exposure–a review of the literature and a risk estimate." Scandinavian Journal of Work, Environment & Health, 1998, 24(suppl 1), 1-51.

5. Satarug, S., Garrett, S. H., Sens, M. A., & Sens, D. A. "Cadmium, environmental exposure, and health outcomes." Environmental Health Perspectives, 2010, 118(2), 182-190.

6. Agency for Toxic Substances and Disease Registry (ATSDR). "Toxicological profile for cadmium." U.S. Department of Health and Human Services, 2012.

7. Tellez-Plaza, M., Navas-Acien, A., Crainiceanu, C. M., & Guallar, E. "Cadmium exposure and hypertension in the 1999-2004 National Health and Nutrition Examination Survey (NHANES)." Environmental Health Perspectives, 2008, 116(1), 51-56.

8. Hyder, O., Chung, M., Cosgrove, D., Herman, J. M., Li, Z., Firoozmand, A., ... & Pawlik, T. M. "Cadmium exposure and liver disease among US adults." Journal of Gastrointestinal Surgery, 2013, 17(7), 1265-1273.

9. Nawrot, T. S., Staessen, J. A., Roels, H. A., Moonen, R., Bernard, A., & Lauwerys, R. R. "Cadmium exposure in the population: From health risks to strategies of prevention." Biometals, 2010, 23(5), 769-782.

Chemical sciences

CYCLIZATION OF N-(1-ADAMANTHYLCARBONYL)GLYCINE

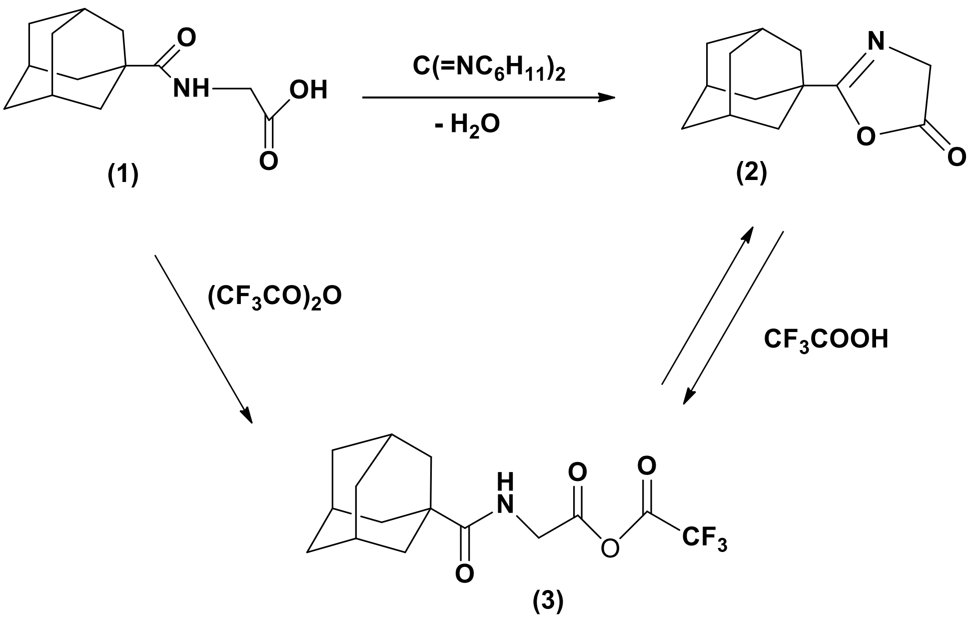
Klimko Yurii Evgenovich
Ph.D, Ass. Prof,
National Technical University of Ukraine
"Kyiv Polytechnic Institute"
Kiyv. Ukraine
Koshchii Iryna Volodymyrivna
Ph.D, prof,
National Technical University of Ukraine
"Kyiv Polytechnic Institute"
Kiyv. Ukraine
Levandovskii Svyatoslav Ihorovych
Student,
National Technical University of Ukraine
"Kyiv Polytechnic Institute"
Kiyv. Ukraine

Abstract
The only known example of an oxazolone containing an adamantyl radical in position 2 is 2-(1-adamantyl)-4-benzylidene-5-oxazolone, obtained by the condensation of N-(1-adamantylcarbonyl)glycine (1) with benzaldehyde under Erlenmeyer reaction conditions [1].

Keywords: *N-(1-adamantylcarbonyl)glycine, 2-(1-adamantyl)-4-benzylidene-5-oxazolone, 2-(1-adamantyl)-5(4H)-oxazolone, dicyclohexylcarbodiimide.*

Continuing research in the field of chemistry of a-amino acids of the adamantane series [2–5], we synthesized for the first time stable 2-(1-adamantyl)-5(4H)-oxazolone (2) from acylated glycine (1), an adamantyl analogue of hippuric acid. Compound (2) is formed by refluxing N-(1-adamantylcarbonyl)glycine (1) in anhydrous chloroform for 4 hours in the presence of dicyclohexylcarbodiimide in a yield of 61%.

The presence of a characteristic band at 1830 cm^{-1} in the IR spectrum of compound (2) unambiguously indicates its cyclic structure [6]. In the 1H NMR spectrum of a solution of this compound in deuteroacetone in the region of 4.25 ppm. there is a singlet of protons of the methylene group at position 4 of oxazolone (2). The addition of trifluoroacetic acid to the analyzed solution leads to the opening of the azlactone ring and the formation of mixed anhydride (3), as evidenced by the appearance of a doublet with a spin-spin coupling constant of 6 Hz at δ 3.9 ppm.



An attempt to carry out the cyclization of acylamino acid (1) by the action of trifluoroacetic anhydride led to the formation of mixed anhydride (3) of N-(1-adamantylcarbonide)glycine and trifluoroacetic acid. The isolated compound (3) spontaneously slowly cyclizes with elimination of a trifluoroacetic acid molecule, which is confirmed by the presence in the 1H NMR spectrum of the corresponding signals of oxazolone (2) and anhydride (3) protons.

2-(1-Adamantyl)-5(4H)-oxazolone (2). To a solution of 0.92 g (4.4 mmol) of dicyclohexylcarbodiimide in 30 ml of anhydrous chloroform was added 1 g (4 mmol) of N-(1-adamantylcarbonyl)glycine (1) and the mixture was boiled for 4 hours. After cooling, the precipitate of dicyclohexylurea was filtered off. The solvent was removed in vacuo. 20 ml of anhydrous pentate was added to the residue, and the mixture was boiled for 5 minutes. 0.38 g of compound (1) was isolated by filtration of the hot solution, m.p. 195 °C. The filtrate was cooled to 0°C. The precipitate of oxazolone (2) was filtered off and recrystallized from pentane. Yield 0.56 g (61%), mp 59–60°C. IR spectrum, u, cm^{-1}: 1660 (C=N), 1830 (C=O). 1H NMR spectrum, δ, ppm, (CD3)2CO : 1.3–2.15 m (15H), 4.25 s (CH2).

Interaction of N-(1-adamantylcarbonyl)glycine (1) with trifluoroacetic anhydride. To 0.2 g (0.85 mmol) N-(1-adamantylcarbonyl)glycine (1) with ice cooling and stirring 0.4ml (2.55 mmol) of trifluoroacetic anhydride was added. The precipitate that formed was immediately filtered off under argon and washed with a small amount of cold anhydrous pentane. Yield of mixed anhydride (3) 0.26 g (92%), m.p. 77-78 °C. 1H NMR spectrum, δ, ppm : 1.3-2.15 m (15H), 3.9 d [CH_2, compound (3), J 6 Hz], 4.25 s [CH_2, compound (2)], 7.37 m [NH, compound (3)].

1H NMR spectra of 15% solutions of acetone-d6 substances were recorded on a Tesla BS-487C instrument (80 MHz), HMDS was the internal standard. The IR spectra of samples in KBr pellets containing 0.25% of the substance were recorded on a Specord 75IR instrument.

References

1. Glasev R. // Tetrahedron. 1979. Vol. 35. N 20. P. 2381-2387.

2. Krasutsky P.A., Semenova I.G., Novikova M.I., Yurchenko A.G., Ti-Khonov V.P., Belikov V.M., Belokon Yu.N. // ZhOrKh. 1985. T. 21. Issue. 7. pp. 1458-1465.

3. Krasutsky P.A., Semenova I.G., Novikova M.I., Yurchenko A.G. // JOrH. 1985. T. 21. Issue. 9. S. 1905-1910.

4. Krasutsky P.A., Semenova I.G., Safronova E.E., Novikova M.I., Yurchenko A.G. // ZhOrKh. 1989. T. 25. Issue. 11. P. 2336-2341.

5. Krasutsky P.A., Semenova I.G., Safronova E.E. // ZhOrKh. 1992. Vol. 28. Iss. 11. P. 2268-2271.

6. Gross E., Maienhofer I., Jones J., Bodansky M., Rich D., Singh J., Kemp D. // Peptides. Basic methods of peptide bond formation. M. 6 Mir, 1983. P. 348.

Economic sciences

THE DEVELOPMENT OF THE LEK-EURO EXCHANGE RATE IN ALBANIA

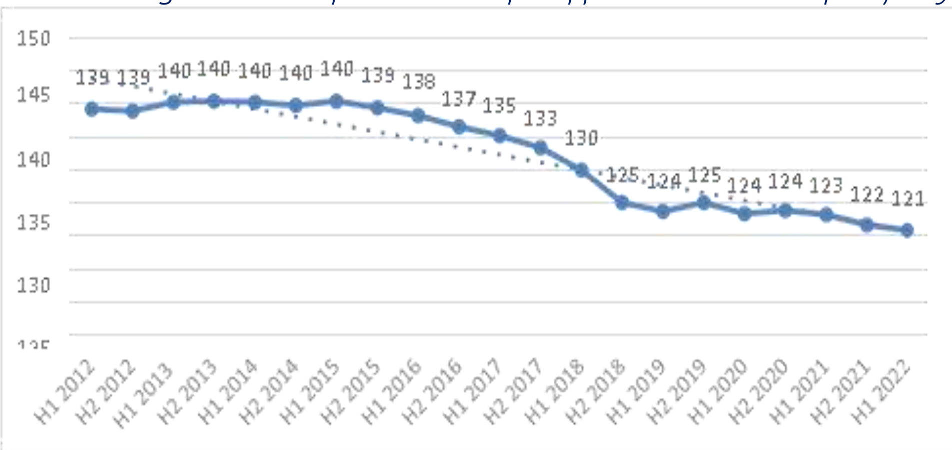
Klara Avdyli
Master's Student, University Aleksander Moisiu Durres,Albania,
Department of Economic Sciences

Abstract
The implications of this research extend to policymakers, central banks, and economic analysts, who can utilize the findings to better understand the dynamics of the Lek-Euro exchange rate and make informed decisions regarding monetary and fiscal policies.Overall, this article aims to deepen our understanding of the Lek-Euro exchange rate and provide valuable insights for managing and forecasting the exchange rate movements in Albania.

Keywords: Keywords: Money, exchange rate, fundamental factors, trade deficit, interventions in the foreign exchange market.

In a small and open economy like Albania, the fundamental factors are those that should drive the supply and demand for currency in the foreign exchange market. Since Albania has a long history of a trade deficit, but on the other hand, a currency that continues to strengthen, the question that arises is what is the main determining factor affecting the Lek-Euro exchange rate. At the same time, the Bank of Albania has pursued numerous interventions in the foreign exchange market, with the main aim of increasing the foreign exchange reserve. Some authors consider these interventions as a "fear" of the free exchange rate and as a distortion of the real supply and demand of market forces.The purpose of this article is to assess to what extent the Lek-EUR exchange rate has been influenced by fundamental economic factors and whether it has been influenced by the interventions of the Bank of Albania itself.

The lek-euro exchange rate has experienced a rapid appreciation over the past few years.



Source: Bank of Albania

It is noted that the local currency has strengthened compared to the euro. If we analyze demand and supply, we have two options: either the demand for the local currency has increased, or its supply has decreased. The chances of the supply being reduced are slim, as the country has been experiencing a deepening trade deficit for years. This strengthening cannot be fully explained by demand either, because the trade deficit would have to be a colossal surplus, or the primary and secondary incomes in the balance of payments would show rapid growth rates, while we will see that statistically they appear normal.

The graph shows that the exchange rate strengthens during the second half of each year. This period summarizes the effect of the summer season and the end-of-year holidays where many Albanian immigrants come to their homeland. They mainly come from EU countries and therefore bring in the euro currency and cause the local currency to strengthen. From the graph, we see a strengthening of the local currency in 2017. One reason could be the psychological effect that was created in the market when the Bank of Albania published the memorandum of cooperation for de-euroization of the economy. The market experienced this decision as a "war" against the euro.

During these 10 years, the current account in Albania has had only one deficit, mainly as a result of the massive trade balance deficit. A high current account deficit indicates that the country is sending more money abroad to buy goods, services, or to pay for other countries than it is receiving for the sale of its own goods and services. So, in countries with a current account deficit, the supply of local currency should be high, thus exerting downward pressure on the exchange rate. The opposite happened in Albania. The current account has been experiencing a negative balance for years, but on the other hand, the currency continues to strengthen.

The current account curve follows the appropriate shape to determine the exchange rate. During the second half of most years when the exchange rate appreciates, the current account deficit narrows. This is consistent with theory. The decrease in the current deficit is a consequence of the decrease in outflows for the purchase of imports, or the increase in inflows from the increase in exports, both of which strengthen the local currency. On the other hand, the line as a whole does not explain the continued strengthening of the exchange rate.

Under a floating exchange rate regime, the exchange rate plays a fundamental role in the performance of the economy. More accurate decisions about monetary and national policy can be made by knowing how and to what extent the underlying factors determine the exchange rate.The Bank of Albania and the Albanian government should consider the following conclusions and recommendations. If the deterioration of the trade balance is caused by the strengthening of the local currency, then the other strong factors that are causing that strengthening should be found and looked at very carefully.

The Bank of Albania should continue to intervene in the foreign exchange market whenever it sees fit, as these interventions do not affect the general movement of the exchange rate

The analysis shows that the fundamental factors affect the lek-euro exchange rate and that this rate has not been affected by the interventions of the Bank of Albania in the foreign exchange market. Thus, both hypotheses of the paper are rejected. In addition to these two conclusions, the study reaches several important findings, which are:

• Remittances are a main factor determining the lek-euro exchange rate.

• Other factors stronger than the fundamental ones are causing the continued strengthening of the local currency.

• Other fundamental factors influence the lek-euro exchange rate, but the direction of this influence is not always in accordance with the theory.

• In Albania, the increase in exports weakens the exchange rate and the increase in imports strengthens it. This may be due to an inverse relationship between the 2 variables, that the exchange rate strongly affects the trade balance more than it is affected by it.

• The movements of foreign exchange reserves are not only the result of purchases in the foreign exchange market, but also the result of revaluations, debt entries, relations with the MEF, etc.

References

1. Aziz, J. & Caramazza, F. (1998). Fixed or Flexible? Getting the Exchange Rate Right in the 1990s (p. 25). Economic Issues. International Monetary Fund.

*2. Bank of Albania (2022) Monetary and Financial Statistics. Monetary Aggregates 2012-2022.. Available at: https://www.bankofalbania.org/Statistics/Monetary_*

3. Bank of Albania (2022) Monetary, Financial and Banking statistics, New loans to private non-financial corporations by economic activity(Nace-Rev.2). (2017-2022). Available at: https://www.bankofalbania.org/?crd=0,8,2,0,0,17021&uni=2022101119392195107234l4 62254611&ln=1&mode=alone

4. Calvo, G. A. & Reinhart, C. M. (2000). Fear of floating. NBER working paper series.

5. Chavan, S. S. & Shafighi, N. (2021). Exchange Rate Determination in Asia. International Journal of Current Advanced Research. Vol. 10. No. 08.

6. Mundell, R. A. (1963). Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates. The Canadian Journal of Economics and Political Science.

7. Kabi, J., Nazrul, K. & Hossain, T. (2014). Determinants of Exchange Rate in Bangladesh: A Case Study. Journal of Economics and Sustainable Development.

INNOVATIVE CRITERIA OF COMPETITIVE ECONOMIC DEVELOPMENT OF ENTREPRENEURIAL ACTIVITY IN THE MANUFACTURING INDUSTRY

Hajiyeva Nushaba Aslan
Azerbaijan University of Technology

EMAL SƏNAYESİNDƏ SAHİBKARLIQ FƏALİYYƏTİNİN RƏQABƏTƏDAVAMLI İQTİSADİ İNKİŞAFININ İNNOVATİV MEYARLARI

Hacıyeva Nüşabə Aslan qızı
Azərbaycan Texnologiya Universiteti

Bazar münasibətləri inkişaf etmiş ölkələrin təcrübəsi göstərir ki, ölkə iqtisadiyyatın əsasını sahibkarlıq fəaliyyəti təşkil edir. Çünki, sahibkarlıq fəaliyyəti ölkədə sağlam rəqabət mühitinin formalaşmasını təmin edir. Yəni, sahibkarlıqda rəqabət istehlaka qədər bütün istehsal prosesinin inkişafına stimul verir. Sahibkarlıq fəaliyyətində rəqabət üstünlüyü isə özü-özlüyündə yeniliyin tətbiqi və onun həyata keçirilməsini nəzərdə tutur.

Deməli, emal sənayesində sahibkarlıq fəaliyyətinin rəqabətədavamlı iqtisadi inkişafı sahənin innovativ tərəqqisindən və onun səmərəli fəaliyyətindən bilavasitə asılıdır. İnnovativ tərəqqi ölkə iqtisadiyyatının, o cümlədən də emal sənayesi müəssisələrinin iqtisadi inkişafında vacib rol oynayır. Bu sahədə aparıcı yer tutan ölkələr iqtisadi prosesin təkmilləşdirilməsinə təsir etmək imkanına malikdirlər.

Məhz bunun nəticəsidir ki, ölkəmizdə emal sənayesi müəssisələrində sahibkarlıq fəaliyyətinin rəqabətədavamlı inkişafı üzrə son illərdə ölkə prezidenti tərəfindən "Azərbaycan 2030: sosial-iqtisadi inkişafa dair Milli Prioritetlər"in təsdiq edilməsi haqqında Azərbycan Respublikası Prezidentinin Sərəncamı. 02 fevral 2021, "Azərbaycan Respublikasının milli iqtisadiyyat prespektivləri üzrə Strateji Yol Xəritəsi" və digər bir sıra qanunlar, sərəncamlar, fərmanlar və inkişaf konsepsiyaları qəbul edilmişdir.

Bütün bu qanunlarda və inkişaf konsepsiyalarında başlıca strateji hədəf aşağıdakılardır:

- Ölkədə fiskal dayanıqlığın və davamlı monetar siyasətin gücləndirilməsi.

- Özəlləşdirmə və dövlət mülkiyyətində olan müəssisələrlə bağlı mütərəqqi islahatların həyata keçirilməsi, qeyri-neft sektorunun yüksək templə inkişafına nail olmaq.

- İnsan kapitalının inkişaf etdirilməsi və elmi-texniki tərəqqinin son nailiyyətlərindən istifadə etməklə istehsalın innovasiyalar əsasında yenidən qurulması.

Qarşıya qoyulmuş strateji hədəflərin uğurla həyata keçirilməsi tələbi emal sənayesi müəssisələrində sahibkarlıq fəaliyyətinin rəqabətqabiliyyətliliyini qiymətləndirə bilən elə iqtisadi mexanizmlərin yaradılmasını zəruri edir ki, bu isə bütövlükdə sahənin rəqabətlilik səviyyəsini müəyyən etməyə imkan versin.

Bu məqsədlə, təklif edilmiş iqtisadi mexanizm özündə, emal sənaye müəssisələrinin rəqabətədavavamlı inkişafını qiymətləndirməyə imkan verən bütün innovativ göstərici və kriteriyaları formalaşdırmışdır. Bu iqtisadi mexanizmi həyata keçirilməsinin alqoritmin blok-sxemi aşağıdakı kimidir :

Bu alqoritmin iqtisadi mahiyyəti aşağıdakılardan ibarətdir:

- Müəssisənin istehsal səmərəliliyinin qiymətləndirilməsi. Bu qiymətləndirmə məhsul satışı prosesində əldə olunan səmərəliliyi, əsas fondlardan səmərəli istifadəni, məhsul satışının gəlirlilik səviyyəsini və əmək resurslarından səmərəli istifadə edilməsini göstərir.

- Müəssisənin maliyyə təminatının qiymətləndirilməsi. Bu qiymətləndirmə müəssisənin cəlbolunmuş vəsaitdən asılılığının səviyyəsini, müəssisənin öz borclarını ödəməsi və müflisləşməsi risklərinin nəzərə almasını, yəni, müəssisənin mövcud borclarının ödənilməsi üçün maliyyə resurslarına malik olmaq səviyyəsini və dövriyə vəsaitlərindən istifadənin səmərəliliyini göstərir.

- Məhsulun rəqabətqabiliyyətliliyinin qiymətləndirilməsi. Bu qiymətləndirmə məhsulun mövcud tələbatı ödəmə səviyyəsini göstərir. Bu halda məhsulun rəqabətqabiliyyətliliyinin qiymətləndirilməsinə əsaslanan metod müəssisənin rəqabətqabiliyyətliliyi və istehsal olunan məhsulun rəqabətqabiliyyətliliyindən asılıdır. Məhsulun rəqabətqabiliyyətliliyi isə keyfiyyətin qiymətə olan nisbəti ilə müəyyən edilir

1.Qida məhsullarının istehsalı üzrə texnoloji innovasiyalara yönəldilən maliyyə vəsaitlərinin 1% arması emal sənayesinə üzrə texnoloji innovasiyalar yatırılan maliyyə vəsaitlərinin 0,002% armasına səbəb olar.

2.İçki məhsullarının istehsalı üzrə texnoloji innovasiyalara yönəldilən maliyyə vəsaitlərinin 1% arması emal sənayesinə üzrə texnoloji innovasiyalar yatırılan maliyyə vəsaitlərinin 0,2% armasına səbəb olar.

3. Kimya sənayesi məhsullarının istehsalı üzrə texnoloji innovasiyalara yönəldilən maliyyə vəsaitlərinin 1% arması emal sənayesinə üzrə texnoloji innovasiyalar yatırılan maliyyə vəsaitlərinin 0,9% armasına səbəb olar.

4. Maşın və avadanlıqların istehsalı üzrə texnoloji innovasiyalara yönəldilən maliyyə vəsaitlərinin 1% arması emal sənayesinə üzrə texnoloji innovasiyalar yatırılan maliyyə vəsaitlərinin 0,01% armasına səbəb olar.

Bütün bunlarla yanaşı, emal sənayesi üzrə ölkədə aparılmış digər iqtisadçı alimlərin tədqiqat işlərinə də əsaslanaraq, emal sənayesində sahibkarlıq fəaliyyətinin rəqabətəqabiliyyətliyinə təsir edən innovativ amillərin tərkibini genişləndirmək olar:

1. Uzunmüddətli tələbin dəyişməsi. Uzunmüddətli tələbin artması və ya azalması müəssisənin istehsal gücünün artmasında vəsaitlərin qoyulması prosesində vacib rol oynayır. Uzunmüddətli tələbin artması bazara yeni müəssisələrin daxil olmasına, tələbin azalması isə əksinə müəssisələrin bazardan çıxmasına səbəb olur. Bu cür dinamika istehlakçıların tələbinin dəyişməsinə, yeni məhsul növlərinə, yeni satış kanallarının yaranmasına və s. gətirib çıxarır. İstehsalın dəyişdirilməsi istehsalda məhsul satışının həcminə, satış xərclərinə və s. ciddi təsir göstərir.

2. Texnoloji yeniliklər. İstehsalda daimi olaraq texniki yeniliklərin olması, qoyulmuş investisiyaların həcmi məhsulun həyat dövrünün artmasına imkan yaradır. Bu da bazarda səmərəli fəaliyyət göstərən müəssisələrin ölçü və saylarına olan tələbin əhəmiyyətli dərəcədə dəyişməsinə səbəb olur.

3. Marketinq yenilikləri. Müəyyən dövrdən bir müəssisələr alıcıların marağını artırmaq üçün, həmçinində məhsul vahidinə düşən xərcləri azaltmaq üçün öz məhsulunu yeni metod vasitəsilə bazara çıxarırlar. Bunun nəticəsində isə rəqib müəssisələr öz rəqabət şərtlərini və mövqeylərini dəyişirlər.

4. Liderliyin dəyişilməsi. İri müəssisələr rəqabət mühitinə daxil olur və oradan çıxır. Başqa sözlə desək, yeni rəqabət, yeni əsas müəssisələrin meydana gəlməsi, bazar şəraitinin dəyişdirilməsi və s.-ni həyata keçirir.

5. İnnovasiyanın yayılması. Rəqib müəssisələr yeniliklər və texnologiyalar haqqında biliyə malik olduğu zaman, onda onlar üçün rəqabət mühitinə maneəsiz daxil olmaq üçün şərait yaranır.

Bu meyarlara əsaslanaraq, emal sənayesi müəssisələrində sahibkarlıq fəaliyyətinin rəqabətədavamlı innovasiyalı inkişafına mane olan amillər aşağıdakı kimi qruplaşdırılır.

Qeyd etmək lazımdır ki, emal sənayesi müəssisələri üzrə iqtisadi amillər qrupuna öz pul vəsaitinin və dövlət tərəfindən maliyyə yardımının kifayət qədər olmaması, təzə məhsullara ödəniş qabiliyyətli tələbatın aşağı olması, yeniliklərin dəyərinin aşağı olması, yeniliklərin dəyərinin yüksək olması, yüksək iqtisadi risk, yeni məhsullara çəkilən xərclərin əvəzinin ödənilməsi müddətlərinin çox olması daxildir. İstehsal amilləri qrupuna isə müəssisələrin innovasiya potensialının aşağı olması, yeni texnologiyalar və satış bazarları haqqında informasiyanın və ixtisaslı işçilərin çatışmaması, müəssisələr tərəfindən yeniliklərin qəbul edilməməsi, digər müəssisələr və elmi təşkilatlar ilə kooperasiya imkanlarının olmaması daxildir. Digər amillərə isə daha əvvəlki innovasiyalar nəticəsində yeni məhsullara ehtiyacın olmaması, innovasiya fəaliyyətini tənzimləyən və həvəsləndirən qanunvericilik və normativ-hüquqi sənədlərin olmaması, innovasiya prosesi müddətinin qeyri-müəyyən olması, innovasiya infrastrukturunun (vasitəçilik, informasiya, hüquq, bank və s. xidmətlərinin) və texnologiyalar bazarının inkişaf etməməsi daxildir.

Bütün bunlar isə, emal sənayesi müəssisələrinin rəqabətədavamlı inkişafına mane olan amillərin aradan qaldırılması üzrə tədbirlər layihəsinin həyata keçirilməsini zəruri edir.

1.Emal sənayesində sahibkarlıq fəaliyyətinə mane olan iqtisadi xarakterli amillərin 1% aradan qaldırılması emal sənayesinin rəqabətədavamlı iqtisadi inkişafını 0,4 % yüksəltmiş olar.

2. Emal sənayesində sahibkarlıq fəaliyyətinə mane olan istehsal xarakterli amillərin 1% aradan qaldırılması emal sənayesinin rəqabətədavamlı iqtisadi inkişafını 0,3 % yüksəltmiş olar.

3.Emal sənayesində sahibkarlıq fəaliyyətinə mane olan idigər xarakterli amillərin 1% aradan qaldırılması emal sənayesinin rəqabətədavamlı iqtisadi inkişafını 0,25 % yüksəltmiş olar.

Qeyd etmək lazımdır ki, emal sənaye müəssisələrinin rəqabətədavamlı inkişafını təmin etmək üçün bu proqnoz mühakimələrlə yanaşı, emal sənayesi müəssisələri üzrə 3-4 ildən bir məhsulun, iş yerlərinin, texnologiyaların və bütün bazarın monitorinqi (attestasiyasını) aparılmalıdır.

Digər tərəfdən isə, emal sənayesində sahibkarlıq fəaliyyətinin rəqabətə-davamlı iqtisadi inkişafı bilavasitə daxili və xarici mühit amillərdən də asılıdır. Buna görə də sahənin innovasiyalı inkişafı üçün bu amillərin də nəzərə alınması vacibdir. Bu amillər aşağıdakılardır:

1. Xarici mühit amilləri:

- *İstehsal fəaliyyətin xammal və materiallarla təmin edilməsi.*
- *İnvestisiya layihələrinə uzunmüddətli kapital qoyuluşları.*
- *Mütəxəssislərin hazırlanması prosesinin təkmilləşdirilməsi və s.*

2. Daxili mühit amilləri:

- *Enerji və resurslara qənaət edən yeni texnologiyaların tətbiq edilməsi.*
- *Emal sənayesi məhsullarının istehsalı prosesində əmək, material və enerji resurslarına çəkilən xərclərin minimum səviyyəsi.*
- *İnnovasiyanın tətbiqi vasitəsi ilə xammalın emalı.*
- *Nano texnologiyaların tətbiqi və s.*

Bütün bunlarla yanaşı, emal sənayesində sahibkarlıq fəaliyyətinin rəqabətədavamlı inkişafı sahədə yarana bilən risklərin azaldılması və məhsulun artım səviyyəsi vasitəsi ilə investisiyanın cəlbediciliyinin yüksəldilməsi də nəzərdə tutulmalıdır. Eyni zamanda, emal sənayesində sahibkarlıq fəaliyyətinin rəqabət qabiliyyətliyinin yüksəldilməsində, onun rəqabətədavamlı inkişafında, innovasiyaların səmərəliliyinin artırılmasında, xammal və materialların müasir texnologiya vasitəsi ilə emal edilməsində dövlət dəstəyi böyük rol oynamalıdır.

Bununla yanaşı, emal sənayesi müəssisələrinin innovasiya fəaliyyətinin yüksəldilməsi məqsədi ilə onların həyata keçirilməsinə sərf olunan xərclərin azaldılması üzrə tədbirlərin həyata keçirilməsi də məqsədəuyğun olardı. Bu, innovasiya fəaliyyətini yüksəldən ehtiyatların formalaşması və çoxaldılmasına imkan yaradacaq. Bu isə, sonda bütün müəssisələrin səmərəliliyi artacaq və o cari tələbatı ödəyən tamamilə yeni məhsul buraxmaq imkanına malik olacaq ki, bununla da müəssisə öz rəqabətqabiliyyətini yüksəldəcək

Emal sənayesi müəssisələrinin rəqabətədavamlı iqtisadi inkişafı üzrə tədqiqat işində və beynəlxalq miqyasda aparılmış araşdırmaları ümumiləşdirsək, emal sənayesində sahibkarlıq fəaliyyətinin səmərəli fəaliyyəti üçün əsasən aşağıdakı innovativ meyarlara üstünlük verilməsini məqsədəuyğun hesab etmək olar :

1. *Emal sənayesinin prioritet sahələrində rəqabət üstünlüyünün formalaşması.*
2. *Emal sənayesinin xarici və daxili risk amillərinin təsirinə uyğunlaşması.*
3. *Emal sənayesinin innovativ inkişafını təmin edən texnoloji ehtiyatların formalaşması.*
4. *Emal sənayesinin iqtisadi və istehsal potensialı üzrə, eyni zamanda onun infrastrukturunun inkişafına investisiya qoyuluşlarının stimullaşdırılması və*

Istifadə edilmiş ədəbiyyat

1. *"Azərbaycan 2030: sosial-iqtisadi inkişafa dair Milli Prioritetlər"in təsdiq edilməsi haqqında Azərbycan Respublikası Prezidentinin Sərəncamı. 02 fevral 2021.*
2. *Azərbaycan Respublikasının milli iqtisadiyyat perspektivliyi üzrə Strateji Yol Xəritəsi. Azərbaycan Respublikası Prezidenti 2016-ci il 6 dekabr tarixli Fərmanı ilə təsdiq edilmişdir.*
3. *"Azərbaycan Respublikası regionlarının 2014-2018-ci illərdə sosial-iqtisadi inkişafı Dövlət Proqramının tədbirlər planı" // 27.02.2014-cü ildə qəbul edilmişdir. –Bakı: Azərbaycan Respublikasının Qanunvericilik Toplusu. №2, -2014, -21 s.*
4. *"Azərbaycan Respublikası regionlarının 2019-2023-cü illərdə sosial-iqtisadi inkişafı Dövlət Proqramının tədbirlər planı" // 29.01.2019-cu ildə qəbul edilmişdir. –Bakı: Azərbaycan Respublikasının Qanunvericilik Toplusu №6-2019,-32s.*
5. *"Azərbaycan Respublikasında 2009-2015-ci illərdə elmin inkişafı üzrə Milli Strategiyanın həyata keçirilməsi" ilə bağlı Dövlət Proqramı // 04.05.2009-cü ildə qəbul edilmişdir. –Bakı: Azərbaycan Respublikasının Qanunvericilik Toplusu. №5, -2009, -27s.*
6. *Qarayev, R.H. Sahibkarlıq fəaliyyətində rəqabət münasibətlərinin tənzimlənməsi məsələlərinə beynəlxalq təcrübədə elmi nəzəri yanaşmalar // -Bakı: AMEA iqtisadiyyat institutu Elmi əsərlər, 2016.№3, -s. 96-103*
7. *Qarayev, R.H., Süleymanov Q.S. İqtisadiyyatın innovativ inkişafında Çin təcrübəsi və Azərbaycanın iqtisadi inkişaf perspektivlərində ondan istifadə yolları // -Bakı: AMEA İqtisadiyyat İnstitutu Elmi əsərləri, -2019.№2 səh.42-47*

8. *Böyük İqtisadi Ensiklopediya [7 cilddə] / / Red. hey. sədri Səmədzadə Z.Ə, -Bakı: Şərq-Qərb, -7c. - 2012,2015*

9. *Səmədzadə, Z.Ə. Böyük yolun mərhələləri – Azərbaycan iqtisadiyyatı yarım əsrdə: reallıq və perspektivlər / Z.Ə.Səmədzadə -Bakı: 45 , -2014, -68 s.*

10. *Səmədzadə, Z.Ə. Azərbaycanın sosial-iqtisadi inkişafında yeni keyfiyyət mərhələsi: nəticələr, perspektivlər, proqnozlar / Z.Ə.Səmədzadə [və b.] –Bakı:Azərbaycan, -2006, -72 s*

11. *Агеев, А.И. Экономический пояс шелкового пути ИНЭСМ. / А.И.Агеев –М:Русский биографический институт Институт экономических стратегий, -2015, -76 с.*

12. *Азербайджано-Российские торгово-эконономические отношения: тенденции и перспективы их развития / З.А. Самедзаде [и др.] -Баку: Нурлан, 2006.*

13. *С.А.Касперович, Г.О.Коновальчик "Организация производства и управление предприятием" Минск: БГТУ, 2012. -344 с.*

14. *http://center-yf.ru/data/menedzheru/upravlenie-riskami.php*

15. *http://www.askins.ru/index.php/princip*

16. *http://prom-nadzor.ru/content/memody-risk-menedzhmenta-na-predpriyii*

17. *http://www.risk24.ru/vidi.htm*

18. *https://ru.wikipedia.org/wiki/Риск*

19. *http://studme.org/158706276560/menedzhment/organizatsiya-risk/*

20. *www.economy.gov.az*

Historical sciences

FRANCE'S ENERGY POLICY IN THE MIDDLE EAST AND ITS ENVIRONMENTAL IMPACTS (1993–2018)

Vasila Ibadli Alif
Lecturer
Azerbaijan University of Languages

Introduction

France has formulated its energy strategy in the Middle East to ensure national energy security while strengthening its role in international politics. This region holds strategic importance for France, primarily due to its vast oil and natural gas reserves. At the same time, France seeks to maintain its position as a global leader in promoting renewable energy and environmental sustainability. As a result, the country pursues a hybrid policy in the Middle East, addressing both traditional energy demands and environmental protection concerns.

Keywords: France's fossil fuel diplomacy, alternative energy sources, environmental sustainability, energy security

France's Energy Strategies in the Middle East

Fossil Fuel Partnerships

France has established deep economic ties with Middle Eastern countries based on oil and natural gas exports. One of the key players in this strategy is TotalEnergies, which has made significant investments in oil and gas extraction, as well as liquefied natural gas (LNG) infrastructure, in Iraq, Saudi Arabia, and Qatar [2].

Renewable Energy Initiatives

France is also a major partner in the development of alternative energy sources in the Middle East. Its involvement in the Masdar Initiative in the United Arab Emirates and support for Saudi Arabia's NEOM project demonstrate the country's influence in this sector. Additionally, French companies actively participate in solar energy projects in Jordan and Oman.

Environmental Impacts of France's Energy Policies

Negative Effects

France's fossil fuel policies have adversely affected the region's ecosystems. The operations of TotalEnergies in Iraq and Saudi Arabia have contributed to environmental pollution and increased carbon emissions. Oil extraction and transportation processes have also had significant negative impacts on local ecosystems. The long-term ecological consequences of these policies are reflected in the decline of biodiversity in the region [3].

Positive Contributions

France's renewable energy initiatives represent crucial steps toward environmental protection in the Middle East. The implementation of solar energy projects has helped reduce the region's carbon footprint while promoting sustainable energy production. Furthermore, France has played a key role in supporting Middle Eastern countries in meeting their environmental responsibilities under the Paris Agreement (2015), which aims to limit global warming to below 2°C, with efforts to reach 1.5°C. Under the agreement, member states commit to reducing climate change impacts, strengthening adaptation measures, and providing financial support for sustainability initiatives. France has made significant progress in the renewable energy sector both domestically and internationally. By investing in this sector in the Middle East, France has set an example for other nations in implementing the Paris Agreement's goals. TotalEnergies, in particular, plays a vital role in expanding green energy production and mitigating the effects of climate change [2].

The Role of TotalEnergies

TotalEnergies operates in both fossil fuel and renewable energy projects in the Middle East. For instance, while it has invested in LNG infrastructure in Qatar, it has also partnered in solar energy projects in the United Arab Emirates. This dual approach reflects the complexity of France's energy policies in the region [1].

Renewable Energy Projects

The renewable energy projects supported by France aim to minimize environmental impacts. For example, the Mohammed bin Rashid Al Maktoum Solar Park in Dubai is one of the key projects involving French companies. Similarly, France's involvement in Saudi Arabia's green hydrogen production projects highlights its commitment to environmental sustainability.

Conclusion

France's energy policy in the Middle East aims to balance the need for traditional energy resources with the promotion of sustainable energy solutions. While fossil fuel-based economic relations address short-term demands, they also exacerbate long-term environmental challenges. In contrast, France's renewable energy initiatives have made significant contributions to the region's sustainable energy development. In the future, aligning these policies more closely with environmental concerns will play a crucial role in enhancing France's regional influence.

References

1. International Renewable Energy Agency (IRENA) (2021). Renewable Energy in the Middle East: Opportunities and Challenges. https://www.irena.org/
2. Masson-Delmotte, V., & Zhai, P. (2018). Global Warming of 1.5°C: An IPCC Special Report. Intergovernmental Panel on Climate Change (IPCC). https://www.ipcc.ch/sr15/
3. Mohammed Mahmoud. (2023, November 30). The Future of Climate Change Mitigation in the Middle East and North Africa. Middle East Institute. https://www.mei.edu/publications/future-climate-change-mitigation-middle-east-and-north-africa

Jurisprudence

THE CHALLENGE OF ENSURING TRANSPARENCY IN PUBLIC ADMINISTRATION IN THE REPUBLIC OF ALBANIA

Vilson Xhaferraj
Msc.,
Part-time lecturer, "University Aleksander Moisiu" Durrës
Llambi Prendi
Prof. Asoc. Dr.,
Dean, Faculty of Business, "University Aleksander Moisiu" Durrës

Abstract

One of the key challenges in combating corruption in the Republic of Albania is ensuring the transparency of public administration bodies in their operations. Law 119/2014, "On the Right to Information," mandates that public administration bodies publish specific information without the need for a request, outlining the types of information that must be made publicly available[1]*.*

This study aims to evaluate how effectively public administration institutions are complying with this legal requirement, with the goal of assessing the level of transparency within these institutions. The chosen methodology will provide concrete results by verifying the adherence to legal obligations regarding the mandatory publication of information, through monitoring the official websites of selected institutions.

Keywords: *transparency, integrity, reliability, public body, public information.*

Introduction

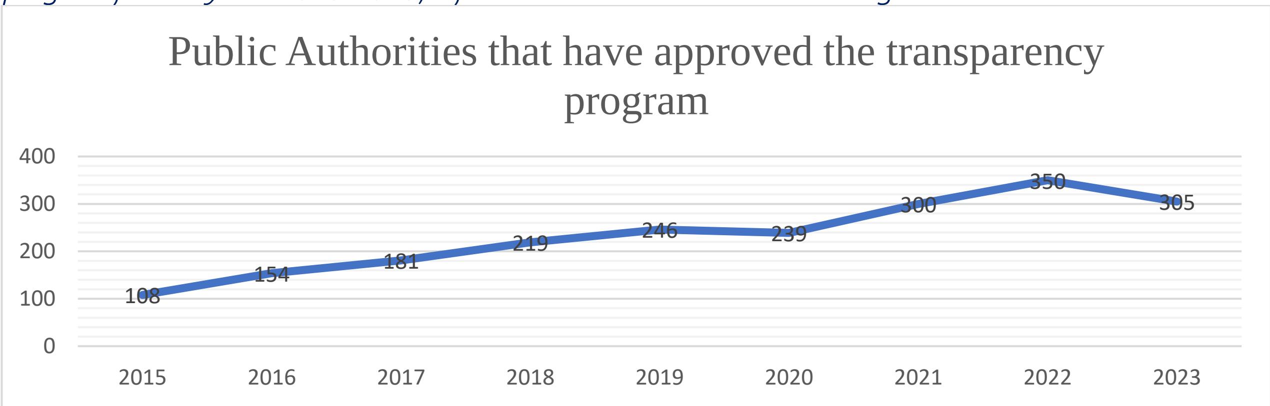
Interest in transparency within the public sector has surged in recent years, resulting in a continuous flow of publications examining its determinants and effects. Most research tends to be either normative or observational, suggesting that transparency may influence attitudes like trust in government. Moreover, various studies have looked into the factors that drive government transparency. (Grimmelikhuijsen, Weske, & Tummers, 2017)[1] *Transparency is mainly regarded as a mechanism that allows external stakeholders to observe an organization's internal operations, prevent corruption, and guarantee due process. (Douglas & Meijer, 2016)*[2] *It is a complicated and multi-dimensional concept, and measuring it is challenging. There is no definitive "transparency meter" or singular, clear unit of measurement, as one might find when measuring a physical quantity. (Alaimo, Galli , Rizzo, & Scaglioni , 2023)*[3] *Confidence in public institutions can increase the variety of effective policy options and lengthen the period in which results are anticipated. This trust is essential for executing policies that rely on the cooperation and compliance of citizens. (UNDP, 2021)*[4] *The primary challenge for any public organization is converting formal objectives into effective operational practices. (Boin & Christensen, 2008)*[5] *The transparency of the activity of the Public Administration Bodies is an important indicator in the perception of the level of corruption in a democratic country. Publication without request on the official websites of public institutions, of complete information related to; the mission and purpose of their creation, the services they provide, the composition and structure of their salaries, decision-making, budget expenditures, the publication of related contracts and the progress of their implementation, the publication of procedures for requests for information, complaints and participation in decision-making, providing additional information about the services offered by the institution and the quality of this service, etc., constitute the framework of the level of transparency of a public body. The more extensive, accurate and clear this information is, the higher is the public perception of the reliability of an*

[1] Grimmelikhuijsen, S., Weske, U., & Tummers, L. (2017). Public Sector Transparency. Experiments in Public Management Research. Challenges and Contributions, Cambridge University, (pp. 291-312).
[2] Douglas, S., & Meijer, A. (2016). Transparency and public value; Analyzing the transparency practices and value creation of public utilities. International Journal of Public Administration, Utrecht University.
[3] Alaimo, L., Galli, E., Rizzo, I., & Scaglioni, C. (2023). A new index of transparency: Evidence for the Italian municipalities. Socio-Economic Planning Sciences, Volume 89.
[4] UNDP. (2021). TRUST IN PUBLIC INSTITUTIONS. UNDP
[5] Boin, A., & Christensen, T. (2008). The Development of Public Institutions: Reconsidering the Role of Leadership. Sage publications, DOI: 10.1177/0095399707313700

institution. By reliable institution we mean a public body that provides the services for which it was created, with quality, efficiency and transparency. All three of these qualities are very important in the perception of public management, but this study will focus on the evaluation of the transparency of public institutions and the quality of information made public by them. This paper will evaluate the transparency of ministries and municipalities. It will compare the performance of the ministries with one another, the municipalities with each other, and the ministries against the municipalities. Ultimately, it will identify the legal requirements that are not being met and analyze how these shortcomings affect perceptions of transparency and corruption within the institutions.

Transparency in Albania

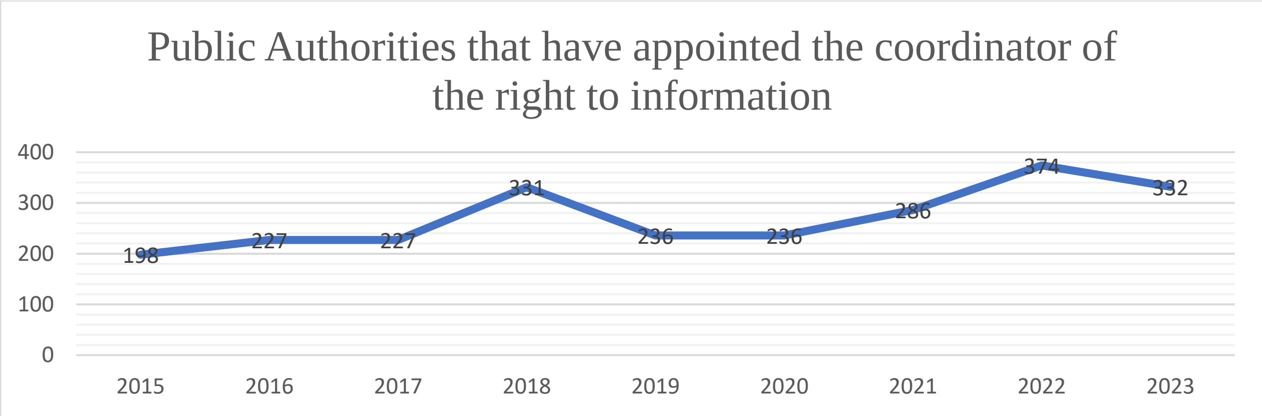
For the year 2023, Albania was evaluated by Transparency International for the perception of the level of corruption (CPI)[6]*, with 37 out of 100 possible points, ranking 98 out of 180 countries of the globe*[7]*. The way of calculating the level of perception of corruption (CPI)*[8] *includes the measurement as a very important indicator of the level of transparency of public institutions. Transparency in public administration in the Republic of Albania is guaranteed by the Code of Administrative Procedures as well as the special law 119/2014 "On the right to information", more specifically, in article 7 of this law, the information that must be made public without request is specifically defined. This law also provides for a public body that monitors and controls the implementation of the law. The commissioner for the right to information and the protection of personal data is the public body that performs regulatory, monitoring and sanctioning functions for the implementation of the obligations arising from public bodies from the law on the right to information. Referring to the annual reports*[9] *drawn up by the Commissioner*[10]*, it results that since 2015-2023 there has been a significant improvement in the implementation of the transparency program within the framework of information publication as an obligation from Article 7 of Law 119/2014 "on the right to information". According to the information obtained from the monitoring of the Commissioner's office, it results that in 2023 there are 305 public bodies that have approved the transparency program. Also, there are 332 public bodies that have appointed the Coordinator for the right to information. To understand more extended the performance progress for the years 2015-2023, information is summarized according to the tables below:*



Source: Authors

Referring to the above information, it results that since the entry into force of the "right to information" law, the number of public bodies that have approved the transparency program according to legal obligations has tripled, from 108 institutions in 2015 to 305 institutions in 2023. But referring to the total number of public bodies that have the obligation to approve this program, according to the Commissioner's report for 2023 this number was 332, it turns out that some of them have not yet approved the transparency program even though this is a legal obligation since 2014.

[6] *Corruption Perceptions Index.*
[7] *https://www.transparency.org/en/countries/albania.*
[8] *https://www.transparency.org/en/cpi/2023, "CPI 2023 Methodology".*
[9] *https://idp.al/raporte-vjetore/*
[10] *Këtu e në vijim Komisioneri për të drejtën e informimi dhe mbrojtjen e të dhënave personale.*

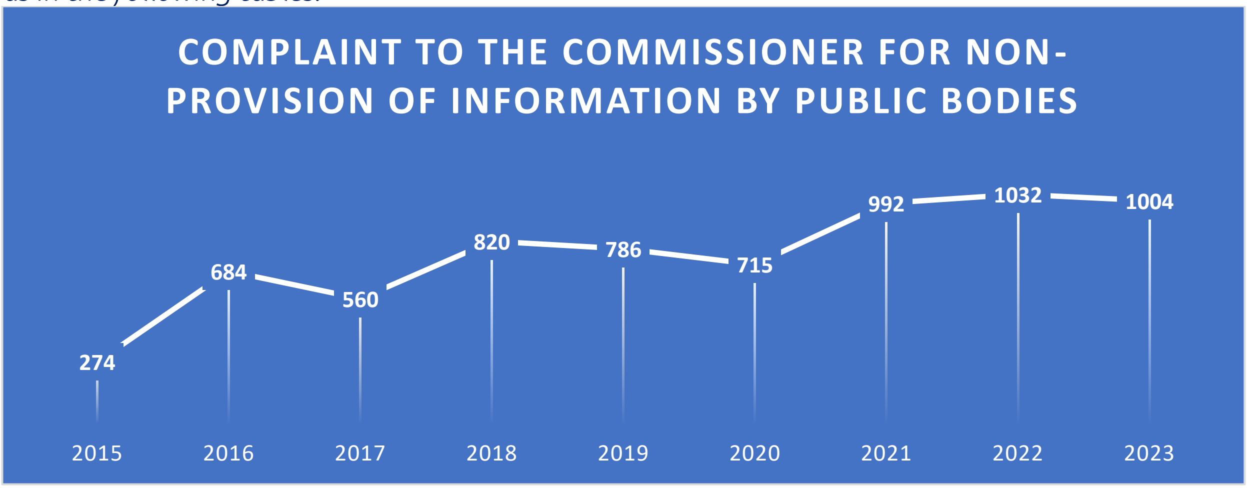


Source: Authors

It is also established that referring to the monitoring report of the Commissioner for the year 2023, it results that 332 out of 332[11] public bodies which have a legal obligation have appointed the coordinator of the right to information.

Another indicator through which it can be understood how public bodies have reacted to the guaranteed right to information, without giving the reason for seeking public information[12], and at the same time how public information seekers have reacted to their right to requested information as well as to complain about not providing it, is the monitoring reports of the Commissioner.

Data obtained from the Commissioner's monitoring reports for the years 2015-2023, which result as in the following tables:



Source: Authors

According to the obtained data, it appears that complaints about the right to information from 274 in 2015 have reached 1004 in 2023. First of all, from this statistic we understand that public bodies in 2023 are still far from the transparency required by the law on the right to information, as they constantly refuse to provide information when they have a legal obligation to do so. Secondly, the fact that the complaints have increased with the Commissioner, shows on the one hand that society is aware of the rights it has in relation to information from public bodies, but they also trust the public body charged with implementing the law on the right to information, the Commissioner.

Referring to another statistic from which it results that in 2023, out of 1004 complaints before the Commissioner, 609 of them were resolved with the administrative mediation procedure and for only 41 cases a decision was made by the Commissioner regarding the obligation of the public body to provide information[13].

Regarding the above, we can say that quality steps have been taken in the Republic of Albania to improve the standards related to the right to information from public bodies, but transparency in public administration still remains a challenge. This is because transparency is related to the fact of how much information public institutions publish that is related to their activity, but also to the quality of providing this information from a substantive point of view.

---

[11] Page 10 "Monitoring Transparency" Report of the Commissioner for 2023.
[12] Article 3, point 1 of Law 119/2014 "On the right to information".
[13] Page 16 III.2.2 "Decision making" Report of the Commissioner for the year 2023.

3. Methodology

This paper aims to study the behavior of public bodies against the obligation they have by law to make publicly available on official websites a number of categories of information without request. On the one hand, the type of published information will be studied if it is in accordance with the legal requirements and also the quality of providing this information, if it is formally published information or published with content value. For the purpose of the study, five of the most important Ministries and five of the most important Municipalities of the country were selected to be monitored. Through the monitoring of the official websites of these institutions on the Internet, it will be studied whether the complete information has been published according to the requirements of Article 7 of Law 119/2014 "On the right to information". According to the requirements of Article 7, public bodies must publish without request the information related to:

1. (a) The organizational structure, functions and duties of the public authority.

2. (b) Complete texts for the entire regulatory legal framework of the institution.

3. (c) Complete information related to the right to information, requirements, procedures, etc.

4. (ç) Data related to the address, working hours of the public body, contact with the coordinator for the right to information.

5. (d) Data on the education, qualifications and salaries of the institution's officials.

6. (dh) Monitoring and control mechanisms acting on the public authority.

7. (e) Data on the budget and expenditure plan for the following financial year and previous years.

8.(ë) Detailed information on procurement procedures or other competitive procedures.

9. (f) Information about the services that the public authority provides to the public, including service quality standards.

10. (g) Any mechanism and procedure for making requests and complaints.

11. (gj) Any mechanism or procedure through which interested persons can be involved in decision-making.

12. (h) Form of keeping documentation, types, forms of documents, as well as categories of information that is made public without request.

13. (i) The registrar of requests and responses.

14. (j) A description of the categories and forms of social assistance, subsidies provided.

15. (k) requently requested information and documents;

16. (l) Any other information deemed useful by the public authority.

The method of performance evaluation will be done by evaluating each legal requirement of Article 7 cited above with 1 point. This evaluation will be done in two directions; first, each institution will be evaluated if it has fulfilled all 16 legal requirements, with an evaluation of 1 point for each requirement, and on the other hand, the institutions grouped in the Ministry and the Municipality will be evaluated. In the second case, the institutions will be assessed, how much they all together fulfill each legal requirement from 1 point to 5 points. Further, from the obtained result, a comparison will be made of how the ministries perform compared to each other, the municipalities to each other, the ministries compared to the municipalities. In the end, it will be assessed what are the requirements of the law for which there are deficiencies in their fulfillment and the impact on the perception of transparency and corruption of the institution as a result of not fulfilling this obligation.

4. Analysis of the findings

Referring to the monitoring reports of the Commissioner, it has been found that there is a continuous improvement in the fulfillment of some of the main requirements of the law on the right to information against the obligations of public bodies to publish the transparency program, the appointment of the coordinator for the right to information and publication of the register of requests. These three indicators have been treated as very essential by the Commissioner in the first steps of implementing the law on the right to information. Until 2023, it turns out that all public bodies with minor exceptions have realized these points. So far, it seems that a few years of work has been done to realize the fulfillment of legal obligations from the formal side and it is time to make improvements until all legal conditions are met. In the summary evaluation according to the methodology explained above, the fully fulfilled legal requirement is evaluated with "yes", the partially fulfilled legal requirement is evaluated with "yes/no" and the unfulfilled legal requirement is evaluated with "no".

Table 1

The results of the monitoring of institutions near the Central Government, Ministries.

Central Institution	Information that is published without request under Article 7 of Law 119/2014																	
	a	b	c	ç	d	dh	e	ë	f	g	gj	h	i	j	k	l	points /16	
Ministry of Finance	yes	y/n	y/n	yes	no	no	no	y/n	yes	yes	yes	y/n	yes	no	yes	yes	10	63%
Ministry of Health	yes	yes	yes	yes	yes	y/n	y/n	y/n	yes	yes	yes	y/n	yes	yes	yes	yes	14	88%
Ministry of Economy and Innovation	yes	yes	no	yes	y/n	y/n	no	no	y/n	y/n	y/n	no	yes	yes	yes	yes	9,5	60%
Ministry of Internal Affairs	yes	yes	yes	yes	y/n	yes	yes	y/n	yes	yes	yes	yes	yes	no	yes	yes	14	88%
Ministry of Agriculture	yes	yes	yes	yes	yes	y/n	y/n	no	y/n	yes	yes	yes	yes	no	yes	yes	12.5	78%
Total	5	4.5	3.5	5	3	2.5	2	1.5	4	4.5	4.5	3	5	2	5	5	60	75%

According to the methodology used through the monitoring of the official websites of the five Ministries mentioned above, it is estimated that these public bodies do not fully fulfill the legal obligations related to the publication of public information without request. It turns out that the Ministry with the lowest performance is evaluated with 9.5 points out of 16 possible points and the Ministries with the highest performance are evaluated with 14 points out of 16 possible points. If we convert the results into a percentage, we would come to the conclusion that the ministry with the lowest performance in this case fulfills about 60% of the legal obligation and the ministries with the best performance fulfill about 88% of the legal requirements.

Evaluating the fulfillment of each point of Article 7 of the law, it results that the points for which information is not published at all without a request, or is published partially, are those defined in the letters "e" and "ë" of this article. The requirements of these two points are related to information on the institution's budget data and budget expenditures as well as public procurements, auctions, concessions, rental contracts, monitoring of the implementation of these contracts, etc. From the evaluation of the performance for the five ministries for the point "ë", it results that they reach an evaluation of 1.5 points out of 5 possible points, which converted into a percentage will be evaluated at 30%.

Also, from the interpretation of the data, it appears that there are serious deficiencies in the fulfillment of points "d", "h" and "j", of Article 7 of the law. The legal requirements related to these three points are related to the publication of information on the management staff of the institution, their appointment procedures, their CV. At this point, it is estimated that there should be a formal publication of the information of the employees who are selected according to the civil servant law, and is avoided the provision of information about the employees who are appointed by the labor code. Regarding the letter "h", the information is related to the listing of documents and their retention period, as well as the determination of which of the documents issued by the institution are published according to the law without request. Institutions at this point formally publish the type of acts they produce as well as the way they are stored, but do not list the documents that are made public without a request, creating confusion regarding this important part of transparency. While the requirements of the letter "j" are related to the description of the categories and forms of social assistance, grants or subsidies given.

From another point of view, if we analyze the result obtained from the monitoring of the five ministries together in relation to the implementation of all 16 points required by Article 7 of the law, it turns out that they are evaluated with 60 points out of 80 possible points, a result which if we were to convert it into a percentage, it would coincide with the fulfillment of this legal obligation at the level of 75%.

Table 2, the results of the monitoring of the institutions near the local government, Municipalities.

Local Government	Information that is published without request under Article 7 of Law 119/2014																	
	a	b	c	ç	d	dh	e	ë	f	g	gj	h	i	j	k	l	points	
Municipality of Tirana	yes	yes	yes	yes	yes	y/n	yes	y/n	yes	yes	yes	yes	yes	yes	yes	yes	15	94%
Municipality of Shkodër	yes	yes	yes	yes	no	yes	yes	y/n	yes	yes	yes	yes	yes	y/n	yes	yes	14	88%
Municipality of Fier	yes	yes	yes	yes	no	y/n	yes	no	y/n	no	no	no	yes	no	no	yes	8	50%
Municipality of Vlora	yes	yes	yes	yes	y/n	y/n	y/n	no	yes	yes	yes	y/n	yes	y/n	yes	yes	12.5	78%
Municipality of Elbasan	yes	yes	yes	yes	y/n	yes	yes	no	yes	yes	yes	y/n	yes	yes	y/n	yes	13.5	84%
Total	5	5	5	5	2	3.5	4.5	1	4.5	4	4	3	5	3	3.5	5	63	79%

From the monitoring of the official websites of the bodies of the local units of the five selected Municipalities, it was found that the Municipality with the weakest performance in relation to the publication of information without request according to the obligation of Article 7 of the law, is evaluated with 8 points out of a possible 16. while the Municipality with the best performance is evaluated with 15 points out of 16 possible.

The lowest performance is the fulfillment of letter "ë" of Article 7 of the law, which is related to the publication of information related to public procurement procedures, concessions, auctions, leases, contracts of these procedures and their monitoring. Referring to monitoring, it results that two municipalities have published partial information, while three municipalities have not published any information in fulfillment of this point. Also, low performance results from the assessment of the requirements of the letter "d", which is related to the publication of data on the education, qualifications and salaries of the institution's officials.

Deficiencies are also determined by the evaluation for the fulfillment of letter "h" and "j" of Article 7 of the law. These are related to the form of keeping documentation, types, forms of documents, categories of information that is made public without request, as well as the description of the categories and forms of social assistance or subsidies given.

From another point of view, if we analyze the result obtained from the monitoring of the five Municipalities in relation to the implementation of all 16 points required by Article 7 of the law, it turns out that they are evaluated with 63 points out of a possible 80, a result which if percentage conversion would coincide with the fulfillment of this legal obligation at the level of 79%.

5. Conclusions and recommendations

Some important conclusions emerge from this study which clearly reflect the level of transparency of some of the most important public administration institutions. We managed to understand that the formal publication of information in the most important public institutions reaches the average level of 75%-79% of the information that the law obliges to publish. Consequently, we reason that transparency in public administration from a formal point of view does not exceed the average level of 80% of what it should be.

- *From the analysis of the data, it appears that the Ministries and Municipalities perform almost at the same level in relation to the publication of data in the framework of transparency. Their performance has problems, mainly with poor evaluation, in the same requirements of the law of the Right to Information.*
- *The points where they have been evaluated the weakest are the requirements of the law to publish without request, information related to public procurement procedures, concessions, auctions and contracts related to these procedures, including monitoring reports of their implementation.*
- *Also, the monitored institutions performed poorly in fulfilling the legal requirements for providing information related to the education, work experience, recruitment method, of the main functionaries of these institutions.*
- *Another common point assessed as poor performance is the non-publication of grant benefit procedures, the description of the categories and forms of social assistance or subsidies.*

It has often been found that the published information is not updated according to the legal requirements and by-laws issued by the Commissioner for the right to information, which also shows the importance that public institutions give to public information and transparency.

The publication of budget data in an incomplete manner and only with the presentation of tables in formats that can only be understood by experts in the field, without providing summaries and explanations of how the money was spent and what public goods were benefited from its expenditure, was another common point which promotes a climate of distrust among citizens for public institutions.

In general, there is a tendency to publish information only formally, avoiding substantive publication. Institutions do not provide information that affects topics of high public sensitivity. The management of the institution's budget, the method of recruitment and the quality of employees recruited in key positions, the publication of reports on the implementation of public contracts, information on the criteria for benefiting from grants and subsidies or other social assistance, as topics of high public sensitivity, still remain a challenge for the transparency of public decision-making, the complete integrity of public bodies and, as a result, a challenge to the fight against corruption.

Lack of transparency can increase the perception of corruption even more than it actually is. The lack of publication of substantive information, in areas of high public sensitivity for certain procedures, increases the suspicion and perception that they may be in violation of the law and thus the integrity of the institution is compromised. Publishing information widely and within the limits of personal data *protection would do the opposite. In this case, the institutions would be perceived as transparent and therefore the credibility in them would increase, increasing their integrity and reducing the perception of corruption in them.*

The results of this study clearly show that public bodies are not fully implementing the requirements of Law 119/2014 "On the right to information", even though the law provides concrete measures and sanctions for its implementation. Under these conditions, it is necessary that after ten years have passed, that part of the law that compels public bodies to implement it should be reviewed. Also, heavier measures and sanctions should be foreseen for those institutions and heads of institutions that avoid fulfilling all the obligations stemming from this law.

The commissioner for the right to information should take measures for more in-depth monitoring of the implementation of the law on the right to information, creating evaluation models for all legal requirements. At the same time, it should increase inspections as well as design more detailed models of the transparency plan so that the information required to be made public is substantive. On the part of the Commissioner, measures should be taken to conduct informative meetings with the leaders of Ministries and Municipalities, regarding the implementation of the law on the right to information on their part and the dependent institutions, as well as leaving tasks and deadlines for completing deficiencies.

Bibliography

1. *Alaimo, L., Galli , E., Rizzo, I., & Scaglioni , C. (2023). A new index of transparency: Evidence for the Italian municipalities. Socio-Economic Planning Sciences, Volume 89.*
2. *Boin , A., & Christensen, T. (2008). The Development of Public Institutions: Reconsidering the Role of Leadership. Sage publications, DOI: 10.1177/0095399707313700.*
3. *Commissioner for the Right to Information and Protection of Personal Data. (2015). "Monitoring Transparency" Report of the Commissioner. TIRANE.*
4. *Commissioner for the Right to Information and Protection of Personal Data. (2016). "Monitoring Transparency" Report of the Commissioner. TIRANE.*
5. *Commissioner for the Right to Information and Protection of Personal Data. (2017). "Monitoring Transparency" Report of the Commissioner. TIRANE.*
6. *Commissioner for the Right to Information and Protection of Personal Data. (2018). "Monitoring Transparency" Report of the Commissioner. TIRANE.*
7. *Commissioner for the Right to Information and Protection of Personal Data. (2019). "Monitoring Transparency" Report of the Commissioner. TIRANE.*
8. *Commissioner for the Right to Information and Protection of Personal Data. (2020). "Monitoring Transparency" Report of the Commissioner. TIRANE.*
9. *Commissioner for the Right to Information and Protection of Personal Data. (2021). "Monitoring Transparency" Report of the Commissioner. TIRANE.*
10. *Commissioner for the Right to Information and Protection of Personal Data. (2022). "Monitoring Transparency" Report of the Commissioner. TIRANE.*
11. *Commissioner for the Right to Information and Protection of Personal Data. (2023). "Monitoring Transparency" Report of the Commissioner. TIRANE.*
12. *Douglas, S., & Meijer, A. (2016). Transparency and public value; Analyzing the transparency practices and value creation of public utilities. International Journal of Public Administration, Utrecht University.*
13. *Grimmelikhuijsen, S., Weske, U., & Tummers, L. (2017). Public Sector Transparency. Experiments in Public Management Research. Challenges and Contributions, Cambridge University, (pp. 291-312).*
14. *UNDP. (2021). TRUST IN PUBLIC INSTITUTIONS. UNDP.*
15. *https://www.transparency.org/en/cpi/2023, "CPI 2023 Methodology".*
16. *https://idp.al/raporte-vjetore/*

Medical sciences

AGE-RELATED FEATURES OF PATIENT SATISFACTION WITH MEDICAL CARE QUALITY IN KYIV

Vozniuk Vira Yu.
Bogomolets National Medical University, Kyiv, Ukraine

ВІКОВІ ОСОБЛИВОСТІ ЗАДОВОЛЕНОСТІ ПАЦІЄНТІВ ЯКІСТЮ МЕДИЧНОЇ ДОПОМОГИ В КИЄВІ

Вознюк В.Ю.
Національний медичний університет імені О.О. Богомольця, Київ, Україна

Вступ. *Всесвітня організація охорони здоров'я (ВООЗ) підкреслює важливість стосунків між лікарями та пацієнтами для забезпечення якісної медичної допомоги. Задоволеність пацієнтів є ключовим показником для оцінки систем охорони здоров'я та прогнозування результатів для здоров'я. Думки пацієнтів та їх задоволеність наданими послугами мають значне значення для оцінки якості медичних послуг. Задоволеність пацієнтів може бути пов'язана з етнічними, регіональними та соціально-демографічними відмінностями, а також віковими особливостями, які визначаються відмінностями в якості послуг та комунікації між пацієнтом і лікарем.*

Таким чином, актуальним постає питання дослідження задоволеності пацієнтів якістю надання медичної допомоги з урахуванням вікових відмінностей.

Мета дослідження *полягала у дослідженні вікових особливостей задоволеності пацієнтів якістю та доступністю надання первинної медичної допомоги лікарями загальної практики-сімейними лікарями (ЗПСЛ).*

Матеріали та методи дослідження.

Проведено опитування 510 пацієнтів за анкетою для вивчення задоволеності та якістю надання медичної допомоги лікарями ЗПСЛ в центрах первинної медичної допомоги в м. Києві. Анкета була розроблена на кафедрі менеджменту охорони здоров'я Національного медичного університету імені О.О. Богомольця та яка містила 5 запитань, серед яких були питання щодо способу запису до сімейного лікаря (питання №1), причини звернення (питання №2), оцінки організації запису на прийом до сімейного лікаря (питання №3), щодо якості надання медичної допомоги лікарем ЗПСЛ (питання №4), щодо ставлення лікаря до пацієнта під час прийому (питання №5).

Розподіл учасників опитування за віком наступний: молодших за 30 років — 90 осіб, у віці 31-40 років — 78 осіб, у віці 41-50 років — 112 осіб, у віці 51-60 років — 84 особи, старших 60 років — 146 осіб.

Для оцінки результатів опитування була використана шкала сумарних оцінок Лайкерта (англ. Likert scale), у якій пацієнти оцінювали ступінь своєї згоди або незгоди з кожним судженням, від «дуже погано» до «дуже добре» за 5-ти бальною оцінкою. Оцінка 4 та 5 балів були оцінені як позитивна оцінка відповіді на питання, 1-3 бали як негативна оцінка відповіді на питання та 0 балів – як не можуть оцінити.

Для аналізу використали методику Kruskal-Wallis. Аналіз результатів дослідження проводився з використанням ліцензійного пакету the statistical analysis package MedCalc v.19.4.1 (MedCalc Software Inc, Broekstraat, Belgium, 1993–2020).

Результати дослідження.

Отримані дані при порівнянні результатів аналізу за критерієм Kruskal-Wallis за віковими групами, свідчать, що 88,9% пацієнтів віком до 30 років вважають найзручнішим способом запису до лікаря через електронну систему. Серед респондентів віком 31-40 років цей показник становить 75,6%, у віковій групі 41-50 років – 58% респондентів. В той же час, лише 39,3% респондентів у віці 51-60 років користуються електронною системою. Серед осіб старше 60 років лише 24,7% вважають електронну систему запису зручною, тоді як 38,3% віддають перевагу запису через реєстратуру та 37% за допомогою телефоном. Таким чином, зручність *електронної системи запису зменшується з віком, тоді як поширеність запису через реєстратуру зростає серед старших вікових груп.*

Дослідження також включало аналіз причин, за якими пацієнти звертаються до лікаря загальної практики-сімейного лікаря. Найпоширенішою причиною звернення до лікаря ЗПСЛ є наявність скарг та симптомів захворювання (42,6% від загальної кількості респондентів). Другою за поширеністю причиною є отримання лікування (27,7% від загальної кількості респондентів). Третє місце займає діагностика, скринінг та профілактика, (9,6% респондентів). Іншими причинами звернення є отримання направлення до вузького лікаря-спеціаліста (8%), отримання направлення на лабораторні та інструментальні обстеження (5,9%), отримання лікарняного листа чи довідки (4,9%) та отримання результатів дослідження (1,3%).

Аналіз отриманих результатів опитування за причиною звернення пацієнтів різного віку свідчить, що структура відповідей респондентів за критерієм Kruskal-Wallis достовірно не відрізняється ($p>0,05$). У всіх вікових групах найчастішою причиною звернення є наявність скарг та симптомів захворювання. Для пацієнтів віком молодших за 30 років цей показник складає 40%, для 31-40 років — 43,6%, для 41-50 років — 46,4%, для 51-60 років — 45,2%, та для старших 60 років — 39%. Така причина звернення, як отримання результатів дослідження, має найменшу частку в структурі причин звернень у всіх вікових групах. У групі респондентів до 30 років цей показник становив 2,2%, у групі 31-40 років — 2,6%, у групі 41-50 років — 0%, у групі 51-60 років — 2,4%, та у групі старших 60 років — 0,7%.

Важливо відзначити, що причиною звернення до лікаря для профілактичного огляду (причина: діагностика, скринінг, профілактика) має відносно малий відсоток та коливається від 4,1% до 20%. Для пацієнтів віком молодших за 30 років він складає 20%, для 31-40 років — 6,4%, для 41-50 років — 11,6%, для 51-60 років — 8,3%, та для старших 60 років — 4,1%. Звертає на себе увагу, що чим старше вік пацієнта, тим рідше він звертається до лікаря з метою профілактичного обстеження.

На питання анкети №3 щодо оцінки організації запису на прийом до лікаря ЗПСЛ виявлено суттєву різницю в структурі відповідей респондентів різного віку. Переважна більшість пацієнтів позитивно оцінили організацію запису на прийом до свого лікаря ЗПСЛ. Зокрема, частка задоволених організацією запису в групі віком до 30 років становить 97,8% (4 та 5 балів), з них 76,7% оцінили на максимальний бал (5 балів). В групі віком старше 60 років частка задоволених становить 88,3%, з них 56,1% оцінили на максимальний бал. В групі віком 31-40 років частка задоволених становить 94,8%, в групі 41-50 років – 95,5%. Варто відзначити, що в групі респондентів старше 60 років лише 56,1% надали максимальний бал, що є найнижчим показником серед усіх вікових груп. Структури відповідей на питання №3 достовірно відрізняються між групами респондентів різного віку ($p=0,0000322$).

В той же час, за результатами дослідження відповіді респондентів на питання №4 та питання №5 щодо оцінки якості наданням медичної допомоги та ставлення лікаря до пацієнтів, було виявлено, що структура відповідей між різними віковими групами не має суттєвих відмінностей ($p<0,05$). Частка задоволених якістю надання медичної допомоги лікарем коливалася від 96,4% у групі 51-60 років до 98,6% у групі старше 60 років. У групі до 30 років цей показник становив 97,8%, у групі 31-40 років – 97,4%, а у групі 41-50 років – 98,2%. Частка задоволених респондентів ставленням лікаря ЗПСЛ до пацієнтів під час прийому становила 97,8% у віковій групі до 30 років, 98,7% у групі 31-40 років, 97,3% у групі 41-50 років, 100% у групі 51-60 років та старше 60 років. Таким чином, за результатами питань №4 та №5, задоволеність якістю медичної допомоги і ставленням лікаря є високою серед усіх вікових груп, без значних відмінностей.

Висновки. *Дослідження виявило вікові особливості у задоволеності пацієнтів первинною медичною допомогою. Молодші пацієнти частіше користуються електронним записом, тоді як старші віддають перевагу традиційним методам. Основною причиною звернення є наявність скарг на здоров'я (42,6%), а частка профілактичних оглядів зменшується з віком (від 20% у молодих пацієнтів до 4,1% у літніх). Організація запису на прийом є ключовим чинником задоволеності, причому рівень задоволених пацієнтів коливається від 97,8% серед молодших до 88,3% серед старших. Якість медичної допомоги оцінюється високо у всіх вікових групах (понад 96%). Для підвищення рівня задоволеності пацієнтів необхідно враховувати вікові відмінності, оптимізувати організацію запису.*

UDC: 616-006-071-07(574)

ONCOLOGICAL SCREENING IN KAZAKHSTAN: RESULTS ACHIEVED AND PROSPECTS

Arman Khozhayev
Professor of the S.N. Nugmanov Department of Oncology,
Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Sanam Rakhmetzhanova
Oncologist-chemotherapist,
Almaty Oncology Center, Almaty, Kazakhstan
Makpal Lukpanova
General Practitioner,
Zhambyl Central District Hospital, Almaty region, Kazakhstan
Aruzhan Aitimbetova
Intern General Practitioner,
Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Bayan Kumarova
Intern General Practitioner,
Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Sabina Yessenkeldi
Intern General Practitioner,
Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Venera Atasheva
Intern General Practitioner,
Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Meruyert Iskhakova
Intern General Practitioner,
Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Akbota Tlegenova
Intern General Practitioner,
Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Regina Amarova
Intern General Practitioner,
Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan

Abstract

In this scientific and analytical work, the indicators of incidence and mortality from cervical cancer, breast cancer and colorectal cancer in the regions of our country are considered. The screening methods currently used and the results of this preventive survey of the population are described in detail. Detailed step-by-step algorithms are presented, and the principles of organization and diagnostic capabilities of the screening program for the active detection of these nosological forms of malignant neoplasms in clinically asymptomatic individuals are reflected.

Keywords: cervical cancer, breast cancer, colorectal cancer, epidemiology, incidence, mortality, screening, Pap test, smear for oncocytology, mammography, hemocult test, fecal occult blood test - FOBT, total colonoscopy.

Today, one of the most important postulates of the oncology service continues to be the early diagnosis of malignant tumors. The purpose of screening is to identify asymptomatic (preclinical) cancer or precancerous conditions in an otherwise healthy target population. In this case, screening plays a leading role in secondary cancer prevention. The key concept of cancer screening is to identify pathology at a stage of development when the effectiveness of treatment is maximum and the prognosis is most favorable. When precancerous diseases are detected during screening, secondary prevention methods allow to prevent the transition of the initial pathological state to cancer. In this case, the main conditions for screening are the presence of trained personnel and a standard approach to identifying the trait being studied and evaluating the results. The methods used must be sufficiently simple, reliable and reproducible, as well as have sufficient sensitivity and high specificity [1-3].

Screening plays an important role in improving early diagnosis and treatment outcomes. According to the Guide to Cancer Early Diagnosis by Ilbawi A. et al. [4], screening aims to detect unrecognized cancer or its prior lesions in a typically healthy, asymptomatic population through tests or other procedures that can be applied quickly and are widely available to the target population. In screening, the target population is assessed for unrecognized cancer or precancer, and most people tested will not be diagnosed with the disease. Screening should be seen as a process and not as the performance of a specific test, examination, or procedure. The screening process includes a system of informing and inviting the target population to participate; administering the screening test; following-up with test results and referral for further testing among those with abnormal test results; ensuring timely pathologic diagnosis, staging and access to effective treatment with routine evaluation to improve the process. A screening program encompasses the process from invitation to treatment and requires planning, coordination and monitoring and evaluation.

To date, the republican oncological screening program includes three nosological forms of malignant neoplasms - cervical cancer (CC), breast cancer (BC), colorectal cancer (CRC). Let's consider the current epidemiological indicators, methodology and results of cancer screening in our country.

CC in the structure of all malignant tumors of both sexes of the population in 2022 took 6th place with a share of 5.51% (2021 - 4th place, 5.54%), in women - stable 2nd place - 9.7% (9.7%) [5].

The incidence rate per 100 thousand population increased from 9.4 to 9.92. In 10 regions of the republic, the incidence rate is higher than the national average: Pavlodar - 17.2 per 100 thousand people. (2021 – 16.7) – the highest level, East Kazakhstan – 14.3 (10.8), North Kazakhstan – 14.3 (10.2), Atyrau – 13.2 (13.8), Zhetysu - 11.7, Karaganda - 11.7 (12.0), Abay - 11.1, Akmola - 11.1 (11.9), Mangistau - 11.1 (9.7), Kostanay - 10.8 (10.6) regions.

Low incidence rates in Zhambyl region - 5.8 per 100 thousand population (5.7), Turkestan region - 6.1 (5.2), Aktobe region - 8.3 (11.6), Kyzylorda region - 8.5 (8.2) areas.

CC in the structure of causes of death from malignant tumors of the population of both sexes in 2022 rose from 9th to 8th position, with a share of 4.6% (2021 - 4.3%), mortality from CC is stable at 3.1 per 100 thousand population (3.1).

The mortality rate from CC in 10 regions is higher than the national average: Akmola - 4.2 per 100 thousand population (2021 - 3.1) - maximum level, West Kazakhstan - 4.1 (4.8), Pavlodar - 3.8 (5.6), Almaty – 3.7 (2.5), Zhetysu – 3.7, Atyrau – 3.4 (4.0), East Kazakhstan – 3.3 (3.8), Karaganda - 3.2 (4.7), Kostanay - 3.2 (2.4) regions and Almaty city - 3.4 (2.9).

Below the national average, mortality was recorded in Abay region, cities Astana, Shymkent - 2.9 per 100 thousand population, Mangistau - 2.8 (3.0), Turkestan - 2.3 (2.2), Aktobe - 2.2 (3.0), North - Kazakhstan - 2.0 (2.6), Kyzylorda regions - 1.7 (3.5) - the best result [5].

In 12 regions, a 100% level of morphological verification of the diagnosis was ensured, the lowest or worst indicator for the third year was in the Kyzylorda region - 94.3%, below the national average indicators in Akmola - 98.8%, Atyrau - 98.9%, Kostanay - 98, 9%, Mangistau - 97.6%, Pavlodar - 96.6%, regions and Almaty city - 98.5%;

In a number of regions, the frequency of diagnosis of stage I-II CC was below the national average (88.1%) - in Akmola - 76.2% (2021 - 73.6%) - the worst result in the country, in Karaganda - 77, 2%, Zhetysu - 82.9%, Abay - 83.8%, Kostanay - 84.3%, Aktobe - 85.5%, West Kazakhstan - 85.7%, Pavlodar - 81.3%, while that in the Atyrau region - 100.0% result.

The proportion of stage IV CC is higher than the national average (2.7%) in the following regions: the worst result is in Zhetysu (6.1%), above the national average in Karaganda - 5.1% (2021 - 5.6%), Akmola - 4.8% (2.3%), Kostanay - 4.5% (4.4%), North Kazakhstan - 3.9% (7.4%), Almaty - 3.7 % (5.1%), Zhambyl - 2.9% (0.0) regions, cities Almaty – 3.6% (1.8%) and Shymkent – 3.8% (5.9%). The lowest neglect is in the East Kazakhstan region - 1.0% (0.7%).

Late diagnosis rates (III-IV stages) for CC are above the national average - 11.9% (15.4% in 2021) were noted in Akmola - 23.8% (2021 - 26.4%) - worst result, Karaganda - 22.8% (35.2%), Pavlodar - 18.8% (20.8%), Zhetysu - 17.1% (24.2%), Abay - 16.2% (12.8%), Kostanay - 14.6% (15.6%), Aktobe - 14.5% (9.6%), West Kazakhstan - 14.3% (32.4%) regions. The lowest neglect is in the Mangistau region - 6.0% (20.8%).

Across the country, the five-year survival rate of patients with CC registered in 2018 was 59.9% in 2022, with a decrease from the level of 2021 (67.5% for those registered in 2017), and with a significant range in by region, from the maximum – 72.9% (2021 – 70.7%) in the North Kazakhstan region, to the minimum – 34.9% (64.4%) in the Atyrau region [5].

CC screening is a periodic, comprehensive examination of women of a certain age group as part of *a special medical program to prevent and reduce incidence and mortality from CC.*

Type of screening - population. The purpose of screening is to identify pre-invasive diseases of the cervix with subsequent recovery. The screening method is a cytological examination of a smear for oncocytology from the cervix (traditional and liquid cytology). Coloring according to the "Papanicolaou test" (Pap test). Interval - 1 time in 4 years. Target group: women aged 30-70 years who are not registered in the dispensary for CC. The expected results are a decrease in incidence and mortality from CC.

Screening steps:

1) Preparatory - formation of target groups, information support and invitation to screening. The preparatory stage is carried out by the nurses of the primary health care organization responsible for preventive measures and includes: annual compilation of a list of women subject to screening in the coming year by November 15 of the current year, followed by monthly correction; informing target groups of the female population about the need for screening; screening invitation; ensure timely screening.

2) Screening - filling out a statistical card of a preventive medical examination (screening) of an outpatient (form 025-08/y), a register of patients subject to cytological screening and taking material for cytological examination from the cervix. The screening examination of the target groups of the female population is carried out by a specially trained midwife of the primary health care organization.

3) The final one is obtaining the results of cytology, informing the woman and developing further management tactics, fill out accounting and reporting statistical documentation. Responsible for the final stage of screening is the obstetrician-gynecologist of primary health care [6].

Cytological screening of CC is a complex of organizational and medical measures aimed at early detection of precancerous and neoplastic diseases of this localization and at reducing the mortality of this cohort of patients. For traditional cytology, a smear containing 8-12 thousand cells of stratified squamous epithelium (including cells of metaplastic epithelium) is considered adequate; for liquid cytology - 5 thousand cells. For both methods, the number of cells of endocervical epithelium and/or metaplastic epithelium (from the transformation zone) must be at least 10 (single or in clusters). If more than 75% of the cells of the stratified squamous epithelium are covered with erythrocytes, leukocytes, etc., then the quality of the smear is considered unsatisfactory.

Interpretation of the results of a cytological study is carried out according to the Bethesda-terminology cytological system:

Intraepithelial changes and malignant processes are absent (NILM). This group includes cytological conclusions about the normal state of the epithelium, as well as the presence of various non-neoplastic diseases. Normally, squamous epithelial cells, groups of cells of columnar epithelium and metaplastic epithelium, a small number of leukocytes, and rod/mixed microflora are found in preparations. In the presence of non-neoplastic processes, their nature and, if possible, the cause are specified: atrophic changes, reactive changes associated with inflammation, including typical regeneration. In addition, the presence of microorganisms is indicated: Trichomonas vaginalis, fungi, morphologically corresponding to Candida spp., bacterial vaginosis, cellular changes corresponding to the defeat of Herpes simplex virus, squamous epithelial cells with atypia of unknown significance (ASC-US), squamous epithelial cells with atypia of unclear significance, not excluding the presence of a high degree of intraepithelial changes (ASC-H). Low-grade squamous intraepithelial changes (LSIL) include lesions associated with HPV and CINI, high-grade squamous intraepithelial changes (HSIL) include CINII, CINIII, carcinoma in situ and cases suspected of invasion, squamous cell carcinoma, cervical (glandular) epithelium with atypia of unknown significance, cells of the cervical (glandular) epithelium, possibly neoplasia, endocervical adenocarcinoma in situ, endocervical adenocarcinoma, endometrial adenocarcinoma, secondary adenocarcinoma, unclassified carcinoma, other malignant tumors.

There are certain features when taking material for oncocytology: firstly, the examined woman should be informed about the exclusion of sexual intercourse, vaginal manipulations, including douching, baths, tampons, etc. 2 days prior to sampling. Taking material for cytological examination is carried out by the midwife of the examination room of the department of medical examinations of the primary health care organization: the traditional method (2 glasses - with obligatory fixation in 96% alcohol, it is preferable to use glass slides with a polished edge, which are easily marked) or the liquid cytology method (one container with stabilizing liquid); the code or surname of the patient, identical to the code and surname in the form for sending material for cytological examination, should be clearly marked on the glasses or container [6].

At the same time, when using the traditional method, the biomaterial is delivered to the cytological laboratory as soon as possible after its collection in specialized containers for glass slides with 96%

alcohol. If there are visible visual changes in the cervix, then the material is taken from the woman and, without waiting for the results, she is referred for an examination by an obstetrician-gynecologist.

A cytological study is carried out in centralized cytological laboratories at oncological institutions, where an archive of cytological preparations of patients involved in the screening examination is formed, regardless of the result, for a period of at least 10 years with the formation of a computer database.

What material and technical equipment is required to take material for a Pap test? It is as follows: soap and water for washing hands, a light source for cervical examination, a gynecological chair, a disinfected speculum and gloves, an Eyre spatula, a glass slide and a marking pen, a container with a stabilizing solution for liquid cytology, a fixative solution (96% alcohol), a container with warm water for lubricating and warming the vaginal mirrors, a 0.5% chlorine solution for disinfecting gloves and instruments, or another approved for this purpose. And, of course, the registration form itself.

For carrying out liquid cytology, you additionally need: a disposable cervix brush, a container with a stabilizing solution for liquid cytology, and a fixing solution.

At the same time, a smear for oncocytology cannot be taken: during menstruation, earlier than 48 hours after sexual contact or after using lubricants, vinegar or Lugol solution, tampons or spermicides, after vaginal examination or douching, and also during the treatment of genital infection.

Now, regarding the results of CC screening. In 2022, 771,282 women of the target group aged 30 to 70 years were examined during cytological screening (in 2021 - 757,454).

During cytological screening in 2022, 392 cases of cervical cancer were identified (319 in 2021). The detection rate increased from 0.42 to 0.51 per 1000 women examined

High detection of CC during screening is ensured in Aktobe, Almaty, Atyrau, East Kazakhstan, Kyzylorda, Pavlodar, North Kazakhstan, Turkestan regions and Shymkent city. The detection rate in these regions ranges from 0.55 to 1.59 per 1000 women examined. The best indicator is in Atyrau region - 1.59. Compared to 2021, there is an increase in detection in 10 regions, with the exception of Akmola, Aktobe, Zhambyl, Kostanay, Mangistau, North Kazakhstan regions and Shymkent city. The worst result in Astana is 0.15 per 1000 women examined [5].

Cytologically, cervical precancer was detected in 1.16% of those examined (2021 – 0.99%). The detection rate of precancer below 0.6% (the planned indicator for 2022, according to the Comprehensive Plan) was noted in Aktobe, Karaganda and Kostanay regions.

A high proportion of stage I CC (70% or more) was detected in 6 regions of the country (in 8 in 2021): Kostanay, Mangistau (94.7% - best result), North Kazakhstan, Turkestan regions, cities Almaty and Astana. Low levels of early detection of CC (below 50%) were not observed in any region.

Localized processes (stages I-II) were identified in 99.2% of all cases of detected cancer (96.5%). In the Akmola and Karaganda regions, cases of CC were identified not only in localized, but also in widespread stages of the process. A total of 3 cases of CC in stage III and no cases in stage IV were identified (11 and 0, respectively) [5].

BC ranks first in the structure of the frequency of malignant tumors of both sexes in the population with a share of 14.7% (2021 - 15.4%). This situation has been stable since 2004; in addition, BC ranks first and remains consistently in this position in the structure of female oncopathology. The incidence of BC in 2022 in the country as a whole increased to 26.5 per 100 thousand (2021 – 26.3). In the structure of cases, BC occupies the 1st ranking place in the vast majority of regions and cities of the country, except for three: Akmola, Kyzylorda and North Kazakhstan regions, where lung cancer takes the 1st ranking place [4].

Above the national average - 26.5 per 100 thousand of us. – incidence of BC in 10 regions of the country: Abay – 33.3, Akmola – 32.7 (2021 – 29.8), East Kazakhstan – 44.7 (39.9) – the highest level, West Kazakhstan – 31.2 (28.4), Karaganda – 40.2 (40.1), Kostanay – 37.5 (35.8), Pavlodar – 43.2 (47.4), North Kazakhstan – 34.7 (38.2) regions and Almaty city – 35.4 (34.5), Astana city – 31.5 (28.4). Below average indicators per 100 thousand of us. in Aktobe - 21.6 (24.3), Almaty - 21.9 (17.7), Atyrau - 22.8 (15.7), Zhambyl - 14.2 (15.1), Zhetysu - 22.8, Kyzylorda - 14.6 (14.4), Mangistau - 14.7 (17.3), Turkestan - 11.3 (11.7) regions and Shymkent city - 14.9 (21.9) [5].

BC ranks third in the structure of causes of death from malignant tumors in the population of both sexes for the thirteenth year in a row, amounting to 8.1% in 2022 (2021 – 8.7%). In the republic as a whole, mortality from BC decreased by 13.0%, from 6.2 to 5.4 per 100 thousand people.

The regions where mortality from BC is higher than the national average include: Abay - 10.1 per 100 thousand people (maximum level), East Kazakhstan - 8.0 (2021 - 8.5), Pavlodar - 7.1 (10.0), North Kazakhstan - 7.0 (11.4), Kostanay - 6.9 (7.5), Akmola - 6.5 (8.2), West Kazakhstan - 5.7 (6.9), Zhambyl - 5.5 (4.8) and Astana city – 6.3 (6.6), Almaty city – 6.6 (9.5). The indicators are significantly lower in

Aktobe - 4.5 (3.5), Almaty - 4.5 (5.8), Zhetysu - 4.0, Atyrau - 3.7 (3.0), Kyzylorda - 4.4 (4.1), Turkestan - 3.6 (3.6), Mangystau regions - 2.7 (3.6) - the lowest level [5].

Mass screening to identify BC patients should mainly involve healthy women without any signs of the disease or symptoms. Screening not only helps to detect hidden forms of cancer that can be treated, but also has psychological value for women. As a result of screening, women are convinced that they do not have BC, and this is the most important potential success of such programs. While the ultimate goal of screening is to reduce BC mortality, its immediate goal is to detect cancer before clinical manifestation. However, BC is a heterogeneous disease, which can significantly affect the effectiveness of screening. Screening models for BC are usually based on the fact that the majority of detected tumors are invasive cancers in the early stage of progression. In addition, it must be taken into account that the detection of cancer (or its precursors) before clinical manifestation increases the risk of false positive diagnosis [7,8].

Mammography has a sensitivity of 95% and a specificity of 97%. These indicators decrease when examining women with denser mammary glands (young age, use of hormone therapy), with low quality mammography, and also with insufficient qualifications of the radiologist. Detection of high-grade invasive cancer by screening, when the tumor is not yet detected by clinical examination (palpation), means the possibility of reducing mortality from BC [9].

Preventive screening for early detection of BC in the Republic of Kazakhstan includes [10]:

1) mammography of both mammary glands in two projections - direct and oblique in the mammography room of the city, district polyclinic (mobile medical complex). All digital mammograms in the presence of a system for archiving and transferring medical images are copied to CDs and other electronic media and transferred to the server of the mammography room of the Cancer Center using specialized licensed software integrated between medical organizations; in case of impossibility of digital transmission - they are printed on X-ray film at a scale of 1:1 - 100% (1 patient - 1 set - 2 or 4 mammograms) with subsequent transfer to the mammography room of the Cancer Center;

2) interpretation of mammograms according to the BI-RADS classification (M0t, M0d, M1, M2, M3, M4, M5) by two or more independent radiologists of the same medical organization - double reading or different medical organizations: a radiologist of the mammography room city, district polyclinic (mobile medical complex) - the first reading, and the radiologist of the mammography room of the Cancer Center - the second reading;

3) in-depth diagnostics - targeted mammography, ultrasound examination (hereinafter - ultrasound) of the mammary glands, trepanobiopsy, including under ultrasound or stereotaxic control for histological examination, which is carried out in case of detection of pathological changes on mammograms (M0d) in the mammography room of the Cancer Center.

- *An average medical worker or a responsible person of the organization of outpatient care sends the patient for mammography to the district, city polyclinic.*
- *The X-ray laboratory assistant of the mammography room of the city, district polyclinic (mobile medical complex) performs mammography, fills out a referral for double reading of mammograms and transmits the referral through information interaction.*
- *Radiologist of the mammography office of the city, district polyclinic (mobile medical complex): fulfills the requirements for the safety and quality of mammographic examinations; evaluates the quality of the images provided and the correctness of the installation; performs repeated mammography in the M0t category (technical errors of mammography); determines the radiological density of the mammary glands on the ACR scale (A, B, C, D) indicating this parameter in the study protocol; conducts the first reading of mammograms with interpretation of the BI-RADS classification results. In the M0d category (undetermined or suspicious radiological changes requiring additional examination), the study protocol indicates the predominant pathology: education, asymmetry, violation of architectonics, microcalcifications; sends mammograms, electronic copies of mammograms through the archiving system and transfer of medical images to the workplace of the mammography office of the Cancer Center together with directions for double reading of mammograms; directs low–dose computed tomographic images through the system of archiving and transferring medical images to the workplace of the computer tomography office of the Cancer Center together with copies of images recorded on CD-ROMs or other electronic media and directions for double reading.*
- *The radiologist of the mammography room of the Cancer Center: evaluates the quality of the provided images and the correctness of the styling. Viewing digital x-ray images transferred to the server or on digital media (CD, DVD) is carried out on a monitor for interpreting digital x-ray images with a*

resolution of at least 5 megapixels, which has a certified grayscale transmission in accordance with the DICOM standard; conducts a double (second) reading of mammograms with the interpretation of the results according to the BI-RADS classification, using, if necessary, archival images. Organizes the third reading according to indications. With double reading, an independent interpretation of the images is carried out (blinding method - the second radiologist does not know the results of the first reading); in the M0m category (technical errors in mammography), recommends repeat mammography; in the M0d category (uncertain or suspicious radiographic changes requiring additional examination), the study protocol indicates the predominant pathology: education; asymmetry, violation of architectonics, microcalcifications; recommends that the outpatient care organization, according to indications, invite the patient for in-depth diagnostics (targeted mammography, ultrasound of the mammary glands, trephine biopsy, including under ultrasound or stereotaxic control, followed by histological examination of the material); collects and archives all mammograms (films and electronic media) made as part of the examination. The shelf life of mammograms is at least 3 years after leaving the age subject to a screening study; the results of the double (second) reading are transferred to the outpatient care organizations through information exchange.

◆ *Indications for in-depth diagnostics are the conclusions of double reading mammograms M0d (uncertain or suspicious X-ray changes requiring additional examination).*

◆ *In-depth diagnostics is carried out in two stages. At the first stage, ultrasound is performed, according to indications, targeted mammography, possibly with an increase (with asymmetry, violation of architectonics and the presence of microcalcifications). When visualizing a suspicious pathology (M4 and M5), the second stage is performed - trepanbiopsy, including under ultrasound control and stereotaxic control for histological examination.*

◆ *Histological examination is carried out in the laboratory of pathomorphology or pathological bureau. Morphological interpretation of the biopsy is carried out in accordance with the recommendations of the World Health Organization.*

◆ *Physician or responsible person of the outpatient care organization:*

1) upon receipt of a mammography result according to the BI-RADS classification:

- in case of M0t (technical errors in mammography) - sends the patient for a second X-ray examination to the mammography room of the city, district polyclinic (mobile medical complex);

- with M0d (undefined or suspicious X-ray changes requiring additional examination) - sends the patient for in-depth diagnostics to the mammography room of the Cancer Center;

- with M1 (no changes detected) - recommends that the patient undergo a follow-up mammography examination after 2 years. With radiological density of the mammary glands, C and D are sent for ultrasound of the mammary glands to exclude a false-negative result of mammography;

- with M2 (benign changes), refer the patient for a consultation with an oncologist (mammologist) of the clinical diagnostic department, followed by a screening mammography examination after 2 years;

- with M3 (probable benign changes) - sends the patient for short-term dynamic radiation observation to the local doctor with the recommendation of control mammography or ultrasound in 6 months;

- with M4 (signs that cause suspicion of malignancy), M5 (practically reliable signs of malignancy) and if it is technically impossible to perform a trepanbiopsy or a biopsy is refused, a referral to an oncologist (mammologist) of the clinical diagnostic department for dynamic observation and decision on the verification of the identified pathology;

2) upon receipt of the result of a histological examination:

- benign education - refers the patient to an oncologist (mammologist) of the clinical diagnostic department for dynamic monitoring, followed by a screening mammography examination after 2 years;

- formation with an indeterminate malignant potential or carcinoma in situ - refers the patient to the Cancer Center for consultation and treatment, followed by dynamic observation by an oncologist (mammologist) of the clinical diagnostic department at the place of her attachment;

- malignant neoplasm - refers the patient to the Cancer Center for treatment and follow-up;

3) communicates the results of the screening examination to the patient in any available way (by telephone, in writing, through electronic means of communication);

4) enters the results of double reading, in-depth diagnostics, histological examination, recommendations of the radiologist of the Cancer Center mammography room into the information system.

Establishing the size of the primary tumor is especially important in screening. Tumor size is an *important criterion for evaluating the quality of screening and determining the ability of X-ray mammography to detect non-palpable tumors. Therefore, it is extremely important that pathologists measure tumor diameter as accurately as possible. The smaller the size of the primary tumor, the greater the likelihood of error in determining its size.*

Let's analyze the results of BC screening. Mammography screening identified 1,570 cases of BC in 2022 (1,402 in 2021). The cancer detection rate increased from 1.78 to 1.94 per 1000 examined. The best result is in the Karaganda region – 2.63 per 1000 women examined. Low detection rate per 1000 examined, compared to the republican average, in Atyrau (1.72), Zhambyl (0.58), Kyzylorda (1.68), Mangistau (0.42 - worst result), Turkestan (1.22) regions and cities Astana (1.5) and Shymkent (1.58). Compared to 2021, there was an increase in the detection of BC in 9 regions, with the exception of Aktobe (decrease from 2.87 to 2.19 per 1000 women examined), Karaganda (from 2.73 to 2.63), Mangistau (from 1.10 to 0.42), North Kazakhstan (from 3.27 to 2.31), Turkestan (from 1.36 to 1.22) regions and cities Astana (from 1.54 to 1.50), Almaty (from 2.24 to 2.18) and Shymkent (from 2.35 to 1.58) [5].

In 2022, the proportion of patients identified during screening studies with early stages of BC (stage 0-I) was 50.2% during screening (in 2021 - 47.9%). A high proportion of stages 0-I BC (over 50%) was recorded in 8 regions (in 8 in 2021): Akmola, West Kazakhstan, Karaganda (70.8% - best result), Pavlodar, North Kazakhstan, Turkestan regions, cities Astana and Shymkent. Low levels of early detection of BC (below 40%) were noted in Aktobe (19.3% - worst result), Zhambyl (34.8%), Kostanay (39.5%), Mangistau (27.3%) regions and Almaty city (37.3%). Localized cancer (0-I and II stages) amounted to 96.2% (2021 - 95.5%), while not a single case was detected in stages III-IV in Atyrau, West Kazakhstan, Zhambyl, Kyzylorda, Mangistau, Pavlodar regions, cities Astana and Shymkent. A total of 46 cases of breast cancer in stage III and 14 in stage IV were identified (52 and 11, respectively) [5].

Epidemiological indicators of CRC in the form of colon cancer and colorectal cancer are considered separately for objective reasons.

Colon cancer with a specific gravity of 5.53% (2021 - 5.2%) in the structure of oncopathology of both sexes of the population has risen to 5th place, in men it remains in 6th place - 5.8% (5.5 %), for women - in the 5th - 5.3% (4.91%) The incidence rate of cancer of this localization in the country in the reporting year increased from 8.8 to 9.95 per 100 thousand population.

The incidence of colon cancer in 10 regions is higher than the national average - 9.95 per 100 thousand population: Kostanay - 20.7 (2021 - 15.9), Pavlodar - 18.8 (15.3), North Kazakhstan - 18, 0 (12.7), East Kazakhstan - 16.9 (13.4), Karaganda - 15.4 (15.0), Akmola - 14.6 (10.2), West Kazakhstan - 11.0 (10.1), Abay - 10.0 (9.0) regions and cities Almaty – 12.8 (12.1) and Astana – 10.5 (9.0). As in 2021, colon cancer was detected much less frequently in Turkestan - 3.1 per 100 thousand population (2.7), Kyzylorda - 4.1 (4.6), Zhambyl - 5.5 (5.8), Almaty - 6.3 (4.7), Zhetysu - 6.4, Mangistau - 6.8 (4.9) regions and Shymkent city - 5.0 (4.0) [5].

Rectal cancer in the structure of malignant neoplasms of both sexes retains 7th place in rank with a specific gravity of 4.9% (2021 - 4.92%), but in men it dropped from 4th to 5th place - 6.1%, for women – from 9th to 10th – 4.0%. The incidence rate per 100 thousand population increased from 8.4 to 8.8.

A high incidence rate was recorded in Kostanay - 17.8 per 100 thousand population (2021 - 16.2), East Kazakhstan - 17.7 (13.9), North Kazakhstan - 15.6 (15.1), Pavlodar – 14.9 (18.1), Karaganda – 13.3 (11.7), Abay – 12.9, West Kazakhstan – 12.9 (9.8), Akmola – 10.3 (13.1) regions and Astana city – 10.3 (9.0). Traditionally, a low incidence of rectal cancer is observed in Mangistau - 3.1 (2.8), Turkestan - 3.3 per 100 thousand population (2.7), Zhambyl - 3.7 (5.1), Kyzylorda - 4, 1 (5.3), Almaty – 5.3 (5.6) regions and in Shymkent city – 5.5 (5.0) [5].

Rectal cancer in the structure of causes of death from malignant neoplasms of the population of both sexes in 2022 remained in 5th place with a share of 5.41% (2021 – 5.41%). In the republic as a whole, the mortality rate from this form of cancer was 3.6 per 100 thousand population (3.87).

The mortality rate per 100 thousand population was higher than the national average in East Kazakhstan - 7.8 (2021 - 8.6) - the maximum level, Pavlodar - 7.5 (7.6), Abay - 5.9, North Kazakhstan - 5.8 (4.3), Kostanay - 4.9 (4.9), West Kazakhstan - 4.8 (4.2), Karaganda - 3.8 (5.2) regions. Below the national average - 3.8 per 100 thousand population, mortality in Aktobe - 3.2 (4.1), Almaty - 2.6 (2.6), Atyrau - 2.5 (3.4), Zhetysu - 2, 6, Zhambyl - 3.3 (2.7), Turkestan - 2.1 (1.6), Mangistau - 1.9 (1.2), Kyzylorda regions - 1.8 (2.1) - the lowest figure , and cities Almaty – 3.7 (4.3), Shymkent – 2.6 (2.1).

Colon cancer in the structure of causes of death from malignant neoplasms of the population of both sexes in 2022, as in 2021, ranks 6th, with a share of 5.2% (2021 – 5.0%). At the same time, the mortality rate in the country decreased by 5.6%, from 3.6 to 3.4 per 100 thousand population.

Mortality rates in 10 regions are higher than the national average: East Kazakhstan - 7.1 per 100 thousand population (2021 - 5.1) - maximum level, Pavlodar - 5.6 (6.0), Kostanay - 5.3 (5.6), Akmola – 5.2 (3.8), Abay – 5.1, Karaganda – 5.1 (5.6), West Kazakhstan – 4.8 (4.4), North Kazakhstan – 4.8 (5.0) regions and cities Astana – 3.6 (2.7), Almaty – 4.5 (5.3). Low mortality rates from colon cancer were noted in Kyzylorda - 1.2 per 100 thousand population (2.7) - the best result, Turkestan - 1.3 (1.7), Mangistau - 1.6 (2.6), Aktobe – 2.0 (2.5), Zhetysu – 2.4, Zhambyl – 2.5 (3.7), Atyrau – 2.5 (1.8), Almaty – 2.6 (1.8) regions and cities Astana – (2.7), Shymkent – (2.4).

For colon cancer (94.0%) - 100% verification level was achieved in 3 regions (Abay, Almaty and Turkestan regions), high rates in the Astana city (98.5%), Shymkent city (98.0%), Zhambyl (98.4%), Atyrau (98.2%) regions, low – in Akmola region (86.7%), Almaty city (84.3%), in the Kyzylorda region (61.8%) – the worst result since 2017.

For rectal cancer (97.4%) - in 6 regions there is a 100% verification level, the worst level is still in the Kyzylorda region - 85.3%, lower than the republican average in the Akmola region - 92.6%, Aktobe region - 96 .8%, Mangystau region - 87.0%, Pavlodar region - 95.3%, Almaty city - 93.2% [5].

The frequency of diagnosis of stage I-II rectal cancer, as a visually accessible localization (68.9% - national average) in the regions, was: in Akmola - 34.6% - the worst result, as in 2021, in the country (2021 - 44.1%), Mangistau - 47.8%, Abay - 53.9%, West Kazakhstan - 59.1%, Almaty - 66.2%, Zhetysu - 68.6%, Karaganda - 65, 7% regions and Shymkent city - 62.9%.

For colon cancer (52.4%), early diagnosis rates are higher in Pavlodar (65.9% - best result), Abay, Aktobe, Atyrau, East Kazakhstan, Zhambyl, Zhetysu, Karaganda, Kostanay, Pavlodar, North Kazakhstan, Turkestan regions and Shymkent. The lowest figure (23.5%) is in the Kyzylorda region.

For colon cancer (17.3%), the rates of neglect at stage IV are higher - in Akmola - 31.0% - the worst result (2021 - 20.3%), Zhetysu - 27.3%, Abay - 23.1% , Turkestan - 22.2% (29.1%), Karaganda - 28.1% (28.6%), West Kazakhstan - 18.8% (8.2%), Mangistau - 17.6% (19 .4%) regions and cities Astana - 18.0% (22.9%), Shymkent - 20.0% (22.7%). The lowest level of neglect is 2.9% in the Kyzylorda region (7.9%).

The proportion of stage IV in rectal cancer (13.1%) is higher in Akmola - 29.6% - the worst result (2021 - 19.4%), Abay - 19.7%, Kyzylorda - 17.6% (9.1%), Karaganda - 16.9% (28.4%), Almaty - 15.6% (17.0%), Kostanay - 14.8% (11.1%), Zhambyl - 13.3 % (13.6%) regions and Shymkent city - 14.5% (12.5%). The lowest level of neglect - 6.0% - is in the Atyrau region (12.5%).

Late diagnosis of rectal cancer as a visually accessible localization (stages III-IV) in 2022 amounted to 31.1% (in 2021 - 33.5%).

For rectal cancer, the level of neglect is higher than the national average - 31.1%, the indicators in Akmola - 65.4% (2021 - 55.9%) - the worst result in the country, Mangistau - 52.2% (38.1%), Abay – 46.1% (30.6%), West Kazakhstan – 40.9% (25.4%), Karaganda – 34.3% (46.5%), Almaty – 33.8% (35.7 %), Zhetysu - 31.4% (34.1%) regions and Shymkent city - 37.1% (42.9%). The lowest neglect is in the Atyrau region - 12.0% (17.5%).

In the country as a whole in 2022, the five-year survival rate of patients with CRC registered in 2018 decreased to 40.4% (2021 - 52.9% for those registered in 2017); there is a significant dispersion of indicators by region, from maximum – 56.1% (47.5%) in the Kyzylorda region, to minimum – 24.3% (51.5%) in the Aktobe region [5].

Screening of CRC screening is the systematic use of screening studies in an asymptomatic population. The purpose of screening is to identify people with abnormalities suggestive of CRC. These persons in the future need additional examination to clarify the diagnosis. Opportunistic screening is the non-systematic use of screening tests in routine medical practice. A screening program is much more challenging than an early detection program. At the same time, the success of the screening program is largely determined by the awareness of the population and medical workers about the possibilities of early diagnosis of CRC. The feasibility of a screening program is determined by several factors that relate to the disease being screened, the screening test, the characteristics of the population, and the characteristics of the healthcare system.

The first factor is that the disease must be well understood, common enough in the target population to justify screening, have a recognizable early stage; treatment of the disease at an early stage should be more effective than at a later stage.

The second is that the test should be characterized by sufficient sensitivity, i.e. the ability to detect cancer among people with the disease; sufficient specificity - the probability that among people who do not have a disease, the test result will be negative; have a high positive predictive value (positive predictive value) or, in other words, the likelihood that people with a positive test result have the disease; have a high predictive value of a negative result (negative predictive value), i.e. the likelihood that people *with a negative test result do not have the disease; security; low cost; and acceptability - the likelihood that people for whom this test is intended will agree to the examination (which to some extent depends on the awareness of the population about the possibilities and importance of early diagnosis).*

The third factor is that the healthcare system should be ready for maximum screening test coverage of the target group, have the resources to confirm the diagnosis, appropriate treatment and follow-up of people with positive test results, and regularly conduct screening tests at regular intervals. At the same time, the benefits of screening must outweigh the potential physical and psychological harm and justify the financial costs of its implementation [11].

The factors most significant for the development of CRC are:

- the presence of chronic inflammatory bowel diseases, adenomatous polyps, cancer of other localization, etc.;

- family history (presence of one or two first-degree relatives with CRC or familial diffuse intestinal polyposis);

- the age of men and women over 50 years old, taking into account the fact that more than 90% of patients with colorectal cancer are people of this age (medium risk).

Age, regardless of gender, is an important risk factor for CRC. After the age of 50, the incidence of CRC increases from 8 to 160 per 100,000 population. Thus, people who have reached the age of 50, even in the absence of symptoms, constitute a moderate risk group for CRC.

The second category of increased risk of CRC (20%) is made up of persons with a genetic and family predisposition, suffering from chronic inflammatory bowel diseases, diffuse familial polyposis.

The high-risk CRC group is determined by the so-called Amsterdam criteria (the presence of malignant tumors in two generations, the presence of cancer in a first-line relative under the age of 50 years), in this case, CRC screening should be carried out after the age of 30 years [12].

The degree of individual risk of developing CRC is determined before screening to select the scope of studies and the frequency of their conduct.

The interval for oncological colorectal screening is 1 time in 2 years, target group: men and women aged 50-70 years, with the exception of persons registered at the dispensary for CRC and colon polyposis. At the same time, when forming the target group, one should take into account the absence of severe concomitant diseases, such as the presence of a common malignant neoplasm, cerebrovascular diseases in the stage of decompensation, chronic obstructive pulmonary disease with respiratory failure, cirrhosis of the liver, myocardial infarction with congestive heart failure, diabetes mellitus with vascular complications. and others, which are highly likely to lead to death in the next 10 years.

The first step in screening for CRC is the fecal occult blood test (FOBT). Traditionally, such methods include a benzidine test for occult blood in the feces. This is a biochemical method based on the assessment of pseudoperoxidase activity of hemoglobin. There is ample evidence that invitation to guaiac FOBT screening (gFOBT) reduces CRC mortality by approximately 15% in age-matched average-risk populations.

To ensure the effectiveness of screening with gFOBT, the interval for screening under the national screening program should not exceed two years. To date, there is an immunochemical FOBT method - iFOBT, which is superior in efficiency to gFOBT in terms of the probability of detecting adenoma and cancer. iFOBT has improved analysis performance compared to gFOBT.

Immunochemical (immunochromatographic) examination of feces for occult blood - iFOBT or hemocult test is carried out for all men and women of the target group using an express method, which allows you to get a result within 3-5 minutes, without the participation of a medical worker. However, the evaluation of the test is carried out only by a medical worker in the PHC preventive department.

With a positive analysis of feces for occult blood, the second stage of colorectal screening is performed, which consists in endoscopic examination of the colon - total colonoscopy [6]. At the same time, in this case, this medical manipulation is of a therapeutic and diagnostic nature, since it allows one-stage removal of adenomatous polyps, which, according to various authors, occur in every third subject after 50 years of age. At the same time, women have 20% fewer polyps than men, but they have more right-sided lesions, which are more difficult to detect using fecal blood tests, because they are less traumatic [13,14].

What results were obtained from screening for CRC? In 2022, 937,859 men and women of the target group aged 50 to 70 years were examined during colorectal screening (in 2021 - 920,640) [5].

Colorectal screening revealed 325 cases of colorectal cancer in the reporting year, which is 114 cases more than in the previous year (211 cases). The detection rate increased from 0.23 to 0.35 per 1000 patients examined. Low detection of colorectal cancer was noted in Zhambyl, Karaganda, *Kostanay, Kyzylorda, Mangistau, Turkestan - the worst result, East Kazakhstan regions, Astana city - from 0.07 to 0.30 per 1000 examined. The best result is in the North Kazakhstan region – 0.81 per 1000 examined. Compared to 2021, there was a decrease in the detection of colorectal cancer per 1000 people examined during screening in Karaganda (from 0.22 to 0.21), Kostanay (from 0.29 to 0.28), Mangistau (from 0.20 to 0.12) regions and Astana city (from 0.20 to 0.19).*

Colon precancer (adenoma detection rate) was detected in 27.5% of patients who underwent colonoscopy (2021 – 22.8%). The detection rate of precancer in Akmola, Aktobe, Almaty (8.5% is the worst result), West Kazakhstan, Zhambyl, Kostanay, Kyzylorda, Mangistau, Pavlodar, North Kazakhstan, Turkestan regions and cities is lower than the national average Astana and Shymkent. The best result is 36.2% in Almaty city. It should be noted that the planned indicator for the detection of precancer of the colon and rectum in the country for 2022, according to the Comprehensive Plan, was 23.0% and was achieved.

In 2022, the proportion of patients identified during screening studies with early stages of malignant neoplasms (stages 0-I) was 26.2% during colorectal screening (in 2021 - 27.5%).

High early detection of colorectal cancer (above 30%) was noted in Akmola, West Kazakhstan, Karaganda, Kostanay, Kyzylorda, Turkestan regions and Astana city (57.1% - the best result). Not a single case of early cancer has been identified in the Mangistau region. Cases of cancer in stages III-IV detected during screening were registered in Akmola, Aktobe, Almaty, West Kazakhstan, Zhambyl, Karaganda, Kostanay, Mangistau regions and Almaty city. A total of 21 cases of colorectal cancer in stage III and 3 in stage IV were identified (in 2021 - 18 and 5, respectively) [5].

The complex analysis carried out allows us to conclude that satisfactory results of cancer screening can be achieved only with its proper organization, high quality of implementation, active participation in population screening, the use of highly sensitive tests and instrumental methods of preventive examination, as well as subsequent accurate diagnosis of identified tumors and timely treatment. High-quality screening leads to early diagnosis of pedological diseases and malignant pathology in the early stages, which, in turn, increases the effectiveness of treatment and improves the prognosis of the disease. Target groups that, for one reason or another, do not participate in screening should be informed that there are no other methods other than screening that would reduce mortality from malignant neoplasms. Incidence and mortality rates from cervical cancer, breast cancer and colorectal cancer clearly reflect the epidemiological situation with this pathology in the regions of our country.

References

1. Salehiniya H., Momenimovahed Z., Allahqoli L., Momenimovahed S., Alkatout I. Factors related to cervical cancer screening among Asian women. Eur Rev Med Pharmacol Sci. 2021 Oct;25(19):6109-6122. doi: 10.26355/eurrev_202110_26889.

2. Farkas A.H., Nattinger A.B. Breast Cancer Screening and Prevention. Ann Intern Med. 2023 Nov;176(11):ITC161-ITC176. doi: 10.7326/AITC202311210.

3. Carter K. A practical approach to selecting a colorectal cancer screening test. JAAPA. 2021 Nov 1;34(11):18-23. doi: 10.1097/01.JAA.0000794976.41120.ee.

4. Ilbawi A., Varghese Ch., Loring B., Ginsburg O., Corbex M. under the overall direction of Krug E. and Varghese Ch. Guide to Cancer Early Diagnosis. World Health Organization, 2017; 48 p.

5. Kaidarova D.R., Shatkovskaya O.V., Ongarbayev B.T., Seisenbayeva G.T., Azhmagambetova A.E., Zhylkaidarova A.Zh., Lavrentieva I.K., Sagi M.S. Indicators of the oncology service of the Republic of Kazakhstan, 2022: statistical and analytical materials. – Almaty, 2023. – 430 p.

6. https://onco.kz/wp-content/uploads/2020/03/Rukovodstvo-po-skriningu-RSHM.pdf

7. Abdolell, M., Payne, J.I., Caines, J. et al. Assessing breast cancer risk within the general screening population: developing a breast cancer risk model to identify higher risk women at mammographic screening. Eur Radiol. 2020 Oct;30(10):5417-5426. doi: 10.1007/s00330-020-06901-x.

8. Idit Melnik, Yael Rapson, Ahuva Gropstein et al. Different approaches to mammography as a screening tool for breast cancer. Harefuah. 2022 Feb;161(2):121-124.

9. Mann R.M., Athanasiou A., Baltzer P.A.T. et al. Breast cancer screening in women with extremely dense breasts recommendations of the European Society of Breast Imaging (EUSOBI). Eur Radiol. 2022 Jun;32(6):4036-4045. doi: 10.1007/s00330-022-08617-6.

10. Prikaz i.o. Ministra zdravoohranenija Respubliki Kazahstan ot 30 oktjabrja 2020 goda № ҚR DSM-174/2020 - «Ob utverzhdenii celevyh grupp lic, podlezhashhih skriningovym issledovanijam, a takzhe pravil, ob#ema i periodichnosti provedenija dannyh issledovanij». - Paragraf 6. Porjadok provedenija skriningovogo issledovanija na rannee vyjavlenie raka molochnoj zhelezy (In Russ.).

11. Kashin S.V., Nehajkova N.V., Zav'jalov D.V. i dr. Skrining kolorektal'nogo raka: obshhaja situacija v mire i rekomendovannye standarty kachestva kolonoskopii. Dokazatel'naja gastrojenterologija. 2017;6(4):32-52 (In Russ.).

12. Samadder N.J., Smith K.R., Wong J. et al. Cancer risk in families fulfilling the Amsterdam Criteria for Lynch syndrome. JAMA Oncol. 2017 Dec 1;3(12):1697-1701. doi: 10.1001/jamaoncol.2017.0769.

13. https://onco.kz/skrining-na-rannee-vyyavlenie-kolorektalnogo-raka/

14. Hultcrantz R. Aspects of colorectal cancer screening, methods, age and gender. J Intern Med. 2021 Apr;289(4):493-507. doi: 10.1111/joim.13171.

Pedagogical sciences

THE IMPACT OF COLLABORATIVE LEARNING ON COGNITIVE AND UNIVERSAL ACTIVITIES

Kismetova Galiya Nagibudayevna
Candidate of pedagogical sciences, associate professor
Bakytzhanova Assem Igilikkyzy
Master's degree student, faculty of multilingual education
Kh.Dosmukhamedov Atyrau university
Atyrau, Kazakhstan

Abstract
The article examines the impact of collaborative learning on students' cognitive development and the formation of universal learning skills, especially in the context of learning foreign languages. Key theoretical approaches, such as Lev Vygotsky's socio-cultural theory, Jean Piaget's cognitive theory and collaborative learning theory, are discussed, which substantiate the effectiveness of group and pair tasks, as well as interaction with peers. It is considered how collaborative work in groups stimulates the development of critical thinking, improved memory, problem solving and increased attention. It also focuses on the improvement of social skills, such as communication, teamwork, conflict resolution and self-organization, thanks to collaborative learning. Case studies are given, demonstrating the successful application of these methods in the educational process. In conclusion, the importance of implementing cooperative learning methods for achieving high results in language learning and developing universal skills in students is emphasized.

Keywords: *collaborative learning, cognitive skills, universal learning activities, social skills, language learning, critical thinking, group, pair tasks.*

Collaborative learning is a teaching method in which students work in small groups or pairs to complete learning tasks. This method is widely used in various educational systems, as it promotes both cognitive development and the formation of social skills. In foreign language lessons, where not only grammar literacy but also the ability to communicate effectively is important, collaborative learning has a significant impact on the development of both cognitive and universal learning actions. This article examines how group and paired tasks, as well as peer feedback, contribute to cognitive development and improved communication skills.

Cognitive learning activities are processes related to the perception, processing, and storage of information. They include such skills as attention, memory, logical thinking, problem solving, and analysis. These activities are important for developing a deep understanding of the educational material and the formation of the ability to apply knowledge in various situations.

Universal learning activities are a set of skills that go beyond specific subject knowledge and allow students to effectively adapt to a variety of learning situations. Universal learning activities include the skills of independent organization of activities, critical analysis of information, decision-making, group work, as well as the ability to self-educate. The development of universal learning activities plays a key role in preparing students for life and professional activity.

To understand the impact of collaborative learning on cognitive and social skills, it is necessary to refer to the works of leading scientists in the field of psychology and pedagogy, such as Lev Vygotsky, Jean Piaget, as well as modern research in the field of collaborative learning.

Lev Vygotsky argues that cognitive development is impossible without participation in social interactions. His work (Vygotsky, 1978) emphasizes that learning occurs in the context of interaction with more experienced partners, such as teachers or peers. Interaction with others helps students to master more complex cognitive processes and to move beyond their current level of development. Collaborative learning allows students to communicate, discuss, exchange ideas, and work on problem solving in a group, which actively contributes to their cognitive and linguistic development [1].

Jean Piaget (Piaget, 1972) argues that cognitive processes such as attention, memory, and problem solving develop through active activity. Collaborative learning, in which students solve problems in a group, promotes the development of these cognitive skills. Importantly, students can exchange ideas and *approaches to problem solving while working in a group, which contributes to a better understanding of the material and a deeper understanding of the issues [2].*

Collaborative learning, according to Johnson and Johnson (2009), is based on the principles of interdependence and responsibility, where students work together to achieve a common goal [3]. This learning assumes that each group member contributes to the overall success, which increases the motivation and activity of students. Collaborative learning also promotes the development of communication skills and critical thinking, which is especially important in foreign language classes.

How does collaborative learning promote cognitive development? Collaborative learning has numerous benefits for students' cognitive development. First, it stimulates critical thinking, as students must discuss and analyze information, solve problems, and develop solutions in groups. This helps develop analytical and cognitive skills, such as attention and memory.

Research shows that completing tasks in groups allows students to learn material in depth, applying it to new contexts. For example, when working in a group, students can discuss grammatical structures, analyze their use in different situations, which contributes to better memorization and assimilation of language structures (Slavin, 1995) [4].

Collaborative problem solving also contributes to the development of problem solving skills. For example, in the context of language learning, students can participate in role-playing games, simulating different communication situations. This helps to develop skills in using language in real-life situations and contributes to the development of cognitive abilities, such as adaptation and flexibility of thinking.

In addition to cognitive skills, collaborative learning significantly contributes to the development of universal learning activities, such as communication, teamwork and conflict resolution. When working in groups, students teach each other, share knowledge, provide feedback, which contributes to improving communication and interaction.

Peer feedback is an important element of collaborative learning. It allows students to receive constructive comments on their language, grammar and pronunciation, which contributes to the improvement of their language skills. It is also important that during the communication process, students can independently eliminate errors and correct them, which contributes to a deeper understanding of the material and the development of self-esteem (Gillies, 2004) [5].

Teamwork also helps students develop skills such as self-organization, time management, and collective decision-making. This is especially important in language lessons, where students need to manage their time effectively to complete tasks and use the group's resources to achieve a common goal (Slavin, 1995) [4].

Furthermore, cognitive actions are the processes associated with the perception, processing, and storage of information. These processes allow students to effectively assimilate, analyze, and apply the knowledge they have acquired.

1. Memory is the ability to store and reproduce information that a person has received in the past. In the context of learning, memory helps students remember theoretical material, facts, rules, and algorithms.

2. Attention is the ability to focus on specific information, which is important for the effective perception and processing of educational content. Attention helps students avoid distractions and focus on important aspects of the task.

3. Problem solving is the ability to analyze a situation, find solutions, and choose the best solution for various problems. This is an important element of the cognitive process that develops logical thinking and the ability to cope with new, non-standard situations.

Collaborative learning actively develops cognitive processes, since in the process of discussing and solving problems, students teach each other, argue their point of view, and reflect on solutions.

Universal learning activities are skills that students acquire in the learning process and that can be used in various areas of life and work. These skills help develop personal qualities, self-organization, and adaptation to changing conditions.

1. Communication is the ability to effectively interact with others, convey information, listen, and argue. In the process of cooperative learning, students teach each other, exchange ideas, and learn public speaking skills.

2. Teamwork is the ability to interact with others to achieve a common goal. This is a key skill for successfully completing group assignments, improving teamwork, and creating a harmonious atmosphere in the group.

3. Critical Thinking is the ability to analyze, evaluate information, and make decisions based on logic and facts, rather than preconceived notions. In cooperative learning, critical thinking develops the ability to view a problem from different perspectives and make informed judgments.

4. Self-organization is the ability to plan your activities, set goals, estimate time and resources, and stick to your plan. During group work, students develop self-organization skills, managing their time and responsibilities within the framework of collective work.

These universal learning activities are important not only for successful learning, but also for successful professional and personal life, as they help to effectively adapt to any situation and work in any conditions.

According to the above, I used these activities in my lessons. Real-life examples of how collaborative learning has been successfully implemented in the context of learning foreign languages. For instance, role-playing and simulations, project-based learning in groups, peer teaching, group discussions and debates, using technology for collaborative learning. I have used these activities with secondary and high school students.

1.Role-playing and simulations. One of the most popular methods that uses the principles of cooperative learning is role-playing, where students perform various tasks in pairs or groups. I used it for secondary students. For example, in my lessons, students can simulate real-life situations such as ordering food in a restaurant, interviews, or traveling. In such games, students not only practice the language, but also teach each other, discuss grammar rules, phrases, and expressions, gaining invaluable experience in real communication situations. Working in a group, students can give each other advice on using more accurate and natural expressions, which helps improve their communication skills.

2. Project-based learning in groups. Project-based learning is another effective method for introducing collaborative learning into language lessons. Students work in small groups on research projects such as creating presentations, writing essays, creating videos or other multimedia materials. During the work, they share information, discuss topics, solve problems and actively use the language they are learning in class. This not only develops their language skills, but also helps improve their teamwork, time management and self-regulation skills. While working on the project, an atmosphere of unity was created in the classroom and students were closely connected with each other.

3. Peer teaching. The peer teaching method is actively used in language teaching, especially in foreign language lessons. Students with different levels of language proficiency help each other study the material, explain difficult points and give feedback. This approach allows not only to improve understanding of the language, but also to develop the ability to explain, simplify information and critically think about the topics being studied.

4. Group discussions and debates. Group discussions in a foreign language are another method that is effectively used in collaborative learning. Students discuss specific topics or even participate in debates, which helps develop critical thinking, argumentation skills and language improvement. This approach is especially useful when teaching older students who are already able to analyze and discuss various topics in a foreign language in more depth. This is especially true for students with better speaking skills and higher students.

5. Using technology for collaborative learning. Nowadays, it is impossible to conduct a lesson without information technology. I try to use one or more technologies in each lesson, and I design it according to the age and level of students. Modern technologies, such as online platforms and social networks, make it possible to implement collaborative learning even outside the classroom. Knowledge sharing platforms such as Google Classroom, Edmodo or Quizlet allow students to work in groups, share materials, solve joint problems, receive and give feedback.

In recent times, the emergence of multimedia, hypertext, network and communication information technologies has opened up great opportunities for effective foreign language teaching. Multimedia technologies allow the use of text documents, graphic images, sound and video [6].

All of these examples demonstrate how collaborative learning can be effectively applied in the context of language learning. Group and paired learning, the use of technology, project work, and role-playing not only help improve language skills, but also develop universal learning skills such as communication, collaboration, problem solving, and self-management.

Peer feedback and collaborative problem solving play an important role in developing cognitive and general learning skills.

1. Feedback: In collaborative learning, students give each other feedback on their assignments, and provide reasons for their comments and suggestions [6]. This allows them to not only improve their own *knowledge and skills, but also learn constructive criticism, developing the ability to listen and accept the opinions of others.*

2. Collaborative Problem Solving: Working together on problems or projects helps students develop problem solving skills in a group setting, where everyone can offer their point of view and participate in the discussion of possible solutions. This helps develop critical thinking, the ability to consider multiple factors, and analyze different solution options.

In conclusion, collaborative learning is a powerful tool for developing cognitive and general learning skills. In language lessons in particular, it helps students develop critical thinking, problem solving, and communication skills. By working in groups and pairs, students teach each other, share knowledge, develop social skills, and receive valuable feedback. Therefore, foreign language teachers should actively implement collaborative learning methods in their curricula to maximize learning effectiveness and develop students' skills for successful language acquisition. Teachers can effectively integrate collaborative learning into the learning process, considering both its benefits and potential challenges. To achieve this, it is important to develop a clear structure of assignments in advance that will facilitate equal participation of students. Teachers should provide support during group work, help resolve conflicts, and monitor the dynamics of the group's work in a timely manner. Implementing an assessment system that takes into account both individual and group achievements will also help increase student motivation and make collaborative learning more effective.

Ultimately, the use of collaborative learning methods allows you to develop not only cognitive skills, but also those universal learning activities that are necessary for successful professional activity and life success of students.

References

1. *Vygotsky, L. S. Mind in Society: The Development of Higher Psychological Processes , 1978. - pp. 57-76.*
2. *Piaget, J. Psychology of Intelligence, 1972. - pp. 44-68.*
3. *Johnson, D. W., & Johnson, R. T. Social Interdependence and Cooperative Learning, 2009. - pp. 45-78, 112-134.*
4. *Slavin, R. E. Cooperative Learning: Theory, Research, and Practice, 1995. - pp. 93-112.*
5. *Gillies, R. M. The Dynamics of Cooperative Learning in the Classroom, 2004. - pp. 22-48.*
6. *Zhymaeva E.S. The effectiveness of using new information technologies in teaching English language, Kyzylorda: Sanat, 2012, p. 20–24*

TEACHING ENGLISH GRAMMAR TO SECONDARY STUDENTS AS A PART OF A CULTURAL CONTEXT

Dilyara Baktanova
Astana, Kazakhstan
4th year student of Astana International University

INTRODUCTION

In the modern world, the ability to communicate in English is becoming increasingly vital, particularly for secondary school students in Kazakhstan. English proficiency is not only essential for academic success but also plays a significant role in career opportunities, global integration, and cross-cultural communication. The government of Kazakhstan recognizes the importance of English language acquisition, as reflected in official state documents and initiatives by the Ministry of Education. President of the Republic of Kazakhstan K.K. Tokayev has emphasized the necessity of focusing on core subjects, stating, "Taking into account international developments, special consideration ought to be given to such key focus disciplines as mathematics, languages, and computer science."

Teaching English grammar to secondary school students requires effective pedagogical approaches that not only enhance linguistic competence but also create an engaging and meaningful learning experience. One of the most effective ways to achieve this is by integrating English grammar instruction into a cultural context. Language and culture are inseparable; therefore, teaching grammar within cultural contexts allows students to develop a deeper understanding of the language, improve their communicative competence, and gain insights into English-speaking societies. The cultural approach helps students to see grammar as a dynamic and functional component of communication rather than a set of abstract rules.

The incorporation of cultural materials such as literature, idiomatic expressions, historical texts, and real-life dialogues into English grammar instruction makes learning more relevant and engaging for students. By using culturally rich content, teachers can foster students' cognitive and emotional involvement in language learning, enhance motivation, and create a more immersive learning environment. Moreover, exposure to cultural contexts helps students develop an appreciation for different traditions, customs, and ways of thinking, which is crucial in today's interconnected world.

Topicality of the Research. *This research is relevant in the contemporary educational context, where there is a growing emphasis on communicative and culturally informed language teaching. By integrating cultural elements into English grammar instruction, educators can create an interactive and meaningful learning environment that fosters both linguistic proficiency and intercultural awareness.*

The aim of this research *is to identify the role of cultural context in improving the effectiveness of teaching English grammar to secondary students.*

Research Objectives:

1. To analyze existing literature on the integration of culture into English grammar teaching and its impact on students' language acquisition.

2. To identify effective methods and approaches for teaching English grammar within cultural contexts, as well as the challenges teachers face in incorporating cultural elements into grammar lessons.

3. To develop a set of exercises and activities that use cultural materials to improve students' grammatical accuracy and communicative skills.

The object of this research *is the process of teaching English grammar to secondary school students.*

The subject of this research *is the use of cultural contexts as a methodological*

1 THEORETICAL FOUNDATIONS OF TEACHING ENGLISH GRAMMAR IN A CULTURAL CONTEXT

1.1 The Relationship Between Language and Culture in Second Language Acquisition

Language serves as one of the most fundamental means through which culture is expressed, transmitted, and preserved across generations. It functions as a living archive of a people's collective experiences, values, and traditions, encoding the knowledge and social norms that define a particular community. Unlike other forms of cultural expression, such as art or music, language is deeply embedded in everyday interactions, making it one of the most pervasive and influential aspects of cultural identity. The way people communicate, through vocabulary, syntax, idioms, and expressions, mirrors the *worldview, history, and philosophy of their society, shaping their thoughts and interactions in ways that are often taken for granted.*

The lexicon of a language offers a rich insight into the priorities, environment, and historical evolution of the culture to which it belongs. Words and phrases evolve in response to the material and social realities of a people, reflecting their relationship with nature, technology, and societal structures. For instance, the Inuit languages have an extensive vocabulary to describe different types of snow and ice, a linguistic feature that underscores the importance of these natural elements in their daily lives. Similarly, Japanese has an elaborate system of honorifics that signify respect and hierarchy, reflecting the deep-rooted Confucian influence on Japanese social structures. The presence or absence of certain words in a language can also indicate cultural attitudes; for example, some indigenous languages lack a direct equivalent for the word "ownership," suggesting a communal approach to property rather than an individualistic one [1].

Grammatical structures and syntax further reveal how culture influences thought and communication. The way a language organizes time, tense, and aspect can shape the way its speakers perceive events. English, for instance, employs a relatively rigid tense system that emphasizes distinctions between past, present, and future actions, whereas some languages, such as Mandarin Chinese, rely more on context and aspect markers to convey temporal relationships. This difference suggests that English speakers may be more inclined to compartmentalize time linearly, while Mandarin speakers might adopt a more fluid approach. Additionally, languages like Hopi, which do not explicitly mark tense in the same way as English, encourage speakers to focus more on the quality and nature of an event rather than its temporal placement.

Beyond vocabulary and grammar, language also embodies culture through idiomatic expressions and proverbs, which encapsulate the wisdom, humor, and values of a society. Proverbs serve as cultural artifacts, passed down through generations to convey moral lessons and societal norms. For example, the English proverb "Time is money" reflects the capitalist ethos that equates time with productivity and economic value, whereas the Spanish saying "El tiempo lo cura todo" (Time heals everything) suggests a more philosophical and patient view of life's hardships. Such linguistic expressions provide insight into how different cultures prioritize certain aspects of life, whether it be efficiency, perseverance, or communal well-being [2].

Politeness conventions and speech patterns also illustrate the deep interplay between language and culture. In many Asian languages, including Korean and Thai, speech levels and honorifics dictate the way individuals address one another based on age, status, and relationship. These linguistic features reinforce cultural values of respect, hierarchy, and social harmony. In contrast, languages like American English tend to favor a more egalitarian approach, with a relatively casual use of address forms that reflect the emphasis on individualism and informal social interactions. The way people speak to one another, whether through directness or indirectness, also varies culturally. In some Middle Eastern cultures, communication tends to be more elaborate and expressive, with frequent use of metaphor and rhetorical flourish, whereas in Scandinavian countries, a more straightforward and understated communication style is preferred.

Cultural identity and linguistic relativity are also intertwined, as demonstrated by the Sapir-Whorf hypothesis, which posits that language influences cognition and perception. While the strong version of this theory suggests that language determines thought, the weaker and more widely accepted version argues that language shapes the way people categorize and interpret their experiences. This idea finds support in studies of color perception among speakers of different languages. For instance, Russian distinguishes between light blue (голубой) and dark blue (синий) as separate basic colors, and research has shown that Russian speakers are faster at differentiating shades of blue than English speakers, who use a single word, "blue," for both. This linguistic distinction highlights how language can subtly shape sensory perception and categorization [3].

In multilingual and multicultural societies, the relationship between language and culture becomes even more complex. Code-switching, or the practice of alternating between languages in a single conversation, is a common phenomenon among bilingual individuals and reflects their ability to navigate multiple cultural identities. This linguistic flexibility is not merely a matter of convenience but often serves social and cultural functions, allowing speakers to express solidarity, convey nuances that might not be possible in one language alone, or adapt to different social settings. For instance, Spanish-English bilinguals in the United States may switch between languages depending on the topic, audience, or emotional context, reflecting the hybrid nature of their cultural experiences.

The globalization of English as a lingua franca has also led to significant cultural and linguistic transformations. As English spreads across the world, it absorbs and adapts elements from various cultures, resulting in localized variations such as Singlish in Singapore or Indian English. These varieties reflect the blending of English with indigenous linguistic and cultural influences, demonstrating how language evolves in response to cultural exchange and adaptation. However, the dominance of English also raises concerns about linguistic imperialism and the erosion of local languages and cultural identities. In many postcolonial societies, the use of English in education, governance, and media can create tensions between maintaining cultural heritage and accessing global opportunities [4].

Language is also deeply embedded in rituals, traditions, and storytelling practices that sustain cultural heritage. Oral traditions, in particular, play a crucial role in preserving historical narratives, moral teachings, and community values. In many African and Indigenous cultures, storytelling serves as an educational tool that imparts knowledge through allegory and metaphor, reinforcing collective memory and identity. The loss of indigenous languages due to globalization and linguistic homogenization poses a significant threat to these cultural traditions, as language extinction often leads to the disappearance of unique worldviews and ways of understanding the world.

The power of language to shape social identities and group affiliations is evident in the way dialects and accents influence perceptions of belonging and status. Regional dialects often carry cultural connotations that signal a speaker's geographical origin, social class, or ethnic background. In some cases, linguistic variation can lead to prejudice or discrimination, as seen in attitudes toward certain accents in English-speaking countries. For example, speakers of Received Pronunciation (RP) in the United Kingdom are often perceived as more educated or authoritative compared to those with regional accents, highlighting the sociocultural dimensions of linguistic prestige and bias.

Furthermore, culture plays a crucial role in shaping the ways individuals learn and use language, influencing not only linguistic proficiency but also communicative strategies, social interactions, and cognitive processing. The process of acquiring a new language is deeply intertwined with cultural exposure, as language embodies cultural norms, values, and ways of thinking. Without an understanding of the cultural context in which a language operates, learners may struggle to fully grasp the meaning behind words, phrases, and expressions, leading to miscommunication and misunderstandings [5].

The manner in which individuals approach second language acquisition is often dictated by their cultural background. Different educational systems place varying degrees of emphasis on grammar, speaking, listening, and writing skills, shaping learners' expectations and preferences. For example, students from collectivist cultures, such as Japan or China, may prioritize accuracy and group harmony in communication, leading them to be more reserved in oral interactions. In contrast, learners from individualistic cultures, such as the United States, might focus on fluency and self-expression, displaying greater willingness to take linguistic risks even at the expense of grammatical precision.

Sociocultural norms also dictate the appropriateness of speech acts, influencing how individuals request, apologize, compliment, or refuse in different languages. A phrase that may be considered polite in one culture could be perceived as overly direct or even rude in another. For instance, English speakers often use indirect language when making requests, such as "Would you mind passing the salt?" whereas speakers of other languages may favor more direct constructions. Such differences in pragmatic conventions can lead to misunderstandings, particularly when learners transfer their native language's norms into their second language use.

Another significant cultural factor in language learning is the role of nonverbal communication. Gestures, facial expressions, and body language vary widely across cultures and are an integral part of effective communication. A simple nod may signify agreement in some cultures but indicate uncertainty or hesitation in others. Additionally, concepts such as personal space, eye contact, and physical touch can carry different meanings depending on cultural norms. Language learners must navigate these differences to avoid unintended offenses or social awkwardness.

The impact of cultural differences extends beyond interpersonal communication to the broader realm of discourse and rhetorical styles. Different cultures favor distinct ways of organizing information, structuring arguments, and presenting ideas. In Western academic writing, for example, a clear thesis statement followed by supporting evidence is the preferred structure, whereas in some Asian traditions, ideas may be developed in a more circular manner, gradually leading to the main point. Understanding these cultural variations is crucial for learners who wish to communicate effectively in diverse linguistic settings [6].

Moreover, the integration of cultural knowledge in language learning materials and curricula enhances learners' ability to engage authentically with native speakers. Language textbooks and *classroom instruction that incorporate cultural elements such as idiomatic expressions, historical references, and real-life scenarios provide learners with a richer, more immersive learning experience. Exposure to authentic cultural materials, including films, literature, and media, further strengthens learners' linguistic and cultural competence, allowing them to interact more naturally in real-world situations.*

Technology and globalization have further complicated the relationship between language and culture in learning environments. Digital communication, social media, and online learning platforms facilitate cross-cultural interactions, exposing learners to diverse linguistic varieties and communicative styles. However, the prevalence of global English, with its many regional adaptations, also raises questions about which cultural norms should be prioritized in language education. While English learners might primarily focus on American or British English, they increasingly encounter speakers from India, Singapore, or Nigeria, each with unique linguistic and cultural conventions.

The influence of culture on motivation and attitudes toward language learning is another critical consideration. Learners who have a positive perception of the target language's culture are often more motivated and successful in acquiring the language. Conversely, those who view the culture negatively or perceive it as incompatible with their own may struggle with language acquisition. Encouraging cultural openness and fostering intercultural competence are thus essential in promoting more effective and enjoyable language learning experiences.

The process of adapting to a new culture while learning a second language is a complex and multifaceted experience that requires individuals to navigate unfamiliar social norms, values, and expectations. Cultural adaptation in second language acquisition is not solely about linguistic competence; it involves developing an awareness of the customs, traditions, and behavioral patterns of the target language community. Learners must go beyond vocabulary and grammar to understand how social interactions function in different cultural settings, allowing for more authentic and effective communication [7].

Adjusting to a new cultural environment often requires individuals to modify their communication styles and behavioral expectations. Many second-language learners experience a period of cultural adjustment, commonly referred to as cultural shock, in which they struggle to align their native cultural perspectives with those of the target language. This adjustment phase can influence the learner's ability to interpret non-verbal cues, recognize implicit meanings, and use appropriate forms of address and politeness strategies. As learners become more immersed in the culture, they begin to internalize new social norms and develop strategies for managing cross-cultural interactions.

One of the key challenges in cultural adaptation is overcoming ethnocentric perceptions and embracing different worldviews. Second-language learners often compare the cultural norms of their native language with those of the target language, which can lead to misunderstandings or resistance to change. Successful cultural adaptation requires an open-minded approach, where learners actively seek to understand the perspectives of native speakers rather than imposing their own cultural framework onto new linguistic experiences. This willingness to engage with a new cultural system fosters deeper language acquisition and a more authentic connection to the language.

The process of cultural adaptation is also influenced by the level of integration between the learner and the target language community. Learners who have the opportunity to interact regularly with native speakers are more likely to acquire cultural knowledge naturally through observation, participation, and imitation. In contrast, those who study a second language in an isolated environment may struggle to grasp the subtleties of cultural behavior, which can impede their ability to communicate effectively. Immersion experiences, such as study-abroad programs or cultural exchange initiatives, provide valuable opportunities for learners to develop their linguistic skills in real-world contexts while also adapting to new cultural norms.

Developing intercultural competence is a fundamental aspect of cultural adaptation in second language acquisition. Intercultural competence refers to the ability to navigate and interpret cultural differences in a way that facilitates effective communication and social interaction. This skill involves recognizing and respecting cultural diversity, understanding different communicative styles, and adapting one's behavior accordingly. Language learners who develop intercultural competence are better equipped to handle cross-cultural interactions with sensitivity and awareness, leading to more meaningful linguistic exchanges [8].

Technology and globalization have also shaped the process of cultural adaptation in second language acquisition. Digital communication platforms, social media, and online communities allow learners to engage with native speakers and cultural content from different parts of the world. Virtual *immersion provides an alternative to traditional language-learning environments, enabling learners to practice language skills in culturally authentic contexts. However, while digital interactions offer valuable exposure to linguistic diversity, they may not fully replicate the depth of cultural adaptation that comes from direct in-person experiences.*

Another aspect of cultural adaptation in second language acquisition is the influence of personal identity on language learning. Many learners find that acquiring a new language involves adopting a different cultural identity to some degree, as they adjust their speech patterns, gestures, and social behaviors to align with the norms of the target language community. This shift can be both enriching and challenging, as learners may struggle with maintaining their native cultural identity while integrating aspects of a new culture. The degree to which an individual embraces this cultural shift varies based on personal attitudes, motivations, and previous exposure to cross-cultural experiences [9].

Language socialization plays a crucial role in helping learners adapt to new cultural norms. Socialization into a new language occurs through interactions with peers, teachers, colleagues, and community members who model appropriate linguistic and cultural behaviors. Through repeated exposure and participation in social exchanges, learners gradually internalize the norms of the target language community, becoming more adept at using language in culturally appropriate ways. Socialization also fosters a sense of belonging, which can enhance motivation and confidence in second language use.

The role of emotions in cultural adaptation should not be overlooked, as language learners often experience a range of psychological responses when adjusting to a new cultural and linguistic environment. Feelings of excitement, frustration, anxiety, and empowerment can all influence language acquisition and cultural integration. Developing resilience and adaptability is essential for overcoming cultural challenges and building confidence in language use. Support systems, such as language mentors, cultural guides, and peer networks, can provide encouragement and guidance throughout the adaptation process.

Ultimately, cultural adaptation in second language acquisition is an ongoing and dynamic process that evolves as learners gain more exposure to and experience within the target language environment. As individuals progress in their language skills, they become more comfortable navigating cultural nuances, forming relationships with native speakers, and expressing themselves in ways that align with the expectations of the target culture. While complete cultural assimilation is not necessary, achieving a level of cultural fluency enhances linguistic proficiency and deepens one's connection to the language.

Cultural adaptation is an integral part of second language acquisition that extends beyond mastering vocabulary and grammar. It requires learners to engage with cultural norms, adjust their communicative behaviors, and develop intercultural competence to effectively navigate cross-cultural interactions. As language learners immerse themselves in new cultural environments, they not only refine their linguistic abilities but also gain a broader perspective on the diverse ways in which people express and interpret meaning across languages and cultures.

1.2 The role of cultural context in English grammar instruction

The impact of cultural context on English grammar is evident in the way different societies develop and perceive grammatical structures, shaping the way native and non-native speakers use the language. Cultural factors influence how English speakers express politeness, formality, and hierarchy in communication, which is reflected in grammatical choices such as verb forms, pronouns, and sentence structures. The differences in how cultures handle respect, status, and social relationships manifest themselves in grammatical patterns that vary in subtle yet significant ways.

Grammatical structures in English often carry culturally embedded meanings that shape how messages are conveyed and interpreted. The use of tenses, for example, is deeply rooted in how English-speaking cultures conceptualize time, with strict distinctions between past, present, and future events. This contrasts with languages that rely more on contextual understanding rather than explicit grammatical markers for temporal distinctions. Such differences create challenges for English learners from backgrounds where temporal relationships are expressed differently, requiring them to adapt to a new way of structuring time in language [10].

Another crucial cultural influence on English grammar is the use of modals and politeness strategies, which vary widely across cultures. English employs modal verbs such as "could," "would," and "might" to soften requests and convey politeness, a feature that aligns with the indirect communication style often preferred in Western cultures. In contrast, some languages prioritize directness in requests, leading to potential misunderstandings when learners transfer their native linguistic norms into English *communication. The necessity of mastering these culturally influenced grammatical forms is essential for effective interaction in English-speaking environments.*

Pronoun usage in English also reflects underlying cultural values related to individualism and inclusivity. English predominantly relies on a single second-person pronoun, "you," regardless of formality or hierarchy, which contrasts with languages that distinguish between formal and informal forms of address. This grammatical feature highlights the relatively egalitarian nature of many English-speaking societies, where social distinctions based on language are less rigid than in cultures with more complex pronominal systems. However, variations in dialects and sociolects reveal that politeness strategies still shape pronoun choices and sentence structures in nuanced ways.

The structure of English sentences, particularly the preference for subject-verb-object (SVO) order, is another culturally significant aspect of its grammar. While this pattern is dominant in English, other languages may allow for more flexible word orders, depending on the emphasis placed on different parts of a sentence. Learners from linguistic backgrounds that prioritize topic-prominent structures, where the topic is introduced before the main verb, may struggle with English's relatively fixed word order. The influence of cultural thought patterns on sentence construction highlights how deeply grammar is intertwined with broader cognitive frameworks.

Cultural context also affects the use of passive voice in English, which is often associated with formality, politeness, or impersonal statements. English speakers may choose passive constructions to avoid direct blame or emphasize the action rather than the agent, a tendency that aligns with cultural preferences for tact and diplomacy. In contrast, languages with strong subject-oriented structures may favor active voice more frequently, requiring learners to adjust their grammatical choices to match the communicative norms of English. The way English speakers use passive voice, conditional sentences, and indirect speech acts often carries subtle cultural meanings that extend beyond grammatical correctness. For instance, the passive voice is frequently employed in formal writing or diplomatic speech to avoid direct blame, a feature that may be unfamiliar or unnatural to speakers of languages that prioritize directness and active constructions [11].

Another key grammatical feature influenced by cultural context is the use of conditionals and hypothetical statements. English speakers frequently use conditional forms to express politeness, hypothetical reasoning, and future possibilities, with specific grammatical structures distinguishing between likely and unlikely scenarios. The way these forms are used reflects broader cultural attitudes toward uncertainty, planning, and negotiation, making them a critical area for learners to master in order to fully engage in English-speaking interactions [12].

Even punctuation and written grammar are shaped by cultural conventions, influencing how English speakers organize their thoughts in writing. The preference for clear, concise sentences in English academic and professional writing reflects a cultural emphasis on clarity and efficiency, contrasting with languages that favor elaborate, complex sentence structures. These differences require learners to adapt not only their spoken grammar but also their writing style to align with the expectations of English-speaking audiences.

Cultural context plays a fundamental role in shaping English grammar structures, influencing everything from pronoun usage to sentence construction and politeness strategies. Understanding these cultural dimensions is essential for both learners and educators, as it provides deeper insight into why certain grammatical forms exist and how they function in real-world communication. By recognizing the interplay between culture and grammar, language learners can develop a more intuitive and contextually appropriate command of English, enhancing both their linguistic accuracy and intercultural competence [13].

Understanding English grammar is not merely a matter of learning rules and structures; cultural background significantly influences how learners comprehend and use grammatical forms in real-world communication. The way students interpret and apply grammar is deeply shaped by their cultural experiences, expectations, and native language patterns, making it essential to consider cultural factors when teaching and learning English grammar.

Different cultural perspectives on time, hierarchy, and politeness affect how learners understand and use grammatical tenses, sentence structures, and expressions. For instance, languages that do not distinguish between past, present, and future in the same way as English may pose challenges for learners in grasping the intricacies of English verb tenses. A learner from a language that relies on contextual rather than grammatical markers for temporal references may struggle with the necessity of explicitly marking tense in English, leading to errors or omissions in spoken and written language.

The comprehension of English sentence structures is also influenced by cultural conventions in discourse organization and rhetorical traditions. In some cultures, indirectness and implicit meaning are preferred over direct statements, resulting in differences in how learners construct sentences in English. For example, speakers of languages with flexible word order may find English's relatively rigid subject-verb-object structure restrictive and unnatural, impacting both comprehension and production [14].

The use of negation, emphasis, and rhetorical devices in English grammar also reflects cultural patterns of communication and argumentation. In cultures where indirectness is valued, double negatives or mitigated expressions may be used to convey disagreement or reluctance in a polite manner. Learners from more direct cultures may misinterpret these structures, leading to confusion in both comprehension and response.

The role of context in understanding English grammar extends to idiomatic expressions and set phrases, which often carry cultural connotations that are not immediately apparent to non-native speakers. Idiomatic usage of grammatical structures, such as phrasal verbs and fixed expressions, can be particularly challenging for learners who come from linguistic backgrounds that rely on more literal forms of expression. Cultural exposure and immersion play a vital role in helping learners internalize these structures and use them effectively in everyday communication.

Language transfer, or the influence of a learner's native language on their English grammar comprehension and usage, is heavily mediated by cultural factors. The grammatical structures that exist in a learner's first language shape their expectations and interpretations of English grammar, sometimes resulting in errors that reflect cultural-linguistic differences rather than a lack of grammatical knowledge. Teachers must be aware of these influences and incorporate culturally responsive strategies to address them in instruction [15].

The effectiveness of grammar instruction is greatly enhanced when it acknowledges cultural differences in learning styles, preferences, and cognitive approaches to language processing. Some cultures emphasize rote memorization and rule-based learning, while others prioritize communicative and experiential learning. Understanding these cultural predispositions allows educators to tailor grammar instruction to better suit learners' needs and expectations.

Cultural context profoundly affects how learners comprehend and use English grammar, influencing their interpretation of grammatical rules, their ability to apply structures in context, and their overall linguistic proficiency. Recognizing these cultural influences enables educators and learners to approach grammar instruction with greater awareness, facilitating more effective learning experiences and fostering communicative competence in diverse linguistic settings [16].

Teaching English grammar within a cultural context presents numerous challenges that educators must navigate to create an effective and inclusive learning environment. One of the primary difficulties is the variation in students' cultural backgrounds, which influences their perception of grammatical structures and their ability to apply them correctly in communication. Learners from different linguistic traditions may struggle with English grammar in distinct ways, requiring tailored instructional approaches.

Another significant obstacle is the difference in learning styles across cultures. Some students, particularly those from educational systems that emphasize rote memorization, may find it challenging to adapt to grammar instruction that prioritizes communicative competence over rule-based learning. In contrast, learners from cultures that emphasize oral tradition and storytelling may find abstract grammar rules less engaging, preferring practical, real-world applications.

The presence of culturally embedded grammatical concepts can further complicate instruction, as certain structures in English may not have direct equivalents in other languages. For instance, the use of articles in English can be difficult for speakers of languages that do not utilize them, requiring explicit instruction and extensive practice. Similarly, verb tense and aspect distinctions that are prominent in English may be unfamiliar to learners from languages that rely on contextual markers instead of grammatical conjugation.

To address these challenges, educators must adopt culturally responsive teaching strategies that accommodate diverse linguistic backgrounds and learning styles. One effective approach is the use of culturally relevant examples and contexts to illustrate grammar points, allowing students to see the relevance of grammatical structures in familiar settings. Incorporating narratives, dialogues, and texts that reflect students' cultural experiences can make grammar lessons more relatable and meaningful [17].

Interactive and collaborative learning activities can also enhance grammar instruction by encouraging students to engage with the material in dynamic ways. Group discussions, role-playing *scenarios, and peer teaching exercises provide opportunities for learners to practice grammatical structures in authentic communication while receiving immediate feedback from their peers and instructors.*

Another crucial strategy is the integration of technology and multimedia resources to provide diverse representations of grammar in context. Online platforms, language apps, and audiovisual materials that showcase real-world usage of grammatical structures can support learners in developing a deeper understanding of grammar in culturally diverse situations.

Additionally, fostering an environment of cultural awareness and sensitivity in the classroom can support grammar instruction by creating an inclusive and respectful learning atmosphere. Encouraging students to share insights from their linguistic and cultural backgrounds can enrich discussions on grammar and highlight the diversity of language use worldwide.

Teaching grammar within a cultural context requires a flexible and adaptive approach that considers the varied experiences, expectations, and learning styles of students. By implementing culturally responsive teaching strategies, educators can enhance students' understanding of grammar while fostering meaningful engagement with the language. Ultimately, recognizing the cultural influences on grammar instruction enables both teachers and learners to navigate the complexities of English grammar with greater confidence and effectiveness.

1.3 Overview of existing approaches to integrating culture in grammar teaching

The evolution of grammar instruction has witnessed a significant transformation from traditional methodologies to modern, culturally integrated approaches. Historically, grammar was often taught in isolation, with an emphasis on memorization, drills, and structural analysis rather than meaningful communication. Traditional approaches prioritized linguistic accuracy and rule adherence, frequently neglecting the cultural and contextual dimensions that shape language use in real-world settings.

A major limitation of the grammar-translation method, which dominated early language instruction, was its lack of engagement with authentic cultural contexts. This method, focused primarily on written translation between languages, failed to address the communicative aspects of grammar, leaving learners with little exposure to the social and cultural dimensions of language use. As a result, students often found themselves proficient in grammatical rules but unable to apply them effectively in everyday interactions [18].

The emergence of communicative and contextual approaches to grammar instruction was largely a response to the inadequacies of traditional methodologies. Modern approaches recognize that grammar should not be taught in isolation but rather embedded within culturally relevant discourse, allowing learners to understand not only how structures function but also why they are used in specific contexts. The shift towards communicative teaching emphasizes interaction, real-life applications, and cultural awareness as essential components of effective grammar learning.

Table 1

Comparison of Traditional and Modern Grammar Teaching Approaches

Approach	*Key Features*	*Limitations*
Grammar-Translation Method	*Focus on written translation and memorization of rules*	*Limited communicative application and cultural relevance*
Structural Approach	*Emphasis on drills and repetition of grammatical patterns*	*Lacks contextual and interactive components*
Communicative Approach	*Integrates grammar within real-world conversations and cultural contexts*	*Requires extensive exposure and interaction*
Task-Based Learning	*Uses meaningful tasks to teach grammar in context*	*May require additional scaffolding for beginners*

A comparison of these approaches highlights the growing recognition that grammar teaching must go beyond rote learning and incorporate meaningful cultural engagement. Teachers who adopt a culturally integrated approach help students develop a deeper understanding of the pragmatics and sociolinguistic nuances of grammar, making their language learning experience more dynamic and applicable.

To illustrate the shift from traditional to modern grammar instruction, the following diagram presents the increasing importance of cultural integration in language learning methodologies:

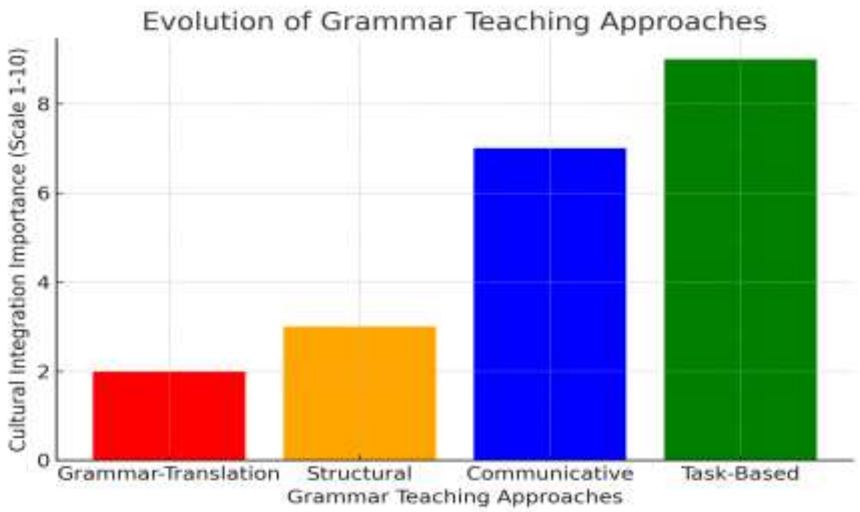


Figure 1 Evolution of Grammar Teaching Approaches

The transition from traditional to modern grammar instruction reflects a broader shift in language pedagogy towards more interactive, meaningful, and culturally inclusive approaches. While traditional methods laid the groundwork for structural understanding, contemporary strategies ensure that grammar is taught as a living, functional component of communication rather than a rigid set of rules. By embedding grammar instruction within authentic cultural contexts, educators can enhance students' engagement, comprehension, and ability to use the language effectively in diverse settings.

Integrating cultural elements into grammar instruction requires a variety of innovative teaching techniques that engage learners on multiple levels. One of the most effective strategies involves the use of authentic texts, including literary works, historical documents, and journalistic pieces, which provide learners with real-world examples of how grammar functions within specific cultural settings. By exposing students to grammatically rich content that reflects the social norms and values of different communities, educators help them develop a deeper understanding of language use in context [19].

Another valuable approach to teaching grammar within a cultural framework is the incorporation of dialogues, role-playing activities, and interactive exercises. These methods encourage learners to apply grammatical structures in meaningful, culturally relevant interactions, reinforcing both linguistic accuracy and cultural competence. Role-playing scenarios, in particular, allow students to practice grammar in context by simulating real-life conversations that reflect diverse social and cultural situations.

The use of multimedia resources and digital technology plays a crucial role in fostering a culturally enriched language-learning environment. Videos, podcasts, and online platforms provide learners with exposure to diverse accents, dialects, and communication styles, enhancing their ability to understand and apply grammar within culturally authentic contexts. Interactive software and virtual reality experiences further expand opportunities for students to engage with grammar in dynamic, immersive settings [20].

Table 2

Methods for Embedding Cultural Context in Grammar Lessons

Method	*Description*	*Benefits*
Authentic Texts	*Use of literature, newspapers, and historical documents*	*Enhances exposure to real-world grammar usage*
Role-Playing	*Simulated conversations and cultural scenarios*	*Reinforces contextual grammar learning*
Multimedia Resources	*Videos, podcasts, and virtual interactions*	*Provides exposure to diverse linguistic styles*
Interactive Exercises	*Gamification, digital quizzes, and collaborative learning*	*Engages learners in active grammar application*

By combining these methods, educators create a dynamic and immersive learning environment that fosters both grammatical proficiency and cultural awareness. The integration of culture into grammar lessons enhances students' ability to apply language rules in socially and contextually appropriate ways, ultimately improving their overall communication skills.

Assessing the success of culturally integrated grammar instruction requires a focus on both the cognitive and affective domains of language learning. Rather than solely measuring grammatical accuracy, educators must consider how effectively learners apply grammatical structures in culturally appropriate ways within authentic communication contexts. Evaluations should include both qualitative and quantitative approaches to gain a comprehensive understanding of students' progress.

A fundamental aspect of assessment involves examining students' ability to engage in real-life communication using the grammar they have learned. Tasks such as dialogue simulations, collaborative storytelling, and cultural case studies can provide insights into how well students internalize grammatical structures and use them appropriately in different cultural settings. These interactive methods highlight the extent to which learners can navigate grammar beyond mechanical accuracy [21].

Another important consideration is the role of learner motivation and engagement in the learning process. Research suggests that students who find grammar instruction culturally relevant demonstrate higher levels of interest and retention. Therefore, measuring students' attitudes through surveys and self-reflection journals can help determine whether cultural integration enhances their overall learning experience and long-term retention of grammatical concepts [22].

Instructors must also assess students' awareness of sociolinguistic and pragmatic elements of grammar. Grammar is not simply about sentence construction; it includes understanding how grammar varies in different social situations. Evaluations should incorporate role-based assessments where students apply grammatical forms in a range of formal and informal cultural contexts, allowing instructors to analyze their ability to adapt linguistic choices to different settings.

Table 3

Metrics for Evaluating Culture-Based Grammar Instruction

Assessment Focus	Evaluation Methods	Expected Outcome
Real-world Application	Dialogue simulations, cultural case studies	Enhanced grammatical fluency in authentic communication
Learner Engagement	Surveys, participation tracking	Increased motivation and long-term retention
Sociolinguistic Awareness	Role-play assessments, interviews	Improved adaptability to diverse cultural contexts
Structural Competence	Writing tasks, peer evaluations	Higher accuracy and contextual appropriateness

Long-term assessments should also be incorporated to measure how students retain and apply grammar knowledge over time. Follow-up evaluations conducted months after initial instruction can reveal the effectiveness of culturally integrated grammar instruction in fostering sustainable learning outcomes. By adopting a dynamic and multifaceted assessment approach, educators can ensure that cultural integration in grammar teaching leads to both linguistic proficiency and intercultural competence.

2 METHODOLOGICAL PRINCIPLES OF INCORPORATING CULTURAL CONTEXT INTO ENGLISH GRAMMAR TEACHING

2.1 Effective strategies and techniques for teaching grammar through cultural elements

Integrating cultural content into grammar instruction provides learners with a deeper understanding of language as a dynamic and socially embedded system. When grammar is presented within a meaningful cultural context, students are more likely to perceive grammatical structures as functional tools for communication rather than as isolated sets of rules. Contextualized instruction encourages learners to engage with authentic language use, bridging the gap between theoretical knowledge and real-life application [23].

One of the most effective methods for contextualized grammar instruction is the use of culturally rich texts, which include traditional stories, folklore, and contemporary literature from English-speaking countries. These materials expose students to diverse linguistic patterns and grammatical structures in a way that reflects cultural conventions and communicative norms. By analyzing language use in such *texts, learners develop a more nuanced awareness of grammar in context and gain insight into the ways in which language reflects cultural identity and historical background.*

Table 4

Cultural Content-Based Grammar Instruction Techniques

Technique	Application in Grammar Instruction	Expected Learning Outcomes
Folklore & Traditional Stories	Used to introduce verb tenses, narrative structures, and past-tense usage	Improved comprehension of tense consistency and storytelling conventions
Historical Documents & Speeches	Employed to demonstrate formal grammatical structures and complex sentence formation	Enhanced understanding of syntactic complexity and rhetorical strategies
Film & TV Dialogue Analysis	Utilized to teach conversational grammar, contractions, and informal speech patterns	Greater fluency in natural spoken communication
Cultural Idioms & Proverbs	Integrated to explore figurative language, word order, and phrasal verbs	Better grasp of cultural nuances in grammatical structures
Cross-Cultural Comparative Analysis	Used to compare English grammatical rules with those of students' native languages	Increased metalinguistic awareness and grammatical adaptability
Interactive Role-Plays & Simulations	Designed to allow students to apply grammar in real-world social contexts	Strengthened ability to use grammar appropriately in diverse cultural interactions

Historical documents and primary sources further enrich the teaching of grammar by illustrating the evolution of language over time. Examining older texts allows students to observe changes in grammatical structures, vocabulary usage, and stylistic conventions, helping them understand how language adapts to societal transformations. Through comparative analysis, learners can identify persistent grammatical features as well as shifts in language norms, fostering an appreciation for the fluid nature of grammar [24].

Authentic dialogues and conversational scripts also serve as valuable tools for teaching grammar through cultural content. Dialogues from films, television shows, and real-world interactions provide students with examples of how grammatical structures are naturally employed in everyday speech. By engaging with these materials, learners become familiar with pragmatic aspects of grammar, such as register, formality, and tone, which are often shaped by cultural expectations and situational contexts [25].

Incorporating culturally relevant idioms, proverbs, and expressions into grammar instruction enhances students' ability to grasp grammatical structures in a meaningful way. Many grammatical constructions are closely tied to culturally specific idiomatic usage, making it essential for learners to understand both the linguistic and cultural significance of these expressions. By analyzing idioms within their cultural frameworks, students develop a more comprehensive understanding of grammar as a reflection of societal norms and values.

Comparative linguistic analysis is another powerful strategy for contextualized grammar instruction, as it allows learners to contrast English grammatical structures with those of their native languages. By examining the similarities and differences between languages, students gain insights into the underlying logic of grammatical systems and develop strategies for overcoming linguistic interference. This approach fosters metalinguistic awareness, enabling learners to internalize grammatical rules more effectively [26].

Interactive and experiential learning activities, such as role-playing and simulation exercises, provide students with opportunities to practice grammatical structures in culturally authentic contexts. These activities encourage learners to apply grammar in real-world scenarios, reinforcing their understanding of grammatical functions within social interactions. By assuming different roles and engaging in culturally relevant conversations, students develop a deeper sense of how grammar shapes meaning and facilitates communication [27].

Ultimately, contextualized grammar instruction through cultural content transforms language learning into an engaging and immersive experience. By embedding grammatical structures within authentic cultural materials and interactive learning activities, educators create a dynamic instructional environment that fosters both linguistic proficiency and cultural awareness. This approach not only enhances students' grammatical competence but also prepares them to use language effectively in diverse communicative settings.

Creating an engaging and immersive environment for grammar learning through cultural integration allows students to interact with the language in a meaningful and practical manner. Instead of focusing solely on mechanical grammar drills, students can participate in interactive activities that incorporate cultural elements, making their learning experience more dynamic and contextually relevant.

By engaging learners in cultural scenarios, role-playing, and interactive storytelling, educators can facilitate the organic acquisition of grammar in an immersive and stimulating way [28].

One of the most effective ways to achieve an interactive approach to grammar learning is through digital technology and multimedia resources. Utilizing virtual reality, interactive apps, and online simulations, students can explore cultural settings where they must use grammar structures in real-time communication. This hands-on experience enhances retention, as learners are not simply memorizing rules but actively applying them in lifelike situations that mirror real-world linguistic exchanges.

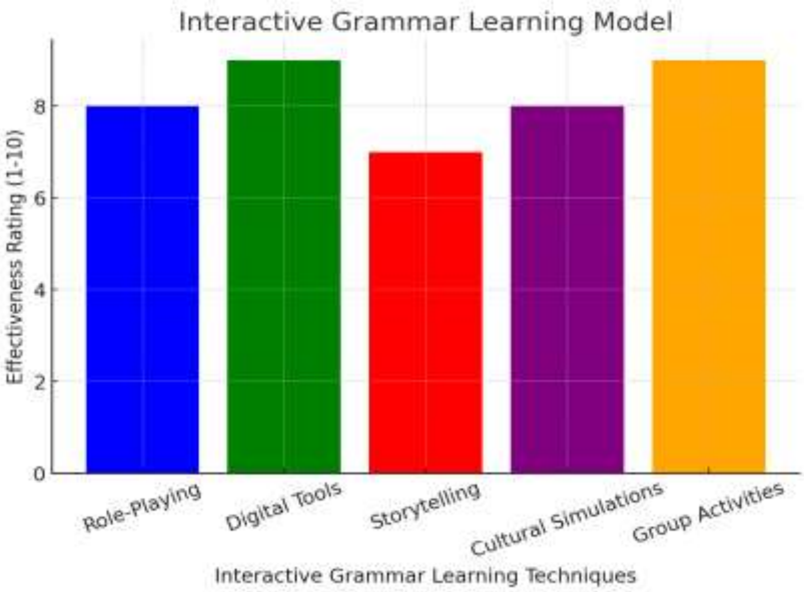


Figure 2 Interactive Grammar Learning Model

Group-based activities that encourage collaboration and discussion provide another powerful method for interactive grammar learning with cultural integration. Students working together on culturally themed projects, such as designing travel guides, creating culturally diverse storylines, or engaging in debates on historical or cultural topics, naturally incorporate grammar structures in meaningful ways. Through these projects, grammar becomes an essential tool for communication rather than an isolated academic requirement [29].

Dramatic techniques, such as role-playing and improvisational exercises, allow students to practice grammar while immersed in culturally relevant narratives. By taking on different roles within a specific cultural context, learners internalize sentence structures, verb conjugations, and syntax through real-life linguistic interactions. This strategy not only reinforces grammar but also deepens their understanding of cultural nuances, etiquette, and appropriate language use in varying social situations.

Authentic communicative scenarios, such as restaurant interactions, business meetings, or social gatherings within a cultural framework, further enhance the immersive grammar learning experience. When students engage in dialogues that mimic real-life situations, they develop a deeper understanding of grammatical structures in context, leading to improved fluency and confidence in their spoken and written communication.

Interactive games and gamification strategies provide another exciting avenue for integrating grammar learning with cultural elements. Board games, digital challenges, and culturally themed escape rooms can be designed to reinforce grammatical concepts in a fun and engaging way. By associating grammar practice with an enjoyable activity, students develop intrinsic motivation to participate and apply their grammatical knowledge more effectively [30].

Music and song lyrics from different cultural backgrounds also serve as an engaging method for teaching grammar interactively. By analyzing lyrics, identifying grammatical patterns, and even composing their own culturally inspired songs, students not only reinforce grammar but also connect with the cultural essence of the language they are learning. This method fosters both linguistic accuracy and cultural appreciation simultaneously.

Multimodal storytelling, where students create narratives that incorporate cultural and grammatical elements, enhances grammar retention through creative expression. Whether through *digital storytelling platforms, illustrated comics, or interactive fiction, learners naturally integrate grammatical structures as they build their stories, reinforcing sentence formation, verb usage, and cohesion in a dynamic manner.*

Instructors can also utilize real-world cultural artifacts, such as newspaper articles, folk tales, and travel documentaries, to immerse students in grammar learning. Analyzing and discussing these artifacts encourages learners to explore grammatical structures in an authentic and relevant manner, reinforcing their understanding of cultural context while strengthening their linguistic skills [31].

By blending immersive learning strategies with cultural integration, educators create an environment where grammar is no longer seen as an abstract set of rules but as a living, breathing element of communication. As students engage with interactive and experiential learning techniques, they develop a more profound and practical understanding of grammar, ensuring long-term retention and cultural competence.

Evaluating the effectiveness of grammar teaching in a culturally diverse classroom requires a nuanced approach that takes into account linguistic backgrounds, learning styles, and cultural influences on language acquisition. Traditional assessments that focus solely on grammatical accuracy may not fully reflect a student's ability to use grammar in real-world contexts, necessitating a shift towards more holistic and culturally responsive evaluation techniques [32].

Assessing students' grammatical competence in a multicultural environment necessitates an approach that prioritizes communicative ability over rigid rule application. Since grammar functions differently across languages, students may exhibit varying levels of proficiency depending on their linguistic background. Instead of standardized testing alone, formative assessments such as classroom discussions, peer evaluations, and self-reflections can provide deeper insights into students' understanding and use of grammar in culturally authentic contexts.

Rubric-based assessments offer an effective means of evaluating grammar learning by incorporating cultural sensitivity into grading criteria. Rather than penalizing students for grammatical structures influenced by their native language, rubrics can be designed to reward communicative clarity, adaptability, and appropriate usage within diverse cultural frameworks. By recognizing the value of cross-linguistic transfer, educators can encourage students to refine their grammatical skills without discouraging linguistic experimentation [33].

Portfolio assessments provide an additional way to document students' progress in applying grammar in culturally meaningful contexts. By compiling a collection of written and spoken language samples, students can reflect on their evolving grammatical proficiency while demonstrating their ability to navigate grammatical rules in different social and cultural situations. Portfolios allow educators to track growth over time and tailor instruction to meet the unique needs of each learner.

Adaptive teaching strategies ensure that grammar instruction is relevant to students from varied linguistic and cultural backgrounds. Differentiated instruction, which involves modifying lesson plans and exercises based on students' native languages and cultural experiences, can help bridge the gap between formal grammar rules and practical language use. Personalized learning approaches, such as allowing students to explore grammatical concepts through cultural narratives or real-world case studies, can further enhance comprehension and retention [34].

Technology-driven assessment tools, such as AI-powered language analysis software and interactive grammar quizzes, provide dynamic ways to measure students' grammatical development. These tools can assess not only grammatical accuracy but also fluency, coherence, and cultural appropriateness, offering a more comprehensive evaluation of language proficiency. By integrating technology into grammar assessment, educators can provide immediate feedback and personalized recommendations that cater to individual learning needs.

Table 5

Culturally Responsive Grammar Assessment Techniques

Assessment Method	*Application*	*Benefits*
Formative Assessments	*Discussions, peer reviews, self-reflection*	*Encourages active participation and real-world grammar use*
Rubric-Based Grading	*Criteria include clarity, adaptability, and appropriateness*	*Rewards communicative competence over rigid accuracy*
Portfolio Assessments	*Collection of student work demonstrating grammar application*	*Tracks progress over time and provides holistic evaluation*
Differentiated Instruction	*Grammar lessons tailored to linguistic and cultural backgrounds*	*Makes learning relevant and accessible to diverse students*
Technology-Based Evaluation	*AI tools, grammar apps, interactive quizzes*	*Offers real-time feedback and adaptive learning pathways*

Recognizing the role of cultural diversity in shaping grammar instruction necessitates an ongoing process of adaptation and refinement. Educators must continuously evaluate the effectiveness of their instructional methods, seeking student feedback and analyzing performance trends to identify areas for improvement. Professional development workshops, cross-cultural training programs, and collaboration with linguists can further enhance teachers' ability to implement inclusive and effective grammar instruction [35].

Ultimately, assessment and adaptation of grammar teaching to cultural diversity ensure that students are equipped with the skills necessary for real-world communication. By integrating assessment strategies that reflect the cultural and linguistic diversity of learners, educators can foster a more inclusive learning environment that respects and values different approaches to grammar usage, enhancing both grammatical proficiency and intercultural competence.

2.2 Challenges and limitations of integrating cultural contexts in grammar lessons

Integrating cultural context into grammar instruction presents numerous linguistic and pedagogical challenges that can hinder effective learning. One of the primary difficulties is the vast differences in grammatical structures across languages, which may lead to confusion when students attempt to apply their native language grammar rules to English. These structural discrepancies can make it difficult for learners to grasp concepts such as tense usage, sentence structure, and article application, particularly when these elements function differently in their first language.

Another significant challenge arises from the limitations of traditional pedagogical methods that do not account for cultural influences on language acquisition. Many conventional approaches to grammar instruction focus on rote memorization and mechanical exercises, which fail to contextualize grammatical structures in meaningful ways. As a result, students may struggle to apply grammatical rules in authentic communication scenarios, leading to gaps in comprehension and usage [36].

The diversity of students' linguistic backgrounds further complicates the integration of cultural context in grammar teaching. In classrooms with multilingual learners, instructors must navigate the complexities of teaching grammatical structures that may not have direct equivalents in all students' native languages. This necessitates the development of differentiated instructional strategies that cater to a range of linguistic needs, ensuring that no student is disadvantaged by unfamiliar grammatical conventions.

Furthermore, cultural biases in grammar instruction materials can create additional barriers to effective learning. Many textbooks and resources are designed with a monolingual, Western-centric perspective, which may not adequately address the linguistic and cultural diversity of students. This lack of inclusivity can result in students feeling disconnected from the learning process, as they struggle to relate grammar lessons to their own cultural experiences and linguistic realities [37].

Teacher preparedness is another critical factor that influences the successful integration of cultural context in grammar instruction. Many educators have limited training in culturally responsive teaching methodologies, which can make it challenging for them to adapt their lessons to incorporate cultural elements effectively. Without adequate professional development and support, teachers may rely on traditional grammar instruction methods that fail to engage students in meaningful cultural exploration.

Classroom dynamics and student engagement levels can also be affected by linguistic and pedagogical barriers in cultural integration. Some students may experience frustration when confronted with grammar rules that contradict their intuitive understanding of language based on their cultural and linguistic backgrounds. This can lead to decreased motivation and participation, particularly if learners perceive grammar instruction as disconnected from real-world communication [38].

Moreover, assessment methods often fail to account for cultural variations in language use, which can disadvantage students from non-English-speaking backgrounds. Standardized tests and rigid grading criteria may penalize learners for grammatical choices that are influenced by their native languages, rather than recognizing these differences as part of their linguistic development. Alternative assessment approaches that emphasize communicative competence and contextual grammar use could help address this issue and create a more inclusive learning environment.

Ultimately, addressing linguistic and pedagogical barriers in cultural integration requires a multi-faceted approach that considers the diverse needs of learners. By adopting culturally responsive teaching strategies, providing professional development opportunities for educators, and developing inclusive instructional materials, grammar instruction can be transformed into a more engaging and effective experience for students from all cultural backgrounds.

Understanding the role of cultural sensitivity in grammar instruction is essential to avoid misinterpretations that may arise due to differences in language usage, social norms, and communication styles. The diverse ways in which grammatical structures function across languages can sometimes result in misunderstandings when learners from different cultural backgrounds interpret grammatical rules based on their native linguistic frameworks. These discrepancies can lead to errors that are not necessarily mistakes but reflections of cultural linguistic patterns.

Cultural nuances embedded within grammar can sometimes cause unintended offense or confusion when not properly contextualized. For instance, the use of direct versus indirect speech patterns varies across cultures, and some learners may perceive direct grammatical constructions as overly assertive or impolite, while others may struggle with overly indirect expressions. Teachers must navigate these differences carefully, ensuring that students grasp not only the technical aspects of grammar but also the pragmatic and sociolinguistic implications of their language choices.

Additionally, the challenge of translating idiomatic expressions and culturally bound grammatical constructs into English can create difficulties for students who rely on literal interpretations. Certain grammatical structures are deeply tied to cultural traditions, making them difficult to comprehend without an understanding of the historical and social contexts that shape them. To bridge this gap, educators need to employ culturally relevant examples that highlight how grammar functions within specific cultural settings [39].

A significant concern in grammar teaching is the risk of reinforcing stereotypes or cultural biases when selecting examples and instructional materials. Some grammar books and language curricula may unintentionally present a limited or skewed representation of cultural norms, leading to a one-dimensional perspective of language use. To mitigate this, educators should incorporate diverse linguistic perspectives and examples from various English-speaking cultures, ensuring that learners gain a broader and more accurate understanding of grammar in context.

Furthermore, different cultural attitudes toward authority, politeness, and hierarchy influence the way grammatical structures are used in communication. The levels of formality expected in different situations vary widely across cultures, and students may need explicit instruction on when and how to use formal versus informal grammatical structures in English. This is particularly relevant in professional and academic settings, where grammatical precision and cultural appropriateness play a crucial role in effective communication.

By recognizing and addressing these cultural sensitivities, grammar instruction can be adapted to better serve learners from diverse backgrounds. Incorporating culturally responsive teaching methods, encouraging open discussions about linguistic diversity, and using culturally inclusive materials can help create a more supportive and effective learning environment. Ultimately, fostering cultural awareness alongside grammatical competence ensures that students are not only linguistically proficient but also adept at navigating cross-cultural communication with sensitivity and confidence.

The implementation of cultural integration in grammar teaching faces multiple practical constraints and institutional challenges, which often limit the effectiveness of culturally inclusive pedagogical approaches. A significant issue is the scarcity of instructional materials that adequately incorporate diverse cultural perspectives while maintaining rigorous grammatical instruction. Many available textbooks and resources prioritize standardized grammar instruction, neglecting the cultural contexts in which language is naturally used, which can impede students' ability to internalize grammatical structures within authentic communicative settings.

Another major limitation arises from the time constraints imposed by standardized curricula, where educators must balance cultural integration with the need to meet grammatical proficiency benchmarks within a limited timeframe. The rigid structure of many educational programs makes it *difficult to incorporate meaningful cultural discussions into grammar lessons, often reducing such efforts to brief supplementary activities rather than fully integrated instructional methods.*

Teacher training and preparedness also present significant institutional challenges, as many instructors lack specialized training in culturally responsive grammar instruction. Professional development opportunities that focus on integrating cultural content into grammar teaching are limited, making it difficult for educators to develop the skills needed to effectively navigate cultural nuances while maintaining grammatical accuracy.

Table 6

Key Institutional Challenges in Cultural Integration of Grammar Teaching

Challenge	*Impact on Instruction*	*Potential Solutions*
Lack of culturally inclusive materials	*Limited exposure to real-world language usage*	*Development of diverse instructional resources*
Time constraints in curricula	*Difficulty in balancing culture and grammar instruction*	*Flexible lesson planning and prioritization*
Insufficient teacher training	*Educators struggle with integrating cultural content*	*Professional development and training programs*
Assessment limitations	*Difficulty in measuring culturally informed grammar proficiency*	*Creation of culturally responsive assessment methods*

Addressing these challenges requires systematic changes in curriculum design, teacher training programs, and resource allocation. By prioritizing the development of culturally relevant teaching materials, allowing flexibility in lesson planning, and equipping educators with the necessary skills, institutions can foster an environment where grammar is taught as a culturally embedded component of language, rather than a set of abstract rules. Ultimately, overcoming these institutional barriers will enhance students' ability to use grammar effectively within diverse cultural and linguistic contexts.

2.3 Teacher perspectives on using cultural materials in grammar instruction

Understanding the attitudes and beliefs of teachers regarding the integration of cultural materials into grammar instruction is essential for developing effective teaching strategies that align with modern educational needs. Many educators recognize the importance of cultural context in language learning, acknowledging that grammar should not be taught in isolation but rather as an integral part of meaningful communication. Teachers with extensive experience in second language instruction often advocate for a more culturally enriched approach, believing that students are more engaged and motivated when they see grammar as a functional component of real-life conversations.

One of the most commonly observed attitudes among teachers is the belief that cultural integration in grammar instruction enhances students' comprehension of language structures by providing them with authentic examples of how grammar is used in different social settings. When grammar is presented within a cultural framework, learners can more easily grasp the nuances of sentence structure, verb tense usage, and formal versus informal communication. Many educators argue that this approach fosters a deeper understanding of grammatical rules and improves students' ability to use grammar appropriately in various contexts [40].

Another prevailing perspective among language teachers is the idea that incorporating cultural materials into grammar lessons can help bridge the gap between theoretical knowledge and practical language use. Traditional grammar instruction often focuses on decontextualized drills and rote memorization, which may lead to students struggling to apply grammatical rules in everyday conversations. By using culturally relevant texts, dialogues, and real-world scenarios, teachers believe that students develop a stronger sense of how grammar operates within authentic discourse, making their language use more natural and fluent.

Despite the widespread recognition of the benefits of cultural integration, some teachers express concerns about the feasibility of implementing this approach within standard curricula. Many educators feel that existing grammar textbooks and lesson plans do not adequately incorporate cultural elements, requiring them to develop supplementary materials independently. The additional time and effort needed to design culturally relevant grammar lessons can be a significant challenge for teachers, particularly those working within rigid educational frameworks that prioritize standardized testing over communicative competence.

A key aspect influencing teachers' attitudes toward cultural integration in grammar instruction is their own professional background and training. Educators who have undergone specialized training in communicative language teaching and intercultural competence are more likely to support the use of cultural materials in grammar lessons. They tend to view grammar as a dynamic system that is deeply connected to social and cultural practices, rather than a fixed set of rules to be memorized. In contrast, *teachers who have been trained in more traditional, form-focused approaches may be less inclined to incorporate cultural elements, preferring instead to emphasize grammatical accuracy and rule-based instruction [41].*

Another important factor that shapes teachers' beliefs about cultural integration in grammar teaching is their personal experience with second language acquisition. Teachers who have learned additional languages themselves often have a greater appreciation for the role of culture in language learning, as they have firsthand experience navigating linguistic and cultural differences. Such educators are more likely to empathize with students' struggles and advocate for grammar instruction that takes cultural context into account, making learning more meaningful and relevant to real-world communication.

The attitudes of teachers toward cultural integration in grammar instruction also vary depending on the demographic and linguistic backgrounds of their students. In classrooms with diverse student populations, teachers often see the value of incorporating cultural materials to create a more inclusive learning environment. They recognize that grammar cannot be taught in isolation from the cultural identities and experiences of learners and that acknowledging students' cultural backgrounds can foster a sense of belonging and motivation. Conversely, in more homogeneous classrooms, some educators may perceive less of a need for cultural integration, assuming that students do not require extensive exposure to different linguistic and cultural norms [42].

While many teachers strongly advocate for the inclusion of cultural materials in grammar instruction, some remain hesitant due to concerns about student comprehension and engagement. Some educators worry that students with limited exposure to different cultures may struggle to relate to culturally rich materials, making grammar lessons more challenging rather than more accessible. To address this issue, teachers who support cultural integration emphasize the need for gradual introduction and scaffolding, ensuring that students build the necessary background knowledge to understand and appreciate cultural references in grammar lessons.

In addition to pedagogical concerns, institutional policies and curriculum standards also play a crucial role in shaping teachers' perspectives on cultural integration. In educational systems that emphasize communicative competence and intercultural awareness, teachers are more likely to feel encouraged to incorporate cultural materials into their grammar instruction. However, in settings where standardized testing and grammatical accuracy are prioritized, educators may feel constrained by rigid curricula that leave little room for cultural exploration. As a result, many teachers call for greater flexibility in language teaching policies to allow for a more holistic approach to grammar instruction [43].

Despite these challenges, an increasing number of teachers are actively seeking innovative ways to integrate cultural materials into grammar lessons. Many educators are turning to technology and digital resources to enhance their instruction, utilizing online platforms, videos, and interactive activities that expose students to authentic language use in culturally diverse contexts. By leveraging multimedia resources, teachers believe they can make grammar instruction more engaging and relevant while also fostering students' intercultural competence.

Ultimately, the attitudes and beliefs of teachers regarding cultural integration in grammar teaching reflect a growing recognition of the interconnectedness between language and culture. While some challenges remain, there is a strong consensus among educators that a culturally enriched approach to grammar instruction enhances students' understanding, motivation, and ability to use language effectively. As more teachers embrace this perspective, the future of grammar teaching is likely to shift toward a more communicative, culturally informed approach that better prepares students for real-world interactions in diverse linguistic settings.

Despite the growing recognition of the value of integrating cultural materials in grammar teaching, teachers encounter numerous challenges that hinder effective implementation. One of the most frequently cited difficulties is the lack of appropriate teaching resources that seamlessly incorporate both grammatical concepts and cultural contexts. Many commercially available grammar textbooks focus primarily on linguistic accuracy, often neglecting the cultural aspects of language use, forcing educators to either modify existing materials or develop their own culturally relevant instructional content, which can be time-consuming and resource-intensive.

Another significant obstacle that teachers face is the constraints imposed by rigid curricula and standardized testing requirements. Many educational systems prioritize grammatical accuracy over communicative competence, leading to a situation where teachers feel compelled to focus on rule-based instruction rather than culturally integrated grammar lessons. The pressure to meet institutional benchmarks often discourages educators from dedicating classroom time to discussions about cultural *differences in language use, limiting students' exposure to how grammar functions in real-world communicative contexts.*

Time constraints within lesson planning and instructional delivery further exacerbate the challenges of integrating cultural materials into grammar instruction. Since language curricula are often structured around fixed schedules that allocate specific time slots for each language skill, teachers struggle to balance the inclusion of cultural discussions with the need to cover essential grammar topics. As a result, cultural integration is frequently treated as an optional supplement rather than an integral part of the curriculum, reducing the effectiveness of such approaches in fostering linguistic and cultural competence simultaneously [44].

Teacher preparedness and professional training also play a crucial role in shaping the extent to which cultural materials are successfully incorporated into grammar instruction. Many educators receive limited formal training on how to effectively integrate cultural elements into grammar lessons, leaving them uncertain about best practices and effective teaching strategies. Without adequate support and resources, teachers may resort to traditional, form-focused grammar instruction rather than exploring innovative methods that incorporate cultural relevance into their lessons.

Student diversity within language classrooms presents another layer of complexity in the implementation of culturally integrated grammar instruction. In classrooms with learners from diverse cultural backgrounds, teachers must navigate varying levels of familiarity with different cultural references and language structures. While some students may benefit from the use of culturally rich materials, others may find them unfamiliar or difficult to relate to, requiring educators to carefully select instructional content that is inclusive and engaging for all learners.

Additionally, resistance from students and parents can serve as a barrier to integrating cultural materials in grammar lessons. Some learners, particularly those accustomed to traditional grammar instruction, may initially struggle with or resist lessons that emphasize cultural context rather than rigid grammatical rules. Parents and stakeholders who prioritize standardized test performance over communicative competence may also express concerns about the value of cultural integration in grammar instruction, leading to potential conflicts between pedagogical innovation and external expectations.

Technological limitations further complicate the use of cultural materials in grammar instruction, particularly in institutions with restricted access to digital learning tools. While multimedia resources such as videos, online articles, and interactive cultural activities can greatly enhance students' engagement with grammar in a cultural context, not all schools have the technological infrastructure to support these methods. Limited access to reliable internet connections, outdated computer systems, and a lack of digital literacy training among educators can significantly hinder the successful implementation of technology-enhanced cultural grammar instruction [45].

References

1. Byram, M. (2021). Teaching and Assessing Intercultural Communicative Competence. Multilingual Matters.

2. Kramsch, C. (2020). Language as Symbolic Power. Cambridge University Press.

3. Risager, K. (2019). Language and Culture Pedagogy: From a National to a Transnational Paradigm. Multilingual Matters.

4. Canagarajah, S. (2022). Decolonizing Applied Linguistics. Routledge.

5. Norton, B. (2018). Identity, Investment, and Multilingual Literacy. Cambridge University Press.

6. Hinkel, E. (2019). Teaching and Learning Pragmatics: Where Language and Culture Meet. Routledge.

7. Ellis, R. (2020). Reflections on Task-Based Language Teaching. Multilingual Matters.

8. Lantolf, J.P., & Poehner, M.E. (2021). Sociocultural Theory and Second Language Learning. Oxford University Press.

9. Littlewood, W. (2019). Communicative Language Teaching: An Expanding Concept. Cambridge University Press.

10. Schmidt, R.W. (2020). Noticing and Second Language Acquisition. Applied Linguistics, 41(2), 145-167.

11. Savignon, S.J. (2018). Communicative Competence and Language Teaching. Journal of Applied Linguistics, 39(4), 302-325.

12. Larsen-Freeman, D. (2022). Complex Systems and Applied Linguistics: A Dynamic Approach. Routledge.

13. Cook, V. (2021). The Multilingual Mind: Language Acquisition and Language Processing. Cambridge University Press.
14. Widdowson, H.G. (2020). Language Teaching: A Scheme for Teacher Education. Oxford University Press.
15. Pennycook, A. (2019). Critical Applied Linguistics: A Critical Introduction. Routledge.
16. Seidlhofer, B. (2022). English as a Lingua Franca: Studies and Findings. Cambridge University Press.
17. Kumaravadivelu, B. (2021). Beyond Methods: Macrostrategies for Language Teaching. Yale University Press.
18. Spolsky, B. (2018). Language Management and Language Policy. Oxford University Press.
19. Brown, H.D. (2019). Principles of Language Learning and Teaching (7th ed.). Pearson Education.
20. Dornyei, Z. (2022). Engaging Language Learners in the Classroom. Routledge.
21. Kachru, B.B., & Nelson, C. (2020). The Handbook of World Englishes. Blackwell Publishing.
22. Block, D. (2019). Second Language Identities: Theoretical and Methodological Perspectives. Bloomsbury Publishing.
23. Ortega, L. (2019). Understanding Second Language Acquisition. Routledge.
24. Ellis, R. (2019). Language Teaching Research and Language Pedagogy. Wiley-Blackwell.
25. Hall, J. K. (2020). The Contributions of Conversation Analysis to Applied Linguistics. Wiley-Blackwell.
26. Duff, P. A. (2019). Case Study Research in Applied Linguistics (2nd ed.). Routledge.
27. McKay, S. L. (2018). Teaching English as an International Language. Oxford University Press.
28. Richards, J. C., & Rodgers, T. S. (2019). Approaches and Methods in Language Teaching (3rd ed.). Cambridge University Press.
29. Celce-Murcia, M., Brinton, D., & Snow, M. A. (2020). Teaching English as a Second or Foreign Language (5th ed.). Cengage Learning.
30. Nation, P., & Macalister, J. (2019). Language Curriculum Design. Routledge.
31. Thornbury, S. (2020). The New A-Z of ELT: A Dictionary of English Language Teaching. Macmillan Education.
32. Long, M. H. (2019). Second Language Acquisition and Task-Based Language Teaching. Wiley-Blackwell.
33. VanPatten, B. (2020). Key Questions in Second Language Acquisition. Cambridge University Press.
34. Leung, C. (2021). Second Language Acquisition: A Sociocultural Perspective. Oxford University Press.
35. Lightbown, P., & Spada, N. (2019). How Languages Are Learned (5th ed.). Oxford University Press.
36. Mitchell, R., Myles, F., & Marsden, E. (2019). Second Language Learning Theories (4th ed.). Routledge.
37. Ellis, R. (2020). Task-Based Language Teaching: Theory and Practice. Cambridge University Press.
38. Atkinson, D. (2019). Alternative Approaches to Second Language Acquisition. Routledge.
39. Cook, G. (2019). Applied Linguistics. Oxford University Press.
40. Larsen-Freeman, D., & Cameron, L. (2020). Complex Systems and Applied Linguistics. Oxford University Press.
41. Jenkins, J. (2019). English as a Lingua Franca: Attitude and Identity. Oxford University Press.
42. Tollefson, J. (2019). Language Policies in Education: Critical Issues. Cambridge University Press.
43. Simpson, J. (2020). The Routledge Handbook of Applied Linguistics. Routledge.
44. Garton, S., & Copland, F. (2019). The Routledge Handbook of Teaching English to Young Learners. Routledge.
45. Holliday, A. (2021). Understanding Intercultural Communication. Routledge.

Philological sciences

PERSONAL ORIENTATION OF THE PROCESS TRAINING

Zhonkeshov B.
Head of the Department of General Education
Kazakh National Agrarian Research University
Lomova E.
Associate professor
Kazakh national pedagogical university named after Abay
Sarymbetova A.A.
PhdD Associate professor
"Q" University
Kassymzhanova Marzhan
Master of pedagogical sciences, senior lecturer
University Turan

Abstract

The personal-oriented approach to the learning process sets as its main task the formation of a personality that seeks to master new knowledge and improve and develop all its skills and abilities.

A person-centered approach requires providing students with all the necessary services and digital technologies that will help them successfully solve their task.

Personality-oriented learning recognizes the uniqueness of each student and his subjective, personal life experience. In the process of learning, its increment and creative enrichment occurs. There are two equal sources in the educational process - training and teaching. In this case, teaching is not understood as a derivative of learning, but is an independent resource for the development and improvement of personality intelligence.

The concept of personality-oriented learning provides for the figure of the student as the center of the entire educational process.

Personality-oriented pedagogy proceeds from the position that external factors of influence in the form of the personality of the teacher and the surrounding social environment are important in the learning process.

Keywords: learning process, formation of a personality, the concept of personality-oriented learning, social environment

The daily life of modern society is due to the rapid pace of development, which relate to all aspects of social life and the private sphere of each person.

In this regard, the educational process needs to adjust its goals and objectives in accordance with the requirements of the modern day.

Traditional teaching methods are actively complemented by new pedagogical technologies and methodological techniques in order to successfully form a comprehensively developed personality of students.

The monologue of the teacher, during which he explains the task he proposes, acquires a creative orientation and is aimed at the independent work of students.

The interpretation of the proposed training material should provide for the active use of all types of speech activities. Students must successfully master the skills of fast reading, oral speech, listening and written types of tasks.

The personality-oriented approach is aimed at the effective "development of all personal qualities and abilities of students" [1, 49]. It provides for the development of intelligence and the emotional sphere of the individual, as well as its active socialization in human communication. The personal-oriented approach to the learning process sets as its main task the formation of a personality that seeks to master new knowledge and improve and develop all its skills and abilities.

A person-centered approach requires providing students with all the necessary services and digital technologies that will help them successfully solve their task.

The teacher must have sufficient and reliable information about the knowledge and skills that students already possess. In this case, it is necessary to conduct group testing or a personal oral interview with each of the students.

The teacher must study the psychological portrait of each of the students and have information about his social environment.

A favorable friendly atmosphere should be maintained in the learning process, and the teacher should be able to adjust the general course of the educational process and the form of presentation of educational material.

Students are most often divided into two groups in the course of mastering the educational material. The first group of students has an insufficient level of previous knowledge and skills and needs advice and help in the teacher. The second group has no difficulties in mastering the new material, but wants to increase the existing level of its knowledge and skills.

In the first case, it is necessary, if possible, to apply a form of individual work with those students who have difficulties with the perception and understanding of new educational information. Group work is also possible if students belong to the same age or one specialization.

The teacher should actively use all kinds of visual aids, audio and video materials in order to explain to students the difficult and complex aspects of the educational material presented to them as simply and more easily.

An important aspect in the educational process in this case is the use of problematic creative tasks, passing quests of varying complexity and attracting students to complete independent and group projects.

Personality-oriented training "involves constant control by the teacher of the psycho-emotional state of each student" [2, 37] in order to timely identify and eliminate all possible difficulties that may arise when mastering the educational material.

Students who do not have difficulty learning new information should complete creative tasks that include self-searching and using additional sources that expand and deepen the problem they are exploring.

The personality-oriented approach proceeds from the principle of recognizing the identity and self-worth of the subjective experience of each student. This approach in the learning process did not arise suddenly, but has a deep and long history.

The philosophy of antiquity affirmed the idea of the need for the spiritual exaltation of the human person and the most complete embodiment of its true essence. In particular, the main idea of Protagoras's philosophy was the assertion that the measure of everything that exists on earth is precisely a person who "must be comprehensively and harmoniously developed and interested in knowing and explaining objective reality" [3, 72].

Personality-oriented learning recognizes the uniqueness of each student and his subjective, personal life experience. In the process of learning, its increment and creative enrichment occurs. There are two equal sources in the educational process - training and teaching. In this case, teaching is not understood as a derivative of learning, but is an independent resource for the development and improvement of personality intelligence.

The concept of personality-oriented learning provides for the figure of the student as the center of the entire educational process.

Personality-oriented pedagogy proceeds from the position that external factors of influence in the form of the personality of the teacher and the surrounding social environment are important in the learning process.

The didactic model of training includes correction of the educational material according to the degree of complexity and the level of requirements for its mastery. The training material provides a combination of programmed and problem learning.

The traditional learning model recognizes the educational process as the main source of personality development. The personality of the student is formed with the given properties, qualities and skills on the principle of becoming what you want to be

The personality of the student must accept and share socially significant standards in the form of ideals, moral preferences and patterns of behavioral practice.

Traditional pedagogy sees the individual as a product of a sociocultural environment, and in this sense it is a so-called collective subject. In this regard, mechanisms for integrating those training *influences that "can become an effective resource for the multilateral development of the student's personality" are determined [4, 49]. Currently, the person-centered approach focuses on the concept of recognizing the uniqueness of each subjective life experience. According to this concept, training does not contain a strictly defined vector of personal development, but creates the necessary conditions for the development of various individual skills and abilities.*

Thus, pedagogical theory and practice does not provide for any single and common line of mental development for all students.

The educational process assumes as the result of training not the achievement of the set final goal, that is, some pre-planned final product, but the development of individual abilities of students.

The development of the ability to assimilate new knowledge becomes the main task of personality-oriented pedagogy. The development strategy provides for the definition of the goal of developing the student's abilities and those tools that are effective in achieving the desired result.

The technology of personality-oriented education should be built on the special design of the educational material and the corresponding didactic and methodological recommendations. Forms of control over the personal growth of the student should be developed.

The didactic provision of textbooks and manuals should be based on the principle of subjectivity of education. In this case, the proposed educational material should reflect the meaning and content of the subject education as such.

The proposed tasks and theoretical sections of scientific manuals should take into account the previous volume and quality of knowledge of the student.

The presentation of the educational material and its explanation by the teacher in oral form should contain an expansion of the scope of the topic under study and a generalization of its subject content. The teacher's explanation should preserve the principles of structuring and integrating educational and scientific information.

The subject experience of the student should be consistent with the nature and level of complexity of the proposed new information.

The student should be constantly stimulated to active independent cognitive activity. In this case, the student gets the opportunity of self-development and self-expression during the development of knowledge and the choice of the type and form of tasks performed by him. The student should strive to use the most significant ways of mastering the educational material in the form of test questions and practical tasks.

Personally oriented training is based on methodological knowledge, which includes techniques and methods for performing educational actions, among which "it is necessary to single out general logical and taking into account the specifics of the problem under study" [5, 29]. In this case, not only the result of the educational process is evaluated, but also the process of its implementation. The process of mastering new information should include its clear structuring, the implementation of the tasks set by the teacher, reflection and assessment of the process of mastering new knowledge as a type of subject activity.

The scientific text provides for the distinction between programmatic and general educational material.

Didactic material should contain a description of the techniques for performing various tasks in the form of rules, instructions or algorithms.

Techniques and methods of mastering new information can be included in its content and ensure its actual assimilation. They are offered to students in the form of rules, and on their basis specific subject methods of assimilation of educational material are formed.

Tasks of the second type are not directly related to the content of knowledge on a particular subject. They are based on the mechanisms of mental activity in the form of observation, memorization and creation of images of objects or phenomena. It is in this type of tasks that the manifestation of the personal characteristics of the students is reflected.

Thus, cognitive abilities and the ability to use them effectively and the educational process are formed in the personality of the student. The basis of abilities of this kind is not subject content, but the general organization of mental and mental activity and student activity.

It is necessary to take into account the fact that the organization of mental processes that manifest themselves in a certain way of solving the problem and are not directly related to the available subject knowledge. This ability is individual for each student, although the degree of its activity still depends on the students' mastery of the content of the studied discipline.

Subject matter is the source of creating images that can take an artistic or mathematical configuration.

The method of solving the problem cannot be proposed from outside, since its source is not the teacher, but the student himself. But the effectiveness of its application depends on the knowledge of the discipline under study and its specific subject content. As a result, the source of the application of certain methods of observation, analysis is the student, not the teacher. In this case, one can observe a projection of the process of teaching, rather than learning, which is based on the originally proposed scientific information.

The basis of the selected teaching techniques should also be, as one of the most important components, "an analysis of the process of work of the intellect of the teacher during the development and use of new information" [6, 53].

In this aspect, it is important to choose the right actions and operations that will help you cope with the task. It is important to take into account the content of the student's actions and their sequence.

This necessary information should be possessed by the teacher himself, who should develop a detailed algorithm for the student's actions.

The teacher should not offer ready-made solutions to the problem under study, but determine the strategy and tactics of action in this direction.

The teacher himself becomes in this case the subject of mastering scientific information. In the course of the teacher's joint work with the classroom, new options for solving the problem may arise, and thus the most rational methods of mental activity are formed.

In the course of mastering new knowledge, it is important to organize the active and purposeful nature of the educational process. In this case, the methods of goal-setting, planning and reflection play an important role.

In the educational process, a complex relationship between learning and teaching remains. In some cases, teaching methods are the integration of techniques offered by the teacher. In other cases, the method of solving the problem depends on the individual choice of the student. In this case, not only learning affects the teaching, that is, the effectiveness of mastering new knowledge, but also the teaching, intellectual activity of students can seriously affect the structure and algorithm for solving the problem that the teacher offers.

During the training session, not only new information is communicated and existing knowledge is tested, but also the students' experience and their personal attitude to the issue under discussion are revealed.

The basis of the personality-oriented approach to learning is a departure from the normative nature of the educational process towards pedagogical support, correction of the individual activity of each student.

In this case, it is important to determine the criteria for the effectiveness of this educational approach.

Person-centered learning enables each student to objectively assess their own behavior and actions and learn to maintain self-control and overcome emotional and psychological barriers. This approach to the educational process educates students in willpower, patience and forms productive communication skills in the intended social environment.

The personality-oriented approach contributes to systematization, concentration of attention, fosters self-respect and respect for the people around him in the personality of the students.

Personality in this case is understood as a set of individual mental properties that are in contact with the technology of an individual approach to each subject of the educational process. It is necessary, firstly, to take into account the level of psychological functions already established in the personality and it is important to understand what level of task it is already ready to perform on its own.

Further, it is necessary to understand the nearest horizon for the development of intellectual and personal qualities in each subject of the educational process.

The potential of intellectual and psychological development can be different depending on the individual abilities of the student.

The inner world of a person is a subjective reflection of the real space in which she exists and is forced to make decisions and cope with difficulties.

In traditional pedagogy, personal development was defined not as an independent goal, but as a means of achieving other goals, including the assimilation and application of new knowledge and skills. The personality was interested in pedagogical science as a kind of mechanism capable of achieving a certain result, and not the process of its modifications.

In this case, the subject of a personality-oriented approach is the factor of direct joint determination by the teacher and the student of her interests and preferences.

The developing educational process is impossible without the creative personality of the teacher himself. It should feel ready for pedagogical support and there should be a humanistic attitude to the personality of the student.

The teacher should help each student maintain human dignity and achieve the desired results in learning, self-education and human communication.

The task of the teacher is to develop in the personality of the student mechanisms of self-awareness and self-regulation. The teacher must create an atmosphere of creative productive activity in the classroom.

The task of the teacher is for students to receive new sources of useful information and analyze it in order to expand knowledge about the issue or problem under consideration.

These actions should be encouraged by the teacher with a higher assessment, this creates an incentive for positive psychological and socio-moral development of the individual. The interaction of the teacher with the classroom should be based on trust and mutual understanding.

Literature

1. E.V. Bonaderevskaya. Theory and practice of personality-oriented education. Rostov-on-Don: publishing house of Rostov ped. un-ta, 2000. - 352 p.

2. Kuznetsov M.E. Pedagogical foundations of the educational process. - Novokuznetsk, 2000. - 342 p.

3. Serikov V.V. Personality-oriented approach in education. Concept and technology. - Volgograd, 1994. - 152 p.

4. Yakimanskaya I.S. Technology of personality-oriented learning in a modern school. M., 2000. - 176 p.

5. Mech T.V. Personality-oriented approach in teaching a foreign language//Concept: scientific and methodological electronic journal. – 2011. - Q2 2011. ART 11-2-05. – URL: http://www.covenok.ru/concept/2011/11205.htm. - state reg. e. No. FS77-46214. – ISSN2225-1618.

6. Stepanov E.N. Personality-oriented approach in the work of the teacher: development and use. - M.: Shopping center Sphere, 2003. - 128 p.

COMPOSITE DISTANCE BETWEEN LANGUAGES: THE NEW TOOL OF THE LINGVODOC PLATFORM

Koshelyuk Natalia
PhD, Institute of System Programming of the RAS

Abstract
The article is an overview of a new option of the Lingvodoc linguistic platform, which allows for a comprehensive determination of the degree of relationship between languages and dialects – at the glottochronological, morphological and phonetic levels. The relevance of such experimental studies is demonstrated using two Mansi dialects as an example (subsequently – on a broader linguistic material, according to which researchers are not unambiguously sure of its status as a dialect of any language or, even more so, a separate language); it is shown how this option is structured, what results can be obtained and what they indicate.

Keywords: Lingvodoc, classification of languages, morphology, glottochronology, cognates, Uralic languages.

Introduction

The article presents an overview of the new option of the linguistic platform Lingvodoc – Composite distance between languages, which allows to build a graph and matrix of distances between dialects of one language or different languages based on the analysis of cognates, glottochronology data and morphological differences.

To date, it is possible to conduct such an analysis on data for the Mari, Mordvin, Khanty, Mansi, Udmurt and Komi languages. In order to obtain the final matrix, it is necessary to load the complete lexical, morphological and audio dictionaries of the languages under study into the system, as well as to search for cognates and connect them using Cognates platform tool. After that, it is necessary to download the dictionary data in the form of files with the .json extension and start processing the data using the Composite distance between languages option. Morphology and glottochronology data are calculated according to their original form in the files, phonetics data are calculated as follows: the degree of differences in the total matrix equal to 500 is taken as 100%, then the percentage of this number we have between the languages under consideration is determined. The result is a graph of the proximity of the Uralic languages, the data of which can be compared with known classifications and track how much they correspond to each other. Thus, the new option, due to the processing of language material by several main parameters (phonetic, lexical, morphological), can serve as a kind of verifier of existing language classifications. In this article, using the example of two dialects of the Mansi language, we will show what the real significance of this option is, how it is implemented, and what results are obtained as a result.

Why is this relevant?

Often, morphological, phonetic, and glottochronological data separately show different results regarding the similarities and differences between Mansi dialects. There are cases when, for example, a significant divergence is revealed in the basic vocabulary between two closely related dialects, and vice versa, glottochronology shows a close degree of relationship, but in the morphology or phonetics of the language under study we find significant discrepancies (see [Normanskaya, Fedotova 2022], [Bezenova, Normanskaya 2022]). In the case of the northern and eastern dialects of the Mansi language, glottochronology shows a significant level of differences between them, which rather indicates different languages, and at the morphological and phonetic levels, researchers record minimal divergence between them (see [Normanskaya, Koshelyuk 2020], [Koshelyuk 2021], [Koshelyuk 2023]). In this regard, it seems interesting to find out what status the eastern and northern Mansi languages belong to – different languages or dialects of one Mansi language.

Fig 1. Lingvodoc platform. Get composite distance between languages.

What does the option take into account and on what principle?

The new option of the Lingvodoc platform takes into account phonetic, morphological and glottochronological data.

At the phonetic level, the program determines the number of differences in vocalism systems. Morphology reveals the ratio of related and unique affixes, i.e. such affixes that are absent in the systems of the dialects or languages under consideration. At the glottochronological level, the amount of preserved common basic vocabulary is calculated.

What materials were used for the analysis?

To calculate the levels and glottochronology, we used the modern corpora of the northern Middle Ob dialect, collected by I. A. Stenin, and the eastern Yukonda dialect, collected by M. K. Amelina, posted on the Lingvodok website in the 2010s during expeditions of linguists in the Khanty-Mansiysk Autonomous Okrug. Each of the dictionaries contains approximately 550 lexemes with audio files, all lexemes are linked by etymological connections.

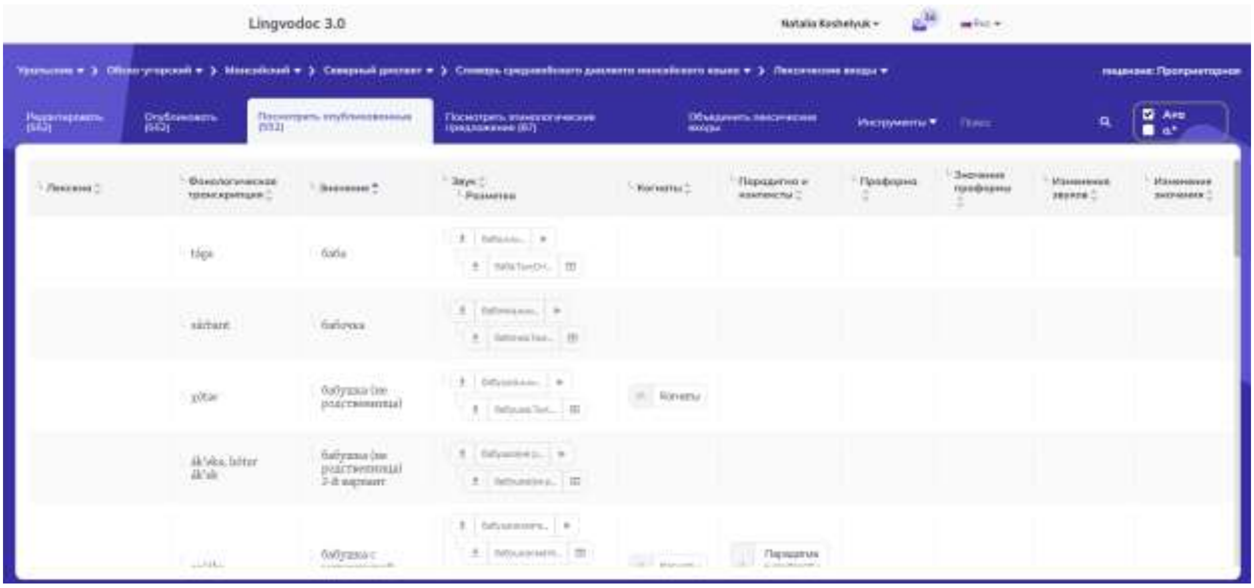


Fig 2. Fragment of the Middle Ob dialect of the Mansi language.

To study the differences at the morphological level, data from the northern Sosvinsky and eastern Kondinsky dialects were examined according to data collected by a Hungarian scientist at the end of the 19th century [Munkásci 1894].

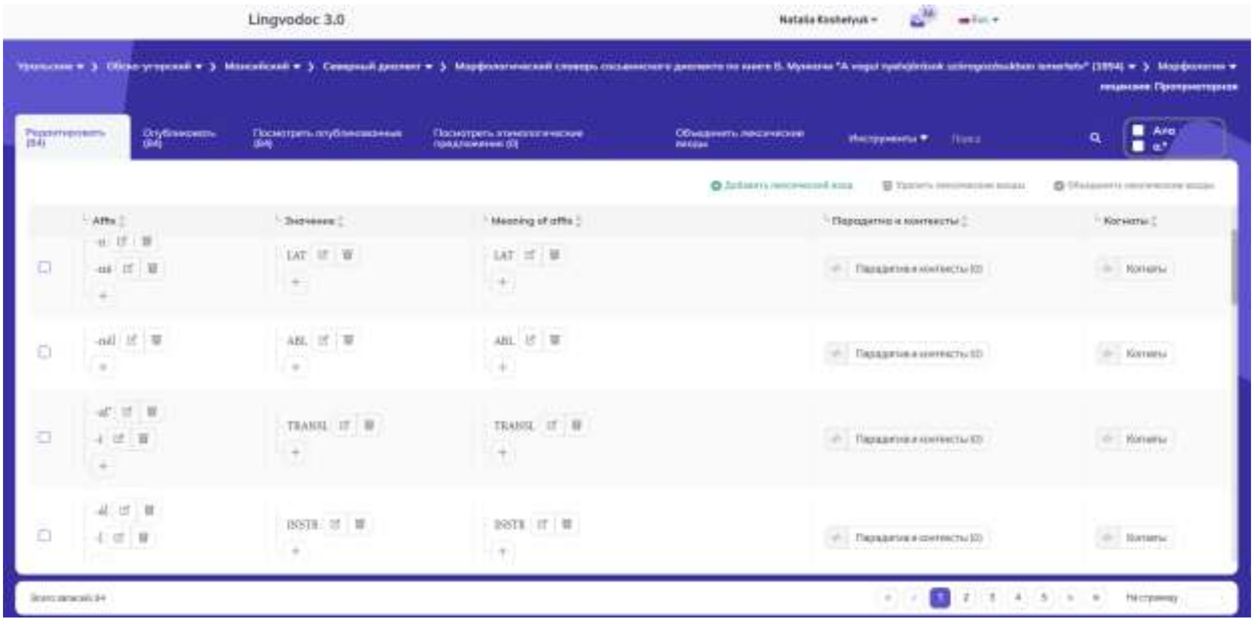


Fig 3. Fragment of the Sosva dialect of the Mansi language.

What results did we get?

At the first stage of the study, it is important for us to obtain a separate matrix for each of the language levels, so that later we can combine the resulting percentages and calculate the total using the "Composite distance between languages" option.

For phonetics, as a result of analyzing the quantity and quality of differences between the eastern and northern Mansi dialects, the program showed the following results (Fig. 4) and built a matrix of their proximity (Fig. 5), according to the correspondence of vowels by the first syllable and by the initial consonant.

- 1) Словарь среднеобского диалекта мансийского языка - Лексические входы
- 2) Словарь юкондинского диалекта мансийского языка - Лексические входы

```
ЭТИМОЛОГИЧЕСКИЙ АНАЛИЗ
————————————————————————————————————————————————————————————————————————————————
1: Словарь среднеобского диалекта мансийского языка - Лексические входы (149 форм = 100% от числа соотв.)
2: Словарь юкондинского диалекта мансийского языка - Лексические входы (148 форм = 99% от числа соотв.)
————————————————————————————————————————————————————————————————————————————————
Соответствия по начальному гласному:
Надёжные ряды:
Сомнительные ряды:
[o]–[o]
[a]–[aː]
Материал — надёжные ряды:
————————————————————————————————————————————————————————————————————————————————
1: Словарь среднео…                     2: Словарь юкондин…
————————————————————————————————————————————————————————————————————————————————
Материал — сомнительные ряды:
————————————————————————————————————————————————————————————————————————————————
1: Словарь среднео…                     2: Словарь юкондин…
————————————————————————————————————————————————————————————————————————————————
[o]                                     [o]
————————————————————————————————————————————————————————————————————————————————
oʃ|purch            ‘овца|свинья’       os|n’oul’           ‘овца|мясо’
ósən               ‘толстый’           oʃən               ‘толстый’
————————————————————————————————————————————————————————————————————————————————
[a]                                     [aː]
————————————————————————————————————————————————————————————————————————————————
as                  ‘дыра’              aːs                 ‘дырочка’
áv'e               ‘дверь’             aːw                ‘дверь’
áŋhə               ‘куропатка’         aːŋχ-              ‘куропатка’
————————————————————————————————————————————————————————————————————————————————
Материал — единичные ряды:
————————————————————————————————————————————————————————————————————————————————
1: Словарь среднео…                     2: Словарь юкондин…
————————————————————————————————————————————————————————————————————————————————
úlun               ‘сон’               ul’men             ‘сон’
u:mpí              ‘ковш’              u:mp|(ker)u:mp     ‘ковшик (дер. Коша…
a:t                 ‘волосы’            a:t                 ‘волос’
ai- (а.п. В)        ‘пить’              ajaχ- (а.п.А)       ‘пить’
ávma-              ‘болеть’            auməl’-            ‘болеть’
óursa              ‘кончик, краешек’   o:wl’at            ‘конец’
ísumv'it           ‘ухо’               esəmw'it’          ‘ухо’
```

Fig. 4. The result of the analysis of phonetic differences in the northern and eastern Mansi dialects.

Соответствия по гласному первого слога (после согласного) (вес: 1):

	Словарь среднео(	Словарь юкондинского диалекта мансийского языка - Лексические входы
Словарь среднео(	0	37
Словарь юко⚠ин	37	0

Соответствия по начальному согласному (вес: 1):

	Словарь среднео(	Словарь юкондинского диалекта мансийского языка - Лексические входы
Словарь среднео(	0	0
Словарь юкондин	0	0

Суммарная матрица:

	Словарь среднео(	Словарь юкондинского диалекта мансийского языка - Лексические входы
Словарь среднео(	0	37
Словарь юкондин	37	0

Fig. 5. Matrix of phonetic differences for the vowel of the first syllable and the initial consonant.

As a result of the morphological analysis of affixes for the two studied dialects of the Mansi language, we obtained the following results (Fig. 6): a similarity in their systems was revealed at the level of 83%.

	1. Морфологический словарь сосьвинского диалекта по книге Б. Мункачи "A vogul nyelvjárások szóragozásukban ismertetv" (1894)	2. Морфологический словарь кондинского диалекта по книге Б. Мункачи "A vogul nyelvjárások szóragozásukban ismertetv" (1894)
1	n/a	1.41 (83%)
2	1.41 (83%)	n/a

1. Морфологический словарь сосьвинского диалекта по книге Б. Мункачи "A vogul nyelvjárások szóragozásukban ismertetv" (1894)	2. Морфологический словарь кондинского диалекта по книге Б Мункачи "A vogul nyelvjárások szóragozásukban ismertetv" (1894)
-ėl; -l (INSTR)	-l (INSTR)
-l; -al' (TRANSL)	-al',-al; -l (TRANSL)
-nė; -n (LAT)	-nė; -n (LAT)
-nėl (ABL)	-nėl (ABL)
-tė; -t (LOC)	-t (LOC)
-tėl (INSTR)	-tėl (INSTR)

-es; -s; -ås (PST)	
-ån (2PL.PST; 2PL.IMP; 2PL.COND)	
-ånėn; -ånėn; -ån (2DU.NPST; 2SG.NPST; 3DU.NPST)	
-wes; -wås (PST)	
	mė; -m (ACC)
	-t (POSS.3SG.S)
	-tėn (POSS.3DU.S)
	-oφm (POSS.1DU.D)
	-φu (POSS.1PL.S; POSS.1PL.D; POSS.1PL.P)

Fig. 6. Table of related (blue) and unique (green) affixes for the northern and eastern dialects of the Mansi language.

An analysis of the basic vocabulary on the Lingvodoc platform, based on the formula of S. A. Starostin (see [Swadesh 1972], [Starostin 1989], [Starostin 2002]), showed a similarity between the eastern and northern dialects of 76%.

	1. Словарь среднеобского диалекта мансийского языка	2. Словарь юкондинского диалекта мансийского языка
1	n/a	1.73 (76%)
2	1.73 (76%)	n/a

1. Словарь среднеобского диалекта мансийского языка	2. Словарь юкондинского диалекта мансийского языка
большой [ján'i] большой	большой [jańi-] большой
вошь [tákma,tákəm] вошь	вошь [taχəm] вошь
голова [puk] голова	голова [p'aŋk] голова
грудь [mául] грудь	грудь [maul'-] грудь
есть (кушать) [te- (a.п.A)] есть	есть (кушать) [teχ (a.п. A)] есть
живот [sórih] живот	живот [kaχr-] живот (желудок)
жир [vóie] жир, масло	жир [woj] жир
имя [nam] имя	имя [n'a:mə-] имя
камень [áhtəs] камень гора [uχ] гора	гора [a:χ] гора
корень [jiv tárɨ] корень дерево [jiv] дерево, палка	дерево [jiw] дерево, дрова корень [t'or] корень
кость [lov] кость	кость [losum] кость
кровь [k'elp(a)] кровь	красный [kel'p-] красный, кровь кровь [k'al'p] кровь
кто [χónhə] кто	кто [χɔnér] кто
лист [lúpta] лист (дерева)	лист [lopta] лист (на дереве)
много [sav] много	много [s'uow] много
ноготь [kosk'ér] ноготь	ноготь [k'ant's'] ноготь
нос [njol] нос	нос [n'oul] нос
ночь [e:t] ночь вода [vit] вода	ночь [je] ночь
перо [pun] перо, шерсть	перо [pon] перо
печень [máit] печень	печень [ma:t] печень
пить [ai- (a.п. B)] пить	пить [ajaχ- (a.п.A)] пить
рог [ant] рог	рог [on't-] рог
рука (кисть) [ka:t] рука	рука (кисть) [kuete-] рука
сидеть [ún- (a.п. A)] сидеть	сидеть [wondlen] сидеть
солнце [χótəl] солнце, день	солнце [χotəl'] солнце, ср. заря

Fig. 7. Analysis of basic vocabulary.

Results

After obtaining the graphs and matrices for the three language levels for the Mansi dialects considered in this article, we analyzed this data through the new option of the Lingvodoc platform – Composite distance between languages (Fig. 8-10).

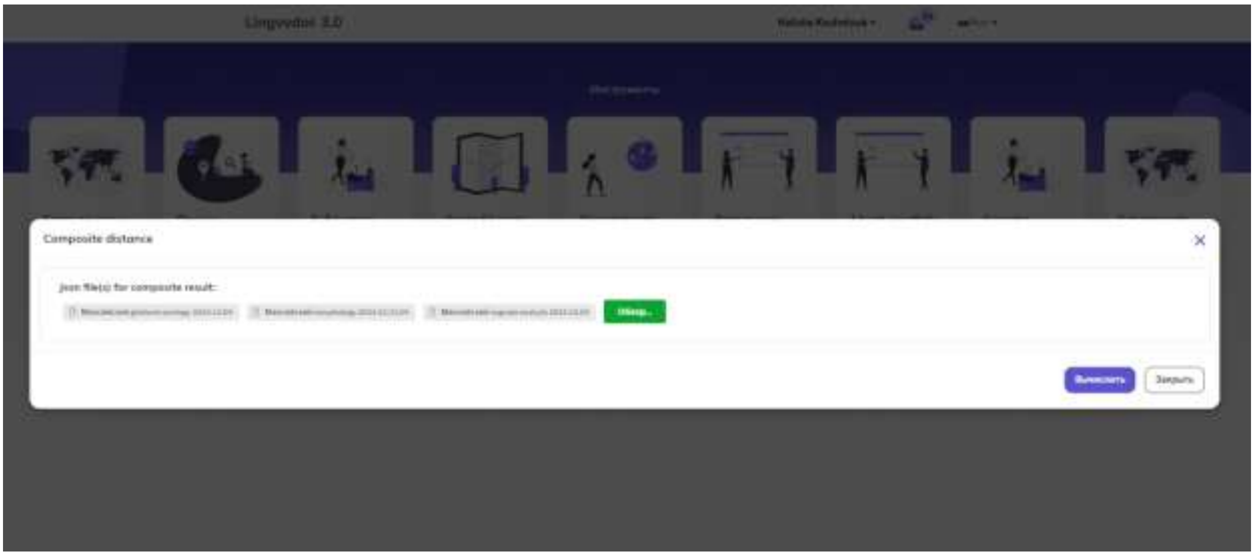
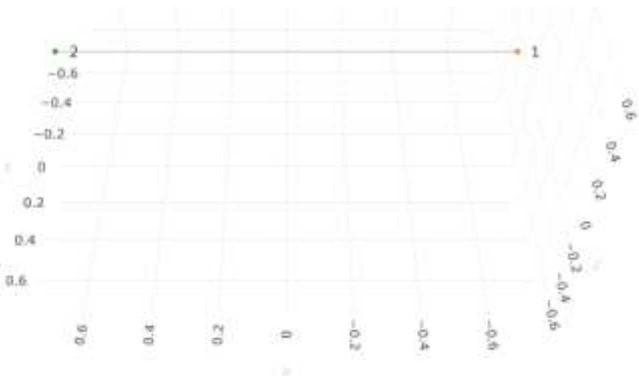


Fig. 8. What the option looks like on the linguistic platform.



1) 1. [Мансийский: Северный диалект] Словарь среднеобского диалекта мансийского языка - Лексические входы
2) 2. [Мансийский: Восточный диалект] Словарь юкондинского диалекта мансийского языка - Лексические входы

	1. [Мансийский: Северный диалект] Словарь среднеобского диалекта мансийского языка - Лексические входы	2. [Мансийский: Восточный диалект] Словарь юкондинского диалекта мансийского языка - Лексические входы
1	n/a	1.37 (84%)
2	1.37 (84%)	n/a

1. Мансийский: Северный диалект

   1.1 Словарь среднеобского диалекта мансийского языка - Лексические входы

   1.2 Морфологический словарь сосьвинского диалекта по книге Б. Мункачи "A vogul nyelvjárások szóragozásukban ismertetv" (1894) - Морфология

2. Мансийский: Восточный диалект

   2.1 Словарь юкондинского диалекта мансийского языка - Лексические входы

   2.2 Морфологический словарь кондинского диалекта по книге Б. Мункачи "A vogul nyelvjárások szóragozásukban ismertetv" (1894) - Морфология

Fig. 9. Result of data calculation using the "Composite distance between languages" option.

1. [Мансийский: Северный диалект] Словарь среднеобского диалекта мансийского языка - Лексические входы	2. [Мансийский: Восточный диалект] Словарь юкондинского диалекта мансийского языка - Лексические входы
n/a	1.37 (84%)
1.37 (84%)	n/a
фонетика 37 отличий морфология 83% глоттохронология 76%	

Fig. 10. Summary table of the analysis of the eastern and northern Mansi dialects according to three parameters.

Conclusion

According to the obtained 84% similarity, as a result of calculating the data of glottochronology, morphology and phonetics of the two dialects using the new option of the Lingvodoc platform, which we currently have, we can assume that the northern and eastern Mansi dialects are rather different languages than dialects (for dialects, the percentage of similarity should vary from 93-95%). This conclusion corresponds to the opinion of Western researchers about the status of Mansi dialects.

We believe that with the expansion of our database and the involvement of additional information, this figure will be adjusted. However, we can already say that the Composite distance between languages is a promising and informative way to assess the proximity between languages and dialects.

Acknowledgments

The study was supported by grant No. 20-18-00403.

References

1. Bezenova M.P., Normanskaya Yu.V. Classification of Udmurt dialects based on digital analysis of modern data and books from the 19th-early 20th centuries // Cyrillic monuments in the Uralic and Altaic languages. M., 2022. p. 124-146.

2. Koshelyuk N.A. General innovation processes in Mansi dialects: nominal morphology // Bulletin of Ugrological Studies. 2021 Vol. 11 No. 2. Pp. 278-291.

3. Koshelyuk N.A. Chusovoy dictionary from the archive of G.F. Miller: features and its significance for the classification of Mansi dialects // Oriental Studies. 2023. Vol. 16. No. 5. Pp. 1309-1324.

4. Normanskaya Yu. V., Koshelyuk N. A. Unpublished Mansi dictionary of P. S. Pallas - a previously unknown Mansi dialect? // Ural-Altai studies. 2020. No. 1 (36). P. 92-100.

5. Honti L. Geschichte des obugrischen Vokalismus der ersten Silbe. Budapest, 1982.

6. Munkácsi B. A vogul nyelvjárások szóragozásukban ismertetv. Budapest, 1894.

7. Normanskaya Yu., Fedotova I. Phonetic and lexical innovations in Ob-Ugric dialects in the 18th-21st centuries: new archival and field data // Ural-Altaic Studies 2022, 3 (46), 63-74.

8. The Oxford Guide to the Uralic Languages, ed. M. Bakró-Nagy, J. Laakso, E.Skribnik. Oxford, 2022.

9. Starostin S. A. Comparative-Historical Linguistics and Lexicostatistics. Linguistic Reconstruction and Ancient History of the East, Part I. Moscow 1989. Pp. 3-39.

10. Starostin S. A. Methodology Of Long-Range Comparison. 2002.

11. Swadesh Morris. What is glottochronology? In M. Swadesh, The origin and diversification of languages. London: Routledge & Kegan Paul, 1972. Pp. 271-284.

NAKHCHIVAN IN XIII-XIV CENTURIES REPRESENTATIVES OF THE LITERARY ENVIRONMENT

Nurlana Əliyeva
Dr., Nakhchivan State University
ORCİD İD: 0009-0005-7857-4200
Pusta Ahmadova
Dr., Nakhchivan State University
ORCİD İD: 0009-0005-7857-4359

Abstract
Literary figures who lived in different historical periods in Azerbaijan served the national-spiritual, literary-cultural and social development of our people with their pens, as well as personalities representing the literary environment of the time. Those who made up the literary environment of different historical periods differed in terms of quantity and by reflecting the special features of the period in their literary and artistic works, they enlightened our national spirituality and kept the literature and art of a great nation alive.

Keywords: *literary environment, Nakhchivan, literature, spirituality, people*

Literary figures who lived in different historical periods in Azerbaijan served the national-spiritual, literary-cultural and social development of our people with their pens, as well as personalities representing the literary environment of the time. Those who made up the literary environment of different historical periods differed in terms of quantity and by reflecting the special features of the period in their literary and artistic works, they enlightened our national spirituality and kept the literature and art of a great nation alive.

Since ancient times, Nakhchivan has been one of our ancient homelands, sensitive to music and words, valuing art and creating art. Here, the history of statehood, crafts and literary traditions resonates with distant times. This ancient land has a rich literary, cultural and scientific environment, which has been famous since ancient and medieval times.

There was a very different generation of scientists in the history of Nakhchivan and they played a great role in the science, literature, culture and politics of this ancient land. Husameddin Nakhchivani, who belongs to the generation of those well-known scientists, is a scientist of the XIII-XIV centuries. Scientists and statesmen in various sciences such as Nasireddin Gutlughshah, Fakhreddin Hindushah and Izzeddin Dovletshah grew up from the mentioned generation of scientists. Sanjar Nakhchivani, the head of the family of scientists, lived in the 13th century. His sons were Nasiruddin Gutlughshah, Fakhreddin Hindushah, Izzeddin Devletshah, Husameddin Toganshah, his grandson Muhammad ibn Hindushah, and his grandson Kamaluddin ibn Muhammad. His children received the title of "as-Sahibi" in honor of Alaeddin Atamalik Juwayni, a prominent scientist and statesman.

In the Middle Ages, the nickname "Sahib" was given to high officials working in the state apparatus" (5, II c., 180).

Nasireddin Tusi is one of the famous personalities that comes to mind when one mentions the scientific and literary environment of Nakhchivan. His creativity confirms that the literary, cultural and scientific environment of Nakhchivan developed further in the 13th century. As a powerful artist of that time, Nasireddin Tusi, who is known for more than 150 works, has well-known creative examples such as poems, essays and larger works - "Divan" consisting of two parts, "Akhlaqi-Nasiri", whose main idea is the evaluation and promotion of science and knowledge. He called science the building block of the country, and said that "if there is something that can take a person away from ignorance and bring him to the appropriate level, it is science." He wrote that "Science is such a superhuman thing that should be preferred over food" (1, 9).

The 10th-13th centuries have gone down in history as the period of Turkish and Eastern renaissance. Nasireddin Tusi, a scientist of scientists, is one of our scientists who shone in the 13th century and whose fame has not diminished even now. This great scientist, who is outstanding in the fields of mathematics, astronomy and physics and whose services will benefit the whole world, also has treatises and philosophical poems related to the theory of poetry and music. While he was still young, Bahmanyar said about him: "He will be a scientist of the future and an outstanding person who will illuminate the world of science with the light of his knowledge" (2, 14.). This encyclopedist figure lived in *different parts of the world, and as a prominent follower of Ibn Sina and the Bahmanyar school, he shone like the sun of all Eastern philosophy. By the decision of UNESCO, the 800th anniversary of his birth was celebrated worldwide.*

"The decree of Nasiruddin Tusi's descendants living in Ordubad district and therefore the decree of Shah Abbas I (1587-1629) exempting the place from all taxes was engraved on the stone inscription above the door of the great Juma mosque built in Ordubad in the 17th century" (5, II c., 190). There are different opinions about the birthplace of Nasireddin Tusi. There are also opinions that he was born in a place called Bahar near Hamadan or in the city of Tus. According to recent studies, "he adopted the nickname Tusi after the city of Tus, where he studied" (3, 79).

On the headstone of the tomb of Nasiruddin Tusi, who was buried near the grave of Imam Musa ibn Kazim in Baghdad, it is written: "The support of religion and the people, the king of the world of science. Mothers, such a son was never born again" (2, 14). Observations show that in the last hundred years there is no genius that has been studied as much as Nasiruddin Tusi.

There are opinions that consider Molla Nasreddin and Nasireddin Tusi as prototypes of each other or try to identify them. However, the information about Molla Nasreddin has increased and they show that these two sages are separate geniuses. From the article (4, 10) published about Molla Nasreddin in "Zaman" newspaper dated May 25-26, 2006, we learn that he was born in Hortu village of Sivrihisar in Anatolia region in 1208 and died in Aghshaher in 1284. The tombstones of his daughters - Fatma Khatun and Dürri Melek - were discovered and placed in the Aghshaher Museum.

Molla Nasreddin received his education in one of Konya madrasahs. In 1237, he went to Aghshaher and took lessons from Seyid Mahmud Heyrani and Seyid Haji Ibrahim - well-known people of his time. He worked for some time as a regional gas inspector in Aghshaher. The history of his name "Nasreddin Khoja" is also related to the age of the sage Aghshaher - when he worked on gas.

Molla Nasreddin, above all, is known as the master of laughter of the East. Anecdotes related to him are found in writing for the first time in the work "Saltukname", which tells about the life of Sarı Saltuk. Cem (Sultan Cem), the son of Fateh Sultan Mehmet, gave instructions to write down anecdotes about Molla Nasreddin and put them in a book during his reign. The well-known scholar Abulkheir Rumi collected Molla Nasreddin's anecdotes for seven years and published them in 1480. The collection and printing of anecdotes was also done by other people. One of them is kept in the British Museum in London. Thus, Nasiruddin Tusi and Molla Nasreddin are separate people, and both of them are personalities who have become the pride of all Turkic peoples.

Hasan Nakhchivani, a famous scholar of the 13th century (born in 1206 in Nakhchivan) was also a poet. Although little is said about Hasan Nakhchivani in "Daneshmandani Azerbaijan" by Muhammedali Tarbiyat, there is information about his poetry and travels to a number of Eastern countries.

The tombstone of the scientist-poet buried in the Surkhab cemetery in Tabriz is written: "This grave is the grave of Hasan ibn Omar Nakhchivani, a sheikh, scientist, scholar, researcher, pole of the world, successor of the prophet, who knows the secret of God in both worlds, the helper of the scholars, the last of the family of sheikhs, the benefactor of the truth, the nation and the religion. May God illuminate his grave" (1, 10).

Among the famous people of Nakhchivan, the name of Hindushah Nakhchivani (1245-1328) is crossed with a red line. He was a historian, linguist, philosopher, writer, translator, poet, secretary and statesman. Hindushah Nakhchivani studied in a famous madrasa - Mustansariyya madrasa in Baghdad. In 1275, he became the viceroy of his brother, Kashan judge Seyfaddovla Amir Mahmud, and then taught in that madrasa. In 1289, he copied Najmeddin Katibi's work on logic for the madrasa. He was the judge of a number of provinces and was awarded the title of "Fakhr al-Dawla" as a famous statesman.

This great personality with a high literary taste "created the best examples of fluent and beautiful prose in the Persian language, like his contemporary Sadi Shirazi." In his historical work "Tajarüb al-Salaf" ("Experiences of the Predecessors"), he gave interesting information about Nakhchivan along with his ancestry and famous personalities. "The author mentions that Gira belongs to Nakhchivan district, and the village of Vanand belongs to Giran, and shows that Shamseddin Muhammad Juveyni (1225-83) built a decent khanah in Vanand and property was endowed to him" (5, II c., 177).

The work "Sihah ul-Ajam" is a dictionary (Persian-Azerbaijani). This valuable work consists of 21 chapters, 393 chapters. It consists of 3 parts - an introduction written in Arabic, a dictionary and a grammar of the Persian language in Arabic. Comparing the dictionary with the dictionaries of Hindushah Nakhchivani himself and his time, it is known that the most Persian words were used in it and about ten thousand Azerbaijani words were used to express their equivalents.

"The work is a valuable source for learning the lexicon and grammar of Azerbaijani and Persian languages in the 13th and 14th centuries" (5, II c., 178).

Fakhreddin Nakhchivani was one of the great figures who brought fame to Nakhchivan in the 13th century. He is better known as a faqih, that is, a lawyer, and he also wrote poems in Persian. He went to Ahar in the middle of the 13th century, where he became a disciple of the famous Sufi philosopher Qutbuddin Ahari. The famous Arab scholar Ibn Fuvati (1244-1326), who met him later, writes that he saw this beautiful old man in Maraga in 1271-1272, and that Nasiruddin Tusi appreciated him highly" (5, II c., 176).

Najmeddin Nakhchivani lived around the 13th century. It is known that he studied in Nakhchivan, studied all fields of science perfectly, and went to the Syrian city of Aleppo after 1253. He lived in Azerbaijan for a certain part of his life and worked at Maragha observatory.

Arab scholar Ibn al-Ibru (Abu-l Faraj) wrote about Najmuddin Nakhchivani in his work "Mukhtasar tarikh al-duval" ("Concise History of States"): "He was a person of great virtue and a connoisseur of exact sciences. He was engaged in philosophy in his homeland" (5, II c., 179). Again, Ibri writes: "He traveled the countries, wandered a lot, finally came to Rome, held great positions" (5, II c., 179). The Arab author Ibn Bibi likened it to "a stormy sea and a rainy cloud in all sciences and disciplines" and noted that it gathered religious and secular sciences. Najmeddin Nakhchivani wrote a commentary on Ibn Sina's books "The Law of Medicine" and "Signs and Notes".

Commentary on the book "The Law of Medicine" in the National Library of Paris, commentary on the book "Signs and Notes" in the Hagia Sophia, Nur Osmaniye and Köprülü libraries in Turkey, the treatise "The Essence of Logic and the Summary of Philosophy" is kept in the Al-Mashhad al-Alvin manuscript fund in Najaf, Iraq.

In addition to being an artist and calligrapher, Izaduddin Nakhchivani was also known as a mathematician. "According to the information provided by the famous Arab scholar and bibliographer Ibn al-Fuvati, Izaduddin Nakhchivani was a good writer and wrote a number of works. According to sources, he had a rich library. In the 80s and 90s of the 13th century, he lived in Baghdad, then in Hilla and Liristan, and died there" (1, 10).

Thus, in the 13th century, the cultural, literary-cultural and scientific environment of Nakhchivan led to the rise of literary-cultural and scientific thought in their time and later, and served the moral development of the people.

Literature

1. Akhundov A., Valiyev S. Nakhchivan literary environment. Baku: Nurlan, 2008.

2. Scientists' scientist - Nasireddin Tusi // "Zaman" newspaper, 2006, April 6-7, p. 14.

3. Azerbaijani culture. Science. / History of Azerbaijan. Textbook for the 10th grade of secondary schools. Baku: Çaşıoğlu, 2007, p. 60-65.

4. A person who makes you laugh and think - Molla Nasreddin // "Zaman" newspaper, 2006, May 25-26, p. 10.

5. Nakhchivan encyclopedia, I-II c. Nakhchivan: Nakhchivan encyclopedia, I-II c. 2005.

Psychological sciences

INTENTIONALITY IN THE PHILOSOPHY OF MIND: FROM ORIGINS TO CONTEMPORARY COGNITION

Antonio Sacristano
Pedagogist
Adjunct Professor of Special Pedagogy
Support Course Department
University of Salerno
3479162381
Carmine Genovese
MIM Teacher
Expert in Special Pedagogy
3298469467

L'INTENZIONALITÀ NELLA FILOSOFIA DELLA MENTE: DALLE ORIGINI ALLA COGNIZIONE CONTEMPORANEA

SACRISTANO ANTONIO
PEDAGOGISTA
DOCENTE A CONTRATTO DI PEDAGOGIA SPECIALE
DIPARTIMENTO CORSO DI SOSTEGNO
UNIVERSITÀ DEGLI STUDI DI SALERNO
3479162381
GENOVESE CARMINE
DOCENTE MIM
ESPERTO DI PEDAGOGIA SPECIALE
3298469467

ABSTRACT

Intentionality is a fundamental concept in cognitive science, philosophy of mind, and artificial intelligence (AI). This article explores the main contemporary theories and debates on intentionality, focusing on three key perspectives: naturalistic, computational, and biological. It examines how mental representations, according to theories such as computationalism (Fodor) and connectionism (Rumelhart, McClelland), attempt to explain intentional processes, raising the problem of intrinsic semantics. The role of intentionality in artificial systems is also discussed, with particular attention to Searle's (Chinese room) critique and Dennett's functionalist view, which suggests that intentionality would emerge from complex behaviors. The section on neuroscience explores the neural correlates of intentionality, with evidence suggesting the importance of the prefrontal cortex and mirror neurons in planning and understanding intentions. Finally, the article addresses the challenges of providing a naturalistic explanation of intentionality and the philosophical and epistemological implications for philosophy of mind, neuroscience, and AI. Intentionality remains an open issue, with wide-ranging implications for understanding the mind and its interactions with the world and technology.

Sinossi

L'intenzionalità è un concetto fondamentale nelle scienze cognitive, nella filosofia della mente e nell'intelligenza artificiale (IA). Questo articolo esplora le principali teorie e dibattiti contemporanei sull'intenzionalità, concentrandosi su tre prospettive chiave: naturalistica, computazionale e biologica. Viene analizzato come le rappresentazioni mentali, secondo teorie come il computazionalismo (Fodor) e il connessionismo (Rumelhart, McClelland), cerchino di spiegare i processi intenzionali, sollevando il problema della semantica intrinseca. Inoltre, si discute il ruolo dell'intenzionalità nei sistemi artificiali, con particolare attenzione alla critica di Searle (stanza cinese) e alla visione funzionalista di Dennett, secondo cui l'intenzionalità emergerebbe da comportamenti complessi. La sezione dedicata alle neuroscienze esplora i correlati neurali dell'intenzionalità, con evidenze che suggeriscono l'importanza della corteccia prefrontale e dei neuroni specchio nella pianificazione e nella comprensione delle intenzioni. Infine, *l'articolo affronta le sfide di una spiegazione naturalistica dell'intenzionalità e le implicazioni filosofiche ed epistemologiche per la filosofia della mente, le neuroscienze e l'IA. L'intenzionalità continua a essere una questione aperta, con ampie implicazioni per la comprensione della mente e delle sue interazioni con il mondo e la tecnologia.*

Keywords: *intentionality, cognitive sciences, artificial intelligence, philosophy of mind, neuroscience.*
Parole chiave: *intenzionalità, scienze cognitive, intelligenza artificiale, filosofia della mente, neuroscienze*

Introduzione

L'intenzionalità è un concetto fondamentale nella filosofia della mente, indicato tradizionalmente come la capacità degli stati mentali di riferirsi a qualcosa di esterno a essi. La nozione, ripresa e ridefinita in epoca contemporanea, ha profonde radici nella filosofia scolastica medievale ed è stata riproposta in chiave moderna da Franz Brentano (1874), il quale la identificava come la caratteristica distintiva del mentale: "Ogni fenomeno mentale contiene in sé qualcosa come suo oggetto, sebbene non tutti lo facciano nello stesso modo" (Psychologie vom empirischen Standpunkt, 1874).

Nel contesto della filosofia della mente, l'intenzionalità si pone come criterio essenziale per comprendere la relazione tra stati mentali e mondo esterno, nonché per distinguere i fenomeni mentali da quelli puramente fisici. Essa si interseca con questioni epistemologiche e ontologiche, quali il problema della rappresentazione mentale, la natura della coscienza e la possibilità di un modello computazionale della mente (Dennett, 1987; Searle, 1983).

L'obiettivo di questo articolo è analizzare il concetto di intenzionalità nella filosofia della mente, tracciandone l'evoluzione storica, confrontando le principali prospettive teoriche contemporanee e valutando il suo ruolo nelle scienze cognitive e nell'intelligenza artificiale. Nella prima sezione verranno esplorate le origini della nozione, con particolare attenzione ai contributi di Brentano e Husserl. Successivamente, verranno analizzate le interpretazioni contemporanee del concetto, dai modelli materialisti e funzionalisti alle teorie di Searle e Dennett. Infine, verranno discusse le implicazioni dell'intenzionalità per le neuroscienze e i modelli computazionali della mente, delineando le principali sfide e prospettive future nel dibattito filosofico.

Origini e sviluppo storico del concetto di intenzionalità

La moderna nozione di intenzionalità trova il suo punto di svolta con Franz Brentano, che la riprende dalla tradizione scolastica medievale e la rende il fulcro della sua psicologia filosofica. Nel suo capolavoro Psychologie vom empirischen Standpunkt (1874), Brentano definisce l'intenzionalità come la proprietà essenziale di ogni atto mentale: la capacità di essere "diretto" verso un oggetto, che sia un'entità concreta, un'idea astratta o uno stato di cose.

Brentano distingue nettamente gli stati mentali dagli stati fisici proprio attraverso l'intenzionalità: mentre i fenomeni fisici esistono indipendentemente dal soggetto, i fenomeni mentali sono caratterizzati da un riferimento interno a qualcosa. Egli scrive:

"Ogni fenomeno mentale è caratterizzato da ciò che gli scolastici del Medioevo chiamavano l'intentio, e che noi potremmo chiamare, sebbene non senza ambiguità, la relazione a un contenuto, la direzionalità verso un oggetto" (Brentano, 1874).

Questa idea, pur rivoluzionaria, lascia aperti diversi interrogativi. Se tutti gli stati mentali sono intenzionali, come possiamo spiegare fenomeni come la coscienza pura o gli stati emotivi? E soprattutto, in che modo questa "direzionalità" può essere compresa in un quadro naturalistico?

Il concetto di intenzionalità viene ulteriormente sviluppato dal suo allievo Edmund Husserl, che lo pone al centro della fenomenologia. Per Husserl, l'intenzionalità non è solo una caratteristica della mente, ma la struttura stessa della coscienza: ogni atto cosciente è sempre coscienza di qualcosa (Ideen zu einer reinen Phänomenologie, 1913).

A differenza di Brentano, che trattava l'intenzionalità in termini psicologici, Husserl la inquadra in un contesto trascendentale: la coscienza non è un'entità isolata, ma si costituisce nel suo atto di riferirsi al mondo. L'intenzionalità, quindi, non è solo un tratto descrittivo della mente, ma il fondamento stesso dell'esperienza e della conoscenza.

Husserl introduce due elementi chiave:

• *Noesis e noema – l'atto intenzionale (noesis) e il contenuto intenzionale (noema) sono inscindibili e strutturano ogni esperienza consapevole.*

• *Reduzione fenomenologica – per studiare l'intenzionalità, occorre sospendere il giudizio sul mondo esterno e analizzare come gli oggetti si manifestano alla coscienza.*

Questa prospettiva influenza non solo la filosofia, ma anche la psicologia e le scienze cognitive, suggerendo che ogni atto mentale non è mai isolato, bensì sempre orientato a una "costruzione" del mondo esperito.

Nel corso del Novecento, l'intenzionalità diventa un punto di frizione tra la fenomenologia europea e la filosofia analitica anglosassone. Mentre Husserl e i suoi successori vedono l'intenzionalità come una struttura fondamentale dell'esperienza, i filosofi analitici cercano di spiegare l'intenzionalità in termini di linguaggio, rappresentazione e computazione.

Due posizioni emergono con particolare rilievo:

• *L'approccio rappresentazionalista e funzionalista – filosofi come Jerry Fodor (1975) e Daniel Dennett (1987) propongono che l'intenzionalità possa essere spiegata nei termini di un sistema di rappresentazioni mentali o di strategie interpretative. Secondo questa visione, gli stati mentali non sono intenzionali per natura, ma acquisiscono intenzionalità nel contesto di un sistema computazionale o sociale.*

• *L'approccio biologico e ontologico – John Searle (1983) critica questa posizione sostenendo che l'intenzionalità è una proprietà intrinseca della mente biologica e non può essere ridotta a mere strutture simboliche o processi computazionali. La sua distinzione tra intenzionalità intrinseca (tipica della mente umana) e intenzionalità derivata (come quella del linguaggio e delle macchine) ha dato vita a un ampio dibattito sulla possibilità di riprodurre la coscienza e l'intenzionalità nei sistemi artificiali.*

L'evoluzione del concetto di intenzionalità mostra come esso sia stato declinato in modi diversi: dalla descrizione psicologica di Brentano alla fondazione trascendentale di Husserl, fino alle teorie contemporanee che cercano di spiegare l'intenzionalità in chiave scientifica e computazionale. Questa pluralità di approcci solleva domande fondamentali:

"L'intenzionalità è una proprietà emergente della mente o può essere ridotta a processi fisici?

Può esistere intenzionalità senza coscienza?

E soprattutto, le macchine possono sviluppare una forma autentica di intenzionalità?"

Il dibattito sull'intenzionalità si articola in diverse prospettive filosofiche, che cercano di spiegare il rapporto tra stati mentali e mondo esterno.

Nella tabella sono sintetizzate le principali posizioni:

Approccio	*Autori principali*	*Descrizione*	*Critiche principali*
Funzionalismo computazionale	*Hilary Putnam (1967), Jerry Fodor (1975)*	*L'intenzionalità è spiegata attraverso rappresentazioni simboliche e il "linguaggio del pensiero"*	*Difficoltà a spiegare l'esperienza soggettiva e la coscienza (problema dell'intenzionalità intrinseca)*
Funzionalismo teleologico	*Ruth Millikan (1984), Fred Dretske (1988)*	*L'intenzionalità dipende dalla funzione biologica degli stati mentali, derivata dalla selezione naturale*	*Rischia di ridurre la mente a un mero processo biologico, senza spiegare la coscienza intenzionale*
Intenzionalità biologica	*John Searle (1983)*	*L'intenzionalità è una proprietà biologica della mente, distinta dall'elaborazione simbolica*	*Non chiarisce pienamente il rapporto tra coscienza e neurofisiologia*
Teoria interpretativa	*Daniel Dennett (1987)*	*L'intenzionalità non è una proprietà reale della mente, ma un'interpretazione utile per spiegare il comportamento*	*Implica una concezione strumentalista della mente, che alcuni considerano riduttiva*

Approcci materialisti e funzionalisti

Gli approcci materialisti e funzionalisti mirano a spiegare l'intenzionalità senza postulare proprietà non fisiche della mente. Il funzionalismo computazionale, sviluppato da Hilary Putnam (1967) e Jerry Fodor (1975), sostiene che gli stati mentali siano definiti dal loro ruolo causale all'interno di un sistema, analogamente a come un programma informatico elabora simboli indipendentemente dall'hardware che lo esegue.

Fodor (1975) propone il modello del "linguaggio del pensiero" (LOT, Language of Thought), secondo cui l'intenzionalità è spiegata in termini di rappresentazioni mentali strutturate in modo sintattico, manipolate da un sistema di regole formali. Secondo questa teoria, il pensiero intenzionale ha una base simbolica e computazionale, rendendo possibile una spiegazione scientifica del significato e della cognizione (Fodor, 1975, p. 32).

Tuttavia, questa prospettiva incontra alcune critiche, soprattutto da parte di filosofi della coscienza e fenomenologi, i quali sottolineano che un sistema sintattico non può da solo generare significato. Come osservato da Searle (1980, p. 423) nel famoso esperimento della stanza cinese, la manipolazione di simboli non implica comprensione reale, mettendo in discussione l'idea che i processi computazionali possano spiegare l'intenzionalità autentica.

Un'evoluzione del funzionalismo computazionale è il funzionalismo teleologico, sviluppato da Ruth Millikan (1984) e Fred Dretske (1988). Questa prospettiva considera l'intenzionalità come un prodotto dell'evoluzione biologica: le rappresentazioni mentali hanno una funzione adattiva e si sono sviluppate per migliorare la sopravvivenza dell'organismo.

Ad esempio, secondo Dretske (1988, p. 62), un animale che percepisce un predatore possiede un'informazione intenzionale sul predatore, perché tale rappresentazione è stata selezionata evolutivamente per favorire una risposta di fuga. In questa visione, l'intenzionalità non è un fenomeno metafisico, ma una proprietà biologica e funzionale.

Sebbene il funzionalismo teleologico offra una spiegazione naturalistica dell'intenzionalità, rimane il problema di spiegare la coscienza soggettiva:

"È sufficiente la selezione naturale per generare la dimensione fenomenologica dell'intenzionalità?"

Una critica radicale agli approcci computazionali e funzionalisti è stata avanzata da John Searle (1983), il quale sostiene che l'intenzionalità non possa essere spiegata in termini di mere manipolazioni simboliche o funzioni adattive, ma sia una proprietà biologica intrinseca degli stati mentali.

Nel suo libro Intentionality: An Essay in the Philosophy of Mind (Searle, 1983, p. 15), distingue tra:

- *Intenzionalità intrinseca, propria della mente umana, che possiede significati reali e autonomi.*
- *Intenzionalità derivata, tipica di linguaggi, simboli e sistemi computazionali, che acquistano significato solo in virtù dell'interpretazione umana.*

L'argomento della stanza cinese (Searle, 1980, p. 423) esemplifica questa distinzione: se un sistema computazionale può manipolare simboli senza comprenderne il significato, allora l'intenzionalità non può emergere da un processo puramente sintattico.

Secondo Searle, la coscienza è un fenomeno biologico, analogo alla digestione o alla fotosintesi, e l'intenzionalità è una sua proprietà emergente.

Questa visione apre un problema fondamentale:

"Se l'intenzionalità è biologica, può essere spiegata interamente nei termini della neurofisiologia? Oppure esiste una dimensione irriducibile della coscienza che sfugge alle spiegazioni scientifiche?"

Una risposta alternativa a Searle viene da Daniel Dennett (1987), che propone una visione pragmatica e anti-realista dell'intenzionalità. Nel suo libro The Intentional Stance (Dennett, 1987, p. 15), egli sostiene che l'intenzionalità non sia una proprietà intrinseca della mente, ma un modello interpretativo che adottiamo per prevedere il comportamento di sistemi complessi.

Dennett distingue tre livelli di spiegazione:

- *Atteggiamento fisico – spiegare un sistema in base alle leggi fisiche (es. un sasso cade perché soggetto alla gravità).*
- *Atteggiamento progettuale – spiegare un sistema in base al suo design funzionale (es. un orologio segna l'ora perché costruito per farlo).*
- *Atteggiamento intenzionale – spiegare un sistema attribuendogli credenze e desideri (es. un giocatore muove un pezzo di scacchi perché vuole vincere la partita).*

L'intenzionalità, quindi, non è qualcosa che gli stati mentali possiedono "realmente", ma un metodo euristico utile per interpretare e prevedere il comportamento. Per Dennett, persino i computer o gli animali possono essere descritti come aventi intenzionalità, se questa ascrizione permette di spiegare le loro azioni.

Questa teoria ha il vantaggio di evitare problemi metafisici sulla natura della mente, ma solleva un'altra questione:

"Se l'intenzionalità è solo un modello interpretativo, come possiamo distinguere tra intenzionalità autentica e mera simulazione?"

Il dibattito contemporaneo sull'intenzionalità oscilla tra prospettive naturalistiche, computazionali e biologiche. Il funzionalismo computazionale e teleologico cercano di spiegare l'intenzionalità in termini di rappresentazioni simboliche o funzioni evolutive, ma incontrano il problema della soggettività. Searle propone una concezione biologica dell'intenzionalità, criticando l'idea che un sistema computazionale possa possedere significati autentici. Dennett, infine, suggerisce un'interpretazione anti-realista, secondo cui l'intenzionalità è una costruzione concettuale utile per spiegare il comportamento.

Queste prospettive non sono solo teoriche, ma hanno profonde implicazioni per le scienze cognitive, l'intelligenza artificiale e la filosofia della mente. In un'epoca in cui l'intelligenza artificiale avanza rapidamente, la domanda se i sistemi artificiali possano possedere un'intenzionalità autentica rimane centrale nel dibattito filosofico.

L'intenzionalità e le scienze cognitive

L'intenzionalità è un concetto centrale nelle scienze cognitive, poiché riguarda la capacità della mente di rappresentare e riferirsi a oggetti, eventi e stati del mondo. Le moderne scienze cognitive si interrogano su come i processi mentali generino intenzionalità e se questa possa essere riprodotta nei sistemi artificiali. Il rapporto tra intenzionalità e rappresentazioni mentali.

- *Il ruolo dell'intenzionalità nell'intelligenza artificiale e nei modelli computazionali della mente.*
- *I correlati neurali dell'intenzionalità secondo le neuroscienze.*

Le teorie cognitive dell'intenzionalità si basano sull'idea che la mente elabori rappresentazioni mentali, ovvero strutture interne che codificano informazioni sul mondo esterno. Una delle teorie più influenti in questo ambito è il computazionalismo, che considera la mente come un sistema che manipola simboli attraverso regole sintattiche (Fodor, 1975). Secondo questa prospettiva, i processi mentali intenzionali possono essere spiegati attraverso operazioni computazionali su rappresentazioni interne.

Uno dei problemi centrali del computazionalismo è spiegare come le rappresentazioni mentali possano avere contenuto semantico. Se la mente opera solo su simboli, come fanno questi simboli ad acquisire un significato reale? Questo è noto come problema della semantica intrinseca (Haugeland, 1985).

Diversi filosofi hanno proposto soluzioni a questo problema:

- *Fodor (1987) ha suggerito che il significato derivi da una relazione causale tra rappresentazioni interne e il mondo esterno. Tuttavia, questo approccio lascia aperta la questione di come tali connessioni possano generare significato esperienziale.*
- *Dretske (1988, p. 72) ha sviluppato una teoria dell'informazione secondo cui le rappresentazioni mentali hanno contenuto perché portano informazioni affidabili sugli oggetti a cui si riferiscono.*
- *Searle (1983) ha criticato queste visioni sostenendo che le rappresentazioni simboliche, per quanto sofisticate, non possano da sole generare intenzionalità genuina, che resta una proprietà biologica della mente.*

Queste problematiche emergono con forza nel dibattito sull'intelligenza artificiale.

Le moderne ricerche in intelligenza artificiale (IA) sollevano una questione fondamentale: può un sistema computazionale possedere intenzionalità autentica?

Negli anni '80 e '90, i primi modelli di IA si basavano sull'idea di rappresentazioni simboliche esplicite, in linea con il computazionalismo classico (Newell & Simon, 1976). Tuttavia, il problema della semantica intrinseca ha reso evidente che il significato non emerge spontaneamente da sistemi simbolici.

L'alternativa proposta da scienziati cognitivi come Paul Smolensky (1988) e Rumelhart & McClelland (1986) è il connessionismo, che spiega la cognizione attraverso reti neurali artificiali che apprendono in modo distribuito. In questo modello, l'intenzionalità emerge non da regole sintattiche, ma da schemi di attivazione neurale simili a quelli biologici.

John Searle (1980) ha posto un serio ostacolo all'idea che un sistema computazionale possa avere intenzionalità genuina. Nel suo famoso esperimento mentale della stanza cinese, egli immagina una persona che segue regole per manipolare simboli cinesi senza comprenderne il significato. Questo dimostra, secondo Searle, che un sistema che manipola simboli (come un computer) può simulare la comprensione senza averne una reale.

Tuttavia, filosofi come Dennett (1991) sostengono che l'intenzionalità non sia una proprietà intrinseca, ma un fenomeno emergente derivante da processi sufficientemente complessi. Secondo questa visione, sistemi avanzati di IA potrebbero sviluppare intenzionalità funzionale, se non identica a quella umana, almeno sufficiente per interagire con il mondo in modo significativo.

L'odierna IA basata su modelli di deep learning, come GPT-4 e altre reti neurali avanzate, solleva la questione se tali sistemi possano avere una forma rudimentale di intenzionalità. Anche se queste IA non possiedono consapevolezza, la loro capacità di generare risposte contestualmente appropriate pone interrogativi filosofici su cosa significhi realmente avere intenzionalità.

Neuroscienze e correlati neurali dell'intenzionalità

Un'ulteriore prospettiva proviene dalle neuroscienze cognitive, che cercano di identificare i correlati neurali dell'intenzionalità attraverso studi di neuroimaging e neuroscienze computazionali.

Studi neuroscientifici hanno evidenziato che aree come la corteccia prefrontale dorsolaterale (DLPFC) e la corteccia parietale svolgono un ruolo fondamentale nei processi intenzionali (Goldman-

Rakic, 1995). Queste regioni sono coinvolte nella pianificazione e nel controllo delle azioni, supportando l'idea che l'intenzionalità sia legata alla capacità di prevedere e dirigere il comportamento futuro.

Inoltre, ricerche di Gallese & Lakoff (2005, p. 102) hanno mostrato che i neuroni specchio, scoperti nella corteccia premotoria, potrebbero essere fondamentali per la comprensione delle intenzioni altrui. Questo suggerisce che l'intenzionalità non sia solo un fenomeno interno, ma abbia una base sociale e intersoggettiva.

Una questione aperta nelle neuroscienze cognitive riguarda il rapporto tra intenzionalità e coscienza. Alcuni autori, come Crick & Koch (2003, p. 117), sostengono che la coscienza sia necessaria per l'intenzionalità, mentre altri, come Block (1995), distinguono tra coscienza fenomenica e accesso cognitivo, suggerendo che l'intenzionalità possa esistere anche in stati non consci.

L'intenzionalità, considerata per secoli un problema esclusivamente filosofico, è oggi al centro delle scienze cognitive, dell'intelligenza artificiale e delle neuroscienze. Le teorie computazionali e connessioniste hanno tentato di spiegare l'intenzionalità in termini di rappresentazioni mentali, ma restano aperte domande fondamentali sulla natura del significato e della coscienza.

L'IA e le neuroscienze stanno contribuendo a ridefinire il concetto di intenzionalità, mettendo in discussione le distinzioni tradizionali tra mente e macchina. Tuttavia, il dibattito rimane aperto: l'intenzionalità è un fenomeno puramente biologico, oppure può emergere in sistemi artificiali?

Le risposte a queste domande avranno implicazioni cruciali per la filosofia della mente, le scienze cognitive e l'etica dell'intelligenza artificiale.

SFIDE E PROSPETTIVE FUTURE

Nonostante i progressi nelle neuroscienze, nella filosofia analitica e nella ricerca sull'intelligenza artificiale, la sua natura fondamentale resta controversa. I tre aspetti chiave che pongono sfide e aprono nuove prospettive per la ricerca futura:

- *Il problema della spiegazione naturalistica dell'intenzionalità.*
- *I possibili sviluppi nelle neuroscienze e nella filosofia della mente.*
- *Il ruolo dell'intenzionalità come ponte tra mente, linguaggio e realtà.*

Uno dei nodi teorici più difficili riguarda la possibilità di fornire una spiegazione naturalistica dell'intenzionalità, ossia una descrizione scientificamente rigorosa che riconduca l'intenzionalità a processi fisici o computazionali senza perdere la sua specificità semantica.

John Searle (1983) distingue tra intenzionalità originale, posseduta dagli esseri umani e da altri agenti biologici, e intenzionalità derivata, tipica di simboli, testi e sistemi artificiali. Secondo questa distinzione, la mente umana ha un'intenzionalità genuina, i sistemi computazionali possono solo imitare processi intenzionali senza averne di propri. Questo porta a un problema cruciale:

"Come può un sistema fisico generare intenzionalità originale?"

Diverse teorie hanno tentato di fornire una risposta naturalistica a questa domanda:

- *Teoria causale del riferimento (Dretske, 1988)**:** l'intenzionalità deriva da una relazione causale tra un sistema cognitivo e il mondo esterno. Se un segnale in un sistema neurale è prodotto in risposta a un oggetto nel mondo reale, allora quel segnale può avere un contenuto intenzionale.*
- *Teoria teleosemantica (Millikan, 1984)**:** l'intenzionalità emerge attraverso processi evolutivi. Le rappresentazioni mentali hanno significato perché si sono sviluppate con una funzione adattativa, garantendo la sopravvivenza dell'organismo.*
- *Intenzionalità come funzione computazionale (Dennett, 1991)**:** secondo una prospettiva più radicale, l'intenzionalità non è una proprietà intrinseca, ma un'**ascrizione interpretativa**: consideriamo intenzionale un sistema che si comporta come se avesse credenze e desideri, indipendentemente dal fatto che ne abbia realmente.*

Nessuna di queste teorie ha ancora fornito una spiegazione completamente soddisfacente, mantenendo aperto il dibattito tra realismo intenzionale e anti-realismo.

POSSIBILI SVILUPPI NELLE NEUROSCIENZE E NELLA FILOSOFIA DELLA MENTE

Le neuroscienze cognitive stanno cercando di individuare le basi neurali dell'intenzionalità, con l'obiettivo di chiarire come la mente generi rappresentazioni del mondo esterno e come queste rappresentazioni influenzino il comportamento.

Grazie agli sviluppi del neuroimaging (fMRI, EEG) e delle simulazioni computazionali, sono state identificate alcune aree cerebrali coinvolte nei processi intenzionali:

- *Corteccia prefrontale dorsolaterale (DLPFC): fondamentale per la pianificazione delle azioni intenzionali e per il controllo cognitivo (Goldman-Rakic, 1995).*
- *Sistema dei neuroni specchio: potrebbe spiegare l'intenzionalità sociale e l'abilità di attribuire intenzioni agli altri (Gallese & Lakoff, 2005).*

- *Corteccia temporale e strutture limbiche: coinvolte nell'integrazione di stimoli sensoriali e rappresentazioni semantiche (Patterson et al., 2007).*

Un ambito di ricerca particolarmente promettente è quello delle reti neurali artificiali ispirate al funzionamento biologico del cervello. Alcuni studiosi ipotizzano che modelli avanzati di deep learning potrebbero fornire nuove intuizioni sull'intenzionalità, simulando processi di rappresentazione mentale in modo più realistico rispetto ai modelli computazionali classici (Hassabis et al., 2017).

Le ricerche neuroscientifiche potrebbero ridefinire concetti filosofici tradizionali, portando a nuove prospettive sulla natura della coscienza e dell'intenzionalità:

- *Materialismo forte: l'intenzionalità è interamente spiegabile in termini di processi cerebrali e computazionali.*
- *Dualismo emergentista: l'intenzionalità è una proprietà emergente dei sistemi neurali complessi, ma non completamente riducibile a essi.*
- *Approccio integrato: l'intenzionalità richiede una combinazione di spiegazioni biologiche, computazionali e fenomenologiche (Varela et al., 1991).*

Questi sviluppi avranno implicazioni anche per l'intelligenza artificiale, la psicologia cognitiva e la linguistica.

Un aspetto cruciale del dibattito riguarda il rapporto tra intenzionalità, linguaggio e realtà. L'intenzionalità non è solo un fenomeno mentale, ma è anche alla base della nostra capacità di comunicare e di attribuire significato al mondo.

Molti filosofi del linguaggio hanno studiato il legame tra intenzionalità e significato linguistico:

- *Frege (1892) ha introdotto la distinzione tra senso e riferimento, mostrando che le parole non si limitano a designare oggetti, ma portano con sé una componente intenzionale.*
- *Wittgenstein (1953) ha criticato l'idea che il significato sia una proprietà mentale privata, sottolineando il ruolo delle pratiche linguistiche condivise.*
- *Grice (1957) ha sviluppato la teoria dell'intenzionalità comunicativa, secondo cui il significato di un enunciato dipende dall'intenzione del parlante e dalla capacità dell'interlocutore di riconoscerla.*

Queste teorie suggeriscono che l'intenzionalità non è solo un fenomeno interno, ma è anche radicata nelle interazioni sociali e nei contesti comunicativi.

L'intenzionalità gioca un ruolo essenziale nella nostra esperienza del mondo. Attraverso i processi intenzionali, gli esseri umani danno struttura alla realtà e costruiscono significati condivisi. Questo porta a implicazioni importanti in vari campi:

- *Scienze cognitive: come la mente organizza le informazioni sensoriali per formare rappresentazioni del mondo.*
- *Sociologia e studi culturali: come l'intenzionalità collettiva dà origine a istituzioni, norme e pratiche sociali (Searle, 1995).*
- *Intelligenza artificiale e robotica: come progettare sistemi in grado di interpretare il mondo in modo intenzionale.*

Le sfide future riguardano:

1. *Superare il divario tra intenzionalità originale e derivata: possiamo spiegare scientificamente la nostra capacità di generare significati?*
2. *Comprendere il rapporto tra mente e cervello: l'intenzionalità è riducibile a processi neurali o è un fenomeno emergente?*
3. *Esplorare le implicazioni per l'IA e la tecnologia: è possibile sviluppare sistemi artificiali con forme di intenzionalità autonoma?*

Conclusioni

L'indagine sull'intenzionalità attraversa discipline diverse, dalla filosofia della mente alle scienze cognitive, fino all'intelligenza artificiale e alle neuroscienze. Le teorie computazionali, biologiche e anti-realiste hanno cercato di spiegare come la mente generi significati e se questa capacità possa essere riprodotta artificialmente. Il problema della semantica intrinseca, sollevato da filosofi come Searle (1980) e Dretske (1988), evidenzia le difficoltà nel naturalizzare l'intenzionalità senza ridurla a mere manipolazioni simboliche. Allo stesso tempo, le neuroscienze offrono nuovi spunti, mostrando correlati neurali dell'intenzionalità che suggeriscono un legame tra rappresentazione mentale e attività cerebrale (Goldman-Rakic, 1995; Gallese & Lakoff, 2005).

Le diverse prospettive sull'intenzionalità portano a conseguenze significative nel dibattito sulla natura della mente e della conoscenza. Il computazionalismo classico (Fodor, 1975) ha fornito un modello potente per spiegare la cognizione, ma il problema della semantica intrinseca suggerisce che il significato non possa essere ridotto a puri processi sintattici (Haugeland, 1985). Il connessionismo e il *deep learning sembrano offrire alternative più vicine alla biologia, ma rimane aperta la questione se i modelli neurali artificiali possano realmente generare intenzionalità autentica o solo simularla (Hassabis et al., 2017).*

Dal punto di vista epistemologico, la distinzione tra intenzionalità originale e derivata (Searle, 1983) solleva questioni cruciali sulla possibilità di comprendere la mente attraverso metodi scientifici. Se l'intenzionalità è una proprietà emergente della coscienza (Block, 1995), allora potrebbe essere necessaria una prospettiva interdisciplinare che combini neuroscienze, fenomenologia e modelli computazionali per spiegarla in modo soddisfacente.

Nonostante i progressi teorici ed empirici, l'intenzionalità rimane un concetto sfuggente e dibattuto. Alcuni interrogativi chiave per la ricerca futura includono:

- *Naturalizzazione dell'intenzionalità – è possibile formulare una teoria unificata che spieghi l'intenzionalità in termini fisici, senza perdere la ricchezza semantica dell'esperienza mentale? Le teorie teleosemantiche (Millikan, 1984) sono sufficienti per colmare questo divario?*
- *Intelligenza artificiale e intenzionalità – i sistemi di IA avanzata, come le reti neurali profonde, possono sviluppare una forma genuina di intenzionalità o rimarranno sempre privi di coscienza e significato intrinseco? L'argomento della stanza cinese di Searle (1980) rimane un ostacolo insormontabile?*
- *Relazione tra intenzionalità e coscienza – l'intenzionalità è necessariamente legata alla coscienza o può esistere indipendentemente da essa? I dati neuroscientifici suggeriscono che alcuni processi intenzionali possano avvenire anche in stati non coscienti (Crick & Koch, 2003), ma questo è sufficiente per ridefinire il concetto?*
- *Intersezione tra mente, linguaggio e società – se l'intenzionalità ha una dimensione sociale (Grice, 1957; Searle, 1995), quale ruolo gioca l'interazione comunicativa nel suo sviluppo? In che misura l'intelligenza artificiale può simulare intenzionalità in contesti linguistici e pragmatici?*

Queste domande dimostrano che il dibattito sull'intenzionalità è ancora lontano da una soluzione definitiva. Tuttavia, l'integrazione tra filosofia, scienze cognitive, neuroscienze e intelligenza artificiale potrebbe offrire nuovi strumenti per comprendere il ruolo dell'intenzionalità nella mente e nel mondo, aprendo nuove prospettive per la ricerca futura.

RIFERIMENTI BIBLIOGRAFICI

1. *Block, N. (1995). "On a Confusion about a Function of Consciousness." Behavioral and Brain Sciences, 18(2), 227–287.*
2. *Crick, F., & Koch, C. (2003). "A Framework for Consciousness." Nature Neuroscience, 6(2), 119–126.*
3. *Dretske, F. (1988). Explaining Behavior: Reasons in a World of Causes. MIT Press.*
4. *Fodor, J. A. (1975). The Language of Thought. Harvard University Press.*
5. *Gallese, V., & Lakoff, G. (2005). "The Brain's Concepts: The Role of the Sensory-Motor System in Reason and Language." Cognitive Neuropsychology, 22(3-4), 455–479.*
6. *Goldman-Rakic, P. S. (1995). "Cellular Basis of Working Memory." Neuron, 14(3), 477–485.*
7. *Grice, H. P. (1957). "Meaning." The Philosophical Review, 66(3), 377–388.*
8. *Haugeland, J. (1985). Artificial Intelligence: The Very Idea. MIT Press.*
9. *Hassabis, D., Kumaran, D., Summerfield, C., & Botvinick, M. (2017). "Neuroscience-Inspired Artificial Intelligence." Neuron, 95(2), 245–258.*
10. *Millikan, R. G. (1984). Language, Thought, and Other Biological Categories: New Foundations for Realism. MIT Press.*
11. *Searle, J. R. (1980). "Minds, Brains, and Programs." Behavioral and Brain Sciences, 3(3), 417–424.*
12. *Searle, J. R. (1983). Intentionality: An Essay in the Philosophy of Mind. Cambridge University Press.*
13. *Searle, J. R. (1995). The Construction of Social Reality. Free Press.*

Sociological sciences

MITIGATION OF DISCRIMINATION PHENOMENA BY THE PRESENCE OF THE ALBANIAN COMMISSIONER FOR PROTECTION AGAINST DISCRIMINATION (ACPD)

Matilda Veliu
Faculty of Economics, University of Tirana,
Rruga Arben Broci 1 1001, Tirana Albania
ORCID: https://orcid.org/0000-0003-3820-4909

Abstract

In recent years where almost every society lives in big socioeconomic challenges, the prevalence of which has raised a huge debate about the existence of democratic and totalitarian systems. Increasingly, all around the world, it is stressed the importance of legal activities that ensure human defense. The vulnerable groups tend to be more touchable from these changes, sometimes not subjective. The Commissioner for Protection against Discrimination in Albania is seen by those groups as an institution that can do something for them, to protect them making the legal institutions do their job. The paper aims to see the effort of the Commissioner in the mitigation of discrimination in Albania. According to the descriptive analysis of the empirical data, it reveals a positive effect of it, improving the legal environment. Although there exist gaps in the daily activity of the Albanian Commissioner (ACPD), those remain objectives to be achieved making the Albanian society much stronger and according to the requests of the European Union where our country tends to be part.

Keywords: Albanian Commissioner of Protection against Discrimination, European Union, Legal Conventions, The causes of complaints, Legal Implications, Ex-office cases, Legal Resolutions.

I.Introduction

The beginning of 2010 dates the creation and operation of the institution of the Albanian Commissioner for the Protection against Discrimination (ACPD). Its creation is seen as a necessity for a strong democratic society, therefore its presence and activity may lead to effective, and efficient prospects in every aspect of life. Discrimination can take different forms, but according to Small and Pager (2020), canonical economic models make different assumptions about why discrimination happens but they all agree on a core issue: for discrimination to happen an individual must decide to treat people of different backgrounds differently. Therefore, where there exists evident differentiation, in ceteris paribus, is a case of discrimination and the intervention of legal institutions is necessary.

ACPD can treat all discrimination cases especially those related to vulnerable groups, despite where their problems are focused. Negative externalities that can be derived from certain power, in different life areas, can lead to the weakness of a democratic state. Moreover, from the individual point of view, discrimination can cause serious health problems, and social problems for society (Daniels, 2012), A social phenomenon with great impact on the economy.

According to Ferrant and Kolev (2016), the negative effect of discrimination with gender base is more evident in those countries that have lower incomes. Those effects lead to lower productivity, especially in the female category. According to the authors, if society focused on this point of view, there would be an increased global GDP from 0.03% to 0.6% in 2030, depending on the scenario. This makes the topic, an important and relevant issue where the density of the problems leads to its prevalence.

Regards to Albania, after the fall of the totalitarian system in '90, many de-regulations take place, both in two directions: economic and social perspectives. Those imposed the unspoken role of the Commissioner. In 2017 under the consulting of the European Union and European Council, implementing the IPA project was formed by the Commissioner ACPD. The references of other commissioners in countries like Germany and Canada were made. The activity of ACPD is based on legal documents like European Legislation, The Convention of Children's Rights, the Convention for the Protection of National minorities, the Pact of Socioeconomic-Cultural Rights, The Constitution of Albania, The Work Code, etc.

The ACPD Commissioner has the objective to stimulate the administrative investigation in cases of discrimination and to make decisions.

Its activity is based on the resolutions of the President of the Assembly of Albania which are made every year based on the performance of ACPD (2010 is the year where the first resolution is revealed with only one decision, please see https://www.kmd.al/rezoluta/)

It is noted that in 2017 no resolution was made, whilst 2013 is the year that has the highest number of recommendations and opinions, 19 in total. Such resolutions have positively increased the performance of ACPD, focusing the energies on those areas that tend to be emergent in the Albanian environment. Some of those recommendations are illustrated in Table 1.1.

Table 1.1

Main directions to increase ACPD's performance.

Concrete actions to be taken by ACPD
Improvement of the web, giving detailed information.
An increased support by the ACPD to lower the number of complaints.
The rise of communication with other institutions like The General Prosecutor's Office, The High Judicial Council, the State Police, The High Prosecutor Council, etc, to know the investigation's motives of discrimination in different areas.
The increased number of publications, and statistics of ACPD.
The increased number of activities to inform people, especially those in rural areas.
Strengthening of collaboration among the actors like the Advocate of People, Civil Society, Media, etc.

Source: Author summary based on information from ACPD, 2024

The first resolution[14] suggests the concentration of the activity in rural areas because the existence of ACPD was almost null. Another recommendation was to focus on vulnerable groups like Persons with Limited Abilities, Minorities Groups, LGBT, etc, whilst not much is said regards discrimination by age.

Therefore, the daily activities of those groups based on age criteria, ethnicity, gender, race, limited abilities, political attitudes, etc make the action plans of ACPD.

Its work improvement creates a high quality of life, also strengthens the legal state making proper regulations in the justice area. According to Sturm (2005), in the analysis of some Courts, she stressed that their works were crucial but very limited in the reinforcement of law regarding public norms.

The author underlines the reinforcement of law in the focal point of normative activities inside the official institutions. This conclusion has to be the highlight of the work's ACPD. Table. 2 shows in summary the specific areas where ACPD must be concentrated according to the conclusions of resolutions.

Table 1.2

Resolution's recommendation of ACPD actions.

Actions areas of ACPD
Increase in awareness activities regarding discrimination.
Increased accessibility monitoring of public transport for persons with limited abilities.
Studying gender quality and discrimination in the inner hierarchy of local government is the first approach to this phenomenon.
The rise of ACPD recommendations among the state institutions related to the phenomenon.
The identification and improvement of legal regulations in the areas of discrimination and equality.
The increased collaboration among actors like Civil Society, different Legal Institutions, etc.

Source: Author summary based on information from ACPD, 2024

Focusing on which regions were highly concentrated on the work of ACPD, it is noticed that regions like Tirana, Scodra, Korca, and Fier have the bigger concentration. The creation of the database and the National Strategy underlining the legal aspects seem to be the pillars to be improved. The resolution of 2019 again stressed the rural aspect of ACPD activities.

It's important to claim that the concentration of the work on Ex-officio cases in collaboration with the works regarding some specific actors like media, schools, etc is worthless in the reduction of the negative effects of discrimination, in all forms of it. Moreover, the activity of ACPD must be oriented with long-run objectives, mitigating in this way discrimination phenomena and being permanent over time. The time aspect of the discrimination strategies seems to be highly evaluated (Feagin and Eckberg, 1980).

[14] Available at https://www.kmd.al/rezoluta/

II. Legal Gaps of the ACPD based on the European Convention of Human Rights (age case).

The European Convention on Human Rights is one of the most important documents on which the ACPD bases its activity. Different economic-social environments of countries determine the rules and their applications may be prevalent from these differences when it comes to human rights. During application can be seen many gaps, in many areas of discrimination. According to Elaine Dewhurst (2013), although this convention includes age discrimination, it's not sufficient to protect people in the context of age discrimination in employment. Therefore, must be applied the practice that reduces this legal gap. Age discrimination is included in the European Cart on Human Rights (ECHR) and is applied by the members of the European Council, but it is noticed that has limitations in purpose and application. The practice of Direct Horizontal Non-Discrimination is seen as a good practice to reduce the phenomenon.

Although the European Convention on Human Rights is not limited to its purpose in the labor market, the protection of non-discrimination which is specified in Article 14, can be used as a protection measure only if this Article is related to another article of this Convention like, the Right of Freedom or Privacy. Therefore, The European Court on Human Rights has not accepted age as a factor that has the same influence as the other factors of discrimination. This concludes that cases of age discrimination can be seen as proportional, reasonable, and justifiable because serve a legal purpose.

As a consequence, it's on member countries to realize explicit references regarding "age", based on their national legislation, and to undertake measures related to the prevention of multiple age discrimination. Despite this, the recommendations often remain unknown and there is not any support or any governmental action plan to combat age discrimination in reality, especially for the elderly.

According to Albanian Legislation, on the Work Code, Article 9- The prohibition of Discrimination, point.2, among the others is specified that: "with discrimination is understood every difference, exemption, limitation or preference that are based on gender, race, ethnicity, age..etc that aims to/ or consequences to hinder/or make impossible exercising the right to work in the same manners as others". Also, on point. 8 of this Article it is submitted that… "Denial of reasonable adaption by the employer constitutes discrimination". In appeal procedures, according to Article 9, point. 9, … "the person to whom refers the complaint or the respondent must prove that has not violated the principle of equal treatment".

The Law No. 10 221 dated 04.02.2010, "For protection against discrimination" where the factors that cause discrimination are specified, it is said also "every other cause" which makes the list non-limited and the cases must be treated by the ACPD according to the specific case.

What is interesting is the fact that the law takes into account the complaints abroad, creating a legal gap in treating the problem, especially in age discrimination in employment, where different countries apply different methods for employment and the legal regulators vary. In the annual publication of the work performance of the ACPD, it is noticed that in 2017 2 (two) cases were registered without giving extra information to understand if those were related to age discrimination, especially to the elderly.

III. Empirical Findings

III. a. Used Methodology.

This paper draws on a current analysis of the role of the ACPD commissioner in Albania. The main purpose is to focus on the most affected pillars of the work performance of ACPD. For that reason, exploring the primary data of the ACPD institution, including also the resolutions and the annual publications will be the base of the research methodology. The various variables are chosen to clarify the descriptive research making the focus of the paper more evident. The rest of the paper follows with a critical up-to-date conclusion.

III. b. Empirical Findings.

During these years there has appeared a huge discordance between the complaints made at the ACPD institution, despite their forms (online form included) and the ex-officio cases. The ex-officio cases are those initiated by in-person ACPD and therefore have priority. Referring the Figure. 3.1, 2010 is the year where there was no initiative by the ACPD whilst the biggest value of ex-officio cases was achieved in 2013 with 25 cases.

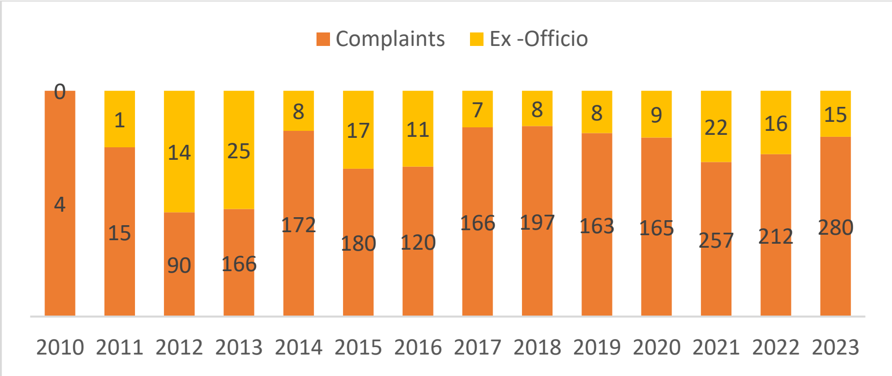


Figure. 3.1 Complaints continuity at the ACPD and Ex-officio cases during the years.
Source: Author summary based on information from ACPD, 2024

The period 2010-2012 was been an infantile period where the focus of work was on the existence of ACPD and the relationships among the other legal actors in Albania.

The surveillance of the work and the resolutions of the Albanian Council following the International Partners' advice have helped in the creation of the proper profile of ACPD, and citizen awareness has been increased. Keeping in mind the specific weight importance that the ex-officio take in every year it is formed the Figure. 3.2.

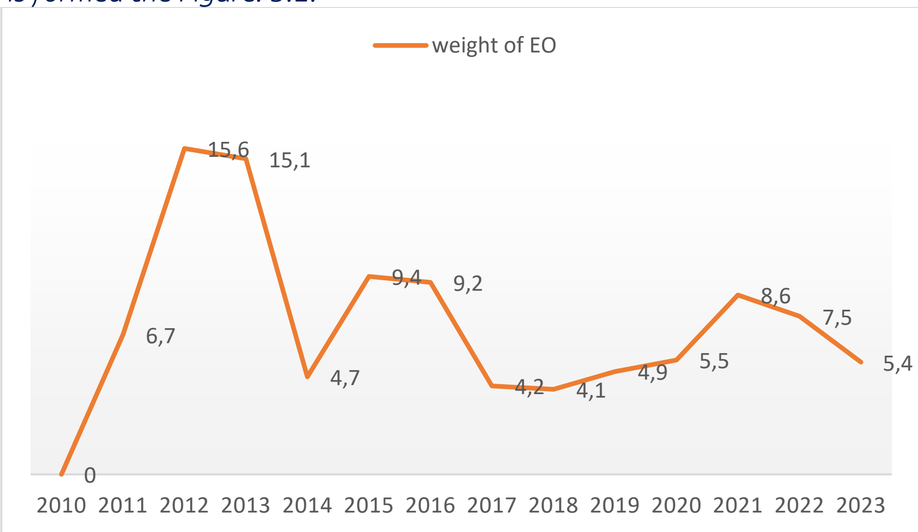


Figure. 3.2: Specific weight of Ex-Officio cases during years.
Source: Author summary based on information from ACPD, 2024

The disaggregate data according to the ex-officio weight reveal that the indicator reached the highest value at 15.6% in 2012, and the lowest value at 4.1 in 2018. 2012 was the year when the performance of ACPD was at top levels, and the international partner has made a lot in this direction. While it was expected to rise the performance has decreased. 2018 coincides with a year of big changes, especially in the political area (the implementation of the Vetting process –zero corruption in all levels of Courts). The prevalence of this factor may have sat down the rate of performance.

Only in 2019, the rise of ex-officio cases were noticed. The COVID-19 pandemic seems to have contributed to the rate of discrimination, therefore it's interesting to know the areas where the phenomenon is evident. Figure. 3.3 gives the information and the most crucial areas are employment, education, and commodities (goods and services).

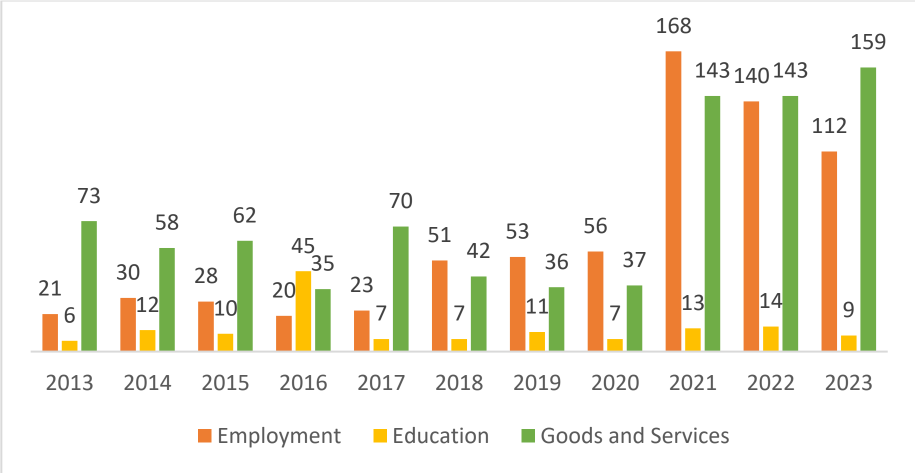


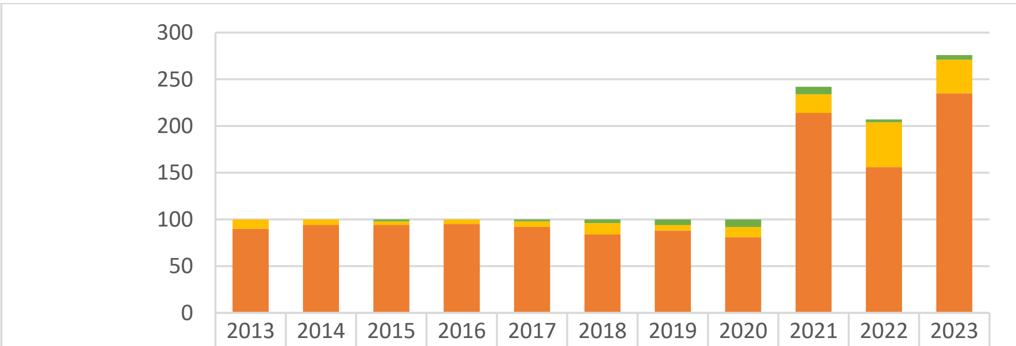
Figure. 3.3: Area's Complaints over the years.
Source: Author summary based on information from ACPD, 2024

Although discrimination forms may be present in every aspect of life, according to ACPD employment, education, and commodities are those that dominate. The demographic changes that Albania faced in those three decades after the fall of communism raised the number of social problems, especially in employment areas and urban regions (Likaj and Baltaci, 2008).

168 of a total of 324 complaints came from the employment area in 2021, whilst in 2023 commodities is the area that dominated, with 159 complaints in a total of 280. This fact shows that the market of commodities carries in itself many problems but the consumer health seems to be damaged.

According to the forms of the subject that have made the complaint it is noticed an increased rate of individuals, exactly 235 complaints from them in 2023. From 2013 up to 2023, this subject was more active than others, reflecting an increased rate by ….(see Figure. 3.4). The form less active reveals individual groups of different topics.

In recent days, Statistical Discrimination (Phelps, 1972., Arrow, 1972; Aigner and Cain, 1977) can result in a self-reinforcing vicious circle over time, as the atypical individuals from the discriminated group are discouraged from participating in the market /institution, or from improving their skills as their (average) return on investment (education, etc.) is less than for the non-discriminated group. In Albania, statistical discrimination takes place in Persons with Limited Abilities and the Roma Community. 2021 is the year when they have made more complaints than regarding the other years. The subject from NGO made 48 complaints in 2022 (please see Figure. 3.4) with a decrease in 2023 in 36 cases.



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Groups			2		2	4	6	8	8	3	5
Organizations	10	6	4	5	6	12	6	11	20	48	36
Individuals	90	94	94	95	92	84	88	81	214	156	235

Figure. 3.4: Subject's forms that made the complaint.
Source: Author summary based on information from ACPD, 2024

The most crucial causes of complaints are those with gender criteria, economic situations, race, education, political beliefs, health conditions, etc. Figure. 3.5 reveals the distribution over time of the data gathered according to the above criteria.

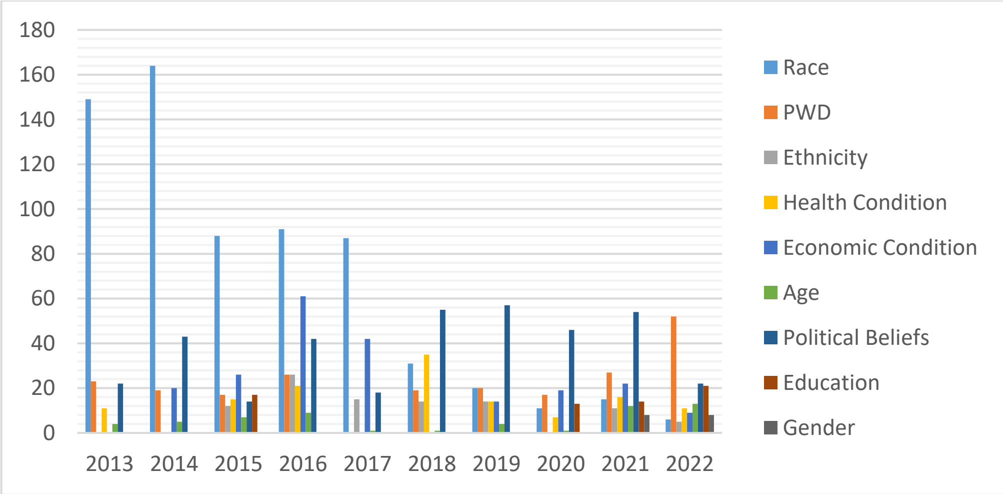


Figure. 3.5: The factors of complaints over time.
Source: Author summary based on information from ACPD, 2024

From Examining Figure. 3.5 it's noticed that 2023 reflects an absence of data. Race complaints have the highest value occurred in 2014 and political beliefs were spread all over the time. According to the specific stories illustrated on annual reports persons with limited abilities and the elderly are groups that appreciate the role of ACPD and believe that it can solve their problems.

What's important to underline is that ACPD is not part of the protection of the victims (especially those of domestic violence). Often, its role is seen as a compromising role-labeling part of the mechanism (Titili and Nikaj, 2023).

Its role is to influence the creation of a strong democratic society, to give the right to be judged, without going further in decisions that have to be taken by other institutions like Courts. It's a role that has to be resized reducing the negative effects of discrimination in Albanian society.

IV. Conclusions and Suggestions

The role of ACPD in Albanian society to force the democratic pillars is indisputable. His beginnings share the existence and the improvement of the activities. The creation of the website has contributed to the information given to the public raising transparency. This is made under International Partners' recommendations. Over the years the collaboration with other actors like media, courts, civil societies, etc is empowered as an important link in the performance of ACPD. 2019 resolution has stressed the priority role of institutions in rural areas, giving facts about the rural/urban cases. Using the communication canals that high technology offers like podcasts or workshops, symposiums, television programs, etc is useful, especially in the long term. Therefore, to improve continually performance ACPD may take some steps that are:

- ✓ *Increasing rate of ex-office cases.*
- ✓ *Making podcasts with different topics.*
- ✓ *Contacts and informs people about its role like making workshops in schools, and educating teenagers.*
- ✓ *The employment area is crucial in the daily activities of ACPD, therefore institutions have to concentrate on that not only from a legal point of view but also to give a solution to the problems.*
- ✓ *To increase the focus of age discrimination on those regions that have the highest rate of this form of discrimination. The reports regarding age discrimination remain currently low.*
- ✓ *Although the resolutions suggest the evidence according to rural and urban areas in Albania a lot has to be done in this direction.*
- ✓ *The feedback of the cases registered and followed by the ACPD on Albanian Courts is held strictly manner in the ACPD database. A practice has not been applied until now but if yes, the credibility of the ACPD role will increase rapidly.*
- ✓ *Being proactive and with measurable and actual strategies is crucial.*
- ✓ *The strategies must be broken down into action plans, medium and long-term action plans, including all the actors of the phenomenon.*

References

1. *Albanian Commissioner of the Protection from Discrimination (ACPD), Komisioneri i Mbrojtjes ndaj Diskriminimit, (2024). https://www.kmd.al/*
2. *Albanian Law. Legjislacioni Shqiptar. https://qbz.gov.al/preview/635d44bd-96ee-4bc5-8d93-d928cf6f2abd*
3. *Daniels, N. (2012). Justice, health, and health care. In R. Rhodes, M.P.Battin and A. Slivers (Eds.), Medicine and social justice: Essays on the distributions of health care. NY Oxford University Press, pp. 17-33.*
4. *Dewhurst, E. (2013). Intergenerational balance, mandatory retirement, and age discrimination in Europe: How can the ECJ better support national courts in finding a balance between the generations? Common Market Law Review, Vol. (50), Issue 5, pp. 1333-1362.*
5. *European Court of Human Rights, Gjykata Europiane e te Drejtave Njerezore. https://www.echr.coe.int/*
6. *European Convention of Human Rights, Konventa Europiane e te Drejtave Njerezore. https://www.echr.coe.int/european-convention-on-human-rights.*
7. *Ferrant, G., Kolev, A. (2016). Does Gender Discrimination in Social Institutions matter for long-term growth? Cross-country evidence. Working Paper No. 330, OECD Development Center.*
8. *Feagin, R.J,. Eckberg, L. D. (1980). Discrimination: Motivation, Action, Effects, and Context. Annual Review of Sociology, Vol. (6), 1980, pp.1-20.*
9. *Likaj, M., Baltaci, C. (2008). The Change of social structure and migrations in cities in Albania.*
10. *Pager, D. (2006). The Dynamics of Discrimination. National Poverty Center, Working Paper #06-11.*
11. *Small, M.L and Pager, D. (2020). Sociological perspectives on racial discrimination. Journal of Economic Perspectives, 34, pp. 49-67.*
12. *Sturm, S. (2005). Law's Role in Addressing Complex Discrimination. Handbook of employment discrimination research: rights and realities. Chapter 2, pp. 35-57.*
13. *Titili, D., Nikaj, I. (2023). Between Rurality and urbanity: Indicators of social integration of Albanian rural to urban migrants. European Journal of Multidisciplinary Studies, December 2023, Vol. (8), Issue 2.*
14. *Work Code of Albania, Kodi Shqiptar i Punës, https://qbz.gov.al/preview/c1c18a6c-5f3e-457d-b931-de505b3c7ed0.*
15. *William A, D., Mason L, P. (1998). Evidence on Discrimination in Employment: codes of Color, Codes of Gender. Journal of Economic Perspectives, Vol. (2), pp. 63-90.*

Technical sciences

THE ECONOMIC EFFECT OF USING AN ENERGY-GENERATING UNIT IN THE UTILIZATION OF SECONDARY ENERGY RESOURCES

Mukolyants Arsen
Tashkent State Technical University named after Islam Karimov
Ergasheva Dilbar
Tashkent State Technical University named after Islam Karimov

Abstract

The article touches upon the actual problem of the use of secondary energy resources in the transport and distribution of natural gas. Excess gas pressure as the main component of secondary energy resources for technological processes is practically not used at gas distribution stations, where throttling devices are used. The proposal to use excess gas pressure in turboexpanders both at gas distribution stations and at compressor stations of main gas pipelines without preheating has not yet found widespread use, and therefore the replacement of throttling devices with turboexpander units will be determined by energy and economic efficiency. Expander-generator technology is one of the effective technologies that allows to reduce the consumption of fuel and energy resources. In combination with heat pump units, expander-generator units make it possible to create highly efficient power generating complexes that are capable of generating electricity without burning fuel.

The possibility of using heat pumps is considered, in which air is used as a working medium, the purpose of which is to increase the temperature potential of heat to ensure the possibility of heat exchange when transferring this heat to the heated medium. An analytical dependence of the electric power of the heat pump installation on the difference between the total power consumption of the compressor and the power of the air turbine is obtained.

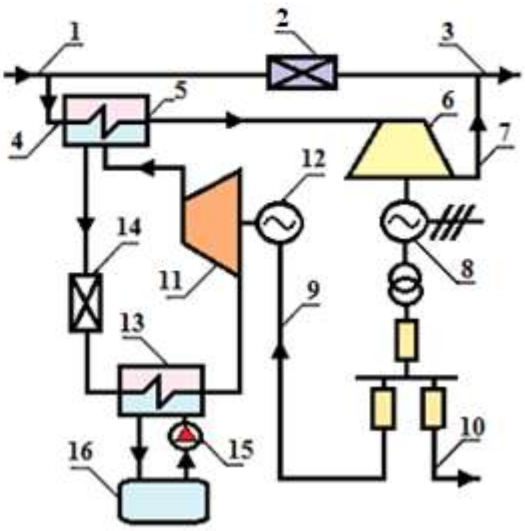
Keywords: *expander generator, air heat pump installation, power generation, conversion factor, heat exchange, low-grade heat source, air turbine power.*

Introduction

The electric power industry of Uzbekistan is the basic branch of the national economy of the republic and, having significant production and scientific and technical potential, has a significant impact on the development of the entire national economic complex.

The unified electric power system of the republic fully meets the needs of economic objects and the population in electric energy. Uzbekistan is the largest energy power in the Central Asian region.

The technological requirements for the operation of gas pipelines force the gas to be heated upstream of the EGS expander to a temperature of 80-100 ° C. Usually, this is done using the energy of the high temperature potential obtained from the combustion of fuel. However, there are technical solutions that make it possible to operate the EGS even without fuel combustion (Pic. 1).



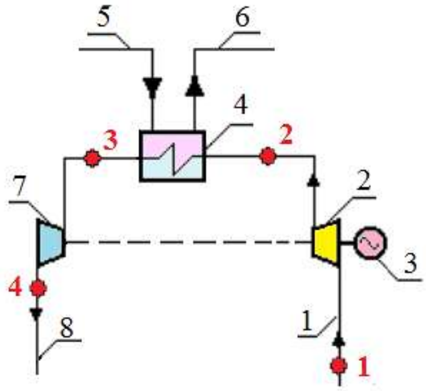
Picture 1. Process flow diagram of a traditional plant with an expander-generator set and a heat pump for heating the gas before the expander:

1 - high pressure gas pipeline; 2 - throttling device; 3 - low pressure gas pipeline; 4 - high pressure gas supply to the expander; 5 - heat exchanger for heating gas before the expander; 6 - turbo expander; 7 - low pressure gas pipeline at the expander outlet; 8 - electric generator; 9 - line of supply of electricity to the electric motor drive the compressor; 10-line for supplying electricity to the power grid; 11 - compressor; 12 - electric motor - compressor drive; 13 - evaporator; 14 - throttling device; 15 - pump for supplying heat carrier of heat of low temperature potential; 16 - heat source of low temperature potential.

Research methods and results

The efficiency of the EGS depends on the method of heating the gas before the expander [1-4].

In this connection, recently, a certain interest has begun to appear in air heat pump installations (AHPI) - heat pumps in which air is used as a working medium [5-7]. The purpose of AHPI is to increase the temperature potential of heat to ensure the possibility of heat exchange when transferring this heat to the heated medium. Picture 2 shows a schematic diagram of the AHPI.



Picture 2. Schematic diagram of an air heat pump installation.

1 - air inlet; 2 - compressor; 3 - electric motor; 4 - heat exchanger; 5, 6 - inlet and outlet of the heated medium; 7– turbine; 8 - air outlet.

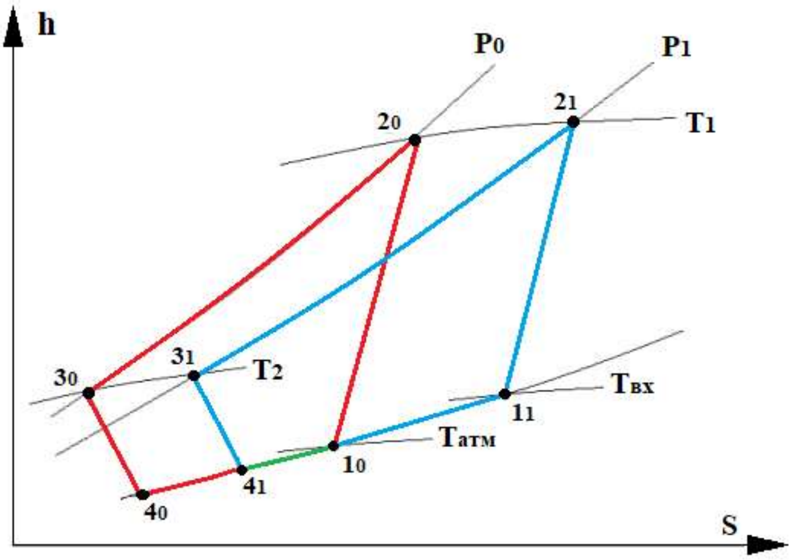
The principle of operation of the installation is as follows. Atmospheric air, which is a working fluid in this installation, enters through line 1 into compressor 2, driven by an electric motor 3. In the compressor, the pressure and, accordingly, the air temperature increase. The pressure to which it is necessary to compress the air in the compressor must be such that the corresponding air temperature at the outlet of the compressor is higher than the temperature to which it is necessary to heat the coolant in the heat exchanger 4. In Pic. 1, for the sake of clarity, a counter-flow heat exchanger scheme is selected, therefore, the positions 5 and 6 in Pic. 2 - inlet and outlet of the heated medium, respectively. The air pressure leaving the heat exchanger remains higher than atmospheric pressure. In the air turbine 7, where the air enters after the heat exchanger, it expands, the energy of the air flow is converted into mechanical work, while the air is cooled. After the turbine, the air is directed to the atmosphere. The *mechanical work obtained in the air turbine is used to drive the compressor, thereby reducing the required energy supplied to the installation from the outside.*

The heat conversion coefficient is usually used as a criterion for determining the efficiency of heat pump installations v *, which is the ratio of the heat* Q_1 *of high potential transferred to the consumer to the consumed electric power [8-10].*

$$v = \frac{Q_1}{N_Э}. \quad (1)$$

This criterion characterizes the efficiency of the installation and depends, among other things, on the temperatures of low heat and high heat potential. Due to the fact that the temperature T^1*, which the air at the outlet from the compressor should have, is determined by the operating conditions and cannot be arbitrarily changed, it is of certain interest to study the effect of the air temperature at the inlet to the compressor on the conversion coefficient of the AHPI. Figure 3 shows the hs-diagram of the processes in the AHPI with an increase in the air temperature at the compressor inlet. In this paper, an increase in temperature is considered as a result of preliminary heating of air with low-grade heat from secondary energy resources (SER). The process 10-20-30-40 is considered as the initial one. Then the temperature Tatm, corresponding to point 10, rises to the temperature Tinlet, corresponding to point 11. In this case, constant operating conditions of the heat exchanger must be ensured.*

To fulfill these conditions, as can be seen from the diagram shown in Picture 3, the air in the compressor must be compressed to a lower pressure than the initial pressure p1 (the process 11-21-31-41 must be organized in the AHPI).



Picture 3. Processes in APHI in hs-diagram with increasing air temperature at the compressor inlet

Under the condition of a slight change in the air flow rate (GA0 = GA1 = GA) - such an assumption is quite possible in the range of real temperatures and pressures of air in the high-voltage pump unit - the energy that must be supplied to the compressor decreases

$$(h_{2_1} - h_{1_1}) < (h_{2_0} - h_{1_0}). \quad (2)$$

This also reduces the energy supplied to the compressor from the air turbine.

$$(h_{3_1} - h_{4_1}) < (h_{3_0} - h_{4_0}). \quad (3)$$

The increase in the heat conversion coefficient with an increase in the air temperature at the inlet to the compressor or decreases, depends on how intensively the total required power of the compressor and the power of the air turbine change. This is determined by the fact that the electrical power Ne required to ensure the operation of the APHI is the difference between the total required power Nc of the compressor and the power of the Nat of the air turbine

$$N_Э = N_К - N_{ВТ}. \quad (4)$$

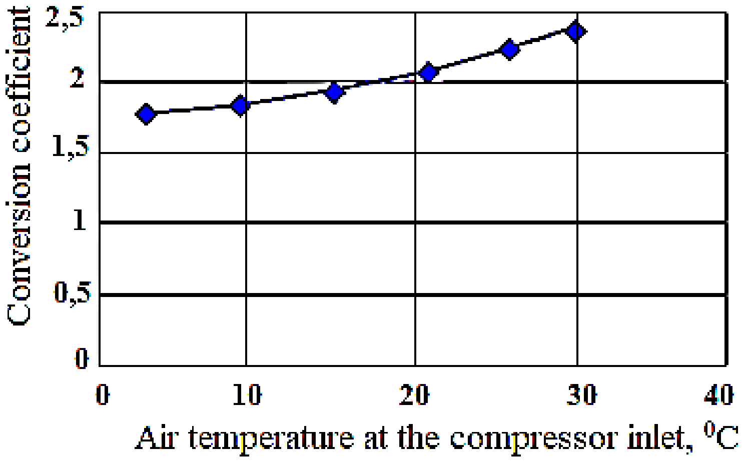
Transforming formula (4), in accordance with the designations in Pic. 3, it can be reduced to the form

$$N_Э = G_в\left[(h_{2_1} - h_{1_1}) - (h_{3_1} - h_{4_1})\right]. \quad (5)$$

Calculations were carried out using formulas (1), (2) and (5) with the following initial data:

T_1=100^{0}C; T_2=25^{0}C; $p_{атм}$=0,15 МПа; $\eta_К$=0,82; $\eta_Т$=0,80.

The air temperature Tinlet at the compressor inlet varied from 5 to 25 ° C.
The calculation results are presented graphically in Pic. 4.



Picture 4. Dependence of the conversion factor of an air heat pump on the air temperature at the compressor inlet

Conclusion

The calculations showed that with an increase in the air temperature at the compressor inlet, the conversion coefficient increases.

Thus, under the accepted conditions, preheating the air in front of the compressor makes it possible to increase the efficiency of the APHI operation.

References

1. Urvanov, SV, Kondrashova, Yu.N., Gazizova, OV, Skvortsov, DS (2017) Development and research of existing possibilities of using an expander-generator unit for a gas distribution station using a heat pump unit as a gas heating system. Bulletin of YuUrGU. "Energy" series. 2. pp. 5-13[Published in Russian].

2. Buranov, M., Mukolyants, A. and Sotnikova, I. (2019) Generation of electrical energy at gas pipelines using a transported natural gas technological pressure drop. J. Phys .: Conf. Ser. 1399 055038 https: // doi: 10.1088 / 1742-6596 / 1399/5/055089

3. Agababov, BC (2011) Analysis of the influence of operation parameters of a fuel-free energy generating unit on its efficiency. Energy Saving and Water Treatment.– No. 6 (74). - pp. 26-28[Published in Russian].

4. Mukolyants, AA, Buranov, MD, Sotnikova, IV, Makhmudov, HF (2020) Operation analysis of expander-generator unit at a gas distribution station. Journal of Physics: Conference Series. Journal of Physics: Conference Series 1515 022053 https: // doi: 10.1088 / 1742-6596 / 1515/2/022053

5. Taslimov, AD, Berdishev AS, Melikuzuev MV, and Rakhimov FM (2019) E3S Web of Conferences B 139 010 https://doi.org/10.1051/e3sconf/201913901082

6. Aleksandrov A.A., Agababov V.S., Dzhuraeva E.V., Koryagin A.V., Utenkov V.F. Analysis of the joint work of the expander-generator unit and the heat pump // Problems of power engineering, 2004, no. 7-8. S.50-60[Published in Russian].

7. Mukolyants, AA, Buranov, MD, Sotnikova, IV, Azimova MM (2020) Analysis of the influence of the input parameters on the efficiency of the operation of the detander generator unit in the gas network system of the republic of Uzbekistan. E3S Web of Conferences 216, 01130 https://doi.org/10.1051/e3sconf/20202/601130

8. Belousov, AJ (2016) Oil and Gas Technologies B **3** *51-55*

9. Agababov V.S., Dzhuraeva E.V., Arkharova A.Yu. Installation for electricity generation based on DGA, air turbine and compressor // MPEI Bulletin. 2007. No. 2. S.48-53[Published in Russian].

10. Rakhmonov I and Reymov K 2019 J. ENERGETIKA B 62 (6) 528-535 https://doi.org/10.21122/1029-7448-2019-62-6-528-535

ISBN
9 789165 424098

https://sconferences.com
info@sconferences.com